## Progressive Architecture

November 1974 A Reinhold publication



### **PLANNING**

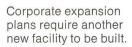
Major review of corporate needs and goals conducted before writing program.

You receive 10 Brownie points and obviously don't need to play this game.

Facilities team starts by talking with and watching real users.

Collect: Gratitude, cooperation, and useful data from users.

### CHANCE



If your game score was low: Open this magazine and read very carefully.



Personnel manager threatens resignation following loud and tearful "exit interview" in his open office.

Collect: Praise if interior system you selected can provide private offices.

IF YOU THINK THIS IS THE END OF THE GAME

**MASTER BUILDER** 

Win: AMA speaking

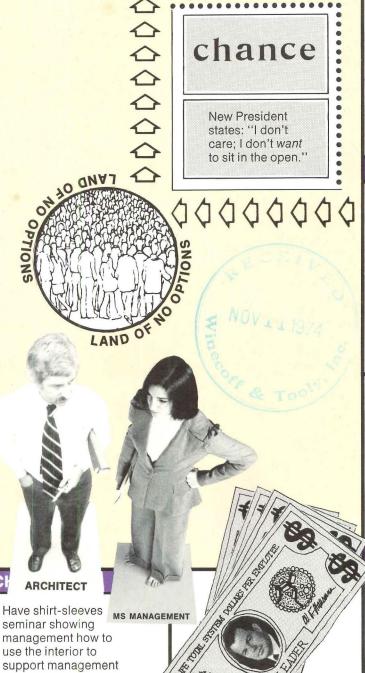
engagement.

Install carpet after partitions are put in.

Collect: 4" strips of carpet. Go to the Land of no options.

Budget overrun requires reuse of existing furniture.

Collect: P/A Design award if new interior system is compatible with existing furniture.





"Freeze" the interior plan prior to occupancy. No further changes in work flow allowed.

Collect increasing abuse from management.

### CHANCE

Critical decisions about design of new corporate headquarters building are made prematurely.

Go to the Land of no options.

### CHANCE

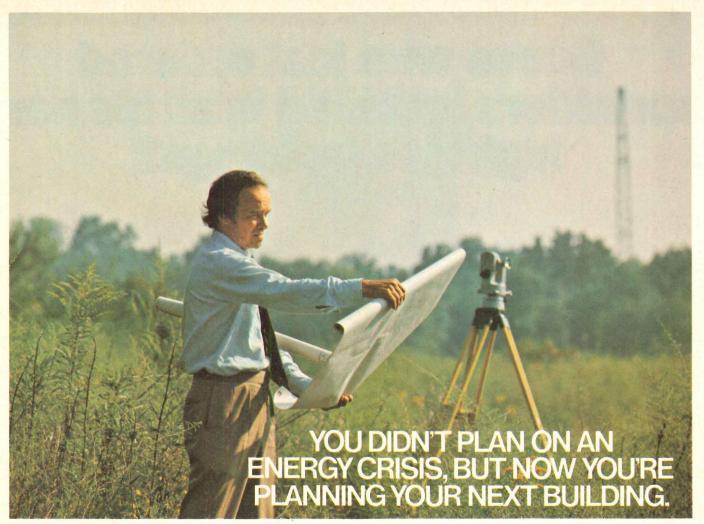
## Look who's on your side in the fight to design more building for the money.

Azrock vinyl asbestos floor tile serves more office building requirements more perfectly than any other type of flooring. Yet it costs less than it did 20 years ago. And today it's a better floor...now and for the future. So Azrock saves valuable dollars that can be used to let you design more building for the money. Look at other ways Azrock is on your side: Styled to coordinate with modern interiors • long-lasting durability • low-cost no-wax maintenance • low initial cost • permits easy office layout changes • fire safe, will not support combustion • resilient underfoot comfort • exceeds federal specifications. Whatever the project, let Azrock help you design more building for the money.

Write for free samples and no-wax maintenance information. Azrock Floor Products, Dept. 530A, P. O. Box 531, San Antonio, Texas 78292. Floor shown is Alvarado, one of over 150 colors and styles.







Which building material will you use?

You've got energy shortages to think about. Air-conditioning costs. Heat gain through the long, hot summers. Heat loss in the winter months. Heating equipment costs. The whole set of energy-use factors suddenly has become critically important. The building material you use affects all of them.

Compare the energy conserving capability of masonry, for instance, with double-plate glass walls.

At 4:00 P.M. on a hot August day in Washington, D.C., the heat gain through a square foot of west-facing insulated brick and concrete block wall will be 2.2 Btus an hour.

The heat gain through a doubleplate glass wall in the same location will be 173 Btus a square foot in an hour. A big difference.

Project this differential over 10,000 square feet of wall. You come up with a heat gain through masonry of 22,000 Btuh, while the heat gain through double-plate glass is 1,730,000 Btuh.

In the case of the masonry wall, cooling equipment with a two-ton capacity can handle the heat gain. But with the double-plate glass wall, about 143 tons of cooling capacity will be needed.

An analysis of a typical 10-story building shows that over its useful life, the air-conditioning cost for a square foot of our masonry wall will be about 23 cents. For the double-plate glass wall, it will be \$7.60.

It takes a lot of money to buy, install and create space for all the extra air-conditioning equipment required by the double-plate glass wall. A lot of money and a lot of energy to run that equipment.

Compare the heat loss in winter. It has a dramatic effect on energy consumption and building operation costs.

Our masonry wall, for example, has a "U-value" of .12. The double-plate glass wall has a "U-value" of .55. (U-values are used to determine heat loss through one square foot of wall area in Btuh per degree Farenheit differential across the wall.)

This means that the masonry wall is about 450% more efficient, on the average, than the glass wall in reducing heat loss.

Over the useful life of the

building, the heating cost per square foot of wall area for masonry will be about 30 cents. For double-plate glass, about \$1.38.

823 15th

In a time of one energy crisis after another, masonry makes eminently good sense as a good citizen.

The masonry industry believes that the thermal insulating qualities of masonry are an important economic consideration to building designers, owners and investors, and all citizens.

Masonry walls save on airconditioning and heating costs. And just as important, they are less expensive to build. The masonry wall we've described would have a 38% lower initial cost than the doubleplate glass wall.

If you'd like to find out more, write to us and we'll send you a booklet comparing the thermal

insulating qualities of masonry walls with double-plate glass walls, metal panel walls and pre-cast concrete walls.



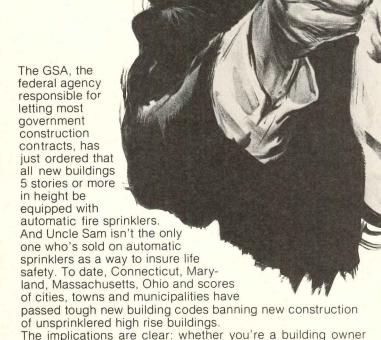
International Masonry Institute Street, N.W., Washington, D.C. 20005 / (202)	P/A 783-3908
and the booklet comparing insulating qualities	

Please send the booklet comparing insulating qualities of masonry with other building materials.

Name		Title		-
Address				
Company				
City	State		Zip	H
Nature of Business				

Circle No. 245 on Ponder Service Card

# Guess who just ordered sprinklers installed in all his new high rise buildings?



or developer, an architect or specifying engineer, you should

be aware of this growing trend toward life safety. Facing the

future now and learning all you can about sprinklering properly

could save you money in the future when you come face to

A question of ethics. Occupants of high rises have the right to expect protection from a fire which could leave them

stranded hundreds of feet above the reach of fire department ladders and hoses. Many fire experts agree that a modern sprinkler system is the best way to insure that kind of safety.

Rental appeal. Many firms are insisting that their buildings be sprinkler protected for the safety of their employees. As

this trend continues, non-sprinklered buildings will be at a decided rental disadvantage. In addition, sprinklers give building owners the maximum in usable rental space and provide

Cost savings. Sprinklering your next high rise will make it

face with one of these tough new codes

walls, doors, roofs, floor beams, trusses and columns can be reduced. The distance between fire exits can be increased, leading fewer stairways. Larger non-company mented areas are permissible, and fire barrier requirements can be eliminated. Smokepro entrance closures to exit stairs can be eliminated if stairway are pressurized. The requirement for "areas of refuge" can be waived. Manual fire alarm systems may be eliminated. Fire hoses and cabinets can be eliminated. Riser piping is permitted to serve as combined sprinkler riser and fire departments standpipe.

Sprinklers cost, it's true. But sprinklers save money, too. The average high rise can be sprinklered for approximately \$1 p square foot. Investigate the construction cost savings involve in your next high rise. The results may surprise you.

Grinnell Fire Protection Systems Company, Inc. has beed designing and building sprinkler systems for more than 12 years. We would be happy to work with you in the planning of an automatic sprinkler system in your next high rise building If you'd like more information on how we can help, call the nearest Grinnell district office listed in the Yellow Pages, write Grinnell Fire Protection Systems Company, Inc., 10 Dorrance Street, Providence, Rhode Island 02903.

Sold throughout Europe by Kopperschmidt Sprinkler G.m.b.H. Kaltenkirchen, Germany



Photo by the Bettmann

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of the following

spread ratings of surface

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increased. Fire ratings

more rental income

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uting Editors

IcCoy, Los Angeles
ontgomery, San Francisco
oodbridge, San Francisco
Coplan, It's the law
Tomson, Hon. AIA, It's the law
. Rosen, PE, FCSI, Specifications clinic
nb Roy Associates, Cost analysis

Panel

Bagnall, Dean, Boston Museum of Fine Arts School Brill, President, BOSTI; Professor, SUNY, Buffalo ane AIA, Dean, Rice School of Architecture odgetts, Principal, Works e Liebman, New York State Urban Development Corp. etsch FAIA, Partner, Skidmore, Owings & Merrill Newman, Vice President, Tishman Research Corp. Spiegel, Dean, Yale School of Architecture

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November 1974

### **Progressive Architecture**

### Design and planning

Introduction: The image and the reality
It won't tell you everything you need to know, but it might help you better understand what the issue is all about.

64 REDE: Getting up and getting out

Design for a new patient-care wing encourages patients and staff to change their attitudes about hospital and health care.

70 UDC: Learning from experience

A policy of evaluating the performance of its buildings in terms of "livability" produces a continually changing set of criteria.

78 Robert Propst: Process Aesthetic

An emerging aesthetic, based on the *process* of work, could radically alter our notion of the role of the designer.

82 **BOSTI/ Hauserman: 'Performance' may be a** *super* **idea** (But will anyone *really* pay for it?)

A continuing dialogue between a manufacturer of interior systems and a consortium of 'think' types is an open-ended process.

92 H.M. Keiser: Open plan furniture

A comparative survey of furniture systems resulted in setting up a test area for the client's own staff to evaluate.

100 BSD: The structuring of space in family housing

To accommodate the need for changing uses and different lifestyles, BSD developed an alternative concept to standard housing.

### **Technics**

117 **Specifications clinic:** Carpet or carpeting?

118 Carpet for architecture: In fibrous fields

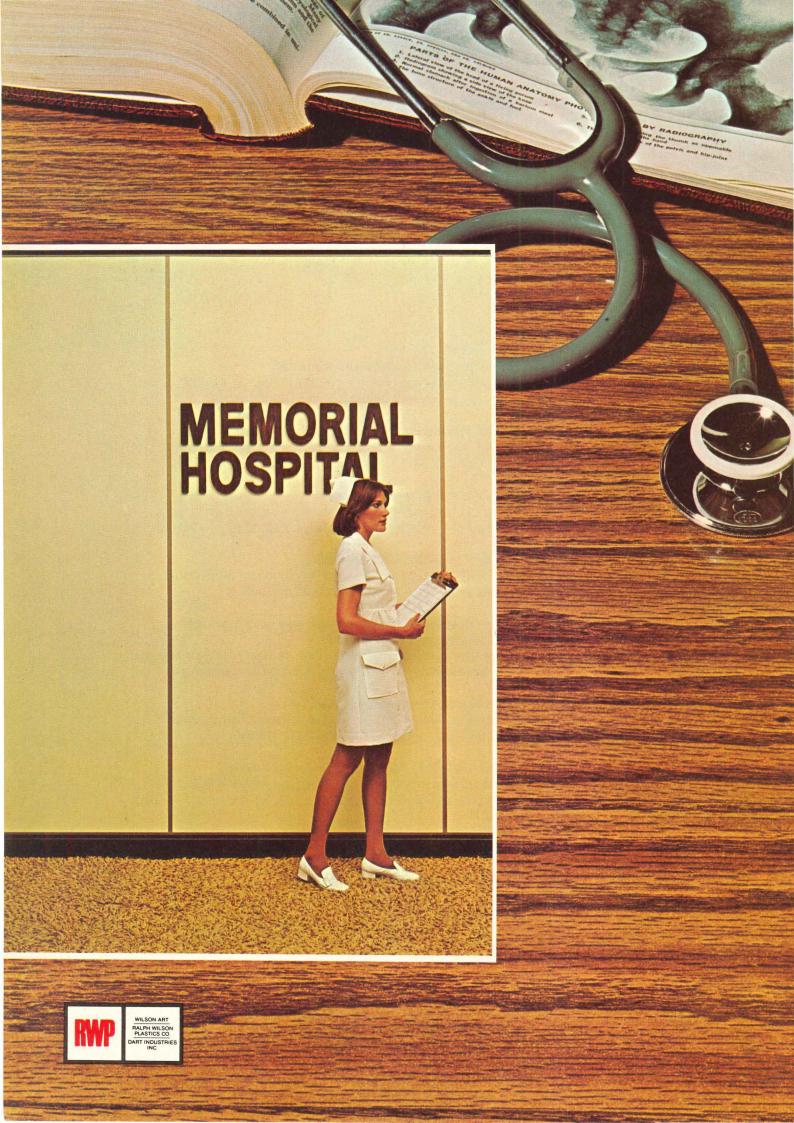
### **Departments**

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140 Books

Cover: Invented (obviously) and executed (under fire) by Terry Collison and Michael Brill of BOSTI, and Lynn Brown of Hauserman, in cahoots with P/A's Associate Editor Sharon Lee Ryder.





# Vith Wilson Art... esign control and cost ratios vork beautifully together.

When you specify Wilson Art, specify more than a product. give yourself the latitude of tal approach to design. With son Art you control the whole ign: walls, doors and case-k coordinate, contrast or ch—just as you want them

With more than 150 woodins, solids and patterns to ect from, you can achieve ctly the effects that you den. And at a ratio of initial-tomate cost that is its own action!

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With Wilsonwall systems from son Art, design control and tratios work beautifully to-



## **Doors**

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Doors are an integral part of your design. Allow them to work beautifully with your Wilsonwall systems by specifying Dor-Surf — impact-resistant extra-thick Wilson Art laminated plastic surfaces for doors. Dor-Surf helps you maintain design control in economical, durable, maintenance-free doors that never need kick- or push-plates. Match, contrast or coordinate with your Wilsonwall systems for complete design integrity.

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Preserve complete design control by specifying Wilson Art laminated plastic for all casework, furniture and fixtures. Spill-, stain- and scratch-resistant Wilson Art gives you the functional quality you need and the aesthetic effect you desire. Select from over 150 solids, woodgrains and patterns in a variety of surfaces; realize the totality of your design with ideal cost ratios.

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**Letters from readers** 

### Views

### **Glorified brick**

Permit me a few comments re "The glorified brick" (P/A News Report, June 1974, p. 26). The report is like a good newspaper article but has some misconceptions. The photograph second from the top is upside-down and should read "wall from Unitarian Fellowship Building." It is neither the point nor adequate for an artist merely to be "satisfied" in combining a material with his aesthetic. I am not a regional artist. Lastly, I am not in alliance with Louis Kahn's architectural statement because he believed the ideal use of brick is in an arch!

All quite to the contrary: Although Athens, Ohio is my aesthetic "soul-

home," I am not regional even to Athens, much less Alabama or my former homes in Minnesota, California, Missouri, Iowa, the Marshall Islands, or the Far East. One is influenced, yes; but art is universal. Brick is not a formal item for spatial utility to me; rather, brick is like clay is to Henry Moore, paint to Matisse, words to Joyce, illusion to Fellini, or structure to Gaudi. It is as common as those things; but it is a living substance for transformation.

The form I create arises from my own personal vision, my own need which seeks to re-align me with a strong sense of humanity rather than with technology, materiality, one-upmanship conceptualization, and a few hundred years of art history and formalistic rationalism. The latter are mere stop-gap measures in our periodic cop-outs from our revitalization of art in the deepest humanistic meaning.

The article said nothing about from whence my inspiration: it is the complex relationship among natural geological form, organic neurological form, and human associational process. Our true structure, our real consciousness, lies in that relationship. That is the basis for my form and for the symbolization that is undulating brick and mortar. John Spofforth Athens, Ohio

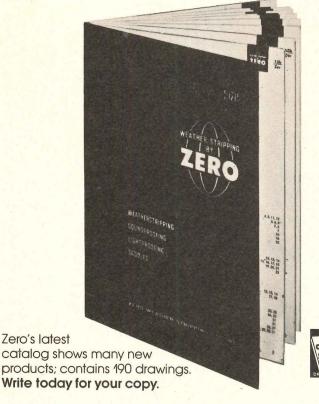
### **Environmental impact**

Your June issue on Environmental Impact was a good beginning. Considering the increasing impact of the construction necessary in the next 30 years to accommodate increasing population, it's about time we recognize what we're doing to our portion of the planet, and think seriously about the example we're setting for those who borrow our technology and planning to urbanize their portions. The crucial importance of the subject deserves such an issue at least annually—or better yet, a monthly feature on some aspect of it, from energy conservation to hydrology to land use to the whole homocentric philosophy of resource-exploitation ethics.

As was pointed out in your report "Renaissance of the Waterfront," . . . we are still plagued with exploitative use of floodplains and riverbanks without understanding or recognition of their function and value to us in a natu-[continued on page 10]

# New edition now ready!

The most complete, authoritative guide for stripping: weather, sound and light—as well as thresholds.



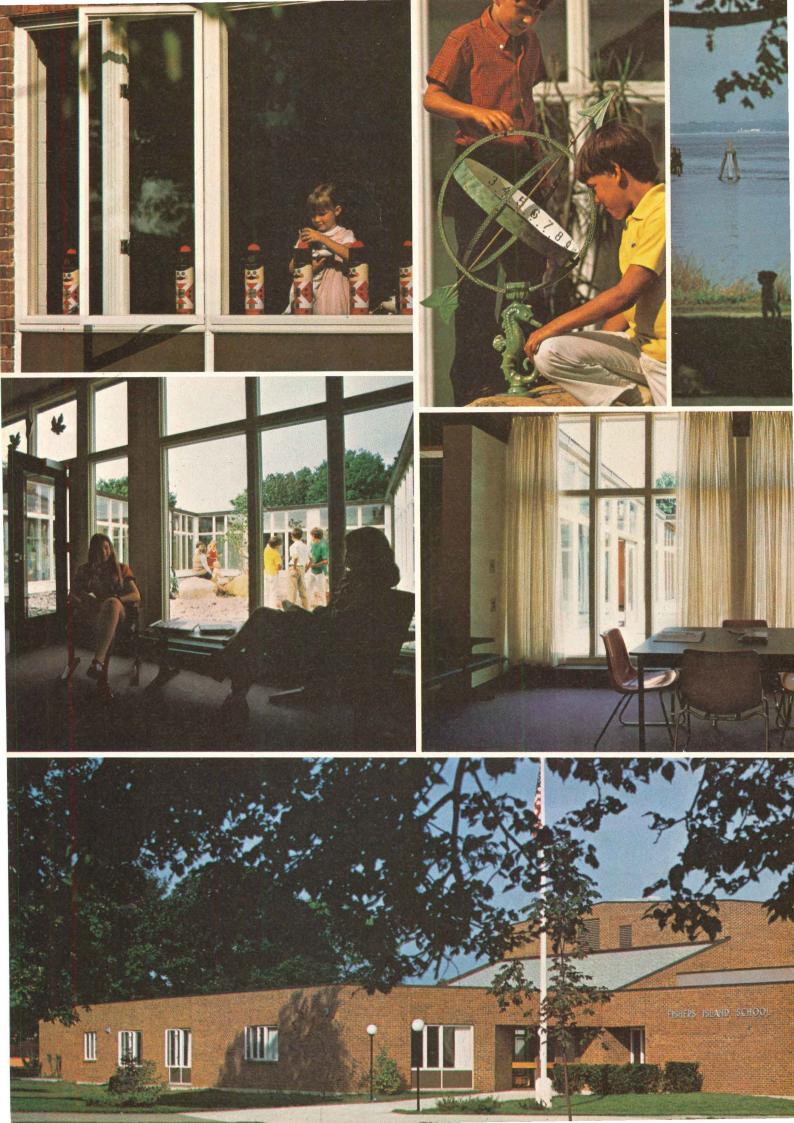




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## Andersen Perma-Shield Windows help an island school avoid window pains.

The residents of Fishers Island wanted the most modern equipment and teaching facilities possible for their new all-grades school.

But the architect also realized that all exterior materials must resist the hard, wind-driven rains and salt spray that can rapidly deteriorate coastal buildings.

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

Perma-Shield Windows are made of wood, one of nature's best insulators.

And their exterior sheath of rigid vinyl stands up beautifully to harmful salt water air. Won't rust, pit or corrode. Won't need painting.

Driving rains are no problem either, thanks to Andersen weathertight design and close-fitting tolerances.

And Perma-Shield Windows with insulating glass can reduce conducted heat loss by up to 35% (compared to single-glazed windows).

It all adds up to maintenance and fuel savings Fishers Island taxpayers can appreciate.

So whether you're designing an island school, a suburban development or a city office building, specify Andersen Perma-Shield Windows.

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

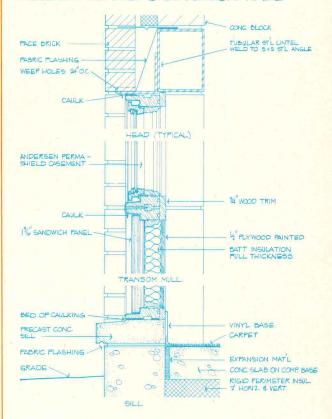
The beautiful, carefree way to save fuel.



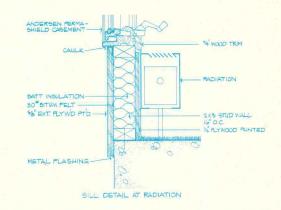


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### WINDOW DETAIL @ EXTERIOR WALL



### WINDOW DETAIL @ OPEN COURT



### Views continued from page 6

ral state. . . . Yet we continue to build on our urban floodplain riverbanks, altering them to suit our short-range, short-sighted homocentric purposes. "Renaissance of the Waterfront" shows at least six projects which, from the limited coverage given, appear to repeat this error. . . .

Both the hydrology and aquatic biology of rivers are important; they interact intimately. . . . We are, as Malcolm Wells so ably pointed out in his edito-

rial, "waterproofing the planet"; the effects on rivers and streams are often devastating, catastrophic. . . . Riverfront projects are being planned by those who may know engineering, aesthetics, and human functionalism in the narrow sense, but who do not know riverine ecology and how it could be successfully related to waterfront development. . . .

The total benefits of working with the natural environment instead of modifying and redesigning it have not become widely enough known. Some work in cost-benefit ratios is called for.

When this is fully understood, the interdisciplinary approach may become a requirement, not just a desirable "fril Pamela W. Ritter Fairfield, Connecticut

### Gender in architecture

Gertrude Lempp Kerbis' suggestion that architecture is conceived and pe ceived in the light of gender (which would relate back to the idea that such creations are extensions of ourselves and that as observers we judge them as they relate to ourselves) holds water. Her thesis also opens doors for women who are interested in architecture as a profession, but who may be dubious that they can fit into exist ing trends-many of which I find cold lifeless, and lacking in any sense of excitement or visual and spatial purpose. She attributes this lack (and it i indeed a relief to find nonprofessiona opinions confirmed by a renowned pro!) to "declining tension between object and space." She implies that these two fundamental elements of a chitecture should always be made to work together, and that an infusion of the female element is not only desirable but necessary for the life of an a chitecture that works. Carolyn L. Bowen

Clarification on foamed plastics

Joseph Lovegren, Inc.

Portland, Me.

While the P/A news story "De factor ban against plastics" (Sept., p. 23) contains the essential points of recer Federal Trade Commission action regarding foamed plastics, some point should be corrected. The Commission actions are not specifically for the purpose of banning the use of the materials mentioned, but are to require more informative descriptions of first condition behavior to be given the consumer. The effect of the provisional accepted order is, as yet, unknown

Also, while a complaint against the ASTM was withdrawn, continued investigation was ordered for that and other standard-setting bodies. While the FTC action's language does not rule out ASTM ratings, it does "prohilal altogether any references to flame-spread ratings which do not reflect the behavior of these products under actual fire conditions," according to J Thomas Rosch, Director of Consum Protection of the FTC.



# ...The name usually found just before "or equal"

For over 30 years "Hydroment" has meant strength, density and heavy-duty performance . . . the prepackaged tile grout others are compared to . . . the industry "standard." Hydroment joints are strong (10,300 psi—28 days), non-shrinking, sanitary, nontoxic, resistant to mild acids, caustics and cleaning agents.

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Progressive Architecture 11:74

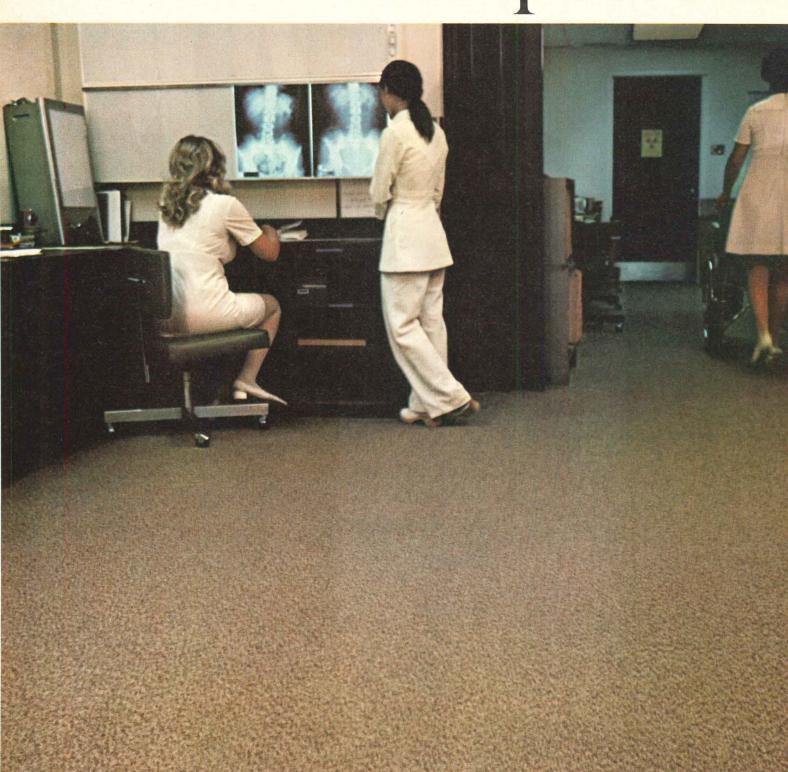
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# Expect quality carpet And expect their



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heran General Hospital, Ridge, Illinois, is a e suburban hospital (675 s, 1200 daily visitors). y were one of the first to pt carpeting for patient and public areas. The cept proved very satisory. When they decided ecarpet, their experience nted up the features most red in a hospital instalon. Their new carpet has le of continuous filament ron\* nylon. "Antron" selected to best satisfy requirements of duray, ease of maintenance, long-lasting good looks. w most areas of the main ding-patient rooms, mining rooms, snack bar,

more information, talk our mill representative or e to Contract Specialist, Pont, Room JT, tre Road Building, mington, DE 19898.

ation therapy (shown)—

esque in "Antron".

covered in this cut/uncut



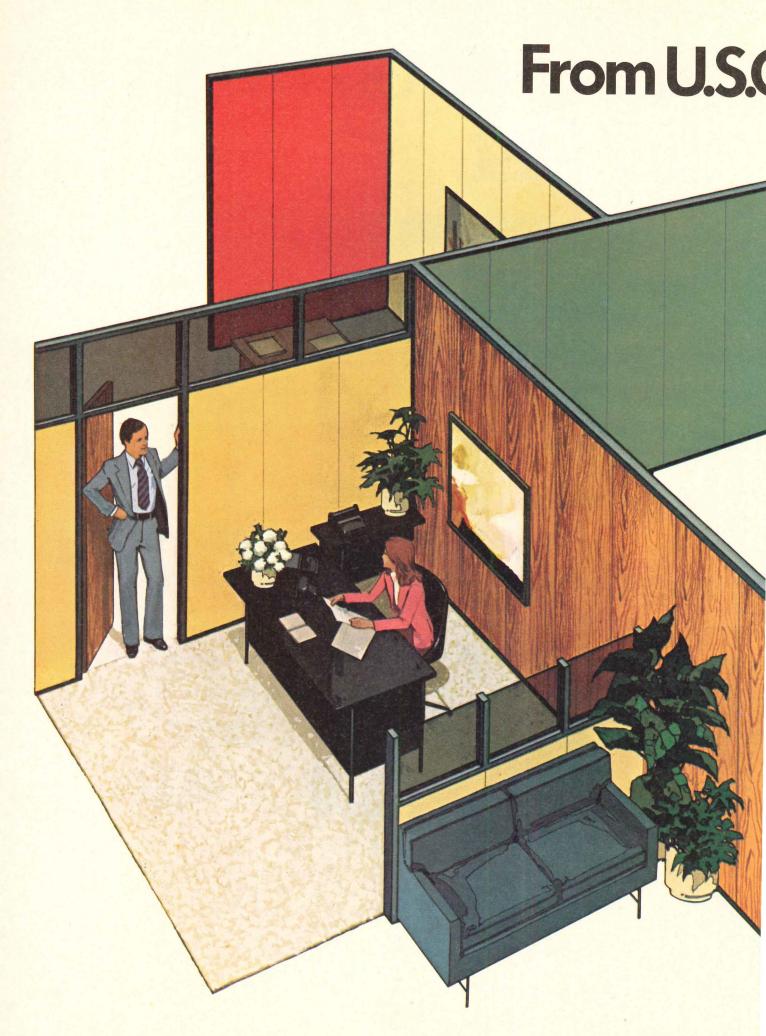
What you see is what you'll get for a long time. "Antron" is a soil-hiding carpet fiber. It is the leading commercial carpet fiber brand with more than twice the available styles in "Antron" than those made of the next brand. Its ability to diffuse light helps blend soil concentrations into the overall look of the carpet. Also, being nylon, "Antron" gives carpet exceptional durability and crush resistance.



How "Antron" keeps carpet looking fresh. Its filament structure is remarkable, as simulated in this greatly enlarged model. The four microscopic holes scatter light to minimize rather than magnify the dulling effects of soil, while maintaining an attractive, subdued luster. This property of the fiber, together with its outstanding wearability, helps the look of the carpet to last.



ont registered trademark. Du Pont makes fibers, not carpets.



## Nore life-cycle cost values.

## nese U.S.G. products educe long-term naintenance and oace-change costs.

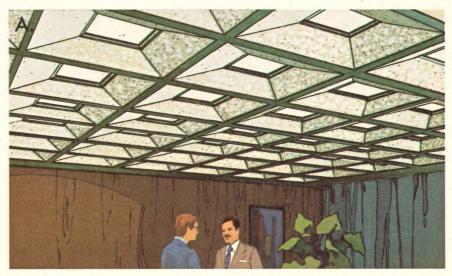
est companies don't have the capability to ticipate what relocations and maintence can do to their life-cycle cost figures. It there are options, such as ULTRAWALL® byable Partitions. They look and they rform like permanent walls, even to good C ratings. They're virtually maintenance be because they're protected with tough XTONE® vinyl covering. And spaceange costs are minimal; with a single ove ULTRAWALL pays its own way with usable materials and minimum labor costs. The significant in building with systems such as own here, can add up to worthwhile lifectle cost savings on any new building.

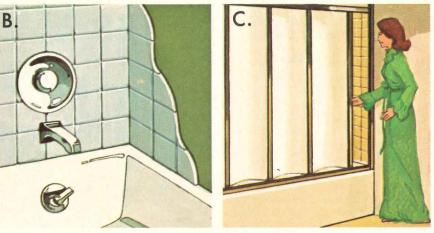
CDI Environmental Ceilings, made by our iling Dynamics division, integrate light, air distribution and sound control in grid pension systems. Sensors automatically y air volume at constant temperature to toccupancy needs.

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details on any of these products or sysns, write to Dept. PA-114, 101 S. Wacker ve, Chicago, Ill. 60606.







# "Our residents are happier with Maytags and we have a lot less headaches," reports Mr. Botnick.



### At Indian Valley, 18 Maytag Washers and Dryers bring a smoother, more trouble-free laundry operation.

Built by Irving Botnick and Associates, Indian Valley is a quality community of 300 town houses on 25 landscaped acres in the college town of Kent, Ohio.

Four years ago they replaced another brand of machines with 18 Maytag Washers and Dryers, giving them a total of 103 Maytags in their various housing complexes, according to Mr. Irving Botnick, President.

"Breakdowns are a source of irritation to residents and I know my problems are appreciably reduced with Maytags," he states. "Complaints are few and calls for refunds are very rare."

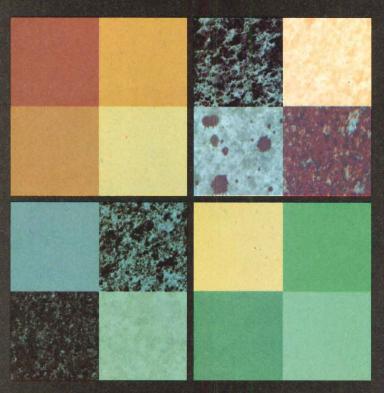
Also contributing importantly to the success of his laundry operation, according to Mr. Botnick, is the dependable service of the local Maytag Route Operator.

Of course, we don't say your experience will be exactly like that reported by Mr. Botnick. But dependability is what we try to build into every Maytag Washer.

