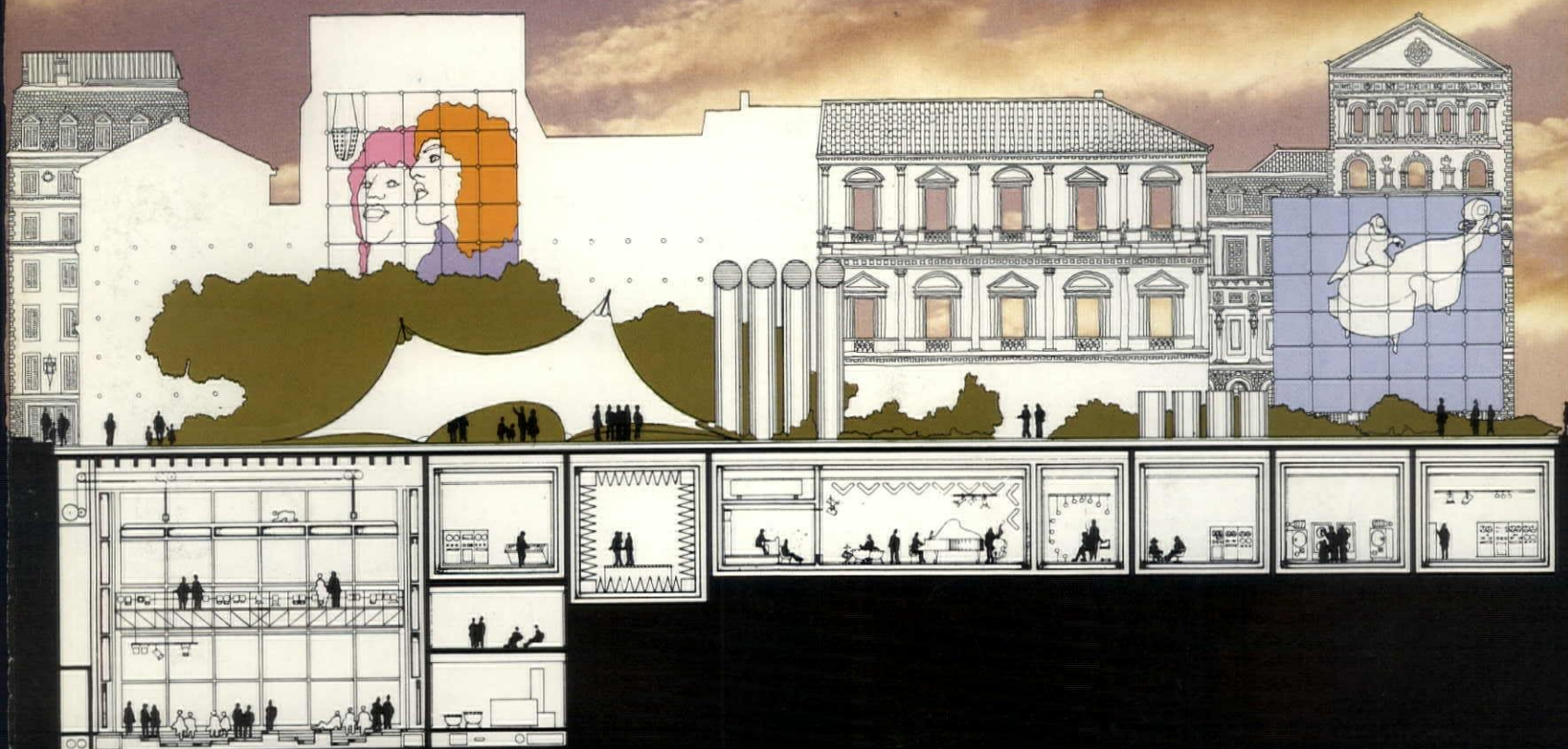


Progressive Architecture

November 1975 An  Reinhold publication



Who can you turn to to keep floor costs down?

When you need someone on your side in the fight for more floor for the money... Azrock vinyl asbestos floor tile is the answer. When you want creative styling... Azrock is the answer. When you're looking for the almost perfect floor... Azrock is still the answer. Yet it costs as little as it did 20 years ago. And Azrock vinyl asbestos tile answers more floor requirements more perfectly than any other type of flooring: Over 100 styles and colors • low initial cost • long-lasting durability • low-cost, no-wax maintenance • fire safe, will not support combustion • exceeds federal specifications. Turn to Azrock to get the job done... beautifully.

