Progressive Architecture

February 1977 A Penton/IPC Reinhold Publication

The Brigantine® sheet vinyl floor from Armstrong.

In the school of hard knocks, it's the easy way to keep up appearances.

The school is West Hardin Elementary in Crump, Tennessee. Where the student body, from kindergarten through sixth grade, numbers 270. And where the clean, functional design of the architecture is enhanced by the beauty of Brigantine Vinyl Corlon® on the floor.

School authorities selected Brigantine sheet flooring for three sensible reasons: its lively, attractive appearance; its easy maintenance; and its will to survive in a world of active, busy children.

While Brigantine can be found in many of the classrooms, nowhere are its characteristics shown to better advantage than in the school's all-purpose "commons" area. Here, the students play basketball (boundary lines are painted on) and other games, eat their lunches, assemble for meetings, watch theatrical performances. And all that activity takes place on Brigantine's beautiful face.

Brigantine's beauty lies in its dirt-hiding pattern and its wide array of design-enhancing colors—two of which can be seen here. Its durability is provided by its tough sheet vinyl composition that stands up strong to the constant running, jumping and scuffing of youthful feet. A composition, by the way, that prevents spills from soaking in, helps the custodial staff clean up in short order.

The fact is, wherever long-lasting, easy-cleaning good looks are called for, you'll find Brigantine at the head of the class. A practical floor covering that comes in rolls 6 feet wide and up to 90 feet long that eliminate a lot of seams. A handsome floor covering that can attend the school of hard knocks and graduate with honors. To learn more, send for a free copy of our "First Family" booklet which describes Brigantine and other Armstrong commercial floors. Write Armstrong, 302 Watson Street, Lancaster, Pa. 17604.

Circle No. 307, on Reader Service Card

Architect: H. G. Barnes and Associates, Jackson, Tennessee
Flooring Contractor: Markham & Hardin, Jackson, Tennessee
General Contractor: Pettigrew and Chandler, Adamsville, Tennessee

FROM THE INDOOR WORLD® OF Armstrong

February 1977

Progressive Architecture

Cover: Candlelit interior of the main dining room of New York City's Shezan Restaurant is one of five interiors projects by Gwathmey Siegel Architects covered in this issue (p. 72). Photo: Norman McGrath.

Progressive Architecture is published monthly by Reinhold Publishing Company, Inc., a subsidiary of Penton/IPC. Philip H. Hubbard, Jr., President; Harry I. Martin, Vice-President. Penton/IPC: Thomas L. Dempsey, Chairman; Sal F. Marino, President; N.N. Goodman, Jr., Benjamin L. Hummel, Joseph P. Lipka, Paul Rolnick, Executive Vice-Presidents.

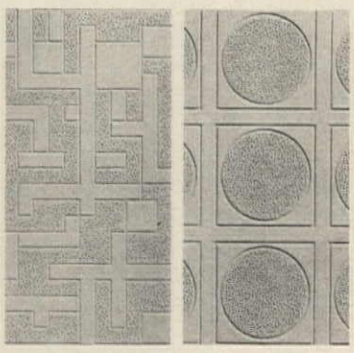
Executive and editorial offices, 600 Summer St., Stamford, Conn. 06904 (203-348-7531).

For all subscription information write Circulation Dept., Progressive Architecture, 614 Superior Ave., W., Cleveland, Ohio 44113 (216-696-0300). When filing a change of address, give former as well as new address, zip codes, and include recent address label if possible. Allow two months for change. Subscriptions payable in advance. Publisher reserves right to refuse unqualified subscriptions. Professional rate of $8.50 per year is available to architectural and architectural-engineering firm personnel and architects, designers, engineers, and draftsmen employed in allied fields. Professionals outside U.S., U.S. possessions, and Canada: $20 per year. Nonprofessional domestic rate: $17 per year. Nonprofessionals outside U.S., U.S. possessions, and Canada: $30 per year. Single copy $3, payable in advance. Indexed in Art Index, Architectural Index, Engineering Index. Second-class postage paid at Stamford, Conn. and additional offices. Volume LVIII, No. 2. Printed in U.S.A.

Registron™ from Armstrong. When the grid becomes part of the pattern, the lay-in ceiling appears truly monolithic.

The high-class look says it can't be a moderate-cost lay-in ceiling. But it is. Because we've now produced a family of 2′ x 4′ mineral-fiber panels that disguise the special low-gloss grid by making it part of the surface pattern. So what you see is not the individual panels but a ceiling whose geometry provides a sweep of uninterrupted design.

The new members of the Registron family are known as Textured Squares (above), Grid Shapes, and Circles 'n Squares (below). All,



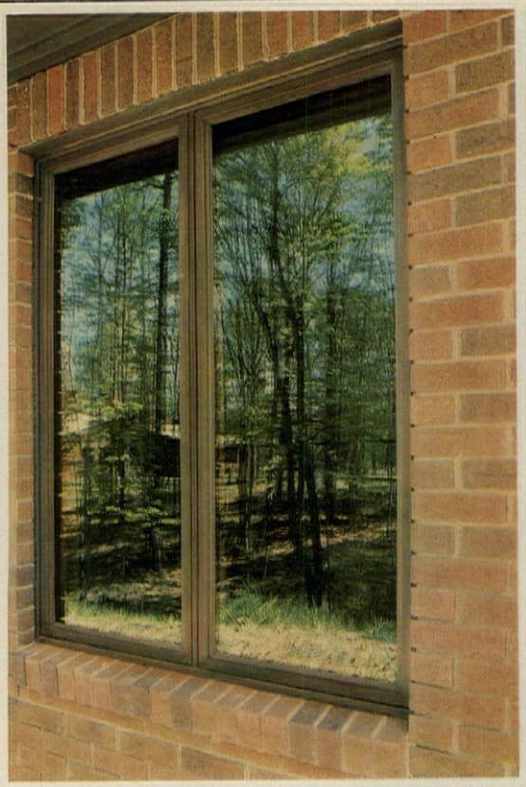
of course, are acoustically efficient. And all are made by a newly developed manufacturing technique that not only carefully registers the embossed design but also conceals the acoustical perforations in the textured surface areas.

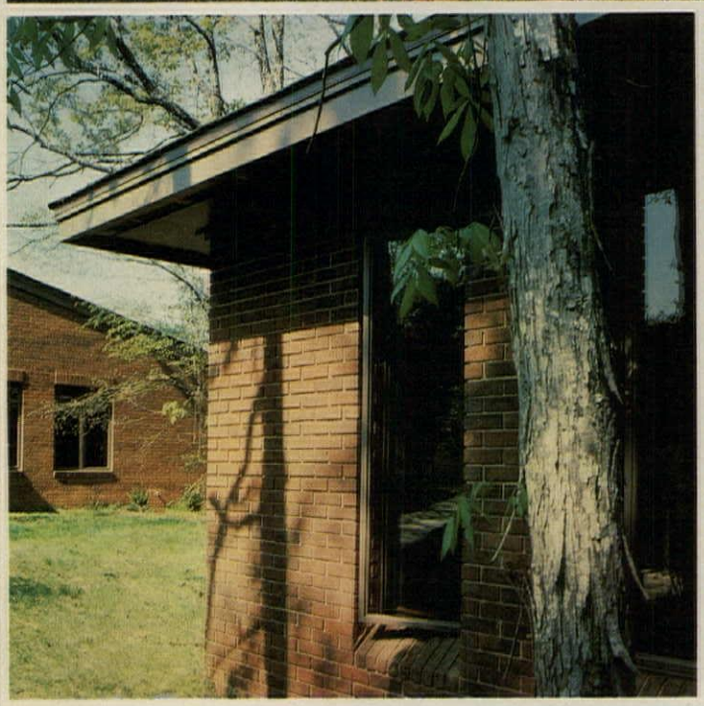
Registron from Armstrong. A neat job of camouflage that turns the ordinary lay-in ceiling into an extraordinary monolithic beauty. To learn more, write Armstrong, 4202 Watson St., Lancaster, Pa. 17604.

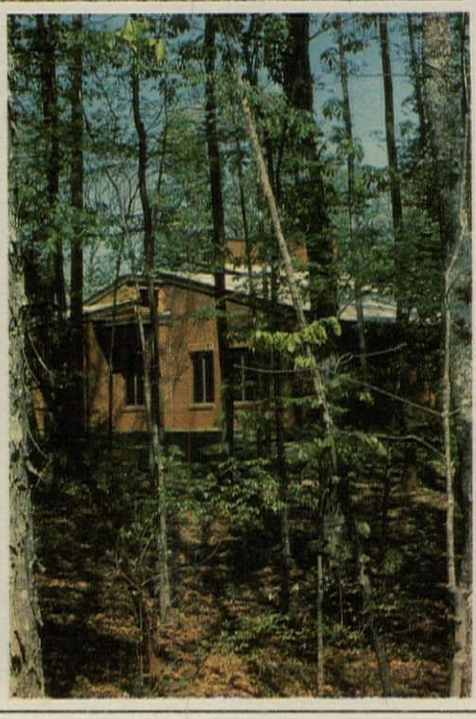
FROM THE INDOOR WORLD® OF

Armstrong

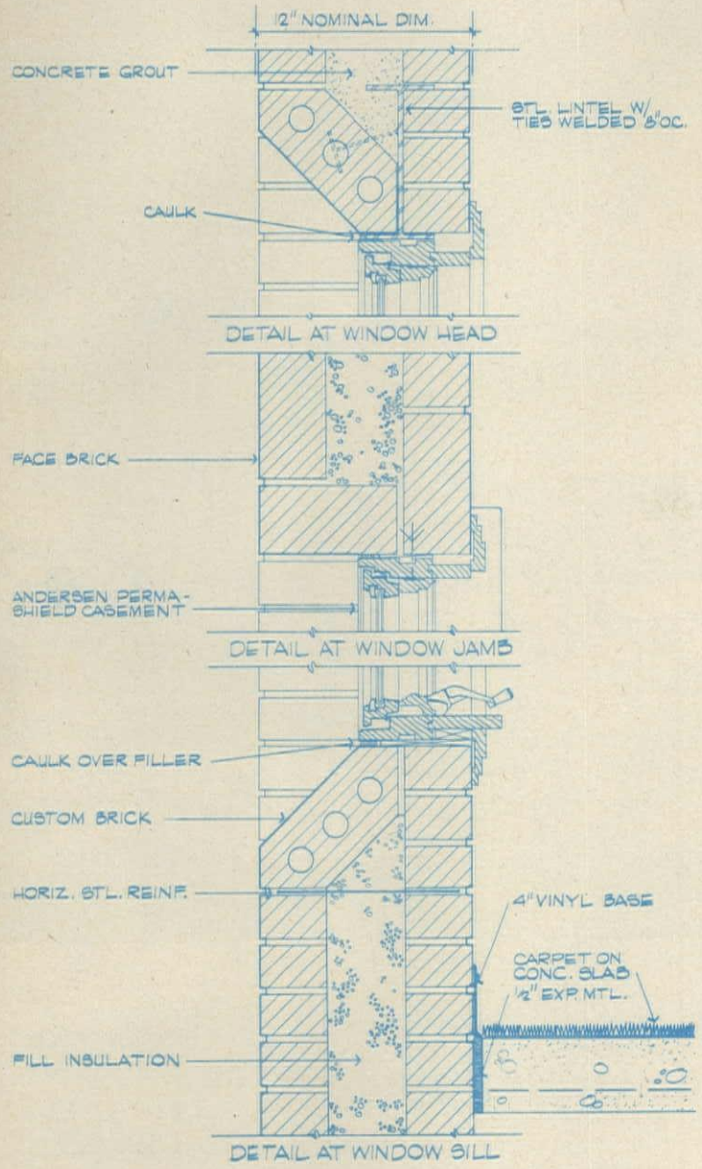
Circle No. 308 on Reader Service Card







At a mental health center...
Andersen institutes warmth and harmony.



Mecklenburg County Mental Health Center
In-patient Addition
Charlotte, North Carolina
Architect:
Henningson, Durham & Richardson
Charlotte, North Carolina

Printing limitations prohibit exact color duplication.
Use actual sample for building specifications.

Windows can be a critical element in the livability of an institutional project.

That's why, when designing these extended care units for the Mecklenburg Mental Health Center, the architect specified Andersen® Perma-Shield® casement windows in Terratone color.

They knew the beautiful look, feel and charm of their inside wood trim would establish a warm, comfortable atmosphere.

They knew these windows in Terratone color would create harmony, too. Thanks to their deep, dramatic earth-tone hue—it blended beautifully with both the brick exteriors of the buildings and the landscape.

And they knew Andersen windows would match the County's desire to save on operating costs. The tough, long-lasting Perma-Shield vinyl sheath virtually eliminates maintenance—it's designed not to rust, pit or corrode. Won't chip, flake, peel or blister.

Finally, unlike the leaky, drafty kind, Perma-Shield windows help save fuel. Because they have a wood core—one of nature's best insulators—and are built two times more weathertight than industry air-infiltration standards.

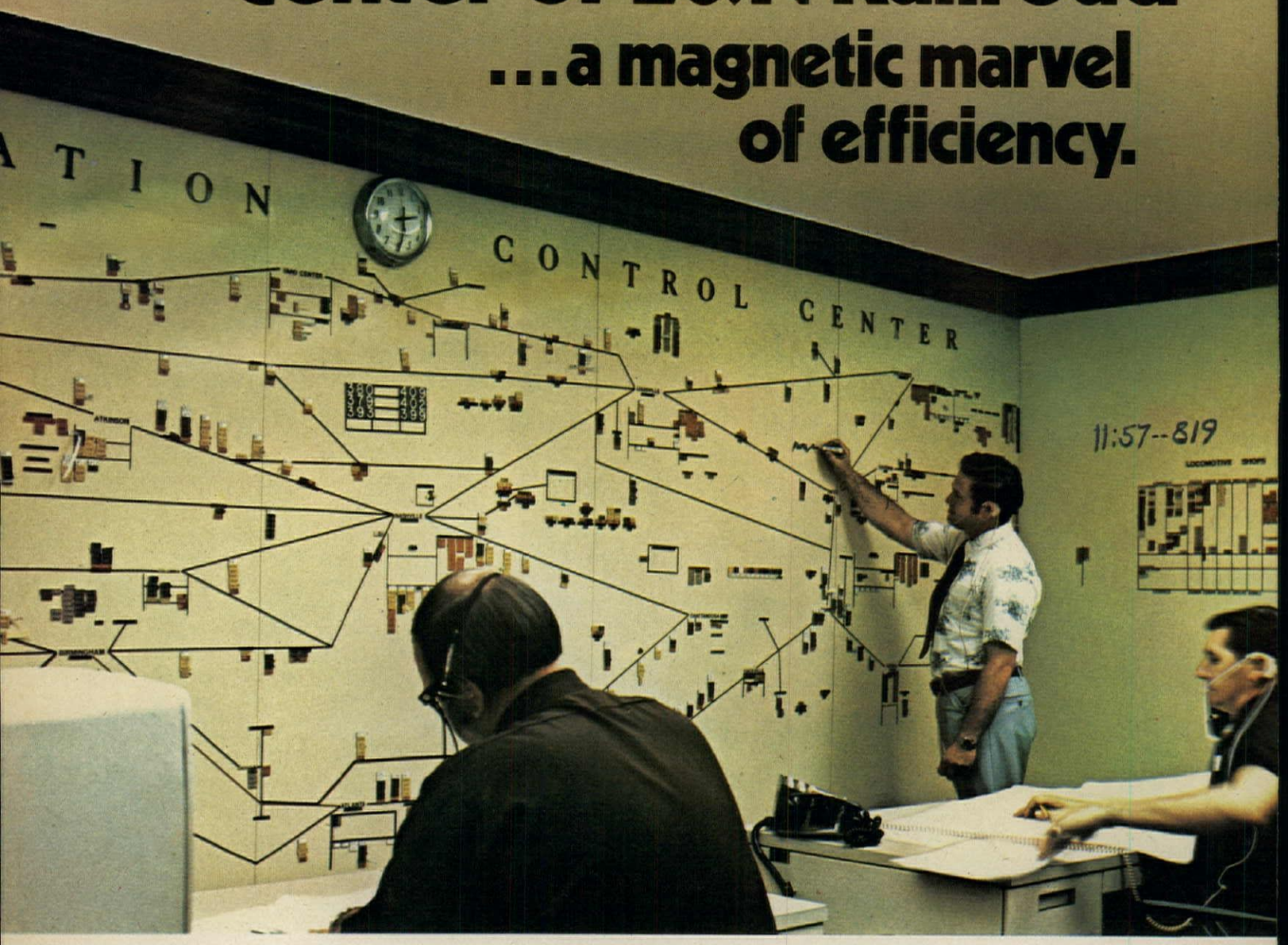
So bring warmth, harmony—livability—to your next design. Specify Andersen Perma-Shield casement and awning windows in beautiful, blendable Terratone color.

For more details, see Sweet's File 8.16 or your Andersen Dealer or Distributor. He's in the Yellow Pages under "Windows." Or write us direct — Andersen Corporation, Bayport, Minnesota 55003.

The beautiful way to save fuel™

Andersen® Windowalls®

Transportation Control Center of L&N Railroad ...a magnetic marvel of efficiency.



Combines AllianceWall porcelain-on-steel WhyteBoard*, magnetic symbols and dust-free writing system.

How do you keep tabs on thousands of different railroad cars? The Louisville & Nashville Control Center does it with AllianceWall porcelain-on-steel WhyteBoard walls and an ingenious system of magnetic symbols used to plot the movements of trains.

These same porcelain-on-steel WhyteBoard walls, combined with special dry-wipe Rite-On, Wipe-Off markers, form a dust-free writing system. Markers write clear and clean. Erase clean with swipe of dry cloth. WhyteBoard walls double as projection screen. The writing surface, virtually indestructible, is guaranteed for 50 years.

AllianceWall WhyteBoard is an ideal wall system for all types of business offices, sales and conference rooms, schools... anywhere people meet to communicate.

Write AllianceWall Corporation, Box 247, Alliance, Ohio 44601.

AllianceWall® Corporation

Manufacturing plants in Alliance, Ohio; Okmulgee, Oklahoma; Genk, Belgium and Odense, Denmark.

*formerly known as Rite-On, Wipe-Off panels.

The cutlery of progress

February 1977

"Architects at the cutting edge" was the title of a lecture series held last fall at the Smithsonian Institution in Washington. As "wrap-up" speaker for the series, I undertook to put the works and thoughts of seven chosen speakers (chart, right) into some kind of perspective.

The "cutting edge" referred to was, obviously, the cutting edge of architectural *design*—not technology or methodology or social activism. The handy metaphor, on reflection, raises questions: what is the direction of cut or the motive force, and what is being cleft? One purpose of the chart I drew up for the Smithsonian audience—reproduced here in condensed form—was to show the irregularity of this cutting edge. It is no samurai blade, but rather like one of those multipurpose power tools found in a modern do-it-yourself department.

The one thing these architects have in common, as they slice and drill at various angles, is that all are attacking the same body of tradition: the orthodox Modern Movement. One of the references for those attending this series was an article by Ada Louise Huxtable entitled "The Gospel according to Giedion and Gropius is under Attack" (*The New York Times,* June 27, 1976).

The "characteristics" on this chart include some that Robert Stern identifies with "Post-Modernism" (the ones next to his name), some representing the orthodoxy under attack, and others of particular concern to me. The names include the speakers in that series, plus contemporaries who could as well have been substituted. In assigning characteristics, I have relied on my perception of *predominant* qualities—discounting, for instance, the powerful irony of Gwathmey/Siegel's Whig Hall at Princeton (June 1973 P/A). I may have pushed a bit to demonstrate diversity; no two sets of characteristics quite match.

Some important issues just weren't manageable in this format: the matter of architecture as symbol, for instance, or the tendency toward holistic vs. open-ended form. Unmentioned on this chart (but covered in the lecture) are the numerous heroes and gurus—at home and abroad—who have influenced these people—and the many avant-garde architects with little built work to show.

There may, moreover, be more important cutting edges outside this arena of design—in user participation (Dec. 1976 P/A), for instance, or in light structures (p. 64).

Characteristics	response to context	allusion (historical, vernacular)	experiential form	ideal form	complex form	minimal form	ambiguity	irony	mechanistic detail	decoration	applied color	expression of structure	expression of function	expression of occupancy	experimentation with perception
Speakers															
Charles Gwathmey *Gwathmey/Siegel*			■	■	■				■				■		
William Turnbull *MLTW/Turnbull*	■	■	■		■		■			■	■		■		
Venturi and Scott Brown *Venturi & Rauch*	■	■		■	■		■	■		■	■				
Stanley Tigerman				■		■		■	■		■				
Hugh Hardy *Hardy Holzman Pfeiffer*	■		■	■	■	■	■	■	■		■				
Romaldo Giurgola *Mitchell/Giurgola*	■		■		■		■		■		■	■	■		
Robert Stern	■	■	■		■		■	■		■	■				
Contemporaries															
Richard Meier			■	■	■				■		■		■		
Peter Eisenman				■	■		■				■				■
John Hejduk				■	■				■		■				
Michael Graves	■	■	■		■		■	■		■	■				■
Werner Seligmann				■	■		■		■		■		■		
Donlyn Lyndon *Lyndon Associates*	■	■	■		■		■	■		■	■		■		
Charles Moore *Moore Grover Harper*	■	■	■		■		■	■		■	■				
Barton Myers	■		■		■			■			■		■	■	
Cesar Pelli *Gruen Associates*				■		■			■		■				
Anthony Lumsden *DMJM*				■		■			■						

Notes on architects and terms

Contemporaries include: the other four members of the New York Five (besides Gwathmey/Seigel); Werner Seligmann, who should properly be the sixth in that group; Turnbull's former partners, Lyndon and Moore; Myers of Toronto, whose work shows affinities with that of others here, and comparable sophistication: Pelli and Lumsden as leaders of a larger group of Los Angeles "high tech" designers or "Silvers" (Oct. 1976 P/A).

Characteristics: *response to context*—or "contextualism"—means here derivation of form from the idiosyncracies of place, client, etc.; *allusion* could be divided, as suggested parenthetically, to make important distinctions among sources; *experiential form* here means form conceived in terms of the sequence of user experience, and can be combined with *ideal form,* conceived in terms of an overriding order (an intended envelope, a modular grid, etc.); *expression of structure* and *expression of function* refer to the conventional principles of the Modern Movement; *expression of occupancy* refers to intended variability in architectural qualities depending on occupant actions, as in Diamond & Myers University of Alberta Housing (Feb. 1974 P/A); *experimentation with perception* refers to evidence of intent to alter the way users perceive architectural form.

John Morris Dixon

Views

Rotunda reconsidered

In response to your recent article on the Rotunda, University of Virginia (Nov. 76, P/A), I am disappointed with your very narrow, single-minded critique. Although many obvious technical inaccuracies have been discussed, Mr. Knight fails to cover the project completely, leaving out, for example, an assessment of scale and proportion in detail (which in some areas were insensitively handled), any comment about the quality of "Mr. Jefferson's" spaces and interior form which have just now re-emerged after 80 years, or an assessment of this building's importance as the terminus to the "Lawn" as seen from the inside out. In short, Mr. Knight, who must be an engineer, is so hung up about some minor difficulties that he has given us no insight into the emotional and visual experience of the building as a whole. I was not personally involved with this project and have little knowledge of the difficulties, but in spite of some disappointments I would like to be counted as one architect basically happy with the results, especially considering its previous state.

Samuel S. Cleveland
Architect
Charlottesville, Va.

[Carleton Knight is an art historian by education and the Editor of the National Trust's *Preservation News*. Within constraints imposed by P/A, he chose to concentrate on shortcomings in detail, which do not represent Jefferson fairly and make an evaluation of his design as a whole problematic.—Editors.]

Remodeling reverberations

I just wanted to extend my congratulations to you for such a well-timed issue of *Progressive Architecture*. The November issue dealing with revitalization hit a familiar note with those of us still in school. It is an increasingly common topic and I appreciated the thoroughly readable coverage.

Also, coincidentally, I met a new resident of Corning, New York, the very same day I finished reading the article dealing with the same city. The Market St. revamping was her major reason for moving there!

Keep up the good work.

D. Wayne Speight, student
College of Architecture
Virginia Polytechnic Institute and State Univ.
Blacksburg, Virginia

Please accept my thanks for the inclusion of the Villard House project in your November issue devoted to restoration and remodeling.

Starting with the superb cover design which expresses my own feelings, at many junctures in this patient process, the material in your remarkably timely November issue covers the gamut of the preservation efforts which are now sweeping the country. Not only a treat for the eye, it is also a gourmet guide, confirmed by a Thanksgiving weekend visit to the ICA in Boston, whose Hermitage restaurant is as impressive as the new interior.

Progressive Architecture magazine has constantly been a source of innovative reporting which serves a catalyst to the practicing architect for whom neither the pressures of time, expense of travel, or personal contacts could provide the scope of information and inspiration to be derived from new projects springing up all over the country. The recognition of the important role of the intelligent, and imaginative, client is also not to be underestimated in restoration and remodeling endeavors.

The problem of surplus church property [such as the Villard Houses] is of ever increasing concern to both the religious institutions as owners, and the historic preservation community who seek to retain these landmarks. The acknowledgement of these efforts by the Archbishopric of New York is singular in the New York area, where many other denominations have sought to dismiss the landmark issue on constitutional grounds.

I hope that your magazine continues to be the vital and innovative source of information, and I look forward to participation in those efforts.

William C. Shopsin, AIA
Architect
New York, N.Y.

This is to thank you for your November issue on themes related to historic preservation and new design approaches to old buildings. In particular, I applaud Rodolfo Machado's essay on theoretical aspects of adaptive restoration techniques. His handling of the formal issues involved in the

[continued on page 12]

Lincoln Park School, Somerville, Mass.
Architect: The Architects Collaborative, Inc., Cambridge, Mass.
Integrated Ceiling Contractor: The Cheviot Corporation, Needham, Mass.

Integrated Ceiling Systems from Johns-Manville. Ceilings that work as beautifully as they look.

J-M integrated ceilings are designed for appearance and engineered for function. So you're assured of an attractive system that economically combines lighting, sound control and air handling.

New modular grid suspension system.

This year we're introducing a structurally superior grid suspension system with mitered flanges and a thru-regress at all intersections. It looks good and it's versatile, too. Air boots go anywhere on any runner and wiring is easily dropped through.

Single source responsibility.

Plus, you get the advantages of single source responsibility. The acoustical panels, Holophane® lighting fixtures, air handling equipment and suspension system are all supplied and backed by Johns-Manville.

Call us now.

Learn more by calling your local J-M office, consulting Sweet's, or write: Johns-Manville Sales Corporation, Holophane Division, Dept. PA-2, P.O. Box 5108, Denver, Colorado 80217.

JM Johns-Manville

Circle No. 352, on Reader Service Card

Charles Eames made these chairs timeless classics.

Herman Miller made them superlative bargains.

Charles Eames didn't design this chair to sit in a museum. It was designed for people to sit in it. Not just people who visit, own or work for wealthy companies. It is priced competitively with lesser chairs.

Yes, this is a real Eames Chair by Herman Miller. No, it is not expensive. The fads will come and go but great design endures. As does that which is made well. You know that. But there may be things about these chairs which you do not know. Did you know that you have the option to vary these chairs 5,000 ways? Do you know how moderate the prices really are? Have you thought about the infinite number of places and functions where you could use these chairs?

When was the last time you sat in one of these chairs by Herman Miller and studied the design that remains so fresh, so new and functional? The genius of Charles Eames is recognized and appreciated all over the world. Yet the surprise at the low cost for these pure Eames Chairs is near universal.

Surprise yourself at your local Herman Miller dealer. For the location of one nearest you, contact Herman Miller, Inc., Zeeland, Michigan, 49464; Telephone (616) 772-3442.

herman miller

Circle No. 358, on Reader Service Card

Views continued from page 8

juxtaposition of forms and intentions in such projects is a useful contribution in this as yet muddled area of discussion. Perhaps there are additional examples of "remodeling" projects which would have made his arguments stronger, for certainly this is not a new concern in architecture. Very few of our great architectural monuments from the past remain in the state in which they were constructed, and this is the source of the great richness of architectural history which, rather than appearing in a succession of neat, pure examples, appears as a layering of forms added to, overlapping, and reintegrated with the original configuration. Mr. Machado's perspective is a welcome change from the usual "purist" approach which often defines what is important in terms of what is currently of interest to the definers.

My only quibble is with his arbitrary use of the term "remodeling" which really offers no significant improvement over other terms currently in use. "Remodeling" implies a reshaping of existing material without an awareness of the meanings of existing forms or the necessary sensitivity of the possibilities for engendering new meanings. Mr. Machado is correct in finding other available terms superficial, but the one he suggests is no less so. Those of us who are working professionally in preservation-related design struggle with the welter of terms currently in use in a constant attempt to make sense out of a chaotic vocabulary. I am tempted to suggest that the process the author describes is simply *architecture,* that is, the continuity of architectural history as it advances into the present on its way to the future. In this sense, "architecture" is not the solution of isolated building problems once and for all but, rather, an additive process of introducing into the environment new strategies of order with changing contexts and intentions. The richness that modern architects seek will follow naturally from an attitude of respect for *what is* whenever they attempt to shape the environment in new ways. This is the foundation of a genuine "inclusivism" or "contextualism" which will, I hope, become more influential as awareness of these issues increases.

The current confused vocabulary in the preservation field reflects a variety of conflicting interests and intentions. Most of the discussion in this area has been entirely programmatic with its concern for function and finance. Of course, these concerns are important, especially when many developers are yet to be convinced of the advantages to saving and reusing old buildings. But if genuine respect for the qualities of the existing environment is to develop among design professionals, it must be based not only on the feasibility of such projects, but on their credibility and meaning within a broad cultural context. I hope that Mr. Machado's discussion will contribute to the growing awareness of these issues, for, as he says at the close of his essay, the greatest benefit of studying new ways of approaching "old" architecture is the promise of a new respect for the possibilities of "new" architecture.

It is ironic that in the same issue as Mr. Machado's fine article you include other items which demonstrate the current confusion in attitudes. The restoration of the Rotunda at the University of Virginia, while resulting in some memorable spaces and fine craftsmanship, negates the idea of an historic building as an entity which changes in time. Your reviewer's assessment of the project is entirely correct. Critics have rightly detected an inconsistency of approach which sets details and concept at odds.

Also ironic are the LOF and PPG advertisements (pp. 20-21 and 109, respectively). Both of these ads try to sell an approach which obliterates the character of the building in the first case and denudes it in the second. The El Paso building in the PPG ad, at least, was genuinely distinguished in design as the "before" photo shows. This is the wrong way to treat old buildings and it is the responsibility of designers and architectural journalists to tell the public about it. We must develop consistent attitudes toward historic structures which neither romanticize them (as at the Rotunda) nor destroy their integrity by inappropriate contemporary treatments. It is not enough to save an old building from demolition only to destroy its value by uninformed or insensitive "restoration" or "renovation."

What is needed is a consistent theoretical framework for engaging in and evaluating architectural activity which attempts to intervene in the historic contexts of the environment, as all architecture ultimately does. This is simply to say that we need a theory of architecture which takes *time* seriously. Mr. Machado obviously has his work cut out for him!

Thanks again for the provocative issue.

Steven W. Semes
Washington, D.C.

Credit due

The photos by Hedrich-Blessing of the First Bank of United States on p. 61 of Nov. 1976 P/A were used courtesy of *Form & Function* (published by United States Gypsum Co.).

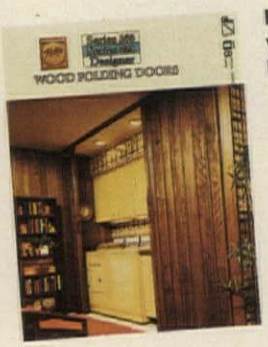
CAYWOOD•NOPP•WARD, Architects & Planners

The real beauty of Pella Wood Folding Doors is their smooth flowing action.

A concealed steel spring hinging system is the secret of Pella's smooth, responsive operating action. This system creates equal tension on each panel throughout the door which imparts a "live action" feeling when opening or closing it. The panels spread more evenly when open, stack compactly when closed. They're hung on double nylon rollers which maintain proper balance, minimize sway, and eliminate noisy metal-to-metal contact. Pella Folding Doors are available in a selection of high quality veneers, or vinyl finishes, over a stabilized wood core.

Pella®

For more detailed information, send for your free copy of our full color catalog on Pella Wood Folding Doors. See us in Sweet's General Building File, call Sweet's BUYLINE number, or look in the Yellow Pages under "doors", for the phone number of your Pella Distributor.



FREE Catalog! Please send me your catalog on Pella Wood Folding Doors. I would also like information on: ☐ Sliding Glass Doors, ☐ Casement Windows, ☐ Double-Hung Windows, ☐ Awning Windows.

Name_____

Firm_____

Address_____

City_____ State_____ ZIP_____

Telephone_____

Mail to: Pella Windows & Doors, Dept.T35B7,100 Main St., Pella, Iowa 50219
Also available throughout Canada.

Circle No. 337, on Reader Service Card

What makes the faster and easier?

...Rapidograph, Rapidometric, Rapidograph SL

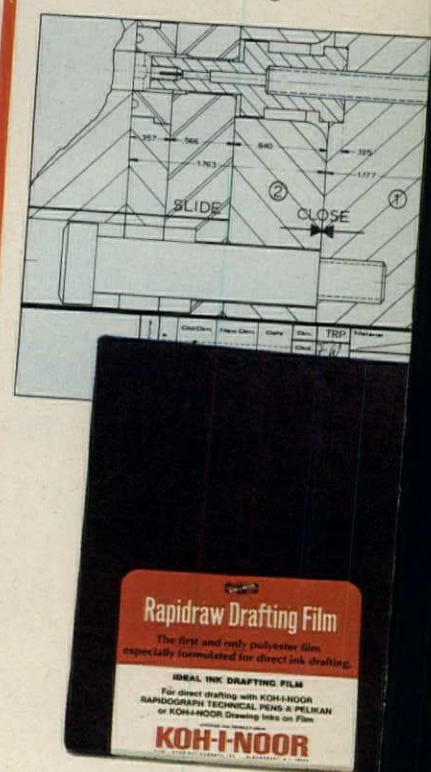
Finest precision, highest quality Technical Pens offer the most complete range of line widths. Points available in hard chromed stainless steel, sapphire jewel and tungsten carbide.

...Pelikan and Koh-I-Noor Drawing Inks

Specially formulated for the most exacting requirements.

...Rapidraw Drafting Film

A virtually indestructible film with a fine-toothed surface for maximu precision and reproducibility in engineering drawings.

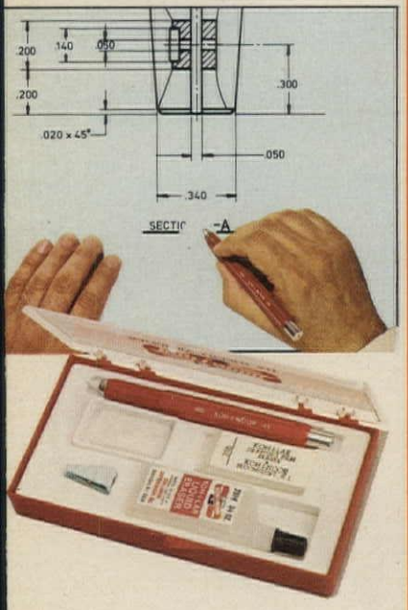


"RAPIDRAW" System

o learn how The "Rapidraw" System can help you save money and achieve ighest quality engineering drawings, call Koh-I-Noor on our toll-free number 00-631-7646 or collect 201-479-4124.

..Koh-I-Noor nk Erasing System

asures can be made on the film th confidence and ease without arring the film surface, as often required.

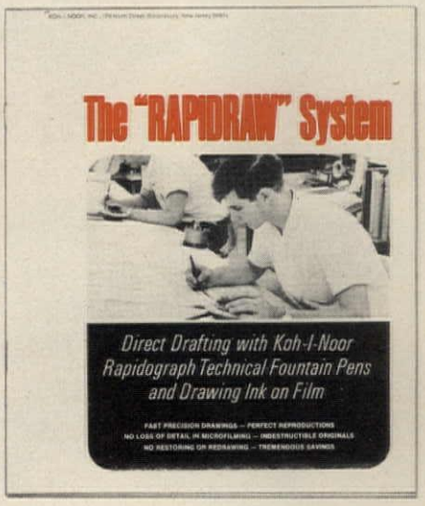


...System accessories

Designed to make drafting with ink on film even easier than you might suppose.

What makes us the authority?

Koh-I-Noor has developed Rapidraw, a System of totally integrated instruments and materials, providing a remarkable simplification of drafting techniques. This System makes direct ink drafting on film the most practical method to achieve precision engineering drawings, as confirmed by leading industries. We would like to give you a free manual completely describing our System.



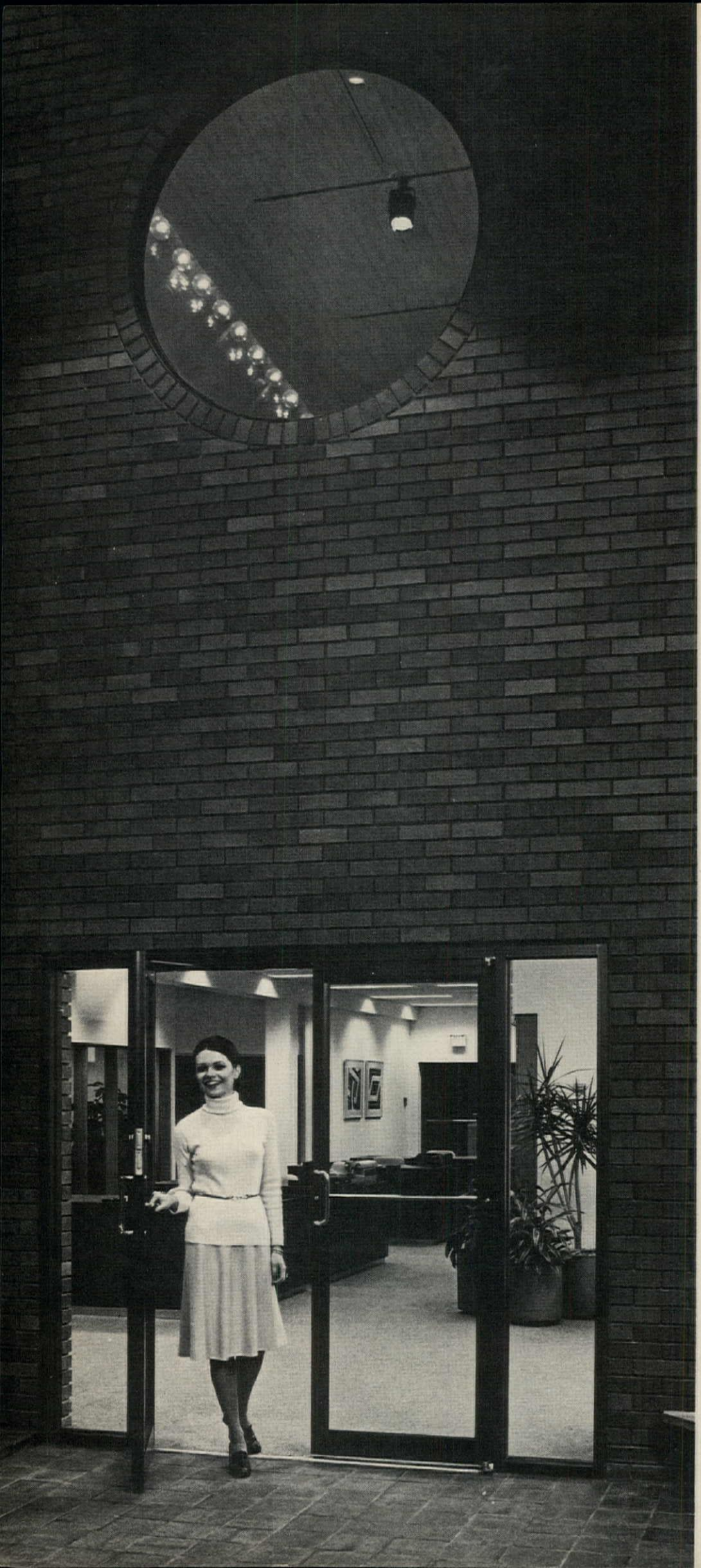
YOU GET MORE FROM

KOH-I-NOOR®

The "Breakthrough" Company

Koh-I-Noor Rapidograph, Inc., 100 North Street, Bloomsbury, N.J. 08804
In Canada: Koh-I-Noor/Canada/Ltd., 4180 Ave. de Courtrai, Montreal, Quebec H3S 1C3.