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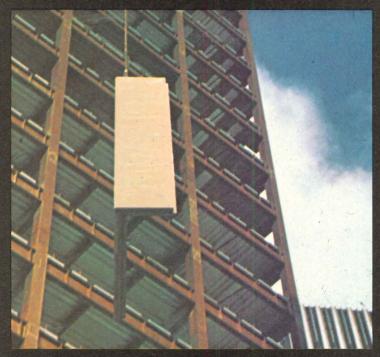


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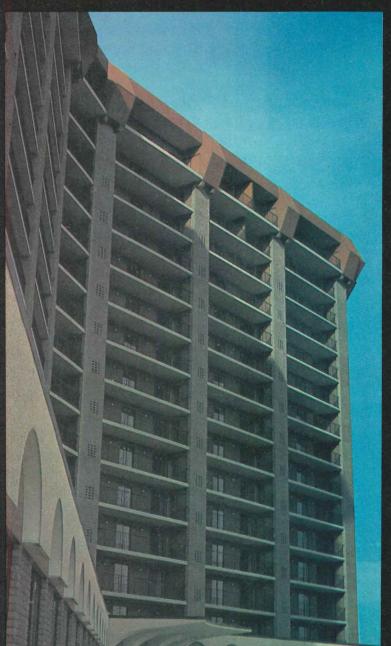
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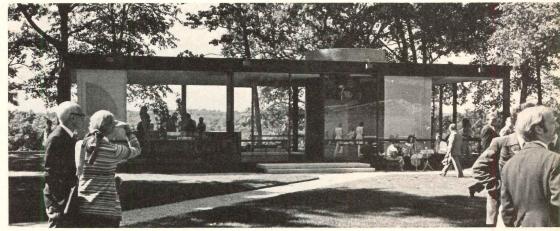
## Happy birthday, dear Glass House

It was one of those times when reality and fantasy coincide. A wildly extravagant weekend retreat in Connecticut's "finger bowl" countryside, an unbelievably perfect autumnal day, and a mingling of architecture afficionados with the "Whites" of New York's high architecture camp-all joining into a chorus of "Happy Birthday" to a glass house. The occasion was the 25th anniversary of Philip Johnson's Glass House in New Canaan—on an estate which over the years has received a near-windowless guest house, an underground art gallery, and a skylit sculpture gallery.

Held as a benefit for the Architectural League of New York, the picnic attracted 225 guests who paid \$25 each for baskets of chicken breast farci, quiche Lorraine, and carafes of white wine.

"This is an outrageous event!" exclaimed Yale historian Vincent Scully, one that will evoke the envy and jealousy of the gods—because Johnson did what he set out to do."

Scully was one of several notables officially presiding over the toastings to



Johnson, far left, and visitors on Glass House lawn. Sculpture Gallery (below) . . . outside . . . and in. Photos: Stan Ries



Johnson (which dipped at times into good-natured "roastings").

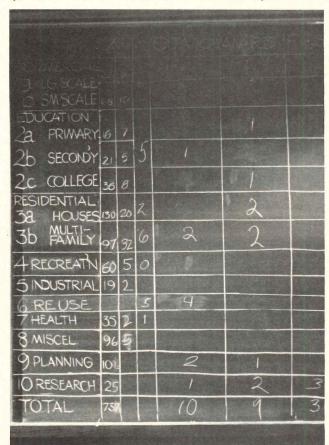
New York drama critic and longtime friend Brendan Gill brought home the contrast, in these days of budget-watching, by extolling Johnson's many achievements. "Who," he asked, "could spend weekends in a house of his own design after working all week in a building of his own design?"—not to mention dining out, viewing a mu-







Jurors and waiting entries, from left: Paul Rudolph, Clare Cooper Marcus, Lee Copeland, Eberhard Zeidler, Joyce Whitley, Michael Brill, Peter Eisenman, and Peter Chermayeff.



The scoreboard shows final decisions . . . Design team members (below) huddle over narrowed field of submissions. Photos: Sharon Lee Ryder



seum exhibition, or attending a concert each in structures of his own design.

Architect-developer Jaquelin Robertson asserted that the Glass House "seems to get better as it gets older," but Johnson, when his turn came to speak, retorted, "To me it's hopelessly old-fashioned." He now prefers enclosed spaces, like his Sculpture Gallery, and will leave his communing with nature strictly to trips outdoors—"which aren't very often."

## P/A Awards: 22 out of 737

Projects in the 22nd P/A Awards competition totaled 737—not far short of last year's all-time high of 863 considering that for the first time an entry fee was charged for each submission. Eight jurors deliberated two days before selecting winners, who will be announced in the January issue of P/A.

The original winning slate contained 23 projects, but after the jury went home, one of its members had second thoughts about a project he in particular had argued for. Reached by telephone, the other jurors concurred, and so the final number of winners is 22. Of the three categories (design, planning, and research) only research granted First Awards, the highest honor possible in each category.

The design jury gave 6 Awards and 7 citations, planning, 1 Award and 2 citations, and research, 3 First Awards, 2 Awards, and 1 citation.

Peter Eisenman of New York proclaimed that this year's jury "reasserts an architectonic quality" in the competition which last year's controversial panel bypassed in favor of social, environmental, and economic issues.

It wasn't that way in the beginning. The first day of judging Peter Cherma-yeff, Cambridge, Mass., declared a strong feeling in favor of recognizing the mutual effort of architect and developer. "We should look for solutions to developer's problems whether or not we think of them as architectural solutions," he said.

Eberhard Zeidler, architect from Toronto, wasn't as sympathetic. He felt the developer often unfairly rushes an

architect through a project whereas "architecture takes time." At one point Eisenman lamented that Chermayeff "in the first hour of the jury has almost convinced us that form is irrelevant!"

Paul Rudolph found housing the most exciting trend. "Not houses but housing," he stressed, after reviewing nearly 230 residential entries, by far the largest number of submissions in a single category. "The housing seems to be the strongest group—for siting, scale, humanizing."

"Di-agony" was a term Chermayeff coined for the widespread use of diagonal axes and planes prevelant among the entries. He said it was the acute progression of "diagonalysis" which juror Jaquelin Robertson identified last year. Eisenman discovered yet another trend, which he dubbed "angoise"—meaning angle affixiation. The design jury found health care, industrial, and religious entries weak this year. "It's too bad the hospitals were not better because they're one of the most complicated buildings to design," remarked Zeidler.

The jury team for research projects, Mike Brill, Buffalo, and Clare Cooper Marcus, Berkeley, was enthusiastic over the quality of projects, though they found numerous submissions which seemed to misinterpret the nature of research. "To qualify as research," explained Brill, "someone has to pose a question, answer it, and then present a solution." Marcus found a few which only amounted to proposals for research and not the research itself. "That's a little cheating." Some, she felt, should have been in the architectural design class. "Maybe they put them in this category because there's less competition." (This is only the second year the Awards program has been open to research.) The research team reviewed 25 projects. while planning reviewed 101, and design, a total of 611.

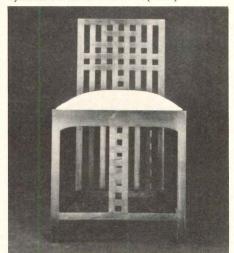
Lee Copeland, Seattle, and Joyce Whitley, Cleveland, of the planning jury said they eliminated many entries because the projects were "pure solutions" not revealing processes.

## Mackintosh chairs exhibit, on tour

Chairs by Scottish architect Charles Rennie Mackintosh have been reconstructed from original drawings and



Lug chair for Mains Street Flat (above) Sycamore chair for Hous' Hill (1903)



have begun touring the United States. The show, consisting of the chairs, drawings, and photographs, will be on view Nov. 13–Jan. 13 at the Museum of Modern Art, New York; thereafter it will travel to the Indianapolis Museum of Art, May 13–June 22; Elvehjem Art Center, Madison, Wis., Aug. 17–Sept. 28; and the Virginia Museum of Fine Arts, Jan. 11–Feb. 22, 1976.

The drawings in the exhibit show the chairs, reconstructed by Professor Filippo Alison of the University of Naples, in their original architectural settings.

## Elegance—final touch of micropolis

The \$21 million Fairmont Colony Square, final phase of the \$80 million Colony Square development in Atlanta, opened last month—the fourth hotel added to a San Francisco-based chain of elegant hostels. Three days prior to the opening, the 27-story, 500-room hotel was a shambles of scaffolding, gypsum board, and stacked furniture, but the deadline was met after considerable overtime.

The structure itself has a gravity-defying Piranesian quality, with bays overlapping bays, ceilings soaring into clerestories, and public rooms hanging above the lobby floor. The overall effect is one of great openness yielding to human proportions and needs—an



Fairmont, background, overlooking a Colony Square plaza. Photo: Clyde May

### **News** report

exciting and disciplined space. Unfortunately, the interior designer's attempt to evoke the original Fairmont's Nob Hill atmosphere, using gilded columns and mulberry walls, contradicts the architectural intent.

The Fairmont is the final phase of the Colony Square project, designed by Jova-Daniels-Busby and developed by the Cushman Corporation, Chase Manhattan Bank, and others, who like to call it a "micropolis" of places to live as well as work. The 12-acre site includes residential buildings offering 194 different apartment and condominimum plans, two shopping malls on different levels, underground parking for 2000 cars, open plazas, and an indoor skating rink. [David Rinehart] *Mr. Rinehart is a free-lance writer.* 

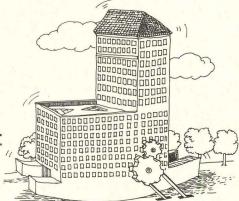
The AIA research center: one-man operation

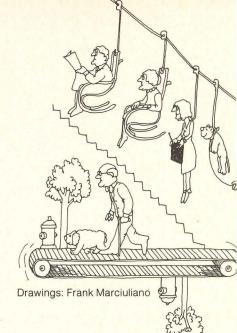
Point granted: it helps to know how people behave to design buildings for

them. The problem is how to interpret behavioral research into terms an architect can understand. In recent years, some architects have abandoned design in favor of forming companies solely to supply other designers with this kind of information.

Don Conway, director of research programs for the AIA, is a one-man department which compiles and disseminates information on what Conway calls ''software''—environmental psychology, design methods, architectural programming.

Conway is an architect who has studied psychology and holds a Ph.D





in sociology. For the past four years he has manned the AIA research department responding to some 20 to 30 requests per month on environmental questions.

For example, if an architect receives a commission to design housing for old people, he may want to know how the aged react to their environment [continued on page 29]



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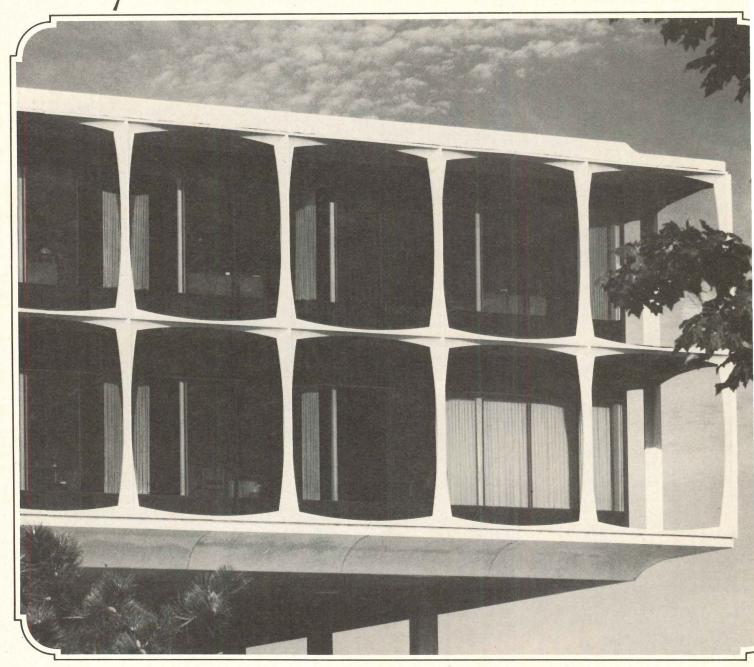
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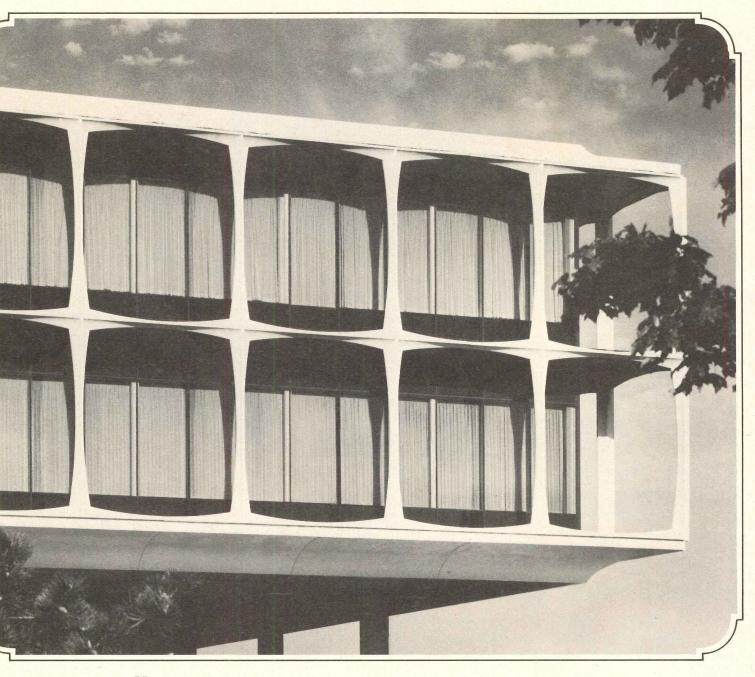


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News report continued from page 24

and what are their likes and dislikes. The architect may call Conway and immediately receive a list of available reading material on gerontology. Stores on computer tape are 6000 abstracts, 2000 original reports and an extensive bibliography.

"In essence," said Conway, "what an architect does when he makes a design decision is make an architectural prediction. When he goes back at the evaluation stage he's going to find out how successful he was." These predictions are important, and architects increasingly are looking for help in making them accurate. While less than 50 percent of the architects engage in behavioral research, the number is growing. It pays, too. Conway gave this example: A firm took a certain commission because the project was one it wanted to do-knowing it wouldn't pay much. At one point the architects were persuaded to bring in a sociologist even though it meant an extra expense. The result was that design time was greatly reduced allowing the project to go out for bids earlier and earning a tidy profit for the architect where one had not been expected.

### 'The League,'91, sets pace for youngsters

A veritable institution reminiscent of all the best of comfortable clubs, camaraderie, and intellectualism is thriving in New York and appears to have some spiritual cousins springing up around the country. The Architectural League ("The League") in New York was founded in 1881 by a group of architects eager to promote all the arts but satisfied with "Architectural" in the title as sufficiently broad.

Today with 600 members, some as far away as California, the League commands a loyal following even if internal organizational feelings and politics run hot at times. The League's headquarters is the top floor of a gracious brownstone which it rents from the American Federation of Arts

on East 65 St., but its activities are by no means confined to the East Side. A recent picnic gathering celebrated the 25th year of Philip Johnson's Glass House in Connecticut and merited a write-up in The New York Times. Last year, the most popular event in the annual dinner series was a tribute to Times' critic Ada Louise Huxtable held at the old U.S. Customs House in Bowling Green. The League also organizes all-day tours, such as one last spring at the State University of New York College at Purchase.

A regular series is the Evenings for Young Architects, dinner events, at which the invited architect is always a new talent presenting his work. Another is the lecture series at headquarters where the on-going forum of ideas, such as last season's well-attended series on The New York Five (the "Whites") is certain to entertain, if not convert, the audience.

Elsewhere, other cities are developing programs offering similar activities. In the Midwest, the Chicago School [continued on page 32]



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## An additional floor and 33% mo housing gained for condominiu by switching to steel framir

Parkview Hills, a new residential development in Kalamazoo, Michigan, had three condominium apartment buildings planned on a 12-acre site as part of a 280-acre planned community. In the initial concept, the first condominium, a 33-unit, masonry-wall structure, Lake Villa West, priced out at a drawing-board construction estimate of \$1,680,000.

When this price tag proved too high for the developer, the architect/engineer redesigned the condominium in structural steel and determined that the apartment/home could be constructed for almost \$400,000 less. At that point the project shifted from the drawing board to the construction stage.

### Increased housing demand poses problem

Soon after the foundation work and fabrication of the steel framing for Lake Villa West had been completed, however, the developers asked that a fourth floor be added to the butterfly-shaped structure to meet newly projected demand for the condominium units.

A request of that nature, at that phase of construction in the original masonry wall concept could not have been accomplished. But with the steel framing, the architect was able to add the fourth floor to the building plans without changing the size of the already fabricated steel columns. "Because

of the flexibility of steel desaid the architect, "we wer to provide the additional fletransferring lateral loads frocolumns, as originally planna new, braced-bay system the structure."

This fourth floor was added steel framing for only \$ more than the initial mason concept, providing 44 he units rather than the planned

### Cost increase pays off

The additional floor bring total project construction of the 106,000-sq-ft condomin about \$1,700,000. The inverse able to hold the total project of Lake Villa West \$2,650,000 originally project. This includes land, lands furnishings, and interest.

The Parkview Hills developed designed to blend with its erment of woods, meadows, lands, and waterways.

Some 200 tons of Bethlehem tural steel and 94 tons of Be joists were used in the concium. An additional 84,000 of Bethlehem Slabform—a weight permanent steel for system—provided a safe we platform for workmen durin struction.

As a result of his experier this project the developer his celled plans for a wood-condominium. Instead, he'l another steel-framed strusimilar to Lake Villa West.

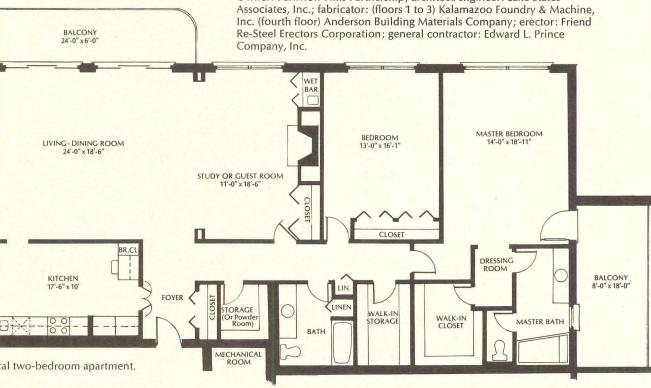
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Bethlehem STELL

News report continued from page 29

of Architecture Foundation, a group founded in 1967 to save H.H. Richardson's Glessner House, has weekly architectural tours and a highly organized program for training docents.

One of the more memorable occasions was a party for a visiting Glessner granddaughter. The event was copied from a Rose Tea Mrs. Glessner once held at the mansion, the menu and decor being supplied by a newspaper account.

"Architecture in Atlanta" is the name of a two-year-old informal activity organized by architect Jules Gray as a public relations venture for the Atlanta AIA chapter. On the second Sunday of each month, architects guide the public through a particular project. Most of the buildings have been of historic importance, but the best attended tour was of the Omni, an indoor sports arena by Thompson Ventulett & Stainback, to which 3600 came. Where a contemporary structure is involved, both the architect and the owner play host. Tours average between 150 and 300 participants.

eled after a Sunday program in St. Louis started five years ago as a public service by the St. Louis AIA chapter. The free tours usually vary in attendance, up to 2000, but in July 6000 paid for a Lake St. Louis trip which included Hellmuth Obata & Kassabaum's Wharf.

In Los Angeles, The Women's Architectural League, comprised mostly of architects' wives, holds lectures and gives fellowships but does not present exhibits, tours, or special events.

### P/A bought by Industrial Publishing

Industrial Publishing Company of Cleveland, Ohio, has purchased Reinhold Publishing, including Progressive Architecture, from Litton Industries. With the sale in September, P/A and the 4 other business magazines of Reinhold join a company with 13 publications. Altogether they total 1.2 million monthly circulation.

Reinhold Publishing was founded in 1933 with the merger of two firms started in 1915. In 1968 the company was bought by Litton Industries. Reinhold headquarters are in Stamford, The Atlanta tours were actually mod- Conn., with editorial and sales offices

in Chicago, Cleveland, Los Angeles Philadelphia, Pittsburgh, and Washi ton, D.C.

Industrial Publishing is a division Pittway Corporation, Northbrook, III Founded in 1930, IPC's activities in clude three trade shows, a market r search facility, list sales department and a mail-marketing division in Tol

Magazines published by IPC incli Government Product News, Hospita ity, Material Handling Engineering, Occupational Hazards, and Precision Metal. Also published by Reinhold a the monthlies Materials Engineering Air Transport World, Heating/Piping Air Conditioning, and Used Equipm Directory, and three reference annu Chemical Engineering Catalog, HP/ Info-dex, and Materials Selector. [News continued on page 38]



Reinhold president P.H. Hubbard, Jr., left, a T.L. Dempsey, president of IPC

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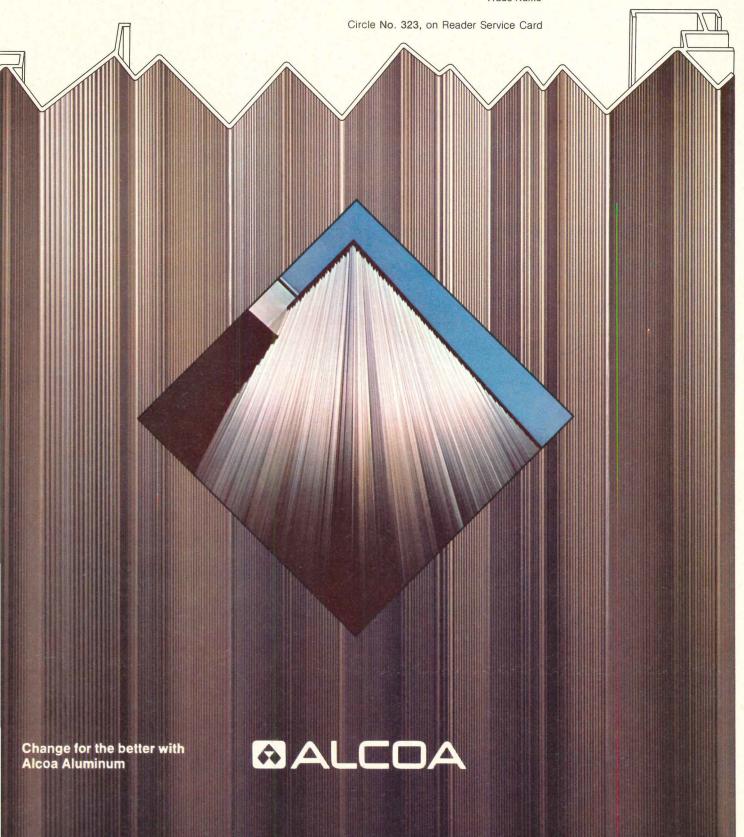
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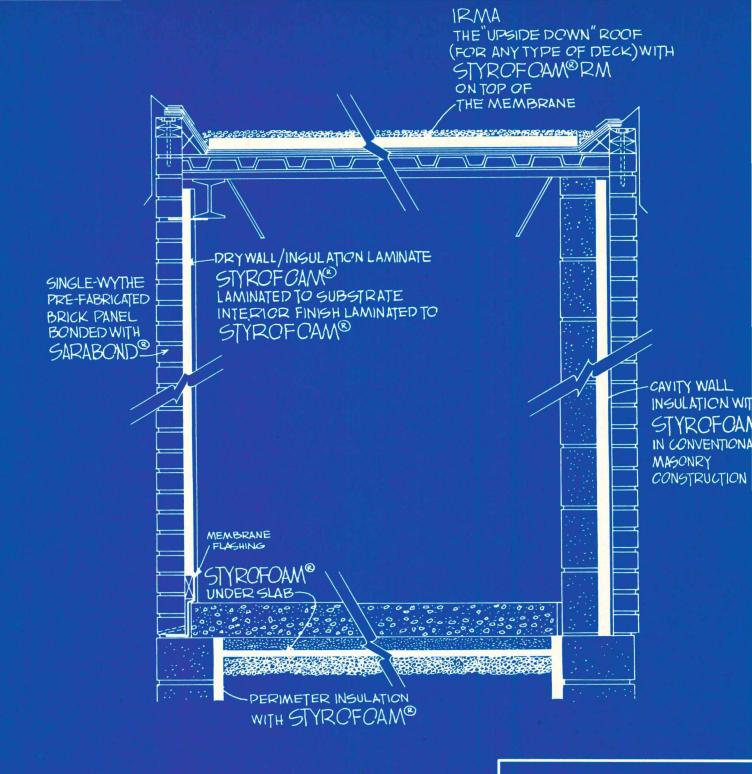
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do. With STYROFOAM RM brand foam insulation on top of the membrane, IRMA protects the membrane from the abuses of nature and man which can cause failure in conventional roof systems. And it insulates the building, conserving valued energy and helping the building's heating plant work more efficiently. IRMA, which can be applied to all decks, has been around for a long time; testing and installation of the "upside down roof" began more than 20 years ago, and we know of no IRMA failures.

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IRMA is an engineered roof, designed to prevent problems from happening in the first place . . . not to correct one shortcoming while creating another.

I'm interested in the following Amspec systems to help me in my building designs.	
☐ IRMA roofing system ☐ Drywall/insulation ☐ laminate ☐ Cavity wall ☐ insulation ☐ Perimeter insulation	<ul> <li>☐ Stud frame         (wood or metal)         insulation/sheathing</li> <li>☐ SARABOND for         pre-fabricated         brick walls</li> </ul>
NAME	
FIRM	
ADDRESS	
CITY STA	TE ZIP PHONE PA-11/74



Amspec Inc., 1880 Mackenzie Drive, Columbus, Ohio 43220

\*Trademarks of The Dow Chemical Company \*\*U.S. Patent No. 3,411,256

#### Amspec sales offices:

# Monlei

Original colors, original designs let you transform any bath into a personalized retreat.

Kohler has a color to please a design to pamper every taste With bath ideas like these: (A Man's Lav shampoo & groom ing center. In Tiger Lily. (B) & Caribbean tub in Black Black





(C) Lady Vanity shampoo center and baby bath. In Fresh Green. (D) Rondelle lavatory, shown in New Orleans Blue.

G

**(1)** 

(E) The 20" deep Steeping Bath. In Sunflower and 13 other colors. (F) The Bath in Pink Champagne.  $5\frac{1}{2}$ ' x 7' of bathing luxury. (G) The Birthday Bath in Antique Red with ball & claw feet in gold electroplate.

THE BOLD LOOK OF KOHLER

For more great bath ideas with great sales appeal write, Box H3 Kohler Co., Kohler, Wis. 53044

Circle No. 349, on Reader Service Card

#### Report from New Haven

New Haven and Yale are in the architectural spotlight again. Seventy thousand sq ft of shedding asbestos fiber flocked ceilings must be torn out in Paul Rudolph's Art and Architecture building, and Louis Kahn's Mellon British Art Center under construction is prompting varied responses.

The flap over the A and A, as Yalies call it, occurred when Dr. Robert Sawyer of the Yale Health Service found fibers from the soundproofing coating sprayed on the ceilings were causing numerous cases of conjunctivitis. After extensive air sampling he reported the ceilings are a serious health hazard, possibly leading to asbestosis, (a pulmonary lung disease) and lung and stomach cancer.

Sixty thousand library books are being moved to the Cross Campus Library to stay for a year after each one



Mellon Mannerism. Photo: Robert Coombs

is cleaned. The engineers plan to remove the ceilings floor by floor. If they cannot do so without contaminating other floors through the ventilation system, then the whole building will have to be evacuated. Total cost, at least \$200,000.

As in the film "Chinatown" things are not what they first appear in Kahn's Mellon British Art Center. His model of two years ago suggested the Chapel Street façade was going to be an interplay between the reinforced concrete cage and an International Style fenestration system plugged into the lattice of structural bays. Jules Prown, director of the Center, requested modifi-

cation of the two-story windows of the second floor Rare Book and Print rooms to reduce injurious sunlight. Kahn substituted a Mannerist game ovariations for the earlier fenestration.

He used the Palace of Charles V for his Bryn Mawr dorms; for the fina version of the Mellon he chose the ty ical Mannerist Roman palazzo: groun floor shops, a full height enclosed court and grandi salone on the piano nobile. Over the fourth floor gallery a inverted cornice wraps the prefabricated skylights capped with metal lo vered sun hats.

What will be the effect of this blend of Mannerism, Perret's concrete aes thetic, and prefab? It's too soon to te since the building will not be completed until 1976. If it comes off, the success will owe much to Kahn's co summate knowledge of the rules of t game. Because Mellon Mannerism of be applied in standard cage construction no doubt others will follow uncomprehendingly. [Robert Coombs]

Mr. Coombs is a free-lance archite tural writer in New Haven.
[News continued on page 42]





## MOUSETRAPS, METALS AND MARKETING

Consider for a moment that old New England adage to the effect that if a man make a better mousetrap than his neighbor, "tho' he build his house in the woods, the world will make a beaten path to his door." How little relevant these words seem at a time when merchandising can often be more important than the product merchandised. And rather unhappily so from our own standpoint, for in TCS (Terne-Coated Stainless Steel), Follansbee has a nearly perfect example of the proverbial better mousetrap.

Here—quite simply—is a roofing and weathersealing metal which has literally no peer when measured by the major criteria of corrosion resistance, freedom from maintenance, durability and amortized cost.

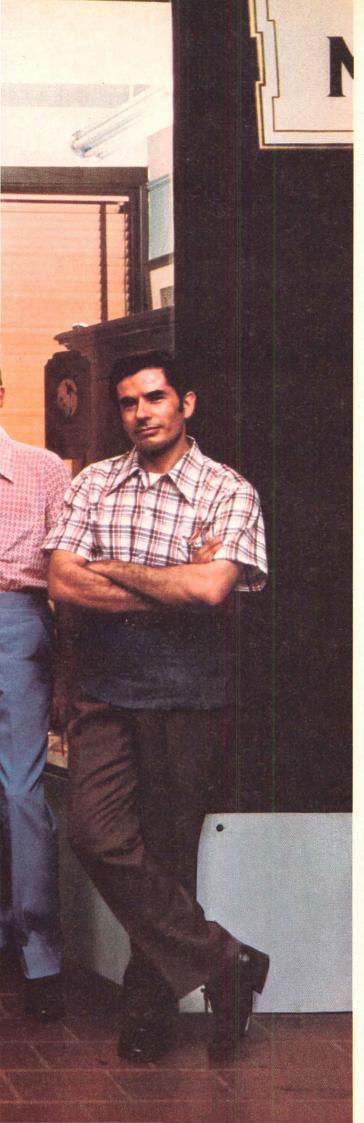
We can, of course, prove this statement, but in an era considerably more McLuhanesque than Emersonian, we are still confronted with the formidable task of bringing such proof to the attention of most architects and engineers, professionals who, as a group, are notably product-wary and slogan-shy.

As one step toward that goal, may we at least make the TCS data available to you?

FOLIANSBEE STEEL CORPORATION • FOLIANSBEE, WEST VIRGINIA

Circle No. 381; on Reader Service Card

NEIDER 2032



The Jenkins Arcade, an historic landmark on Pittsburgh's Liberty Avenue, was designed in 1908 by architect Olaf M. Topp. To meet its rigid quality specifications, the building's 1300-odd doors were all equipped with Sargent hardware. Today, some 1,100 doors still have their original Sargent hardware. No wonder so many of its original tenants, like custom tailor Karl Scheblein, appreciate what so often was taken for granted.

Contemporary versions of Sargent quality hardware are featured below.

Consider the doors equipped with Sargent hardware.

Still proud doors. Still proud hardware.





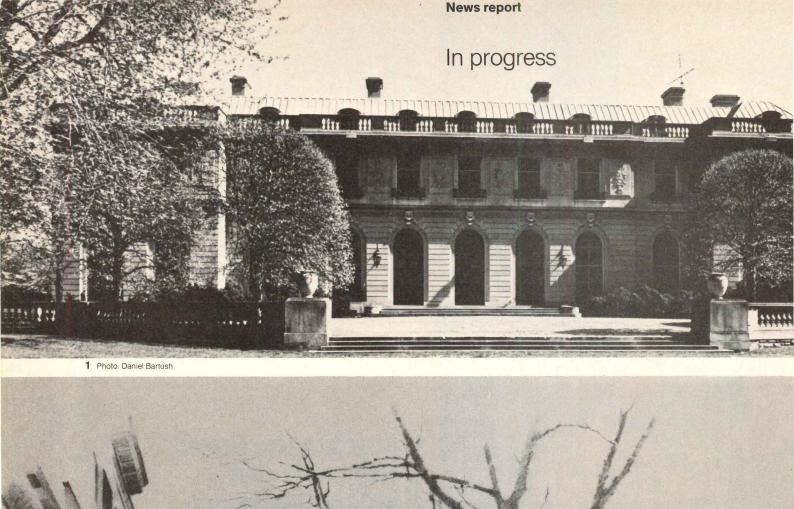


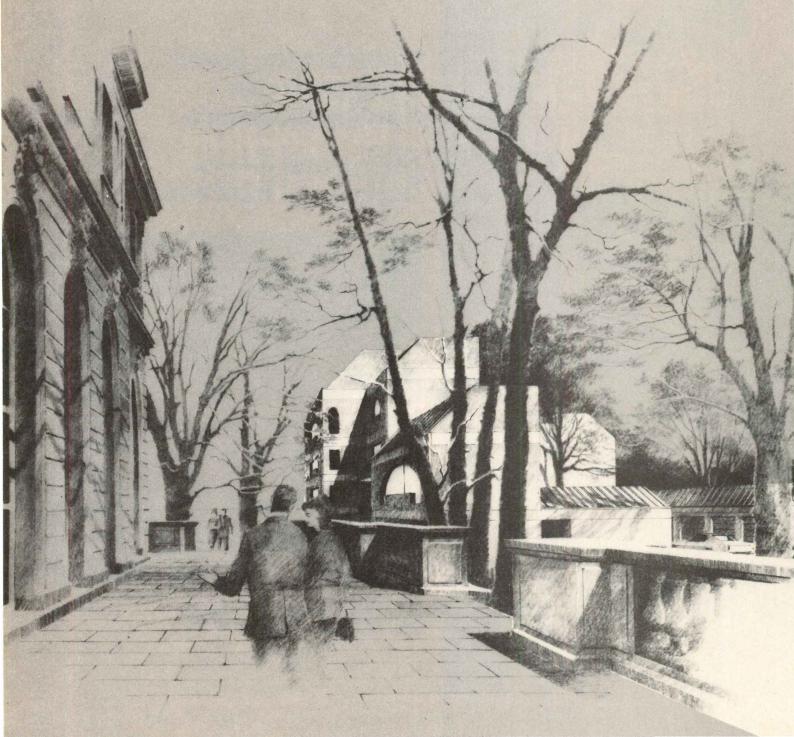


First in quality since 1864.