Azrock is still the answer.

Circle No. 315, on Reader Service Card

Floor shown is Cortina, through-thickness styling for heavy traffic areas.

For samples and more information, write Azrock Floor Products, Dept. 533A, P.O. Box 531, San Antonio, Texas 78292.



Who knows how to build an Electric/Gas cooling-heating unit that can reduce gas heating fuel consumption by up to 19%*?

Amana®

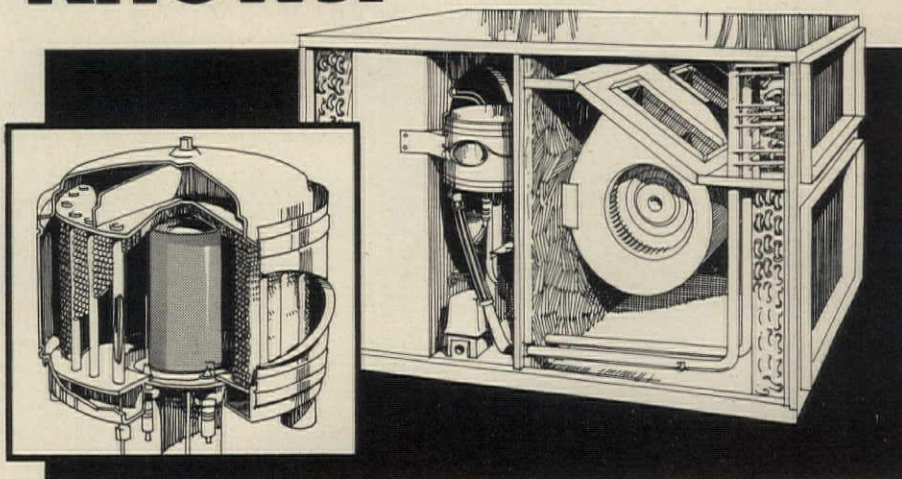
knows.

The Amana Electric/Gas unit is the perfect answer to your customers' growing needs for a complete energy saving cooling-heating system.

The remarkable fuel savings come from the exclusive Amana Heat Transfer Module (HTM†), the first major breakthrough in heating technology in years. The HTM is a heat exchanger that's small enough to hold in your hands, yet powerful enough to heat an average size home. It uses outdoor air for fuel combustion eliminating much up-the-chimney heat loss common to conventional gas furnaces.

The E/G unit also uses electronic ignition to eliminate wasteful pilot lights and two-stage heating to keep the unit operating at maximum efficiency under varying conditions. In addition to saving your customers money on heating, the E/G unit gives dependable central air conditioning in one compact and easy to install comfort system.

Like all Amana products, the E/G unit is 100% run-tested for fewer call backs and greater profits for you. At Amana we think



you should know what we know about the E/G unit and other energy saving heating-cooling products that can increase your sales and profits.

*Based on Institute of Gas Technology laboratory tests and projected performance for a northeastern Ohio city, compared to published performance for a conventional gas furnace.

†HTM is a registered trademark of the Raytheon Company.

**Look to *Amana* today
for the energy saving ideas
of tomorrow.**



AMANA REFRIGERATION, INC., AMANA, IOWA 52203 • SUBSIDIARY OF RAYTHEON COMPANY

IF YOU'D LIKE MORE INFORMATION ON AMANA ENERGY SAVERS, WRITE DEPT. C-160, AMANA, IOWA 52203

The smart money is on controlled concrete.

They say gamblers don't gamble. Neither do contractors putting up super-resorts like the MGM Grand in Las Vegas.

Fast-track schedule: 18 months from ground-breaking to the first jackpot! Controlled concrete, of course, 65,000 cubic yards of it, every single yard with *POZZOLITH* admixture.

Said the contractor, "It was critical for us to have good 7-day strength. With *POZZOLITH* in

the mix, we got the strength, plus good workability, and kept setting time under control. And, with *POZZOLITH* shrinkage cracking was virtually nil. It saved time and put money in our pocket."

The smart money everywhere is on concrete controlled with *POZZOLITH* admixture. For full details, call your local Master Builders field man or write Master Builders, Cleveland, Ohio 44118.



Owner: Metro-Goldwyn-Mayer Studios. Architect: Martin Stern, Jr., & Associates. Structural Engineer: Cashdan Brizendine Gunny. General Contractor: Taylor Construction Co. Concrete Testing: Nevada Testing Lab. Ready-Mix Concrete with *POZZOLITH* Admixture: WMK Transit Mix.