Circle No. 357, on Reader Service Card

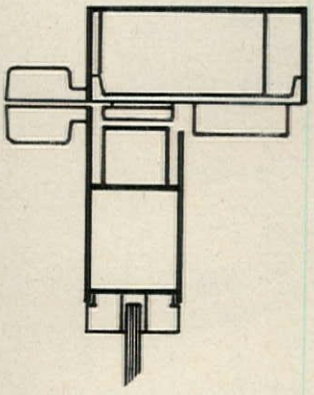


Trans Union Corporation, Lincolnshire, IL
Harry Weese & Assoc., Ltd., Chicago

LCN SERIES 2030-OPJ Pacer® Overhead Concealed Closer

THE DOORS LEADING TO THIS STRIKING ATRIUM LOBBY ARE CONTROLLED BY LCN 2030 SERIES CLOSERS CONCEALED IN THE HEADFRAME. LCN OFFSET PIVOTS COMPLEMENT THE INSTALLATION. WHEN THE DOORS ARE CLOSED THE CLOSERS DISAPPEAR LEAVING ONLY THE CLEAN LINES OF THE ENTRANCE. 2030 SERIES HAS THE SUPERIOR ACTION OF FULL RACK AND PINION DESIGN YET FITS IN A $1\frac{3}{4}$"×4" TRANSOM BAR. SINGLE LEVER ARM RETAINS EFFICIENCY WITH QUIET, LOW FRICTION TRACK AND ROLLER.

SEE SWEETS, SEC. 8, OR WRITE FOR OVERHEAD CONCEALED CATALOG



LCN
DOOR CLOSERS

LCN CLOSERS, Princeton, Illinois 61356
LCN CLOSERS OF CANADA, LTD., Mississauga, Ontario L5G4L5

Circle No. 329, on Reader Service Card

The gap between knowledge and documentation had to be closed.

And building designers and others had to be provided with a way to easily use the new proof.

Not easy tasks. But critical ones in an era when the energy performance of buildings is a matter of the highest priority.

For thousands of years people have *known* that buildings with masonry walls were more easily kept warm in winter and remained cooler in the summer. The reason was obvious: masonry walls both stored and slowed down the passage of heat, making interior climates more stable. A simple, observable fact. But no longer sufficient.

Designers and owners needed to know *how much better* masonry conserved energy than did competitive materials and systems. And they needed a simple way to calculate the differential.

Only then could masonry's superior thermal performance be reliably taken into account in meeting energy conservation goals and requirements. Only then could heating-cooling equipment be more accurately sized to save money on both initial and operating costs.

Disdaining "claims" without documentation, the masonry industry began a broad research project to quantify the relationship of the mass or weight of masonry walls to the transmission of energy. The masonry industry engaged a highly qualified firm of consulting engineers (Hankins & Anderson, Inc.) to conduct the study. Ten different walls ranging in weight or mass from four pounds (19.5kg/m^2) to 116 pounds (567.5kg/m^2) per square foot were specified for analysis in 10 widely varying climatic conditions. And in eight solar orientations.

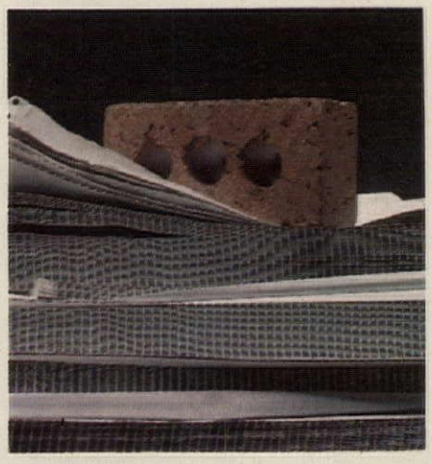
Researchers used a special computer program built around the "response factor" method adopted by the National Bureau of Standards Load Program along with other computer programs. They analyzed U.S. Weather Bureau data and considered the effects of many variables, including the weight of walls, on thermal performance.

Results of the computer analysis showed:

- Traditional "U" value measurements of the thermal performance of walls are inadequate. They are based on the incorrect assumption that energy transmission occurs in a "steady state". Contrarily, the process is dynamic and varies greatly in relation to many factors, one being the weight of walls.
- Steady-state "U" value measurements therefore may often result in the oversizing of heating equipment for buildings with masonry walls (and the undersizing of such equipment for buildings with lightweight walls).
- The difference between steady-state and dynamic measurements can be accounted for by the use of a *correction factor*—the "M" factor—in making heat gain and loss calculations.

The consulting engineers' report and data consisted of 460,800 numbers on 1,200 pages of computer print-out. Important as this proof of the superior thermal performance of masonry walls was, it was not enough.

The task of developing a tool for the easy use of the findings remained. Masonry industry engineers began studying and correlating the data to provide a simple *correction factor* for dynamic analysis.



The result: An easy-to-use "M" factor graph or curve.

Only two numbers are required in order to use the graph: the number of "degree days" in the locale (obtainable from the U.S. Weather Bureau) and the weight per square foot of the wall. The graph can then indicate the appropriate "M" factor modifier, or correction factor, to be applied to steady-state "U" value measurements. A more accurate measurement of the dynamic thermal performance of walls results.

The graph shows that in all cases, masonry walls perform better than lighter weight walls with the same "U" value rating. The heavier the wall, the greater the differential.

Results of the masonry industry study and the "M" factor graph have been submitted to the Conference of American Building Officials (CABO). And CABO has agreed that the effect of mass should be considered in making heat gain/loss calculations.

The "M" factor study findings are contained in a new Masonry Industry Committee publication, *Mass, Masonry, Energy.* With the findings are graphs and charts, and an explanation of how to use them. An all-in-one booklet—everything you need to know in order to take advantage of the superior thermal performance of masonry walls.

We're proud of the new proof that masonry walls save more energy than walls of competitive materials with the same "U" values.

We're proud of the fact that the masonry industry decided to produce this proof, rather than simply make a claim.

But our pride isn't important to you. What matters to you is that we've made it possible to design, build and operate buildings that will save energy and money.

We've got the proof. Just write for it at the address below:

BEFORE WE COULD CLAIM THAT MASONRY CONSERVES MORE ENERGY THAN ANY OTHER BUILDING MATERIAL, WE HAD TO PROVE IT.

INTERNATIONAL MASONRY INSTITUTE
Suite 1001, 823 15th St., N.W., Washington, D.C. 20005, (202) 783-3908
The Mason Contractors and Bricklayers Union of the USA & Canada.

WE'VE GOT MUCH MORE TO OFFER THAN ARCHITECTURAL ALUMINUM.

Of course we've got that. Everything from thermally improved curtain wall systems to storefronts and Safetyline™ Doors. We've proved that repeatedly to our world-wide network of customers.

But beyond our quality product; beyond the strength and resources we have as a part of Anaconda, is something else. A service team. A group of people whose expertise gives Amarlite Anaconda the capability to be in on any project from conception to conclusion.

When called upon, these professionals are available to help with every part of a job: design, cost study, selling, bidding, engineering, even installation. Often, out of their vast experience, come innovations that can save thousands of dollars.

So if your project calls for anything in the architectural aluminum product line, pick up the phone and call. Then you've got the Amarlite Anaconda service team behind you.

And that puts you way out in front. AMARLITE® ANACONDA Aluminum Division

Main Office: P.O. Box 1719, Atlanta, Georgia 30301
Regional Sales Offices: Atlanta, Ga. (404) 352-3260 · Chicago, Ill. (312) 352-3714 · Cleveland, Ohio (216) 267-8080 · Dallas, Texas (214) 631-6620 · Ft. Lauderdale, Fla. (305) 525-4768 · Paramus, N.J. (201) 262-1540

Circle No. 363, on Reader Service Card

Shakertown Panels win the cedar shake sidewall race.

What's the fastest way to install cedar shakes and shingles? With Shakertown Panels.

In fact, you can apply Shakertown Panels on sidewalls as much as 70% faster than individual shakes and shingles. But that's where the difference ends.

Because once they're in place, they look, last and insulate just like individual shakes and shingles. That's because 8 foot long Shakertown Panels are made of #1 grade shakes and shingles permanently bonded to a wood backing.

With Shakertown Panels you get all the things you like about individual shakes and shingles. Of course, there's one thing you won't get, and that's high labor cost. So why not find out more? Write us.

Shakertown® Panels

Box 400 Winlock, Washington 98596 (206) 785-3501

Circle No. 342, on Reader Service Card

News report

'As We Were, As We Are' installation at de Young Memorial Museum, San Francisco.

San Francisco's two major exhibits

One result of Bicentennial introspection on the West Coast is that architectural awareness is beginning to compete with body awareness in the public quest for identity. Two major San Francisco museum shows surely will assist this trend.

"A View of California Architecture: 1960–1976," closing Feb. 6 at the San Francisco Museum of Art, at one time might have been classed as a regional show, but it is more national in scope—as a glance at its contents proves.

Produced by David Gebhard, director of the Art Galleries, University of California at Santa Barbara, and museum curator Susan King, the show reaches energetically beyond the mainstream to include works like the Bob Hope residence in Palm Springs by John Lautner and the J. Paul Getty Museum in Malibu by Langdon & Wilson. In fact, the message is that mainstream Modern is no more. And even when the current was running strong, as Gebhard points out in a brilliant catalog essay, California was in the intellectual wake of the Modern trend.

Placing "delight" ahead of "firmness" in the traditional triad of values, California has opposed other parts of the country where delight has been an "embarrassment." "High and at times grumpy seriousness, with all its implied intellectual elitism and pretense, is a constant threat to current architecture in California," writes Gebhard.

Confronted by 160 photo panels and 45 models of work by 22 architects, the visitor has an opportunity to determine whether or not he agrees with Gebhard. The installation, by Daniel Solomon, provides a cubicle each for the work of seven pace-setting architects: Joseph Esherick, Frank O. Gehry, John Lautner, Cesar Pelli, Daniel Solomon, Charles Moore, and William Turnbull.

Bob Hope residence, Palm Springs, by John Lautner in 'A View of California Architecture' exhibit.

Tri-plex Los Angeles condominium by Charles Moore from 'A View of California Architecture.'

The other exhibition, "As We Were, As We Are," which closed Jan. 30 at the de Young Memorial Museum, is a generously scaled cultural review in four parts. Two parts deal exclusively with buildings: "A Gift to the Street"—photographs by Carol Olwell and text by Judith Waldhorn—is a contemporary inventory of the city's Victorian houses.

"Houses of Our Own"—photographs by Morley Bear and text by Sally Woodbridge—treats the more introspective side of the area's residential design from 1890 to the present.

Counter-balancing the two, a third section, curated by photographer Ira Nowinsky, presents a selection from the Gabriel Moulin Studio's 70-year-old archive of city life documenting San Francisco's history since the earthquake. Meanwhile the inhabitants are tracked as styles change and they go about the daily round. This fourth section is a multi-media presentation by Paul Crowley.

While it certainly is true that a museum wing cannot contain a city, inti-

mates and strangers may thank curator Thomas Garver and his staff for a well-packed view of it. [Sally Woodbridge]

Inaugural stand symbolizes change

Symbolizing a change in the style of the Presidency as well as in national needs, this year's inaugural reviewing stand in front of the White House was quite different. As designed by Atlanta, Ga., architects Paul Muldawer and James Patterson, it was smaller, cost less, was solar heated, and will be recycled. But the biggest change was the location. Instead of sitting on the fence in front of the White House, and thereby blocking the view of the mansion, Jimmy Carter's reviewing stand was positioned at a 45 degree angle off to one side.

Solar-heated stand by Muldawer + Patterson.

"This maintained the vista," said Muldawer, "and furthermore showed that the office is more important than the man." He added that the President was able to see both the approaching parade and also the White House.

The $170,000 structure, built of wood and steel, was designed much like an amphitheater and held 54 persons, with 200 the last time. It can be dismounted easily and most likely will be recycled as a bandstand in Atlanta's Piedmont Park serving the inner city.

A concern for the historical and ecological quality of Lafayette Park across Pennsylvania Avenue from the White House prompted the architects to arrange for the bleachers to be erected on the sidewalk and street itself. During the 1973 inauguration there was $100,000 damage to the park, accord-

[continued on page 24]

Metro Modules.™

Upgrading downtown.

Now available, a total system for reducing clutter and confusion in downtown commercial areas—Crouse-Hinds METRO MODULES System One.

It's the first completely integrated system for vehicle and pedestrian traffic control. Components include architecturally styled streetlights, traffic-control signals, signage and graphic panels, litter containers, bus shelters, and more.

The METRO MODULES system organizes these components into a crisp, clean appearance that emphasizes both function and flexibility. Clean modular units—not a maze of unsighted posts, poles, signs, and hardware.

By teaming up these and other components, you can mix and match a complete vehicle and pedestrian lighting/traffic-control system to meet the most varying and demanding site requirements.

We are the sole manufacturer (not simply the supplier) of all components. Specify METRO MODULES and you specify the total system, manufactured by a single source —Crouse-Hinds.

For a product brochure and application assistance, contact Mgr., Architectural Systems, Crouse-Hinds Company, Lighting Products Division, Syracuse, N.Y. 13201. (315) 477-8119.

Circle No. 318, on Reader Service Card

CROUSE-HINDS

CROUSE-HINDS

News report continued from page 22

ing to the National Park Service. Muldawer and Patterson also arranged for special access and viewing platforms for the convenience of several hundred handicapped persons.

In making plans, the architects held a "concept team charette" on the White House lawn with the National Park Service, U.S. General Services Administration, and the Secret Service. [Carleton Knight III]

Medical library opens in New Mexico

The new $3 million Health Sciences Learning Resources Center by Harvey Hoshour/Architect Ltd. of Albuquerque has opened on the north campus of the University of New Mexico. The library, together with two future buildings, will be the focal point for the schools of medicine, nursing, and pharmacy and also will serve as gateway to the campus.

Health sciences center, Albuquerque.

The triangular shape of the four-level building was determined by pedestrian circulation patterns and the desire to provide views of the distant mountain range. Main entry to the building is at the second level fronted by a plaza. The building is cast-in-place concrete with a stucco and steel curtain wall exterior finish. Phase two of the gateway complex will be a student union building, and phase three, the administration building.

Solar energy systems will soar by 1985

The market for solar hot water and heating systems by 1985 will be in the range of $800 million to $1.5 billion, a

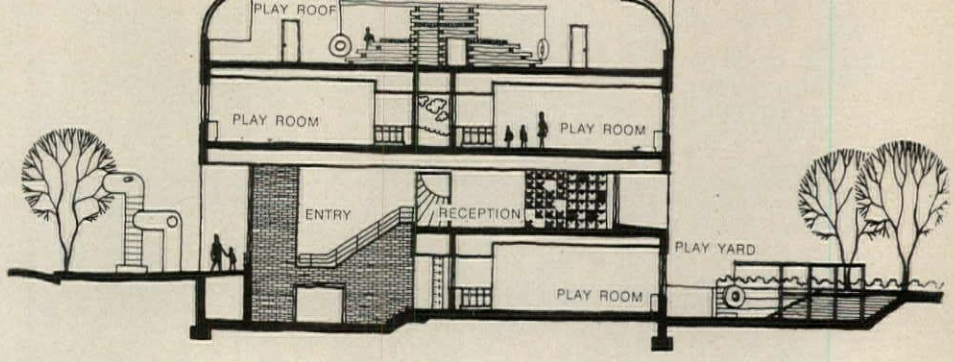
[continued on page 30]

When you want the windows to look custom-built, start by looking at some classic standard units

A window like this bow isn't just a window. It's an architectural asset. You won't find many bows and bays in stock at the local lumber yard, but that doesn't mean they're hard to get. Marvin makes them in many shapes, sizes, and styles. They come from the factory set up, complete with head and seatboards, or without them if you prefer. The material, the workmanship, and the design of these beautiful windows has made them the choice in many of America's finest homes, large and small. Write for the facts on our standard bows, bays, and picture windows. Marvin Windows, Warroad, MN 56763. Phone: 218-386-1430.

Circle No. 332, on Reader Service Card

In perspective



Jackie Curtis

Beyer Blinder & Belle's Helen Owen Carey Child Development Center (above) with double-height playroom; street elevation (below).

Baby steps in Brooklyn

For a short time Brooklyn was seeing the growth of a new building type: the day care center. As illustrated by these three examples, buildings are similar in size (three stories), material (brick), and fit in well with the surrounding neighborhood. The modest vernacular style accommodated valuable social functions in both hard-core poverty areas and in moderate-income districts of this borough.

The day care centers resulted from federal legislation funding their operations, with New York City's Child Development Agency formulating architectural and programmatic guidelines. One center in the East New York section of Brooklyn by Potter & Golder Associates of New York was built via a city turnkey program in which the private developers hired their own architects, built the centers, then leased them to the city for 20 years.

Two others, one in Park Slope by Beyer, Blinder, & Belle, of New York and the other in Bushwick by Paul Heyer, also of New York, were funded under the New York State Department of Social Services Youth Facilities Act. This approach was devised to encourage community groups to build and run their own day care centers.

Meanwhile however, the future for day care centers looks rather gloomy, with the lagging state construction program, and the city's drastic budget cut in day care center operations. It will be unfortunate if such good beginnings end up in futility and despair—once more.

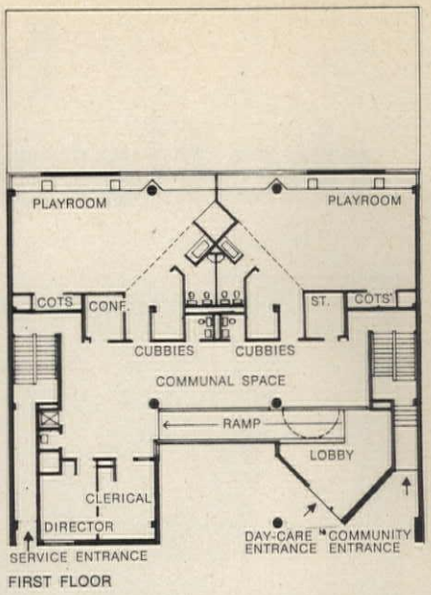
The Helen Owen Carey Child Development Center was designed by Beyer, Blinder, Belle as part of a redevelopment of the Park Slope area of Brooklyn. It not only responds to the needs of working parents in the neighborhood, but also stands as a symbol of its renewal and community pride. The brown jumbo brick cavity-wall structure is organized so that the 11 playrooms for the 190 preschool- and 35 school-age children are on the first and third floor. The second (main) level elevated slightly above street contains community room, offices, library, and other services.

Natural light illuminates spaces;

graphics by Corchia deHarak enliven halls and major areas, although the children's own art work decorates playrooms. A large double-height playcourt provides indoor activity area along with the playroof atop the 22,000-sq-ft structure. The center was sponsored by St. John's Episcopal Church and St. Augustine's Roman Catholic Church with assistance from the Richmond Foundation.

The New Life Child Development Center in Bushwick was designed by Paul Heyer to accommodate 108 preschool- and school-age children. The first and second floors of the 15,500-sq-ft brown brick and steel-frame structure are devoted to preschoolers; while the lower floor is turned over to the school age group. The second level overlooks the recessed entrance in mezzanine fashion with a ramp connecting the two, so that easy visual and physical contact may be made between the building's users. A roof play area and a rear garden provide outdoor play space.

Interiors are simple with brown quarry tile in public areas, off-white concrete block walls, round free-standing columns and spots on tracks.



FIRST FLOOR

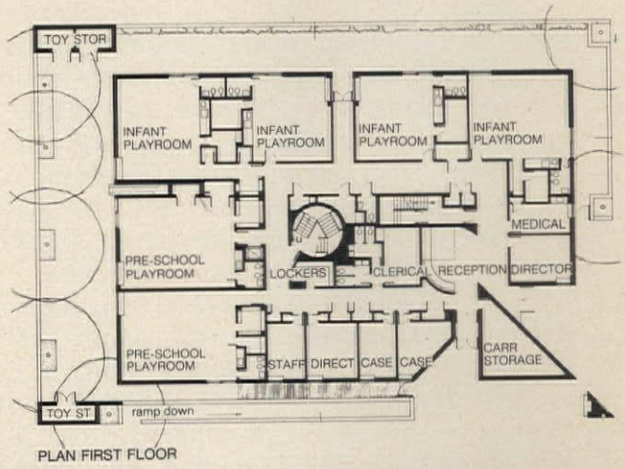

John Veltri

Paul Heyer's New Life Child Development Center (above) showing the street elevation and the lobby.

The East New York Day Care Center for the NAACP was designed by Potter & Golder to house 211 children. The parti of the 28,000-sq-ft brick and steel-frame building is organized so that offices are oriented to the corner entrance at a street intersection. The day care playrooms are arranged around the quieter sides of the site. A large roof deck for the use of preschool-age children, occupies part of the second floor and is partly shaded by the overhang of the third level. On top of the center, a trellised roof garden offers open space.

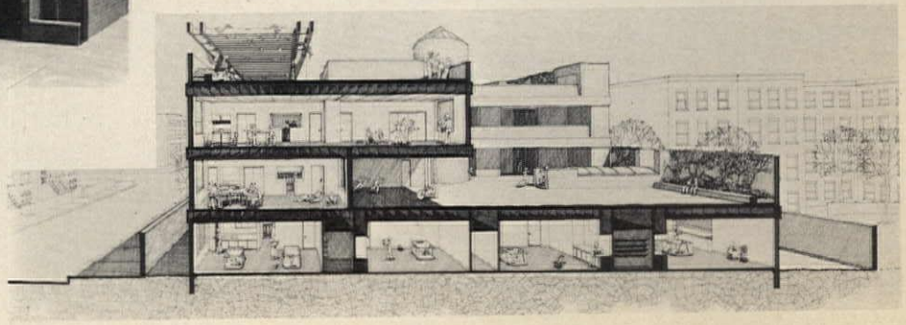

Nathaniel Lieberman

Additional natural light is introduced into the interior spaces through a glazed light well over the reception area and skylight over the cylindrical stair core.



PLAN FIRST FLOOR

Potter & Golder's East New York Day Car Center showing entrance at southeast corner (above); section shows roof deck at northwest corner (below).



How properly installed the flammability performance

A. Standard polyurethane cushioning foam. B. A layer of VONAR 3 interliner coated on back of fabric. C. Standard nylon upholstery fabric.

The inside story.

To help you cope with present needs and future regulations on ignition of upholstered furniture, Du Pont presents the family of VONAR interliners.** The VONAR interliners have shown they can reduce both the likelihood of ignition of furniture as a unit, as well as reduce the burning rate of upholstered furniture in limited ignition situations.

Each VONAR interliner is a thin layer of specially formulated cellular elastomer which is added to furniture under the upholstery fabric. When used properly in furniture, the VONAR interliners totally envelop the cushioning material. Preliminary analyses of furniture to date indicate that the installed VONAR interliners have little or no effect on furniture comfort, aesthetics, or hand—and they can be added at reasonable cost.

VONAR interliners are available in three different application configurations from Du Pont licensed interliner manufacturers or their representatives.VONAR can be applied in any of three ways: as an envelope adhered to standard cushioning material, backcoated onto upholstery fabric, or sandwiched as a separate layer between the fabric and cushioning material.

*Du Pont trademark for interliner made by licensed manufacturers according to Du Pont specifications. Du Pont supplies the basic elastomer to such manufacturers, but Du Pont does not make interliners.

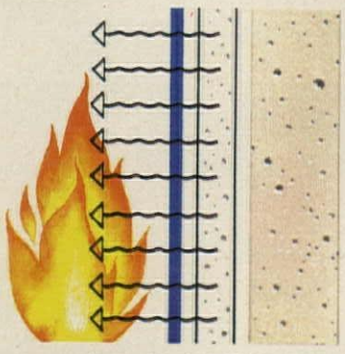
**Thus far there are three VONAR interliners, and they differ in thickness and performance. VONAR 3 has a 3/16" minimum thickness, VONAR 2 a minimum 2/16", and VONAR 1 a minimum 1/16". Tests by furniture manufacturers are necessary to determine which grade of VONAR will be appropriate in any specific furniture construction.

Tests have shown that the effectiveness of each VONAR interliner varies depending on which configuration is used, as well as upon types of upholstery fabric, furniture style, method of interliner application, etc. Since Du Pont only licenses manufacturers to make VONAR interliners, but does not make or install the interliners and has no control over the manufacture of furniture, Du Pont cannot be responsible for the performance characteristics (including flammability) of any type of furniture. Consult your furniture supplier for flammability information on specific types of furniture.

The maximum contribution obtainable from VONAR interliners occurs when the interliners remain intact. If VONAR is ripped or cut, exposing flammable cushioning materials beneath it, the degree of protection provided by VONAR is diminished. For that reason, VONAR interliners are not recommended for rapid transit, public assembly seating or other use areas where there is concern about vandalism and intentional fire.

What VONAR interliners can do.

In preliminary tests, ignition of furniture as a unit, when properly constructed with VONAR, has been delayed significantly beyond the time afforded by the same piece of furniture without VONAR when subjected to cigarette or limited open flame ignition sources.



The process by which VONAR performs involves three stages:

1) When subjected to the heat of an ignition source, VONAR generates water vapor which helps cool both the fabric and the cushioning material, and helps reduce the exposure of the fabric surface to oxygen.

2) Under more intense heat, VONAR decomposes further, releasing a flame retardant.

3) Finally, decomposition of VONAR forms a char layer which helps insulate the cushioning material from heat and helps limit the oxygen flow to the cushioning material.

VONAR* interliners improve of upholstered furniture.

Ten and one-half minutes into this test the office chair constructed without VONAR is totally involved. The chair constructed with VONAR had ceased to burn when the paper fire went out (test details upon request).

The test described here does not demonstrate that all furniture using VONAR interliners will perform in this manner or will not burn under actual fire conditions. The test was not conducted to assign "numerical flame spread ratings" to any materials involved. The results show only that specific types of chairs which used VONAR interliner properly, performed as indicated under the test conditions. Since Du Pont does not make furniture or make or install interliner, we cannot assume responsibility for furniture performance.

Demonstrated performance.

Du Pont and others under our direction have subjected a number of upholstery constructions using VONAR interliners to both cigarette and open flame ignition sources.

Testing has been performed using cigarette ignition standards developed by the National Bureau of Standards for consideration by the Consumer Product Safety Commission. These tests have shown that VONAR will improve the cigarette ignition performance of most fabrics and constructions tested. Please note: there are some fabrics and constructions that will fail cigarette ignition even when VONAR is used properly.

Further tests designed to approximate actual limited open flame situations have shown the effectiveness of the interliners. For example, the photograph above of two otherwise identical chairs shows how the one without VONAR (left) became totally involved when exposed to an open flame generated by a wastebasket fire. The chair constructed with VONAR (right)) formed a char layer where contacted by flame. And it stopped burning when the wastepaper fire burned out, before the flames had reached the polyurethane foam cushioning. Du Pont will continue to test various furniture styles containing VONAR and report the findings.

Protection against imitations.

Specify VONAR interliner in furniture. The VONAR trademark means the interliner is made by a licensed manufacturer according to Du Pont specifications.

Du Pont assists licensed interliner manufacturers by testing samples regularly for formulation, thickness, and physical properties, and monitors proper use of the VONAR trademark with respect to interliners and furniture.

For more information, ask your furniture supplier about VONAR interliners. Or ask Du Pont. Use the coupon below, or write: Du Pont Company, Room 25331, Wilmington, DE 19898.

VONAR* Interliner

*Du Pont Trademark for interliner made according to Du Pont specifications.

Mail to:
Du Pont Company, Room 25331, Wilmington, DE 19898.

Please send me:
- ☐ further technical data and test results
- ☐ a list of furniture manufacturers using VONAR
- ☐ a list of licensed manufacturers of VONAR

Name_____ Phone_____

Title_____

Company_____

Address_____

City_____

State_____ Zip_____

DU PONT

REG. U.S. PAT. & TM. OFF.

News report continued from page 24

Cambridge-based consulting firm has estimated. The 1985 market will be at least a 20-fold increase over the activity of 1976, estimated to be $40 million to $50 million.

Arthur D. Little, Inc. of Cambridge, Mass., conducted the $2 million survey in conjunction with 50 co-sponsors—such as manufacturers and venture capital groups—in 10 countries. One officer of the Little firm compared the future popularity of solar energy equipment to that of the pocket calculator.

The swiftness of mass-acceptance will depend on factors such as standardization of the technology and enactment of a proposed federal tax credit which would pay for up to 40 percent of the cost of a new solar system.

The first equipment to be sold in quantity will be solar water heaters, which will recoup in less than 10 years their initial cost of up to $1500. The Little company predicts a great market opportunity in the retrofitting of some 70 million existing housing units.

Today more than 300 new installations of solar energy equipment have increased awareness of solar climate control, a number of small companies has entered the production market, and several large corporations are producing equipment on a limited scale, the Little report noted.

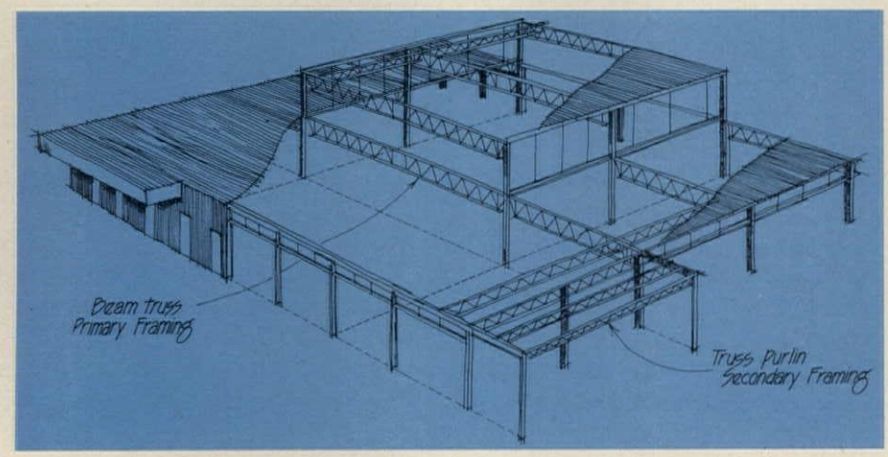
'Idea as Model' seriously impractical

Recent years seem to be noted for more exhibitions of architectural proposals than architecture itself, thanks to economic conditions. The result has been an enriching of the design concept since the burden of having to make an idea verifiably buildable has been removed somewhat. "Idea as Model," a recent architectural model exhibition in New York at the Institute for Architecture and Urban Studies, contained a number of thought-provoking possibilities (probabilities?) by both well-known architects and new talent.

Approximately 20 models appeared in the show, and a high level of both concept and presentation among the

[continued on page 32]

LANDMARK.™
IT'S A SYSTEM YOU DESIGN WITH. NOT AROUND.



We know you're not thrilled at the prospect of working within the strict confines of most pre-engineered structural systems.

But, at Butler, we have some systems that might just change your mind about systems.

Landmark, for example.

Coca-Cola Bottling Co.,
Charlotte, North Carolina
Architect: Odell Associates, Charlotte, North Carolina

It's a flexible system combining a flat roof look with all the inherent advantages of systems construction. Large, open bays, straight columns and open web trusses for utility access are Landmark characteristics.

The basic system consists of columns and open web trusses.

The columns are available in one-foot increments from 13 feet through 29 feet. Bays of up to 50 feet are standard, as are single slope spans of up to 80 feet. And multiple stories are possible.

Components are factory engineered and delivered to the site for immediate erection. Parts bolt together. Field labor costs are cut to a minimum.

Landmark also features an exclusive, machine applied double-lock, standing seam roof that acts like a single membrane covering the entire building. It's designed to allow for expansion and contraction and carries a U.L. Class 90 wind uplift rating. It can be fully insulated.

Designing with our system gives you a definite time advantage, too. Not only is construction simpler and, thus, faster but pre-engineered parts have predictable costs. So you can figure in-place costs from preliminary drawings and take advantage of fast track construction.

The Landmark system is not wishful thinking. It's here. Right now. Some of its exciting applications are shown in this ad. But what you can do with it is limited only by your imagination.

For more information about Landmark, see Sweets Catalog, Pre-engineered Buildings 13.6/Bu.

We also have some other architectural systems that should interest you. We invite you to send for our free book, "Architectural Building Systems." Write: Butler Mfg. Co., BMA Tower, Dept. B-646, Kansas City, Mo. 64141.

Send for our free book.

McGraw Edison, Columbia, Missouri
Architect: Ralph Broughton, St. Louis, Missouri

BUTLER

SYSTEMS YOU DESIGN WITH.

68108

News report continued from page 30

exhibits made the choice of which ones to discuss difficult and arbitrary. Notable for its success as a visual pun is Diana Agrest's "Les Echelles: House for a Musician" proposed for a site overlooking the Mediterranean Sea; the villa ascends the hillside in stepped fashion with terraces at each octave.

Experimenting in the little-explored—architecturally speaking—territory of sound, Bernhard Leitner showed how a three-dimensional grid of loudspeakers can transform a neutral space into a specific spatial experience by programmed motions of sound. He presented four such conditions, including a vertical space and a space tube.

"Band-Aid" by William Ellis should have been named "Zipper" because a large zipper connecting the major elements is what Ellis used to depict a façade solution unifying a three-block setting in Minneapolis. The façade, a multi-functional pedestrian way, is to provide a backdrop for free-standing buildings in an open space.

The exhibit was funded by a grant from the New York State Council on the Arts. A limited edition of 100 mixed media posters for the show by architect Michael Graves also is available. [Ann Carter]

Personalities

Bill Lacy has accepted the post of president of the American Academy in Rome leaving his position as director of architectural and environmental arts for the National Endowment.

Beverly Moss Spatt, chairman of the New York City Landmarks Preservation Commission, has been elected to honorary membership in the New York Society of Architects.

Professor Donlyn Lyndon has been named chairman of the Committee on the Visual Arts, Massachusetts Institute of Technology, Cambridge, Mass.

Robert T. Walsh has been named director of the Boston Redevelopment Authority, Boston, Mass.

Jonathan King of the University of Michigan has been elected president of the Architectural Research Centers Consortium, Inc.

Calendar

Through March 13. "Art in Architecture" exhibit, Meadow Brook Art Gallery, Oakland University, Rochester, Mich.

Feb. 21–25. "Toward Arcology-Works in Progress" lecture-exhibit focusing on the work of Paolo Soleri, San Francisco World of Plants Show.

Mar. 1. Deadline, Design in Michigan competition, Cranbrook Academy of Art/Museum, Bloomfield Hills, Mich.

Mar. 14–16. Conference on revitalizing downtowns sponsored by Downtown Research and Development Center, Warwick Hotel, New York City.

Apr. 2–3. "Positions in Architecture II" symposium, Rhode Island School of Design, Providence.

Apr. 17–20. Environmental Design Research Association annual conference, Urbana-Champaign, Ill.

May 23–25. Annual apartment builder/developer conference and exposition, Las Vegas Convention Center, Las Vegas, Nev.

May 27–29. Aspen Energy Forum 1977, Aspen, Colo.

[continued on page 37]

Architect: The Shaver Partnership, Michigan City, Indiana
Design Architect: Lawrence C. Olson, Michigan City, Indiana
Concrete Consultant: Architectural Concrete Consultants, Dallas, Texas
Contractor: Tonn & Blank, Inc., Michigan City, Indiana
Precast Supplier: Precast/Schokbeton, Inc., Kalamazoo, Michigan
Ready-Mix Supplier: Russell & Feldhaus Ready-Mix Concrete Inc., Michigan City, Indiana

Hospitality. Warmth. Solidarity.

The architects for the new main office of Citizens Bank of Michigan City, Indiana achieved this result for their client by using people-oriented concrete made attractive by the use of Trinity WARMTONE® cement.

The blending of precast and cast-in-place components creates a natural expression of color, texture and strength in the midst of a beautiful park-like setting.

That's the beauty of Trinity WARMTONE. Its natural tan color is derived from the manufacturing process. There's no pigment, cement color consistency is guaranteed.

Please write for free planning guides.

trinity warmtone®

P. O. Box 47524 • Dallas, Texas 75247

The new cement for Creativity in Concrete. From the people who make TRINITY WHITE ™.

Offices: Dallas • Houston • Tampa • Miami • Chattanooga • Fort Wayne • Oklahoma City • Lake Charles, La. • Los Angeles

General Portland Inc.

Owner: Gerald D. Hines Interests, Houston
Architects: Johnson/Burgee, New York, N.Y.; S. I. Morris Associates, Houston
Structural Engineer: Ellisor Engineers, Inc., Houston
Fabricator: Mosher Steel Co., Houston
Erector: Peterson Brothers Steel Erection Company, Houston
General Contractor: Zapata Warrior Constructors, Houston

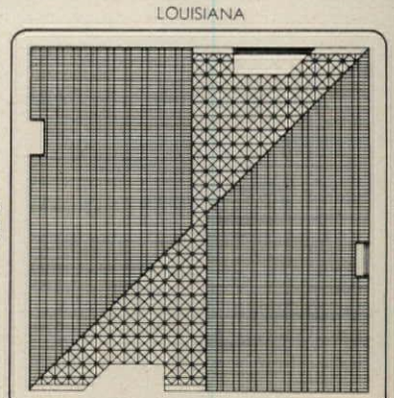
"We have chosen not to cut the top of the buildings off in the usual fashion against the sky, but rather to silhouette a counterpoint of strong diagonal massing."
—Philip Johnson, Architect.

(1) The use of stub-girders enables the air-conditioning ducts to be carried through the built-up girder system without requiring any web penetrations. The stub sections act compositely with the 3-1/4-in.-deep concrete topping placed over the galvanized steel floor deck.

Each trapezoidal tower measures 120 ft wide, a maximum of 250 ft on the long side, and 130 ft on the short parallel side. The fourth side is angled 45 degrees to the parallel sides.

(2) An eight-story, glass-enclosed courtyard connects the towers at their base. The see-through enclosure provides continuity of design, as well as an airy, visual experience for persons entering the building.

LOUISIANA



RUSK

PENNZOIL PLACE...showcase for steel construction

"Stub-girder" design provides construction economies; reduces overall story height.

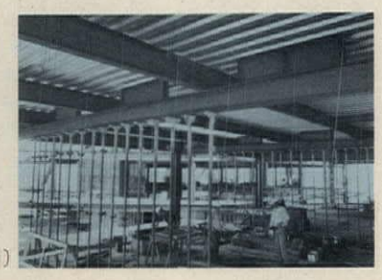
Pennzoil Place, designed by Johnson/Burgee and S. I. Morris Associates, adds a bold, new architectural dimension to the Houston skyline. Rising 516 ft above grade, the twin, 37-story trapezoidal towers of Pennzoil Place contain a total of 1.8 million sq ft, making it the city's largest office complex. A retail mall and a three-level garage are located below the plaza level.

Steel speeds construction. The project's building program was based on a 24-month construction schedule. Several basic structural systems were considered during the early design phase, but steel was selected because of its ability to be erected more rapidly.

The system adopted utilizes a welded rigid steel frame on the perimeter, and concrete shear walls in the core. Three additional welded bents, located near each 45-degree corner, minimize torsion.

According to the engineers, "The steel frame was erected quickly and was well coordinated with the construction of the core."

Stub-girder system cuts material costs. The stub-girder flooring system, a relatively new development in structural design, offers a number of advantages for buildings with a minimum width of 100 ft and clear spans in the range of 35 to 40 ft.



(1)

The stub-girder concept resembles a Vierendeel truss system. The composite concrete and steel floor deck system forms the top compression chord of the Vierendeel and a high-strength steel section forms the bottom tension chord. Stub pieces, shop-welded to the bottom tension chord and connected to the composite concrete and steel floor deck system by welded stub-type shear connectors, serve as the verticals of the Vierendeel.

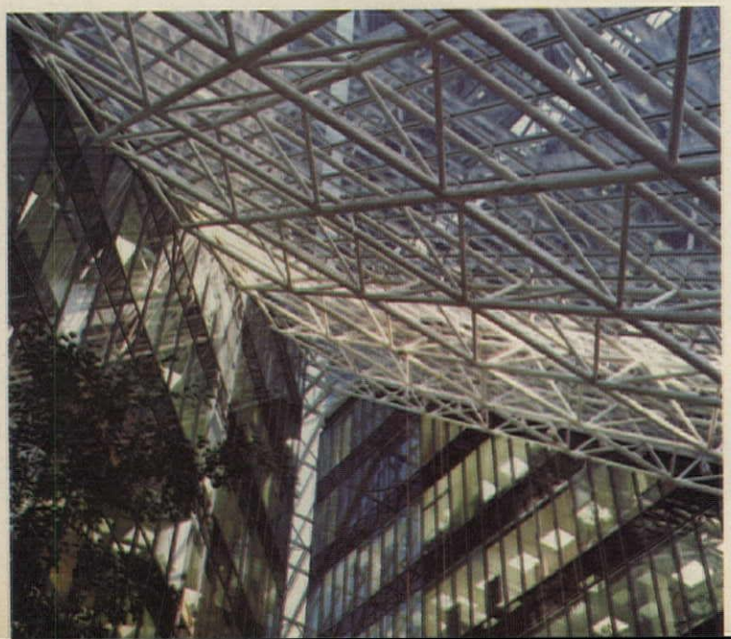
The unusual floor-framing system enables the air-conditioning ducts to be carried through the built-up girders without requiring any web penetrations. This increases the structural depth of the girder without adding a penalty for increased height. Result: significant economies in structural steel. It's estimated that stub-girders reduce structural steel quantities by approximately 2.5 lb per sq ft compared to conventional framing systems.

And because building height is reduced, savings result in other construction items, such as curtain walls, elevator ropes, and electrical and mechanical equipment.

What's more, because the continuous floor beams can be easily positioned atop the girders, erection proceeds more rapidly than usual.