Sargent & Company, New Haven, Connecticut 06509. In Canada, Sargent & Company (Canada) Ltd.

Circle No. 368, on Reader Service Card





Associates of Detroit took care to preserve the view of Rose Terrace from Lake Shore Drive and from the mansion to the lake. Construction begins to the mansion to the lake. Construction begins in and 32 townhouses in 7 new two-story duplex units. Architects Rossetti/Associates of Detroit took care to preserve the view of Rose Terrace from Lake Shore Drive and from the mansion to the lake. Construction began in early fall and will be finished in a year.

2 Noise control—The 23-story U.S. Courthouse and Federal Office Building in Philadelphia, designed by three Philadelphia firms—is pioneering in the techniques to control noise. It will limit both externally and internally perceived sounds, and contractors were required to include in their bids consideration of noise abatement techniques. The offices of J. Roy Carroll, Jr. & Partners; Bartley, Long, Mirenda & Reynolds; and Bellante, Clauss, Miller & Nolan jointly designed the \$70-million structure which will be ready for occupancy in February.

3 Car park—Under construction near McLean, Va., is the 12-story headquarters building of the National Automobile Dealers' Association designed by Vosbeck Vosbeck Kendrick Redinger of Alexandria. The interior is columnfree, and services such as toilets and stairs are in three concrete towers. The three-level base houses a lobby and commercial space and two of the three levels of parking while above are nine office floors. Anticipated completion is June.

4 Bridge building—The Georgia headquarters for the Simmons Company, furniture manufacturers, will be bridgelike in its structural conception and indeed will be known as the Jones Bridge Headquarters. Atlanta architects, Thompson, Hancock & Witte Associates responded to the company's desire to have a building ecologically compatible with its site overlooking the Chattahoochee River. The cantilevered trusses do this as they bypass the necessity for excavated foundations. The building will curve along a hillcrest and provide every executive office with a balcony and river view.

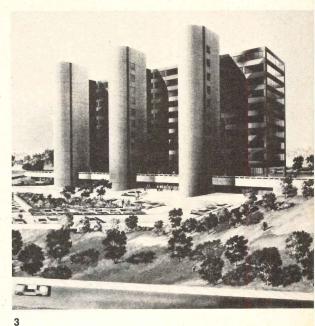
5 Des Moines, Iowa—Cartwright Hall, the new \$2 million law school of Drake University named after Harold G. Cartwright, an attorney and principal donor, will open in January just eight months after construction began. Edward Larrabee Barnes of New York designed the structure, which includes a lecture hall, classrooms, a moot courtroom, spaces for students, and faculty offices.

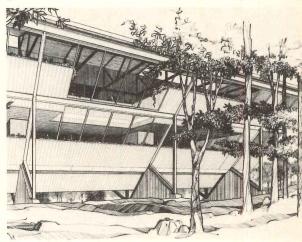
6 Research center—Infection control and decontamination were the prime concerns of Perkins & Will, White Plains, in designing the Plum Island Animal Disease Center in Greenport, N.Y. In the modular laboratory, one of five buildings in the complex, open planning was used as far as practical with spaces separated into contaminated and clean areas. Materials able to withstand frequent decontamination by chemicals and steam were employed, and the air handling system is nearly 100 percent efficient at particle removal.

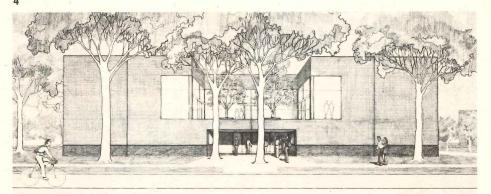


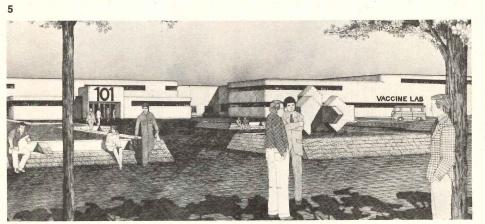














# Knoll International

Otto Zapf designs for Knoll

His new, soft and comfortable collection of office chairs includes a highback, a lowback and an ottoman, all ingeniously designed to facilitate and minimize reupholstery.

745 Fifth Avenue, New York 10022

Knoll International designs for the way you work.



## Products and literature

Rug collection comprises five groups of exclusive designs from West Germany, France, Greece, and Belgium. Included are machine made authentic reproductions of Persian Oriental rugs in wool, dating back to the 14th Century; Oriental French collection manufactured in France, natural goat hair collection from Greece and Rya rugs in abstract designs. 250 designs are in the group in from 1 to 4 colorways, 9

Circle 101 on reader service card

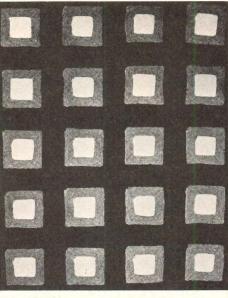
Carpet, Inc.

to 16 rug sizes and runners. Dylan

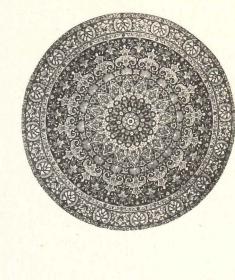
Orbits. Multilevel, moving silkscreened lucite construction, the series of 22 separate works with a limited printing of 10 to an edition suggest revolving movements of designs, colors, reflections. They measure from 24"x24" to 24"x72" and are 2 in. deep to allow manual or electrical turning mobility for the separate integral lucite spheres. Some of the titles are "Space Walk," and "Time Out" (shown). Suggested for lobbies, hotels, restaurants, banks, and office. May also be designed in larger sizes for business logos or graphic messages and motorized. Bodley Gallery. Circle 102 on reader service card

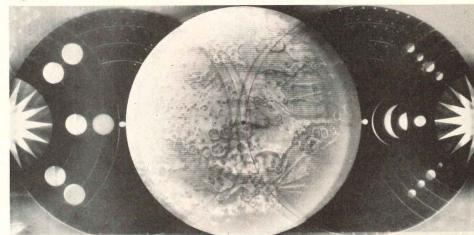
**Fabric collection** of prints, damasks, matelasses, brocatelles, crewels, casements, velvets, textures, and the other wovens in 296 different colors, many with coordinates in solid color fabric and wallpaper. Some of the designs are reproductions of documents, produced especially for restoration projects. Scalamandré.

Circle 103 on reader service card



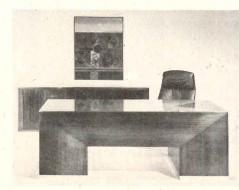
Rug collection





Orbits





Executive desk

**Lighting.** A series of lamps called Crylicord, using clear acrylic tubing which conceals wiring and doubles as a functional element, has been designed by Peter Hamburger for Knoll International.

Circle 104 on reader service card

**Outdoor lighting.** Unit is designed for use with 500 w mercury and the 150, 250, and 400 w high pressure sodium light sources. Luminaire is formed of cast aluminum and finished in dark bronze acrylic. General Electric Co. *Circle 105 on reader service card* 

**Executive desk.** Hand-rubbed, satinfinish mahogany veneers are set in parquet on the desk top and mitered where pedestals join the body of the desk front. Pedestals end in a plinth base surfaced with a matte black plastic. Recesses allow finger-tip control. Measures 36"x78"x29". Harvey Probber Inc.

Circle 106 on reader service card [continued on page 48]



# 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.

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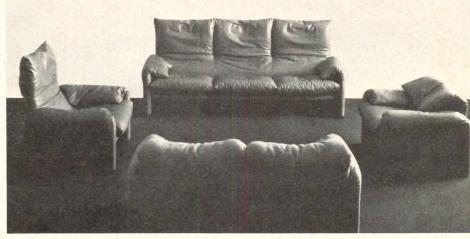
## Safelite Industries

P.O. Box 1879 / 1-800-835-2092 Wichita, Kansas 67201 Products continued from page 46

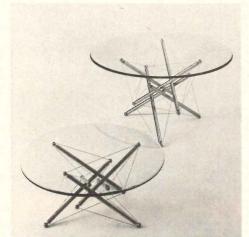
Furniture collection. Upholstered seating group includes armchair and two- and three-seat sofas. With a flip of the folded back cushion, unit converts from a normal 211/2 in. chair or sofa to 41-in.-high lounge position with a headrest. Constructed of expanded polyurethane foam injected over a steel-welded armature and padded with dacron fiberfill. Comes in a broad range of fabrics, vinyls, leathers, or C.O.M. Tables have circular, %" thick clear polished plate glass tops on a base structure of chrome steel tension wires and a ball connector joint. Tops have bull-nosed edges and rest on the base at three cushioned points. Available as low occasional tables or in dining/conference size and height. Atalier International Ltd.

Circle 107 on reader service card

**Rugs.** Made in the Orient of all wool face, the collection contains 53 traditional and contemporary pattern motifs that can be custom sized for a rug of any width or shape. Stark Carpet Corp. *Circle 108 on reader service card* 

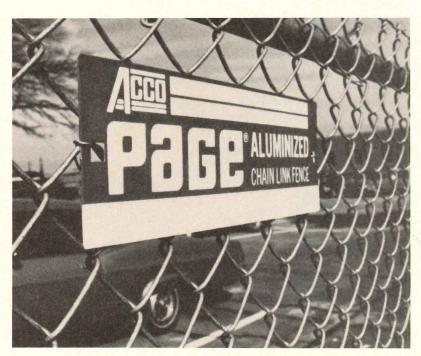


Furniture collection



Smoke detector. According to make this solid state system responds to a type or degree of smoke, and hourly simulates smoke to verify the proper functioning of the entire system. A sinal light shows if the supervisory system is operating and a visual or audit trouble signal alerts to any malfunction any part of the system. In the even of real smoke, a visual signal and audible alarm is sounded and the fan oblower is shut off to prevent smoke of tribution. Heat-Timer Corporation. Circle 109 on reader service card [continued on page 52]

## PAGE FENCING PROMISES 3 TO 5 TIMES LONGER LIFE.

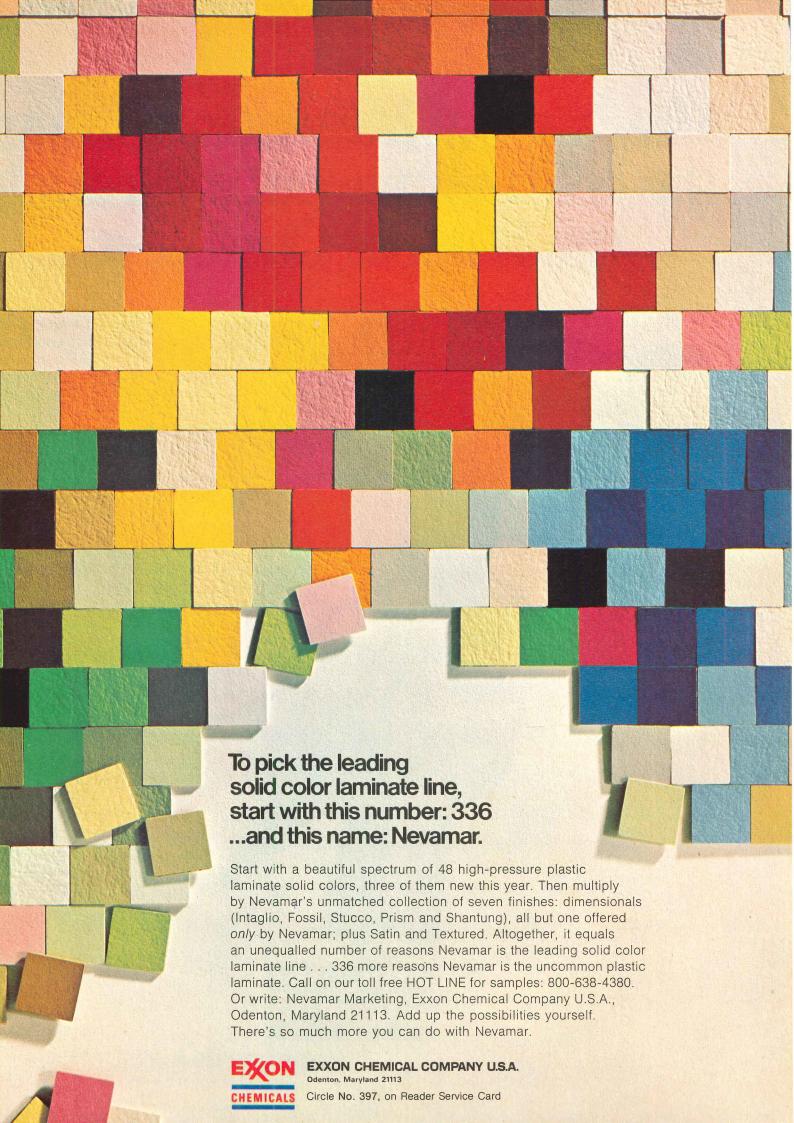


That's Page aluminized chain link fabric. What has it got over galvanized fence besides 3-5 times longer life? Better quality. Higher tensile strength. Stretches easier. Erects easier.

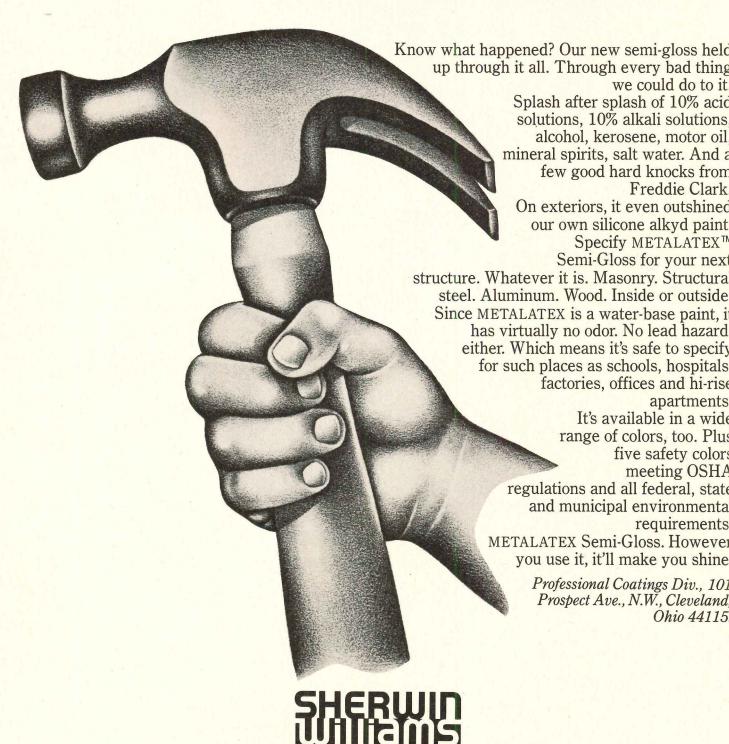
Want more reasons? Send for the free fence spec kit. It will save you a lot of design time. Write Page Fence Division of Acco, P.O. Box 430, Bridgeport, Conn. 06602.



40DB.3.7



## After we put Metalatex through the acid test, we put it through the Freddie Clark test.



Helps you do it all.



#### **Products** continued from page 48

Mobile storage. The semi-automatic system consists of a rigid steel carriage frame equipped with a clutch mechanism. Moving the two-way lever to the left or right engages the motor switch, mobilizing up to 35 tons of storage as the shelves move along steel tracks. A built-in safety device will automatically stop the motor if there is an obstruction between sections. The manual system consists of steel top and side panels mounted on a heavy gauge steel carriage and the operator can move up to 6000 lbs of storage by pushing or pulling a lever. Powers Regulator Co. Circle 110 on reader service card

Flip-top tables. Rounds, squares, rectangles, and trapezoids with single or double pedestal bases of 1¾ in. round steel tubing in polished chrome, the tables fold into less than 4 in. of space. Can be surfaced with butcher block, wood veneers, and plastic laminates. Edges are protected with bull-nosed vinyl or solid walnut molding. Howe Furniture Corporation.

Circle 111 on reader service card



Zeta chair



Patchin' Place

**Zeta chairs.** Continuous arm/leg frames are of chrome plated steel tuling, and cane is encased in elm to for a cantilevered Z-shaped seat and ba unit. Side chair version is also available. Thonet Industries, Inc.

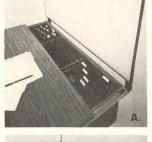
Circle 112 on reader service card

Multiple seating is available with meable or floor-mounted base, or it can be mounted on risers by a riser-mounted base. Seats and backrests are available in a wide choice of molded woods, upholstered fabrics, vinyls with optional fire-retardancy. Also available as bench seating without backrests. Accessories include: laminated plastic table between seat steel spacer tubing, upholstered arm rest, ash tray, folding writing tablets, transcribing equipment, and lighted row markers. Castelli Furniture Inc. Circle 113 on reader service card

Patchin' Place is one of 31 patterns 122 colorways contained in Outasig II wallcoverings which are gravure-printed on vinyls and foils.

James Seeman Studios, Inc.

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







Just two highly functional units... and finally you have things the way you've always wanted them.

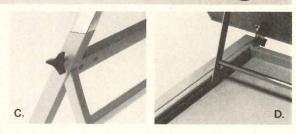
First—our Designer II drafting table. It gives you all the features of a fully automatic model. Height adjusts from 30" to 37" and can be angled to 9 pre-set positions with one hand ease. The Aero/Core top is warp-proof, super-smooth and held with sure rigidity.

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A. 3-section file in Designer/Desk holds manuals, letter and legal sized papers
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 C. Two wing knobs allow quick, sure drafting table height adjustments.
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So whether you're ready to create, decte, or redecorate, consider any of these ply textured, detailed reproductions of

the hand-tooled craftsmanship of the past. *Provence* and *Briarcliff* (shown). Or Spanish Mediterranean *Presidio*. Or Early American *Deerfield*. Each 4' x 8' panel is crafted from durable Masonite Brand hardboard. And has matching moldings for that finishing touch.

Pick up free Historic Paneling Samplers from a nearby Masonite dealer. He's in the Yellow Pages under "Paneling." Or write to Masonite Corporation, Dept. PA11, Box 777, Chicago, Illinois 60690.

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Man-made finishes on real Masonite Brand hardboard.

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PROVENCE





## BANK INTEREST GROWS— FOR STEEL!

Banks know about money. They know how to make it...and how to invest it.

One visible aspect of their investment expertise is the choice of *steel* for their headquarter buildings. In fact, during the past ten years, 76% of the biggest commercial banks that built new headquarters selected steel for this purpose.

There are sound economic reasons for this. Due to the high cost of central city real estate, banks often

erect buildings taller than necessary for their own functions—so that revenue can be derived from tenants. Banks have discovered that with steel-frame, costs are competitive and construction time is shorter. As a result, move-in time is earlier—speeding rental income, and the cost of the construction loan is minimized.

A recent example is the First American National Bank Building of Nashville, Tennessee. The bank occupies the first 10 stories of a 28-story office tower—the top 18 stories being available for rental. Public banking space is located in a connected four-story structure designed with a large column-free open area in keeping with its function of providing a distinct customer service entity. The building would have been far more costly if such a facility had to be located on the ground floor of the tower.



During construction, steel was delivered to the bank's location in the heart of Nashville by truck—on an extremely tight schedule—and lifted directly into place. Careful planning and speedy erection made occupancy of the 600,000 sq. ft. building possible in less than two years after start of construction—a remarkably short time for a building of this size.

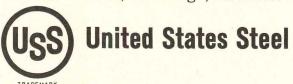
Saved 4% of the Total Project Cost!

In another mid-South city, two bank/office rental

buildings—comparable in size—were begun within days of each other. One was concrete, the other steel-frame. The concrete structure took 22 months to build, while the steel-frame structure was completed in 17 months—a 5-month advantage! In terms of savings in building loan interest, the use of steel saved 4% of the total project cost!

No wonder banks' interest in steel is growing all the time!

For a copy of our structural Report on the First American National Bank & Office Building (ADUSS 27-6246-01) and for more information, contact a USS Construction Marketing Representative at your nearest U.S. Steel Sales Office, or write: United States Steel, Room C275, 600 Grant Street, Pittsburgh, Pa. 15230.



Owners: First American National Bank, Nashville, Tennessee; The Equitable Life Assurance Society of the United States, New York, N.Y. Architects: John Charles Wheeler and Associates, Inc., Nashville, Tennessee. Associated Architects: The Perkins & Will Partnership, Chicago, Illinois. Structural Engineers: Angus R. Jessup, Inc., Nashville, Tennessee. General Contractor: Foster & Creighton Company, Nashville, Tennessee. Steel Fabricator: Volunteer Structures, Inc., Nashville, Tennessee. Steel Erector: Allied Steel Construction Company, Oklahoma City, Oklahoma.



## The Class Company puts quality and safety where you need to see it.

light, neutral color composition that combine to produce a truly comfortable visual environ-

with hexagonal, square or linear with hexagonal, square or linear pered crystal for added strength, safety and thermal shock resistance. Plus special ceramic coatings for radio interference shielding, glare reduction and color correction.

Alba-Lite®, a light opal glass, brovides soft, diffused light provides soft, diffused light provides soft, diffused light provides soft, diffused light provides soft, diffused light transmission and excellent transmission and excellent

provides sort, dirfused light transmission and excellent lamp image hiding power. It's a superior lighting panel for reducing glare:

Write for ASG's Lighting Catwoling for ASG's Lighting Catwoling lor ASG's Lighting Catwoling for ASG's Lighting Catalog it for the second alog it for the second in the second i

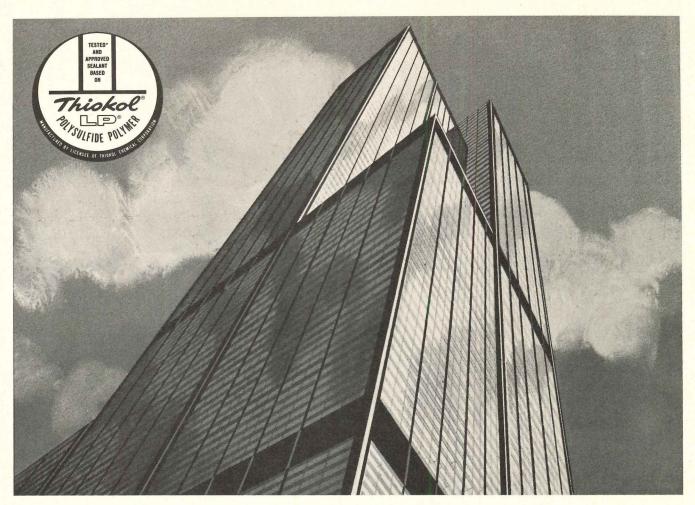
Write for ASG's Lighting Catalog. It contains details on these and other quality lighting products to help you see just what we're talking about.

And where people need it to see. After all, we know you can't afford to use less than the best when it comes to lighting glass. Because people do notice the difference. In case of fire, ASG glass panels won't burn—or melt and drop to the floor, causflass panels won't burn—or mig other fires. Or release toxic fumes. Unlike plastic, ASG panels always look new. They stay cleaner longer and are quick and easy to care for. ASG panels don't warp, sag, turn panels don't warp, sag, turn yellow or scratch. They diffuse

ciency.

ASG-112 is a prismatic lighting glass developed especially for the speculative office building market. ASG-112 offers quality unique to its price range, with an octagonal and square indented prism structure, and indented prism structure, and

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## Polysulfide sealants stick to your job year after year

Years ahead of competing materials, LP® polysulfide polymer base sealants continue to ensure waterproof and airtight construction joints in structures all over the world. For more than 25 years, polysulfide base sealants have been at work in buildings—keeping a tight bond, and preventing moisture and air penetration while expanding and contracting year after year with seasonal temperature changes.

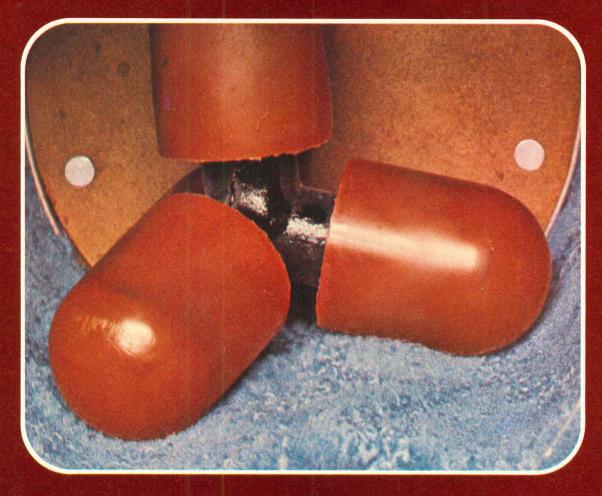
You can't beat this experience record, but you can *buy* it in any of the more than 200 sealants made by 14 manufacturers covered by Thiokol's Seal of Security Program. This program subjects polysulfide base sealants to rigid performance tests conforming to the Thiokol Building Trade Performance Specification. Those that pass are certified as Tested and Approved and carry the Thiokol Seal of Security Emblem.

Specifying and properly applying one of the Tested and Approved one- or two-part polysulfide base sealants will pay dividends for years in providing a trouble-free airtight bond in joints in any kind of construction project, whether it is a high-rise prestige office building, a one-story merchandise warehouse, or a flagstone walkway. The tallest building in the world is built to last with polysulfide base sealants.

The initial applied cost of a polysulfide base sealant is more than erased by the many years of leakproof and problem-free service it provides. For proven performance, it's LP polysulfide base sealants every time. Further information—and an answer to your sealant questions—can be obtained from Thiokol/Chemical Division, P.O. Box 1296, Trenton, N.J. 08607, telephone 609-396-4001.

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## A carpet that passes our Tetrapod Wear Performance test can take the traffic in any store.

Thousands of shoppers tramping around a department store all day—every day—can wear out an ordinary carpet in no time at all. This is not so with carpets that have passed the Dow Badische Performance Certification tests. We put them through eight of the toughest lab tests in the industry before they are judged fit to perform in heavy traffic.

The Tetrapod test is one of these tests. In this test we simulate severe abrasion conditions by placing rubber-tipped "feet" in a steel cylinder lined with carpet. The cylinder is rotated at 50 RPM until a half-million revolutions are completed. The carpet is then removed and critically evaluated for general appearance, wear and pile retention.

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The next time you specify carpet for a store—or any place where crowds gather—look for the carpets that carry our Performance Certification label. You know they will not cave in under traffic. Write for our Contract Carpeting Selection and Specifications Guide.

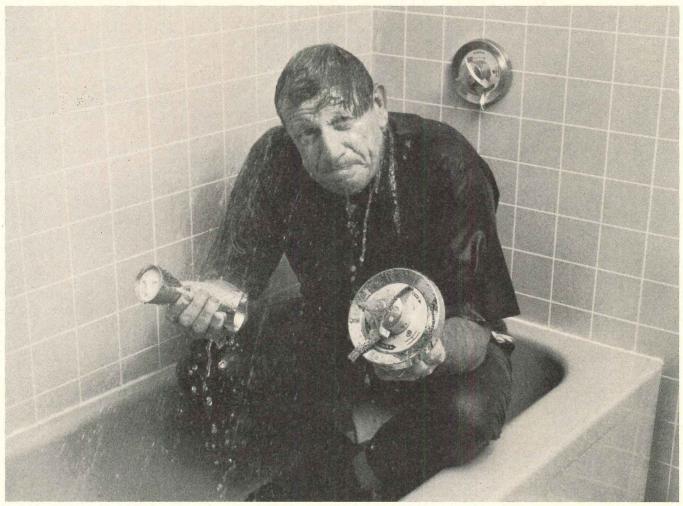


Dow Badische Company Create<sup>\*</sup> Center Williamsburg, Va. 23185 (804) 887-6573



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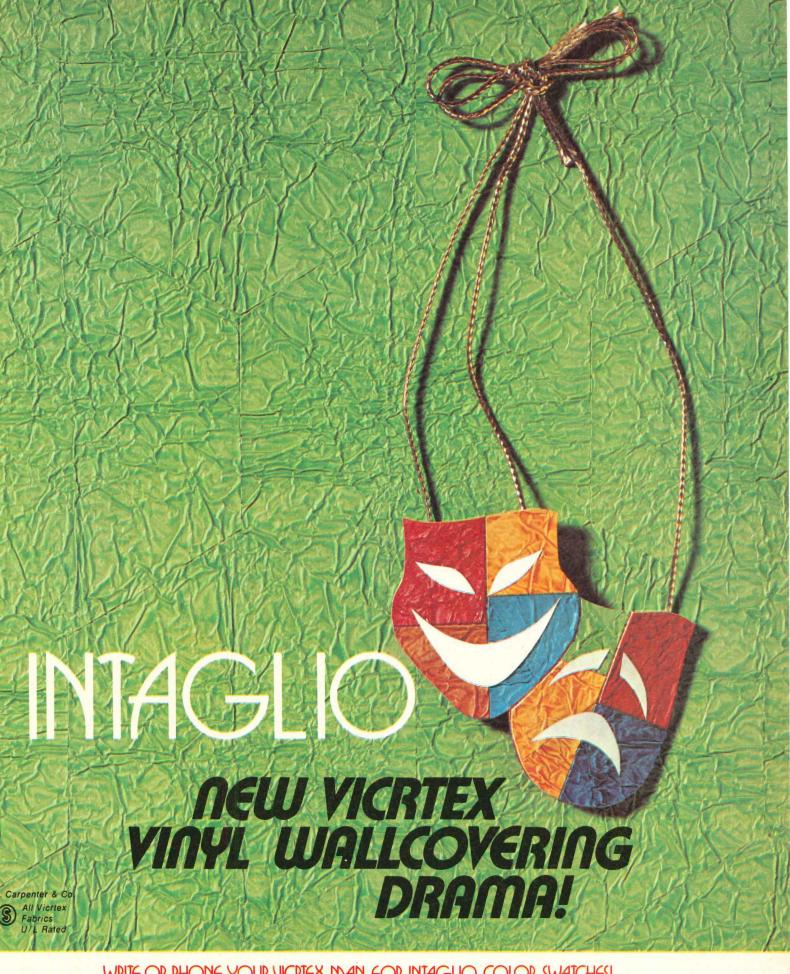
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Progressive Architecture: Editorial

## Space for life

November 1974

How many square feet does one person need to think in? How many foot-candles are required for friends to enjoy a drink together? You won't find those questions answered in this issue—or anywhere else.

Since psychological requirements for life's basic processes cannot be expressed in numbers, they rarely show up explicitly in architectural programs. But a few architects, designers, and producers are probing beyond the conventional program, into the actual environmental needs of human activities and into the decision-making processes that lead to their fulfillment—or denial.

In this issue, some of these explorers of the architectural interior report on their findings. These range from collections of detailed measurements—newly organized—to subjective theories, to speculative questions. Much of what they report is in words, more words than you usually find in architectural journals.

P/A is by no means losing interest in the abstract, formal qualities of interior space. (Nor, incidentally, are this month's contributors.) Last November we devoted an issue to interior space as a generator of building form; I suggest you review that issue—a primarily visual one—as a complement to this month's.

But abstract space and form—no matter how exquisitely detailed—do not make architecture. Disillusionment with the abstractions of doctrinaire modern architecture is now widespread. Critics who have staked their professional lives on mainstream modern dogma are now recanting; the deity who lived in the details is now being repudiated even by his high priests (Peter Blake's "The Folly of Modern Architecture," Atlantic, Sept. 1974). An informed outside observer, Kenneth Evett of Cornell (The New Republic, Oct. 5, 1974) recognizes a widely held belief that "modern architecture is dead."

Having lost the convictions of the orthodox modern phase, are we doomed to lapse into a series of indulgent revivals? We have already seen many exercises in mannerism and a few instances of outright historical revival, which



Patients and visitors at South County Hospital (p. 64)

have served the vital purpose of breaking down earlier taboos. In 1975, P/A will be showing you some even more overt (or outrageous?) examples of revivalism. But revivalism can have only indirect bearing on our serious environmental concerns. It must not distract us from the pursuit of an architecture based on human behavior.

Architects tend to lose patience with the conclusions—too often simplistic or abstruse—of the behavioral sciences. But their patience is too short; the effort has barely started. The behavior-based design research may still be elementary, but even so it can give you a new outlook on architecture as human habitat. Read on.

John Maris Difa

## The image and the reality

This is an issue about the image and the reality; an issue about theory and use, of the dominance of one and the denial of the other. And it questions, to some extent, the very traditional role that architects have been taught to assume about their professional responsibilities.

There is very little that can be said about a building that cannot be understood through use. Formal criticism describes historical models and precedents in an effort to establish, so to speak, a "context" for understanding the particular forms chosen by the architect. In its presentations of buildings architectural journalism is descriptive of what a building is and how it came to be that way—which is mostly by way of apology for why it isn't what it was really meant to be. Journals publish buildings after they are finished but before they are used; history plagues us with its preoccupation of style and the manufacturing of a coherent whole; and the behavioral sciences, which promised so much, have become so encumbered with the baggage of their own discipline that much of the information which is generated seems of little consequence in relation to the amount of effort required to obtain it.

We have come to build an architecture of theory, a theory of progress rather than of use, an attitude fostered by schools of architecture which tend to encourage originality rather than competence. But what, after all, is new?

Our theories have won us fame if only in their failures. The idealists who acclaimed the tower-in-the-park notion of housing have had to live with the destruction of Pruitt-Igoe and the now established certainty that such buildings breed crime and vandalism. Our fascination with space age technology and imagery has given us such provocative statements as Paolo Soleri's Arcologies, but who, with any human sensibility, would want to live there? The image of our designs and the reailty of use rather poignantly illustrate the discrepancy between our theories and our lives.

What of the purpose of architecture? Who really benefits from the building of a new corporate headquarters building, a housing project, or a commercial strip? Usually, the answer is *not* the people who use it. To establish the issue of use would mean to question the purpose and values of the institutions for which we build, to question the structure

and basis for making decisions. If housing is to be home for those who live there, then the nature of our idea of housing must be altered. One size does not fit all and criteria can no longer continue to be generated by a bureaucracy whose prime objective is to perpetuate its own existence. Prepackaged, measurable (and minimal) dimensions will have to be replaced, instead, by measures of accommodation and choice. The question is *what* it must do, not how. If you start out to design a hospital, you end up with a hospital. But if the problem is health care, maybe you won't end up with a hospital.

This issue was written by people who have started to question the dictatorial nature of our building types; who have begun to establish other values of measurement; who have started to test alternatives; who have methods of working or points of view that lead us to some conclusion other than the ones we normally might have reached. While the projects are similar, the ideas and attitudes diverse, there are two common thoughts that seem to be underlying each. What they all implicitly recognize is that design very often impedes the very activities it was meant to support. We design for situations rather than for process; we end up with too much punctuation and not enough words to complete the sentence. Process is a continuum and design has not learned how to be more than one thing at a time.