POZZOLITH
manufactured by
MASTER BUILDERS
*POZZOLITH is a registered trademark for MASTER BUILDERS
water reducing, set controlling admixture for concrete

Editor
John Morris Dixon, AIA

Managing Editor
James A. Murphy, AIA

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

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

Assistant to the Editor
Barbara McCarthy

Editorial Assistant
Judith A. Wasson

Graphics
George Coderre, Art Director
Anne Marie Sapione, Art & Production
David W. Scott, AIA, Architectural drawings

Contributing Editors
Norman Coplan, It's the law
Bernard Tomson, Hon. AIA, It's the law
Harold J. Rosen, PE, FCSI, Specifications clinic
Josephine H. Drummond, Specifications clinic
William T. Lohmann, AIA, CSI, Specifications clinic
Alvin D. Skolnik, FCSI, Specifications clinic
Ronald P. Bowie, Specifications clinic
Martin P. Martensen, Specifications clinic
Robert D. Williams, CSI, Specifications clinic
Hanscomb Associates Inc. Cost analysis
Esther McCoy, Los Angeles
Roger Montgomery, San Francisco
Sally Woodbridge, San Francisco
Antonin Aeck, AIA, Atlanta
George McCue, St. Louis
Peter Papademetriou, Houston
Ralph Warburton, AIA, AIP, PE, Miami
Stuart E. Cohen, AIA, Chicago

Editorial Panel
Michael Brill, President, BOSTI; Professor, SUNY, Buffalo
Theodore Liebman, New York State Urban Development Corp.
Walter Netsch FAIA, Partner, Skidmore, Owings & Merrill
Herman Spiegel, Dean, Yale School of Architecture

Publisher
Philip H. Hubbard, Jr.

James J. Hoverman, Director of Sales
Burchard M. Day, Promotion Director
Daniel H. Desimone, Production Manager
Thomas Moran, Circulation Director
G. Charles Huebner, Circulation Manager
E.M. Dwyer, Customer Service Manager
Elizabeth A. Mercede, Sales Service Manager



Progressive Architecture is published monthly by Reinhold Publishing Company, Inc., a subsidiary of Industrial Publishing Co. Thomas L. Dempsey, Chairman; Philip H. Hubbard, Jr., President; Harry I. Martin, Vice-President. Executive and editorial offices, 600 Summer St., Stamford, Conn. 06904 (203-348-7531).

For all subscription information write Circulation Dept., Industrial Publishing Co., 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 (\$7 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. and Canada \$18 per year. Nonprofessionals outside U.S. 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 LVI, No. 11. Printed in U.S.A. Copyright © 1975 Reinhold Publishing Company, Inc. All rights reserved.



November 1975

Progressive Architecture

7 Editorial: Blessing the Beaux-Arts

Performing halls

39 Introduction: The performance of change

The evolution of changing forms in the performing arts directly affects the architectural design of the spaces in which they perform.

40 Kind of uptown

Geddes, Brecher, Qualls, Cunningham's concert hall in the Birmingham-Jefferson (Alabama) Civic Center meets almost any acoustical need.

44 Orpheus Nebraskensis

Omaha's Orpheum Theater has been restored to its original splendor by the Leo A. Daly Company and leads a new life as a performing arts center.

48 Technics: Gloria in transit

A portable theatrical performing tent by Imero Florentino & Associates is equipped for power, light, and sound. Assembly time: six hours.

Design

52 Interior architecture: Theater in the raw

Peter Wexler transforms Allegheny's previously renovated Carnegie Library into a performing space with little money or time.

54 Interior architecture: Some sound advice

A P/A editor delves into the acoustical quality of some of the newer performing halls and finds some that succeeds and some that does not.

64 Street smarts

The Arts for Living Center by Prentice & Chan, Ohlhausen for New York's Henry Street Settlement responds sensitively to its environs.