Our Sales Engineering Division offers a variety of technical and advisory services. For example, our preliminary frame analysis program is designed to help you select the most favorable steel framing system for your building. It also enables you to compare steel framing against competitive materials.

(2)



We also have a large library of practical design and engineering aids, slide presentations, product catalogs, and building case studies. If you would like a copy of our building case study on Pennzoil Place, call your Bethlehem Sales Engineer. His number is listed below. He'll see that you get one. In fact, he'll be happy to place your name on our mailing list so that you'll be kept up to date with our latest publications. Bethlehem Steel Corporation, Bethlehem, PA 18016.

phone

Atlanta (404) 522-4918
Baltimore (301) 685-5700
Boston (617) 267-2111
Buffalo (716) 856-2400
Chicago (312) 664-5422
Cincinnati (513) 381-6440
Cleveland (216) 696-1881
Detroit (313) 336-5500
Houston (713) 659-8060
Los Angeles (213) 726-0611
Milwaukee (414) 272-0835
New Haven (203) 865-0833
New York (212) 688-5522
Philadelphia (215) 561-1100
Pittsburgh (412) 281-5900
St. Louis (314) 726-4500
San Francisco (415) 981-2121
Seattle (206) 285-2200
Ask for Sales Engineer

Cuyahoga County Justice Center. Cleveland, Ohio.
Exterior: ASG Bronze. Interior: ASG Penal-Gard and Bullet Resisting glass.

Since ASG went to jail, things are looking better.

Montmorency County Police Building. Atlanta, Mich

From the inside. Or outside. A jail with ASG Penal-Gard® Security Glass instead of bars seems less like a jail. In fact, at Michigan's Montmorency County Police Building, the prison area is called a lock-up instead. A more humane environment, with improved safety on both sides of the glass is certainly a step toward reform.

Penal-Gard also makes it easier to maintain security. A single guard can watch an entire cell block from his station. Noise is greatly reduced. And house cleaning much simpler. Penal-Gard looks better to the taxpayer too; costs are generally less, delivery and installation faster.

See for yourself. Write for our catalog which includes present installations along with pertinent test information.
Penal-Gard is available in clear, tinted and as a one-way mirror (Duovue Penal-Gard).
From the Glass Specialists.
ASG Industries Inc., Dept. 32
P. O. Box 929, Kingsport, Tenn. 37662.
Or phone 615/245-0211.

security glass

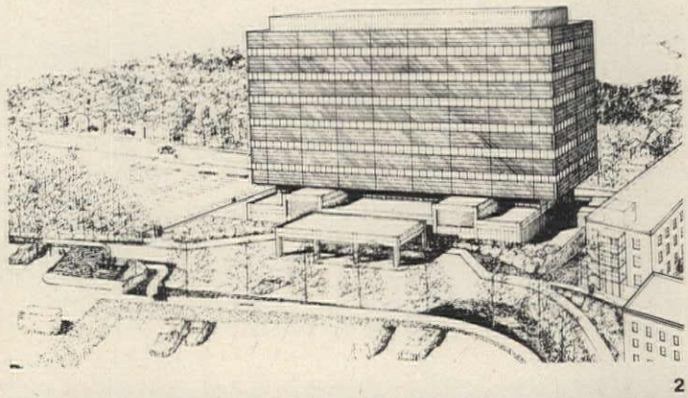
ASG

THE GLASS SPECIALISTS

SEE OUR CATALOG IN SWEET'S (S)

In progress

1



2

1 New Jersey complex—Four of six buildings composing the all-new College of Medicine and Dentistry of New Jersey in Newark are completed and two others are under construction. A joint venture of Eggers, Grad and Seltzer is architect for the $189 million campus centered around a plaza. Completed buildings are a dental school with 301 chairs to serve outpatients; a mental health center also serving the community; 150,000-volume library; and a power plant twice as large as the one serving Newark Airport. The basic sciences building will be completed this year, and a 486-bed teaching hospital, in 1978. The hospital will have three wedge-shaped wings centered around a core of support facilities. The site selection in a black community set the stage for the 1967 Newark riots. Originally counting on 150 acres, the college finally received only 50. Blacks also won employment and construction contracts.

2 Fast track renovation—A nine-story tower by Shepley, Bulfinch, Richardson & Abbott is being built above an existing wing which will give Danbury Hospital in Connecticut nearly 400 more beds. The newest addition is a steel frame building with insulated wall panels and mirror glass. It's designed to accommodate a future partial solar energy system. Completion is scheduled for the end of 1977. The concrete three-story wing underneath supporting the tower was designed five years ago by Douglas Orr, deCossy, Winder & Associates of New Haven, Conn.
[Continued on page 38]

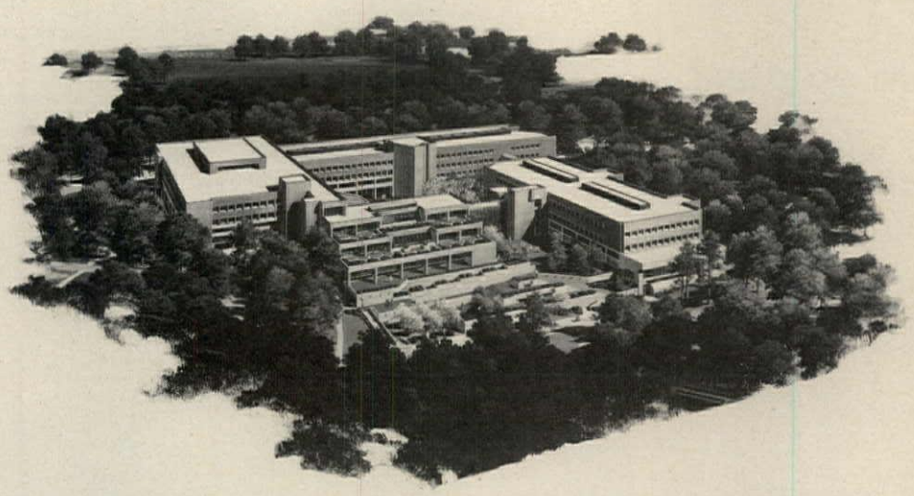
News report: In progress

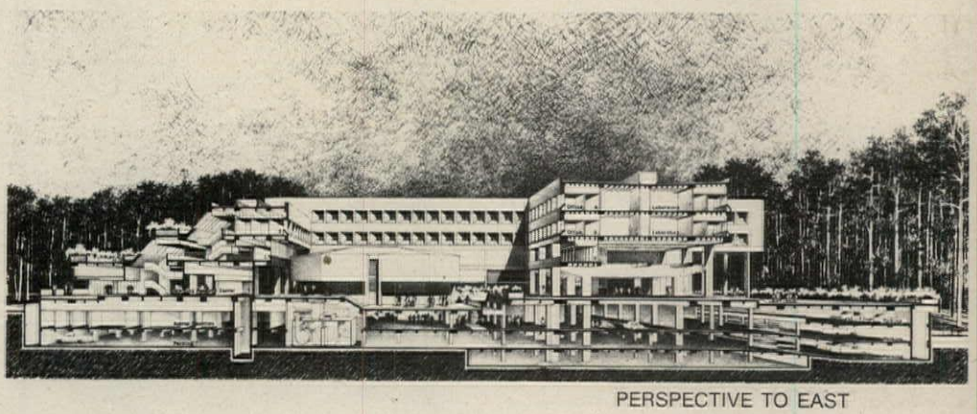
3 Bethesda Naval Hospital—A $70 million addition to the National Naval Medical Center in Maryland, built in 1942, is underway and will be completed in 1981. Architects Ellerbe of Bloomington, Minn., and Dalton·Dalton·Little·Newport of Cleveland are collaborating on the new 500-bed complex which will be separated from the existing building by a court and connecting bridges. The exterior will match the 1942 building; the interior will have outpatient malls to regulate circulation and to separate waiting areas from other hospital functions. The new facility also will serve as a teaching hospital and contain a classroom building.

4 Modular medical clinic—In six months the $5 million medical center for Fairbanks, Alaska, was ready for use since the entire 32,000-sq-ft facility was constructed of 70 modular sections made by mobile home manufacturers, Boise Cascade Corp. of Boise, Idaho. The units were shipped from Oregon via rail, barge, and truck and arrived complete with cedar siding, extra insulation, carpeting, wallpaper, plumbing, heating, lighting, intercom and fire alarm systems. The project was financed by 22 Fairbanks doctors and dedicated July 4th weekend.

5 Community medical college—Nearing completion in Miami is the Miami-Dade Community College Medical Center Campus, a $5.7-million, three-story teaching facility a block from the sprawling Jackson Memorial Hospital complex and University of Miami medical buildings. The new school will have two outpatient clinics on the first floor; laboratories and classrooms on the second; and classrooms, offices, nursing laboratory, and student lounge on the third. Architects are Ferendino/Grafton/Spillis/Candela of Miami.

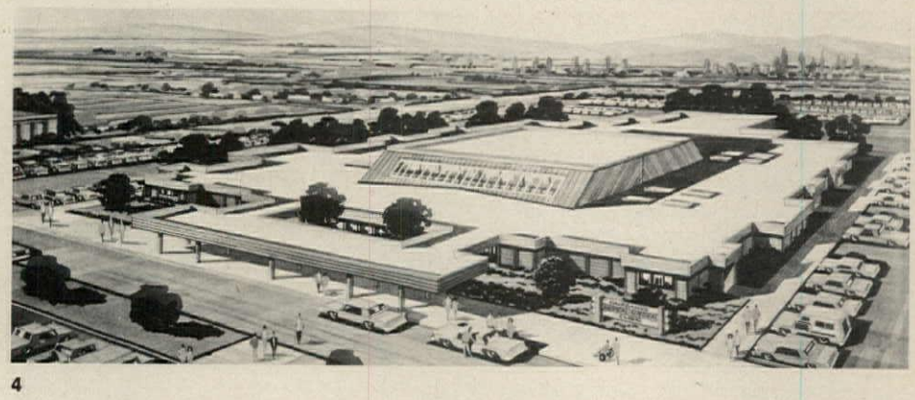
6 Comprehensive health center—Daniel, Mann, Johnson & Mendenhall of Los Angeles is architect for the East Los Angeles Comprehensive Health Center now under construction. The center will provide two floors of parking and two floors of medical services for the Spanish-American community and will have a colorful glazed tile freize of Aztec pictographs on the exterior. Completion is scheduled for 1979.





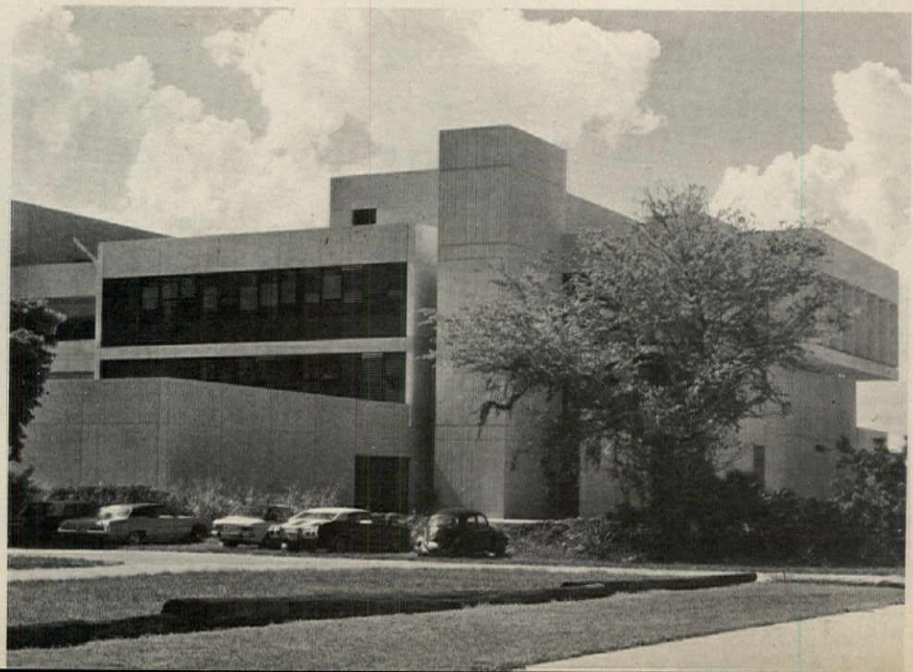
PERSPECTIVE TO EAST

3



4

6



5

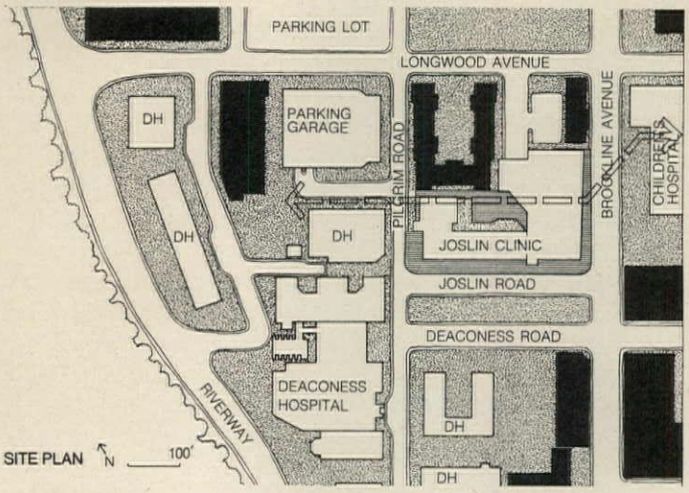
Two health facilities by Payette Associates

A care package

Two new health care facilities designed by the Boston firm of Payette Associates, Inc., while very different in program, site constraints, and design direction, are evidence of the same thorough attention to both parti and detail for which the architects have become known.

An odd couple, maybe. What with totally different programs and environments, the two facilities on the following pages have one thing besides authorship in common—an unmistakable sense of design skill and liveliness. In the field of health care, those virtues have been lost, more often than not, in the pure mechanics of juggling all the physical and administrative requirements of a complex building type. But Payette Associates hasn't lost them. In the short time the firm has existed under that name, it has piled up an impressive list of quality health care designs. Not that that's all they do, but their track record in the medical field obviously puts them high on the prospect list for health care clients. The clients for whom the firm has performed its services are, needless to say, much to be complimented. Through their recognition of the design acumen presented by their architects, they have aided in removing the "institutional look" stereotype from health care.

Joslin Clinic floats above ground floor commercial space along Brookline Avenue.



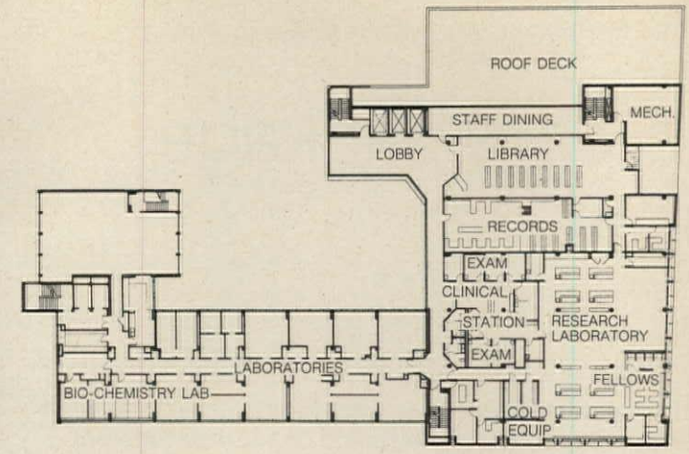
Joslin Foundation Clinic

While complexity is a well-known attribute in any health care facility program, a diabetes clinic makes unique demands. Especially if, as at Boston's Joslin Diabetes Foundation Clinic, the existing site is a valuable parcel in the Longwood Avenue medical area, with operating commercial establishments. Under Boston ordinances, such business accommodations must be restored to the site under any new building program.

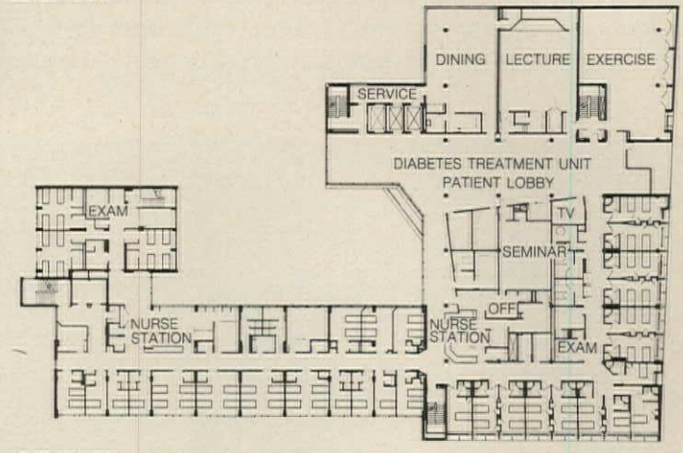
But those constraints were just the beginning. Joslin had previously operated in a building adjacent to the proposed site, working in cooperation with Deaconess Hospital across the street. Because of its wide-spread reputation in diabetes care and research, Joslin was faced with an obvious need to expand. In planning not only for current growth, but for the future as well, Payette Associates had to juggle both the existing building's location and floor-to-floor height, and the position of the future expansion area—the opposite end of the block from the existing clinic.

Then there were those demands which stem directly from the nature of a diabetes clinic. More often than not, patients at Joslin are ambulatory, requiring accommodations more like a hotel room than a hospital. The institution's most important function is to teach the diabetic how to deal with his/her condition. Patients live at Joslin for approximately one week, learning their own tolerance limits, and how to stabilize and control symptoms through exercise, diet, and medication. Therefore, in addition to the examination and sleeping areas, major spaces for exercise, lecture, dining, and lounges were required. Two other major aspects of the facility are the large research laboratory—coupled with the other laboratory functions—and the extensive eye treatment unit, since diabetes is a major cause of blindness.

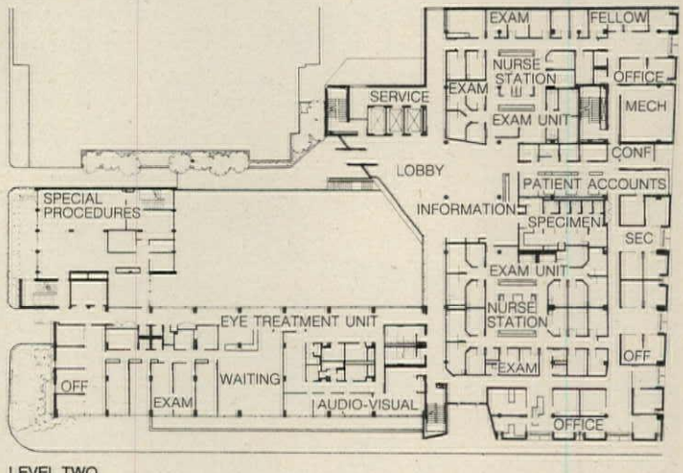
To put all of these requirements into a comprehensible and expandable package, Payette Associates began with an analysis of circulation and the relationship of existing, new, and future facilities. In order to best serve all phases, a central point in the block was chosen for lobby and vertical circulation emphasis. Conceived as part of a mid-block circulation link between several major institutions, Joslin's main lobby opens from a central landscaped court. The court, in turn, becomes the primary focus of all main circu-



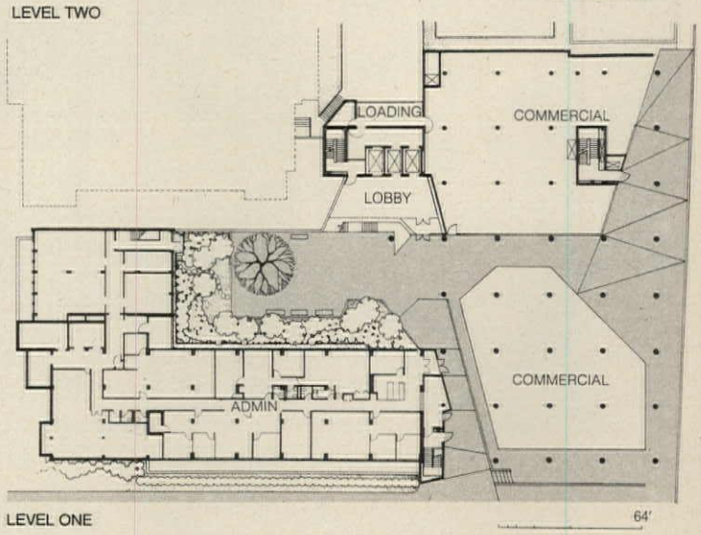
LEVEL FOUR



LEVEL THREE



LEVEL TWO



LEVEL ONE

Brookline Avenue entrance, at center cutback in the façade (above), is part of a through-block pedestrian circulation link (shown dotted in on site plan). Joslin Road entrance (right) ramps down to courtyard lobby. Lobby floors are hung from elevator tower (upper left in photo below).

Joslin Clinic

lation and lobby/lounge spaces on all floors. Since the elevator core will be called upon to serve both the new facility and future expansion away from the court, the architects proposed that the core be sized, both in width and in height, for future requirements. The resulting core structure rises three additional floors above the new roof level, and cantilevers out over the fourth level lobby. From the cantilever, tension supports drop down to pick up lobby floor loads below.

At grade level, the new facility is all commercial space, except for the court and its lobby. All new construction at this level is enclosed with butt-glazed floor-to-soffit glass—no mullions. The resulting effect is that of clear boxes nestled under and between the obviously structural concrete frame. On the lower remodeled level of the original building are the clinic's administration functions. Level two is primarily for examinations, the existing building housing the eye treatment unit exam spaces. The new facility contains two extremely efficient exam units on this level. Each backs up to a common specimen lab; each has at least 16 exam rooms around a central nurse station, with patient access from the public circulation around the court, and with doctors' access from their own office/circulation block on the street side of the building.

Level three is the diabetes treatment unit, with patient rooms, lounge, dining, lecture, and exercise facilities, and seminar/conference spaces. On the fourth level are all the major laboratory areas, medical records, and the medical library. Here, the normal lab functions are carried out and, in a unique combination, so are the clinic's well-known research activities.

Windows on the exposed south and west sides are set deep into the wall. Between the return walls, exterior sunshades of white painted steel control incoming sun. All windows themselves, in fact, are works of minimal art, in carefully detailed wood frames—with hardware that would not look out of place in the Museum of Modern Art. Payette Associates has used wood for major window framing on numerous projects, for its actual and psychological warmth, and for its endurance.

Care is evident throughout Joslin, from the window wall, to the paint colors, to the graphics and wood detailing. The interiors sing; no gloomy institution, this. The detailing and the color selection, consistently more thorough, thoughtful, and of higher quality than normally found anywhere, must have eaten up enormous amounts of the architects' time budget. But the results are obvious, and very handsome. Even the rooftop gravel pattern is designed with neighboring buildings in mind.

Although there are traces in Joslin of the brutalist heritage which has predominated much recent Boston area architecture, it never seems overbearing or forced in the architecture by this firm. The skill with which even some of the formalistic design elements are handled lifts them above the possible label of "arbitrary" which might otherwise be suspected. Diagonal walls funnel or disperse circulation in plan, bring in light and views in section.

As an urban statement, a circulation diagram, a successful integration of complex program with old, new, and future components, or simply an elegant piece of architecture, Joslin Clinic scores very high. It is probably, as Thomas Payette hoped, the firm's best yet. And that says a lot, given the predecessors. [Jim Murphy]

Data

Project: Joslin Diabetes Foundation Clinic, Howard F. Root Wing, Boston, Mass.

Architects: Payette Associates Inc., Boston, Mass.; architect in charge, Thomas M. Payette; project architect, Gary L. Graham; resident architect, Thomas F. O'Neill.

Program: provide facilities for the care and education of diabetic patients, including outpatient, inpatient, and research/laboratory areas. First floor of new construction to contain commercial space. Existing clinic building remodeled to fit clinic master plan.

Site: one square block in urban Boston's Longwood Avenue medical area.

Structural system: reinforced concrete pan slab system on a 24' x 24' column bay grid. Elevator lobbies suspended from elevator/stair tower on structural steel tension members.

Mechanical system: high velocity variable volume air conditioning system, with some fan coil units, and with perimeter convection.

Major materials: buff concrete, Dryvit soffits, wood window framing, brick paving at public level, carpet and sheet vinyl flooring, paint for most interior wall surfaces. (See Building materials, p. 106.)

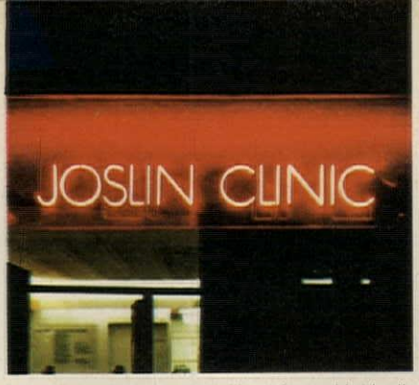
Consultants: landscape architects, Sasaki Associates; structural engineers, Simpson Gumpertz & Heger, Inc.; mechanical engineers, Dellea Engineering, Inc.; graphics, Coco Raynes/Graphics.

Client: Joslin Diabetes Foundation.

General contractor: Henry E. Wile Corporation.

Costs: $9,456,000; $70/sq ft (new), $40/sq ft (renovations).

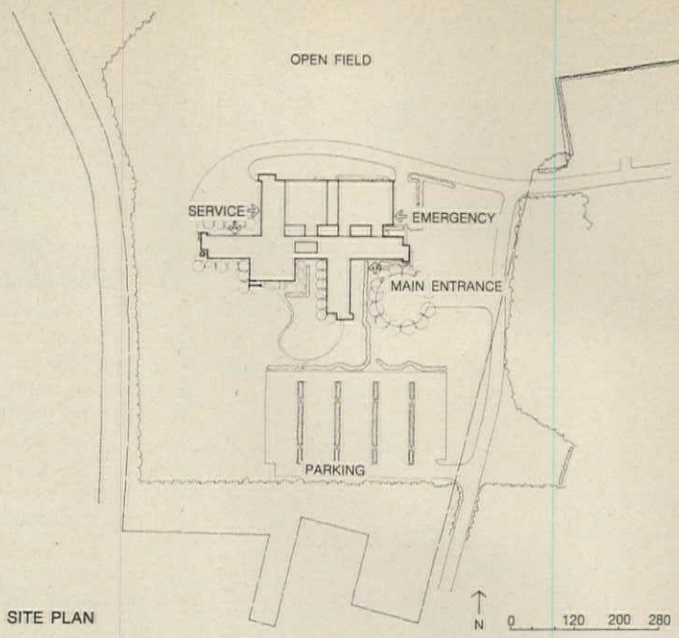
Photography: Nick Wheeler.



Examples of careful detailing abound in Joslin interior spaces. The nurse stations (opposite page) and research labs (left) display the same close attention as the lobby spaces (lower left three photos), the library (right), and lounge areas (below). Glazing on upper levels is all wood framed, while the ground level lobby (left, bottom) and commercial spaces are enclosed with butt-jointed floor-to-ceiling glass. While most of the architects' proposed graphics were done, one nice touch, a neon entrance sign (above) was dropped as "too commercial" by the client. It was a cool and refined identifying element.

Two health facilities by Payette Associates

Houlton Regional Hospital



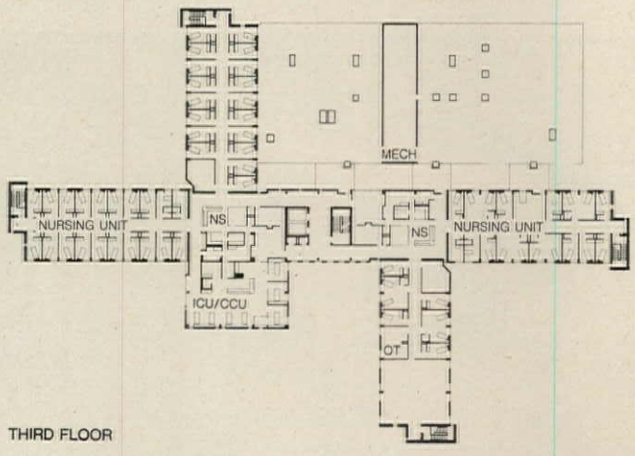
SITE PLAN

A new hospital standing in an old potato field in rural Maine has more flash and verve than one is likely to find in many of our urban centers.

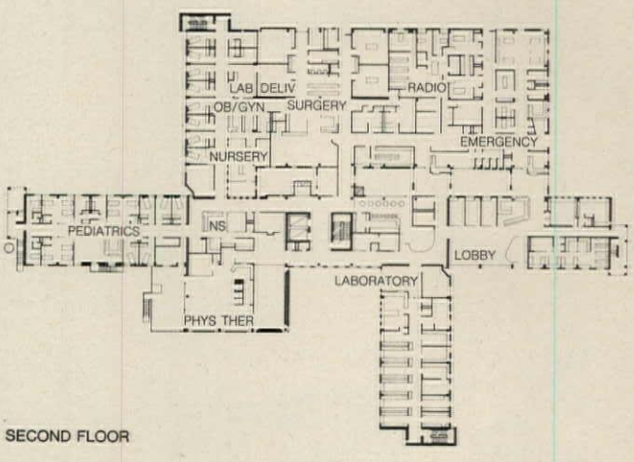
Six years ago two small hospitals—which had served the residents of Aroostook County, Maine, for many more years than they really should have—decided to go together to build one new, up-to-date hospital in the town of Houlton. The new Houlton Regional Hospital designed by Payette Associates of Boston has only recently opened its doors, and while it is considered by many to be the "most complex and different looking building around," the reaction to it has nonetheless been quite favorable.

While the building is basically a hard-edged, rambling structure with few openings, its exterior skin has been articulated in a most appealing, almost playful manner. The interior has been made open, fluid, and expansive where possible through the (often ingenious) use of mirrors, glass partitions, and skylights. When you add to this a color palette that would be the envy of any building, it is not difficult to see why people have responded favorably to the complex. Other than the rare instance of a piece of genuinely ugly (but serviceable) furniture, Houlton Regional sparkles in a way that we have not come to expect from hospitals.

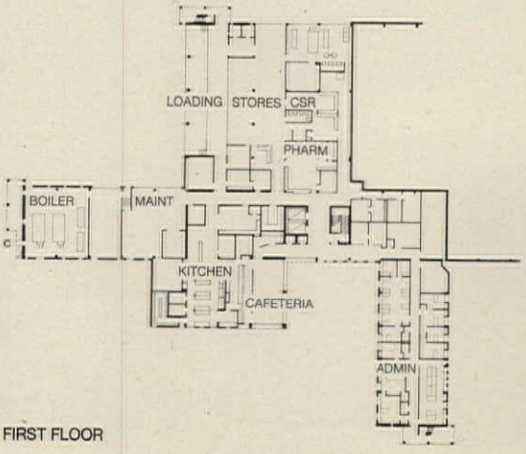
In order to design a building that works in a climate where temperatures often sink to —40 F or lower and where huge amounts of snow fall well into May, the architects have elaborately coordinated the window openings with the interior design to give light, views, and fresh air through an exterior wall system designed for minimal exposure. On the exterior wall of each patient room a small, high window and a larger, low one are both carefully placed to reflect light on the lavatory mirror to illuminate the room throughout the day. Elsewhere throughout the building transparent and translucent materials are used to dissolve confined or dark spaces to bring a sense of spaciousness and illumination to what otherwise would have been dark, foreboding, typically institutionlike places. One finds such unexpected delights, for instance, as a skylight over the publically visible pharmacy, curving mirror walls in the lounges, and public telephone booths with glass partitions looking into the medical library.



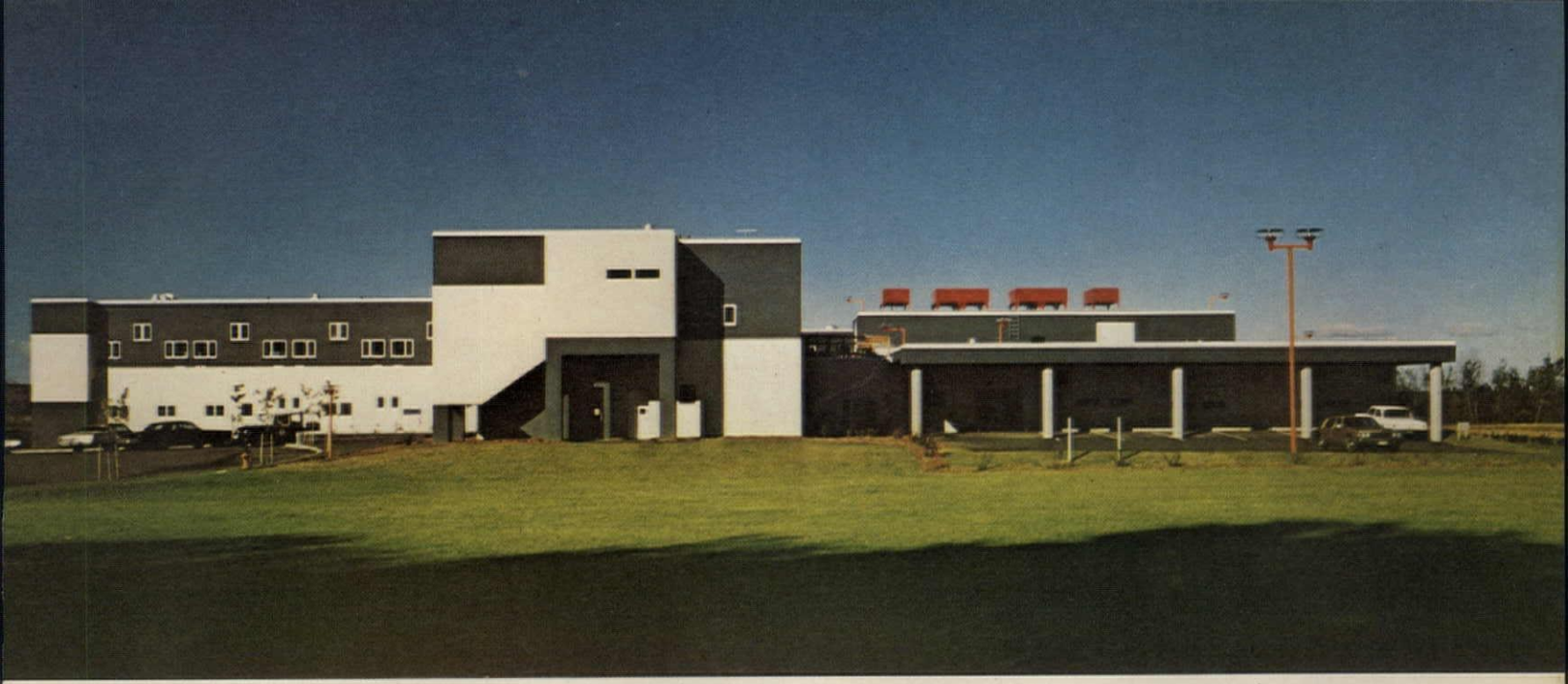
THIRD FLOOR



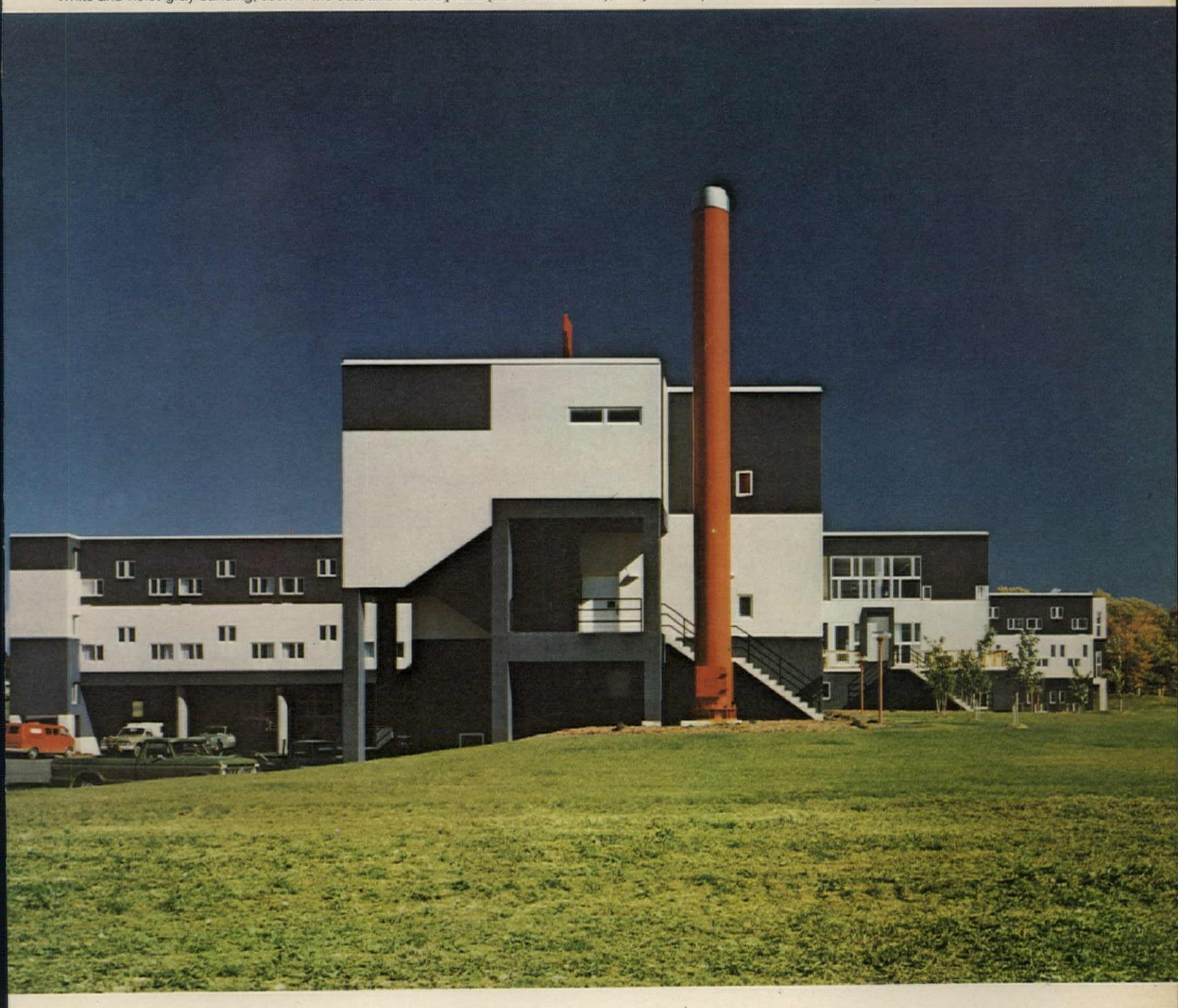
SECOND FLOOR



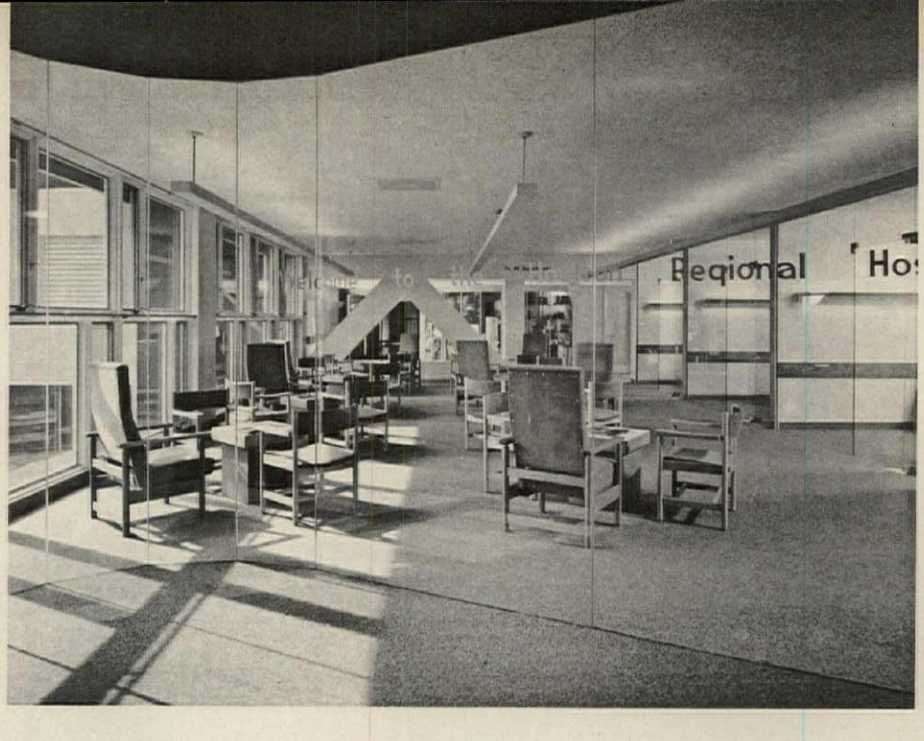
FIRST FLOOR



White and violet-gray banding, seen in the east and west façades (above and below), unify the hospital and dramatize its siting on the barren land.