Also implied is that no design is the end-all solution. To succeed in its intended purpose, design must reinforce ideas which are not only understood, but also supported by those who will be directly involved in its use. If there is no clarity of thought or sympathy with purpose, then the best of intentions will remain as empty gestures.

The contributors to this issue do not have radical or revolutionary ideas. There are no "solutions." Many of the ideas presented here are not fully resolved or even completely understood. These are thoughts that are part of a process and what each of them gives us is a somewhat oblique perspective on problems we have all thought about and tried to solve. Their value lies in our capacity to understand their approach rather than to imitate their style, to understand where to begin to solve a problem rather than how to solve it. Next time, instead of trying to take one giant step forward, try taking two steps sideways. The results might be more useful to everyone. [Sharon Lee Ryder]



## Getting up and getting out:

#### Progressive patient care

Ronald Beckman, text Bruce Davidson, Photography

To make successful changes in the structure of an institution requires that the designer implement goals in terms of hardware and administrators understand how to use this hardware to implement their goals.

On the premise that architecture might well be considered more than a visual art, REDE has for over eight years been attempting to assemble quantifiable evidence that design is an educational, economic, urban, and medical tool which, when combined with enlightened administration, can contribute not only environmental embellishment but also desired social improvement.

Under the primary direction of Associate Director Howard Yarme the REDE staff of architects, industrial designers and social scientists has attempted to embody medical theory in actual situations, by establishing designs that can be evaluated over time. Carrying all the aesthetic, statistical, mechanical, and structural baggage of our trade with us, the key to this work has been an attempt to transcend the specialized and limited thinking of both the design and behavioral professions. To our disappointment we have found that the practice of generalized thinking is suspect in our specialized society. Some physicians have questioned what right "Interior Decorators" have to advocate medically appropriate environments. Some architects have scorned the recommendations of our behavioral findings as too costly, unprofessional, and/or something "any architect can do." I hasten to add that the success of the work presented here results from the faith and enlightment of physicians, architects, administrators, and boards of directors who have the adventurous spirit to seek a more socially appropriate solution to the task of accommodating people in institutions.

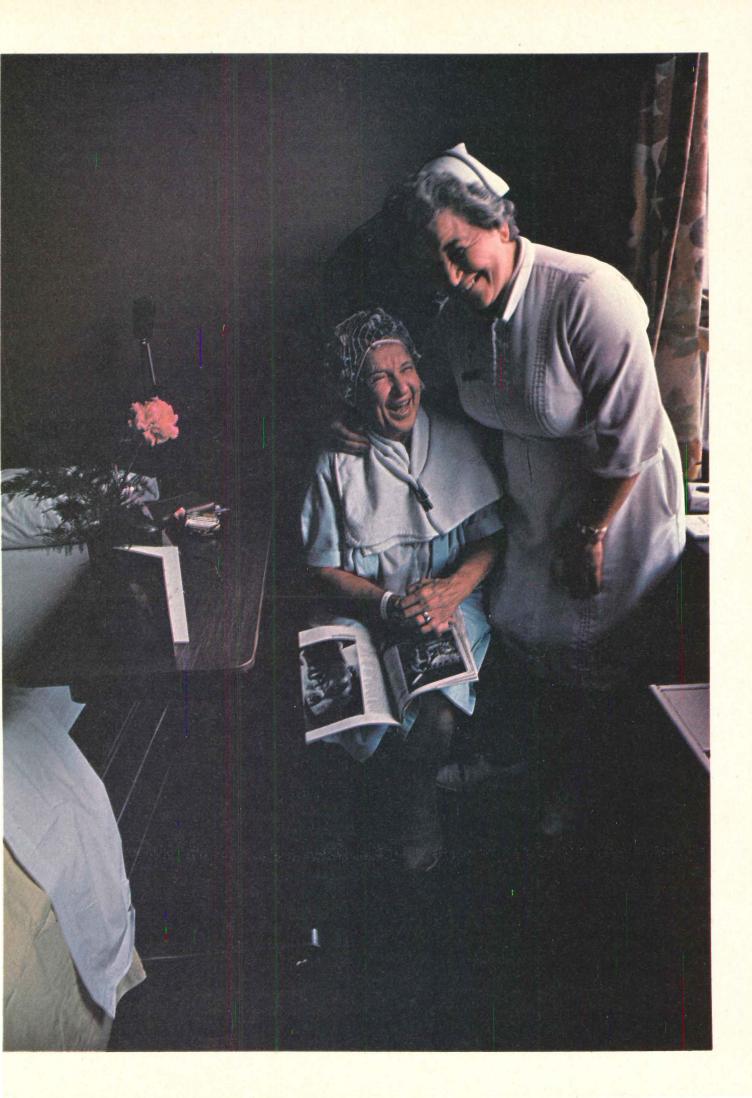
In 1968, South County Hospital, Wakefield, R.I., incorporated Progressive Patient Care in planning for the Borda Wing. The initial REDE investigation of user needs for pa-

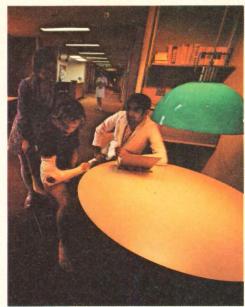
**Author:** Ronald Beckman is Executive Director of Research and Design Institute, a nonprofit scientific and educational corporation of professionals conducting interdisciplinary demonstration projects.

tients was funded in 1967 by a manufacturer of hospital equipment, Affiliated Hospital Products, Inc. of St. Louis, Mo., and was intended to disclose in what ways changing medical practice was affecting the patient environment. Review of medical reports on the success of PPC hospitals revealed an interesting fact to REDE researchers. In most medical programs no attempt to differentiate (architecturally) one care level from another was made, so that physically the various wards were similar even though the nature of care was modified. In psychological jargon, the spaces had not been "cued" to indicate to the patient that he had progressed one wit. Not surprisingly, medical improvement of patients was mostly unchanged in early experiments with PPC, even though some reductions in operating costs resulted.

The central experiment in the design for the Borda Wing, a space intended for recuperative care, was the creation of a wide, carpeted "therapeutic corridor" which would be structured with a variety of activity centers to encourage patients to venture out from the confinement of their rooms, to help each other, help themselves, and to receive help and encouragement from families and professional attendants in realizing their cure. The corridor was to be "a new community of care,' as the medical director defined it, and should be perceived in that way. This would require automatic beds to allow easy entry and exit, in-room vanities to encourage self-grooming and to overcome psychosomatic barriers to social exposure, easy accessibility to medical personnel for a heightened level of instruction and human contact, and food preparation units on the corridor which would function to focus social activity. Around the reassuring social therapy of sharing, patients would be reintroduced to the normal daily routine. Friendships would be established with other patients, with staff and visitors. Street clothes were to be worn and family members proudly brought forward. Ambulatory patients were encouraged to visit around to see those still bedridden, lending encouragement to those in a condition shared by the patient/ visitor only a short while earlier. Slowly, the psychological defenses of illness would give way to the optimism and enterprise of well-being.

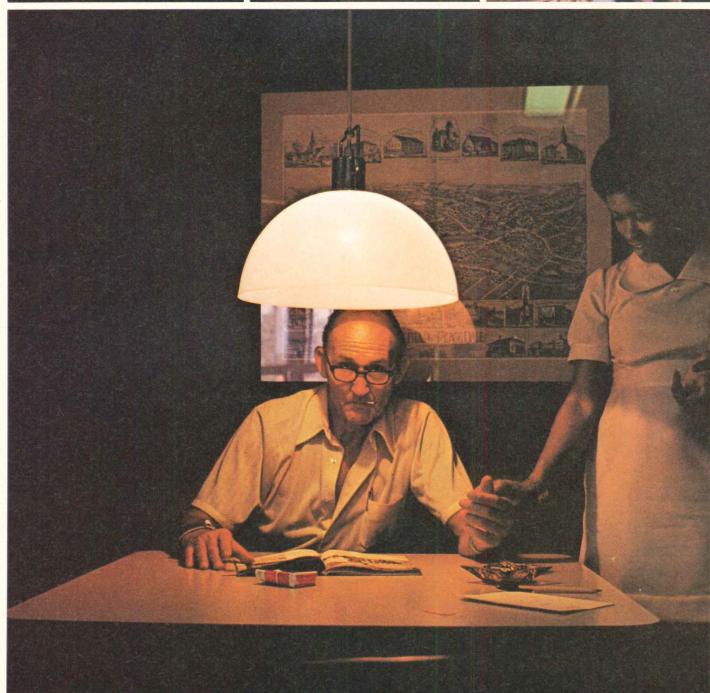
The medical program of this recuperative corridor was to be ambulation, but a dominant consciousness in the cul-











#### Getting up and getting out

ture makes such structural change difficult. The dictionary definition of ambulation—"to move from place to place: walk (the patient was allowed to ambulate in his room)"—illustrates that even Mr. Webster finds it difficult to conceive of an alternative to patient confinement.

In the finished environment, each activity area along the carpeted corridor of the 30-bed wing communicates to the patient that a new kind of behavior is expected of him, new in the sense that he cannot think of recovery as something to be accomplished by remaining bedridden and having nurses, doctors, and aides bring all aspects of treatment to the bedside.

Architectural details and furnishings are designed to provide as much control over the environment by patients and staff as possible. Oversized floor-to-ceiling double doors to each patient room allow for privacy when closed, semi-privacy when one door is open, and elimination of almost one wall of the patient room when both doors are open wide. Each patient has a generous sink, counter, and mirror unit that is designed to encourage self-care through such common activities as personal hygiene. Lighting options includes natural daylight, overhead incandescent lighting in the alcoves, general purpose fluorescent corridor lighting, and floor level illumination in activity areas.

Lining the corridor are many alcoves, including several designed for small group activities and consultation, and a nursing station. Game tables, reading stations, writing desks, conference areas, and consultation spaces are each cued with appropriate hardware, graphics, and accessories to help encourage their use by patients and visitors.

#### A break with convention

The crucial design element in this concept proved to be hospital carpeting, essential for acoustical control, to tie together in a cohesive fashion the separate activity centers and to lessen the risk of patients' injuries. REDE's objection to conventional tiled hospital corridors is based on many observations, plus research by Mayer Spivak on sensory distortion in tunnels which points to continuous, straight, glossy, hard surface flooring as one of the villains of medical architecture. In the late 1960s, however, a number of nursing home fires had discouraged carpet use especially because of the toxic fumes generated by burning adhesives and flammable undercarpet mats. Hospital administrators were not convinced that spills of medicine and food could be maintained properly. Another concern was the bothersome shock of electrical static generated by the active mobility of patients on conventional carpeting. The need for mobility of carts and furnishings demanded that carpet not restrain casters or be easily marred by furnishings. With the cooperation of the Fibers Division of Monsanto Company and using the facilities of Deering-Milliken Research Corporation, we attacked these problems of fire safety rating, anti-glare texture, color durability, and ease of cleaning specifically, because a noninstitutionalized residential scale was absolutely essential to the social success of the new medical space. Static was defeated by a combination of fiber selection with special carpet construction, and mobility was assured by specifying an exceptionally

tight weave which would allow free movement and minimize pressure markings on the carpet surface. Exceptional "cleanability" was important to the program. We reasoned that a patient would be discouraged from venturing into the corridor and preparing foodstuffs if an accidental spill created a great clatter and irrevocably damaged the expensive flooring material. A solution for our maintenance demands was found not only in manufacture of fibers with integral color fastness but also in the establishment of a training program for the hospital maintenance personnel which combined routine cleaning schedules with immediate on-the-spot attention directly after a spill occurred. This reassured the patient and proved to be beneficial for the carpet as well. It did require a change in management procedures which is, we feel, the key to successful architectural innovation in many cases. The specified carpet was made by Deering-Millikin and installed by Monsanto to test carpet performance in this patient-structured space.

There are two nourishment stations located in the therapeutic corridor, each containing a sink, burner unit, refrigerator and ice-making console. Both stations are designed for patient and staff use, and one has an adjacent seating area. Most medical facilities provide telephone booths which by their design prohibit use by handicapped persons, making it necessary for the wheelchair-bound patient to ask for assistance. The location and design of the phone area alcove with its carpeted wall, provide visual and acoustical privacy for confidential phone conversations without making it necessary for the caller to be encapsulated in a "phone booth." The carpeted wall discourages the usual graffiti generated by the presence of a telephone.

One dayroom at each end of the corridor acts as a rewarding destination for each venture made into the normal world. Patients are encouraged to take their meals to the dayrooms whenever possible and games, rockers, high fidelity equipment, and color television are placed there.

The nursing station is an open-plan, counter-high unit located at the highly visible midpoint along the corridor. "Eyeball to eyeball contact," a high visibility of personnel from the patient's vantage point and good visual contact with the patients by the nurses, has greatly reduced reliance on the mechanical call button which many times is used by interned people just to assure themselves that someone is available. From the nursing station the nurse can see directly into the two single rooms and with only a few short steps has contact with everyone on the corridor.

It isn't enough to build a new facility reflecting altered operations—the facility must be maintained and operated by people who are sympathetic with the concept intended. Office landscapes in business complexes still requiring punch clocks and conducting timed coffee breaks; open plan schools in which children are lined up and marched around, represent a dysfunction between the concept and the use which betrays the fact that the staff was never properly oriented to the space. At the Borda Wing, orientation programs were held. We have found that they must be held continually. The environment is not enough of an impetus to command a change in human behaviors which have developed over lifetimes of experience. Despite a careful ori-

#### Getting up and getting out

entation, a nurse turned off all the lights and dispatched all the patients to their rooms when visiting hours ended in the general hospital. She had to be firmly told that the corridor was to be used anytime the patients wished. She was very resentful. Personnel have been told to encourage patients to ambulate, to spend time in the conference area with the relatives, friends, and the patients themselves (which places the sick person in a more dignified posture in relation to the interviewing doctor or nurse) and to have their meals and even to do their work in the presence of the patients at the conference areas. For this reason, the conventional nurses' room and staff lounges were deleted from the program. Once staff members are introduced to these new methods, they enjoy them.

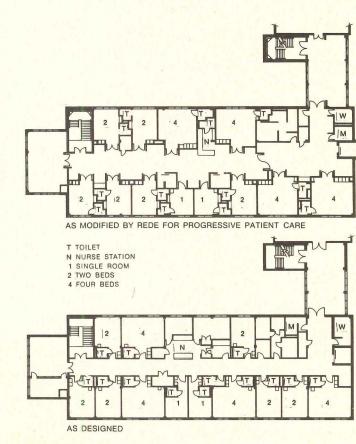
As a prototype facility, South County Hospital's "Borda Wing" is designed to test the effectiveness of new medical ideas in a new environment. For awhile it was feared that pampering patients in a "luxurious motel" with a great deal of permissive care might curb their desire to leave the hospital. In interview after interview, the patients make it clear that never do they confuse home and hospital.

Three years of operating experience has shown that the unit provides an economic advantage and that it encourages rapid recovery when compared to more conventionally organized hospitals. Administrator Ford reported in 1973 that the average cost of a stay dropped 12 percent and that its average length decreased by .8 days. In addition to lower maintenance costs, there are other ways in which savings are passed along to the patient. Most important is a reduction in the need for expensive professional attention. Since all the patients in the Borda Wing are in the post-acute stage, they require less service. While there is a registered nurse on duty at all times, the total complement for 24 hours is only seven people. In a comparably sized unit for acute care, 8 people on the day-time shift, 5 in the evenings, and 3 at night make a total staff of 16 usually reguired. In great part, the staffing of the Borda Wing is accomplished by relying on the participation of the patients.

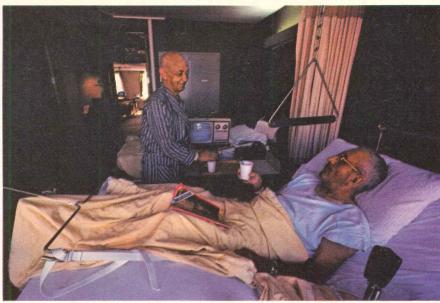
It is important to note that the administrators of this hospital use the facilities as a therapeutic tool, and like any implement it is only as effective as the operators allow it to be: It takes an enlightened administration to creatively apply the opportunities provided by this experimental space.

The new ambience in the corridor allowed creative programs to exist which have been successful because of the therapeutic program. Unwed mothers can recuperate without embarrassment and shame. The lack of distinction between patient and visitor allows terminal patients to be at ease with their families; pre-operative patients retain a more positive attitude towards their pending operation.

We certainly do not claim total success—for the nature of experimentation is the investigation of the unknown—and the result is always uncertain. But we are encouraged to see an increased awareness of the social force of environmental design. Architecture alone without the "administration of care and concern" can do little more than create a cosmetic appearance. But when a patient-oriented attitude permeates both structure and social program—the work of art is greater than the sum of its parts.









## Learning from experience:

The evolution of housing criteria

Theodore Liebman Alan Melting



Continually evaluating the performance of buildings for which it is responsible, the UDC focuses its efforts on criteria around the issues of "livability."

Since our beginning in 1968, the New York State Urban Development Corporation has produced 35,000 new housing units in 55 communities throughout the state, accommodating over 100,000 people. Producing housing at this scale has given us a unique opportunity to learn from that experience in a way that can significantly affect future housing design. It is not always easy to seize these opportunities and responsibilities, however, since we are not part of a discipline or industry which has much of a research tradition. Yet particularly with publicly assisted housing, we see widespread dissatisfaction, alienation, and

even eventual abandonment. The favorite target today is Pruitt-Igoe in St. Louis but it is far more tragic to consider similar projects that survive.

In an effort to improve the housing product for the consumer without free market choice, a research and evaluation program has slowly evolved in the Office of Chief of Architecture at UDC under the encouragement of Edward J. Logue, president of the corporation.

The major focus of these programs is livability and their

**Authors:** Theodore Liebman is Chief of Architecture for the New York State Urban Development Corporation, a public benefit corporation charged with providing low and moderate income housing and jobs throughout the state. Alan Melting is his associate.









#### Learning from experience

bias is behavioral, in the firm belief that the architecture of housing has direct social and psychological consequence. Constructive environments enable people to carry out their daily activities in an easy and satisfying way. A destructive environment frustrates and denigrates human aspirations, and while people can adapt to second rate environments, it is often at the cost of blunted sensitivities. Feelings of dignity, self-esteem, and worth are human needs equal in value to comfort, security, and safety.

Finally, in producing housing to accommodate people, we have to be constantly aware that people reflect a wide range of demographic and lifestyle differences. The lack of an easy and universal set of human needs and behaviorial responses makes the task complex.

#### **Evolution of research**

Beginning in 1971, we began to accumulate information from others about criteria for evaluating housing in order to better inform staff throughout UDC of appropriate criteria in programming and review. The most fruitful source turned out to be work done by the Ministry of the Environment (then the Ministry of Housing and Local Government) in the United Kingdom, on the dwelling unit spaces and activities as related to human dimension and interaction. They also were experienced in evaluating built housing environments.

We began to supplement this work, especially in its organization and in the behavioral implications, and added a new criterion in the housing context—its interface with adjacent units, the neighborhood, and the city. In thinking about the organization of the criteria, we became aware of the existing diversity of users as well as contexts. The broadest subdivision of users for which we were able to accurately define different needs were small families (nonchild-oriented), large families (child-oriented), elderly, and a catch-all group called "others" which could include students, dependent elderly, and the like. Since our scope was statewide, we had to develop criteria for inner urban, fringe urban, suburban, and rural contexts. Finally, the architecture/urban design/planning scales had to be accounted for in criteria for dwelling unit, project, neighborhood, and city.

The criteria seemed only meaningful if they were written in a language that dealt with the way people used space. How people entered and left the dwelling and how the entry space related to other spaces became our frame of reference rather than entry square footage or door size.

The number of variables in the organization of the criteria as well as the new behavioral frame of reference made the sheer generation of criteria an overwhelming task. However, having gone through the exercise, we emerged with a sense of the importance of behavioral issues and thereby a more convincing ability to be good critics of housing. We also determined that this research should not be codified to become a final document because it was more important as a continual learning tool and could be more effectively transmitted to our architects as qualities to be sought rather than as a manual of minimally acceptable conditions.

With this background, we began to take a more informed look at our own products. We found the housing to be re-

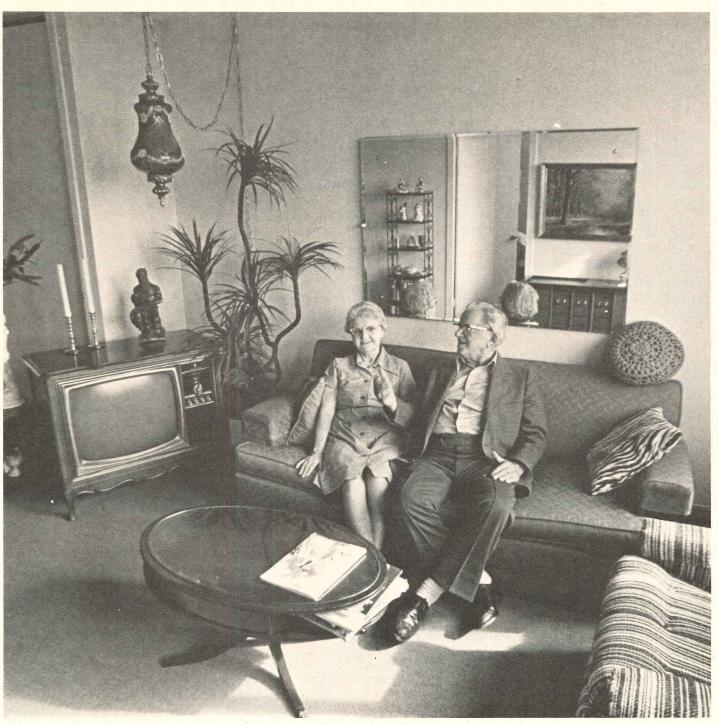
sponsive to neither the occupants nor the neighborhood. The major problems seemed to focus around the nurturing of children, the uncertainties of anonymous spaces manifested in security and maintenance problems, and the discontinuity caused by the architectural scale of the new housing in old neighborhoods. At the same time, because of the pressure to produce housing and the general lack of experience concerning the dynamics of aggregate housing forms, the architects we hired seemed unable to develop designs for us that dealt with these serious livability issues. We decided it was necessary to devote some staff energy to develop prototypes that addressed these issues.

The initial effort was a low-rise high-density housing prototype, developed in collaboration with the Institute for Architecture and Urban Studies (P/A, Dec. 1973, p. 56). At the same time, a day-care prototype was developed followed by a design for its first application by Vitto and Robinson. Both prototypes put emphasis on behavioral and contextual issues, especially related to the large family, urban situation. These addressed the scale and physical organization of the neighborhood, a sense of territoriality, and the relation of the child to family and the environment.

The major result of this prototype work, which produced a convincing alternative to the common New York City housing solution of high-rise, doubled-loaded corridor buildings, was the directive from Ed Logue that we would minimize the building of elevator-dependent housing for child-oriented families. As a follow-through on that directive, we have commissioned architects this year to design a second generation of LRHD housing on a number of new sites in New York City with programs ranging from 120 to 350 units. These designs are to embody the principles of the prototype and the experience of its first application at Marcus Garvey but, in addition, are to be responsive to somewhat different programs and site conditions.

The experience with the initial LRHD prototype and its first and second generation of applications continues to reinforce our conviction that, in New York City, housing solutions are not solely mandated by economics or technology, and well-thought-out prototypes applied to a wide range of situations can break through conventional wisdom that too often has become mindless conformity.

Our second current effort in developing housing criteria and prototypes is in the area of elderly housing. Operating with a grant from the New York State Office of Planning Services to produce criteria for elderly housing, we are supplementing the effort with our staff to develop prototypes whose aim is to better satisfy the needs of this particular user group. We have found in researching criteria already generated by others on the subject that these studies direct themselves to specifications for equipment and appurtenances that serve the elderly well from the viewpoint of physical health and safety, but rarely talk about spatial arrangements for psychological and social needs. On the other hand, the extensive work of sociologists and psychologists with the elderly is not easily translatable into terms meaningful to the architect. To fill that gap, and to build upon what we have learned in the first round of criteria research, we are developing criteria that talk more about the broader qualities of the housing unit: accessibility, flexibility, safety, comfort, security, and aesthetic qualities. These qualities are discussed in conjunction with elderly charac-



Ely Park, Binghamton, as designed by The Architect's Collaborative (left) and as modified by the occupants (right)



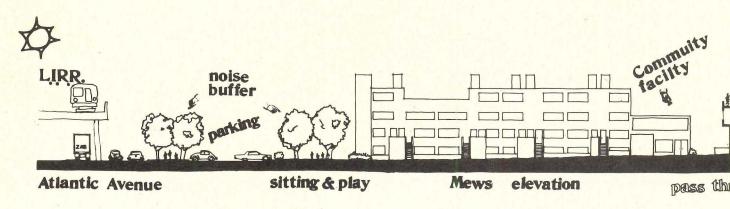


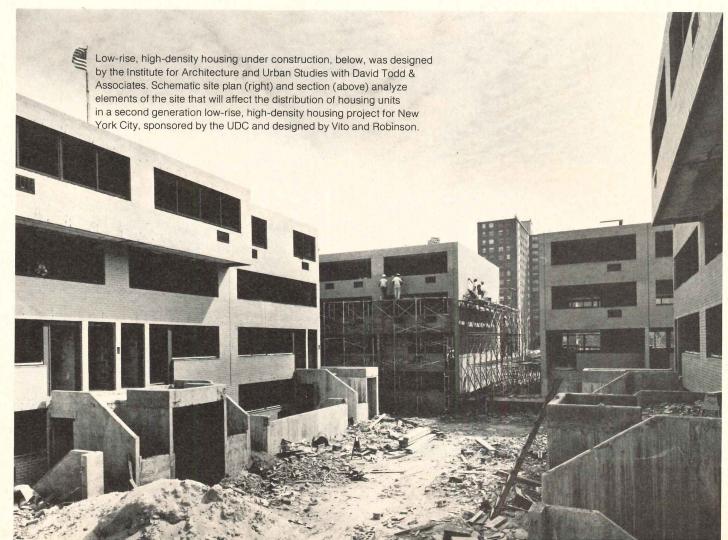
#### Learning from experience

teristics so that an explicit connection is made between the behavioral information and the critical housing qualities. For instance, an accessible environment is talked about not only in terms of architectural barriers but in terms of the importance of socialization to counter elderly tendencies toward withdrawal, opening up opportunities in creative use of leisure time, and in easing problems of dislocation. Likewise, flexibility as a housing quality becomes more relevant in discussions of the living patterns of the elderly coupled with the typical small unit size and overabundance of large pieces of furniture. A number of existing elderly housing environments (both UDC and others) are being analyzed and prototypical spatial arrangements are being generated which emphasize choice, ease of circulation and convenience, flexible as well as discrete use of space, and a certain amount of graciousness. Finally, several of these

prototypes are developed with the necessary common space and site development and with a surrounding context most likely to resemble sites for future application. We expect to continue to diversify our prototype efforts for particular user groups as we learn more about their needs. Operating at a statewide scale gives us the ability to address a variety of situations and the full range of users.

A program of staff evaluation at UDC was institution-alized in 1972 with our first "live-in" in which UDC staff at all levels are invited to live in one of our housing developments for a week or two. We sleep, cook, watch television, use laundry rooms, attend tenant association meetings, shop in local markets, and use public transit, acquiring an immediacy of experience in the housing we're responsible for seeing built, an experience unobtainable in the office. Reactions covered fairly objective factors like ease of using public transit or the size of rooms to intangibles like sense of pride engendered by the unprojectlike appearance of buildings. Live-in participants are asked to evaluate the



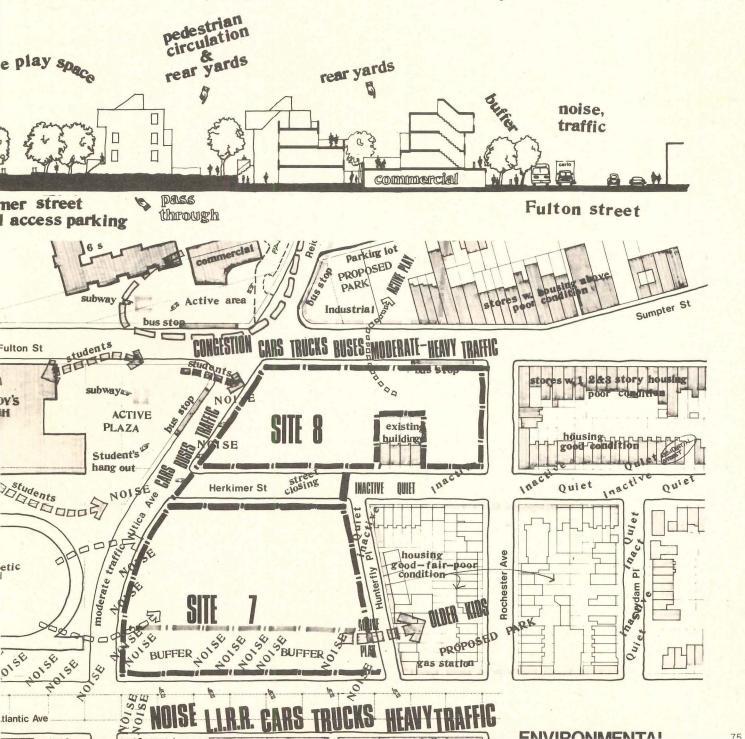


"living environment" of the development and to make "implementable suggestions" for improved livability. Last year's evaluation included rating the best and worst aspects of the unit, the building, the development, the neighborhood and the management. Suggestions for improvements ranged from "one more towel rack in the bathroom" to "larger laundry rooms" to "adding shopping facilities." At the end of the live-in sessions, a day is spent with all participants and project architects evaluating experiences, architects' intentions, and success and failure. Besides the intangible benefit the live-in program has of making UDC work more real on a day-to-day basis to the staff, there have been a number of policy changes resulting from problems directly encountered by live-in participants.

Room size standards were raised above the FHA minimums (invariably built as maximums in most publicly assisted housing) before the first live-in, but the decision was confirmed when staff encountered 80-sq-ft second bedrooms that appeared uncommonly cramped with no rea-

sonable furniture arrangement possible. They also developed a greater sympathy for issues of livability when confronted with inadequate barriers to sound, layouts which did not allow easy furniture placement, and the thousand and one details which are first to go, in order to meet strict budgets but which can often decrease the longevity and flexibility of the unit.

Finally, there was a general notion that in the design of our first round of housing, we wanted to open up our developments to the surrounding community—to make a "contribution" to the neighborhood in terms of open space and community facilities. Staff experience in the live-in program made us more cautious about such a benign policy when we saw the difficulty of maintaining an open environment. While we have not abandoned the policy by any means, we now realize the consequences of it and the special measures that must be taken in order to encourage the residents to feel responsible for maintaining (the quality of) their new surroundings.



#### Learning from experience

This year we have taken a step to broaden our live-in program to include all architects who do business with us, believing that no matter how well we inform our architects about our intentions, there is no substitute for direct experience in producing responsible design. One benefit we hope will develop will be architects who will challenge our programs—whether on room size, spatial arrangements, neighborhoods we built in, or equipment and materials used. The housing product at UDC results from a contributing partnership between our staff and our architects, and dialogue between us must be an informed one.

To supplement our live-in program of evaluation, Cornell University's Center for Urban Development, as an independent consultant to the corporation, began in 1973 to monitor and evaluate seven of the oldest UDC projects to determine tenant satisfaction with both the physical and social environment. These projects represented a variety of living situations from high-rise in the Bronx to garden apartments in South Fallsburg. Four sources of information were used: resident interviews, questionnaire check-lists filled out by residents, systematic observation, and management interviews. The premise of the study was that behavior and environment are inextricably related in a complex network and that the more that was understood about this network the better the decisions would be about the design of that environment. The projects were evaluated from the perspective of the degree to which they allowed freedom of choice by tenants, both in terms of personalizing their unit and in carrying out their daily activities. The attributes examined were broad in scale, including site arrangement, exterior appearance, interior layout, materials and equipment, recreation, and security; and the team was directed to study sensitive issues like availability of UDC facilities to nonresidents, and management-resident relations and policy. Some aspects of the projects receiving high rating in satisfaction confirmed UDC design policy. These included emphasis on privacy and individualization of units by variations in shape, pattern, and form. Maintenance emerged as a quality having significant impact in judging exterior appearance. Interior surfaces and windows as designed were noted as particular maintenance problems for tenants.

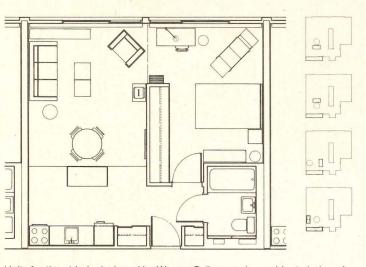
#### Putting experience to work

There was a clear desire for more unit flexibility in terms of living patterns and spatial arrangements. More traditional play equipment was preferred (and through observation, more used) and contact between unit and play space was highly important. In lower density developments, the paved spaces, especially the walkways in front of the units, were the most highly used outdoor spaces, perhaps substituting for the street space in more urban situations. Finally, clear territorial definition between development and community was critical in high density situations and was an aspect needing more attention in the planning stages. It is too early to report on resulting changes in the departmental policy except to report that we are starting to experiment with an in-house evaluation team which the report recommends. Whether institutionalization of this team in-house will give us genuine response from the tenant is one of the

questions to be answered in this experiment.