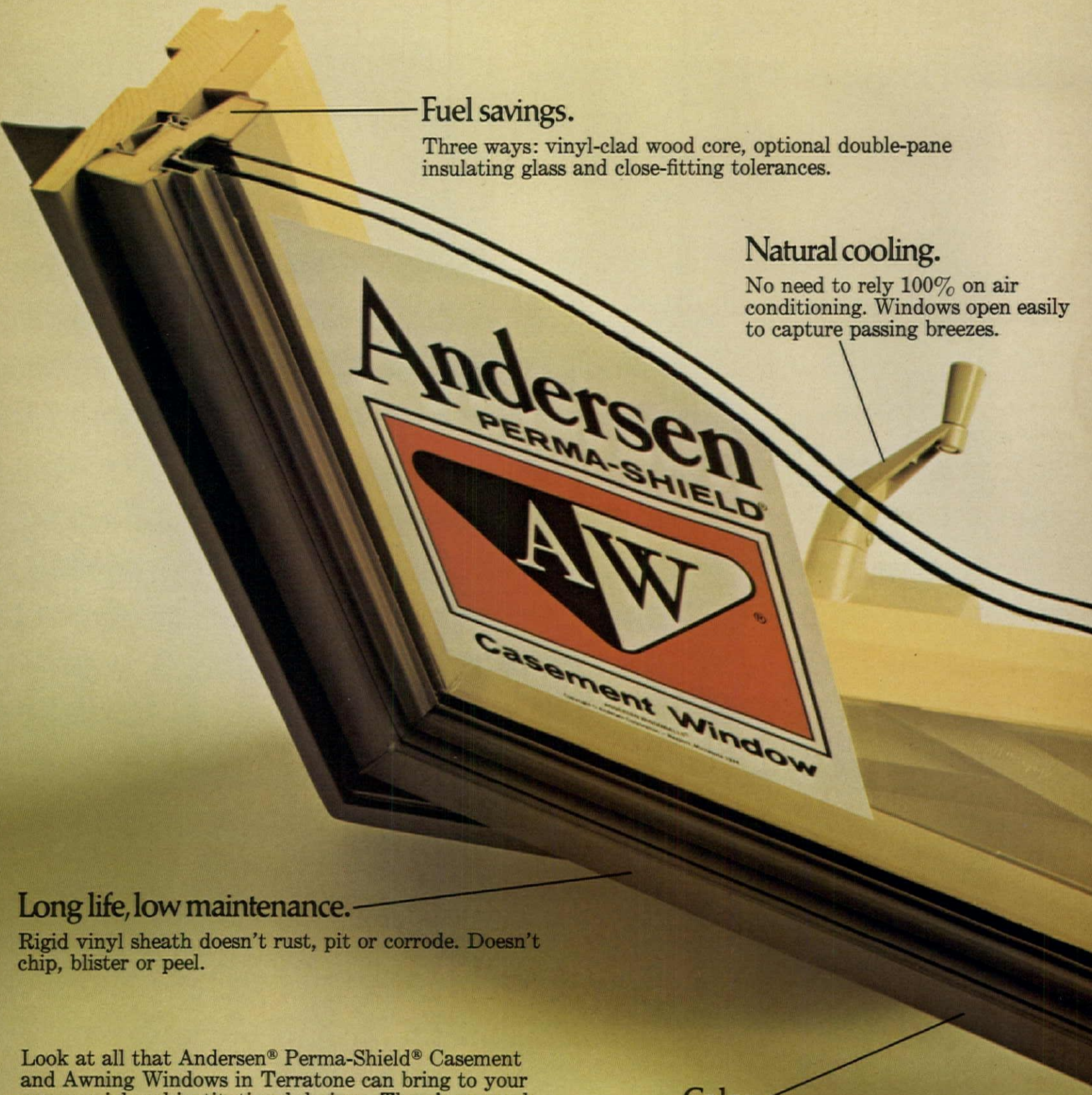
Technics

85 Specifications clinic: Getting the paper out

Departments

9	Views	90	Books
17	News report	94	Products and literature
24	Personalities	110	Notices
27	Calendar	113	Building materials
30	In progress	114	Job mart
32	In perspective	122	Directory of advertisers
34	In perspective	123	Reader service card
86	It's the law		

Cover: Underground acoustic facility at the Centre d'Arts in Paris (p. 54). Cover designed by P/A Associate Editor Sharon Lee Ryder from a sectional drawing by the architects Piano & Rogers.



Fuel savings.

Three ways: vinyl-clad wood core, optional double-pane insulating glass and close-fitting tolerances.

Natural cooling.

No need to rely 100% on air conditioning. Windows open easily to capture passing breezes.

Long life, low maintenance.

Rigid vinyl sheath doesn't rust, pit or corrode. Doesn't chip, blister or peel.

Look at all that Andersen® Perma-Shield® Casement and Awning Windows in Terratone can bring to your commercial and institutional designs. There's so much, it makes you wonder: Could this be the perfect window?

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

The beautiful, carefree way to save fuel.