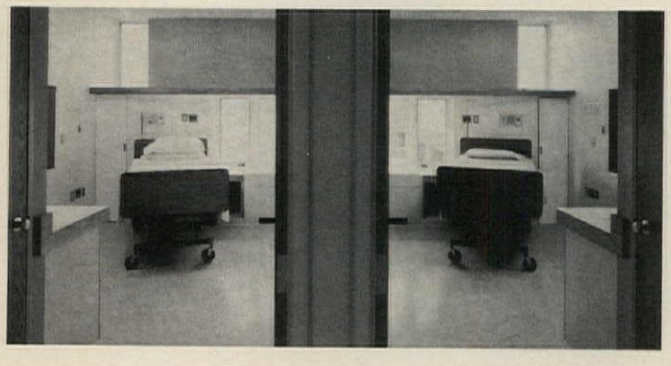


Houlton Regional Hospital



The exterior walls are the Dryvit System from West Germany, which is constructed with 2 in. of foam board insulation on the outside. After the wall panels were affixed to the steel frame structure, the finish was applied to them in floor-height bands circling the building. But the finish is a synthetic material, and the architects report that since it was not possible to obtain a "natural" color they purposely chose one that was very unnatural—violet gray—to be used with the white. The purpose of the banding, however, is to visually unify the sprawling structure and to dramatize its relationship to the naturally barren landscape, which it does in a surprisingly powerful and direct manner.

At Houlton it is the single patient room that sets the measure for the entire building. The position of the bed almost perpendicular to the far wall of each room makes a fairly narrow room possible, and consequently allows for shorter corridors and smaller structural bays. In addition, it also gives good visibility of the patient's face from the door, and conversely it lets the patient watch activity in the halls.



The patient units consist of 36 beds in two 18-bed sub-units that share a nurses' station and support services. In the configuration of the patient floor, each sub-unit makes the leg of an L, and two Ls (72 beds) are set back to back and flipped, with common space between them, to make up the entire third floor. In contrast to the conventional H-shaped plan, each wing at Houlton has an unobstructed view as well as a place, where the sub-units meet, to attach additional patient wings or specialized units, such as the intensive care/coronary care unit here. In addition, the plan easily accommodates itself to flexibility in nursing patterns and patient groupings, since on the second floor the same L-shaped plan is arranged so that five beds in pediatrics and three beds in maternity can "swing" for use by either sub-unit when needed.

In order to achieve and maintain a "sense of pervasive publicness" throughout the building, the architects have tried to break down the contrast one usually finds between the lobby and the behind-the-scenes areas. To this end, the furniture in the public and patient areas is interchangeable, and the spirited use of color, which usually stops at the lobby if it is present in a building of this type at all, is carried throughout the entire building.

In what was once a potato field there now stands an unusual new hospital. While the building was constructed for a "rock-bottom" (for hospitals) $55/sq ft, Houlton Regional stands as proof that a place of healing can be charged with excitement and vivacity, and that it need not be like the institutionally drab places we have all lived with for much too long. Houlton proves that a hospital, like any other building, can refresh the spirit, and that it doesn't cost any more than just a little imagination. [David Morton]

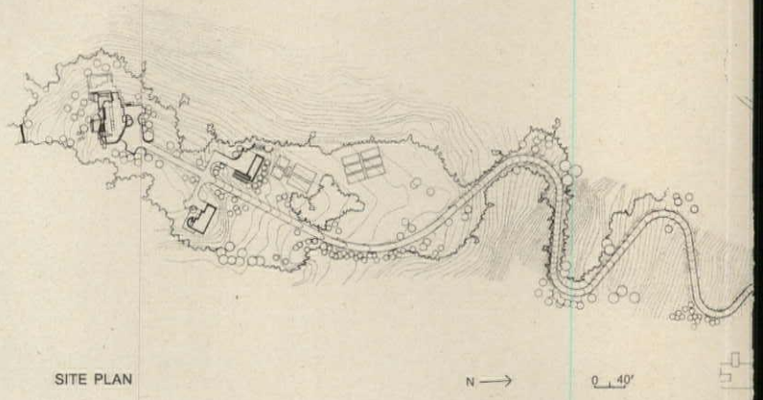
Data

Project: Houlton Regional Hospital, Houlton, Maine.
Architects: Payette Associates Inc., Boston, Mass.; John Wilson, project architect and designer; Young Jo Sul, Steve Kazmierczak, job captains; John Bielecki, field representative.
Program: a new regional, general hospital of about 100 beds to replace two separate, outmoded structures.
Site: A former potato field near U.S.1 and I-95; the hospital is tucked into a niche at one end of the site surrounded on three sides by trees; the remaining open field remains open.
Structural system: steel column and girder frame; light gauge steel framing walls.
Mechanical system: hot water boilers and fan coil units; air-cooled condensers and air handling units.
Major materials: steel frame; long-span bar joists and corrugated metal deck for floors and roof; concrete topping on floors; Dryvit and foam-board-insulated wall system; painted gypsum wallboard. (See Building materials, p. 106).
Consultants: Payette Associates, Inc., landscape, interiors; Dellea Engineering Inc., mechanical; Rubin Zallen Assocs., structural; E.D. Rosenfeld Assocs., medical planning; Haley & Aldrich, soils.
Client: Houlton Regional Hospital, Craig Beam, administrator.
General contractor: Salter Corporation.
Costs: C/M contract amount, $5,970,000; $55/sq ft.
Photography: Nick Wheeler.

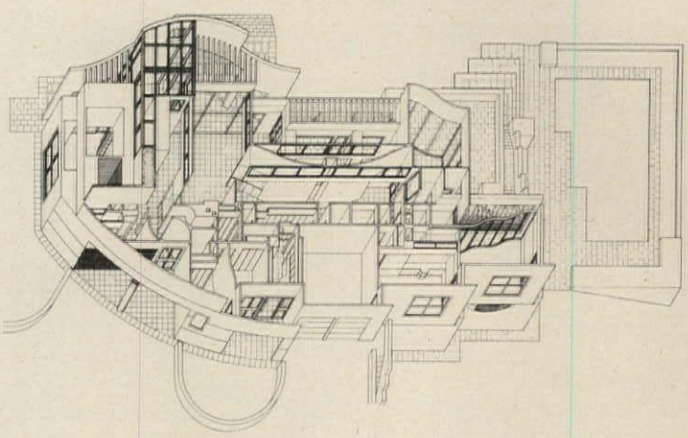
Although windows are kept to a minimum, ample glazing and sometimes mirrors are used in public areas, such as the lounge (facing page top) and cafeteria (top) to enliven and animate interior spaces. Elsewhere throughout the building crisp detailing and a bold color palette are effective in preventing the institutional image typical of hospitals. Daylight is used unconventionally, such as in surgical suite (above). The position of the bed in the single-patient room (facing page) gives superior visibility and allows a narrower-than-normal room, which permits the advantage both of shorter corridors and of smaller structural bays.

Residence, Westchester County, N.Y.

Grand allusions



SITE PLAN N ⟶ 0 40'



If the battle of the styles has once again started raging, the house serves as its heraldic emblem. In this "post-modernist" house in Westchester Co. architects Robert Stern and John Hagmann have raised questions regarding the "new" architecture.

Now that the modern movement's position is no longer secure, a renewed contest is being waged to determine the sort of architecture that will assume its hegemony. One of the most sporting and vocal pretenders to the throne, Robert Stern, has been arguing that architecture is (or should be) moving in the direction of "post-modernism." Exemplified by the work of Venturi & Rauch, Charles Moore, Mitchell/Giurgola (and, of course, his firm, now called Robert A. M. Stern Associates), post-modernism's principles that Stern refers to—contextualism, historical allusion, and applied ornament—have now become familiar to the architectural public over the last decade. The question only remains whether these principles, as radical as they have been, constitute an architecture that is truly "post-modernist." And if so, do they posit a clear enough conceptual framework for this architecture's dissemination and reproduction—an intrinsic code for the generation of architectural form.

As Stern talks it and practices it, post-modernism is perceived by him as a *stylistic* shift—as are most changes in architecture. His argument bares the realities of the situation that rankle many. For most architectural revolutions are indeed perceived and understood in terms of "style," a fact Stern has decided to embrace with pragmatic élan. While conceding a point that new building types and technologies indicate more than a different "look," he basically holds the Banister Fletcher-like line in his view of the nature of the beast.

So it is not surprising that what you get, as this one-story house in Westchester reveals, is modernism in drag. The essential character is still the same despite the stylistic trappings. Pitfalls that do occur relate to this camouflage. Contextualism, applied ornament, and historical allusions after all are *attitudes* expressing values. They do not carry their own genetic formulas. They do not tell you how and what to combine; how elements create space, how small-scale components cohere at a larger scale.

This one-story house sitting on a hilly wooded site of 140 acres in Westchester County is part of a grouping of three buildings; the other two, flanking a sinuously curving half-mile long drive are the gardener's cottage and a greenhouse. Stern and Hagmann treated the gardener's cottage as one kind of problem: a prototype for a modest single family "suburban" home. The main house is another situation. The owner desired an ample weekend home (5700 sq ft) that would accommodate guests, allow for entertaining, but appear to be small in scale. The architects thus designed the house to be experienced as a series of fragments or episodes. As one approaches the entrance, one cannot perceive it as a single entity, a "hermetically sealed object" that Stern finds constricting in the work of others. Rather the curved low-browed portal, with the rest of the spaces receding down the slope, is all that is visible. Although the house is organized lengthwise along a skylit corridor, the entrance is not placed on axis with that corridor, but deflected off it. Guest rooms, maids' rooms, and the owners' sleeping quarters are treated as zones or suites branching off the corridor so that their size too cannot be readily apprehended. Even the depth inside the public living spaces is diminished by the device of layering spaces in the transverse direction.

A variety of allusions to historical antecedents abound in this richly polychromed and beautifully detailed house. Edwin Lutyens is invoked quite often. The plan, with suites of

Freestanding screen walls are concrete; elsewhere wood framing elements are carefully stacked, as in a balloon frame, to minimize stucco cracks.

Local fieldstone cascades down to pool; above, house is painted light ochre with Tuscan red bands; copper flashing is bent back at edge.

rooms connected to the corridor, owes much to the predecessor, as does the deflected circulation from the entrance around the fireplace and into the path of circulation. Clerestory windows, and skylights recall Lutyens, along with certain stunning triumphs of ambiguity, such as the fireplace nook. Here the walls flanking the fireplace have been dematerialized by their concavity and placement under a skylight.

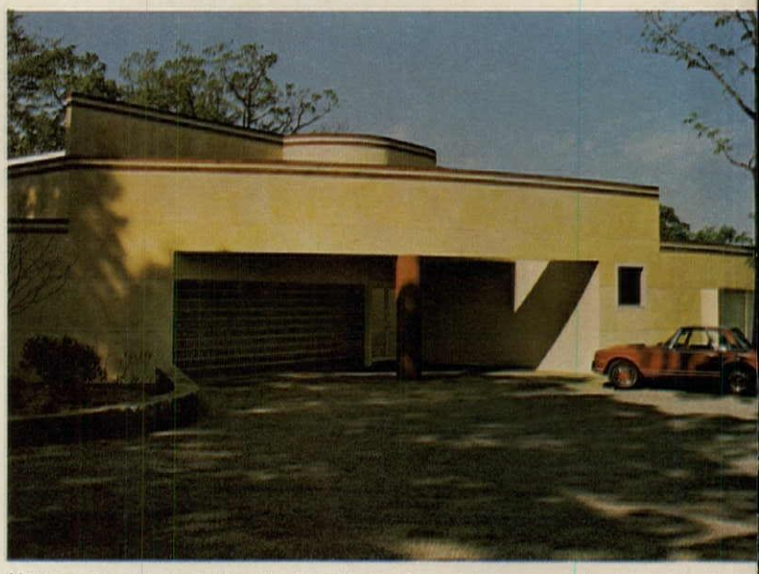
If Lutyens is by now rather *de rigeur* as a reference system in this firm's work, Frank Lloyd Wright is not as expected. (For a comprehensive discussion of Lutyens in comparison with contemporaries Wright and Le Corbusier see Alan Greenberg's analysis in *Perspecta* 11-12.) But like Greenberg, Stern has not missed the Wrightian link to Lutyens. His recall, however, goes little further than the late 1930s and 1940s. Thus the massing of the entrance and the glass block wall immediately reminds one of Johnsons' Wax as do the earthtoned and Tuscan red colors Stern borrowed from the inside of the labs to apply to the stucco on the outside of the house. The west elevation recalls Wright's Usonian houses; fieldstone terraces cascading to the rectangular pool bring Wright's Miller House of 1946 to mind (Stern prefers Lutyen's Nashdom house).

Here, however, one senses an uneasiness in Stern's own combinations. Those lightly curved paper thin planes of concrete and/or stucco on wood frame rising above the massive geometrical fieldstone setbacks seem too abrupt, too dissonant. Neither of the precursors, one suspects, would have carried their outward (or inward) contradictions this far. Stern wanted to emphasize the man-made object

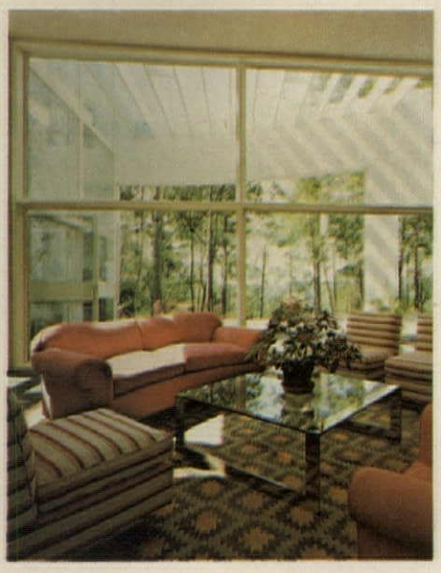
perched atop the rugged setting: only the podium is truly treated contextually.

Elsewhere the attention to detailing and surface articulation show a sureness of hand one sees in Wright, although the results dramatically differ. Polychrome reveals are incised in thick plaster walls in bedrooms; joints in the bluestone paving widen as one goes from living room to partially covered terrace to open terrace. Four lally columns are bunched in clusters on the terrace, to be linked with vines instead of the (Aaltoesque) thong tie.

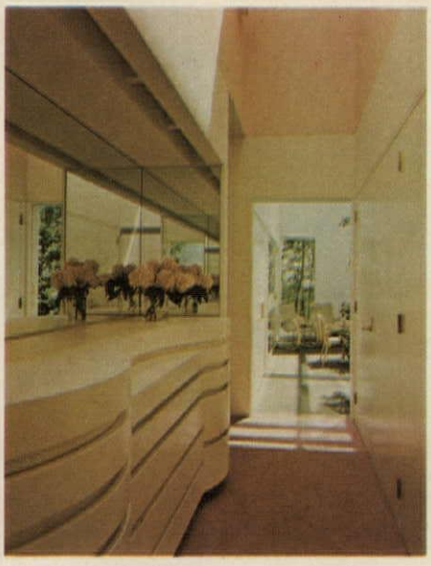
As with Lutyens and Wright, the plan assumes a major organizational role in the design solution. Yet unlike a Lutyens plan, this one is not composed of a series of well-defined volumes or rooms. And unlike a Wright plan it is not completely open, surging onward with the fluidity of contin-



Narrow glass blocks laid vertically indicates foyer (above, rear photo below).



Living room is 14 feet high, faces south.

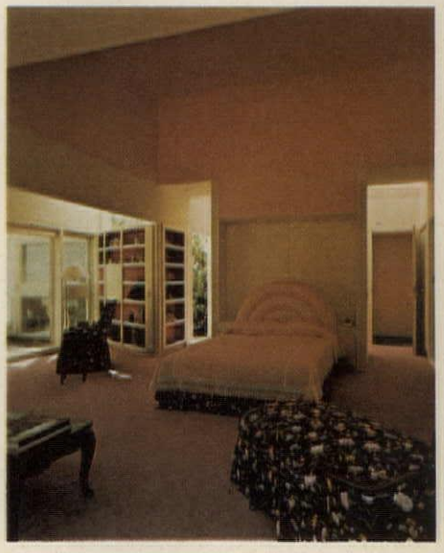


Dressing room leads to conservatory.

Study alcove overlooks terrace.

Baths all have skylights.

Conservatory used for dining.



Master bedroom has 13-ft ceiling.

uous space. Strangely, the plan looks more like a mannerist version of Corbusier's Maison La Roche of 1925. In this case, it almost *appears* as if Stern had taken the curved wall of the gallery at La Roche and used it in its various deformations (reverse curve Corbu) to bound the wing of rectangular living spaces. Synthetic cubism comes to postmodernism in Westchester County. It could even be argued that the enclosing walls turn for inspiration to Corbu's punched out layering of planes to achieve the phenomenal transparency that Colin Rowe and Robert Slutsky have previously expounded (*Perspecta* 8 *and* 13-14).

Eclecticism unbounded

Not that Stern would shrink from being linked with this triad of Lutyens, Wright, and Corbu, even if the third party is associated heavily with the other camp of "third-generation modernists" (née the Whites). There is a major difference between Stern and the three architects mentioned above. However, it has not so much to do with Stern's unabashed eclecticism, not so much with his manner of assemblage, not so much with his choice of applied ornament. The real difference lies in the treatment of architectural space. Lutyens with his connecting but discrete closed spaces, Wright in his horizontally interlocking planes, Corbu through his cubistic volumes spatially defined with free-standing objects—the fireplace, the shelves, the ramps and stairs—all achieve a three-dimensional dynamic unity. Lutyens and Corbu may retain that sense of enclosed volume to get it, Wright, the dense mass—two important ingredients of architectural space that Norberg-Schulze points to. (Despite Wright's open plan, the inside-outside relationship, he relates horizontal *and* vertical axes to the static massive core, such as a fireplace.)

Except for changing the ceiling height, and introducing often unseen natural light sources, Stern doesn't deal with the vertical dimension. Perhaps this is what has troubled the jurors in the 23rd annual P/A Awards about the house's elevations. (Jan. 1976, p. 65). And in real life the elevations are less resolute than the plan: not as tidy as the superficially similar Brandt House by Venturi & Rauch (Aug. 1976, p. 50). Although the elevations signify the changes in plan, the curved bounding walls are still collaged onto the interior spaces. Concrete screen walls, one to mark the portal, one to frame the south view and shield the living room from the sun, emphasize the point. Where they merge with enclosing walls the whole becomes a little loose, a little shaggy, even if Stern prefers to call it open-ended. The curve is to Stern what the cube is to other architects. But

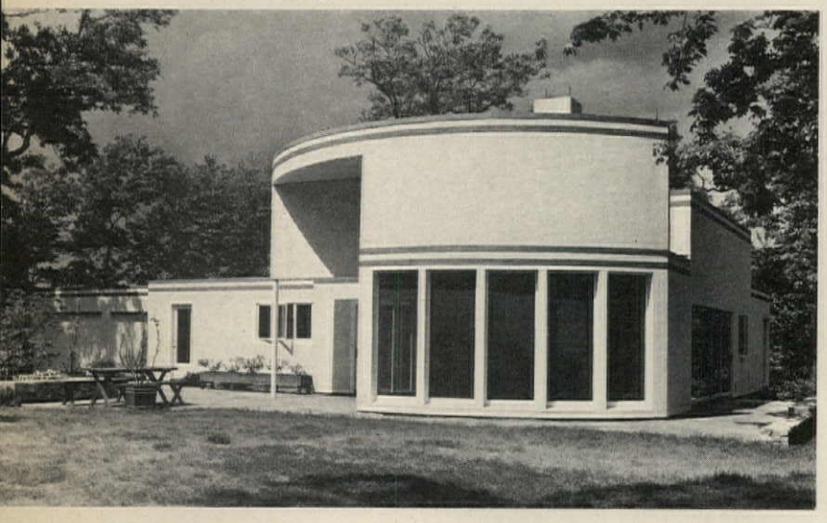
the cube has a three-dimensional reference, the curve two-dimensional. Its greatest success is still in terms of plan.

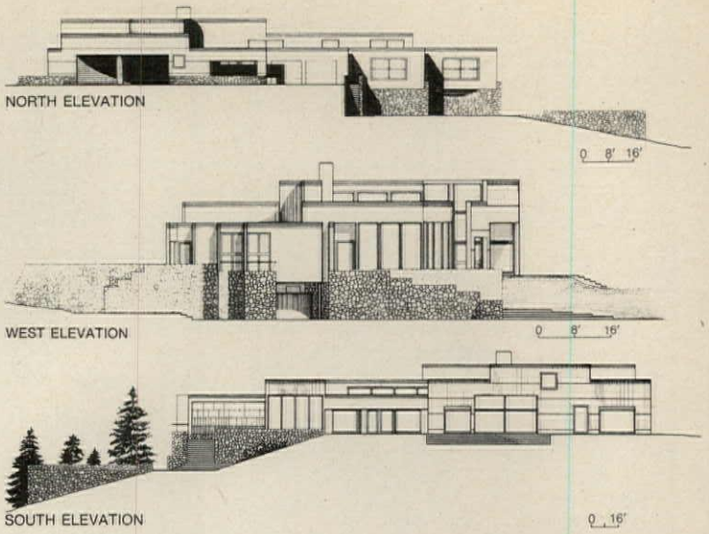
On the interior one doesn't experience the spaces as volumetric enclosures, but rather as settings. The "stage set" aspect in fact is reinforced by the carefully selected Art Deco-ish furnishings, the intricate detailing of doors, cabinetry, walls, the choice of hot and heavy pastel colors. In this *non*hermetically sealed object, one feels these places or settings have been arranged carefully on a stage, where the boundaries are provided by stage flats, scrim, and proscenium arches.

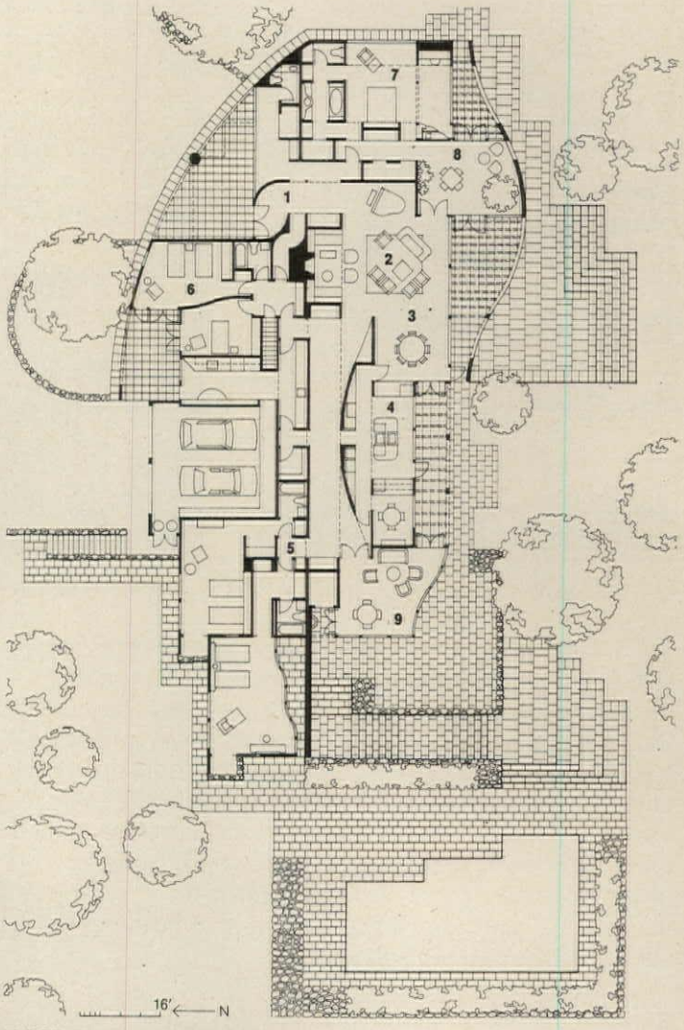
Perhaps therein lies the clue: the architect's own experience of his architecture. It is through the eyes of a participant in a theatrical event. Each user/actor has his assigned role, his designated place of movement on the stage. Guests entering the front door move from glass brick walled alcove to the living room, dining room, fireplace nook, or terrace without ever being aware of the rest of the house. Host and hostess make their entrance stage left from their master bedroom wing. Servants tiptoe noiselessly out of their quarters to open doors, hang coats, retreat to their rooms or to kitchen, all invisibly. There is a strong fantasy aspect to this setting of course: as if life is taken from films, and similarly, architecture is a three-dimensional construct perceived within a two-dimensional framework.

It does have style. And Stern is a consummate stylist. His kind of art requires a sure hand, a great deal of attention to detail, an extensive knowledge of art history, and a deft flair for combinations. (It also helps to have the proper budget for nice materials, exquisite craftsmanship, and the staff to execute the painstaking detailing.) But this kind of art has its limitations—perhaps the reason Stern is at his most spectacular in small, constricted, already-given spaces of the bathroom, townhouse, or carriage house. This kind of eclecticism, lacking the internal code that prescribes its own consistencies could easily come apart without strong parameters or constraints, physical, economical, or otherwise. This house for all its intelligence, its sureness, its savoir vivre, lacks that inner core determinacy.
[Suzanne Stephens]

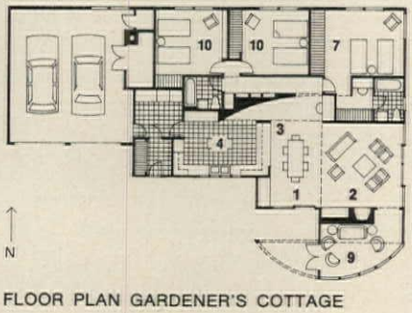
Gardener's cottage, south elevation.







FLOOR PLAN MAIN HOUSE

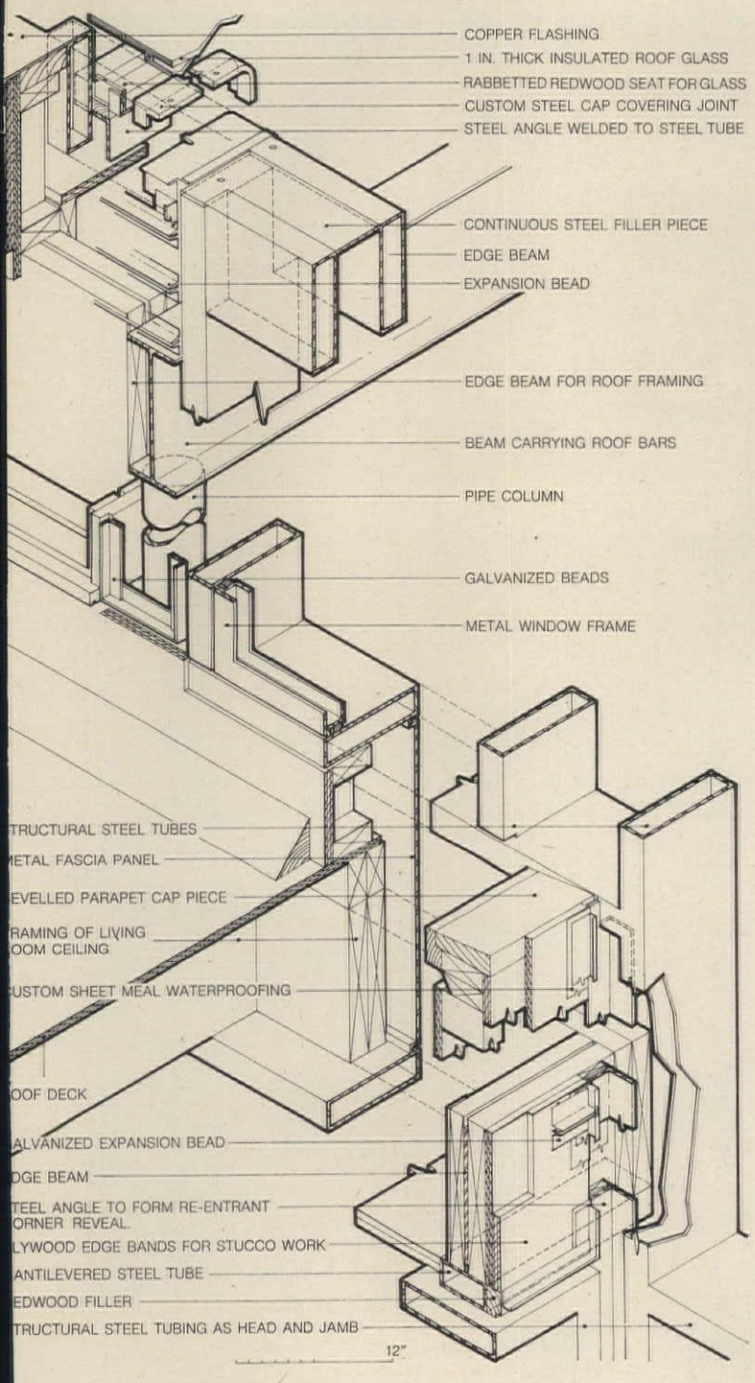


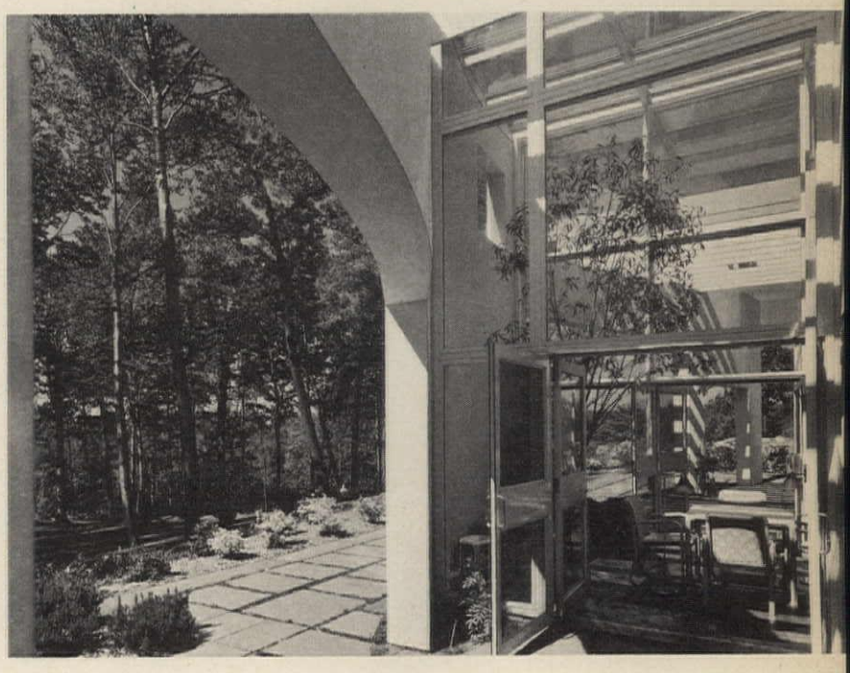
FLOOR PLAN GARDENER'S COTTAGE

Legend
1 Entry
2 Living
3 Dining
4 Kitchen
5 Guest wing
6 Maids' rooms
7 Master bedroom
8 Conservatory
9 Sunporch
10 Bedroom

Curved doubled-glazed wall of bedroom faces onto cable suspended slats of trellis, which will soon be covered by clematis.

Insulated flat roof is formed from ¼ in. tempered and ¼ in. laminated glass (photo above, isometric detail, left) to light conservatory (below).





Data

Project: residence and outbuildings, Westchester County, N.Y.
Architects: Robert A.M. Stern and John S. Hagmann, New York, N.Y. (firm name since changed to Robert A.M. Stern Associates); Daniel L. Colbert, associate in charge of building design; Jeremy Lang, associate in charge of site development; Robert Buford, Joan Won Yee Chan, and Ronne Fisher, senior assistants; Gregory Gall, Toby Levy, Edmund Stoecklein, and Clifford M. Thatcher-Renshaw, senior assistants.
Site: 140 acres of wooded hillside in Westchester County.
Program: 5700-sq-ft residence with two guest bedrooms, master bedroom, maids' quarters on ground floor with high ceilings, ample natural light, modest scale. A gardener's cottage with three bedrooms and a greehouse/utility shed were also requested.
Structural system: stucco on wood balloon-frame structure; screen walls reinforced concrete.
Major materials: stucco, wood, concrete, local stone podium and landscape walls, bluestone floor and terrace paving. (See Bldg matrls, p. 106).
Mechanical system: forced hot air with humidification; three oil-fueled furnaces for three separate zones supplemented by electric cable units. A/C forced air from air handlers at furnaces with remote chillers.
Consultants: Peter Rolland & Associates, landscape design; George Langer, mechanical engineer; Robert Silman Associates, structural; Carroll Cline, lighting design.
General Contractor: Franco Brothers.
Client and cost: withheld.
Photography: Edmund Stoecklein.

The work of Chrysalis East, Milwaukee

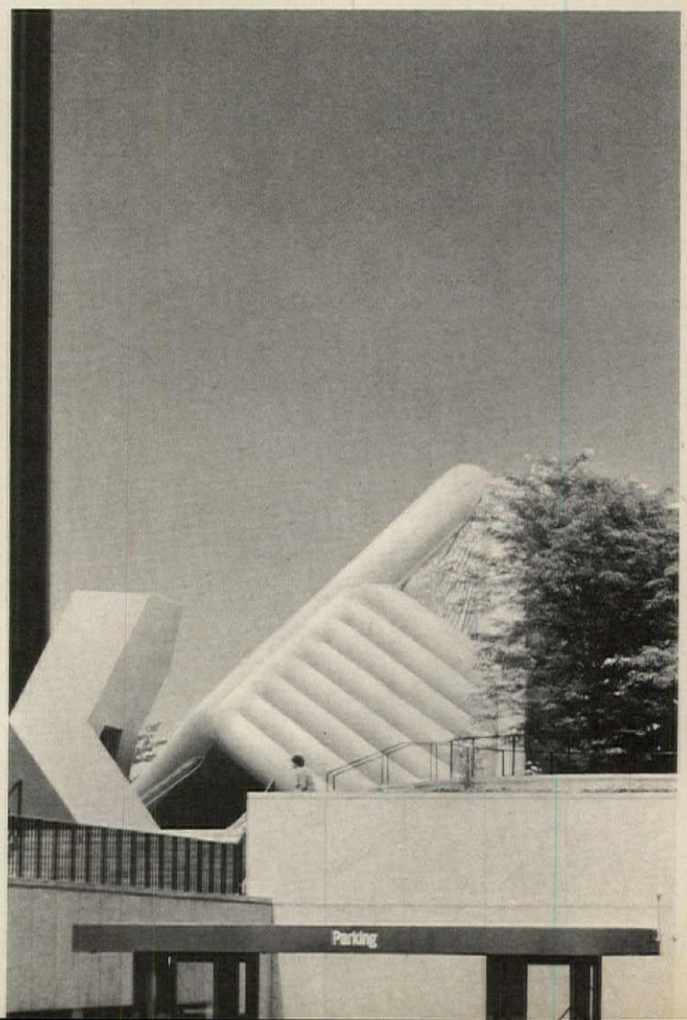
A light language

In the search for an architectural expression which merges art and science to create a dialogue, a group of architects, Chrysalis, creates skillful structures.

Chrysalis, self-described by Joseph Valerio in the Aug. 1972 issue of P/A (p. 87) as "a group of resources applied to solve particular problems," is alive and well. They are doing what they call "unbelievable architecture." Chrysalis' Valerio and Kent Hubbell point out that, in the United States, the entertainment industry dominates the arts. "If architecture is to be a significant art form," they feel, "it must participate meaningfully in the lives of everyone. Architects must engage a broadly based audience for their work by presenting a product which surprises, which is significantly different, which is unbelievable when viewed in the context of day-to-day experience."

To develop that audience, the group also believes in maintaining the contrast between the building and its environment. "Architecture, as a language, should be designed so that a significant difference exists between its terms; through these differences, the language becomes meaningful to the user. In architecture, the differences that exist between buildings are essential and expected by the user." In addition, an architecture without the ability to change stylistically loses the feeling of expectation.

Much, although not all, of Chrysalis' work has been in the medium of membrane structures. The strong geometries generating their designs, they feel, give clues to relationships and images not physically seen but capable of being sensed. There is an impact beyond the physical limits. The group wishes to be eclectic, in the broad sense of casually drawing images and forms from other sources for use in building. By so doing, it is their intention to create a hybrid art form which is "richer and more complex than the traditional imagery found in the history of architecture."

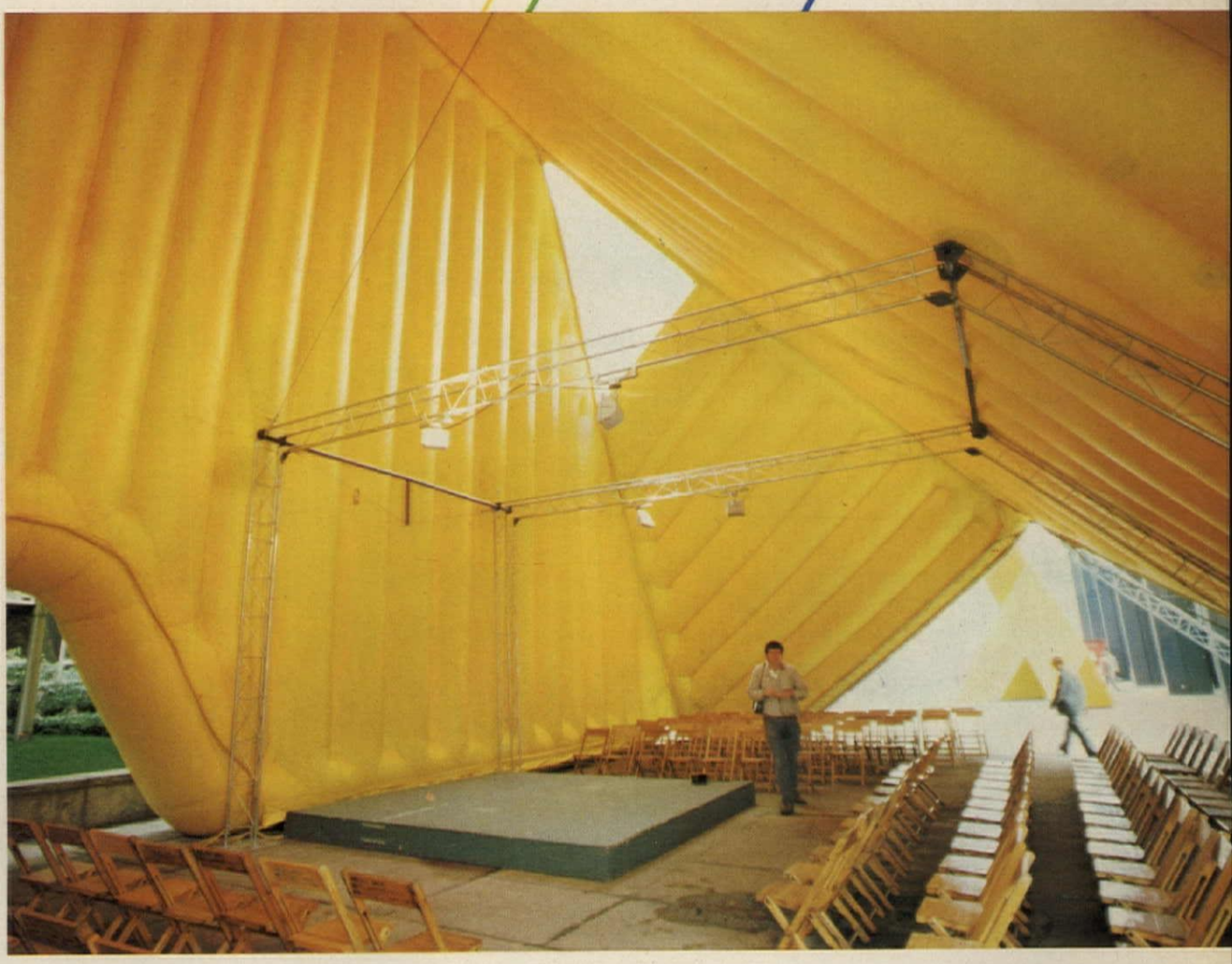


Why membrane structures?