All of these research and evaluation methods have given us a better sense about predicting housing environments that will be successful. We now have some understanding of the anxiety of parents who cannot easily supervise their children in play, and so we try to build for large families close to the ground and with private yards, and we locate laundry rooms with access to outdoor play space. We have been repeatedly told how an endless repetition of look-alike apartments begins to submerge individuality and have observed how this need can sometimes only find expression in destructive acts. We continue to build units that are distinctive architecturally which will, hopefully, encourage a sense of community among the residents. Territoriality, a much discussed environmental attribute, has made us aware of the importance of being able to distinguish neighbor and stranger, and we have seen in some of our larger projects with anonymous entrances and endless corridors that police become the only solution for security, creating apprehension for both the innocent stranger and resident. Our new projects attempt to deal with these issues through architectural solutions by insuring informal surveillance of entrances by residents and designing no unseen or unused space. The need for unit flexibility has been a more difficult issue to tackle, but our larger family units now have two living spaces in each unit so that the family has some room for conflicting activities. We also try to insure flexibility in furniture location by requiring our architects to lay out several arrangements that work during schematics. This can go a long way to combat the tightness of the still small room sizes mandated by our budgets. We are experimenting with elderly units which are more open and less rigidly subdivided so that there are opportunities to use different spaces for different needs and to relieve feelings of confinement, depression, and irritability a "tight" environment forces upon those like the elderly who spend large amounts of time at home. We are also developing units which can better accommodate two unrelated elderly who wish to live together—a means to solve their economic problems. We have worked with other groups in developing ideas on the importance of showing more respect to the built form of existing neighborhoods and, as a result, architects commissioned by us have to provide a contextual analysis which describes the surrounding environmental conditions that have influenced their site planning and architecture. We are gaining new experience daily in tenantmanagement relations as our units become occupied and we realize the economic and social consequences of maintaining public space for which no one feels responsible. The emphasis on the LRHD prototype with individual entrances and exterior spaces designed for deliberate use moves some distance in solving this problem.

As we become more knowledgeable (or think we are) about environments, there is a human tendency to focus on solutions that once worked and to narrow the alternatives based upon building practice and minimum standards. We must continually remind ourselves that human response and environments are dynamic; that our research and evaluation efforts must be continuous to provide the feedback to correct previous assumptions; that the ability to grow, to mature, to assume more responsibility depends on the willingness to build on past experience.





Units for the elderly designed by Werner Seligman give resident choice of use—separate bedroom or one space, dining in kitchen, or in living area.



### Process aesthetic:

### Some thoughts on the thinking process

Robert L. Propst



While open office concepts and furniture support certain attitudes about work, the *process* of working produces its own aesthetic that is not accounted for.

Thinking man has thought about virtually everything in his universe but the circumstances and conditions that propel the thinking process itself. Unfortunately, it is quite probable that more is known about the life cycle of the Fruit Bat than is known about the process characteristics of knowledge work. How is knowledge work conducted? How is it supported, amplified, vitalized, sustained, directed? What influences, modifies, or effects knowledge work? Is it susceptible to surroundings, signals, sensations, and perceptual combinations? How is it effected by conditions of psychological or physiological comfort or discomfort? With or without answers, we have, in a few decades, become a society dominated by the productive consequence of knowledge work. Moreover, it now has the greatest worker num-

**Author:** Robert L. Propst is an inventor and designer who has made significant contributions to the interiors field with the design of Action Office furniture and the Co-Struc Hospital System.

bers. And the most expensive! Peter Drucker focused on this cost in his book, "The Age of Discontinuity."

"Since the knowledge worker tends to be a good deal better paid than the manual worker, and also to have much greater job security, knowledge has become the central cost of the American economy. The productivity of knowledge has already become the key to productivity, competitive strength, and economic achievement. But the statistics, impressive though they are, do not reveal the important thing. What matters is that knowledge work has become the central factor of production in an advanced economy."

Yet understanding the knowledge worker's process remains a paradox: the better it is executed, the more oblivious the worker is of process. A good knowledge worker is consumed by goals, objectives, and the purpose of the work. He notices only the overt distractions, inhibitions, or roadblocks. A poor knowledge worker notices only the process, enshrining pointless busy work as evidence of work or meaningful activity.

Thus, opinions from both effective and ineffective persons have produced many fanciful conclusions about what constitutes productive process. Only since research has started documenting the actual interactions and transactions of the knowledge worker are we beginning to have a realistic glimmer of the meaning of process. Even more is



hoto: Bettman Archive

involved in understanding the actual interface of the physical place and the process of knowledge work. Physical settings were and still are conceptualized, designed, and constructed with little awareness of their influence on the continuing daily process of living and functioning. Traditionally, the work place was held to have very secondary influences on satisfaction and proficiency in organizational affairs, and consequently, it was assigned a hygienic role, i.e., if you are in a clean, dry and safe place, what really counts is organizational array and management.

#### The identity process

One of the most compelling tensions we all face in organizational living is the continuing struggle to identify: who am I, where am I, what am I doing. A good place recognizes this need and goes unabashedly about the business of conveying identity information.

On an individual scale, the visual identity of tasks and areas of responsibilities has always been important and one of the things that keeps "messing up the place," but work artifacts are the feedback structure that keep telling us what we are doing—key to what we know—the rearrangeable signals in the building block structure of a thinking process. It happens anyway, regardless of the most deliberate intention of designers and decision makers. Un-

possessible places are marked with destruction or abandonment. Possessible places are developed, elaborated upon, preserved by appreciative use. While this can all be forced to go away and hide, as it sometimes is forced to do, the penalties are enormous.

Information in the knowledge work environment is becoming more visible and tangible. Knowledge work very frequently operates from collections and arrangements of papers and objects that constitute worker generated arrays. Though appearing somewhat disorderly to the casual observer, these collections are subtle feedback assemblies that sustain the progress of many kinds of knowledge work.

Flags, signals, and cueing devices are emerging as part of this more frankly visual informative attitude. The information stored in the direct work place no longer disappears so completely into filing cabinets. If it is still current and useful it well may be visually tagged in folders and binders on racks and shelves.

Direct physical surroundings can help the knowledge worker contend with the increasing quandary of over-abundant information by involving him in a more realistic judgment of his capacity for involvement and the relevance and importance of different kinds of information. By allowing individual work areas to be more direct information centers, there is less delusion about the 'retrieving of information'

#### **Process aesthetic**

that has been sent away to be stored (less than 20 percent of filed information is ever retrieved even one time). There is an equally important tangible relationship to the need for continuous purging. It is probable that more and more organizations will flounder on unmanageable mountains of dead information simply because individuals in the organization feel no pressure to purge.

#### Manipulation in process

Although knowledge work is seldom thought of in terms of manipulation of physical things, it is, in fact, a lavish phenomenon. Research with time-lapse photography at Herman Miller Research Corporation revealed that office workers may spend as high as 50 percent of their time in direct manipulation of the small artifacts that are literally the first line of service to the modern knowledge worker. (Workers asked to estimate time spent in manipulation tended to underestimate the actual time spent by three or four times.)

A computer programmer, for example, will spend about 68 percent of his workday in some kind of operational interface with the proximate desk top environment. Of the 68 percent, at least 95 percent involves some kind of handson manual manipulation (only about 12 percent of a programmer's time appears to be spent in contemplative nonoperative context).

From the time-lapse studies, this worker may typically go through the following separate process modes in a day: 16 readjustments of generated paper work situation; 7 phone calls; 14 procurement and application actions with supplies and supportive materials; 17 transport and transfer actions moving work-in-process items from one location to another; for a total of 54 modes.

Within each of these sets one must, in addition, visualize a mutliple series of manual manipulations and physiological interactions with equipment or artifacts. For instance, ask yourself how many discrete actions and how much time does it take to dial, start, and complete a telephone call.

A busy receptionist/secretary who answers in-coming calls, sorts mail, types letters, does expense accounting and other miscellaneous activities may nearly triple the

number of discrete process modes over a programmer. The number of separate manual actions that goes into this is staggering to contemplate. All this process activity happens in the 3-ft diameter action arena, and relatively small but important adjustments that reduce redundant or inconvenient multiple motions can gain back significant time for the knowledge worker in this small world of subfurniture effect.

On a larger scale, the adjustment and rearrangement of work stations to fit individual tasks or evolving and changing responsibilities is an option that at first worried managers and alarmed interior planners. But experience is showing that such rearrangement can be accommodated with no loss of essential control of management prerogatives or appearance objectives.

On a third level, the material handling chores in the knowledge work environment are changing both in scale and character. Since fast processing of information emphasizes transaction and transport of artifacts rather than storage, much of the handling is in the form of mobile trays, carts, and other transport systems.

Finally, the knowledge worker himself is much more of a nomad. Fifteen years ago the typical office organization would have from 20 percent to 30 percent of their employees away from their desks at any given time. Now this number can easily be in the 40 percent to 50 percent area. This does not mean they have abandoned their work. It means, more than anything else, that there is a growing realization that to be successful you do not wait for information or events to come to you—you initiate actions and gain results. Work situations may develop in a dozen different places with a great many things carried along, and this is forcing much more office effects to become portable.

#### The process aesthetic

A working office with process underway is rarely looked upon as having very much native charm or beauty. There are, on the contrary, serious efforts to clear away people and work before offices are ever shown as design feats.

What is curious is that almost every other kind of work has developed an authentic understood work aesthetic . . . cowboys, construction workers, chefs, football players, lab technicians, all have resolved ways to look good. Who, with the exception of top executives, takes any pride in showing



Photo: Bettman Archive



Photo: Bettman Archive

off their offices . . . why does the native activity of office work so embarrass the place?

The fact of life is that this cultural collision has been building for quite some time. As knowledge work has become more diverse and complex, and process artifacts so abundant, furniture and decor statement almost disappear. What is emerging is a much livelier and authentic aesthetic form—a kind of process aesthetic that is compatible with the activity, character, and identity of people and firms.

From the user's standpoint it is more a test of whether or not a place can be natural, interesting, relevant, and descriptive. From this basis a new kind of formality conclusion is emerging and the form of the physical equipment is evolving as a new, more anonymous, embracing design.

The ability to think of process draws us closer to the actual character of the day-by-day, hour-by-hour living in an institutional context. The knowledge work place is already a great segment of what most people consider their main contact with society in general—their job. More and more it will have to be a place where a good social process takes place . . . an organization the worker likes being a part of, in a place where he likes to be.

In no small manner, designers and manufacturers need almost as close an identity with the knowledge work organization and its process as the knowledge worker himself. The next decade seems destined to see the office work place falling into the awakened possession of the user himself. What will happen?

There seems little doubt that whole places will be designed around complete scenarios developed by an emerging group that Peter Drucker describes as the 20th-Century manager. As he sees it, this new manager recognizes that the world has evolved in a few generations from small family and work units into a society of vast, complex institutions. The responsibility to make these institutions function effectively rests on these managers.

C. Jackson Grayson, Dean of the School of Business Administration, Southern Methodist University has developed such a scenario to a highly advanced state. It describes the hour-by-hour, day-by-18-hour-day, year-after-year context of students, educators, and business men in an innovative business school environment. This thinking was developed before it was visualized in conventional terms via drawings,

designs, and plans, and this should be recognized as a new, more useful first step in determining the way a place must perform for those who use it.

The implication is this: line managers will now be a new force in the determination of the design and character of places. Facility management as a top level management function is here to stay. The problem for architects and designers is to understand this fruitful new involvement on the part of the management-user and to discover ways to work in this new mode.

There is little doubt that there will be increasing rejection of the great uninhabitable, super spaces that is the facility fetish of our times. Kenneth Boulding writing in *Technology Review* illustrates this departure from user innocence:

"To one who has watched downtown Boston intermittently over, 40 years being transformed from a charming city of human scale, if a little down at the heels, to a bleak wasteland of inhuman throughways, glass, steel, and cement, it is hard to refrain from a certain ironic satisfaction of having the latest monument of inhuman architecture (the John Hancock Building) turn into a soaring fantasy of flying glass."

At the same time, there is bound to be an equal rejection of the great gray life, junk heap, work ghettos that have characterized middle-level-on-down work spaces in most office organizations. And it would not be surprising to discover that a major cause of alienation from the work place is the place itself. In statistically minded Great Britain it has been learned that more people are missing from work each day because of mental illness than from any other cause, a fact which should warn us of the need to reorient our ideas on the types of organizations and places that retrieve people! We are suffering with a vast case of the 'white collar flu.'

Does it work? Do I like it? Finally, it is the power of these two questions that will bring forth a much needed revolution in the accountability of facilities.

Measurement and evaluation will certainly have to mature as a collaboration between the behavioral scientist and the decision-making user/manager becomes the necessary force behind the revolution, and the contribution of the work place as a crucial ingredient, will have to be defined, explained, and accounted for.  $\Box$ 



Photo: Bettman Archive

## Performance may be a great idea,

(but will anybody really pay for it?)

Michael Brill Lynn Brown Terry Collison Bonnie See

#### Why this article was written by two firms

**Editor:** The opportunity to work together for an extended period of time seldom happens between a building products manufacturer and an "outside" research group. Corporations requiring a lot of work, usually develop an "in-house" capability.

Interestingly enough, Hauserman Inc. actually wanted an outside perspective on their emerging interior systems programs and asked BOSTI (and several other groups) to fill that role.

The format of this article is itself a model of the continuing BOSTI/Hauserman dialogue.





# **What's a Bost!?** we are a small, nonprofit organization doing research and consulting for governmental agencies, private corporations and community groups. Michael Brill, Terry Collison and Bonnie See are the partners and principal researchers of the group.

#### **Getting together**

**BOSTI:** We were familiar with Hauserman's excellent reputation as a manufacturer, with their winning the competition for the interior space division system in the U.S. performance-based systems-built schools (SCSD), and with their contribution to the development of performance specifications for federal office buildings (done for the U.S. Public Buildings Service at the National Bureau of Standards).

In May 1971, Hauserman called us and posed an intriguing question: "Would BOSTI come to Cleveland for a day to see what they'd been working on and to give them our reactions?" Without giving us any specifics, they indicated that the issues were complex, that they had some questions about the approach they were using, and that they would value an external perspective.

**Hauserwho?** a manufacturer of movable metal partitions for the last 60 years, the E.F. Hauserman Company felt that its real value lay in providing the means for users to reorganize space and wanted an outside perspective on its emerging interior systems program.

#### low the day was organized . . .

posti: We structured the day into "input" and "output" sessions. In the morning the Hauserman becople gave us a complete, detailed briefing on the history of the company and its present position and challenges. They emphasized their recognition that the office, the things in it, and the job it is supposed to do are changing in very significant ways, and described their own commitment to develop an appropriate new response to this.

Specifically, the Hauserman people described heir program for developing OIS, their new Office nterior System, designed for both open and closed office planning, with low screens and both partialand full-height partitions that supported a wide range of storage, display and work surface components, plus a series of magnetically attached accessories. They showed us designs, demonstrated prototype components, shared some questions they had about marketing the new system, and reviewed heir timetable. It was a very thorough and candid presentation.

#### structuring our thoughts

**OSTI:** We combined the notes we had taken during the morning's presentation and developed a *hier-rchical* and *sequential* set of our reactions and sugestions. Based on what we had heard, we identified 8 specific issues that we thought Hauserman hould ideally consider in developing OIS.

We organized these 38 issues in a flow chart, uickly evaluated each "box" on a five-way scale rom "critical" to "optional" and then plotted each sue against the very tight project schedule Hausernan had presented in the morning (45 days left until ne system's "software" was to be finished, 90 days ntil its hardware design was to be "frozen"). We relized that many questions simply had to be deserred to a future time, but we felt it important at least principal in the control of the

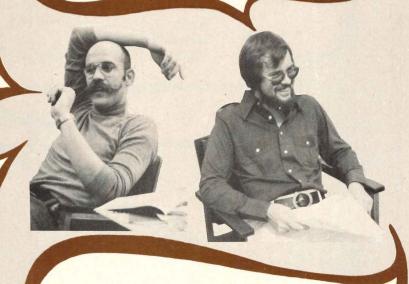
We thought Hauserman was moving in the right irection and we felt that the basic concept for the ardware was good and would work. We felt, howver, that there were important unresolved issues oncerning: the overall systems concept, the way ne client organizations initially perceive their probems and how they organize to make decisions bout new facilities, whether the end-user would eally recognize and utilize specific performance caabilities being built into the system, and in-house hanges which Hauserman itself might make in orer to market OIS with maximum effectiveness.

We acknowledged that some of the thorniest isues we had raised just didn't fit comfortably with ne deadlines established in Hauserman's original chedule. As it turned out, however, Hauserman oncluded the day by inviting BOSTI to develop a pecific strategy for taking at least a "first cut" at all 8 issues as part of their emerging program.

#### Sandwiches and software

Hauserman: At lunch, we reversed the roles and asked BOSTI to describe some of the things they had recently been working on—a series of "systems" projects for the State University Construction Fund of New York, User Needs Analysis for Operation Breakthrough projects, and development of participatory planning techniques.

After lunch, we separated and we found BOSTI an empty office where they could work on their own for a couple of hours.



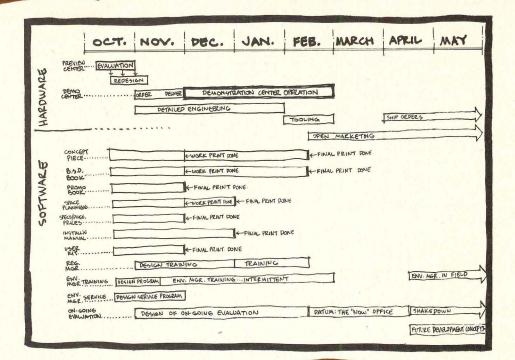
#### How the program was organized

Hauserman: Since the initial direction of BOSTI'S work with Hauserman was, in effect, as a member of our in-house development group, it's natural that much of their work was originally conceived strictly for use 'in-house.'' The same is true of work by other key groups we involved.

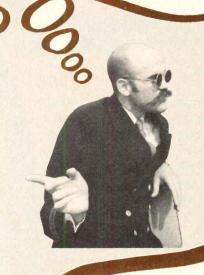
We like to think of the program as a consortium—with BOSTI acting as a highly analytical organizer and devil's advocate in addition to doing specific tasks for which it was especially well qualified.

But we also worked with several other well-qualified firms in their respective areas of expertise. Chris Arnold and his associates at Building Systems Development, Inc. of San Francisco helped us develop ways to interface our products flexibly with all the "support services" in office buildings; Kathy Thompson and her associates at ISD Inc. of Chicago helped us on specific dimensional and geometric requirements for the storage components and the work surfaces.

Hauserman provided program management, physical product development, and money. Given the results to date we are convinced that the "front end" involvement of all these groups yielded a very strong, logical basis for the design and planning of everything we did in the program.







#### Our initial assignment to возти

**Hauserman:** In developing their analysis for us, we asked BOSTI

- 1 To describe the problems generated by change which are unsolved in office work environments.
- **2** To define the complete set of performance requirements for the productive office, thereby focusing attention on how the office works, rather than simply on the way it looks.
- **3** To examine the economic issues and measures that apply to high performance, adaptable office interiors.
- **4** To identify ways in which Hauserman could effectively *respond* to the broad spectrum of needs over the years an office is used by many different kinds of people and organizations.

#### What the projects were

**BOSTI:** As it turned out, we were all involved in heling to develop a number of different hardware and software elements for the OIS program. The various BOSTI projects, however, all seemed to grow out a single "concept piece" Hauserman had requeste

### The management of change and productive interiors

**BOSTI:** Our report to Hauserman—which we called "The Management of Change and Productive Interiors"—is organized around these four issues. In the first section, we analyzed how organizations have been changing, their new work procedures, and what they expect of their facilities. In the second section we then defined *all* these complex facilities requirements in terms of 22 specific performance requirements for the interior system as a whole (hardware *and* software)!

The third section (of which we are especially proud) is called "The Economics of Performance"—a hard dollars-and-cents argument for performance-based decisions about office facilities. This section analyzes the whole-life cost of an office facility and shows the first cost of the *interior*—which is, after all, the part of the facility that most *directly* affects the users and their productivity—as a percentage of this whole-life facility cost.

Finally, the last section of this book is eight basic recommendations to Hauserman (with the detailed logic behind them) for a comprehensive development program to "do something" about these problems. We recommended that:

- 1 Components are needed which are responsive to the needs of the user and to the changing nature of the work being done.
- **2** These components should be compatible in sizes and design with complementary types of standard office furniture and equipment in general use.
- **3** Components should be appropriate for any type of office layout or level of privacy.
- **4** Components should facilitate easy, low-cost change.
  - 5 Change should be understood and managed.
- **6** Interior flexibility should be specifically designed into the office building.
- **7** The concepts behind the advanced development program should be openly shared with others.
- **8** There should be a formal on-going evaluation of performance.

Once this overall systems framework had been clearly established, BOSTI and other members of the Hauserman "consortium" were able to develop specific ways to implement or "operationalize" each of these eight recommendations. This included performance specifications and a formal in-house product evaluation program, user software, an analysis of hardware "interface" problems, an environmental consultant program, marketing concepts and sales training materials, and lots of other things.



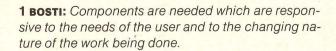
#### Was all this work used?

Hauserman: No. Some of it we tried to use, but found that our perceptions and that of our corporate clients was different. Some of it, we didn't know how to use, in the sense that we felt we couldn't find a way to get it paid for by clients even though it would have been very valuable to them—and to us. And even though we worked very closely with BOSTI, and approved all the work, proposed outputs and budgets, there was some work whose recommendations we had to defer taking action on until other problems were solved. Simply stated, we found that once we got a handle on the "right questions," we started getting lots and lots of good ideas, some of whose implications couldn't be fully realized for a number of years.

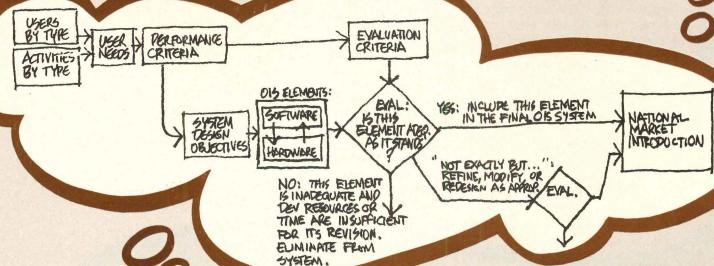
It's interesting to match the various "products" of our work together to the eight key recommendations developed by BOSTI.













Hauserman: During design a large room full of prototype components was built and tested. BOSTI designed a "pre-manufacturing" testing program for evaluation of the prototype system by office workers, by corporate executives, by maintenance people, by architects and by interior designers. The results of these evaluations were extremely helpful in the final design changes (many of them major) which were incorporated into the system.

**2 BOSTI:** These components should be compatible in sizes and design with complementary types of standard office furniture and equipment now in general use.

Hauserman: That concept has proved to be really important—as it allows a manager to start to upgrade his office space without getting rid of everything. Because he can still use existing furniture, he can often avoid the "going-for-the-big-appropriation" process and the risk of getting shot down. He can work out an improvement program over a couple of years as his normal budgets allow. He can also save his company money by not junking serviceable equipment.

**3 BOSTI:** Components should be appropriate for any type of office layout and for any level or privacy that is required.





**Hauserman:** Again, this is important to many companies. There are many tasks—or organizations—which really require some sort of enclosed space for privacy—and in some cases for necessary status. But they also require work space responsive to the user and capable of being easily changed.

And having the option of enclosed space within the system solves another problem—it lets a company evolve. Rather than a revolutionary "everybody-into-the-open" approach, enclosed and semienclosed arrangements can be retained where needed. But everyone has the same furnishings—and the same flexibility—so that company is one step closer to moving people into the open, if that's appropriate, either next year or 10 years from now. Finally because so much of the system can be used either in an open or in an enclosed mode, it greatly reduces the cost (and risk) of making a mistake.







**4 BOSTI:** Components should facilitate easy, low-cost change.

**Hauserman:** We designed the components of OIS so that the organization can change its own work environment, even "radically," generally without having to call in higher priced outside labor. The individual user can rearrange most components in his or her own work area by himself or herself. The organization's maintenance staff can then handle changes affecting larger areas in the office.

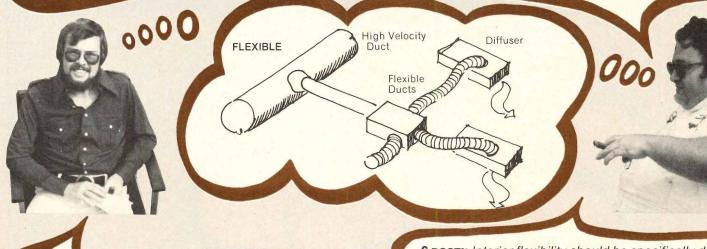
Designing this capability into the system has meant that one organization has been able to reduce its "cost of change" from \$1059 per office (using a "conventional" movable partition) to \$79 per work station since installing OIS. Interestingly enough, fully \$31 of this \$79 seems to be attributable to the use of an underfloor electrical system. It has been estimated that using a ceiling feed for power and communications could reduce this \$79 down to an incredible \$48 per work station.

**5 BOSTI:** Change should be understood and managed. There is evidence that many people underuse highperformance systems when they get them. (Why not? We mostly live in low-performance environments.) We performed a day-to-day task analysis of the problems individual users would have when they first encountered a high performance interior system. From this, we developed a User's Manual which describes: the reasons the system was installed; what components and accessories are available; some ideas about designing environments that work and a discussion of the aesthetic component of the decisions users will make; and lastly, how to know when changes should be made and how to make them easily, what tools for change (both hardware and other software) come with the system and how to use them.

One of the software components that we sug-

gested might "come with the system" was someone dubbed the *Environmental Consultant*—a helpful "shirt-sleeves" type, knowledgeable about OIS, office psychology, management expectations, user needs, office design, and office work. This person would come to "live with you" for the first month, to help adjust and fine-tune the system and to ease any trauma. The original notion was that these services would be part of the base price of the system.

We developed a complete training and service program and materials for Environmental Consultants which included: a) a description of their tasks and responsibilities, b) some concept pieces on change in the office, performance requirements for the office, and factors affecting human performance; c) problem-solving techniques for the client organization; d) some group process techniques; and e) a series of specific on-the-job aids.



**6 BOSTI:** Interior flexibility should be specifically designed into the office building.

Hauserman: Hauserman searched for and found two terrific people to do this job. Then it was discovered that many clients did not want the service. They felt it might be disruptive having a stranger (even a ''nice'' helpful stranger) running around helping their staffs ''adjust.'' The people hired as environmental consultants now have important positions within the firm, but not as Environmental Consultants as originally conceived.

And in retrospect even the Users' Manual proved to have limited utility. Direct training by our sales engineers and environmental consultants has proved to be more successful. Where we have used the booklet, it has been specifically tailored to the customer's policies and philosophies, and in general has had less emphasis on theory and more on actual use—including safety.

It still surprises us how little people will learn about the system by themselves; our people have been showing users that equipment can be rearranged and how to do it. They have also been working with supervisors and managers to show them how to use flexibility for more effective management. Hauserman: In parallel to Bosti's work, we asked BSD to develop another "no-sell" book, this one of rected to architects and office building developers telling them how to design office buildings to accommodate any flexible office interior system. We and others have seen that, unfortunately, many buildings on the drawing boards just don't have the flexibility built into them to accommodate high performance interior systems.

This is so important. We've seen installations of highly flexible furnishings where 10-12 people are disrupted and their work stations pushed off to one side just to add one phone using a floor trench. The doesn't seem like low cost, easy flexibility and we felt there had to be a better way.

In addition to flexibility there's another benefit which comes from considering the total interior as system—and that's possible lower first cost. We re cently completed a project where, by suggesting that the design be changed from a floor electrical system to a more flexible ceiling feed, we saved the owner enough to significantly upgrade his interior into a more flexible total system. The result was a better looking, significantly more effective building for the same budget.

**7 BOSTI:** The concepts behind the advanced development program should be openly shared with others.

Hauserman: Interestingly enough, BOSTI's "concept piece" was originally conceived for us "in-house." However, we found the concepts and recommendations developed by BOSTI to be so significant and so valuable, that we decided to publish their report and to make it available to others who share our interest in the issues. People can get it simply by writing to us and asking for it. We have also published the report on interface problems developed by Building Systems Development, Inc. for use by architects and a space-planning guide, plus a number of other items—all in an effort to get people (especially corporate managers) to think about change in the office in performance terms and to begin considering what this means to their own organization.



**8 BOSTI:** There should be a formal on-going evaluation of performance.



Hauserman: The Evaluation Program proposed by BOSTI is another piece which just hasn't "made it"—at least, not yet. The Evaluation Program was initially proposed as a service to Hauserman clients, whereby BOSTI would develop evaluation techniques for the clients to use in formally evaluating the impact of OIS, on their operations in terms of productivity, user satisfaction, and the true cost of making changes. Considerable work was done on this program including describing a model of the process, developing a prototypical schedule, identifying what information was to be sought, how, from whom and under what conditions; and designing questionnaires and mini-reports for staff and management. But, several problems arose.

reliable and valid measures of productivity, especially for upper echelon people, the so-called "knowledge workers." Because there is difficulty measuring productivity directly, the state of the art tends to use surrogate measures, like personnel turnover, absenteeism, or promotions. Further, even if productivity were to increase, there is still difficulty in establishing a causal relationship between this increase and a qualitative change in the environment. In addition, although a "before and after" analysis

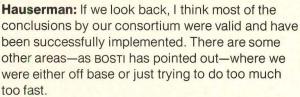
was never the prime focus for the evaluation program, it tended to be perceived that way and not many people want to spend money in what seemed to be an evaluation of a recently made major corporate decision (what happens if the evaluation results are "negative"?). Although we have intended the evaluation to be an on-line management tool, useful to clients in continually adapting the system to new needs, and useful to Hauserman to know how people actually used the system, it has not yet been seen as worth the effort required to make it work.

#### What are the problems that still need work?

**BOSTI:** In some cases, we tried to push Hauserman to do things that they or their clients weren't ready for, or which the state of the art of information in that area wouldn't really permit, or which were simply poorly timed.



**BOSTI:** For example, the opportunity for leverage on a company's operating efficiency through the construction of a task oriented space is documented by the fact that only two percent of the total life cycle cost of a building is for its interior systems.



There's a third area though, where implementation of concepts and approaches has been very difficult due to the way large corporations organize themselves to make their decisions. Although we've had successes here, these problems are still as real today as they were two years ago.

We ought to talk about these—because anyone who's really trying to develop high performance interior systems will run into them.





Hauserman: The problem is that most companies when they're building or remodeling—are focused on the 2 percent. In fact, the corporate facilities manager is evaluated on how close he comes to the building budget. That's his focus, his responsibility and his indicator of success. Partly it's that way because it's easy to measure whether or not he met the budget, but very hard to measure a change in the productivity of office workers. So we need either to develop a valid and reliable measure of productivity linked to environmental change or to find a way to reach the person responsible for all three components of the cost-and that tends to be the Chief Operating Officer. He's normally a difficult person to see and to get involved in what has traditionally been perceived as "just" a facilities issue.

**BOSTI:** There's another problem with the traditional decision-making process. The flexibility, benefits, and attractive cost/benefit ratio of effective interface planning requires that decisions which are normally made sequentially need to be simultaneous. For example, if an inflexible ceiling system was purchased as part of the general contract, it doesn't do much good to buy a movable partition as part of the interior two years later or six months before move-in.

One runs into the same problem in considering work station lighting (as opposed to general lighting of the space) as an energy saving approach. The building's major electrical decisions, including lighting, are generally made before anyone has dealt so riously with the concept of the interior. That just doesn't work as a systems-oriented decisions process.

**Hauserman:** The process of buying the interior as a "system" can also pose a problem, particularly for the public sector. How does the prospective buyer evaluate alternatives which can vary significantly in first cost/flexibility/services/quality/aesthetics/function/etc.? The decision making process itself is a complex one. In some cases we've worked out quantitative models which develop criteria, assign weights to the various criteria, and then by ranking alternative systems against each of the criteria, it is possible to develop a "score" for each system. If one divides this score by cost, one gets an index of systems value per dollar, which is directly useful in selecting among alternatives. The benefits of such a "formal" decision process are that a group position on important criteria is developed and that a logical and "transparent" conclusion can be reached even while considering dissimilar alternatives.

Systems vs. furniture: It's really not as much a problem of institutional structure as the others above, but we frankly think the level of publicity given to office "landscape" is dysfunctional. What seems to be happening is that office landscape is sometimes being misperceived as new, fancy furniture, with the result that inadequate consideration is given to the analysis which is such a key part of developing task supportive space (whether it proves to be office landscape, enclosed space, partly enclosed space or a mix). People seem to be buying "systems work stations" like they bought the old double pedestal desks, . . . you know, "we're adding 10 people, send over 10 work stations." The resulting space doesn't really work much better and the purchaser feels defrauded. Systems are designed to support the way work is done and are fundamentally different from "just furniture."

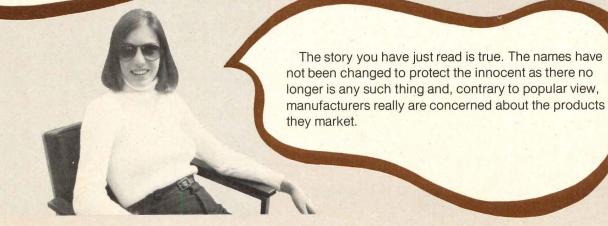




**BOSTI:** That raises another structural problem—who is it in a large, complex organization that can actually deal with the multitude of considerations like:

- How should the building's structure and services be jointly planned to ensure flexibility?
- What space plan and task support elements will best support the organization's work flow and tasks?
- What changes in work procedures and paperwork should be made concurrently with adoption of an interior system?
- How can the interior aesthetic be designed to meet individual requirements of top management and lower echelon people as well?

To answer these and other questions, and to perform the analysis referred to earlier, there is really an unfilled need for an organization which combines (in a highly integrated manner) the skills and knowledge of the architect, the space planner, the corporate manager, the industrial psychologist, the interior designer, and the operations researcher. Many perceptive office building developers and corporate facilities managers see their problems as complex and interactive, yet can't find a firm capable of thinking through and resolving all these problems in an integrated and systematic manner.



# Open plan furniture:

An investigation and analysis

Hugh M. Keiser

In attempting to select an open plan furniture system for a client's new headquarters building, Keiser Associates compiled data on available systems, then set up a test area where the systems could be used and evaluated by the personnel.

With the addition of new subsidiaries and the concomitant increase in operations, flexibility was a prime motivational factor for The Williams Companies' new corporate head-quarters in Tulsa, Okla.

To assist in the decision of which open plan furniture system would be used, a management "Task Force" was formed by The Williams Companies to work in tandem with H. M. Keiser's professional staff of planners and designers. As no single, clear-cut decision emerged from their investigations, it was decided that H. M. Keiser would undertake an in-depth analysis of all open-plan furniture systems to determine which would best meet their client's needs.

The first step was to decide which, of all the existent systems in their infinite variety, were to be surveyed. The height of the vertical elements was chosen as the critical factor. A median height of 65 in. was established as optimum—sufficiently high to satisfy the acoustical consultants who preferred floor-to-ceiling enclosures, sufficiently low to gain approval from the air conditioning and lighting consultants who preferred no barriers. Systems that might offer vertical elements close to this optimum height were to be analyzed further. Others would be eliminated. Thirty-seven manufacturers' systems remained for in-depth study. A questionnaire was sent to these manufacturers, covering 110 points to examine the completeness of each system, its flexibility, utility features, maintenance problems, finishes available, safety features, means of construction, acoustic treatment and light reflectance properties, etc.

In conducting the survey, no attempt was made to rate systems on the basis of aesthetic characteristics. Aesthetics and cost were to be considered only for those systems deemed functionally and technically suited to the long-

**Author:** Hugh M. Keiser is president of Keiser Associates, a New York-based interior design firm.

Manufacturer	System	
		Panels
<ul> <li>No</li> <li>Yes</li> <li>★ Conditional yes</li> </ul>		e there a variety of finish materials e there a variety of finish colors
Artec Concept Furniture General Fireproofing Hardwood House Inter Royal	Thompson Module 360 ESP OI Openscape	0 0 0 Are
Herman Miller Jens Risom Steelcase Sunar	AO OP-5 9000 P.S.A.	
All Steel Equipment Atelier International Corry Jamestown Eppinger	M.F.S. Tecno New Line T.R.M.	
Eppinger Hauserman Inc Hiebert	EM OIS Interpanel	
I.V. Furniture Interior Products Group Inter Royal J.G. Furniture	Synergy Interwall System III Reveal	
Knoll International Knoll International Lehigh Modulo III	Stephens Christian Solve Modulo III	
Myrtle Desk Nucraft Reff	EMS Nuspace 4000	
Steelcase Steelcase Steel Equipment Westinghouse	Movable Walls  Mobiles  Performance  A.S.D.	

Safet	у	p)		THE PLANT		C	Construction					
					Panels					Other C	Components	
Is work surface designed to be hazard free Are hanging elements designed to be hazard free	Are wood finishes resistant to cigarette burns		Fire rating ot components Fire rating of fabrics	Type of core material	Type of surface material	Type of sound deadening material	Type of leg or foot	Strength	Material	Type of sound deadening material	Means of assembly	Strength
	•		<u> </u>	Varies	Varies	Fiberglass	Glides, support ft.		HPL veneer	None	Varies	
00	6			Lam. board	Acoust. fab.	Fiberglass	Alum. tubular ft.		Varies	Varies	Preassembled	
00				Honeycomb	13 or 20 steel	Fiberglass	Steel		Steel	Varies	Simp. tool	
00	•			Poplar	Varies	3/8" Polyfoam			Varies	3/8" polyfm.		
00				Honeycomb	Steel	Honeycomb	OF THE SECTION		Steel	<b>《</b> 10 10 10 10 10 10 10 10 10 10 10 10 10	Welding	
00				Varies	Vinyl	Fiberglass	Aluminum		Varies	Perf.fibrgls.		
00	200				Fabric		Attached		Varies		Shipped	
00	9			Steel honeycmb.	Steel hardbd.		HALL SERVICE TO SERVICE		Steel		Pos. fstnrs.	
				Varies	Varies	Fiberglass	Angle		Varies	Varies	多层流 人 100	
	•			None	None	None	None		Varies	Asphalt		
0 0	•			Hi density ply.	Laminate	Polyurethane	Stainless		Steel	Fabric pads	Welded	
		Comments	Comments Comments	Honeycomb Chip core Chip core Honeycomb	Steel	Honeycomb	1" square	ments	Varies	Varies	Key hole	nts
•	-	me	me	Chip core	Varies	Varies	Adj. glides	_ me	Chip core	Varies	Spec. hdw.	Comments
•		шо	E E	Chip core	Varies	Homosote	Varies	Comr	Chip core	Varies	Spec. hdw.	- E
		C	2 م	Honeycomb	Steel	Honeycomb	Glides			Particle bd.	Con. slot	Ú
00		<u>.</u>	<u>.</u> <u>6</u>	Honeycomb	Varies	Fiberglass	Adj. glides	<u> .</u> 5	Honeycomb	Fiberglass	Clips	- <u> </u> -
	9	nat	ua ta	Honeycomb Honeycomb Flake Chipboard Wood Varies Varies	Varies	Varies	Wood	luation	Wood	Varies Batt.insul.	Bolt, T. Nut	luation
00	9	0	0 0	Chipboard	P.V.C.	P.V.C.	Varies				Patented	\alpha
		<u></u>	ம்ம்	Wood	Fabric	Fiberglass	Steel Glides		Steel Baraboard	Varies	N/B, Hook Bar	Eva
	0	ee	See	Varies	Varies Oak	Varies	Chrome	See	Varies	Fiberglass	Bar Threaded inser	ee
				Polyurethane	Steel	Stave core Vinyl	Glides	- <b>Ĭ</b>	Varies	Fiberglass	Factory	10,
				rolyurethane	Sreel	Vinyi	Offices		Vulles	Tibergiuss	ructory	
00				Varies	Varies	Fiberglass	Cast aluminum		Varies			
				Particle bd.	Wood	None	Solid end panel		Varies	1/4" cork	Catches	
•	-			Wood, fibrgls.	Varies	Fiberglass	Metal		Wood		Hanging	
00				Fiberglass	Modacrylic	Fiberglass	Steel	A	Particle bd.	ETHER THE	Key hole	
00				Steel	Varies	Fiberglass	Steel		Steel	H SV EVE A	Safety latch	
							GANGE OF THE STREET	7	Steel	Bonded steel	Free standing	
				Masonite	Varies	Fiberglass	Flat chrome		The same			
00				Honeycomb	Micarta	Fiberglass	Steel	30	Particle bd.	Fiberboard	Clips	

#### Open plan furniture

range needs of The Williams Companies. It was noted, too, that unit costs were complex items, making total costs difficult to evaluate. One system might have a lower base cost for its components yet cost more when all features and finishes were specified.

One of the conclusions reached by Keiser as a result of the study is that manufacturers have addressed themselves to developing furniture to meet an idealized, standardized version of work station operations. Each manufacturer has its own theories about the proper placement of files or telephones for maximum efficiency; each manufacturer espouses the superiority of one storage device above another; the differences between wall-hung components and vertically integrated storage units are debated endlessly. But few offer solutions to serious technical problems.

Further, the problems of acoustical privacy and maintaining acceptable noise levels in open areas have not been adequately solved. Acoustical control of typewriter noise is needed without making the typist face a blank wall, along with a human engineering approach to the location of supplies, phones, and copy material.

A need for work-station lighting in all open systems is evident, both to compensate for the short-comings of fixed lighting patterns and to conserve energy.

Manufacturers do not state the fire safety ratings of fabrics and construction materials in a way that can be compared to an objective standard, nor the physical strength of components, connections, and materials.

#### Testing in a simulated environment

Working with The Williams Companies proved highly rewarding to the designers as management recognized that whatever decisions were made today would affect office operations for years to come. It was jointly decided, therefore, to establish a test facility for intensive, prolonged study under actual working conditions.

This facility would duplicate, in so far as economically feasible, the physical environment of the new headquarters building. In areas called "ODA" (Office Development Area), several systems using open-plan furniture would be selected for test use by three corporate groups. Preferences of individuals and managers, flexibility, problems, and similar factors could be studied. Williams Companies' consultants could evaluate the effectiveness of each system in the simulated environment, and modifications could be tried. Personnel could test alternate equipment.

Three systems were then selected for testing—one of wood construction, another of steel, and the third a composite of components of various materials from several sources. These systems were chosen as tests of the systems themselves and of materials, but not as a pre-selection of manufacturer's products to be used for the overall project. The Williams Companies recognizes that many new products will enter the market and existing products will be improved prior to the time final selections are made. They believe that their experience in the survey of other projects, the evaluation of the current market, and in the ODA will best prepare them to choose from many alternates in a competitive climate for their long-range needs.

Manufacturer	System			
<ul><li>No</li><li>Yes</li><li>★ Conditional yes</li></ul>		Are legs flush with adjacent flat surfaces	Do legs have adjustable floor guides	-
Artec	Thompson			Pe
Concept Furniture	Module 360			3
General Fireproofing	E.S.P.	•		A
Hardwood House	Ol	0		1
Inter Royal	Openscape			ŀ
Herman Miller	AO	•		A
Jens Risom	OP-5	•	•	
Steelcas <b>e</b>	9000	100	0	F
Sunar	P.S.A.			1
All Steel Equipment Atelier International	M.F.S.			1
Corry Jamestown	Tecno			1
Eppinger Eppinger	New Line T.R.M.	H		1
Eppinger	EM	H		\$ \$
Hauserman Inc.	OIS	ŏ		(
Hiebert	Interpanel	ŏ		(
I.V. Furniture	Synergy			
Interior Products Group	Interwall	•		
Inter Royal	System III	K		
J.G. Furniture	Reveal	•	0	
Knoll International	Stephens	•	•	
Knoll International	Christian	•	•	
Lehigh	Solve			
Modulo III	Modulo III	0	0	
Myrtle Desk	EMS		0	
Nucraft Reff	Nuspace 4000		-	
Steelcase	4000 Movable Walls	H		
Steelcase	Movable walls Mobiles	H	•	
Steel Equipment	Performance			
Westinghouse	A.S.D			

30 12		Construction	on		<b>在一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个一个</b>	3.0			Environment	al Contr	
		System		<b>3</b> 0829 5 5					Panels		Units
	Type of file suspension	Type of connectors, panel to panel	Type of edge detail	Type of corner detail	What method is used to prevent sound from penetrating vertical support members	Will typing cause minimal vibration	Can system be installed without special tools	Sound transmission rating	Sound absorption rating	Surface reflection	Surface reflectance
0.5	Roller glides	See catalog	Chrome extr.	Radius or sq.	Correct align	•				Va	ries
es	Custom	Insertion	Flush	Flush	Fiberglass pack	•		STC 17	NIDC 47		t rated
	Progressive	Rnd. or sq. post	Self edge	Square	Rubber	ŏ	H		NRC 95	140	Turcu
	Accuride	Clip	Varies Varies	Varies	3/8" Polyfoam	ŏ	H		NKC 93		
	Ball bearing	Tubular post	T-mold	T-mold	3/6 Folylodiii	Ö					Varies
g	ball bearing	Wedge block	Vinyl round	Radius			d				varies
	Accuride	Wedge block	Hdwood band	Radius	Fabric and wood						
		F .		Radius	rabric and wood		H				
es	Progressive	Fasteners	Radius Varies	V/	F:1		H		A STATE OF THE STATE OF		
des	BB slides	Tubes		Varies	Fiberglass		7				Varies
	Cradle	None	Self edge	Mitered	Asphalt felt	0					Varies
sion	Full suspension		ABS extr.	Mitered	Hollow pan	0					
	Cradle	Key slot	Trim strip	Trim strip	Insulation	0	0				
	BB slides	Spec.hdw.	Self edge	Flush	Mat density	0	0		0.00		THE RESIDENCE
Made	BB slides	Spec.hdw.	Self edge	Flush	1-1/2" mat		0				
g	Ball bearing	Clip	Self edge	Butt joint/revl	Vinyl seal		0		NRC 95		10.101 5.00
N-EIO	Accuride	Cons. pos.	Hardwood	Hardwood					Salar Salar	***	
sion	Full suspension		Varies	Varies	Cork	Ц	0				Statute C
	Full suspension		Varies		Foam seal		U	STC 55			
	Progressive	Alum. plst.	HI STEELS		None		U		NRC 95		Low sheer
Action .	Accuride	Bars	Square	Square	Varies	0					
1	Accuride	Alum. die	Oak, chrome	Oak, chrome	Felt tape		0		NRC 85	J-5 TV.	a. Negative
MA	Johnathon	Pin	Varies	Varies	No space		•		NRC 85		
E STA	FE slides	Hinged	Post	Round	Locked			VEL TYPE	XEAX HAVE		
14	Rollers	Alum. post	Edge band	Mitered	NO. CONTRACTO				NRC 75		
	Progressive	Key hole	Square	Square	Thickness		0	SVA	Mind (MA)		
ion	Full extension	Key hole	HE GGLANT	861 0 3 TV 3	Tight fit		0	No Ola	ERSERVE C		88 (31)
FIGURE 1	Grant BB	Key hole	ABS plas.		Not needed		0				
les	BB slides	Uniconn.		Square	Vinyl			STC 30	NRC 10 - 60		
er	Progressive	<b>双连续进入</b> 开 行 等	Steel	Square	Charles of			Paralle		N. S. S.	
es	BB slides	Hinge		THE RESERVE				RUTT	N. Waling !		
	Full suspension	Post	Vinyl trim	Round	DESCRIPTION OF THE PARTY	1		STC 35	NRC 35 - 80	4 to 10	4 to 10

#### Open plan furniture

Manufacturer	System
<ul><li>No</li><li>Yes</li><li>★ Conditional yes</li></ul>	
Artec Concept Furniture General Fireproofing Hardwood House Inter Royal Herman Miller Jens Risom	Thompson Module 360 E.S.P. OI Openscape AO OP-5
Steelcase Sunar	9000 P.S.A.
All Steel Equipment Atelier International Corry Jamestown	M.F.S. Tecno New Line
Eppinger Eppinger	T.R.M. EM
Hauserman Inc. Hiebert I.V. Furniture	OIS Interpanel Synergy
Interior Products Group Inter Royal J.G. Furniture	Interwall System III Reveal
Knoll International Knoll International	Stephens Christian
Lehigh Modulo III	Solve Modulo III
Myrtle Desk Nucraft Reff	EMS Nuspace 4000
Steelcase Steelcase Steel Equipment Westinghouse	Movable Wall Mobiles Performance A.S.D

	Manufac	turer's Qualifications or Limitatior	ns .
A foliate to the transfer	Volume of sales	Location of distributor	Method of servicing complaints and reorders
iayette, Ore. cion, Ont. ungstown, Ohio chester, NY nestown, Ohio eland, Mich. Grosvenordale Cn. and Rapids, Mich. terloo, Ont. zelton, Pa. lan, Italy rry, Pa.	Confidential 3,000,000 3,500,000 50,000,000 40,000,000 7,000,000 200,000,000 13-15,000,000 75,000,000 10,000,000+	Individual sales rep Sales representative National National National National National 900 dealers Sunar Specs Inc., NYC Itkin, Lane, etc., National Direct sales, no dealer National	Sales rep. and mfctr. direct if applicable Dealer rep., sales rep., direct factory Branch and home office in Youngstown Local service reps., factory representative Dealers and factory representative Dealers or Miller sales office Dealer and direct representative Dealer supported by factory representative Dealer Local distributor and customer service As directed by specifier Local dealer
omington, Pa.	1,000,000 Confidential	National National Direct sales	Distributor and company representative  Distributor and company representative  Direct sales
rance, Calif. I Lion, Pa. st Germany chigan City, Ind. akertown, Pa. st Greensville, Pa.	2-3,000,000 10-15,000,000 50,000,000 3,000,000 12,000,000	NY representative New York New York National National 16 major cities and dealers	Representative and local dealer Direct factory repair service Representative Dealer, factory representative Dealer, factory service Dealer and Knoll showrooms
yal, Que. S. and abroad The Point, N.C. The and Rapids, Mich. The and Rapids, Mich. The and Rapids, Mich. The and Rapids, Mich.	Confidential 2,000,000+ 4,000,000+ 200,000,000 200,000,000	Burlington, Iowa Major dealer, direct sales National Local dealer New York 900 dealers 900 dealers	Lehigh Leopold, Burlington, Iowa Sales rep. and manufacturer Local dealer with factory assistance Local dealer with factory assistance Dealer, NY representative Dealer supported by factory representative Dealer supported by factory representative
mbroke, Ont. and Rapids, Mich.	15,000,000 20,000,000	Dealer 140 dealers	Dealer or factory representative  Dealer with factory service

Manufacturer System Yes \* Conditional yes Acceptable heights (panels) Acceptable widths (panels) Artec Thompson Concept Furniture Module 360 General Fireproofing E.S.P. Hardwood House OI Inter Royal Openscape Herman Miller AO OP-5 Jens Risom Steelcase 9000 . . . Sunar P.S.A. All Steel Equipment M.F.S. Atelier International Tecno Corry Jamestown New Line T.R.M. Eppinger EM Eppinger Hauserman Inc. OIS Hiebert Interpanel I.V. Furniture Synergy Interior Products Group Interwall Inter Royal System III Reveal J.G. Furniture Knoll International Stephens Knoll International Christian Lehigh Solve Modulo III Modulo III Myrtle Desk EMS Nucraft Nuspace Reff 4000 Steelcase Movable Walls Steelcase Mobiles Steel Equipment Performance Westinghouse A.S.D

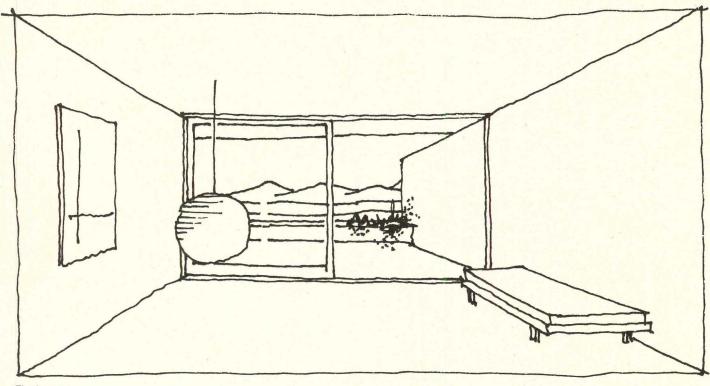
**Note:** Systems were selected for this analysis according to criteria developed for a specific commission, as set forth in accompanying text. While H.M. Keiser Associates exercised all due care in assembling the information that was available to them, neither the authors nor P/A can guarantee completeness or accuracy.

	(	Cor	mp	le	ter	nes	s o	f S	Sy	ste	m													Ī		Fl	ex	ibi	lit	у										U	til	ity								
Com												S	tai	ndi	ing	С	om	ро	ne	nts													Us	e F	ea	tur	es	P	ow				ght			Ma	int	end	anc	e
Single pedestal desk	1pc	s in	ent	'S	Stationery units	● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● Double pedestal desk, variety of sizes			Corro	ng carrer	一人 人間 一人 はなず さばら しなみの	○○○○○○○★○○★ ★○○★ Console (organizer) unit	tal	ble		17		r keving of locks	0000	ilialellal stolage	Hinged doors	Tambour doors	Solo O O O O O O O O O O O O O O O O O O	Compatible handing and standing components		disassembled easily	×	s	nes		Vertical spacing provides proper surface ngnis.	_	ncealed	ol connectors			all-mounted	connection to floor outlet		rip with multiple outlets	roved	Lie	ght			n of foreign matter	faces easily cleaned	-	ained	Does evetem leave corner indemnied
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# The structuring of space in family housing:

An alternative to present design practice

Andrew Rabeneck David Sheppard Peter Town



The image

As a result of extensive research in the housing field, BSD has developed a set of alternatives for the design of housing that adapts to changing uses.

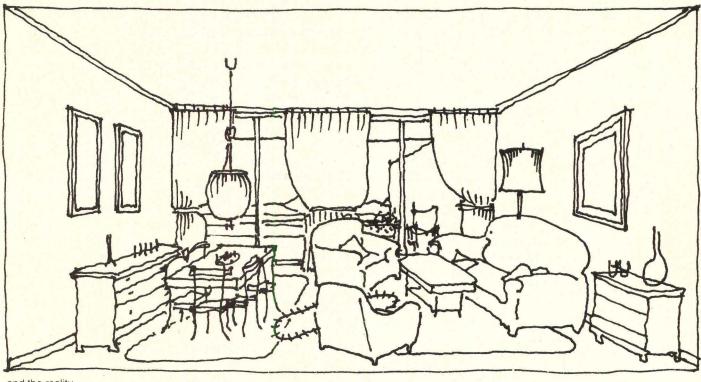
BSD has been long concerned about the general quality of housing, and particularly public housing, that has been and continues to be built in most countries. The production of poor environments for raising the family places constraints on individuality, and often gives poor value for money.

Recent investigations into housing by BSD analyzed

**Authors:** Andrew Rabeneck and David Sheppard are managing directors and Peter Town is a member of the staff of Building Systems Development, U.K., the London office of Ezra Ehrenkrantz's San Francisco-based firm, well known for its development of the SCSD performance specifications.

present approaches to design, characteristics of typical housing units, the need to program family housing so that it can cope with occupants' changing expectations and aspirations, and different ways of meeting these requirements. From the research findings an alternative approach to current design practice has emerged, which has been called "adaptability." It is an approach which avoids the architect inventor's devices of movable walls, convertible furniture and multifunctional spaces in favor of the simple planning, spaciousness, and ambiguity of use which were once familiar in the traditional domestic architecture of most cultures.

While the study conclusions and the alternatives proposed can be considered to have more universal application, the primary focus of the study is on British Housing policy and practice. The issues are many: there has been virtually no increase in living space standards in the United Kingdom since 1918², but rather the pressure of building costs and political production norms resulted in a severe



and the reality

drop in space standards from 1950 until Parker Morris recommendations were made mandatory in 1967.

Further, the talent of housing architects since World War II has been almost solely devoted to solving the two problems of "architecture" defined by Durand around 1800: the problem of private building, which is to provide the optimum accommodation for the smallest sum of money; and the problem of public building, which is how to provide the maximum accommodation for a given sum<sup>3</sup>.

Meanwhile, the economics of materialism and consumption have forced small-scale service industry either out of business or out of the reach of ordinary people, who must now do all their own housework, laundry, gardening, maintenance, and often hairdressing and car repairs as well. While industry has provided people with tools and appliances to make these chores palatable, it cannot provide the space in which to do them.

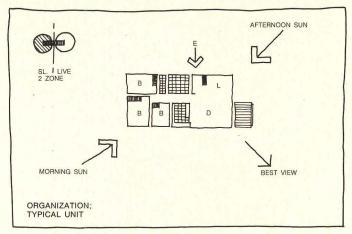
Media provide each member of the family with leisure as-

pirations to be fulfilled at home, while architects 'miniaturize' to cram the swelling program into the unchanging area, and the home has become a cross between a motel room and a storage bin for the clutter of the (often clashing) lifestyles it has to contain.

The process of mass housing has been institutionalized, and thereby the product of mass housing. Only the architectural expressionism varies.

The public sector response to housing design problems has been to research user needs as a means of generalizing the condition of "invisible" clients of public housing architects. Research ranges from the kind of anthropometric studies that lead to "Space in the Home," to an attitudinal response about "privacy" or "satisfaction," and while the purpose of such research is well-meaning, the results have in effect become a new shorthand for architects working within tight constraints; an alibi for thinking about how people live without communicating directly with them.

#### The structuring of space in family housing



Typical organization of family unit

But, unless the process of mass housing is changed, the research results will serve only to perfect the product of that process—what Habraken calls the "perfect barracks"—all ambiguity and choice is removed from designs; each "need" is satisfied; no privacy of lifestyle remains.

A proliferating response by architects to this "tight-fit functionalism" has been to propose flexibility or multiuse of restricted space as a means of providing opportunities for choice or personalization. But the costly ingenious technical solutions often ignore simpler alternatives.

The range of solutions offered has been wide, but solutions address tight standards more than the act of dwelling. There has been little agreement on the types of changes, the choices that are needed, or the limits which people might accept. Many important questions remain unanswered. Projects in England and Europe reflect the current directions being pursued in the continuing search for appropriate forms of housing that provide variety.

That these dwellings are failing to satisfy the occupants is evident in what is provided. There is an almost universal "package" offered in every project built. After study, we have found that the conceptual basis of the unit design is almost identical in each case. Accommodation of individual interests and belongings is virtually impossible.

In physical terms an analysis of present design characteristics reveals that:

- 1 Spaces are generally designed for one function only and are difficult to use for any other purpose, e.g., use of bedroom as living room.
  - 2 Room proportions are in keeping with intended use.
- 3 Rooms are provided with function-related fixtures and fittings, e.g., wardrobes in bedrooms.
- 4 Lighting and socket outlets are located according to the plan function of the room, e.g., lighting related to bed.
- 5 Windows are designed to reflect the function of each room, e.g., small windows in bedrooms; larger windows in living rooms, with lower sills.
  - 6 Generally one living space only is provided.
- 7 Access to rooms other than the living room is by way of a narrow, minimal hall which cannot be used for any purpose other than circulation.
  - 8 Single door access to all rooms.
  - 9 Outdoor space is accessible from living rooms only.

10 Relationships between rooms are generally based on shortest distance between associated functions, e.g., kitchen next to dining room, bath next to master bedroom.

What we advocate is a close re-appraisal of the units we are presently building *including* the flexible schemes presently being constructed, in terms of the possibilities they offer occupants. What patterns of living are being perpetuated without reason in tight-fit functional design? What opportunities should be provided? Are movable walls really a prerequisite of flexibility of use? Can effective use of space be made when several functions are planned to be carried out over a short period of time within a restricted space; for example, living and sleeping?

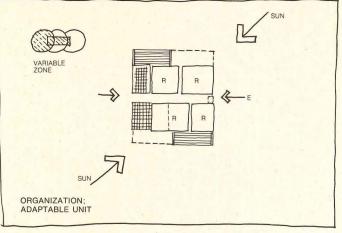
Social obsolescence is very difficult to predict: social, political, and economic change will create a situation in which an object is no longer valued as most appropriate for its particular function. The most we can do is to imagine the range of things people might wish to do in the living unit.

Technological obsolescence, as well as relating to the inability of individual objects or subsystems to provide the desired performance, relates to the degree of interdependence between subsystems, the extent to which obsolescence can be "contagious" (e.g., coal fires with chimneys built into structure, conduit inside walls, built-in furniture).

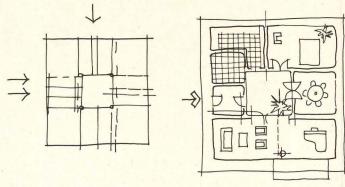
We are looking for approaches to housing design that can cope with both social and technological obsolescence. The physical changes people might wish to make to their homes are, for practical purposes, finite. They are circumscribed by social and cultural convention, by housing technology, and by the marketing efforts of the furnishing and home improvements industries. The reasons for initiating change, on the other hand, are personal. It is dangerous to generalize about these reasons or to suggest a causal relationship between them and their actual result.

However, at a particular point in time, there may be a wide variety of possible reasons why a household feels the desire to perform some physical alterations to its home. The nature of these desires or their frequency of occurrence for a given section of the population are not known to us; we can only guess, although they might be revealed through social research.

Desires can be added to, and the changes they may entail can be elaborated, but the list below, as it stands, cov-



Conceptual organization of an adaptable unit



Sketches of adaptability

ers the majority of contingencies to be encountered.

**Desire:** to accommodate or to signify a change in family nakeup or family activities.

Changes:increase or decrease number of bedrooms; set aside for study, home business, hobbies; accommodate possessions related to family change accumulated over time (e.g., high chairs, prams, files, and granny's furniture).

**Desire:** to improve the quality of the home with respect o social or market criteria.

Changes:replacement and/or addition to kitchen and path fittings and furniture (e.g., bidets, colored fixtures, kitchens); provision for new equipment such as freezers, washing machines, dryers; creation of utility room; add more bathrooms or lavatories; provision of additional clothes, books, equipment storage; creation of storage oom; add garage, carport, conservatory; add central heating, air conditioning, insulation.

Desire: rearrangement of room layout.

Changes: alter relationships between kitchen, dining and ving spaces either by closing off or opening up; create separate children's living room; alter partitions to gain advantage of orientation.

**Desire:** rezone the home as a basis of formal/informal, shildren/adult, day/night, noisy/quiet, etc.

Changes:reallocate functions within existing spaces; aler partition layout; modify properties of existing subdiviion (e.g., solid core doors, double partitions).

**Desire:** to differ, conform, or keep up with the Joneses. *Changes:* reallocate functions to spaces; alter partition ayout; up-grade fixtures, fittings, decoration; up-grade serices; accommodate new equipment; enlarge or reduce ppenings between spaces; add more floor space by add-on or add-in; add nonliving functions, e.g., garage, external torage, greenhouses.

Taking this list and our study of both traditional and modern forms of housing that are "flexible" or "adaptable" whether by "accident" or by design), we propose the folowing basic design requirements for housing. These reuirements are made without reference to any particular orm of housing (individual house, flats) or to any particular echnical solutions (demountable partitions).

1 Rooms and spaces within the unit should, as far as ossible, avoid extremes of size.

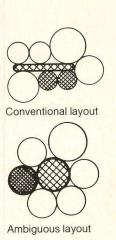
- 2 Rooms should be neutral in terms of form (i.e., simple<sup>1</sup> volumes).
- 3 Doors and windows should, as far as possible, be placed to allow a variety of uses to be made of the room.
- 4 Avoid central lights and other space-making physical constraints.
- 5 Avoid expression of room functions in external walling, such as extreme variations of window size, balconies to "living" room only.
- 6 Plan form should allow many different allocations of functions to rooms, and variety of zoning possibilities.
- 7 Either a utility room should be provided or kitchens and bathrooms should be large enough to house domestic equipment and appliances.
- 8 Service systems should remain readily accessible and should not be integrated in the basic building fabric.
- 9 No equipment, storage, or furniture should be built into the fabric of the building, although they may be supplied as part of the building contract.
- 10 Plan form should allow a variety of possible interconnections between rooms.
- 11 The circulation space within the unit should be treated as far as possible as a room-between-rooms and not as an access link only.
- 12 A "spare" room should be provided if at all possible, for use as second living room, guest room, study, hobbies, office, nursery, etc.
- 13 Form of construction should emphasize minimum alteration costs.
- 14 A wide range of alternative uses of space must be possible at a minimum cost.

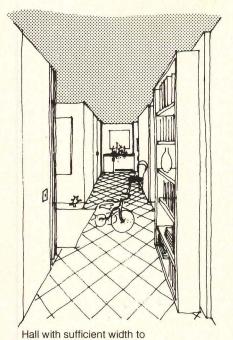
These requirements might be satisfied, to a greater or lesser extent, in a number of ways, if a resilient housing stock is to be created for the future which is resistant to technological and social obsolescence.

Due to the permanent need for provision of visual and aural privacy, adequate cooking, storage and washing facilities, and ''psychological distance'' between activities and between age groups, there are obvious limits to applying Modern Architecture space-making and space-use principles to the design of the small house.

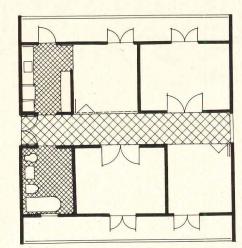
Although Modern Architecture may be said to have contributed much to the quality of living, in terms of spatial or-

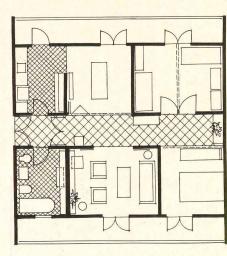
#### The structuring of space in family housing

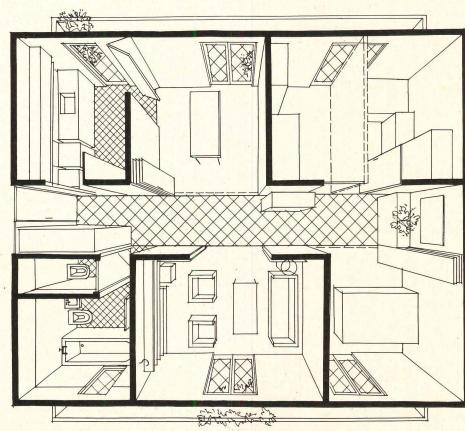




accommodate storage and furniture







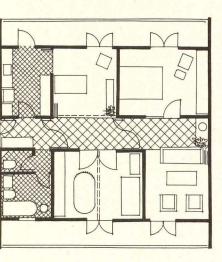
Four-room layout chosen by mature family

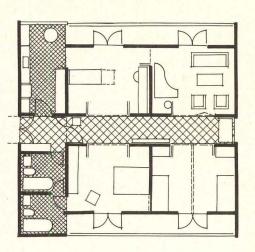
ganization, light, indoor-outdoor relationships and so on, it is important to develop a design philosophy which embraces the full requirements of family housing listed above.

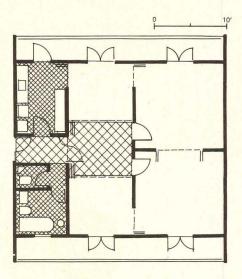
It is essential to know the costs of an alternative approach in proposing a change in direction. Five solution types were considered, fairly distinct paradigms for meeting the objectives set out above. The costs attaching to the features of each approach are given as percentages of total initial construction cost. The percentages represent overcosts on average percentage element costs analyzed for 25 housing projects built between 1968–1971, both public and private, reflecting the national mix of housing built.

We then analyze the distribution of percentage overcosts necessary to achieve each of the five different models, and we conclude that most of the design requirements listed above could be satisfied by the add-on, add-in and adaptable solutions for a lower capital cost than that of the flexible solutions. Add-on and add-in solutions are appealing but their application is relatively limited due to their requirement for additional finance at a later date and application is low density situations only. Also the occupant receives no direct benefit for the additional capital outlay until the extensions are made.

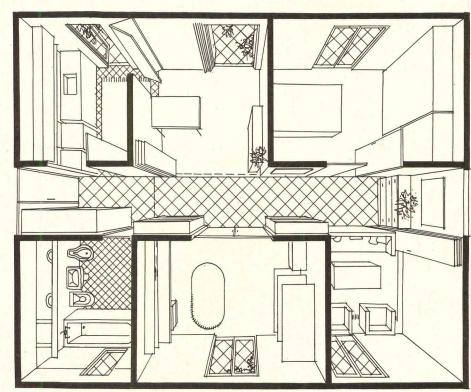
In terms of "value for money," adaptable solutions with increased space standards are the only real safeguard for the future housing stock. Trade-offs between space standards and technological gadgets seem to be a dangerous approach. While a reduction in area may be tolerable in the







These plans show one interpretation of our concept of adaptability. They can be seen as illustrative tests of one form of generic layout. Important features of this layout are a generous hall space for display, shared family storage, and service spaces large enough to house extra domestic appliances and/or second bathrooms. We found that the basic choice between space and gadgetry (i.e. movable walls) can not be avoided. At Parker Morris space standards, gadgetry becomes essential in order to provide a degree of choice to occupants At a 20 percent increase in space standards, maximum choice can be achieved without esorting to purpose-made components Space remains the best buy.



Four-room layout chosen by young family

short term, its effects become more pronounced as standards of living and aspirations increase over the years.