In answer to questions about the feasibility of membranes when compared with "standard" materials, Chrysalis tends to answer in both philosophical and technical terms. "The rich set of forms which membrane structures generate becomes useful as a tool for injecting symbolic elements into

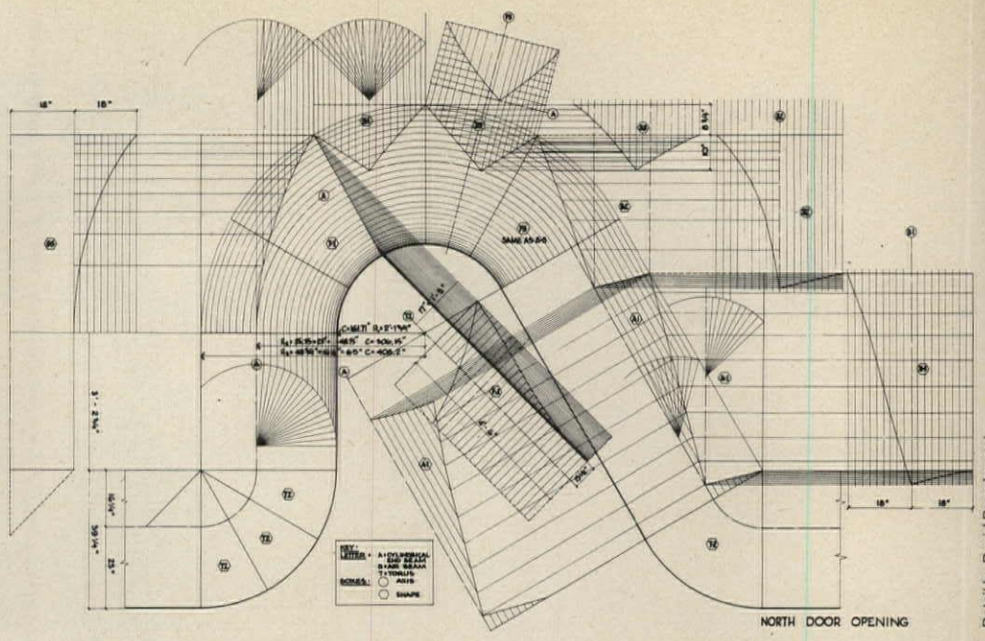
CHRYSALIS EAST ARCHITECTS

Pittsburgh, Pennsylvania, events structure for the Carnegie Art Institute's Three Rivers Festival was first used in June of 1975, after 2 years in design/fabrication by Chrysalis. The easily relocated exhibit and performance enclosure most often is sited on Westinghouse Plaza, is visible from the Fort Pitt Bridge and from Washington Heights. Enclosing about 2000 sq ft, the prismatic form is 35 ft high, and seats 200 people. Deflated, it rolls into a 4-ft dia. cylinder 14 ft long. It may be anchored either by water ballast or by catenary edge cables.



Richard Gurlitz

Chrysalis East



Detail by David Brandegee

the meaning of a space."

Their comparisons center around three points: 1) in conventional construction, doubly curved forms are achieved only after a fight with the basic material characteristics, whereas these forms are the rule with membranes; 2) perception of a membrane structure's mass and volume is unique—great apparent mass and actual volume are possible; and 3) there is a direct correlation between form and structure, so that any design decision has immediate structural consequences and vice versa. "A unique interdependence exists between symbolism and technology."

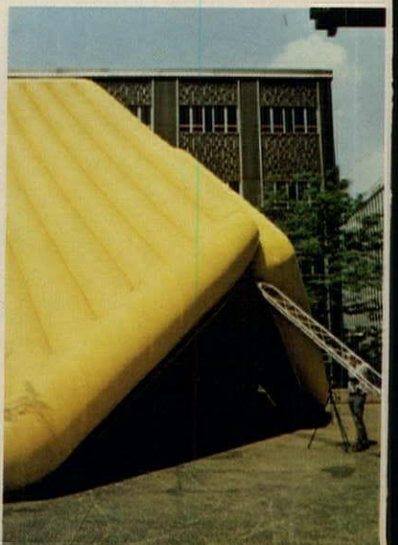
Valerio and Hubbell believe that both art and science should be served simultaneously in architecture. Because form and structure are so tightly merged in membrane construction, they are confident that this medium will not easily suffer the separation of expression and technology prevalent in most other materials. But what hard facts do they offer on the subject of viability?

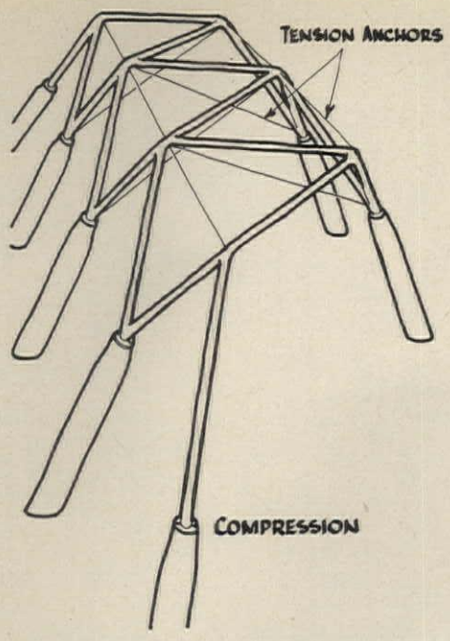
Some pragmatics

When membranes were first introduced for space enclosure, they were touted as extremely efficient in terms of cost/sq ft, weight, and energy input. They still are, and accurately, although some new fabrics narrow the gap with traditional materials on all three counts. But early skins had other problems/advantages. As P/A pointed out in 1972, some proponents of membrane structures wanted recyclable coverings for temporary functions, and some early materials accommodated that group—by decomposing. To the other camp, that tendency was disconcerting. Those who wanted the weight/cost advantages but also more longevity were forced to come up with new products to satisfy not only their desires, but the demands of code officials.

Materials have come a long way since then, and some now may be classified as incombustible, with the ability to be bonded for at least the life of a conventional roof. Problems of heat, cold, and sound transfer are usually handled at some expense in terms of translucency, and some additional dollars. But the total cost is still better than competitive, and the picture improves with the increase in volume enclosed.

Another important consideration in today's market environment is conservation, both of resources and of energy



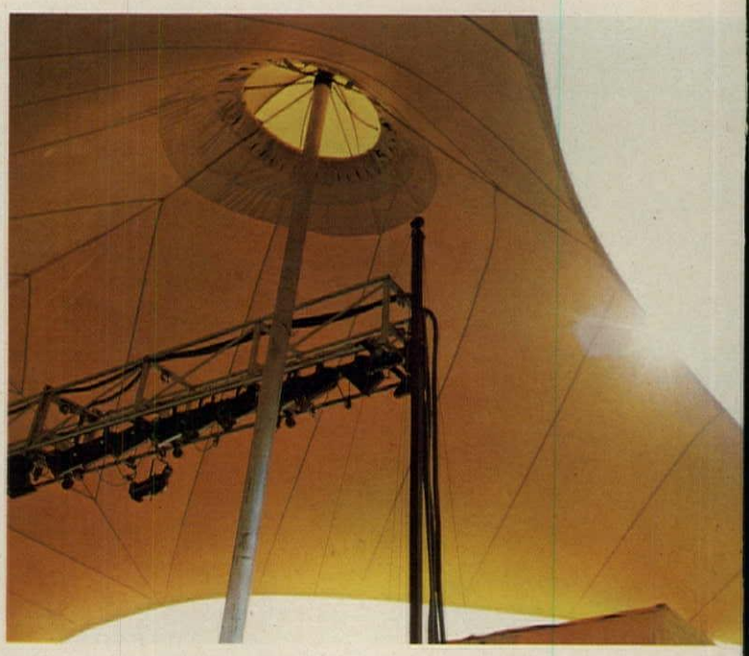


Chrysalis' design work includes intensive model study with clips (left) to take up excesses in skin panel mockups. From these early exercises the architects proceed to the detailed pattern drawings for individual parts of the structure, such as the side door for the Three Rivers Arts Festival enclosure (opposite page, top). Line sketch (this page, far left) illustrates parti for structures at Dixie Mall entrances (below).

Two main entrances of the existing Dixie Square Mall in Harvey, Ill. were difficult to identify from parking lots. Chrysalis installed two new barrel-vaulted membrane structures over those walkways (left, and top, above), as well as new signage, a tent structure to define an events area (above), and a new arch-supported skylight membrane (below) above a newly planted area.

to manufacture the material. Membrane structures, Chrysalis points out, extend advantages to project production, delivery, and installation operations. Valerio and Hubbell quote manufacture, delivery, and installation energy costs at 15,000 btu/lb for steel, 150,000 btu/lb for aluminum, and 40,000 btu/lb for plastics. Multiplying the weight of material required for a structure in each by the btu/lb figure, the energy resource savings of the lighter membrane become clear, they contend.

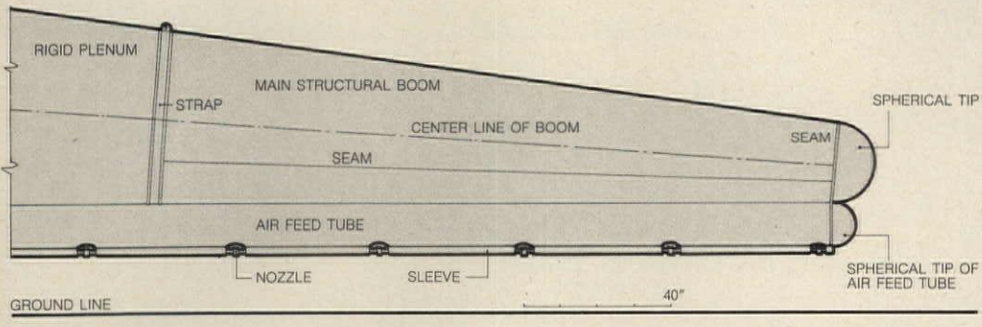
But Chrysalis does not stop at postulating. Its members thoroughly understand the technology they advocate, to the point that they go beyond the theory and into the manufacture of their structures. Admittedly, most of their work has been small-scaled when compared with some of Frei



Milwaukee's lakefront Summerfest, a two-week festival each July, stages theatrical and musical events among other things. The largest attraction is the daily concert, attracting an audience of 20,000 and requiring a main stage and backstage facilities. A semi-portable structure appeared appropriate, since the site could change in the future. The weatherproof superstructure remains in position year-round, with vinyl-coated nylon fabric membranes removed and stored. The upper main tent covers an area of 40′x80′, the backstage structure covers a 30′x68′ area.

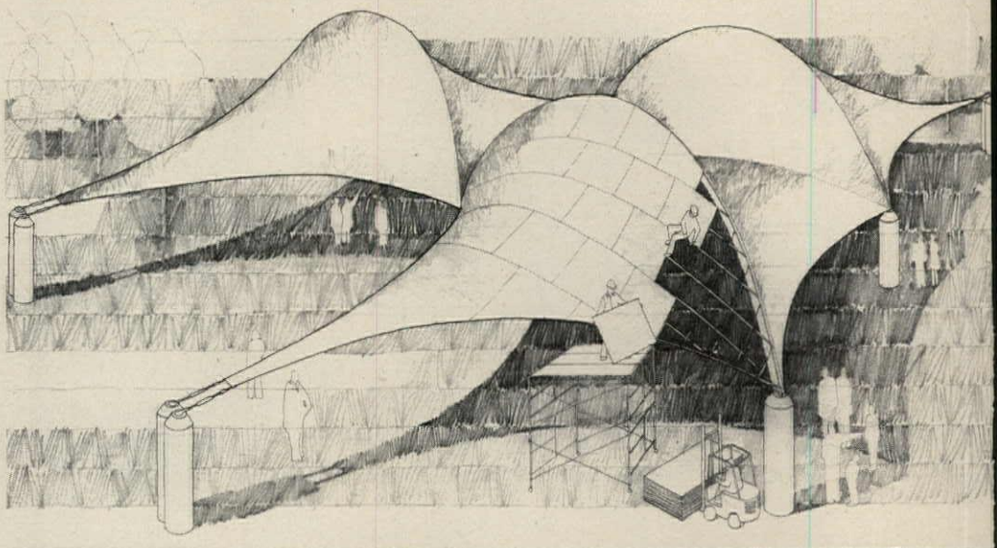
In their academic roles as faculty members at the University of Wisconsin-Milwaukee (Joseph Valerio), Cornell University and the University of Michigan (Kent Hubbell), the two Chrysalis members have directed architecture students in the design and fabrication of the structures shown above and at the left. The University of Michigan School of Music performance pavilion (top, left), and the Cornell Spring Arts Festival theater (above), and the headquarters for the Lakefront Festival of the Arts, Milwaukee Art Center are three examples of what are intended to be paradigms of the entire building process.

Chris Kronser

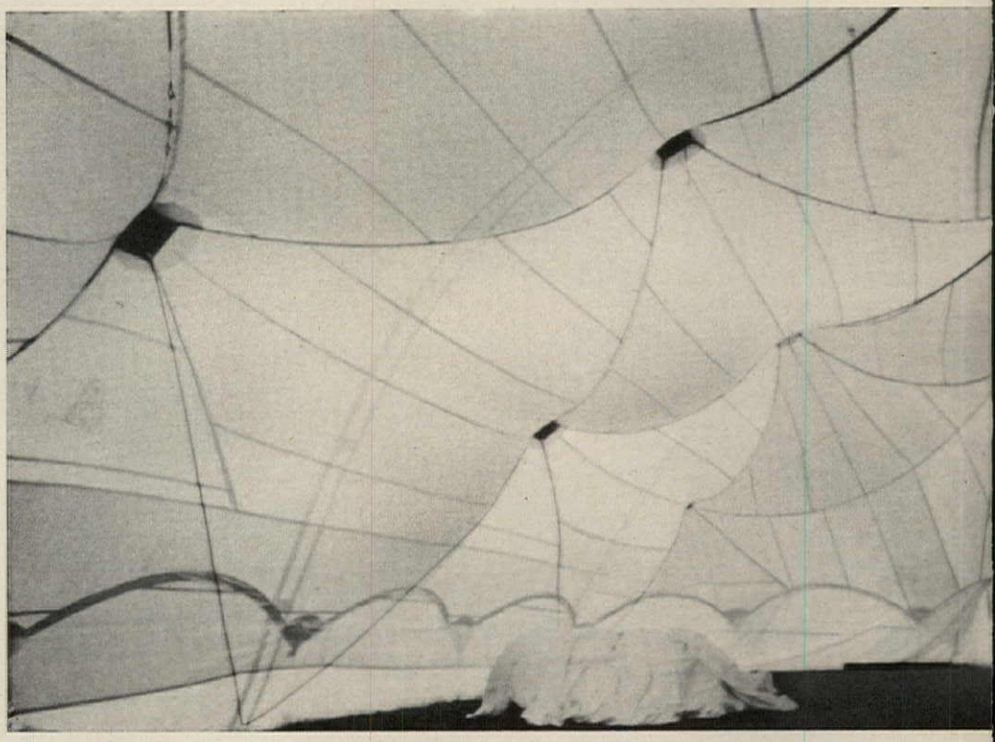


Some of Chrysalis' projects take the form of research studies. One study, undertaken for the Physical Control Laboratory of the **U.S. Dept. of Agriculture** was for the purpose of examining new methods of applying pest control materials to crops in the field. With the assistance of Prof. Richard Black of the Cornell University College of Agriculture, a Chrysalis team made a proposal for a pneumatic tractor-mounted boom (left, bottom two drawings) with spans of over 75 feet. Special nozzles and the boom design would effectively deposit materials directly on the plants with a minimum of overspray and waste. Still another study, for the **Educational Facilities Laboratories,** called for a thorough three-level examination of thermal properties of membrane structures. Basic variables which control operating costs, such as conductivity, infiltration, etc., were studied, as were the results of laboratory thermal resistance tests on a wide range of materials, and a spectrum of possible membrane innovations. Further research efforts have recently taken Chrysalis into the area of acoustical properties of thin films and membranes. The studies indicate that they are efficient acoustic reflectors at frequencies above 1000 Hz; as a result, they may be used to clarify, brighten, and direct sound for musical performances. Membranes can also help to alter the acoustics in existing interior spaces.

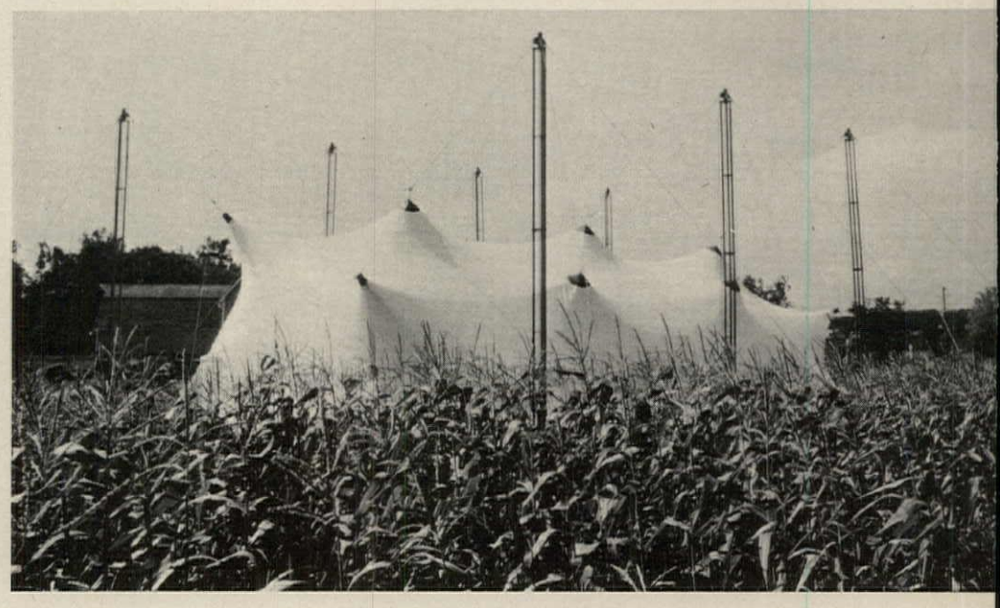
Chrysalis East



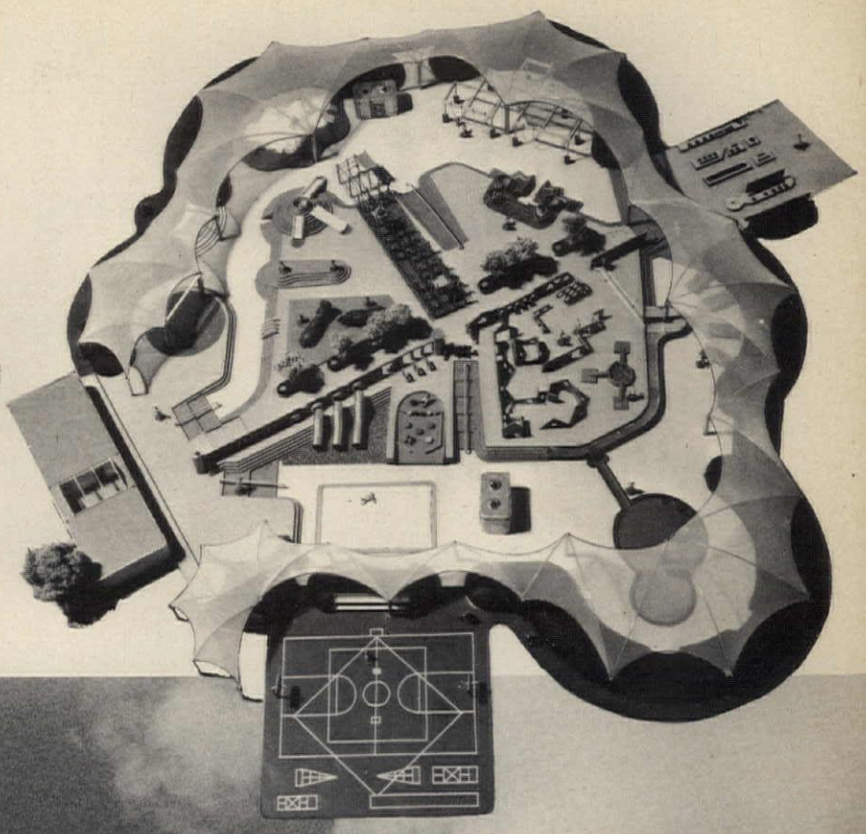
A traveling exhibition for Alcoa (above) makes use of a fiberglass arch rod which springs into position when the membrane is attached to the two accompanying trucks, and one truck is moved away from the other. Project (top, right) for Milwaukee's Summerfest, would shelter an area of 4000 sq ft under a prestressed net of steel cables with plywood skin sections, at a greater economy than most other structural systems. For the Milwaukee Area Technical College (MATC), Chrysalis designed a structure (right) for the institution's year-round horticultural studies. Enclosing 6000 sq ft, the membrane can be taken down in summer, and is equipped with a second skin (shown rolled in center photo, right) for insulating the structure in the winter months.

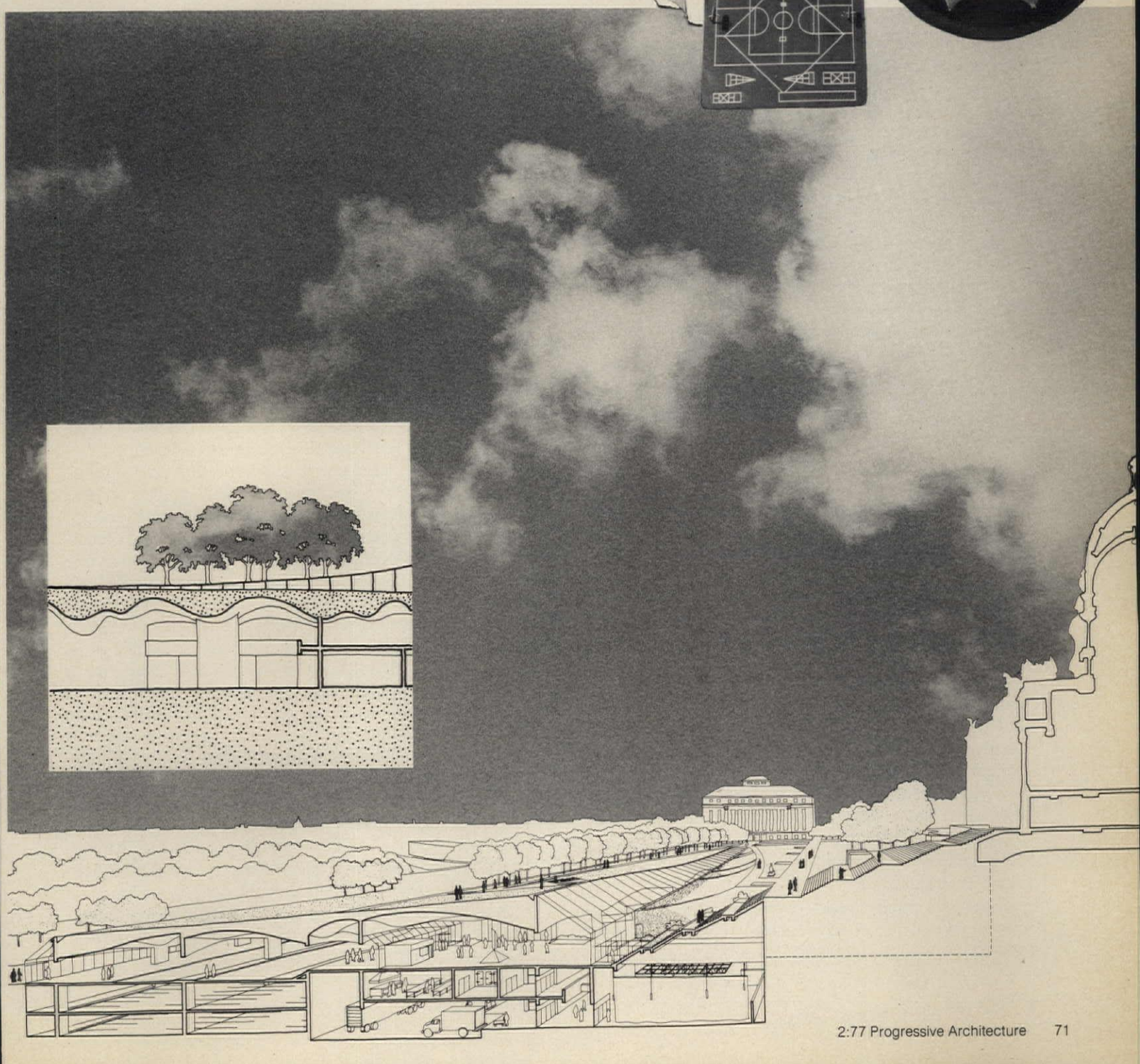


Two competition entries (opposite page) for a childrens' park (model, top) and an addition to the Minnesota State Capitol (drawings, bottom) extend principles Chrysalis has been working with. The park, a submission to the competition entitled "A Playground for All Children," was designed as an "outdoor room" with tents, berms, and level changes. A major requirement of the program by the sponsor, the New York City Dept. of City Planning, was that the playground allow children with disabilities access and an equal opportunity to participate in activities along with the able-bodied. Design of the playground is by Chrysalis' Kent Hubbell, in association with Jeff Hannigan, David Prendergast, and Allan Lindenfeld. In their submission to the national competition for a 400,000-sq-ft State Capitol addition in Minnesota, Chrysalis put the program elements—legislative hearing rooms, state Historical Society museum, and parking under the existing Capitol lawn—along an axis parallel to the front of the Capitol. The space is defined by an undulating concrete shell, an "umbrella" for very different functional areas. The proposal was developed by Joseph Valerio with Kahler, Slater, and Fitzhugh Scott, Inc.



Otto's, with Davis, Brody, and David Geiger's (P/A, Aug. 1972, pp. 79–84), or with CRS and David Geiger's (P/A, May 1976, pp 94–99). But the group is doing a body of work which is thoroughly consistent with their philosophy, and which is technically thorough and skillful as well. Since the range of their projects also reflects their goal of an increased complexity in architecture, the individual works shown on these pages each carry their own descriptive captions. It is to be hoped that the skills shown in these examples will have the opportunity to be applied to projects of even larger scale, and in differing materials. Chrysalis has thus far achieved one of the most difficult of its intentions—the blending of art and technology. [Jim Murphy]





Other spatial realms

For the New York firm of Gwathmey Siegel Architects the process of designing interiors has revealed design opportunities often missed in designing buildings.

As practicing architects, Gwathmey Siegel Architects is a firm perhaps best known for a series of rather expensive single-family houses, some of which have been published in the pages of P/A and others of which have appeared in the book "Five Architects." For many young architects beginning their own practices, houses—as a building type—are often the only projects they have, and making the transition to larger work is difficult, not so much for lack of ability as for lack of experience.

For Charles Gwathmey and Robert Siegel, the economic recession of the last several years has not only brought them bigger architectural commissions than the firm has ever had, at a time when many of the larger and better-known firms were laying off employees, but has also brought them numerous interior commissions and the opportunity to deal with another whole dimension of the design process. On the surface, the recently completed interiors shown on these pages differ remarkably from the pure white geometries of intersecting planes which characterize their houses. But while the end results may appear dissimilar, some of the underlying concepts which give their spaces form are totally consistent with their thinking about architecture. Other realities of interiors projects permit a different realm of design possibilities to emerge, some that cannot be realized in architecture.

When dealing with architecture, a building's formal conception and its façade often receive the most thought and energy, while the interiors, functional in many ways, are often pushed or pulled to suit the other purpose. In the design of just interior spaces, the pragmatics of the program become of greater importance in generating a solution as there is no high-style façade to hide behind. These spaces must solve very concrete functional problems at the same time that they must satisfy the aesthetic demands of making a visual statement.

One of the prime differences between architecture and interiors is that the context of site and decisions of orientation, which give form and coherence to good buildings, are not factors in the design of most interior spaces. Instead, the limits of the existing container imposes its own set of constraints on the space and these, along with the client's program, form the context from which the design solution emerges. Although the possibilities of site and orientation are eliminated, what is possible in dealing with interior spaces is the interplay of new forms against the existing enclosure. In the process of juxtaposition, another consideration emerges; that of transition between the two. By the very nature of designing a whole building, this richness of layering, of connections and transitions, does not exist. As Gwathmey says, "You just don't think about making this kind of thing when you do a building, but it becomes crucial when dealing with the insertion of the new into the old."

Circulation is, for Gwathmey Siegel, one of the most important structuring devices for the organization of interior spaces and the articulation of its functional aspects. In many ways, their concept of circulation is not unlike a concept of street; it is a separate experience in itself at the same time that it leads one through or by the various other activities. Most obviously, the literal nature of this concept can be seen in the Bower & Gardner offices where the route of passage from the entrance to the partners' offices leads a visitor past glass block interior windows of a conference room and law library, or in the sequence of entry to Shezan Restaurant where the passage steps down several times and reveals a different space opening off to the left each time. When the circulation is not used in such a literal sense, it becomes instead an implicit ordering device for the sequence of activities which take place.

The implication of circulation as street suggests that the interior can conceptually be viewed like an arrangement of buildings on a landscape, a spatial notion which is reinforced by the manner in which the architects organize clusters of space and through the use of such connotive elements as interior windows or glass block walls. The clustering of space and the organizing of activities in this type of concept functions as an element of scale transition between the overall container and the collection of single objects placed within it. A grid of lights hung from the ceiling in the U.S. Steakhouse functions in this manner as do four columns in the large dining room at Shezan.

All photographs: Norman McGrath

The photo (left) of Vidal Sassoon, Chicago, shows the ambiguities present in the reading of the various wall and ceiling planes through the use of reflective, translucent, and clear materials. The effect creates a certain richness in the experience of the various realities.

Another concept employed by the architects to mediate the scale transition from container to object is the notion of cabinet as both wall and object. The ambiguity is intentional. Read as wall, it is seen as part of the container; read as object, it is seen as floating in the space. Either way, it is the ambiguity itself that is the transition device that bridges both scales simultaneously.

Illusions

Still other of their conceptual approaches toward architecture come to bear on the design of interior spaces. "Inside space," explains Gwathmey, "is planar, a slice rather than a volume, and one of the things we attempt to do is create the illusion of space as volume within this slice."

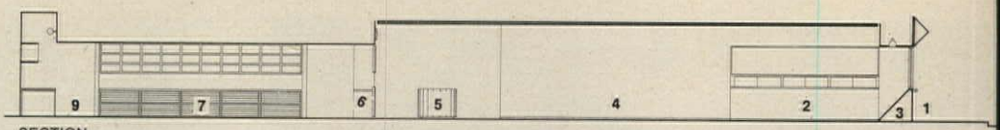
One effort toward this end is the use of reflective polished aluminum ceilings which dissolve the ceiling plane by rendering it as an abstract image of the ambience and activity of the space below. Where it is employed in both Poster Originals and Shezan, the illusion is successful. In the first instance because the images of some 300 posters, are multiplied to the extent that it is no longer a question of one competing with another to be seen, but of a total ambience within which to look at posters. In the second instance, the illusion of space succeeds because the whole restaurant is in a basement, without any reference to the street or to daylight, and therefore the strength of the space lies in how well it can create its own internal ambience.

Light, too, becomes a major design element in interior spaces. When reference to the outside does exist, as it does in some of these projects, the relationship is fixed and, while it cannot be controlled by the architects, the perimeter can be used as a reference point as in the Bower & Gardner offices, with the major circulation space along the Madison Ave. side of the building. When such reference is not possible, as in Shezan, then the lighting is totally within the control of the architect and the creation of an internal ambience is much dependent on the quality of the artificial lighting. At Shezan, perhaps more than any other project, the choice of lighting types and their placement within the space contributes significantly to the success of the restaurant as in internal environment. Light is also used by Gwathmey Siegel in combination with the translucency of glass block to create the illusion of spatial realms beyond, much in the same manner as the Baroque architects created the domains of heaven in the 60-ft diameter of an octagonal dome. It is the suggestion of something beyond, without the hint of the reality that permits the imagination to stir beyond the literal physical imagery or enclosure.

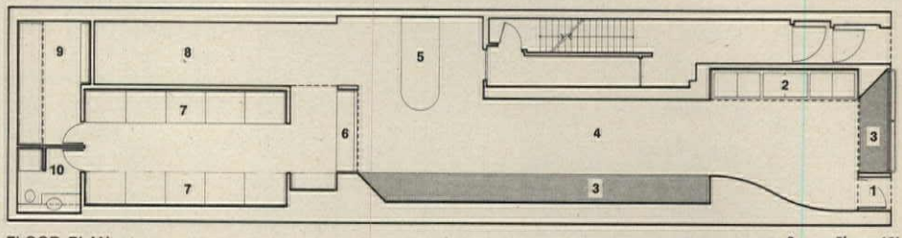
It becomes clear, then, that the differences between these environments and the ivory snow purity of their house architecture is the difference between making illusion and making literal space, but it is not so clearly the difference between architecture and interiors. While in some ways the constraints of working within an existing enclosure are many, the opportunities that can be made of these often result in a far richer sensual experience for the people in it than most architecture has shown itself to be capable of doing today. The literal quality of architectural space is, in some ways, reductive in its resolutions as one tends not to pose more problems than already exist to be solved. The illusions of interior volume, on the other hand, deal with an ambiguity that can be very rich. When well done, an interior can give us some sense of what architecture might aspire to become. [Sharon Lee Ryder]

Other spatial realms

Poster Originals



SECTION



FLOOR PLAN

Legend

1 Entry
2 Foreign poster books
3 Sloped display
4 Permanent American collection gallery
5 Framing table
6 Control desk
7 Files/storage/work display
8 Framed poster display
9 Office
10 Toilet

Poster Originals, a gallery on Madison Ave. in New York City, deals only with posters as art and accommodates a collection of 300 American posters hung on the walls and 450 European posters displayed in large, vinyl-paged books. In addition to functioning as a gallery space, the 1200 sq ft also includes office space, storage, and frame facilities. The linear space is laid out so that nothing overlaps and draws attention away from other things. The European posters are encountered first, set in a mirrored niche on sloping shelves. Along one of the long walls leading to the rear of the space, the American posters are hung, side by side, one above the other. The wall, slightly canted out at the bottom, keeps people a sufficient distance away from the posters and the linearity of the space assures that the viewer moves along taking in one thing at a time. The walls are painted in white, the floor covered in gray carpet, providing as neutral a background as possible for the display of the objects. Here, as in several other of the recently completed spaces, the ceiling is a polished aluminum panel. The abstracted images, reflected in its surface, not only lend a sense of verticality to the otherwise long narrow space but also the multiplicity of images creates a texture against which the real posters are seen.

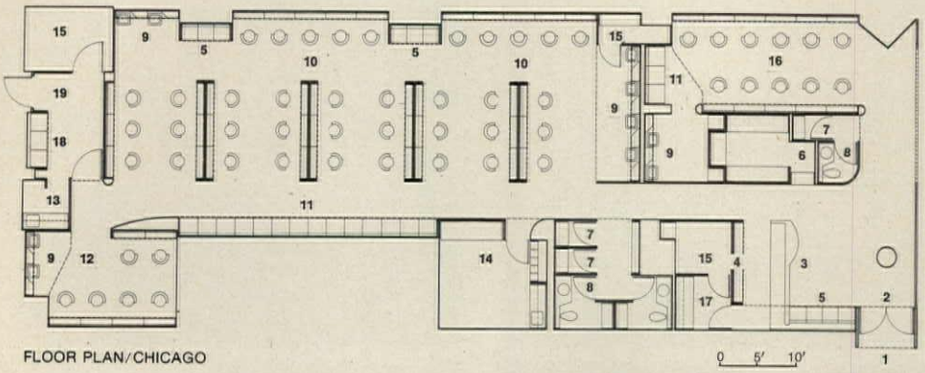
Data
Architects: Gwathmey Siegel Architects.
Major materials: gypsum board, paint, carpet, polished aluminum ceiling panels.
Contractor: All Building Construction Corp.
Cost: $20 sq ft.

All photographs: Norman McGrath

From the front (below) looking toward the framing section (above).

Frames on display (above).

Vidal Sassoon



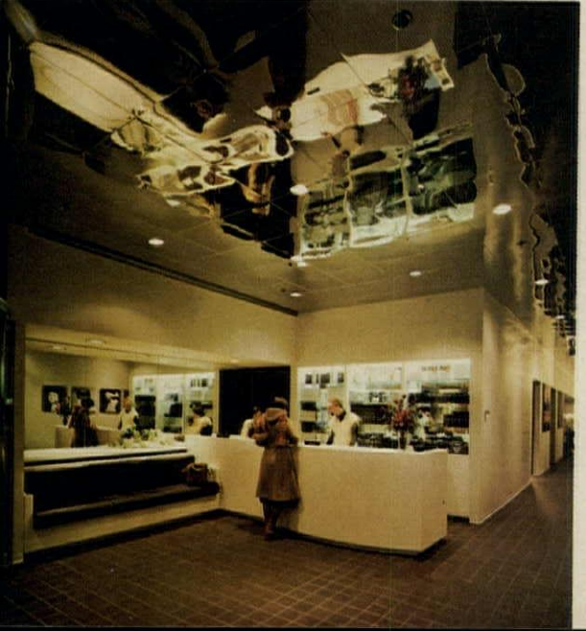
FLOOR PLAN/CHICAGO

Legend
1 Mall
2 Entry
3 Reception
4 Display
5 Waiting
6 Coats
7 Dressing
8 Toilets
9 Washing
10 Cutting (women)
11 Drying
12 Tricology
13 Dispensary
14 Staff room
15 Storage
16 Cutting (men)
17 Manager's office
18 Laundry
19 Service

A series of hair salons for Vidal Sassoon, although in different spaces in different cities, were designed with a consistent palette of materials and colors to establish a unifying image for the chain. Salons range in size from 3500 to 4500 sq ft and accommodate anywhere from 30 to 50 stations with the capability of 1500 to 2000 customers per week. The New York and Chicago salons are large, the Costa Mesa store is one of the smaller ones.

The program was virtually the same for all spaces, with a mix of 75 percent female and 25 percent male. Whatever the individual layout of each space, two basic organizing concepts were employed in all of them. The first was to maintain both the ceiling plane and floor plane as strong, monolithic surfaces. The second was to unify what had traditionally been all the separate, individual cutting stations by grouping them and designing mirrored surfaces and storage containers as continuous elements for each group.

The men's area is not distinguished in any way, except location, from the women's cutting stations; neither is particularly masculine or feminine. With a palette of brown, white, and silver, the space is fairly neutral, taking on the characteristics and color of the objects within it.



All photographs: Norman McGrath

Data
Job captain: Tsun Kin Tam.
Consultants: Thomas Polise, mechanical.
Major materials: vinyl wall covering, quarry tile flooring, polished aluminum ceilings.
Contractor: All Building Construction Corp.
Cost: $50 sq ft.

The three salons shown on these two pages, Chicago (left), New York (right and below, left), and Costa Mesa, California (below, right) all use the same materials to maintain a consistent look, although each, because of differences in the spaces and layouts, can be identified.

Shezan

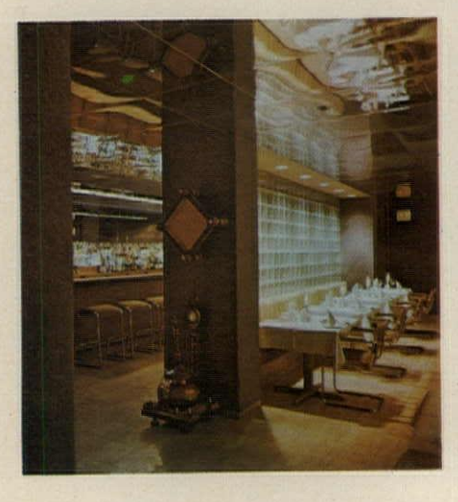
All photographs: Norman McGrath

Small dining area (above), large dining area (below), and bar (below, left)

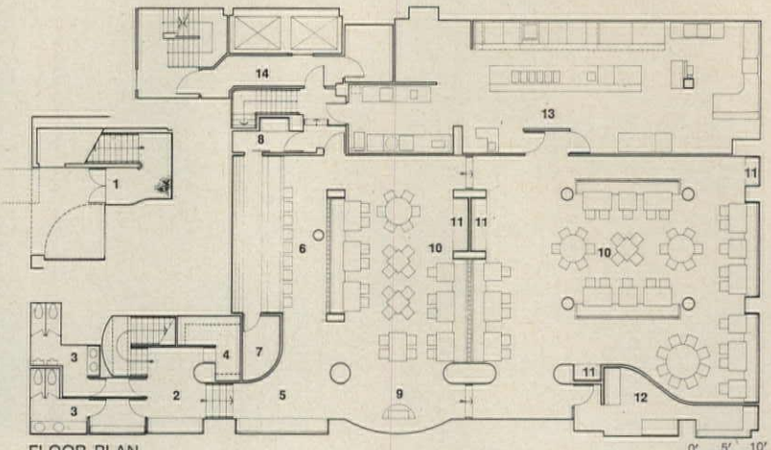
Shezan, in New York City, is the first American expansion of a highly successful, London-based Indian/Pakastani restaurant. Besides providing some of New York's best cuisine of this type, it is one of the few restaurants designed in the modern vernacular which is neither over-decorated, over-lit, over-priced, nor acoustically intolerable. In fact, the experience of dining there is completely sensuous to both the eye and the palette. Faced with a basement space full of assorted-size columns supporting the cinema above, the architects have managed to create such a strong internal world that one is not aware of either the columns or the basement.

But the space does not succeed in convincing the viewer by aggressively assaulting the eye with a barrage of visual sensations. In fact, it succeeds in the opposite way. It is calm, quiet, and subtle—a blending of materials, colors, and lighting that creates an ambience which is more than the sum of the ingredients.