The adaptable approach, in contrast to the flexible, emphasizes planning and layout rather than constructional echnique and services distribution. It is based on carefully considered variations in room size, relationship between ooms, slightly generous usable floor area, generous penings between spaces and little overt expression of oom function.

The adaptable approach is our own proposal in response o the projects we have been studying, our convictions about the shortcomings of the housing currently being built, and the objectives we have listed. Our main contenion is that the "functionalist," or "management science"

approach to house design is both insufficient and unnecessarily constraining. It is an approach that proceeds by the definition of need and the subsequent definition of sufficient solutions in terms of current technology and marketing. One important fact is generally ignored: our recently acquired fluency in a wide variety of housebuilding technologies has effectively released us from many design habits derived from a building vernacular which developed over a long period of time to cope with exogenous variables of culture, convention, climate, topography, etc. In building terms the responses to these variables used to be conventionalized as "the way things are done," to the extent that the contract documents for a speculative Victorian terrace house could consist of two pages of specification, sketches

#### The structuring of space in family housing

of typical plan, section and elevation, giving key dimensions only. The results of this process have survived well: the houses are still practical and sound. They can generally accommodate widely differing "functions" and may be economically adapted.

Because many of the exogenous design variables no longer need be treated according to tradition, many of the design habits to which they gave rise have vanished. Functionalists design is an attempt to create new design habits based on an artificial ''understanding'' of occupants' behavior acquired through social science. Whatever forms of housing emerge from this process can be built because, thanks to an over-rich choice of building technologies, we are able to ignore those variables that until recently governed man's relationship to his dwelling.

Zealous functionalists used to say, "For centuries man has had to adapt to his dwellings. We are going to change all that. From now on dwellings will adapt to man because we have the technical means to make it so." We are challenging the interpretations of this contention, that have led to "flexibility," "responsive environments," "minimum living," although many of our own tenets resemble those underlying these ideas. We have arrived at our particular view by trying to decide what traditional ideas about housing design have been unjustifiably abandoned and what modern ideas are really valid.

Our eclectic concept of an adaptable home is one in which there is a conscious avoidance of a sterotype of the occupants, whether it be that of a speculative builder or a social psychologist. Our slogan for the design of adaptable homes is "occupant choice through ambiguity." Basically, the unit is designed in such a way that there is a minimum predetermination of the patterns of use to which it will be put. Layout is designed to allow as wide a range of interpretations as possible. There is a minimum of design features that would inhibit particular choices of use. The decisions rest with the occupant. In short, adaptable homes satisfy the design requirements set out earlier. The historical forms that serve as models for our concept are:

- a) The Mediterranean and Mesopotamian hot-climate courtyard houses, in which the open courtyard serves as a general living/circulation area for the rooms surrounding it.
- b) The northern counterpart of the courtyard house based on a large enclosed hall surrounded by small rooms, originally within the massive thickness of the walls.
- c) The meeting of North and South in the sublime villas of Palladio with their domed halls and clear hierarchy of surrounding spaces.
- d) The English speculative housing, of the 18th and 19th Centuries.
- e) Some of the work of late 19th and early 20th Century architects, particularly Behrens, Loos, and Baillie-Scott.
- f) Housing where "the user is in control," as in South American Barriadas and even in the Bidonvilles of Paris, where choices are made unselfconsciously and which embody many features we advocate for adaptable housing.

It is interesting that in all the prototypes we have looked at, there is a virtual absence of built-in furniture. Room function is generally defined by the presence of particular items of movable furniture plus storage units of one kind or another<sup>6</sup>. We consider this an intrinsic feature of adaptability: function should not be predetermined by built-ins.

In practical terms, we believe that adaptable housing could be built very nearly within existing area standards, although a 100 percent increase in net area (i.e., about 6 percent cost increase) would provide the additional "slack" necessary to accommodate a real variety of use. In terms of costs, adaptable units should be relatively economical, because of their simple plan forms, regular structure, and external walling. They are very much what Venturi calls "decorated sheds" as, incidentally, have been most past forms of housing now admired.

It is instructive to compare the ''interesting'' formalism of Darbourne and Darke's Lillington Street housing (particularly Phase 1) with the decorated shed façades of the 19th-Century stucco speculative housing across the road.

These plans show one interpretation of our concept. They can be seen as illustrative tests of one form of generic layout. Important features of this layout are a generous hall space for display, shared family storage, and service spaces large enough to house extra domestic appliances and/or second bathrooms.

We found that the basic choice between space and gadgetry (e.g., movable walls), as developed in these articles, cannot be avoided. Under Parker Morris space standards, gadgetry becomes essential in order to provide any degree of choice to occupants coupled with maximum use of space. Given a 10 percent increase of the standards (about 7 percent up on cost), considerable choice is possible using only conventional gadgetry (e.g., folding doors). With a 20 percent increase (about 14 percent up on cost), maximum choice can be achieved without resorting to purposemade pieces. Space, in the long term, is the best buy.

The fundamental propositions we have explored in these articles are that all people should have the right to a private domain inside which they may live as they wish in security, and that national housing priorities should reflect the rising expectations of occupants through budget allocations, in terms of more area and better design for choice, creating a long-life, resilient housing stock amenable to adaptation.

For these things to happen we must spend more on housing. More importantly as architects, we need to start thinking about how people live at home, and, as Baillie-Scott pointed out 60 years ago<sup>7</sup>, put our architecture in their service, not in the service of fellow professionals.

#### References

<sup>1</sup>See Architectural Design 11/73 and 2/74. The Standard Catalogue Co. Ltd.

<sup>2</sup>Hole, W.V. and Attenburrow, Houses & People, HMSO 1966, Chapter 9. <sup>3</sup>Collins, P., Changing Ideals in Modern Architecture, Faber & Faber, London, 1965.

\*Categories suggested by John Turner in "Planning for Obsolescence," Architects' Journal 18 October 1967.

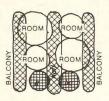
Generous' is used here not as an absolute, but relative to existing norms, whether voluntary conventions or design constraints.
 Giedion has discussed at length the loose v. built-in furniture issues in

"Mechanization Takes Command."

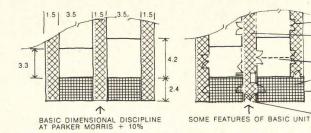
τ''. . . when we personally inspect a cottage, designed for a mere laborer, we may be delighted with the ample space provided by a sitting room 9-feet wide. But how would the matter strike us if we have to 'inhabit there ourselves'?'' Kornwolf J.D.: M.H. Baillie-Scott and the Arts and Crafts Movement, John Hopkins, London, 1972, p 424.



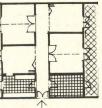
NVENTIONAL LAYOUT: HALL USED LINK ONLY AND SPACES SIZED FUNCTIONS



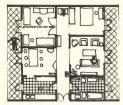
ADAPTABLE UNIT HAS AMBIGUOUS SPACES GROUPED AROUND CENTRAL HALL



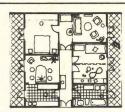
OLUTION OF ADAPTABLE UNIT TYPES



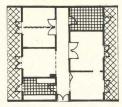
SIC 4 ROOM UNIT IS PARKER PRRIS + 10% SPACE IS THE NG-TERM INVESTMENT



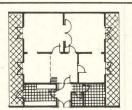
EXAMPLE: DAY/NIGHT ZONING CHOICE



EXAMPLE: PARENT/CHILDREN ZONING CHOICE



POSSIBLE: ALTERNATE UNIT WITH SERVICE ROOMS DIAGONALLY OPPOSITE

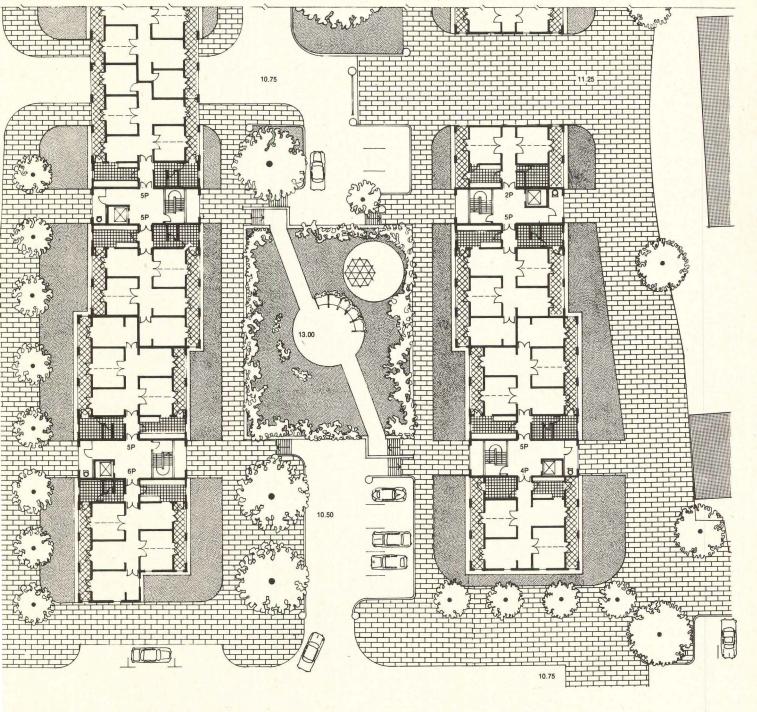


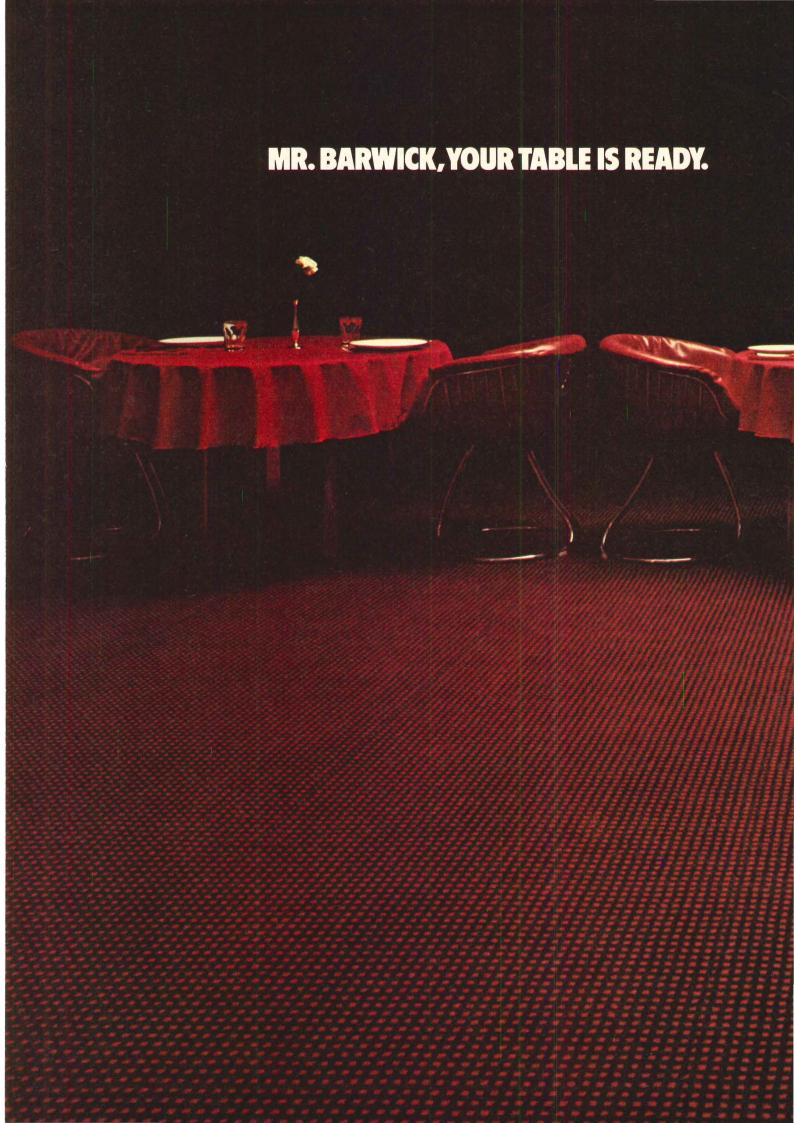
POSSIBLE: ALTERNATIVE UNIT WITH SQUARE HALL

WINDOWS AWAY FROM CORNERS WIDE HALL FOR FURNITURE LARGE ROOM CAN BE SUB-DIVIDED KITCHEN UNITS ONLY 'BUILT IN' STORAGE

DOUBLE ENTRANCE DOORS

USTRATION OF TENANT CHOICE PROVIDED





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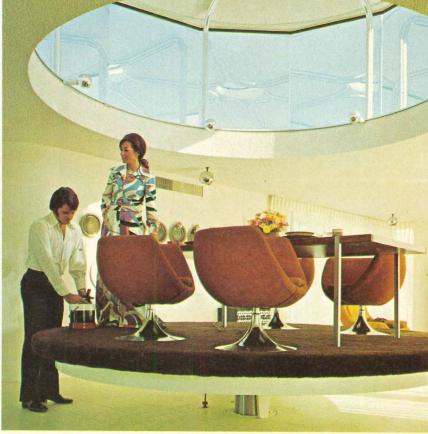
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# THE BEAUTY O VAI

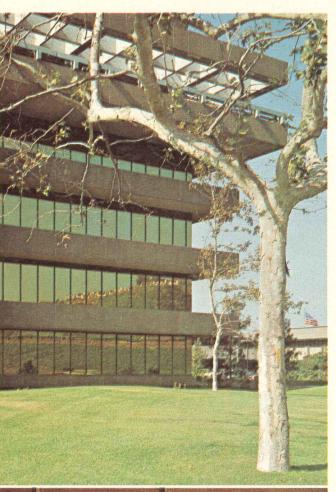






Palm Desert, Calif., residence. Architect: George Ritter, A.I.A.

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Tribune Building, San Diego, California. ectural firm: Frank Hope & Associates. Architect: Fred Livingstone, A.I.A.

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The striking glass facade of San Diego's Union-Tribune Building does more than just reflect good taste. It's also a good-looking

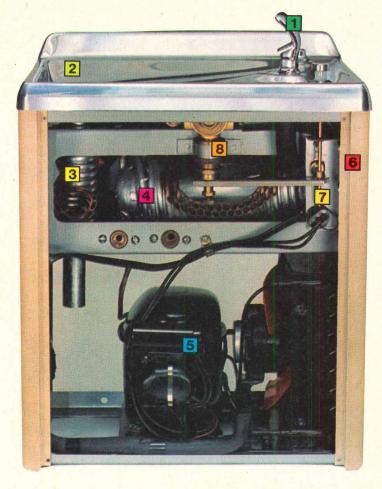
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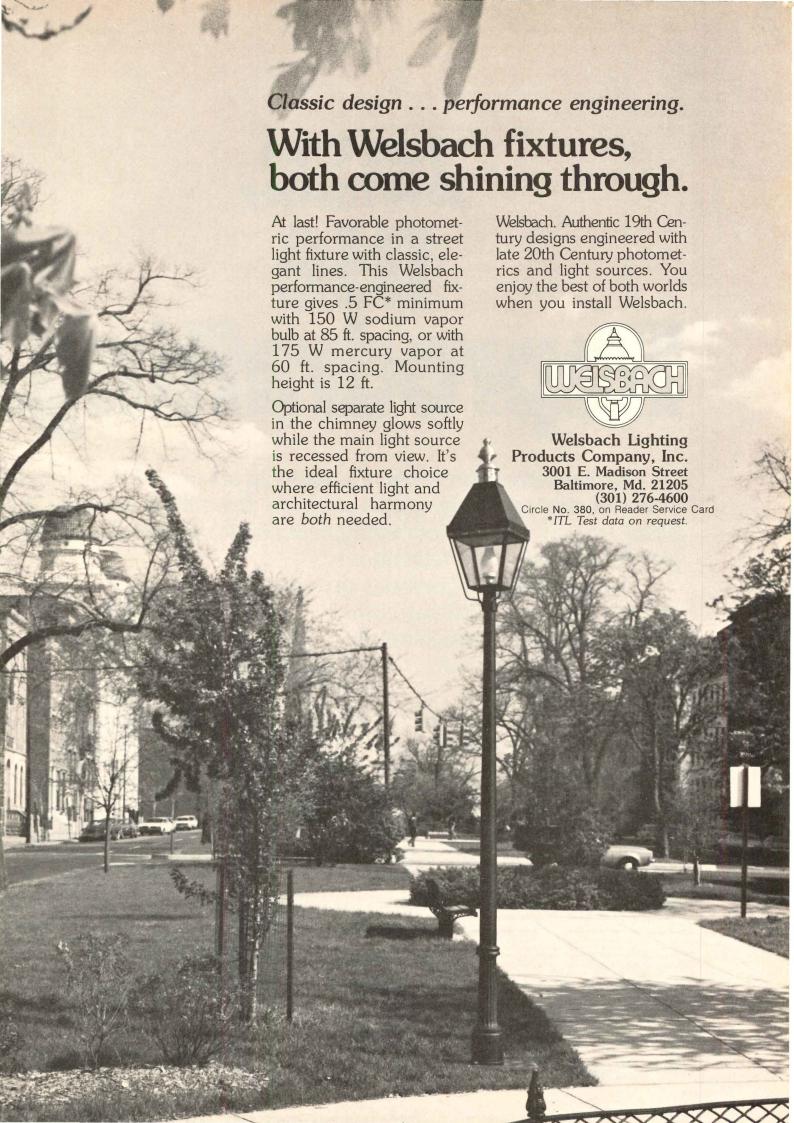
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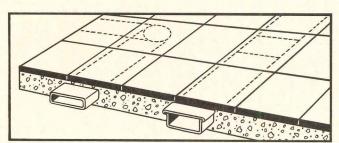


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**Technics: Specifications clinic** 

## Carpet or carpeting?

Harold J. Rosen, PE, FCSI

How much do architects really know about carpet? Hard facts for soft swatches are the subject of two important new additions to the architect's library.

A building material whose essential characteristics seem illusory and whose fabrication and construction are for the most part dimly perceived by architects and specifiers is largely clarified by two recent publications. They are the Carpet Specifier's Handbook published by the Carpet and Rug Institute, Dalton, Ga. and Contract Carpeting by interior designer Lila Shoskes, published by Whitney Library of Design, Watson-Guptill Publishers. Depending on his requirements, the reader might purchase either or both to meet his specific needs.

The use of terminology in titles by both authors almost determines the reading audience. Carpet or carpeting? The Handbook contains a valuable glossary on this veritable tangled fabric which clarifies many unknowns and educates the uninitiated. Since specifiers are word merchants, they are very conscious of precise meanings. And so the Handbook defines carpet as "The general designation for fabric used as a floor covering. It is occasionally used incorrectly in the plural as 'carpets' or 'carpeting.' The preferred usage today is 'carpet' in both singular and plural form. It may be used as an adjective as in 'carpet floors.' " Contract carpeting simply means carpet for public spaces rather than residential use. Since the industry must bid for work in commercial building, as do all buildings trades, the carpet industry identifies this as "contract carpeting."

Contract Carpeting has many virtues that would perhaps be of great interest and significance to architects and interior designers. It contains a history of woven floor coverings for those curious about the evolution of the carpet industry, as well as a detailed discussion of the art of weaving from its inception to modern day techniques and practices. Likewise, it focuses on the various dyeing and printing techniques and problems of construction. The discussion of fibers waxes eloquently on the breeding of sheep to develop wools specifically for carpet-making.

Part III of the book is invaluable to the architect; it deals with the evaluation of specific installations in four areas: 1 hospitals, 2 schools and universities, 3 airports, 4 offices

and banks. Case studies of specific installations in these four building types are indeed very well documented from the point of view of performance, appearance, noise and static control, safety, microbiology, maintenance, identification of specific areas carpeted, conclusions, and recommendations.

One very important aspect dealt with in detail is typically of interest to specifiers: the microbiology of carpet in hospitals. One would initially expect that a dense hard surface would be much more desirable there than a carpeted floor. Yet this book cites health authorities and specific case studies suggesting that carpet can indeed be considered for hospital use.

For example, the American Public Health Association and the Communicable Disease Center of the U.S. Public Health Service have conducted studies that have cleared the way for approval of hospital carpeting. A classic case involved a hospital disinclined to use carpet. Its own research studies determined that the bacterial count of the floors and the air in the rooms with carpet were demonstrably less than those with tile!

By its very title, the *Handbook* has definite appeal for the specifier. Without slighting the merits of Contract Carpeting, the publication of the CRI provides technical information of construction, fibers, carpet cushion, installation, and the like in a concise thin volume which is sympathetic to the specifier's problems. There are many useful statistics, government specifications, and test methods offered. There are lists of suppliers and their carpet and cushion.

Contract Carpeting and the Handbook include valuable information on carpet construction which we would expect: face weight, pile height, density, fiber types, flammability (the bugaboo of the carpet industry), and maintenance. Perhaps it would be well to have both volumes on the professional's bookshelf. They do supplement one another. The Handbook is well adapted for the technician while Contract Carpeting would satisfy designers.

The Carpet Specifier's Handbook may be obtained from the Carpet and Rug Institute, Dalton, Georgia 30720 for \$10 per copy. Contract Carpeting is available through local book stores or from the Whitney Library of Design, c/o Watson-Guptill Publications, 2160 Patterson St., Cincinnati, Ohio 45214 for \$18.50 per copy, plus local tax.

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



Detail: 18th-Century Persian carpet. Arabesques connected by palmettes. Photo: Metropolitan Museum of Art, Gift of Joseph V. McMullan, 1970.

Technics: Carpet for architecture

### In fibrous fields

Carpet is nearly as old as civilization itself. In its long and memorable service to mankind, carpet has transformed itself as circumstances permitted.

President Ford emerges from Air Force One to alight on one. Cleopatra delighted Julius Caesar by unraveling herself from another. When Hulaga the Mongol sacked Baghdad in 1258, he had caliph Al-Musta'sim rolled up and beaten to death in still another. Civilization has written its history on carpet. The architect specifying carpet for a wide range of applications soon learns it is technically as advanced as the buildings it graces.

Carpet is an ageless youth. The art and craft of its manufacture began in the Orient, where carpet weaving and designing were elevated to one of man's great artistic accomplishments. Its origins are obscure. Persia, greatest of







Turkish carpet reproduction based on "bird design"; detail: 17th-Century Caucasian compartment rug; detail: Turkish rug reproduction based on "Holbein" design. Photos: Metropolitan Museum of Art, Gifts of Joseph V. McMullan, 1963, 1956, and 1961.

#### In fibrous fields

carpet weaving centers the world has known, enjoyed an international reputation by the latter years of the Sassanian Dynasty (226–641 A.D.). A golden age flourished in the 15th through 17th Centuries under the enlightened and cultivated rule of the Mongol Tamerlane's successors. By the 18th Century, foreign demand for Persian carpet had debased it. Materials were cheapened, weaving was coarser and more careless, and designs, copied artlessly from standard cartoons, lost form and clarity.

Oriental carpet as an artistic and technical tour de force indelibly impressed the world. Indian princes imported Persian rug makers in the 16th Century to instruct the people. Chinese carpet manufacture achieved its unique character through an exchange of weavers with central Asia. Spain under Muslim influence produced fine hand-knotted carpet, and the rest of western Europe encountered Oriental carpet

when Crusaders brought them home for stony cathedral and palace floors. In the Western Hemisphere, Indian cultures raised carpet manufacture to a high state.

Because sheep were domesticated in many regions, wool dominated carpet manufacture for centuries. Besides silk, other animal fibers woven into carpet include: goat, horse, camel, alpaca, and llama. Carpet backing and anchoring has been provided by cotton, jute, and linen. Early dyes were derived from vegetable matter.

The Industrial Revolution was to wrench this handicraft from its timeless course. For centuries preceding it, skilled European weavers created carpet on hand looms using time-honored styles and weaves named for their cities of origin. (E.g., *Axminster, Wilton,* and *Kidderminster* in England.) The British introduced the factory system to carpet manufacture. Then, in 1839 Erastus Bigelow, an American,



Franco-Flemish tapestry, ca. 1500 *The Hunt of the Unicorn, IV*: The unicorn defends himself. Photo: Metropolitan Museum of Art, Cloisters Collection, Gift of John D. Rockefeller, Jr., 1937.

invented the power loom to weave simple clothlike *Ingrain* carpet. Modified to produce *Brussels* weave a decade later, the Bigelow loom easily outpaced the hand loom, yielding 25 sq yd/da against 7 sq yd/da. Equally important was the next invention, Halcyon Skinner's Axminster loom of 1876. This spewed 40 to 60 yd/da of Axminister weave 27 in. wide, far surpassing the hand loom's 1.5 yd/da. Little wonder that the power loom spread rapidly across Britain, Belgium, Germany and Canada.

The recent history of carpet manufacture reflects changing taste, technology, and economic fate. In two decades Bigelow's invention made carpet, heretofore the province of the wealthy, available to Everyman. As architects know, carpet covers the floors of almost every major building project in America as well as the majority of its homes.

Brussels and ingrain dominated the 19th through early

20th Centuries. Late in the 19th Century Axminister became popular, and it held sway over the industry from the early 1900s to 1950. Brussels was replaced by the modern Wilton while ingrain faded in popularity. Tapestry carpet, later called *Velvet*, also found public favor.

Mssrs. Bigelow and Skinner might not recognize the industry today. It should be recalled that if their inventions eliminated the jobs of skilled handicraftsmen, they did continue to manufacture carpet in ways similar to traditional hand-weaving techniques. By whatever process, their machines still surrounded pile (surface or face) yarn in a dense interlocking system of warp threads (underlying threads that provide body, *stuffers*, and anchoring, *chains*, on the longitudinal axis of the carpet) and weft threads (underlying threads lying normal to the warp which secure one end of the pile yarn loop).







19th-Century American parlor; 18th-Century Gobelins tapestry, Worcestershire, England; 18th-Century room, Paris, France. Photos: Metropolitan

Museum of Art. Centennial Exhibition; Gift of Samuel H. Kress Foundation, 1958; Acquired with funds given by Mr. and Mrs. Charles B. Wrightsman.





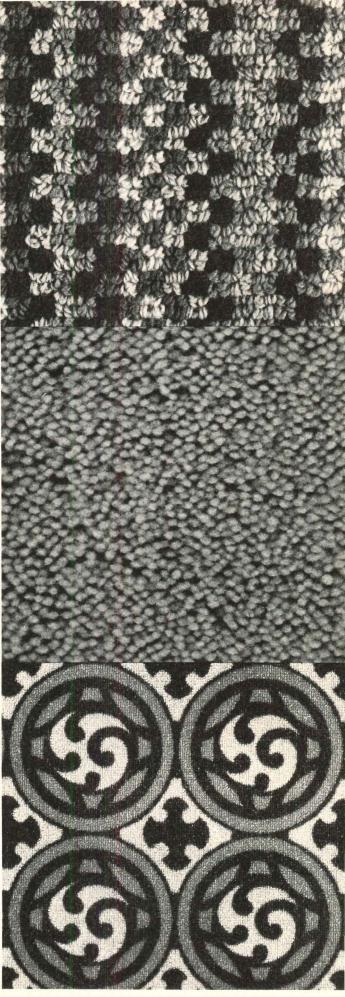
Jan Dabrowski, architect. Dabrowski residence, dining and living rooms, New York, N.Y. Photos: du Pont Public Affairs Dept.

In 1974, few carpets are woven. *Tufting* and *knitting* machines for carpet both appeared in their present forms in 1951, and the former has virtually banished weaving from carpet manufacture. The industry estimates about 95 percent of today's carpet is tufted.

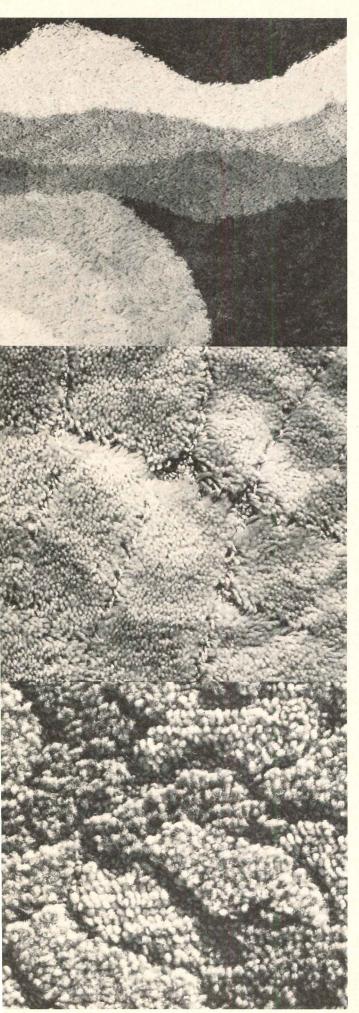
Hand tufted bedspreads appeared in early colonial times, but it was not until the 20th Century that first a sewing machine and later a wide width multineedle tufting machine could duplicate the feat. The capability of this ''giant sewing machine'' for carpet manufacture is astonishing. Because the prime backing of jute, kraftcord, or polypropylene olefin is preassembled, a major stage of carpet manufacture is greatly simplified. Over this backing rove hundreds of swift needles inserting pile yarn at a pace that produces a 9' x 12' carpet in minutes, ready for latex coating and secondary jute backing. Tufted carpet was originally restricted to solid colors, all cut or all looped. Electronic attachments added carving and embossing. Lower prices and a taste for design simplicity attracted designers and home owners to tufted carpet in the 1950s.

Another casualty in carpet manufacture is wool. Valued by centuries of carpetmakers, wool is still the "classic fiber" to which new fibers are invariably compared. But the world wants more wool than sheep can supply. As costs soared and supplies of wool suitable for carpet wavered (sheep raised in mountainous areas outside the U.S. grow the long protective fleeces of tough wool that carpet needs) more manufacturers have turned to synthetic fibers to blend and even replace it.

Formulating man-made fiber has been a cherished dream of scientists. The 17th Century English physicist Robert Hooke suggested that artificial silk might be extruded by a mechanical imitation of the silkworm. The first commercially produced solution was "Chardonnet silk" or rayon, exhibited at the 1889 Paris Exposition by Count Hilaire de Chardonnet. But the real beginning of the synthetic fiber industry awaited the following century, when E.I. du Pont de Nemours produced nylon in 1935. Because of its high strength-to-weight ratio, exceptional resistance to abrasion, excellent recovery from deformation and crushing, good appearance retention, and continuing sta-



Firth: New Country Home; Lehigh: Lady in Waiting; Salem: Ivory Coast.



Dylan: Scandinavia; Barwick: Coup d'etat; Masland: Glad Tidings.

bility when wet, nylon has become the principal fiber in contemporary carpet. It is used alone or blended with other synthetics or wool.

Since nylon's unveiling at the New York World's Fair 1939–1940, other man-made fibers have attempted to win a share of the carpet market: acrylics, polypropylene olefin, and polyester. They have not seriously challenged nylon at this time. However, each has good potential for special applications. Acrylics lack the strength for heaviest traffic use, but compare favorably with wool in texture and appearance. Olefins have successfully competed with other fibers in making rope, cordage, filter fabrics, and protective clothing. Their water resistance serves them well in outdoor carpet. The relatively new polyesters provide resilience and bounce, and in recently improved forms may find wide use.

#### If carpet could talk

An admittedly generalized profile of the contemporary carpet would reveal a tufted nylon fiber carpet bearing an intricate printed design on a backing cushioned with underlayment. It would be largely free from static, subtle in hiding soil, easy to keep clean, and tough—born for an age of scarce and costly maintenance services. According to studies for the Carpet and Rug Institute, Dalton, Georgia, installing this carpet in a contemporary home could reduce fuel consumption by 5 to 13 percent. (This is not to discount carpet's well-known acoustical damping properties, but energy conservation is obviously the *cause célèbre*.)

Essential to this carpet's performance is its pile yarn of nylon. As the oldest synthetic fiber for carpet, nylon has a long record of service, research, and development. Chemically two basic types exist, Type 6 and Type 6,6, which differ by degree of polymerization and certain dyeing and processing abilities. Nylon is extruded as staple, 1½ in. to 6 in. fibers spun into yarn like wool, or as continuous filaments formed into yarn without spinning. To increase its bulk and covering power, staple fiber is mechanically crimped and continuous filament is texturized.

A proliferation of fiber cross sections and chemical treatments has resulted from efforts to achieve better soil and water repelling, soil concealment, and static control characteristics. Fibers are available in proprietary multilobal

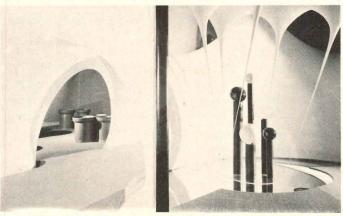
#### In fibrous fields

sections, round sections, and even a square section with rounded corners and four evenly spaced holes in the core. (Justifications for these refinements include promoting light scatter to hide soil, increasing strength, and trapping dirt at the surface of the fiber strand.) Fiber protecting chemical finishes are now available to shield carpet fiber from soil adhesion and water penetration. While there is no truly static-free carpet, numerous remedies can attenuate the ancient curse. Sealed air environments are naturally discouraged from generating static charge with humidity control. Antistatic spray or copper wire, conductive yarn, and low static yarn (the latter three in conjunction with conductive backing for best results) can also help.

Like Henry Ford, who saw the rainbow in black paint, tufted carpet was once confined to solid colors and the variations possible through moresque (multicolor) yarn



Woodfield Mall, carpeted steps, Schaumberg, Ill. Photo: du Pont.



Aleksandra Kasuba, museum displays in stretched fabric. Photo: du Pont.



Kindergarten carpet installation, Tulsa, Okla. Photo: Allied Chemical.

and "overtufting" (mechanical stitching over solid background). The newer processes are really too numerous to describe here, and only a few are mentioned. Barwick Mills, the world's largest carpet manufacturer, prefers to *print* patterns on tufted carpet. The technique silk screens premetalized dye on the tuft and applies an electromagnetic charge beneath it, driving the dye deep into the fiber. Field-crest Mills uses "electronic space dyeing" which applies color through the base of each tuft. Mohasco's "Crawford Spectramatic Process" dyes yarn and tufts carpet in a continuous electronically controlled operation. Tufted carpet rivals Wiltons and Axminsters in richness of visual design.

Cushioning is still considered vital to good carpet installation. As spec writers know, the comfort added is not as important as the longevity added to the carpet backing by a good underlayment. The pad or cushion is provided in felted hair, rubberized fibers, and cellular rubber. A recently developed cushion of polyester strand offers unusual performance characteristics. Du Pont enlists an inflated polyester pneumacel (a pneumatic cellular structure having predominantly closed cells inflated to higher than normal pressure with two gases, air and one gas essentially impermeable to cell walls) to preserve and restore cushion form.