The existing structure of irregularly sized and spaced columns played a major role in organizing the interior of the restaurant. Three separate areas were designed, including a bar, a dining space, and a small dining area to be used for small parties, for overflow crowds from the bar, or simply as part of the regular dining space. The se-



Street entrance



FLOOR PLAN

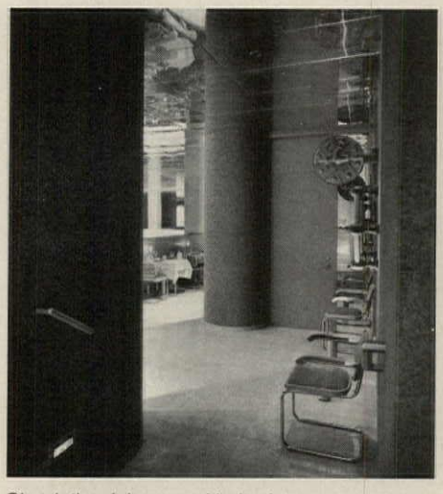
Legend
1 Entry
2 Vestibule
3 Toilets
4 Coat check
5 Lounge
6 Bar
7 Bar storage
8 Bar service
9 Reception
10 Dining
11 Service station
12 Office
13 Kitchen
14 Service

quence of entry from the street leads one down a flight of stairs and around a rather tight turn to an area containing the coat-room and restrooms. At this point, the circulation into the restaurant is pulled over to the perimeter wall and one proceeds down several stairs and along a linear "promenade" off which the three spaces open; the bar first, the small dining space second, and finally the large dining space at the rear.

Several of the large columns define the edge of the linear circulation, four in a square define an inner space in the large dining room, and the remaining odd-sized and unaligned columns are neatly enclosed in the two walls which divide the three spaces and which are also used for service storage. The translucent glass block walls, which visually separate the spaces, also transmit light and movement, a suggestion of things beyond without a literalness that limits the imagination.

Other materials and surfaces are used to the same ends. The rear wall of the large dining room is mirrored at a height that does not reflect the image of the viewer, but multiplies, instead, the activity and ambience of the room. The perforated aluminum ceiling panels act in the same manner, dissolving that dimension of the room completely so that one is not aware of the bounds of the space.

The success of the restaurant, of course, will depend largely on the quality of its cuisine and, to this end, as long as the interior "works," it will contribute to this success. But at Shezan, that line is not very clear. The quality of the interior is such an integral part of the experience of the place that it can also take a great deal of credit for the success of the restaurant.



Circulation (above and below)

Glass mirror reflecting entrance

All photographs: Norman McGrath

Data
Job captain: David Murphy.
Consultants: Thomas Polise, mechanical; Harry Skolodz, kitchen consultant.
Major materials: acoustical carpet on walls, marble floors, polished aluminum ceiling.
Contractor: All Building Construction Corp.
Cost: $75 sq ft.

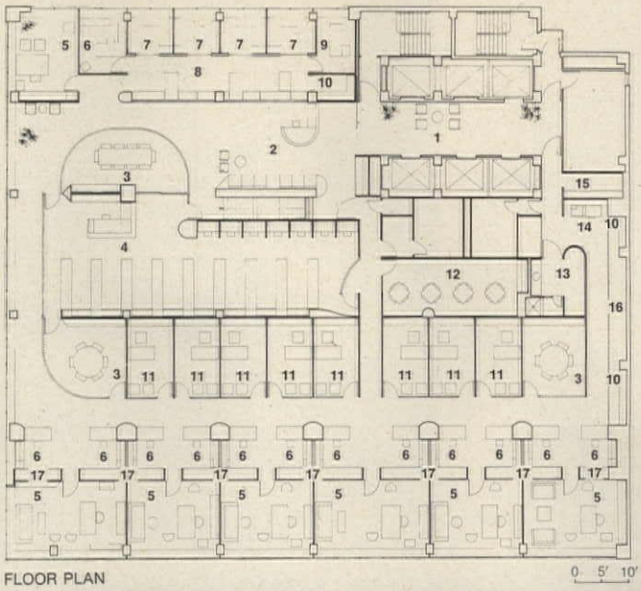
Bower & Gardner

One of the first things said about the Bower & Gardner law offices by the architects was the fact that they had convinced all of the partners to locate their private offices along the window wall on the side street of the building and leave the Madison Ave. side free for the view. The purpose here was to establish a reference point to the outside for people getting off the elevator or those working in the interior spaces. "In fact," says Siegel, "by the time you walk the length of the passage to the windows, turn the corner, walk past the glass-walled conference room and turn another corner to reach the partners' offices, you feel like you are going to visit the King of England."

It makes for an interesting sort of hierarchy, one that is not very typical of any office, and certainly not typical for most law offices. But there is a clearly established order in the working portion of the offices, once past the generosity of the entry. The partners' offices are laid out in the existing bay sizes of the building and, as a consequence, vary some in size. The interior wall running parallel to the street is glazed at the top so that daylight penetrates into the space beyond. This space is given over to two activities—circulation and secretarial—and is somewhat differentiated by a row of columns which run down the middle of the space. On the other side of the circulation space are offices for the junior members, each of whom works directly with one of the senior partners. The remaining portions of the interior space comprise a lunch room, library, three conference spaces, and other support facilities.

A second objective, which the architects feel they were successful in achieving, was keeping the clutter of legal files in check. By decentralizing the file storage, each secretary is responsible for a partner's files, and by making it next to impossible for the secretary to work (through lack of space) if the file drawer is open, the architects assured that they would almost always be closed.

Again, in these offices, the organization of the spaces and the materials used stem from similar conceptual ideas found in other Gwathmey Siegel interiors. The circulation is seen as a street off which various activities are located. The large conference room, although really an interior space, isn't perceived as one because the glass block wall transmits light and movement from the passage, and the use of these interior windows, both here and in the library, strengthen the notion of the circulation as street. Here, too, as in other offices designed by the firm (P/A June 1955, p. 68) the elevator lobby is incorporated into the reception area to give an even more generous sense of openness as one enters the offices. All in all, it is probably the least interesting visually of the recently completed interiors done by the firm. But then, it is by far the most pragmatic of all



FLOOR PLAN

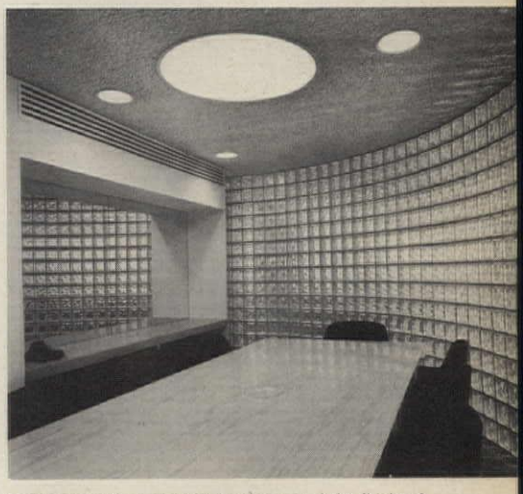
0 5' 10'

Legend

1 Elevators/lobby
2 Reception
3 Conference room
4 Library
5 Partner's office
6 Partner's secretary
7 Accounting
8 Secretaries
9 Computer
10 Storage
11 Associate's office
12 Lunch room
13 Executive shower
14 Copier
15 Coat room
16 Telephone equipment
17 File storage

Glass block enclosed conference area

Corridor along Madison Avenue



Corridor with secretarial areas on right (below)

the programs and, compared with the other extremes of office design ranging from pretentious to banal, it sits firmly in the middle, not making an issue of itself while supporting the activities that must be carried on.

Data
Job captain: Peter Szilagyi.
Major materials: Gypsum board, vinyl wall coverings, carpet, acoustical tile ceilings.
Contractor: Rudin Management.
Cost: $22 sq ft.

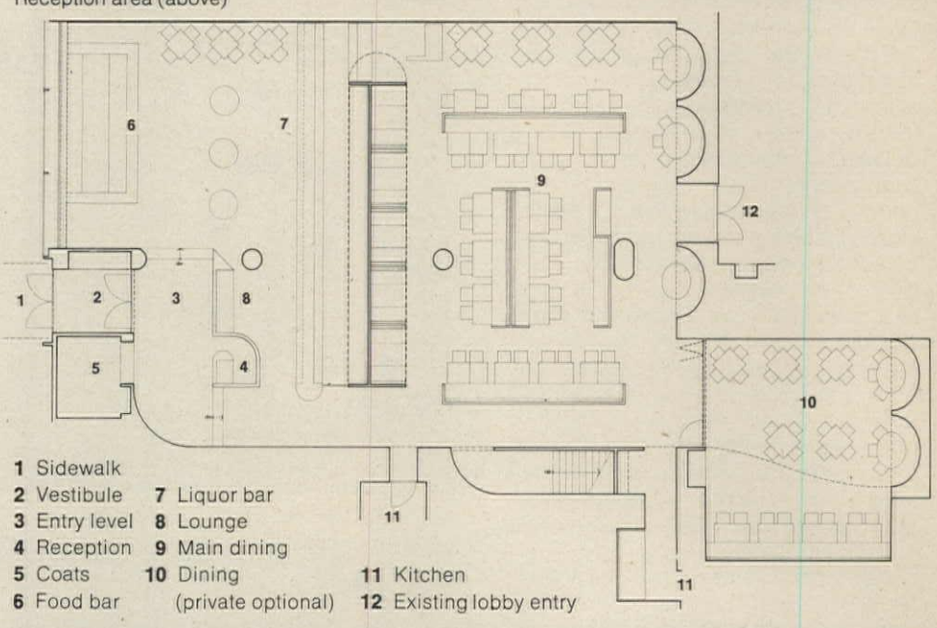
Reception area (above)

U.S. Steakhouse

The U.S. Steakhouse is the latest successor of the space once occupied by La Fonda del Sol and is precisely what both the name and its graphic logo, by designer George Lois, suggest. The restaurant was intended to provide two types of food service; fast food and drink at the bar and more formal service in the large dining room, as well as in a small private room.

The restaurant is entered from both the street and the lobby of the office building, so that two control points had to be established. A coatroom/cabinet defines the front foyer space and separates the circulation from the bar space located on the street side by the glass windows. At the lobby entry, a free-standing service station separates the entry space from the dining area behind it.

The major organizing element of the entire space is the bar itself which on one side stores and dispenses liquor to those seated at stools and tables while, on the other side, it becomes a series of banquettes for the formal dining area. Al-



1 Sidewalk
2 Vestibule
3 Entry level
4 Reception
5 Coats
6 Food bar
7 Liquor bar
8 Lounge
9 Main dining
10 Dining (private optional)
11 Kitchen
12 Existing lobby entry

All photographs: Norman McGrath

though it reaches from floor to ceiling, it touches neither wall so the space moves freely around it. It is another of the ambiguous pieces of large scale "furniture" which functions both as wall and as object. As if to deliberately reinforce its object qualities, designer Lois gave us a mom and apple pie reminder of what steak represents to the American mouth in his red, white, and blue graphics on the bar.

Being a ground-floor space in a fairly new office building, the ceiling height was so generous that, for a restaurant, the space was anything but intimate. Given the realities of budget restrictions, it was not possible to change the ceiling height. Instead, by hanging a grid of lights several feet from the ceiling plane, another lower plane was established visually. In many ways, perhaps, this was a better solution: what was created was an illusion instead of a hard reality; the space is both vast and somewhat intimate at the same time.

Even though the space does do some things well and although it is a totally different type of eating establishment from Shezan, one cannot help making comparisons. In this regard it must be said that if one must eat steak, it would certainly be nicer to do so in a place like Shezan.

Data
Job captain: Gustav Rosenlof.
Major materials: gypsum board, wood, mirror, stained oak floors, acoustical tile ceiling.
Contractor: All Building Construction Corp.
Cost: $30 sq ft.

Graphics by George Lois (left and right) are the only colors used in the U.S. Steakhouse. Both the bar and dining areas have a natural oak floor and banquettes, mirror strips, gray walls and white lighting fixtures.


1
FABRICS for INTERIORS
Jack Lenor Larsen/Jeanne Weeks
2
3
ARCHITECTURAL PRESENTATION TECHNIQUES
William Wilson Atkin
Architectural Rendering
THE TECHNIQUES OF CONTEMPORARY PRESENTATION
ALBERT O. HALSE
THE AUTONOMOUS HOUSE
DESIGN AND PLANNING FOR SELF-SUFFICIENCY
4
DEPRESSION MODERN
THE THIRTIES STYLE IN AMERICA
5
COLOR FOR ARCHITECTURE
6
The Failure of Modern Architecture
INTERIOR LIGHTING
for Environmental Designers JAMES L. NUCKOLLS
12
DRAWING FILE
for architects, illustrators and designers
MARC SZABO
8
HOUSING
MACSAI
HOLLAND
NACHMAN
YACKER
7
DESIGNER'S GUIDE TO
OSHA
A Practical Design Guide to the Occupational Safety and Health Act for Architects, Engineers, and Builders
PETER S. HOFF
13
17
9
TREES
in ARCHITECTURE and the LANDSCAPE
19
Apartments Townhouses & Condominiums
APARTMENTS, TOWNHOUSES, AND CONDOMINIUMS
Frank Lloyd Wright's Usonian Houses
THE CASE FOR ORGANIC ARCHITECTURE
BY JOHN SERGEANT
11
14
ARCHITECTURAL GRAPHICS
21
OFFICE BUILDING DESIGN
16
15
10

P/A Book Store

Each book has been selected for it's usefulness to you in your professional practice.
It is not necessary to send payment with the order. Circle appropriate numbers on the Reader Service Cards in the back of this issue, add your name and address and mail.

For faster service, send the card in an envelope to:

Mrs. Eleanor Dwyer
Progressive Architecture,
600 Summer Street,
Stamford, Ct. 06904

P/A Back issues

A limited supply of the following issues of P/A are available at $3.00 per Copy:

January..... 24th annual P/A Awards
December.... Education/Participatory/Girard/Concrete Masonry
October..... Middle East/The Silvers
September... Health Care/Isozaki
August..... Houses/Foam in Furniture, Reprodrafting
July ..... Federal Architecture
June..... Glass/Factories

Send both to:

Mrs. Eleanor Dwyer
Progressive Architecture
600 Summer Street
Stamford, Ct. 06904

1 Fabrics for Interiors

By Jack Larsen and Jeanne Weeks,
208 pp., illus., . . . $14.95

Completely geared to current trends, this book can make the difference between costly mistakes and successful, personalized interiors. It explains functions and requirements of fabrics for windows, furniture, walls and ceilings.
Circle B601 under Books.

2 Marinas: A Working Guide to Their Development and Design

By Donald W. Adie,
336 pp., illus., . . . $39.95

Boating occupies an increasingly important position in the major growth industry of leisure. Because boating involves vast expenditures, and the need to conserve and use water resources wisely, these facilities demand high expertise in planning and design, which this up-to-date guide provides.
Circle B602 under Books.

3 Architectural Presentation Techniques

By William W. Atkin,
196 pp., illus., . . . $15.95

This book includes presentations ranging from simple sketches in pencil and pen-and-ink to elaborate drawings, photographs, slide presentations and various combinations of media achieved with overlays, camera techniques and modern reproduction methods.
Circle B603 under Books.

4 The Autonomous House

By Brenda and Robert Vale,
224 pp., illus., . . . $10.00

Two architects offer practical solutions to the design of a house that operates independently within its environment. This "Autonomous House" is not linked to utility lines for gas, electricity, water, or drainage; but instead uses the energy of sun, wind and rain to service itself and process its waste.
Circle B604 under Books.

5 Architectural Rendering The Techniques of Contemporary Presentation

By Albert O. Halse, 326 pp.,
illus., 2nd edition, 1972 . . . $26.50

This completely up-dated revision of the most widely used guide to architectural rendering covers all working phases from pencil strokes to finished product — and shows how to obtain the desired mood, perspective, light and color effects, select proper equipment and work in different media.
Circle B605 under Books.

6 Color for Architecture

By Tom Porter and Byron Mikellides,
150 pp., illus., . . . $20.00

This book makes a detailed plea for a greater use of color in the built environment, both for aesthetic appeal and on the grounds of human requirements. Studies of the nature of color are presented against a color chart which is of practical use to architects and environmental designers.
Circle B606 under Books.

7 Housing

By Macsai, Holland, Nachman,
Yacker, 483 pp., illus., . . . $30.00

This book on the subject of multiple housing serves as a refresher course for the architect, a handbook for the novice, a reference book for the student, a course guide for the professor and as background for the housing official.
Circle B607 under Books.

8 Depression Modern

By Martin Greif,
192 pp., illus., . . . $15.00

Focusing on the period between 1934 and 1940, the author shows that a relatively small group of young, brilliant, energetic designers created for the first time a national style that was uniquely American. In five years this style changed the shape of virtually everything in the American home, including the home itself.
Circle B608 under Books.

9 Interior Lighting

By James Nuckolls,
371 pp., illus., . . . $22.00

In this book technical information is directed to the designer who needs to know *why* lighting is applied, as well as *how* to do it. The text is not meant to replace engineering references but rather to augment them for the designer who works with the art as well as the science of lighting.
Circle B609 under Books.

10 Apartments, Townhouses, And Condominiums

Edited by Elisabeth Kendall Thompson,
228 pp., illus., . . $18.50

This heavily illustrated volume takes into consideration a number of new criteria in its examination of both low- and high-rise buildings, as well as townhouses. In-depth coverage of garden complexes on suburban sites, designing for low and moderate income groups, conversions, large scale developments, apartments and condominiums for resort areas, and interiors round out this useful, up-to-date volume.
Circle B610 Under Books

11 Frank Lloyd Wright's Usonian Houses

by John Sergeant,
207 pp., illus., . . . $24.50

In this well-illustrated and thoroughly documented book, the late period of Wright's prolific career is reassessed and his philosophy of building with nature rather than against it is analyzed. Wright's Usonian houses, his Taliesin working communities and his plan for Broadacre City has a new relevance as energy conservation and ecological integrity have become the dominant concerns of the environmental design professions.
Circle B611 Under Books

12 Designer's Guide to OSHA

By Peter S. Hopf, A.I.A.,
288 pp., illus., . . . $19.50

This practical volume translates OSHA's tens of thousands of words into easy-to-use drawings, diagrams, charts and graphs. With OSHA violations increasing, engineers obviously need a working guide to compliance with government job safety and health standards. This book fills that need. All material is presented in the same sequence as the OSHA regulations are written.
Circle B612 under Books.

13 The Failure of Modern Architecture

By Brent C. Brolin,
128 pp., illus., . . . $11.95

The author, a practicing architect, demonstrates how modernism in architecture is rooted in outmoded and invalid 19th-century principles. He proposes an architecture in which buildings fit into — rather than stand apart from — their surroundings and users' lives.
Circle B613 under Books.

14 Energy and Form

By Ralph L. Knowles,
198 pp., illus., . . . $27.50

This is a scholarly, theoretical book, a major work that will be used for years to come. The projects described concentrate on reducing environmental problems in individual or groups of buildings by controlling shape and structure, scale and surface, volume ratio, location and orientation, isolation and insulation.

Pubisher will bill you direct before shipping any book.
Circle B614 under Books.

15 Office Building Design

288 pp., illus., . . . $21.50

This thoroughly revised edition of a popular *Architectural Record* book offers the most up-to-date coverage available on low- and medium-rise office buildings, high-rise office buildings, high-rise technology, and selected office building interiors.
Circle B615 Under Books

16 Building without Barriers for the Disabled

by Sarah P. Harkness and
James N. Groom, Jr.,
79 pp., illus., . . . $10.95

Through pictures and text this book explains the reasons behind architectural requirements for the physically handicapped so that those responsible for designing educational institutions, libraries, office and apartment buildings, as well as airports and other terminals can use their best judgment in making design decisions.
Circle B616 Under Books

17 Drawing File for architects, illustrators and designers

by Marc Szabo
251 pp., illus., . . . $12.50

This book provides over 200 pages of figures — in the most common and natural positions, activities, and types of wearing apparel, as well as dozens of drawings of boats and cars, all of which can be copied freely — by direct tracing, photostats, or photocoping machine. The pages tear out easily to form an easily accessible fingertip scrap file.
Circle B617 under Books.

18 Rendering With Pen And Ink

By Robert W. Gill,
368 pp., illus., . . . $7.50

This paper-back edition is a copiously illustrated guide to the techniques and methods of rendering, including sections on perspective, projection, shadow, reflections, and how to draw cars, ships, aircraft, trees, and human figures. The author also describes the very wide range of instruments and equipment currently in use.
Circle B618 under Books.

19 Trees

By Robert L. Zion,
168 pp., illus., . . . $12.95

An inexpensive paperback version of the book with virtually everything you want to know about using trees to complement the buildings you design. Both aesthetic and practical considerations are given, including tree characteristics, as well as cost considerations, planting, maintenance, rate of growth, and city and seashore recommendations.
Circle B619 under Books.

20 Building Construction Illustrated

By Frank Ching,
320 pp., illus., . . . $17.95

Charmingly hand-lettered by the author, this book presents step-by-step techniques in residential and light construction. Containing over 1,000 drawings, it covers materials, finishes, fastenings, posts, trusses, slabs, wood joists, light steel/aluminum, structural calculations, planning and site work, cost estimating, and construction sequencing.
Circle B620 under Books.

21 Architectural Graphics

By Frank Ching,
128 pp., illus., . . . $9.95

This book presents graphic techniques available for conveying architectural ideas. Included is know-how on equipment and materials; drafting; architectural conventions for orthographic, paraline and perspective drawings; devices for rendering tonal/textural values and context; graphic symbols and lettering; free-hand sketching and diagramming; and effective presentation of design proposals.
Circle B621 under Books.

22 Hotels, Motels and Condominiums

by Fred Lawson,
238 pp., illus., . . . $39.50

This is a book on design, planning and maintenance. It is an exhaustive, international survey with hundreds of on-site illustrations and examples. A must for all architects, engineers, owners, developers and financiers worldwide.
Circle B622 Under Books

23 Specifications: An Introduction for Architecture and Engineering

By Chesley Ayers,
448 pp., . . . $13.50

This is a comprehensive introduction to the field of architectural and engineering specification writing which has, in previous editions, established itself as a leading reference work. The entire field, and every phase of the specification writer's work, is thoroughly covered, including legal citations by name and number, industrial specifications, value engineering, computerized specifications, and government safety regulations.
Circle B623 Under Books

Now, the little rascals are much easier to detect

Simply, economically. The new CS-M19 pivot looks like standard ¾" offset door hardware, but offers much more.

Open the door, even a fraction, and the device can trigger a silent signal to apprehend intruders . . . or activate an audible alarm. One of those common Phillip head screws actually permits alarm point adjustment without door removal. Low voltage class II wiring is fully concealed in the door frame.

Perhaps no other device offers comparable security, at comparable cost.

Ask the door control specialists:

RIXSON-FIREMARK

ARCHITECTURAL AND
FIRE/LIFE SAFETY PRODUCTS

9100 West Belmont Ave., Franklin Park, Illinois 60131
Circle No. 361, on Reader Service Card

A SUBSIDIARY OF
CONRAC
CORPORATION

Specifications and drawings have equal billing

Josephine H. Drummond

Specifications no longer take priority over drawings. In order to minimize discrepancies between the two, the writer suggests strict adherence to rules of what information goes on drawings, what goes in specs.

Discrepancies between drawings and specifications are one of the most difficult occurrences to explain to clients, because clients view the architect as one person, whether he literally be one person or a firm of 200. Unaware of the tremendous complexity of a set of contract documents, clients cannot understand why the architect says something in one place and something else somewhere else. To them it just does not make sense.

The catchall concept that specifications take precedence over drawings has been eliminated in the new AIA Document A-201, General Conditions of the Contract for Construction, Thirteenth Edition, dated August 1976. These new General Conditions provide equal weight to each of the several contract documents. The AIA proposes that inconsistencies or omissions will be brought to the architect's attention, and that the contractor is not required to absorb the cost of such discrepancies. This development should serve to remind us of the importance of coordination of our documents, and of taking every precaution to minimize discrepancies and omissions. One way to reduce the likelihood of mistakes is to observe strictly the basic rule of what goes on drawings and what belongs in the specs. As soon as the rule is relaxed for expediency, simplicity, or to meet deadlines, the chances of error increase.

To refresh our memories, the drawings illustrate the extent, size, shape, and generic types of materials, and the relationship between materials. The specifications describe the quality, method of construction, and installation, as well as contractual and administrative requirements. The terms used on drawings to describe materials should be identical to the generic description used in the specs, and the more general the terms can be, the less is the chance of error.

Author: Josephine H. Drummond, CSI is Specifications Writer/Construction Administrator, Gruen Associates, Los Angeles, Calif.

For example, sheet metal gauges should go one place only, preferably the specs where material options will be handled which affect the gauges. Drawings should show "metal flashing" and the specs define the meaning of metal flashing. In this way, the chance of discrepancy is eliminated, the draftsman concerns himself with the shape and arrangement of the flashing, and need not be involved with what it is made of or how heavy it is.

Contradictions are most likely to arise when nontypical conditions exist. Suppose on a given project that all interior hollow metal doors are to be 18 gauge, except for two that are oversized; all exterior are to be 16 gauge and galvanized, except one that is oversized; and one door is in a protected location and does not need galvanizing. If we try to describe the above conditions in specs, the results will be a confused jumble. It would be much better to put the gauges of the special doors on the drawings, together with a note "no galvanizing" by the one door. Specs can then say "all interior doors shall be 18 gauge steel, all exterior doors shall be 16 gauge and galvanized, except as otherwise noted." There is no chance for inconsistency, and if the drawings are carefully noted, there is no error either.

Blanket clauses can be used on the specs, and while these can be helpful, they can also be otherwise. A sentence, such as "partitions shall be constructed of ⅝-inch-thick gypsum wallboard, except as otherwise specifically indicated" may guard against thin drywall, but it may also cause an error if a fire-rated wall requiring two layers of wallboard was not so noted.

The effectiveness of blanket clauses can be negated by the use of the phrase "except as otherwise indicated." The specifications say "all sheet metal shall be stainless steel, except as otherwise indicated." Drawings show, by means of a decal copied from somewhere else, a galvanized steel coping. If th conflict is not detected in checking or bidding, the resolution during construction will be difficult. Blanket clauses serve a good purpose, but they should be carefully checked against the project conditions.

Trade names on drawings are a major source of difficulty. If substitutions of manufacturers occur and are approved, the drawing notes are meaningless. Even without substitutions for the specific item named on the drawings, the concept of equivalents for other products becomes unclear. The most carefully written requirements for approvals of equivalent products can be negated by a conflict in trade-names between drawings and specifications.

Building Departments frequently require basic structural specification information to be on the drawings. This is a prime target for error. One person should either write both the general notes and the specs or should ascertain that they both say the same thing.

Inconsistencies in terminology create many problems. If a project has, for instance, operable walls, folding doors, and movable partitions, it is essential that descriptions be consistent.

Omissions, discrepancies, inconsistencies are all best avoided by careful adherence to the basic rule. If this is firmly established as office policy, most of these problems will not occur. To eliminate the others, the project schedule should be set up to allow time for a systematic review of the drawings and specs, preferably by a person who has not been involved with their production. □

Technics: metal roofing

A birds-eye view

State Capitol, Phoenix

Design a roof right and it won't leak or blow away. Add aesthetics and it is a valued ornament. These twin goals of utility and beauty are reached by many paths. Here's a broad look at the metals used for roofing.

If metal roofs gave only long-lasting protection from the elements, as they have for centuries, that would be reason enough for architectural interest. But there's more to be said about them.

Their attractive natural colors, some of which—like copper's—age so gracefully, along with the palette of durable coatings developed by technology to dress them, the variety of panel profiles and seam patterns, and the ease with which they can usually be contoured, offer rich opportunities for creating visual drama.

Ancient lead roofs are still in service; for example, the 1400-year-old roof on Hagia Sofia. A 200-year-old terne roof is still in service over Yale University's Faculty Club. Copper, too, has a long and honorable history. Now, in addition to these long-available materials, architects may choose from a long list, made up of both simple metals and alloys and of composites, in which the surface metal contributes protection and good looks, and the substrate economy, strength, or lightness. In a similar way, paints and organic coatings enlarge the available color spectrum and also provide protection.

It's good to know that available options give architects almost unlimited aesthetic freedom. Nevertheless, long years of trouble-free service must be a primary concern when designing a roof. Although some types of roofing material may seem nearly indestructible (none is), or at least give promise of lasting as long as the buildings they cover, their performance is tied closely to proper design and maintenance and respectful attention to their suitability for particular environments. It has been stated that ordinary metal may deteriorate three times as fast when used for roofing as when used for walls. The angle of solar radiation and the bombardment by rain and hail put greater stresses on the material. Further, where water can accumulate on the roof, corrosive chemical compounds from dust and other atmospheric contaminants may be damaging. Therefore the architect is probably wise, after consultation with the suppliers of the metal roofing and protective coating materials, to carefully spell out his requirements in performance specifications.

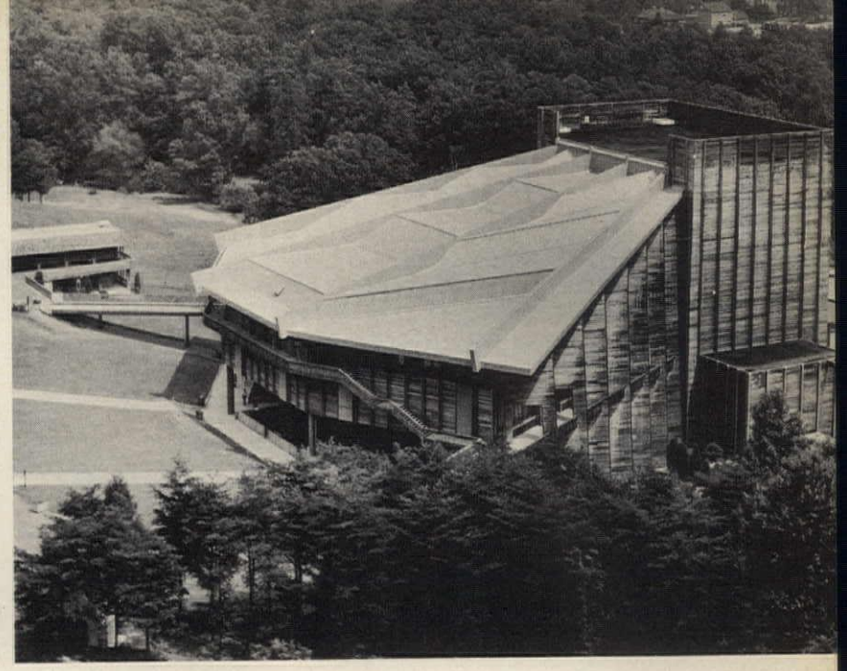
Although each metal has its own corrosion characteristics, there are certain problems common to all. When two dissimilar metals are in direct contact and moisture is present there is danger of serious galvanic corrosion. If the design calls for using dissimilar metals this way, their contact surfaces should be insulated from each other with bituminous paint or a similar material. Some metals are corroded by the alkalis in mortar and concrete, and they too must be protected. Care should be taken in all cases to specify fasteners that are compatible with the roofing metal. When it is not advisable to nail or screw through the metal, cleats should be used for attachment; these are made of the same material as the roofing metal.

A sometimes overlooked problem is the effect of wet insulation on metal roofing. This may be the result of poor storage of insulation on the site or from a leaky roof. Some insulation is treated with calcium chloride as a fire retardant. This can leach out and be deposited on the underside of the roofing panel, since the vapor barrier prevents the moisture's escape into the building. As the chlorides become concentrated over a period of time, they attack the metal; paradoxically, this may be especially harmful to metals protected by very resistive films if pinholes are present.

The forms in which metal roofing material are available include sheet (plain, ribbed, corrugated), roll, tile, shingle, sandwich panel, and membrane roll with metal sheathing. Surfaces may be plain or textured, dull or shiny, and coated or uncoated, with coating applied in the field or preapplied in the factory. Panels and other roofing components are usually joined by mechanical seams or by soldering or welding. Many materials come with the panel edges preformed in the factory or fabricating shop. The edges are meshed on the roof, mechanically locked by crimping, if necessary, with or without sealant or gasketing, and capped if a batten seam is called for. The seams in softer metals are usually formed by the roofers themselves.

In the thicknesses that architectural roofing metals are usually used, they are easy to work, cut, and form, therefore lend themselves to difficult as well as standard contours. So we see them not only on conventional flat, gable,

Robin Hood Dell West, Philadelphia



Filene Center, Wolf Trap Farm, Vienna, Va.

Copper dome of re-roofed Arizona Capitol is protected by clear, waterproof PVC film. Box seams impart heavy shadow lines and hide wiring for festoon lighting installation. Remainder of roof is unclad copper, which will patinate to velvety brown. Architects: Gerald A. Boyle & Associates.

Two ways of making visual music: At the Dell, terne-coated stainless sheets lend themselves to dramatic shape of the shed. Fastened to plywood substrate with cleats, they provide unbroken, weatherproof, trouble-free surface, which will weather to terne gray. Roof of Filene open-air pavilion has 1200 sheets of aluminum, prefinished in sand-colored enamel, laid over slanting, wooden deck sections. Batten roof system diverts rain runoff. Architects for both projects: MacFayden and Devido.

In church and community center (right), copper solar panels double as roof for daycare school/Sunday school. Architect: Jeffrey K. Abrams.

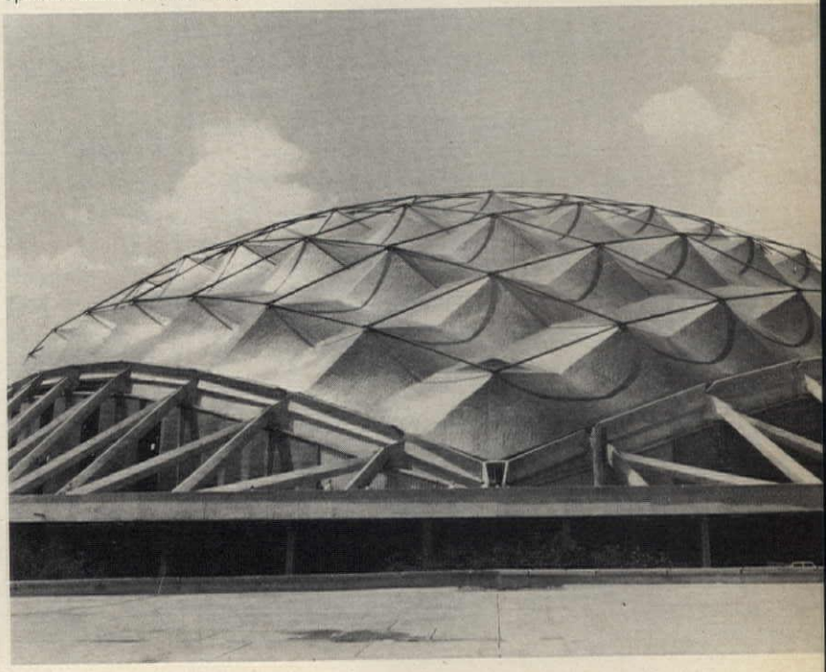
Soaring lines of batten seams suggest function of airport passenger terminal building. Roof, 25-gauge galvanized coated with bronze-color fluoropolymer, must resist rigors of Duluth weather: —150F temperature range, seaport winds, salt air. Architect: Architectural Resources, Inc.

The 121 pyramids on 4½-acre roof of Sports Palace echo nearby Aztec pyramids. Copper's workability made them easy to form, says architect Felix Candela. Roof was cleaned, then lacquered to protect brilliance.

Christian Reformed Church, Denver

Sports Palace, Mexico City

Municipal Airport, Duluth



gambrel, shed, hipped, and mansard roofs, but also on unusual, free-form roofs. They may be applied over solid decking or laid, with proper regard to mechanical properties and strength requirements, over bare skeletal elements (with insulation applied to the underside, if required). The gauges that are used depend on the strength and rigidity of the individual metals and the distances between supports. Lighter metals may permit lighter roof framing, which in turn may permit the architect a wider range of roofing configurations and other design freedoms.

The following samplings of roofing metal characteristics are based on material in *Architectural Sheet Metal,* published by the Sheet Metal and Air Conditioning Contractors National Association, and on information from manufacturers, fabricators, and trade associations.

Lead

Lead on exposed roof surfaces develops a soft gray patina over the years. It is extremely workable and conforms to the surfaces on which it is applied. It has great resistance to atmospheric corrosion and does not stain adjacent surfaces, but it does react with uncured concrete and mortar if not protected by a bituminous or similar coating. Because of its low tensile strength (4100 psi), roughness and projections on underlying surfaces must be eliminated. Design must make allowances for its high thermal expansion rate. Seams are made by soldering or fusion.

Lead sheet is generally specified in pounds per square foot. This is easily converted to inch fractions, since 1 lb/sq ft is equivalent to $\frac{1}{64}$"; thus 4 lb lead is $\frac{1}{16}$" thick. Architectural lead is available in rolls up to 8' wide by 20' long. It may be painted.

Specification reference: Federal Spec. QQ-L-201f.

Copper

Copper is one of the roofing metals that forms a weathered coating which resists corrosion, eliminating the need for painting. (It also is not corroded by masonry, concrete, or stucco when flashed or embedded in these materials.)

The bright red-gold natural color of copper gradually oxidizes to brown shades (statuary finishes) and finally to blue-green and gray-green shades (patinas) when exposed to weather. It normally takes five to ten years to reach the green stage, but it may never happen in very dry climates. If desired, the weathering may be stabilized at brown by periodically wiping the metal with a protective coat of linseed, crude, or paraffin oil. The runoff of rain and snow from oxidized copper may stain adjacent light surfaces.

Ductile and malleable, copper is among the easiest of roofing metals to form into special contours in the shop or field. It is also among the easiest to solder, assuring waterproof seams at transitions from one plane to another. Being malleable, it also makes easy the formation of dry-lock mechanical seams, such as standing and batten seams.

Roofing copper is normally available in sheet 36" wide by 96" or 120" long, but when applied in long sheets the surface may show waviness. Thickness is usually expressed in ounces per square foot; thus 16-oz copper, which weighs 20 oz/sq ft, is .0216" thick.

The most frequently used copper roofing sheet is Type 110 cold rolled. It is less malleable than soft copper (which is used for very intricate contours) but is much stronger, and therefore much less prone to buckling or "oil canning" due to expansion and contraction.

Among the newer developments are: "Tough 12," a high-strength 12-oz sheet, which matches the performance of cold-rolled 16-oz copper but weighs 25 percent less; a laminated roofing system consisting of 8-oz copper bonded to 4'x8' plywood panels, plus copper battens; and sheet with a lamination of clear film, which protects the metal's natural color. Copper panels are also doing double duty as both roof elements and solar collector panels in sun-heated building systems.

Specification references: ASTM B370, ASTM B152.

Terne

This is the material old-time "tin roofs" were made of. It saw its heyday as a premium roofing material in the 18th and 19th Centuries, and now has come back in recent years, because of the availability of seamless terne in 50-ft rolls. It is a copper steel, coated on both sides with an alloy of 80 percent lead and 20 percent tin. The lead confers several benefits. It makes the terne very receptive to paint, giving the architect the whole color spectrum to choose from. It smears over cuts and scratches, thus tends to seal the base steel. It makes the material very easy to solder.

Terne roof should be painted. With proper painting and maintenance, its life expectancy may be measured in hundreds of years. It should be primed on both sides before installation and painted soon thereafter; a paint with at least 40 percent linseed oil is recommended for tenacity.

Terne is one of the lightest roofing metals, it is strong—about 45,000 psi—and has a low coefficient of expansion, so requires relatively few expansion seams. It is malleable, so conforms easily to a wide range of shapes and forms, including the batten and standing seams which add visual interest to a roof.

Contact with aluminum, copper, or acidic materials should be avoided, and the roof should be designed so that surfaces drain freely. Nails should not be driven through the material.

The lead-tin coating weight is generally 20 or 40 lb. This refers to the total weight of the alloy on both sides of 112 sheets 20"x28", known as a double base box, and is equivalent to .047 and .092 lb/sq ft of coating.

The material is available in rolls 14", 20", 24" and 28" wide by up to 50' long; in cut sheets 20", 24", and 28" wide by 96" and 120" long, and in 20"x28" and 14"x20" sheets. Applied in large sheets, it may show waviness.

Specifications reference: ASTM A308.

Galvanized steel

Galvanized is economical, easy to work, and easy to join in the shop and field. It is carbon steel with a coating of zinc on both sides, applied by either hot-dipping or electroplating. While the zinc provides long protection, galvanized steel is often pre-painted or painted after weathering, for appearance and additional protection. It may be used in direct contact with concrete and masonry, but must be insulated if used with copper. It requires similar bituminous protection from the acids in redwood and red cedar. It should not be used in severely corrosive environments.

The zinc protects the steel by acting as a physical barrier and as a galvanic sacrifice. Since it is more active electrochemically than iron, it sacrifices itself in favor of the base metal at coating discontinuities such as sheared edges. Eventually the barrier protection fails, because the corrosion products that form on the zinc are soluble in rain and dew, which are slightly acidic; the surface gradually washes away. Therefore, the duration of protection depends both on the initial thickness of the zinc coating and the severity of the environment.

Galvanized is available in various gauges and with different coating thicknesses or weights. The given weight is divided by two to obtain the weight of zinc on each face. G-90 coated sheet (1.25-oz zinc) is used in most architectural applications. Normally available sheet sizes are 36″ and 48″ wide by 96″ and 120″ long; it is also available in coil and in corrugated and ribbed panels.

An interesting variation of galvanized is a proprietary product made by rolling asbestos felt on both sides of the coil as it comes out of the molten zinc. As the zinc hardens, the asbestos is metallurgically bonded to the steel core. The coil then receives a rolled-on, 6-mil-thick, hot-melt phenolic resin color coat on each side, and is later formed into various profiles, including rib shapes and corrugated. The coating is claimed to be extremely durable.

Specification references: ASTM A361, ASTM A446, ASTM A525.

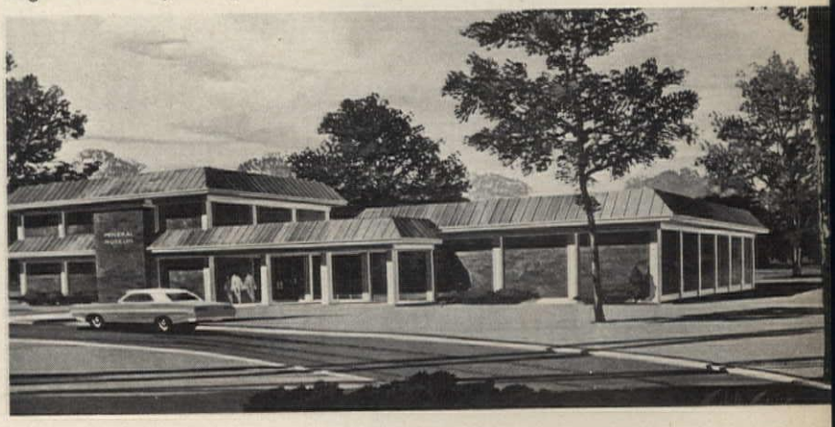
Stainless steel

This silvery, strong, durable material is exceptionally corrosion resistant, requires no surface protection, and is self-cleaning. It is not affected by mortar or concrete, and does not stain adjacent surfaces. It may be soldered, using special flux. Fasteners should be stainless steel.

Type 301 is usually specified for formed sections requiring extra stiffness, such as roofing panels. Type 302 and its lower-carbon variation, Type 304, are the most often specified for roofing, flashing, and other architectural applications in normal urban and industrial atmospheres. Type 316, with molybdenum for greater corrosion resistance, is

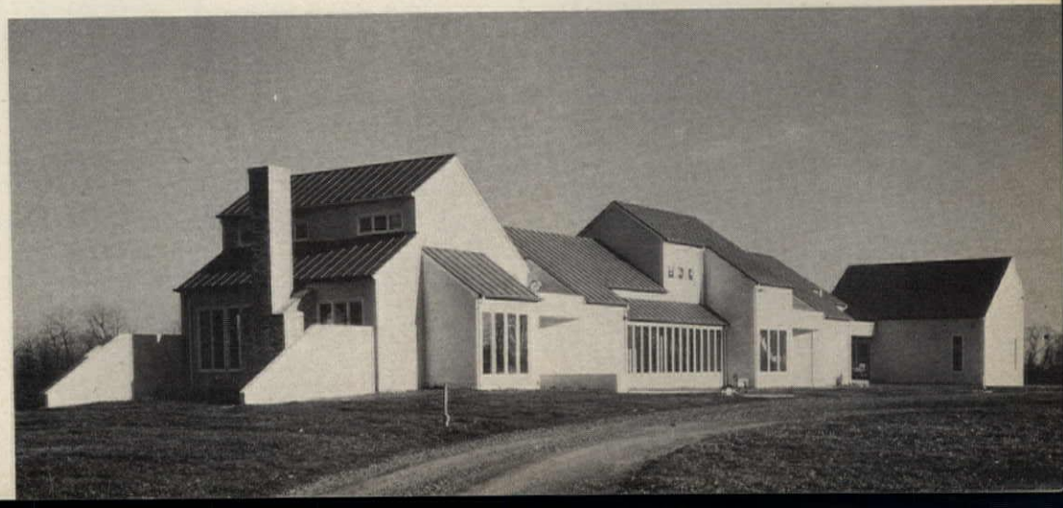
Pre-formed, ribbed aluminum roofs at Mary Jane Ski Lodge, Winter Park, Colo., shed snow, keep out weather, need little care. Brown fluorocarbon finish blends with surroundings. Architect: Benedict Associates.

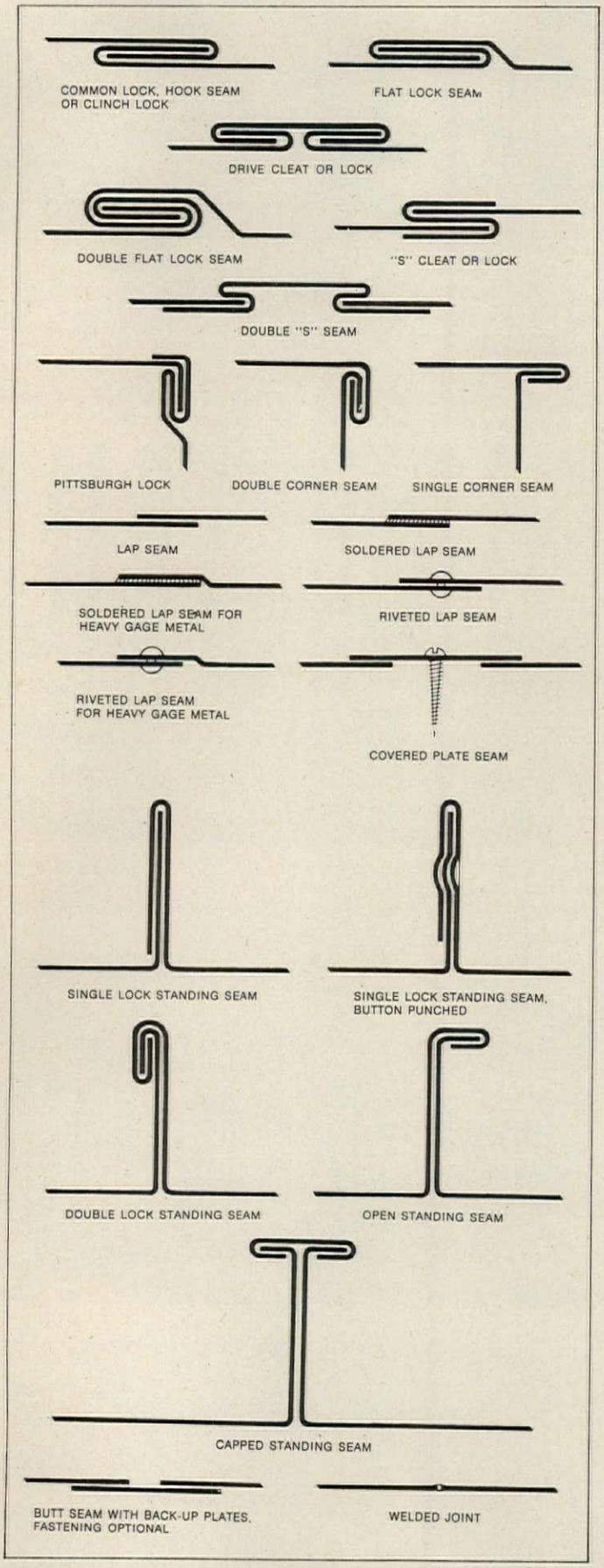
Reverse-curved, pre-formed galvanized panel roof of Ft. Yargo Skating Rink (above) in Georgia State park projects runoff away from building. Joplin Minerals Museum has first installation of new, ILZRO-developed large-tile zinc alloy roofing. Architects: Cornwell & McKinney.



It looks like Spanish tile (left), but it's aluminum with baked enamel coating. The material weighs one-fifteenth as much as clay, cuts with tinsnips.

Owner of Millstone, N.J., residence (right) wanted building to have an added-to-over-the-years look, like a farm structure. Ribbed terne roofing accents the individual segments, while the white stucco walls unify design. Architect: John D. Bloodgood.





Shapes of some of the mechanical seams often used in metal roofing applications. Source: Sheet Metal & Air Conditioning Contrs. Nat'l Assn.

recommended for corrosive atmospheres.

Stainless steel is normally available in sheets 30", 36", and 48" wide by 96" and 120" long. Applied in large sheets, the surface may show excessive waviness. The thickness is expressed in gauge or decimal (gauge numbers increase with decreasing thickness). U.S.S. Gauge 24 is .025" thick and weighs 1.050 lb/sq ft. For roofing and flashing, stainless is usually specified in the dead-soft, fully annealed state.

Stainless comes in various finishes, from nonreflective matte to mirror.

Specification reference: ASTM A167.

Aluminum

This lightweight metal is ductile, malleable, easily worked. Its natural silvery color usually oxidizes to a uniform gray coating that is highly resistant to atmospheric corrosion, but is vulnerable to strong alkalis such as lime.

Aluminum may be prepainted in a wide variety of colors, with acrylic, vinyl, fluorocarbon, or alkyd coatings. Special alloys can be anodized to obtain shades of gray, black, bronze, gold, or amber. The anodic finish offers high corrosion protection, but it is difficult to match shades from piece to piece. Textured surfaces are available.

Aluminum joints cannot be soldered, but may be riveted (use sealant) or welded. Fasteners should be aluminum or stainless steel. Direct contact should be avoided with dissimilar metals or concrete and mortar; if used for through-wall flashing, the aluminum must be coated.

The usual temper and alloy for roofing use is 3003-H14, but other alloys must be used when anodizing is specified. Tempering has a marked effect on aluminum alloy properties, so the temper should be designated with care.

Roofing aluminum comes in sheets 36" and 48" wide by 96" and 120" long, also in ribbed panels, coils, wood-look shingle, and curved tile. When applied in large sheets, the surface may be excessively wavy.

A proprietary, ribbed roof panel system permits prepainted panels 100' long and longer to be locked to each other in a weatherproof mechanical seam over concealed anchor clips. This makes it possible to design long sweeps of pitched roof with no potentially trouble-making topside perforations for fasteners.

Specification reference: ASTM B209.

Zinc

Rolled zinc, alloyed with titanium and copper, provides a roofing material that is light, relatively inexpensive, and highly corrosion-resistant. It forms a self-healing, gray matte patina of zinc carbonate, which does not stain or run and which requires no painting. However, it may be painted if other colors are desired.

Today's zinc alloy is a great improvement over the zinc that roofed the Church of St. Barthelmy and the Cathedral of St. Paul, both in Liege, Belgium, in the early 1800s. It became the predominant architectural metal in Europe for the next 150 years, yet never caught on in this country until recently. The new alloy overcomes some of the earlier zinc's shortcomings; it has better creep resistance (no more worry about sagging sheets or roofing steep surfaces) and a lower coefficient of expansion (but still on the high side).

Roofing zinc has excellent forming properties, may be cut and fabricated with simple tools, and is easily soldered. However, surfaces must drain (a pitch of not less than 3" in 12"), underside ventilation must be provided, and the metal must not come in direct contact with acidic woods or with metals other than aluminum or galvanized material.

It comes in several forms: standard sheets 20", 24", and 28" wide by 8', 10', 12', and 14' long, in thicknesses of .020", .027", .032", and .040", and weights from .75 lb/sq ft to 1.5 lb/sq ft; nonstandard sheet in widths down to 1" and thicknesses between .010" and .250"; and preformed, ribbed panels. The International Lead Zinc Research Organization has developed three new zinc alloy forms for pitched roofs: a pleated strip designed to be step-mounted in horizontal rows parallel to the eaves, a shingle-like system, and a large-tile system.

Specification reference: Federal specification QQ 2100A.

Weathering steel

This type of steel may be used to striking effect for roofing, but with care. The rust that forms on it is highly unusual for a ferrous metal: It is a dense and tightly adherent coating, nearly impervious to further atmospheric attack and self-healing to minor damage. The oxide weathers to a dark purple-brown with a roughish texture over a period of years. Because of the anti-corrosion nature of the coating, the steel requires no painting or other maintenance.

The problem is that until the coating is ripe, some of the rust runs and stains, especially during the early months of exposure, although it may continue indefinitely to a slight extent. The weathering process, which normally takes two or three years, depends on the degree of exposure and the atmospheric environment. The steel weathers more quickly and forms a denser, smoother coating when exposed to rain, sun, and wind than in sheltered areas. Frequent wet/dry cycles favor earlier maturing, as do moderate industrial and marine environments. In arid climates, the weathering is slow. In rural areas, it is somewhere in between and the coating usually has a lighter tone. A tight protective oxide will not form properly in severe industrial atmospheres or marine locations where there is a good deal of salt spray or salt-laden fog. One manufacturer suggests exposure of a sample for at least two years in these difficult environments, if feasible.

The staining problem may be circumvented by gutter and downspout systems, overhangs, drip plates, special flashings, and the like, to divert the rain run-off away from adjacent, vulnerable materials (masonry, glass, walkways). Brown gravel strips or gratings in the path of the run-off water may deemphasize the stain on walkways.

Special precautions must be taken to avoid conditions where moisture collects and will not permit the weathering oxide to form, as in overlapping roof joints, the underside of roof sheets (especially in high-humidity buildings), the interface between girts and purlins and the roof sheet, and nondraining ledges, pockets, and crevices.

Lead-coated copper

This is copper that is coated with lead on both sides. It has the surface characteristics of lead—gray color, resistance to corrosion, nonstaining—and handles like copper.

Specification reference: ASTM B101, Class A.

Rating Key
1 — Excellent
2 — Good
3 — Fair
4 — Poor

Types of Resins	Film Adhesion	Film Flexibility	Adaptability To Embossing (Formability)	Humidity Resistance	General Corrosion Resistance (Industrial Atmosphere)	Exterior Durability (Pigmented)	Fade Resistance In Color (Properly Pigmented)	Abrasion Resistance	Salt Spray Resistance
Non-Siliconized									
Acrylic	1	2	3	1	2	2	2	2	1
Polyester	1	2	2	1	2	2	2	2	1
Vinyl	2	2	3	1	2	3	3	2	2
Organosol	1	1	1	1	1	2	2	1	1
Plastisol	2	1	1	1	1	2	2	1	1
Siliconized									
Acrylic	2	3	4	2	2	1	1	2	2
Polyester	2	2	3	1	2	1	1	2	1
Laminate									
Polyvinyl									
Chloride Film	1	1	1	1	1	2	2	1	1
Polyvinylidene									
Fluoride	2	1	1	1	1	1	1	1	1

Comparative performance of common factory-applied coil coatings. Source: DeSoto, Inc., from a chart by the National Coil Coaters Assn.

Copper-coated metals

Aluminum and galvanized steel may be had with a copper coating that looks and weathers like conventional copper. Coils of the base metal receive an epoxy primer coat, then three baked coats of a water-based acrylic resin containing copper powder. The resulting finish—about .002" thick—may be as high as 80 percent copper.

The material is claimed to be about as tough as copper during extended service life, but costs much less.

Terne-coated stainless

This is a Type 304 nickel chrome stainless steel coated with terne alloy. It is normally available only in 28 gauge (.015") with a 40-lb coating. Its tensile strength is very high, about 80,000 psi. The terne coating provides a surface which is easily soldered, and it is anodic to stainless steel—terne will sacrifice itself to protect the base metal.

Surface and working characteristics are similar to terne's, but because of the stainless steel core, it is extremely resistant to corrosion in severe industrial, chemical, and marine environments, is not affected by mortar or concrete, does not stain, and does not require painting or other protective coating. The terne coat weathers to a dark gray when exposed. Fasteners should be stainless steel.

Terne-coated stainless is normally available in sheets 20", 24", 28", and 36" wide by 96" and 120" long.

Aluminized steel

Carbon steel sheet is dipped in a bath of molten, commercially pure aluminum, much as zinc is applied in galvanizing. The surface of new aluminized steel is a silvery matte, which weathers to a white, heat-reflective, impervious oxide coat that does not wash off. The weight of the coating is about .80 oz/sq ft.

Armco reports aluminized steel test panels that have

been exposed for 35 years with practically no coating weight loss, and claims its aluminized sheet will outlast commercial galvanized steel by better than five to one at a slightly higher first cost.

Aluminum/zinc-coated steel

This hybrid is a patented steel roofing sheet coated with an alloy of approximately half aluminum and half zinc. The coating alloy combines the properties of both components and overcomes some of the weaknesses of each. It has the corrosion resistance and heat reflectivity of aluminum coatings and the formability and galvanic edge-protection of zinc coatings. It has better corrosion resistance than galvanized roofing sheet and resists rust staining at cut edges better than aluminum-coated sheet, at a lower cost. It can be formed about as readily as continuously annealed galvanized sheet steel.

Direct contact with lead or copper should be avoided, as should water rundown from copper. Like galvanized sheet, the aluminum/zinc sheet may be stained by moisture during storage, turning gray to black if moisture is trapped between coil laps, sheets, or roll-formed parts. It may be used exposed, or field-painted with paints that are suitable for galvanized steel; several types of pre-treatment are available to improve paint bonding.

The alloy-coated steel is available in sheet widths of up to 48" and thicknesses from .016" to .074". It may be ordered in high-strength grades, up to 80,000-psi yield.

Seams and coatings

A well-designed roof has seams that make it weather-proof and it may have an applied coating that prolongs its life. But both of these elements are also used for their visual function—interesting profiles and attractive colors that are an integral part of the design. Space is lacking here to do more than mention their importance and emphasize the need for wise choices.

Fortunately, manufacturers', fabricators' and trade association literature covers these subjects in detail, and suppliers' representatives can also be helpful to the architect. [Henry Lefer]

Acknowledgments

We acknowledge with thanks the help we have received from many sources, including the following: American Iron and Steel Institute; AISI Stainless Steel Committee; Aluminum Co. of America; American Hot Dip Galvanizers Assn.; Architectural Engineering Products Co.; Architectural Steel Corp.; Armco Steel Corp.; Ball Corp., Metal & Chemical Div.; Bethlehem Steel Corp.; Copper Development Assn.; De Soto, Inc., Chemical Coatings Div.; Dow Corning; Follansbee Steel Corp.; W. B. Hickman; International Lead Zinc Research Organization; Inryco, Inc., Building Products Div., Milcor Div.; Kaiser Aluminum & Chemical Sales, Inc.; Koppers Co.; Lead Industries Assn.; Matthiesen & Hegeler Zinc Co.; Mobay Chemical Corp., Plastics & Coatings Div.; National Coil Coaters Assn.; Overly Mfg. Co.; PPG Industries; Revere Copper & Brass, Inc.

Also, Reynolds Metals Co.; H. H. Robertson Co.; Roof Systems, Inc.; Sheet Metal and Air Conditioning Contractors National Assn.; Sherwin Williams Co.; Elwin G. Smith Div., Cyclops Corp.; Varco Pruden Div., AMCA Intntl.; Vincent Brass & Aluminum Co.; Washington Steel Corp.; The Lead Institute.

[For information about metal roofing products, see literature, p. 98.]

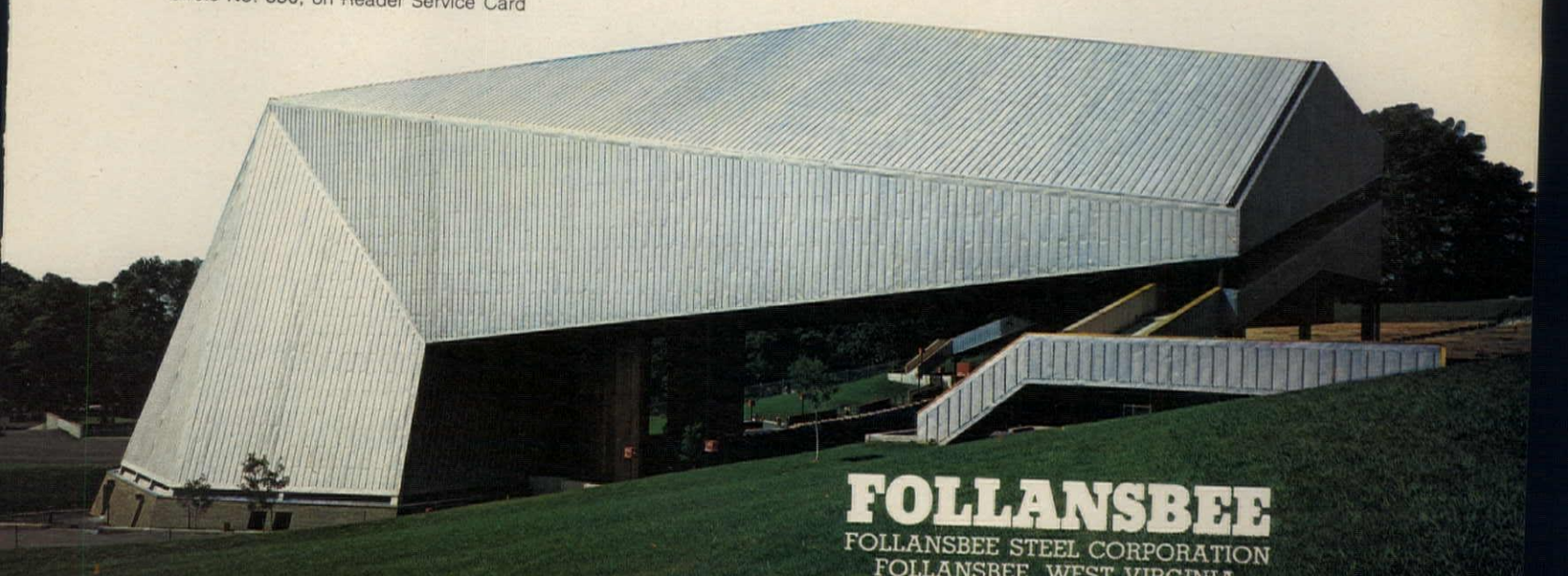
Robin Hood Dell West, Philadelphia, Pa. • Architects: John H. MacFadyen and Alfredo De Vido, New York • Associate Architect: I. Demchick, Philadelphia, Pa. • Roofing Contractor: Warren-Ehret-Linck, Philadelphia, Pa.

TCS...THE LOGIC OF ITS USE

Rarely if ever has metal roofing been employed with more stunning visual impact than on Robin Hood Dell West, the Philadelphia Orchestra's new summer home, which will also serve as a creative center for other groups in the performing arts.

In specifying over 80,000 square feet of TCS (Terne-Coated Stainless Steel) on this exciting structure, the architects were primarily influenced by several practical as well as aesthetic considerations. Among them was the material's unsurpassed durability which is measured in generations rather than years. They were also aware that TCS weathers naturally to a uniform and attractive warm gray; that, properly installed, it will never need maintenance; and that it is highly resistant to even the most severe corrosive attack.

Circle No. 350, on Reader Service Card



FOLLANSBEE

FOLLANSBEE STEEL CORPORATION

FOLLANSBEE, WEST VIRGINIA

A $35,000,000 medical center in Mississippi.

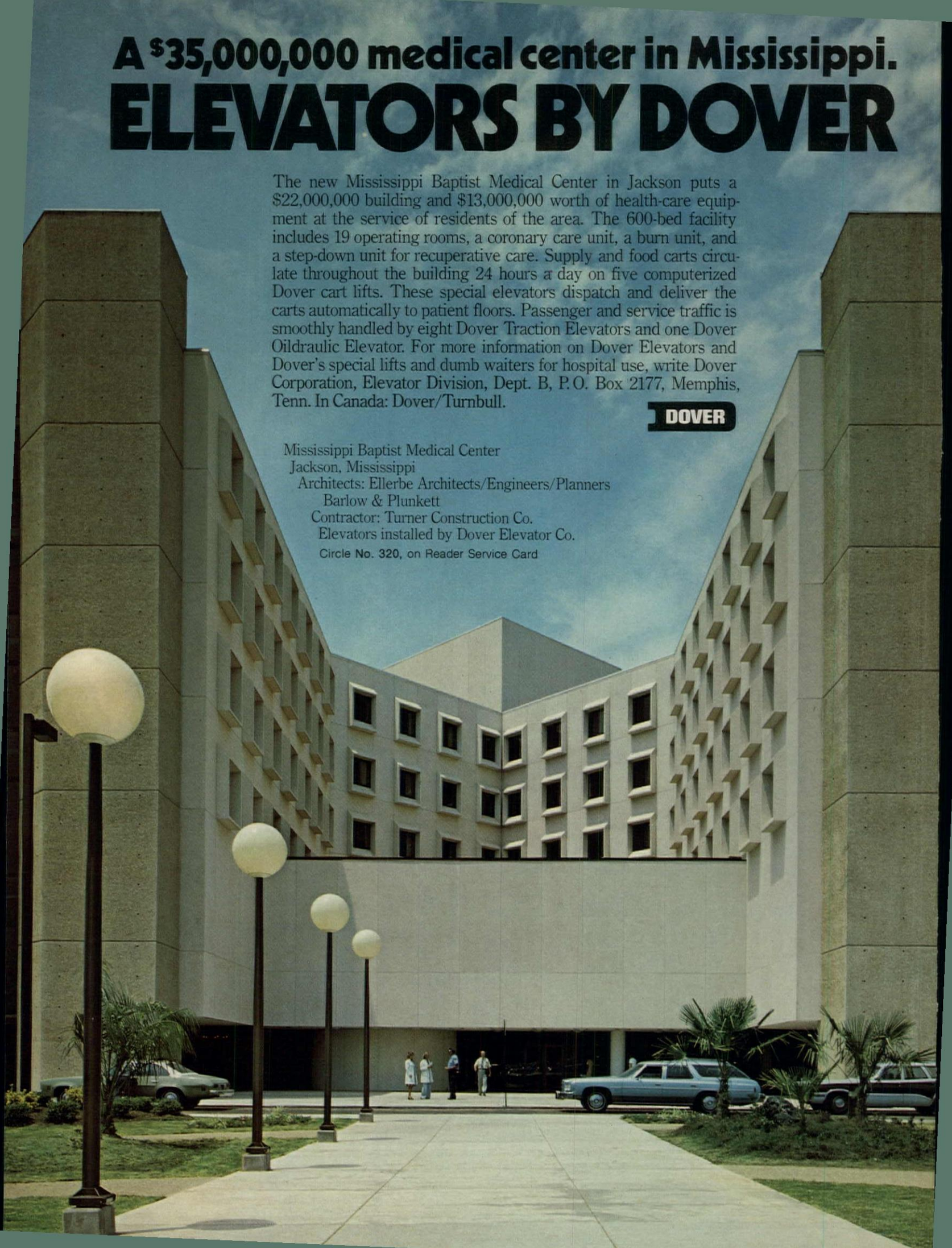
ELEVATORS BY DOVER

The new Mississippi Baptist Medical Center in Jackson puts a $22,000,000 building and $13,000,000 worth of health-care equipment at the service of residents of the area. The 600-bed facility includes 19 operating rooms, a coronary care unit, a burn unit, and a step-down unit for recuperative care. Supply and food carts circulate throughout the building 24 hours a day on five computerized Dover cart lifts. These special elevators dispatch and deliver the carts automatically to patient floors. Passenger and service traffic is smoothly handled by eight Dover Traction Elevators and one Dover Oildraulic Elevator. For more information on Dover Elevators and Dover's special lifts and dumb waiters for hospital use, write Dover Corporation, Elevator Division, Dept. B, P.O. Box 2177, Memphis, Tenn. In Canada: Dover/Turnbull.

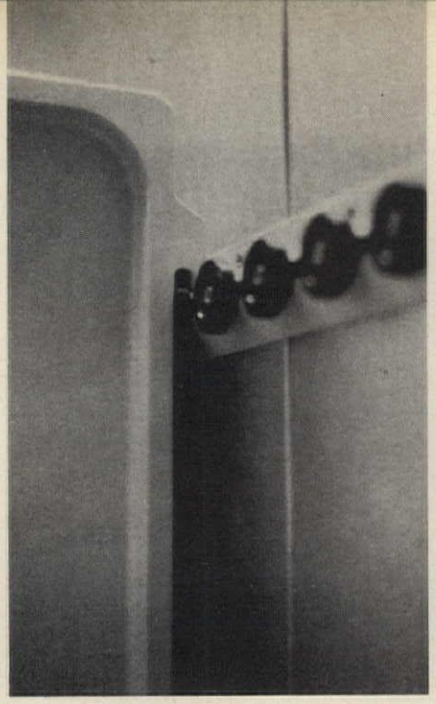
DOVER

Mississippi Baptist Medical Center
Jackson, Mississippi
Architects: Ellerbe Architects/Engineers/Planners
Barlow & Plunkett
Contractor: Turner Construction Co.
Elevators installed by Dover Elevator Co.

Circle No. 320, on Reader Service Card



Products and literature



Co/Struc Roller Rail and . . .

Process Table

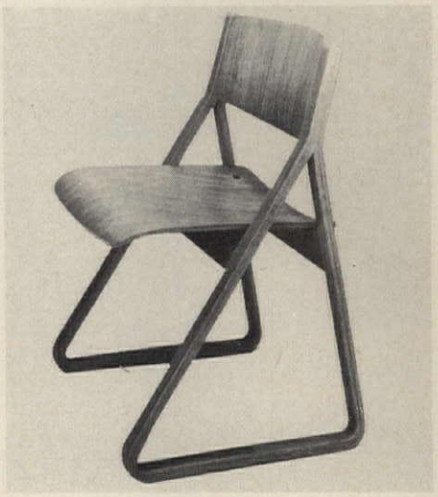
Co. Struc Materials Management System. Coherent Structures is a system of surface and storage components, support elements, and transporters. It can be put together in hundreds of ways to serve the needs of a modern health care facility. Completely modular, all parts are dimensionally compatible and interchangeable. Every hanging component interacts with several different support elements.

A new addition to the system is the Process Table, which is used to coordinate supplies into surgical packs, linen packs, bath packs, etc. for delivery to respective areas in a hospital. It is mobile and has an additional storage capability under the work surface by using standard Co/Struc shelf and drawer components. Other uses include support and storage of heavy, outsize laboratory equipment. Table surfaces are 24″x48″ and 36″x72″, by 36 in. high, and are made of a high pressure laminate.

Another important component of the system is the Roller Rail. The lockers which carry supplies are transferred from mobile carts to the Roller Rail and pushed along the rail into the sterile area. This ends the need for time-consuming caster disinfecting procedures and helps reduce chances of contamination.

The system works throughout the hospital, from providing improved control in central processing, to infection control in surgery, to medical and linen distribution and meal delivery. Herman Miller, Inc.
Circle 100 on reader service card

Triangle chairs—arm and . . .



armless

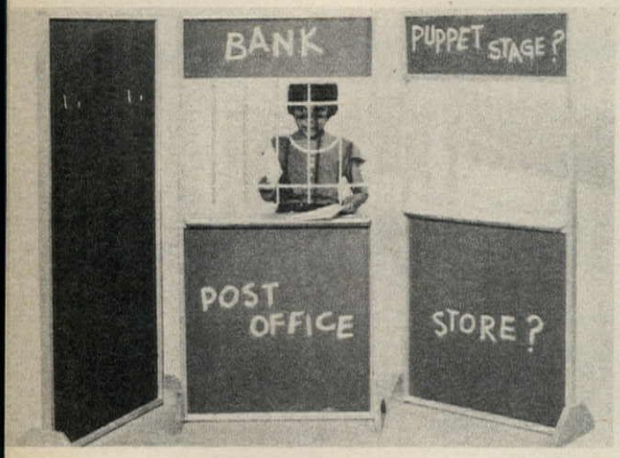
Triangle Chair Series includes arm and armless versions of the chair, in oak and walnut, with upholstered seat and back, cane seat and back, and plywood seat and back. There is also a ganging device which enables the sled-based chairs to be joined together in row alignments. A generously scaled office chair has been designed which incorporates swivel or swivel/tilt bases on casters or glides. It also comes with arms or armless, and in oak or walnut. All wood edges of chairs are machined to ⅛ in. radius. Polyfoam is used in seat and back of upholstered chairs. Stow/Davis.
Circle 103 on reader service card

"Vonar" furniture interliners

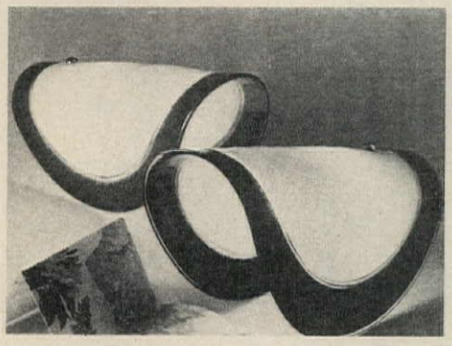
'Vonar™' furniture interliners. Trademark applies to a thin layer of specially formulated cellular elastomer which is offered in three grades in varying thicknesses and performance capabilities: 3/16 in., 2/16 in., and 1/16 in. According to the maker, test data to date show that, when used properly in upholstered furniture, these interliners can reduce both the likelihood of ignition and the burning rate of upholstered furniture, should ignition occur. They may be backcoated onto upholstery fabric, be used as an envelope adhered to the cushioning material, and as a separate layer between fabric and cushioning material. Presently available for use in contract furniture through licensees. Du Pont Company.
Circle 104 on reader service card

Pipe seal and flashing combines in one integral unit that weatherproofs single rooftop pipe penetrations. A spun aluminum base with a 5-in. roof flange flashes into any roofing system. A stepped neoprene rubber boot attaches to base and seals to the pipe with adjustable stainless steel clamps. Maker states the unit won't leak even when submerged in water, yet provides flexibility for pipe expansion, contraction, and vibration. Units are available in two sizes to seal structural support pipes, gas, electrical, and refrigerant lines, guy wires, stacks, vents, and intakes, from ½ in. to 6 in. actual o.d. Company also provides a pipe curb assembly with similar design using a roof curb base, and features that can accommodate single runs or clusters of pipe openings of various sizes. The Pate Company.
Circle 101 on reader service card

Safe for miniature electronic equipment. Pocket calculators, radio pagers, and other portable electronic equipment with rechargeable batteries can be recharged after business hours without tempting after-hour thieves. Each compartment of a horizontal mail lock box is fitted with a standard 110 volt AC outlet into which the charger is plugged. The equipment is connected to the charger and the compartment door is closed and locked. American Device Mfg. Co.
Circle 102 on reader service card



Props for preschool play



Lamp

Props for preschool play. A series of stage sets is designed for transactional learning through role play. The Divider Series features two simulated façades—a post office or bank "cage" with an aluminum grille, and an open-window unit that doubles as a store front or puppet stage. Both are surfaced with green-painted hardboard chalkboards. The series also includes a hang-up pegboard panel for posting related notices. All units are framed in natural birch, finished with nontoxic clear lacquer. The dividers are mounted on sturdy hardwood feet and store flat in closets or against walls. Overall sizes of the divider units are 24"x10"x49" and may be purchased either in a set of three or individually. SturdiBuilt, Inc.
Circle 105 on reader service card

Lamp, of Venetian ¼-in.-thick white opal glass with black or red band, is 22"x7½"x9" and uses one 100w bulb. Lighting Associates, Inc.
Circle 106 on reader service card

Ultrasonic control system, called Energy Activation Systems Equipment (EASE), is designed to keep electric power flowing only when it is needed. In operation, EASE can automatically turn off the lights, the television set, or the air conditioning. The system is activated by the movement of a person through a monitored space, and is designed to control fluorescent and incandescent lighting systems. EASE's principle of operation is based on the potential disturbance of a field of inaudible ultrasonic sound waves which fill a monitored area. Motion of a person in the area is detected by the system's sensor. This motion causes switching to take place, thereby turning the lights or other devices on instantly. When the area is vacated, the system turns the lights off after an adjustable delay. MRCA, Inc.
Circle 107 on reader service card

Luminous skylights

Pedestal tables

Luminous skylights. According to maker, these were developed for use in areas where there is no access to natural light or where the natural skylights are ruled out because of high energy consumption. They are lighted from above by fluorescent strips in the same manner as a standard luminous ceiling. They can be custom designed. Integrated Ceilings Inc.
Circle 108 on reader service card

Automatic swimming pool system features an overflow gutter with surge storage capacity and recirculating ductwork all combined in one stainless steel wall. Called "PassWall," it is shop fabricated of heavy gauge polished stainless steel and delivered to the job site in long sections. The hydraulic system is completely contained within wall. PassWall sections are fabricated of 12-ga polished stainless steel and are backed by A-frame buttresses. Spaced on 5-ft centers around the periphery, they are made of structural steel angles, with all joints welded, supported on a continuous footing. PassWall can be used for pools of any size or shape, requiring only that all wall segments be straight. KDI Paragon Inc.
Circle 109 on reader service card

Pedestal tables. Configurations offered are round, square, and rectangles including 66 in. and 71 in. dual pedestal conference styles. All are 29 in. high and can be specified with choice of laminate top colors. Bases are finished in mirror chrome. All-Steel Inc.
Circle 110 on reader service card

Omalon™ II Carpet Foundation is a densified polymeric foam structured of many layers of densely packed, relatively small cells. The high-bulk, resilient construction provides consistent allover carpet support, resists "bottoming out." It can be used below or on grade, is unaffected by moisture and mildew, or by alkali in concrete slabs. Impact noise tests indicate that it provides more acoustical insulation than conventional forms. It features a nonwoven fabric slip surface, is light weight, weighing between 27 and 67 lbs a roll. Supplied in 40 sq yd rolls measuring 6' x 60', it comes in nine grades, each suitable for both residential and contract installations. Olin Corporation.
Circle 111 on reader service card

Synthetic stone. Used for veneer construction, it is manufactured in slabs approximately 2'x4' ranging in thickness from ¾ in to 2 in. The product weighs about 7 lbs per sq ft. It comes in six subtle earth colors that will not fade or darken, states maker. Universal Stone.
Circle 112 on reader service card

Literature

Metal roofing
The items below are specifically related to the technics article beginning on p. 88 and are grouped here for the reader's convenience.

Aluminized steel Type 2 for low cost atmospheric corrosion resistance is the subject of this 24-page brochure, which describes why this hot-dip aluminum-coated steel sheet roofing and building product behaves as it does, gives fabricating and finishing details. Armco Steel Corp.
Circle 200 on reader service card

Preformed aluminum roofing panels are included in this 24-page color catalog of commercial and industrial building products. In addition to product descriptions, there is material on finishes, fasteners, suggested specifications, and drawings of typical details. Color pages show coated panels and representative installations. Aluminum Company of America.
Circle 201 on reader service card

TCS terne-coated stainless steel properties and seam and flashing details for roofing applications are covered in this 8-page specifications manual. A table compares TCS properties with common architectural metals. Follansbee Steel Corp.
Circle 202 on reader service card
[continued on page 100]

the new hospital room:

How do you provide greater convenience for patients, doctors and nurses?

Put a Bobrick Console in the patient's room, as shown here in the recently completed Verdugo Hills Hospital near Los Angeles.

This one functional unit combines a lavatory; mirror; dispensers for towels, soap and paper cups; light fixture; convenience outlet and a storage compartment for bedpan and washbasin. There is also a compartment for patient's toiletries.

This lifetime stainless steel unit is a cost saver. . . and space saver, too. It fits into a wall opening 16″ wide by 4″ deep.

Bobrick Consoles are part of a "Total Design Concept" of coordinated washroom accessories for today's hospitals.