The carpet industry is clearly directing its efforts at achieving long life, low maintenance, wide color and texture ranges, and superior performance characteristics for its products. Certain manufacturers continually distinguish themselves for innovations in fiber, fabrication, and styling. One particularly notable facility is the Create Center, Williamsburg, Va. In this pilot mill and testing laboratory, Dow Badische, a major fiber and yarn maker, provides sample runs and exhaustive testing of fiber, yarn, and carpet for its own products and those of other manufacturers' as well. Its nationwide consulting service helps designers locate the carpet of their specifications or create an entirely new one.

Exacting maximum performance from carpet requires practical knowledge and professional advice. Architects can be embarrassingly ignorant of practical matters in carpet, notes an industry spokesman. Manufacturers urge architects to attend industry sponsored seminars, obtain one of numerous carpet handbooks (see current Specifications Clinic), and consult the Carpet and Rug Institute.

However, despite all our technical advances, the most magnificent carpet in history will in all likelihood never be duplicated. The so-called *Spring or Winter Carpet of Khosrau* was woven for the vast royal audience hall at Ctesiphon in Persia in Sassanian times. It represented a formal garden of water courses, paths, rectangular beds filled with flowers, blossoming shrubs, and fruit trees. The body was silk, the yellow gravel gold, the blossoms, fruits, and birds previous jewels, and the wide border representing a grass meadow was solid emeralds.

These 84 sq ft of overwhelming splendor were part of the fabled Arab plunder of Persia which gave them Ctesiphon in 637. The carpet was cut into fragments and distributed among the caliph Omar, Ali ibn-abu-Talib, son-in-law of Mohammed, and the 60,000 victorious soldiers. The carpet's value is estimated to have exceeded \$200 million. No trace of it remains. [Roger Yee]

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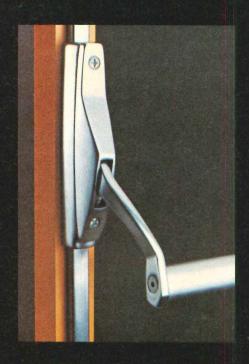
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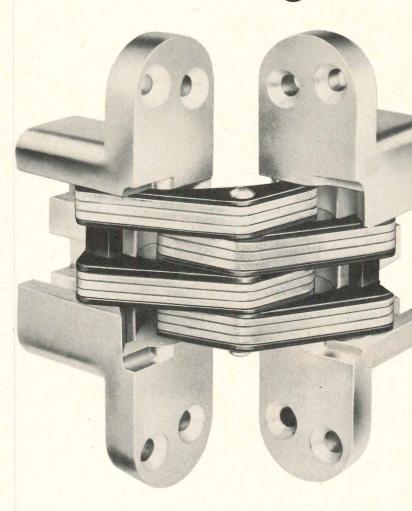


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Products continued from page 52

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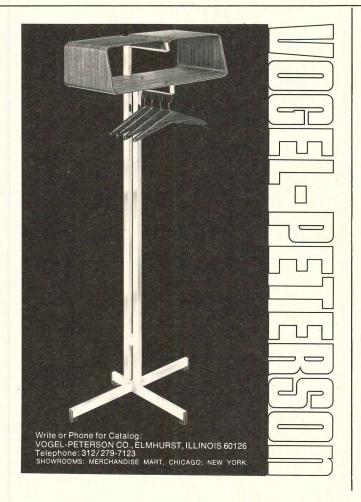
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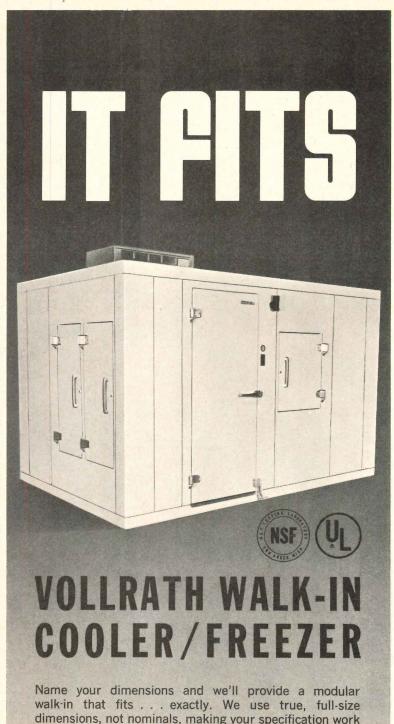
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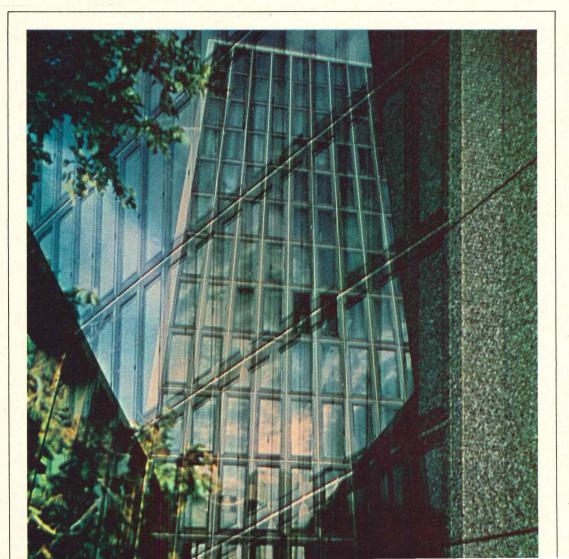
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Literature continued from page 130

Interwall storage system is a collection of modular components consisting of basic elements for conventional storage plus an assortment of complementary adjuncts, interior accessories, and hardware fixtures. Basic construction material is particle-board coated with waterproof, scratch-resistant white vinyl film or teak, rosewood, oak, mahogany and walnut veneers. Can be placed against rigid walls or used as free-standing floor-to-ceiling room dividers. Field-assembled components are interchangeable. Units come in 25-, 35-, or 40-in. widths, 15- or 23-in. depths and can be arranged to reach any height. Literature available. Interior Products Group, Inc.

Circle 209 on reader service card

Office screening. Brochure describes advantages and capabilities of company's product in both conventional and landscaped office planning. Vogel-Peterson Company.

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**Power-Trac lampholders.** Spheres come in four sizes and two finishes: satin white paint and polished aluminum with black trim, and can be attached at any point along track. A catalog is available. Halo Lighting. Circle 211 on reader service card

**Pre-finished panels.** Illustrated color brochure gives physical properties and wind load test data, shows colors. Product is available in the southern portion of U.S. and California. Gold Bond Building Products, Div. of National Gypsum Co.

Circle 212 on reader service card

Custom products and services. Brochure covers fabricating capabilities, custom wall finishes, and service plan that this company offers. A multiple option fabrication service for a product component, a complete interior package, or a combination is tailored to customer specifications for offices, stores, restaurant, or other commercial building. Marlite Custom Products and Services.

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Automated distribution system. Sixpage color brochure illustrates electronically guided, battery propelled vehicles that can be programmed to go anywhere in the hospital; also gives basics of operation. AMSCO Systems. Circle 214 on reader service card

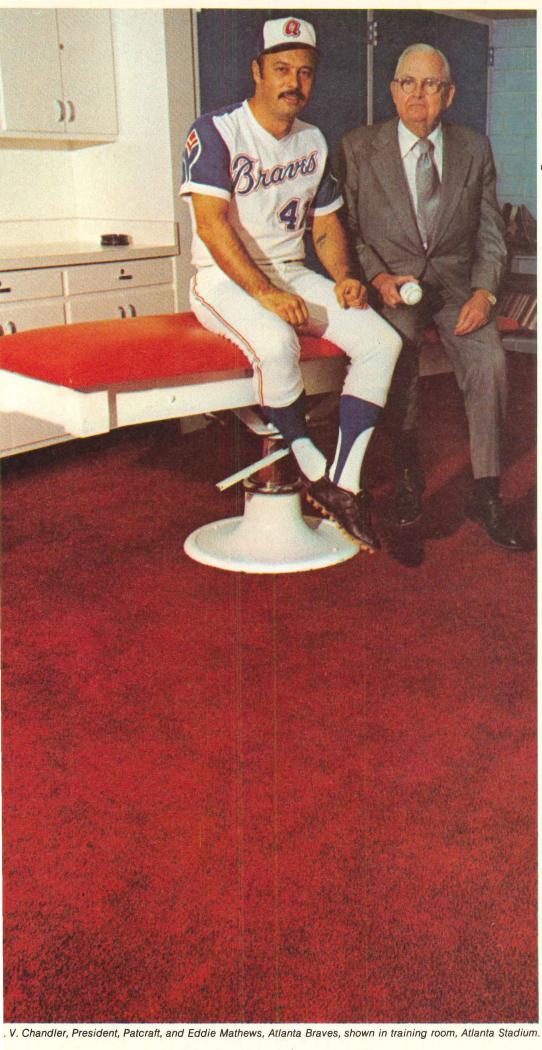
**Ball transfers** for moving heavy equipment ranging from walls to arena seating to storage of equipment are shown in catalog. Applicable for solving and omni-directional motion problems. Genbearco International Corp. Circle 215 on reader service card

Electronic access control systems, described and illustrated in 16-page catalog, are said to provide security and protection at all points of entry as well as positive 24-hour identity and surveillance in a building. The six basic models can be programmed for specific security requirements in industry, residential and commercial buildings, or government and institutional complexes. Component, operating, and accessory data is included. Eaton Corp. Circle 216 on reader service card





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Donald H. Baran Senior Interior Designer Frank J. Papp, CSI Chief — Specifications

Leonard J. Bauer Project Captain

Christian C. Polkow Senior Draftsman

Walter G. Goebert Director of Engineering -Structural

Daniel C. Bolda Assistant Director of Engineering – Structural

Wayne R. Gaerlan Senior Electrical Designer Gilbert A. Dehnert Director of Field Services

Consultants:

A & T Engineering Inc. Mechanical & Electrical Engineering

M. Paul Friedberg & Associates Landscape Architect

Davis-Siska & Associates Associate Landscape Architect

\* In addition to the individuals listed, WB estimates that 15 other professionals were involved in some phase of the A.C. Nielsen project.



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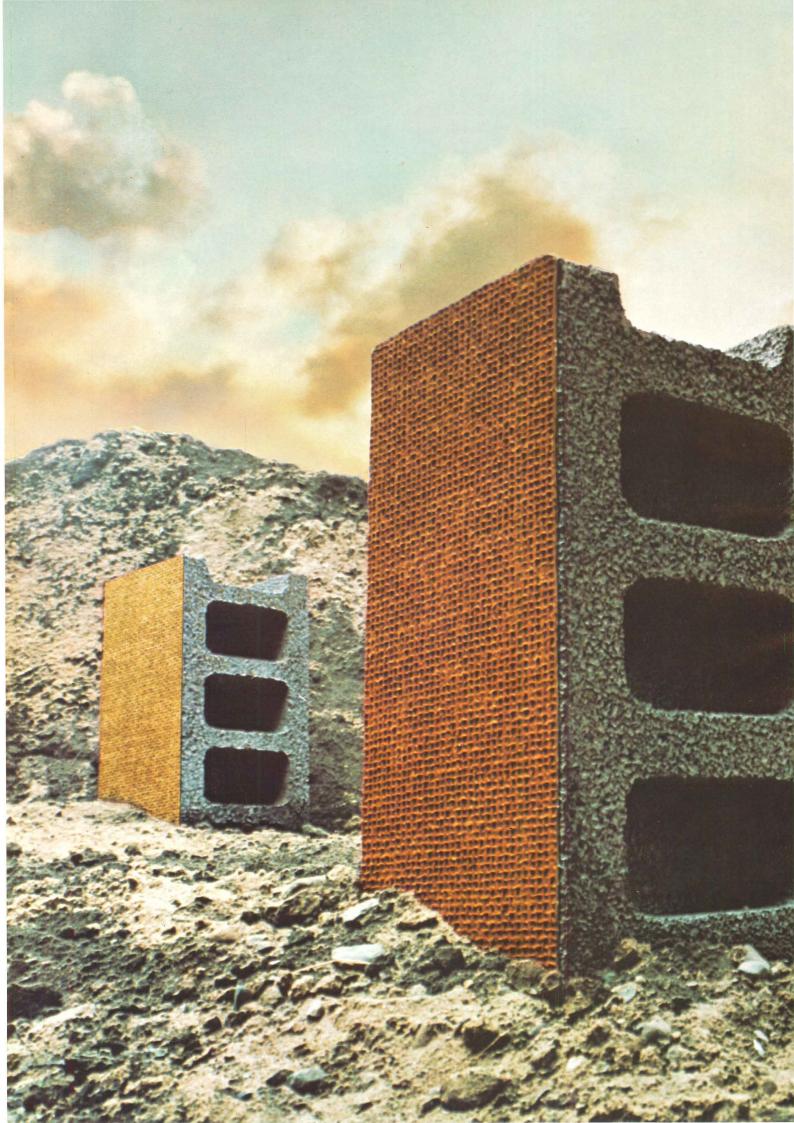
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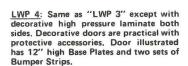
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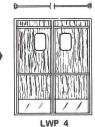
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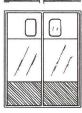
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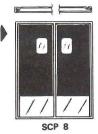


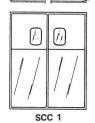


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## Recent releases

Without Rhetoric: An Architectural Aesthetic 1955-1972 by Alison and Peter Smithson. Cambridge, The MIT Press, 1974. 97 pp., \$6.95.

The Smithsons gained an international reputation in the early 1950s, both for their buildings and for being instrumental in the development of the "thoughtful" approach to modern architecture. Their theoretical accommodation of the economic and social context in which the architect/urbanist works was set out succinctly in Urban Structures. Team 10 Primer documented the Smithsons' search with other leading architect/urbanist/teachers for a technique of working together, a skill or way of thinking that past cultures obviously had but that seemed to be lost to the builders of our present cities. Without Rhetoric-concerned with architectural form and its material embodiment—is a parallel volume to Ordinariness and Light, of 1970, which contained those essays concerning urban form written over the years 1952-1960. This new volume is a refinement of the results of 20 years of their work; it intends to give the reader a real feeling for these particular architects' interests and obsessions. Among the many subjects discussed are The New Brutalism, the role of advertising in shaping what we need, The Rocket (a statement on the present state of architecture), Mies van der Rohe, some meditations of Braun, and the use of repetition.

Designing for Human Behavior: Architecture and the Behavioral Sciences, edited by Jon Lang, Charles Burnette, Walter Moleski and David Vachon. Stroudsburg, Pa., Dowden, Hutchinson & Ross, Inc., 1974. 353 pp., \$20.

Although the significance of environmental psychology has been recognized for some time, the implications of this field of ecological research to the practice and teaching of architecture remained largely unexplored. Now, a group of young architects has synthesized many recent changes in architectural philosophy in a single, comprehensive volume. An outgrowth of the 1971 conference and exhibit "Architecture for Human Behavior" held in Philadelphia, this volume, in a sense, takes up where the conference left off, as it provides a thorough exploration of environmental psychology and its place in today's architecture. The book includes the original papers presented at the conference, and it augments them with new introductions, overviews, and in-depth evaluations by the co-authors. In five parts, the first section deals with emerging issues in architectural theory and practice, points out examples of inappropriate design, and explores new approaches to designing the physical environment. Part two examines the fundamental processes of environmental psychology and their impact on architectural theory. The third section describes the methodological contribution of the behavioral sciences to architectural programming and evaluation. Part four is a summary, placing the objectives of the book in a retrospective framework. The final section is an extensive reference bibliography to assist researchers in pursuing further study.



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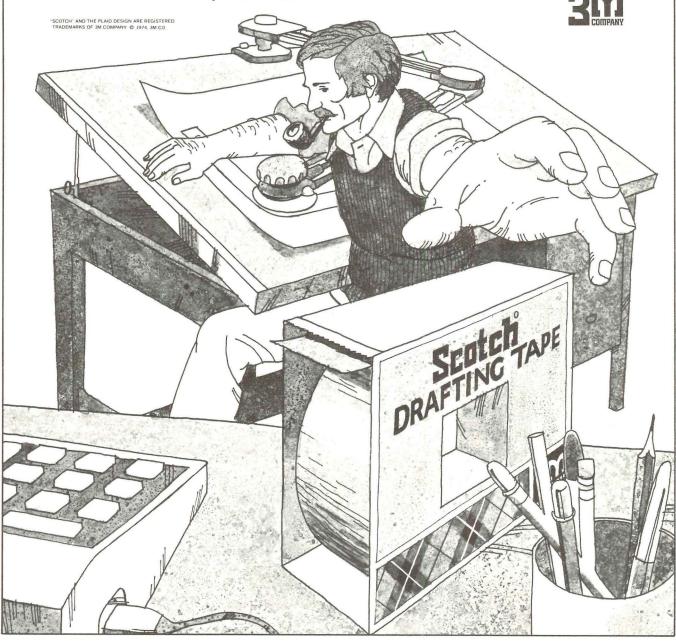
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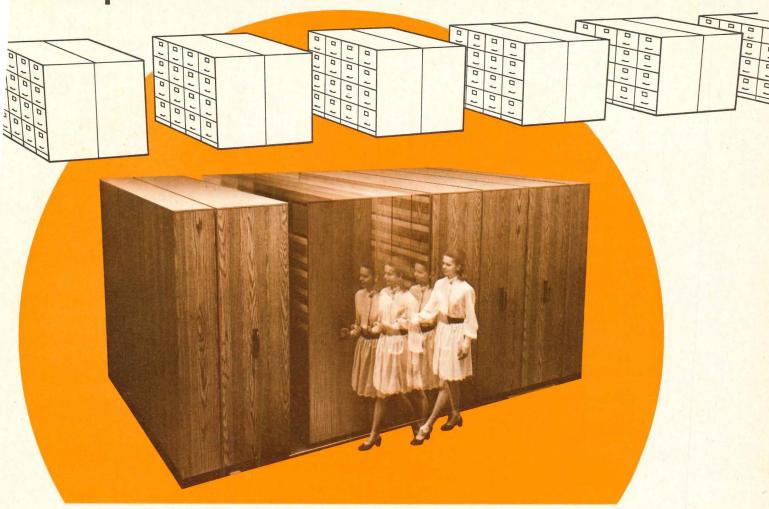
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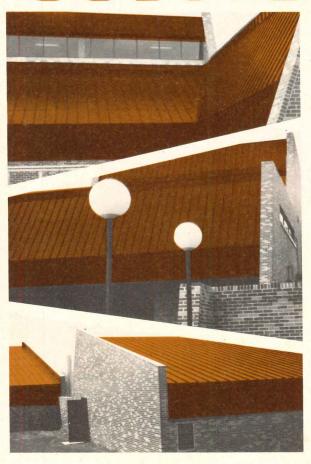
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#### **Notices**

**Appointments** 

Truitt B. Garrison and Joseph W. Griffin were made senior vice presidents of Caudill Rowlett Scott, Inc., Houston, New York, Los Angeles ar

Charles B. Thomsen has been elected to the Board of Directors of CRS Design Associates, Inc., Houst

Albert G. Paja has been promote to vice president of Lester B. Knight Associates, Inc., Chicago. Ottavio I Finaldi is new managing associate.

I. Milton Durham, Jr., AIA has joined Connell Associates Inc., Arch tects, Engineers, Planners of Coral Gables, Fla., as vice president.

Raymond C. Hollenberg has bee appointed director and Linda Thiem administrative assistant of the newly established department of design of William B. Ittner, Inc., Architects, Er neers and Planners, Saint Louis, Mo

Chu-Yuan Lee was made director urban and architectural design for V liam L. Pereira Associates, Los Angele

David Weiser, MRAIC has been pointed associate and director of de sign for Edward Dodson & Associat Architects, Vancouver, B.C.

Nello J. Piccin has been named chitectural chief draftsman of Roe A sociates, Hempstead, N.Y.

Keith M. Sipperley has joined Gi fels Associates, Inc., Detroit, as dire tor of architecture.

Michael P. Conoscenti, AIA and Richard C. Clark, AIA have been named associates of The Eggers Pa nership, New York City.

Teody Zano and John Kilbane have been named associates of Go kin/Ruderman/Valdivia (GRV), Los Angeles.

Jack I. Kerman and R. Gay Gold man have joined Lorenz & Sorkin, Architects, Saint Louis, Mo.

John R. McClurg, AIA and Jose [continued on page 146]

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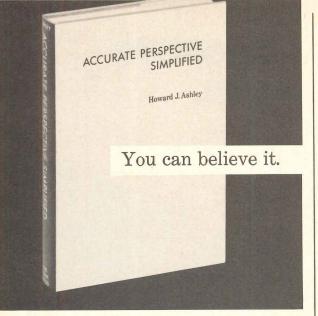


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- "... it is a most ingenious system of doing quicker and more accurately proportioned perspectives." WORLEY K. WONG, Architect F.A.I.A. Wong & Brocchini & Associates San Francisco, California
- "... your fine, new text has covered the basics ... well and in an easy to understand manner . . . . a welcome addition to our Perspective . . . library." TED YOUNGKIN, Faculty The Art Center College of Design Los Angeles, California

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Notices continued from page 144

D. Vaccaro, AIA have been appointed vice president and deputy executive director, respectively, for the Los Angeles office of Leo A. Daly Company.

Paul W. Sweeney has joined Frank L. Hope & Associates, San Diego, as head of the estimating department.

Eliane Pepper has joined Ficker Architects, Newport Beach, Calif., as director of interior design.

Former Assistant Postmaster General Robert E. Isaacs, AIA has joined Dalton Dalton Little Newport, Miami, Fla., as vice president.

#### Expansions, reorganizations, and mergers

Bull Field Volkmann Stockwell, San Francisco, has joined with Business Space Design, Seattle, Wash., to form an affiliate organization, BSD/San Francisco, Musto Plaza, 350 Pacific Ave., San Francisco.

Raider-Towbin & Associates, Tarzana, Calif., formerly Raider-Strachocki-Towbin, is now headed by principals David H. Raider and David C. Towbin.

William E. Swank & Associates, formerly Swank Gesler/Partners, has opened branch offices in Denver, Colo. and Beirut, Lebanon.

John J. Flad & Associates, Madison, Wis., has formed a subsidiary, Flad Development and Investment Corp.

Dalton Dalton Little Newport has established a combined production capability with the Office of Ira Kessler, Architect, New York City.

Romeo Aybar, AIA Architect & Planner and Valk & Keown AIA Architects have merged to form Aybar, Valk & Keown AIA Architects, Engineers and Planners, Ridgefield and Montclair, N.J.

Commonwealth Associates Inc., Jackson, Mich., has added a cultural resources section to its Landplan Systems Division.

#### **New firms**

Raymond L. Crites and Gary H. Taylor have formed CTA-Crites/Taylor & Associates, Architects and Planners, and are associated with A & S Consultants, Inc., Civil Engineers and Land Surveyors, 9725 E. Hampden Ave., Suite 103, Denver, Colo. 80231.

Jon Halverson, Gary Johnson

Architects, 24 N. Fourth, Grand For N.D. 58201.

L. Jane Hastings and Carolyn D. Geise have opened The Hastings Group, 1516 E. Olive Way, Seattle, Wash. 98122.

William B. Dring and William Bauh have formed Bauhs & Dring Architects and Planners, 612 N. Michiga Ave., Chicago 60611.

#### Calendar

Nov. 22. Conference on architecture fees, Washington University, St. Lou Nov. 23-25. School Building Architectural Exhibit, sponsored by the IIlinois Council of the AIA and the Illin Association of School Boards, Palm House, Chicago.

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

Nov. 30. Deadline for entries to the tional Home Improvement Council's Chapter Award Competition, New York Dec. 4-6. Third national bicycle/pe destrian planning, design and imple mentation seminar, San Diego. The conference is co-sponsored by the Metropolitan Association of Urban D signers and Environmental Planners Inc.; American Society of Civil Engineers, Transportation and Urban Pla ning Divisions; government agencie and the University of California, Inst tute for Transportation and Traffic E gineering.

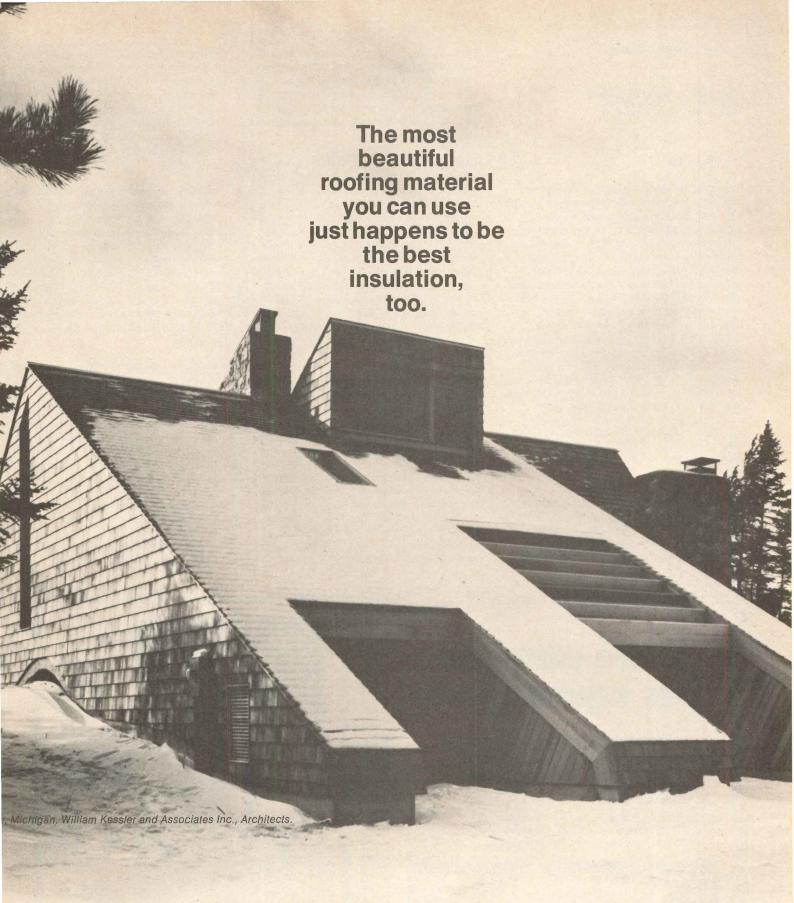
Dec. 10-12. International Building I position (INBEX), Chicago.

Dec. 17-20. International conference Tel Aviv, Israel, on housing for the emerging nations sponsored by the ternational Technical Cooperation Centre and the Association of Engineers and Architects in Israel. Jan. 1-31. Walter Gropius,

1883-1969, photographic retrospe tive exhibition, University of Souther

California, Los Angeles. Jan. 19-23. Thirty-first annual conv

tion and exposition of the National A sociation of Home Builders, Dallas. Jan. 26-29. Conference on tall buil ings and the growth of cities, Honol Hawaii. Conference is sponsored by the Joint Committee on Tall Building Feb. 4-7. Thirtieth annual conferen of the Reinforced Plastics/Composi Institute, Shoreham-Americana Hote Washington, D.C.



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RAE Handbook of Fundamentals, 1972 ed., Chap. 20 "Design Heat Transfer Coefficients" Table 3A, pp. 362-63.

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Chairman: The Department of Architecture of the University of Pennsylvania's Graduate School of Fine Arts is seeking a full-time Chairman to assume office by September 1975. Resumes or nominations of qualified

persons should be sent to Richard Bartholomew, Chairman of the Search Committee, Department of Architecture, Graduate School of Fine Arts CJ, University of Pennsylvania, Philadelphia, Pennsylvania 19174. The University of Pennsylvania is an equal opportunity employer.

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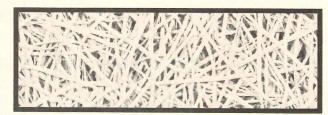
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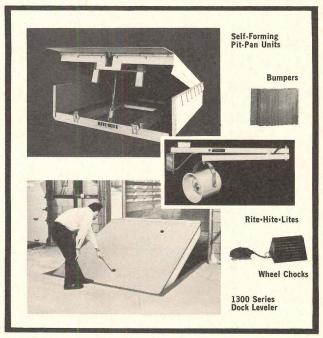
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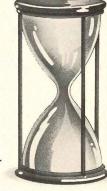
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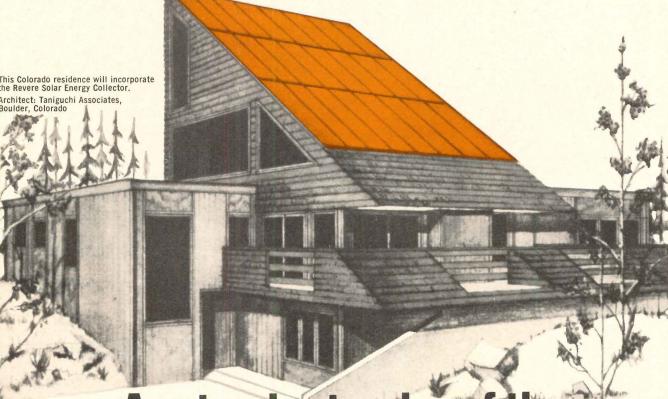
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#### Job mart continued from page 152

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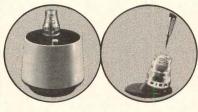




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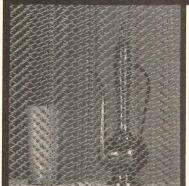
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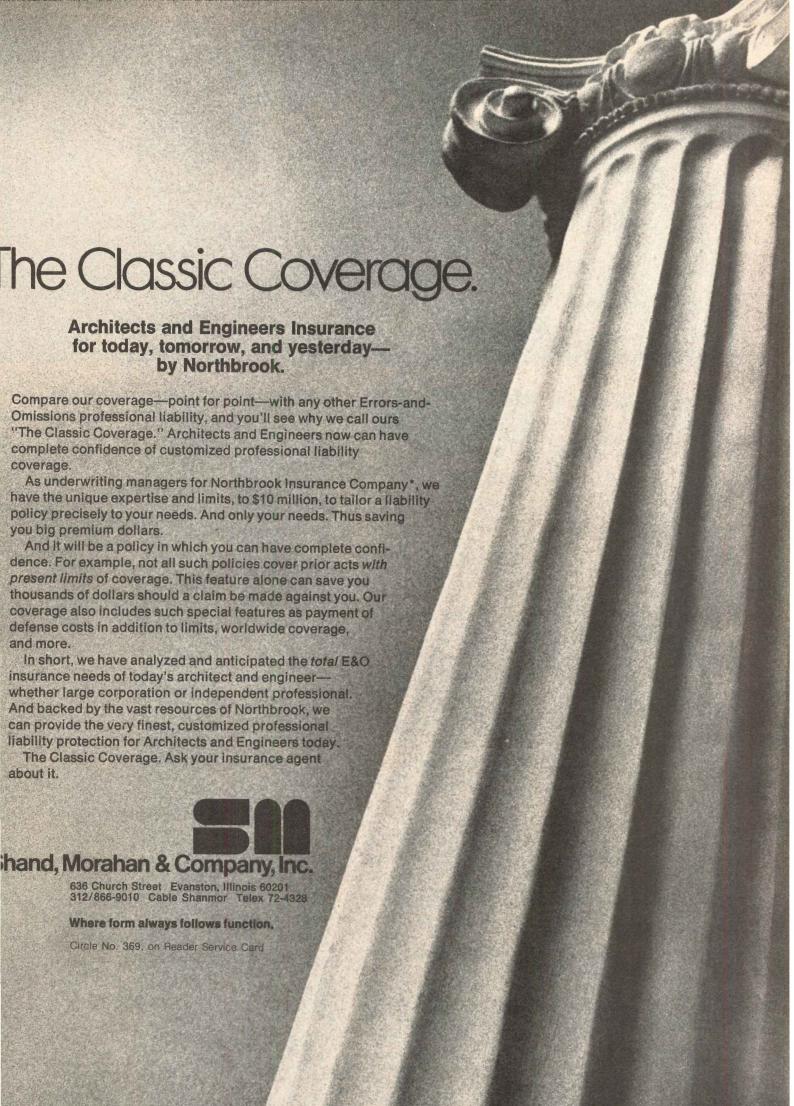
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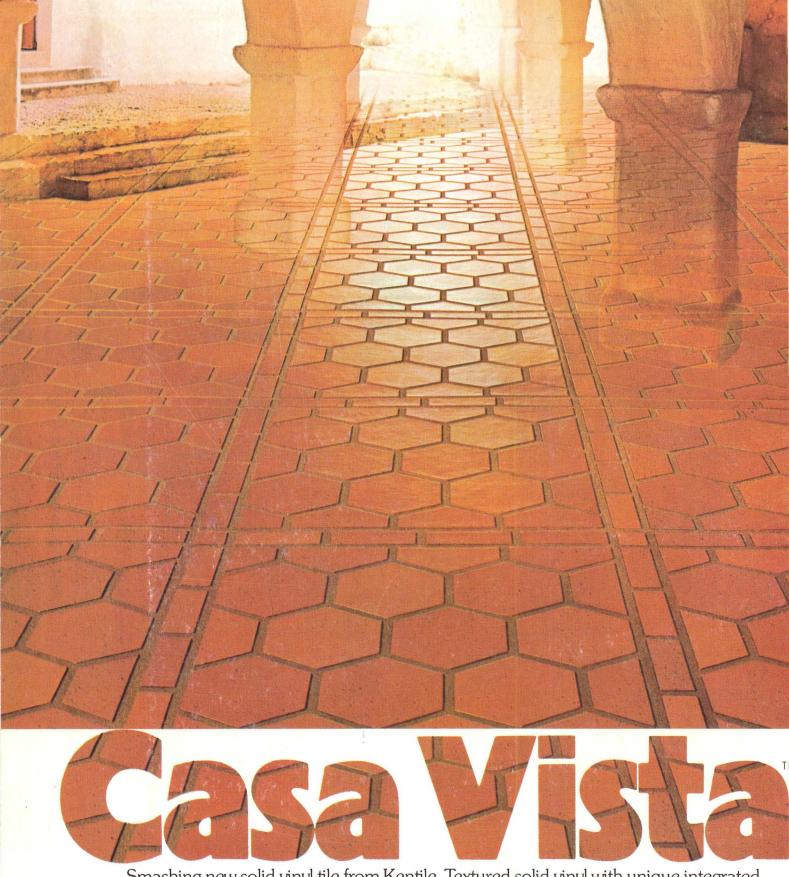
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