Send for our Hospital Planning Guide and brochure describing 20 other Hospital Consoles. Bobrick, Architectural Service Department, 101 Park Ave., New York 10017. Bobrick products are available internationally.

bobrick SINCE 1906

Circle No. 314, on Reader Service Card

Literature continued from page 98

Zip-Rib aluminum roofing and siding is a system in which extremely long pre-formed, precoated, ribbed aluminum roof panels can be mechanically "zipped" together over concealed anchor clips as fast as 50 ft/min. The manufacturer says there is no limit to panel length—pieces up to 124 ft long have been delivered. Color photos in the 12-page brochure show installations and details. Kaiser Aluminum & Chemical Sales, Inc.
Circle 203 on reader service card

Rough Shake. This is the name of the Kaiser low-maintenance aluminum roofing product that looks like wood but actually consists of 5-ft panels of aluminum with a baked-on plastic color coating; four-page brochure. Kaiser Aluminum Building Products.
Circle 204 on reader service card

Steel roofing and siding. Brochure tells how Inryco/Milcor pre-painted galvanized steel roofing and siding systems provide an attractive, durable, sturdy, weathertight cover for buildings. Included is useful information on figuring needed quantities of components and cost estimating, and installation instructions. Inryco, Inc.
Circle 205 on reader service card

'Architectural Sheet Metal' is a profusely illustrated 20-page guide to the use of eight common roofing metals. The report on each metal is accompanied by color photos of roofing and flashing installations. Tables give gauges and weights, compare mechanical and physical properties. Typical seams are illustrated. Sheet Metal and Air Conditioning Contractors.
Circle 206 on reader service card

Metal roofing products. With Rib-Seal design on pre-formed, pre-painted metal roofing panels, the roof may be installed with fewer fasteners and skin penetrations, reducing the number of potential corrosion trouble spots. Catalog of building products includes the company's corrugated and V-Beam panels (both available with or without Rib-Seal) and high-load-capacity Dyna Span line. Elwin G. Smith Div., Cyclops Corp.
Circle 207 on reader service card

'The application of copper and common sense' is a 76-page illustrated handbook of design principles and installation techniques of sheet copper construction. It covers various styles of roofs, eaves, valleys, mansards, and cornices among other roof features, includes technical data and comparative properties of several other architectural metals. Revere Copper and Brass, Inc.
Circle 208 on reader service card

Aluminum-clad roofing membrane can be rolled out on roof deck and cemented down. It's said to be excellent for steep pitches. Aluminum-clad KMM consists of a flexible plastic core sandwiched by layers of bitumen, and with a polyethylene film base and a heavy, embossed aluminum foil surface. Koppers Co.
Circle 209 on reader service card

Mayari R weathering steel 32-page brochure illustrates suggested architectural details for avoiding staining problems when this material is used for roofing and other purposes. It includes cleaning, handling, joining, and forming information and technical data. Bethlehem Steel Corp.
Circle 210 on reader service card

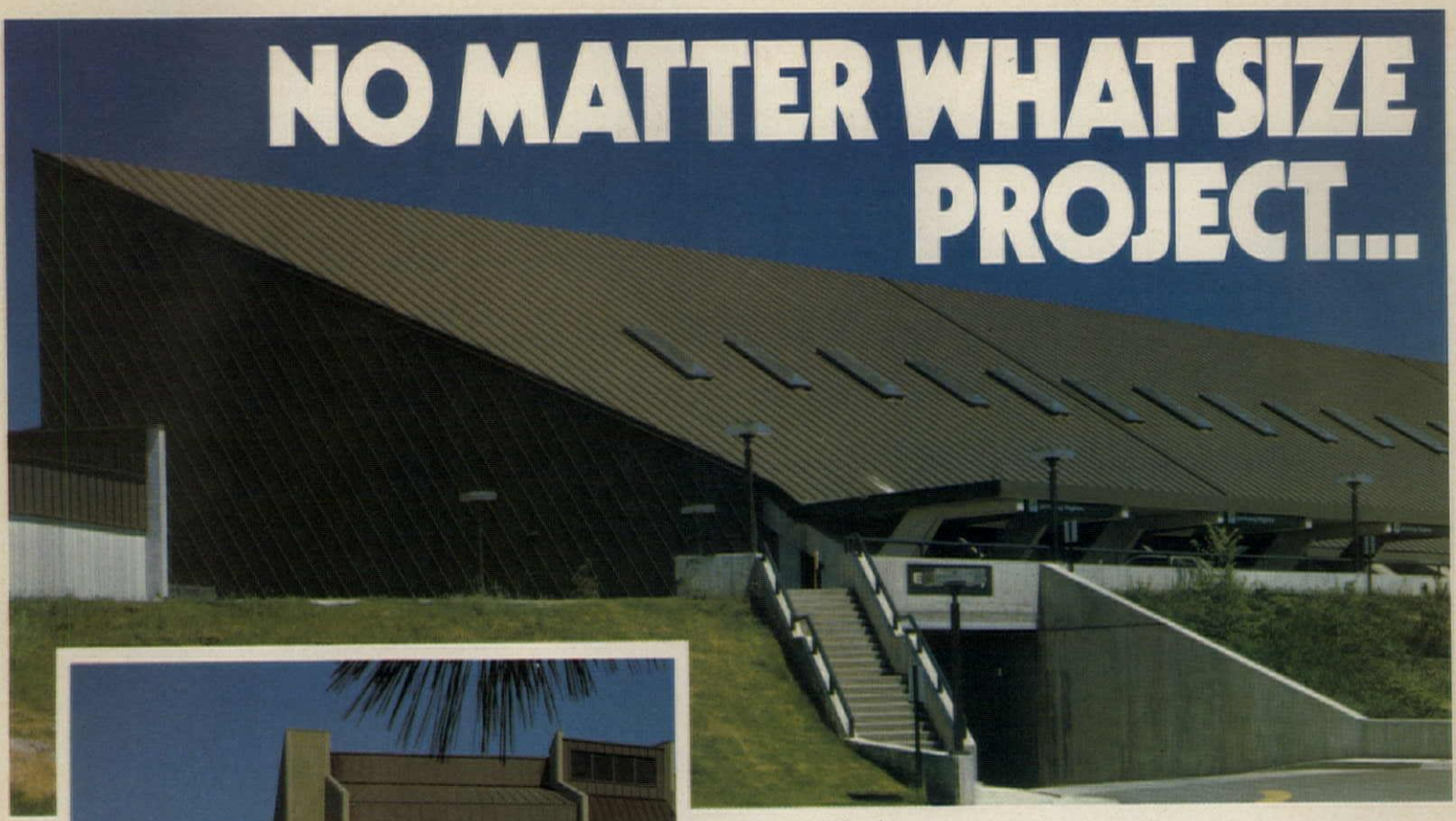
Zinc-aluminum alloy coated steel for economical and long-lasting roofing systems is described in Galvalume brochure. The manufacturer claims the product combines the best features of galvanized and aluminized steel. Bethlehem Steel Corp.
Circle 211 on reader service card

Microzinc 70 Architectural Sheet Metal brochure shows roofing applications of nonrusting zinc-copper-titanium alloy, includes detail drawings of installation of preformed components of the company's batten seam and standing seam systems. Ball Corp., Metal & Chemical Div.
Circle 212 on reader service card

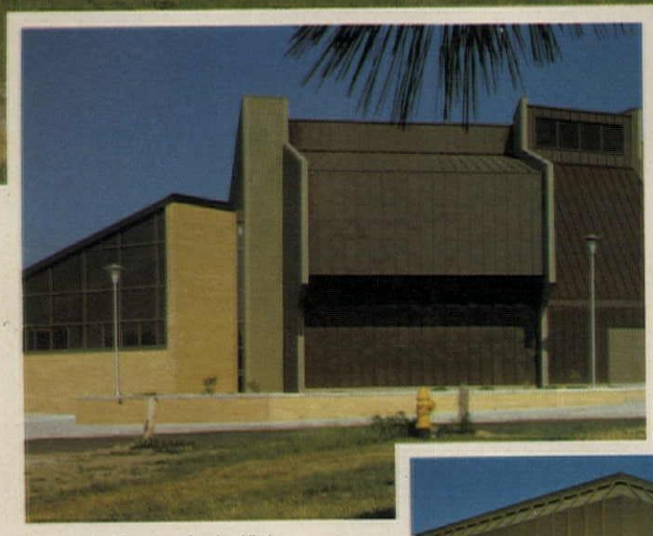
Terne roofing specifications and data manual gives properties, shows installations and seam and flashing details for lead-tin coated copper-bearing steel; 8 pages. Follansbee Steel Corp.
Circle 213 on reader service card

Raised-seam metal panel system for roofs. Full-page drawings show typical roofing details for company's RS-18 raised-seam galvanized or aluminized panel roof system. Roof Systems Inc.
Circle 214 on reader service card
[continued on page 102]

NO MATTER WHAT SIZE PROJECT...



Duluth Municipal Airport
Architect: Architectural Resources, Inc.



Alexander Ramsey Senior High School. Architect: Thorsen & Thorshov Associates, Inc.

Sears Imported Autos. Korngiebel/Larsen Associates, Inc.

METAL ROOFING by ColorKlad OUTPERFORMS ALL OTHER ROOFING MATERIAL!

Whatever the size of your next metal roofing project, specify the durability, beauty and economy of ColorKlad—available in any quantity from 1 sheet to 1 million.

ColorKlad's written 20 year warranty, **unequalled in our industry**, guarantees color retention and durability. Nine attractive colors, two textures, and various sheet sizes offer the architect extraordinary latitude of design. ColorKlad steel has the strength plus coefficients of expansion and contraction to permit the use of wider panels, thus eliminating waviness and oil canning found in lesser metals.

ColorKlad's high integrity is economical too! Cost is generally 2/3 that of copper and usually 1/3 less than zinc based metals, soft stainless steel or copper clad steel.

ColorKlad. Your best metal roofing choice—**no matter what size the project.**

Building Products Division
724 24th Ave. S.E., Mpls, MN 55414
Dial Direct Without Charge
MINNESOTA ONLY
800-552-1202
NATIONWIDE
800-328-7772

Vincent
BRASS & ALUMINUM CO.

SEND FOR OUR NEW **COLORKLAD** BROCHURE AND FREE COLOR SAMPLES TODAY!

Name _____
Title _____
Company _____
Address _____
City _____ State _____ Zip _____

Literature continued from page 100

Aluminum commercial roofing and siding products. Illustrations, details, and design data cover the company's several lines of pre-formed panels in a 16-page brochure. The panels are available either unpainted or finished with a fluoropolymer coating. Reynolds Metals Co.
Circle 215 on reader service card

Pre-painted galvanized roofing sheet. Color Klad brochure shows the durable colors available on the company's 24-gauge hot-dipped G90 galvanized sheet. The fluoropolymer finish is available in mansard brown, Roman bronze, slate gray, matte black, stone white, burnished copper, terracotta, and azure blue. All colors are available in a matte on textured finish. The sheet is shipped with a protective, strippable plastic film. Vincent Brass & Aluminum Co.
Circle 216 on reader service card

Insulated galvanized panel roof system is among the systems shown in 24-page color brochure illustrating the company's products and installations. Varco-Pruden.
Circle 217 on reader service card

Fluoropan architectural coating, a factory-applied fluorocarbon resin for aluminum and galvanized steel building products, is designed for long-lasting beauty. This 12-page color brochure shows installations, gives guide specification. DeSoto, Inc.
Circle 218 on reader service card

'Six Distinctive Metal Roofing Systems' is a 12-page color brochure showing applications and details of the company's precoated galvanized steel and aluminum roofing products. Lines include roof and fascia systems, shingle systems, weathering copper coating, California Mission tile for almost any type of building. Architectural Engineering Products Co.
Circle 219 on reader service card

Stainless Steel Design Manual covers suggested practices for roofing, flashing, coping, fascias, gravel stops, and drainage. The 32-page manual contains tables of design factors for stainless, comparisons with other architectural materials and illustrations of typical details. AISI American Iron and Steel Institute, Stainless Steel Producers Committee.
Circle 220 on reader service card

'Titanalloy "A", The Architect's Metal' is a technical brochure describing the properties of pre-weathered zinc-copper-titanium alloy for roofing and other building applications. Illustrations show installation, seam, and joint details. The material forms a protective coating and need not be painted. It is available in sheet, coil, and pre-formed roofing/wall system panels. Matthiesen & Hegeler.
Circle 221 on reader service card

Lead roofing and flashing. Seaming and forming details are described and illustrated in this 16-page guide. The specification page describes this work in detail. Lead Industries Assn.
Circle 222 on reader service card

'Your roof, from concept to reality' color brochure shows the side variety of unusual roofing installations and systems the company has engineered and installed. H.H. Robertson Co.
Circle 223 on reader service card

'Beautiful durable Galbestos' is the manufacturer's title on 24-page color brochure showing installations and samples of its zinc and asbestos coated steel sheet architectural metal, whose baked polymer color coatings are claimed to have exceptionally good performance in difficult environments. H.H. Robertson Co.
Circle 224 on reader service card

'PPG Color Coatings for Architectural Metal' is an illustrated 12-page guide to the company's fluoropolymer, silicone acrylic, and acrylic enamel factory-applied coatings. PPG Industries.
Circle 225 on reader service card

Batten, mansard, domes and arches, Bermuda, spires, towers. These are the roofing installations described and shown in the 8-page brochure from the company that roofed the Niagara Falls Convention Center and re-roofed the Houston Astrodome. Overly Mfg. Co.
Circle 226 on reader service card

Standing seam roof. Four-page brochure shows Stran SR 100 pre-formed galvanized steel panels and small self-propelled seamer that joins adjacent panels in a weathertight seam. National Steel Products Co.
Circle 227 on reader service card

Modular service walls by Halsey Taylor.

Functional accents of stainless steel for Dallas Federal Savings.

This 12-module Halsey Taylor service wall creates a focal point for the south wall, first floor, of the Dallas Federal Savings & Loan Association Tower.

The Dallas Federal corporate offices, which occupy the concourse and first two floors, contain six Halsey Taylor service wall units. All of the units are stainless steel. Two incorporate 12 modules each and four are composed of nine modules each. Functional modules consist of drinking fountain and cooler, a fire hose cabinet and a clock panel. Remaining panels are decorative.

"Our Halsey Taylor units are beautiful as well as functional," states Mr. Earnest Brownlee, Property Manager and Vice President, "and the stainless steel complements the chrome trim used throughout the building interior."

The Halsey Taylor Service Wall System conserves space, reduces the number of isolated wall cutouts normally required, and makes the location of critical building facilities easy to remember.

The wide selection of functional and decorative panels permits broad design flexibility. In addition to stainless steel and PATINA bronze-tone stainless, eight Polychrome colors are available. Functional modules include drinking fountains, clocks, directory boards, fire hose and extinguisher cabinets, fire alarm pulls, telephones, ash trays, waste receptacles, and loudspeaker grilles. All modules are standardized and any number may be included in a single station—depending on the amount of wall space at your disposal.

For complete details, specifications and a modular wall system design kit, write to Halsey Taylor Division, King-Seeley Thermos Company, Freeport, IL 61032.

Dallas Federal Savings & Loan Association Tower:

Architect: Mark E. Miller, Dallas, Texas
Interior Architect: Steven O. Nall, Dallas
Mechanical Engineer: Herman Blum Consulting Engineers, Dallas
Mechanical Contractor: Allied Mechanical Contractors, Dallas

Halsey Taylor®
KING-SEELEY KST THERMOS CO.

Circle No. 353, on Reader Service Card

MANAGEMENT SEMINARS

KB805 Corporate Planning for the Smaller Company will show how to direct your company's effort toward those activities that produce results, April 14-15, U. of Nebraska, Omaha, (402/554-2506); April 28-29, U. of Richmond, (804/358-8401).

KB888 How to Protect Today's Manager from Legal Liability enables you to understand your legal responsibilities and to organize your firm's liability risk plan. April 28-29 U. of Connecticut, Hartford, (203/486-4135).

KB972 CM: Effective Construction Management gives you practical CM tools and skills in order to put CM to work immediately in your projects. April 12-13, Ryerson Poly. Inst., Toronto, (416/595-5244); April 14-15, Southern Methodist U., Dallas, (214/692-3255); April 27-28, U. of Nevada, Las Vegas, (702/739-3707); July 11-12, Southern Methodist U., Houston, (214/692-3255).

KB813 Project Management: Planning, Scheduling and Control examines the tools needed to plan, organize, integrate and measure the work of a project team. April 13-15, New Jersey Inst. of Tech., Saddlebrook, NJ, (201/645-5235); April 13-15, U. of Denver, (303/753-2927); April 18-20, State U. of New York, at Buffalo, (716/831-3843); April 20-22, U. of Rhode Island, Providence, (401/792-2337); April 27-29, Louisiana State U., Baton Rouge, (504/388-6202); April 27-29, U. of Toledo, (419/537-2031); May 4-6, Vanderbilt U., Nashville, (615/322-2513).

KB005 Finance and Accounting for the Non-Financial Executive examines statements, ratios, break-even analysis, cash flow budgets, investments. April 18-20, U. of Cincinnati, OH, (513/475-2043); April 18-20, Louisiana State U., Baton, Rouge, (504/388-6202); April 20-22, San Francisco State U., (415/469-1276); April 25-27, Marquette U., Milwaukee, (414/224-7345); April 27-29, Towson State U., Baltimore, (301/321-2227); May 4-6, Elmhurst Col., Chicago, (312/834-3606); May 9-11, U. of Pittsburgh, (412/624-6424).

KB971 Application of Costs and Financial Management for Contractors enables you to establish a systematic, workable accounting and finance system specifically applicable to contractors. April 18-19, Gustavus Adolphus Col., Minneapolis, (612/870-1311).

KB965 OSHA for the Construction Industry presents the opportunity to earn the Department of Labor OSHA Certification Card for successful completion of the "OSHA Construction Safety and Health Course". April 28-29, U. of Houston, (713/749-3932).

KB970 Value Management: In the Construction Industry allows the constructor or engineer/architect to develop specific value management methods, tools and techniques. This course has been approved by the GSA/PBS and SAVE to meet the 40 class-hour workshop requirements. April 18-20, Vanderbilt U., Nashville, (615/322-2513).

KB851 Managing the Closely Held Company for Results is designed to help managers solve the complex problems facing the closely held company. March 21-23, U. of Cincinnati, OH, (513/475-2043); March 23-25, U. of Colorado, Denver, (303/492-8356); March 18-20, U. of New Orleans, (504/288-3161, ext. 241); March 20-22, Georgia State U., Atlanta, (404/658-2745); March 25-27, Wartburg Col., Iowa, (319/352-1200); May 9-11, Southern Methodist U., Dallas, (214/692-3255).

KB620 Management Skills for Engineering provides engineers with the skills necessary to become effective managers. March 21-23, Baldwin-Wallace Col., Cleveland, (216/826-2253); March 23-25, California Inst. of Tech., Pasadena, (213/795-6811, ext. 1041); April 11-13, U. of Tulsa, OK, (918/939-6351, ext. 215); April 13-15, Ryerson Poly. Inst., Toronto, (416/595-5244); May 2-4, Marquette U., Milwaukee, (414/224-7345); May 3-5, U. of Missouri, Kansas City, (816/276-2205); May 17-19, Hartford Graduate Center, (203/549-3600); May 18-20, U. of Delaware, Newark, (302/738-8401).

KB379 Managing Your Maintenance Dollars is designed to help participants develop more effective building maintenance systems in order to reduce labor and material costs while improving productivity and service. April 13-14, George Washington U., D.C., (202/676-6059).

For more information, please call the University directly or clip and send to: University Seminars, 420 Lexington Ave., Suite 2846, New York, NY 10017 (212/490-2500)

INFORMATION REQUEST

Seminar _____ No. _____

Date of Seminar _____

Name _____

Company _____

Address _____

City, State, Zip _____

Circle No. 336, on Reader Service Card

Notices

Appointments

Roy Marshall has been named a partner of Crosby, Thornton, Marshall, Associates/Architects, Modesto and San Francisco, Calif.

Robert Smith has been named department head, and **William Donald Klein** architect for the consulting engineering firm of Cullen, Kilby, Carolan & Associates, PC, Dubuque and Bettendorf, Iowa.

David L. Holzheimer has been made a principal of Koster & Associates, Architects, Inc., Cleveland, Ohio.

Smith, Hinchman & Grylls Associates, Inc., Detroit, has announced the following associates: **Roy J. Brockert, Lee Osmialowski, Andrew A. Vazzano, David E. Weida,** and **John J. Labosky.** Johnson, Johnson & Roy Inc., the environmental planning division of SH&G in Ann Arbor, Mich., has made the following appointments: **Bradley G. Field,** manager of administration; **Stephen W. Schar** and **George Sass,** associates; **William R. Jarratt,** corporate director of architecture.

James J. Rongoe, PE has joined DiSalvo + Cetra, Consulting Engineers, Ridgefield, Conn.

James J. Moynihan has been appointed vice president of Hellmuth, Obata & Kassabaum, Inc., St. Louis.

New addresses

Richard M. Shanahan, Architect, 104 N. Church, P.O. Box 1522, Bozeman, Mont. 59715.

Thompson, Ventulett, Stainback & Associates, Inc., North Tower, Omni International, Atlanta, Ga. 30303.

Zimmer Gunsul Frasca Partnership (formerly Wolff Zimmer Gunsul Frasca Partnership), 111 S.W. Oak, Portland, Ore. 97204.

Prindle, Patrick & Partners, Ltd., Arbor Office Center, 1321 U.S. 19 South, Clearwater, Fla. 33516.

Gerard R. Cugini Associates, Architects and Planners, 36 Melrose St., Boston, Mass. 02116.

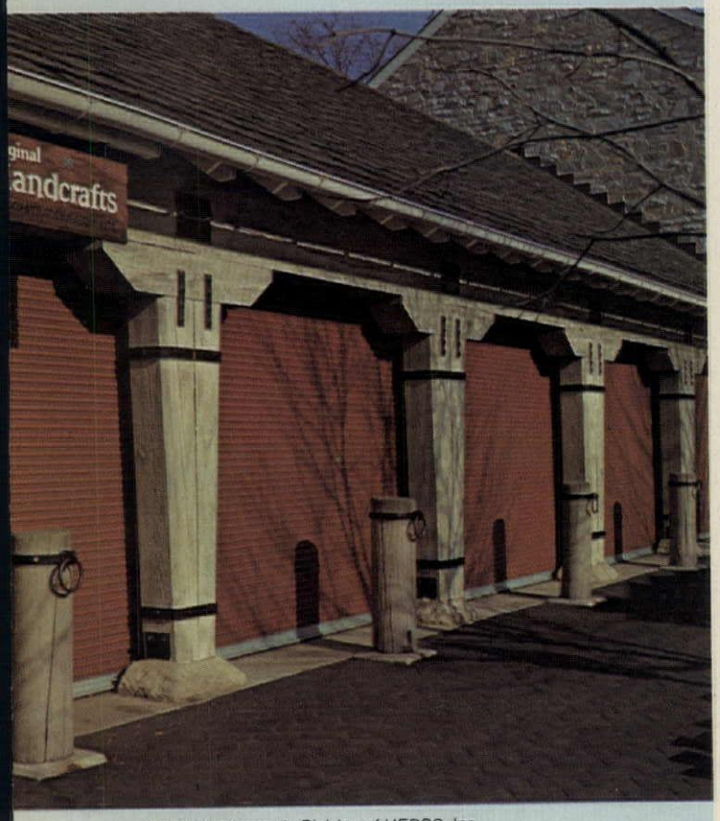
The Eggers Group PC, Architects and Planners, 2 Park Ave., New York, N.Y. 10016.

[continued on page 106]

outside
KINNEAR
rolling doors

protect from weather, fire and theft

When Kinnear Rolling Doors are open, they're coiled compactly . . . out of sight and out of the way . . . directly over the opening. The crowds of tourists at this park aren't even aware of them. But when they're closed, these doors provide a reliable closure against wind, dirt, snow, rain and sleet. They're a fire retardant and, of course, an impenetrable barrier to intrusion and vandalism.



Above: Hersheypark, Division of HERCO, Inc.
Hershey, Pennsylvania
Right: Royal Bank of Canada
Toronto, Ontario

Kinnear Rolling Doors and Grilles are available in steel, stainless steel and aluminum. They may be manually, mechanically or power-operated, and can be designed and built for practically any size opening. Their simplicity of design and their basic operating principle puts them high on the efficiency charts for just about any closure problem.

inside
KINNEAR
rolling grilles

protect from theft . . . with showcase-like display

Kinnear Rolling Grilles provide excellent protection against intrusion, yet permit free passage of air and light. This means they don't interfere with mall air conditioning and they provide an unobstructed view of showroom or lobby. Like Kinnear Rolling Doors, the grilles open straight up and coil out of the way directly over the opening to provide a full-width, business-enticing entranceway.

Write for the complete Kinnear catalog. It contains all the information you'll need in specifying. In the meantime, when you think doors or grilles, think Kinnear.

KINNEAR-Division of HARSCO CORPORATION
1900 Fields Ave., Columbus, Ohio 43216
FACTORIES: Columbus OH 43216
San Francisco CA 94124
Centralia WA 98531
Toronto, Ont., Canada

KINNEAR® ROLLING DOORS
Saving Ways in Doorways Since 1895
A DIVISION OF Harsco

Circle No. 328, on Reader Service Card

Notices continued from page 104

George Filler Architect, AIA, Rte. 5, Box 5786, Juneau, Alaska 99803.
Wilkins Bussard Dikis Ltd., 414 61st, Des Moines, Iowa 50312.

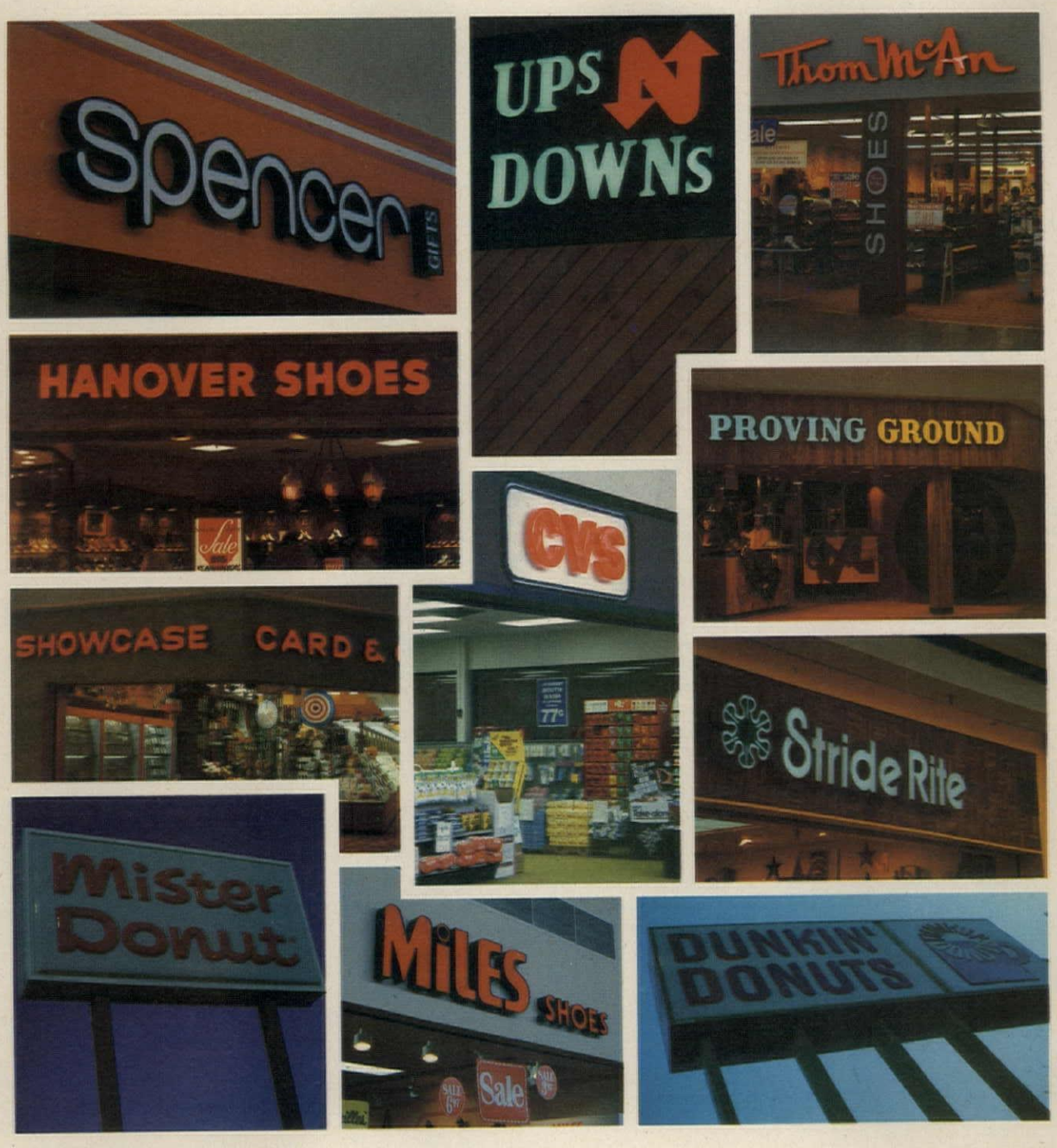
Building materials

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

Houlton Regional Hospital, Houlton, Maine (p. 54). *Architects: Payette Associates Inc., Boston, Mass.* Reinforced concrete foundation: Dragon Cement. Steel frame, walls, floors, roof: Bethlehem Steel. Exterior wall system: Dryvit Systems. Gypsum wallboard: Gold Bond. Paint: Pratt & Lambert. VAT: Armstrong Cork Co. AT-accessible concelaed spline: Celotex. Built-up roof: Celotex. Aluminum clad windows: Pella. Wood doors: Curtis. Rolling doors: North American Door. Hardware: Schlage, LCN, Stanley. Panic exit: Von Duprin. Kitchen equipment: Hobart, Vulcan, Insinkerator. Elevators: Otis. Lighting fixtures: Moldcast, Lam. Electric distribution: General Electric. Plumbing and sanitary: Kohler. Boilers: Kewanee. Emergency generators: Cummins Diesel. Fan coil units: American Air Filter. Stack: Airtek, Air handling units: American Air Filter. Air cooled condensers: Carrier.

Joslin Diabetes Clinic, Boston, Mass. (p. 50). *Architects: Payette Associates Inc., Boston, Mass.* Reinforced concrete: Martin Marietta I. Concrete forms: Simpson Plywood with high density plastic overlay. Steel: Bethlehem. Ceramic tile: American Olean. Veneer plaster: U.S. Gypsum. Chalkboards: Claridge. Carpet: Bigelow, Gropoint. Sheet vinyl: Armstrong Palestra. Gym floor: Tarkett. Exterior soffit: Dryvit Systems. Concealed spline acoustic ceiling: Conwed Corp. Liquid membrane playdeck: Tremco, Selby-Battersby. Waterproofing: Tremco. Caulking: Vulkem. Weather-stripping: Zero. Rigid insulation: Dow Chemical. Roof deck insulation: Apache Foam Products. Reflective insulation: Owens-Corning. Movable partitions: Modernfold. Toilet partitions: Global Steel Products. Reflective insulated glass, tempered glass: Shatterproof Glass Corp., Detroit Falconer Glass Works. Interior flush doors: Curtis Co. Locksets: Corbin. Door closers: LCN and Rixson Firemark. Hinges. Stanley. Panic hardware: Von Duprin. Exterior paint: Pratt & Lambert. Exterior bleaching oil: Cabots. Interior paint: California Products Corp. Accent colors: Benjamin Moore and Martin Senour. Steel lockers: Republic Steel. Toilet accessories: Bobrick. Cold rooms: Harris Environmental Systems. Public address and nurse call: Dukane. Fire and general alarm: Autocall. Electric elevators and dumbwaiter: Payne. Exterior lights: Moldcast. Fluorescent lights: Trilux. Incandescent lighting: Lightcontrol and Lightolier. Water closets, tubs, and lavatories: Kohler. Flush valves: Sloan. Drinking fountains: Halsey Taylor. Faucets and fittings: Chicago. Sprinkler heads: Grinnell. Air conditioning system: Carrier. Fan coil units: Trane.

impressive signage credentials



Mandeville's signage is designed to create distinct images throught the effective use of color, typography, lighting, and materials. Our signs and letters are fabricated from quality materials by experienced craftsmen with high workmenship standards. Our signs are custom made and not mass produced. Attractiveness and durability in signage has been a business principle at Mandeville for over sixty years. Join our growing list of satisfied and prestigious clients today.

Send for our colorful and informative literature today.

242 DEXTER STREET, PAWTUCKET, RHODE ISLAND 02860
TEL. (401) 722-9065

coast to coast installations

mandeville signs

Circle No. 334, on Reader Service Card

Job mart

Situations open

Architect Designer: Position available with a multi-disciplined nationally known design oriented AE firm. Must have a minimum of five years experience and be a lead designer with demonstrable skills in conceptualization of a broad range of architectural projects. Should be capable of functioning individually and as a member of project oriented design teams. Duties require developing and managing projects from predesign client contact through design and contract documentation to job completion. Professional Registration required. Send resumes to: Lorenz Williams Lively Likens and Partners, 2600 Winters Bank Building, Dayton, OH 45402.

Architect/Planners: Needed for Peace Corps projects in Latin America, Africa, Asia: VISTA projects in U.S. Housing projects, design of schools, hospitals, community centers, rehab., university teaching, regional planning, etc. Expenses paid: travel, medical, vacation and living. U.S. citizens, singles or couples only. Information: Cynthia Poindexter, ACTION, Box A-2 Washington, D.C. 20525.

Architectural Design: The School of Architecture of the University of Maryland solicits applications for teaching positions beginning 1977 fall from persons qualified by degree and experience for a design studio position as assistant professor. Candidates ought to possess an informed understanding of design theory issues. Demonstrated skill in freehand drawing and graphic design will also be looked upon favorably. Resumes, to arrive no later than March 15, should be addressed to Patrick L. Pinnell, Faculty Search Committee, School of Architecture, University of Maryland, College Park, Md. 20742. The University of Maryland is an equal opportunity employer.

Chairperson: Department of Architecture, California State Polytechnic University Pomona is seeking a person to chair its Department of Architecture. Nominations and inquiries may be directed to: Chairman Search Committee, Department of Architecture, California State Polytechnic University, Pomona Calif 91768. Deadline for completed application is March 1, 1977.

Dean: The college of Architecture, University of Arizona, seeks Dean to assume administrative responsibilities. Professional registration expected; minimum of Master of Architecture with teaching, administrative and professional experience. Position open after June, 1977. Send complete resume, with references, to Professor Gordon Heck, Chairman, Search Committee, College of Architecture, University of Arizona, Tucson, Arizona 85721, by March 15, 1977. The University of Arizona is an Equal Employment Opportunity/Affirmative Action Employer, under Federal and State Laws and Regulations, including Title IX, 1972 Education Amendments.

Designer-Delineator: Well established, young, progressive, design oriented south Florida Architectural firm—involved in residential, multi-family, office complexes and commercial, seeking persons with design capabilities, and architectural and interior sketch abilities, prime requirements. Excellent opportunity for qualified individual. Reply with resume to Box # 1361-105 c/o *Progressive Architecture.*

Faculty: Announcement of Teaching Positions open for academic year 1977-78. Position: Design Studio Instructor at the Assistant or Associate Professor level 9 month appointment; salary range $15,000-$20,000. Responsibilities: Assistant or Associate Professor of Architecture to teach design studio with special, but no exclusive, knowledge, experience and interest in urban design. Must also teach theory courses related to design studio efforts. Qualifications: Degree in Architecture. Degree in urban design preferred but not required. Position: Design Studio Inspector at the Assistant or Associate Professor level 9 month appointment; salary range $15,000-$20,000. Responsibilities: Assistant or Associate Professor of Architecture to teach required courses in the area of climate, comfort, use of energy, environmental controls and help develop this area of concern in the Department. Must be able to link courses to studio instruction and be able to teach in design studio. Qualifications: Degree in Architecture, plus minimum of three years teaching experience. Application deadline: April 1, 1977. Submit vita, portfolio and other evidence of teaching, research and/or professional accomplishments as well as at least three references to: Professor George Anselevicius, Chairman Department of Architecture School of Architecture and Environmental Design State University of New York at Buffalo 2917 Main Street Buffalo, New York 14214. The State University of New York at Buffalo, School of Architecture and Environmental Design is a six-year professional program leading to a Masters of Architecture Degree. No person in whatever relationship with SUNYAB shall be subject to discrimination on the basis of age, color, national origin, race, religion or sex. Above positions are subject to budget funding.

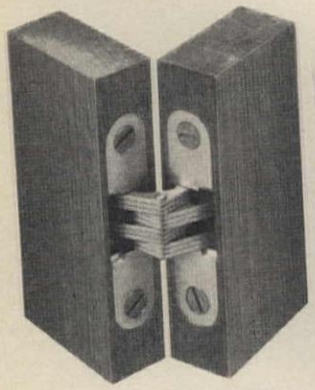
Faculty: The Syracuse University School of Architecture has openings for positions in the following areas: 1. *Architectural Theory and History* including Modern Architecture. Ph.D. in Architectural History preferred. 2. *Environmental Control* sequence covering H.V.A/C electrical and lighting. First professional degree in architecture or Engineering. State certification preferred. 3. Two positions in the Core Program of the undergraduate *Architectural Design Studies.* Registration preferred, Rank: Assistant or Associate Professor depending on qualifications and experience. Please send resumes and references to Julio M. San Jose, Associate Dean, Attn: Faculty Search Committee, 417 Slocum Hall, Syracuse University, Syracuse, NY 13210. Syracuse University is an Equal opportunity/Affirmative Action Employer.

The KEA Professorship: The School of Architecture of the University of Maryland invites the consideration of persons of high achievement in the field for a year's appointment elective. Applicants should have experience and credentials commensurate with the title of the position in teaching and/or architectural design. Salary in $25,000 range, plus discretionary support fund. Letters of inquiry and resumes should be addressed to John W. Hill, Dean, School of Architecture, University of Maryland, College Park, Maryland 20742. The University of Maryland is an equal opportunity employer.

Landscape Architecture/Architectural Design: The School of Architecture of the University of Maryland solicits applications for teaching positions beginning 1977 fall from persons qualified by degree and experience to teach the history, theory, and practice of landscape architecture. Demonstrable understanding of the relations of those issues to

[continued on page 110]

The hinge that hides



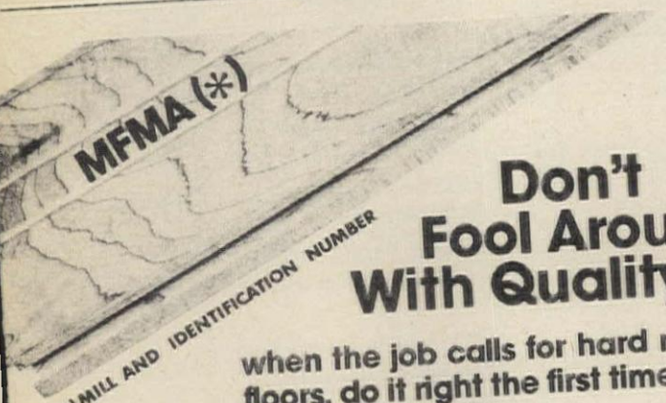
NOW YOU SEE IT

NOW YOU DON'T

The Soss Invisibles—for a custom look for any room! These amazing hinges hide when closed, eliminating unsightly gaps, hinges, and door jambs. They're the perfect hidden touch for doors, doorwalls, storage cabinets, built-in bars, stereos, and TV's. Specify the Soss Invisibles wherever looks matter. See listing in Sweet's or write for catalog: Soss Manufacturing Co., Division of SOS Consolidated, Inc., P.O. Box 8200, Detroit, Mich. 48213.

the SOSS Invisibles

Circle No. 340, on Reader Service Card



Don't Fool Around With Quality

when the job calls for hard maple floors, do it right the first time... with MFMA flooring

Specify MFMA and be done with it...MFMA certified flooring installed with skill and experience by an MFMA Associate Member. The MFMA trademark assures that the flooring on which it appears is...

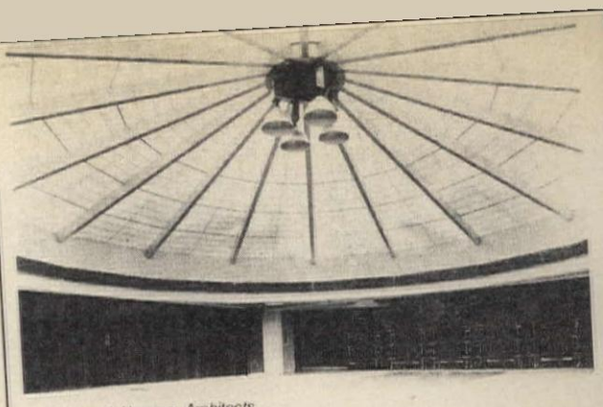
- True to Species...genuine hard maple with no unspecified species intermixed.
- True to Grade and Dimension...uniform appearance and performance characteristics.
- Inspected and Warranted...every single shipment is inspected and accompanied by the MFMA certificate—your assurance of excellence.

Write for the complete, new "MFMA GAME MARKINGS MANUAL." Limited quantities available.

MFMA ASSOCIATE

Maple Flooring Manufacturers Association, Inc.
424 Washington Ave., Suite 104 Dept. PA-27
Oshkosh, Wisconsin 54901
Telephone 414/233-1920

Circle No. 331, on Reader Service Card



Aslesen & Herman, Architects

KALWALL® SYSTEMS

A Kalwall System can be a ROOF — or a WALL — or a WINDOW REPLACEMENT!

Stockley & Leahy, Architects

Kalwall is a complete, translucent, insulating building panel system.

We *know* how much energy Kalwall saves as a Window Replacement — owners have reported savings over 30% in heating and 15% in lighting. Imagine what the savings can be for a new building when Kalwall is used instead of any of the other natural light transmitting materials!

For optimizing the buildings energy efficiency, Kalwall offers a choice from these Key Factors:

- "U" Factors between .06 and .40!
- Light transmitting values between 3% and 75%!
- Shading Coefficients from .85 to less than .06!

Whatever your project — Wall, Roof, Window Replacement — Kalwall has a complete System that can cut total energy consumption; and still win design awards!*

Write or phone for technical and design data, plus a copy of our 1976 full color catalog.

Circle No. 351, on Reader Service Card

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

*Documentation available on request

Patented

FOR ENERGY SAVING BUILDINGS!

Advertisers

Advertising Sales Offices

Stamford, Connecticut 06904:
600 Summer Street *203-348-7531*

James J. Hoverman
Director of Sales

Harrington A. Rose, Francis X. Roberts,
District Managers

Chicago, Illinois 60601:
2 Illinois Center Bldg., Suite 1300
312-861-0880

Tony Arnone, *District Manager*

Cleveland, Ohio 44113:
614 Superior Ave., W. *216-696-0300*
John F. Kelly, *District Manager*

Los Angeles, CA. 91436:
16250 Ventura Blvd. *Suite 300*
213-990-9000

Philip W. Muller, *District Manager*

Atlanta, Georgia 30308:
805 Peachtree Bldg.—Room 505
404-874-6427

Harmon L. Proctor,
Regional Vice President

London, SWIH, OBH, England
14 Broadway
John Lankester, *Representative*

Verviers, Belgium
1 rue Mallar
Andre Jamar, *Representative*

Tokyo, Japan
Bancho Koheki
15 Sanyeicho, Shinjuku-ku
Genzo Uchida, *Representative*