Andersen® Windowalls®
ANDERSEN CORPORATION BAYPORT, MINNESOTA 55003



Color.

We call this rich, inviting earth-tone color Terratone. It's a deep, natural hue that blends beautifully with wood, brick, stone, masonry—almost any building material. (Also available in white.)

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

COULD THIS BE THE PERFECT COMMERCIAL WINDOW?

Double-pane insulating glass.

Snug-fitting Andersen Windows with double-pane insulating glass can reduce conducted heat loss by up to 35%, compared to single-glazed windows without storms.

Inside beauty.

Wood trim can be stained or painted to complement any decor.

Snug-fitting design.

Perma-Shield Casement and Awning Windows in Terratone color are two times more weathertight than industry air-infiltration standards. To help seal out drafts and dust, and help save on heating and cooling costs.



The more you have to put up, the less you should have to put up with.

Monumental ceilings can cause monumental headaches.

So many things have to work together just right: the ceiling panels, the lighting fixtures, the air diffusers, the acoustical insulation, the subcontractors. Especially the subcontractors.

When everything comes from different sources, the chance for monumental foul-ups goes up.

Enter the Alcan Planar® Ceiling System. A total system. Complete

and uncomplicated. Because you can specify the panels, the fixtures, everything, from one source.

From Alcan. You can even specify polywrapped acoustical blankets for pools or food processing plants.

Everything is worked into our ceiling system, so you'll have fewer limitations to work around. Just light-weight, durable, maintenance-free Alcan aluminum that gives you the freedom to execute a monumental idea. Beautifully. And the silicon polyester finish of

the Alcan Planar Ceiling lets you carry a total design concept through to exterior soffit treatments.

If you want less to put up with, you ought to look at our Planar Ceiling System. Write for details to Alcan Aluminum. Dept. IP. Box 511. Warren, Ohio 44482. Or check specification information in *Sweet's Catalogue*, Section 13.5.

Alcan Building Products
Division of Alcan Aluminum Corporation



Circle No. 310, on Reader Service Card

Blessing the Beaux-Arts

November 1975

The old arch-enemy of Modern Architecture, the Ecole des Beaux-Arts, is the subject of a major exhibition that opened October 27 at the Museum of Modern Art in New York. Given the opportunity only every three years or so to expand beyond its own cramped third-floor gallery, the Museum's Department of Architecture and Design is this time devoting vast exhibition spaces to the institution that made Paris the architecture capital of the world in the century preceding World War I.

Though unlikely to redirect the course of architecture, the exhibition is nevertheless a milestone: the citadel of the Modern Movement celebrating the system those Modern pioneers had to overthrow. At the least, the event marks a reconciliation, an expression of respect for the vanquished.

And reconciliation is, in part, its purpose. Arthur Drexler, Department Director who organized the show, does want to give the Beaux-Arts the fair exposure it has so long been denied. But beyond that, Drexler is expressing his exasperation with the Modern Movement. "Modern architecture is in a bad state," he declares, "and the time has come to re-examine its basic philosophical assumptions." Drexler has chosen to stimulate that re-examination not by singling out any promising current directions; instead, he is recalling the virtues of a previously rejected alternative. (This is not his department's first rebuff to Modern architects; its "Architecture without Architects" show of 1964 posed another ominous alternative.)

What most distresses Drexler about the Modern movement is its failure to fulfill the claims of its pioneers: that architecture could produce dramatic improvement in the quality of life. In fact, says Drexler, "the quality of the built environment has declined, and Modern Architecture bears a substantial share of responsibility for that decline." (Le Corbusier's "tower in the park" image, foisted on the public by later architects, is one of its more obvious sins.)

A thoughtful look back at the Beaux-Arts is particularly timely, Drexler feels, because "some of the main concerns of the Beaux-Arts are concerns that are beginning to interest us today." He cites the revived concern over the relation of current architecture to that of the past, a problem extensively examined under the Beaux-Arts; the concepts of public and private—and the circulation systems of these two domains—were also subjects of much study.



Photo: John Morris Dixon

Entrance loggia, New York Public Library, 1898-1911, Carrere & Hastings.

The design investigations of the Beaux-Arts are, for Drexler, only part of its relevance to our current situation. At least equally worthy of study today is the Beaux-Arts system of education. By standardizing design methods and criteria, the Beaux-Arts established dependable ways to recognize ability and to pass along accumulated knowledge. By contrast, says Drexler, present day architectural education is disorganized and unpredictable—a dire situation in his view.

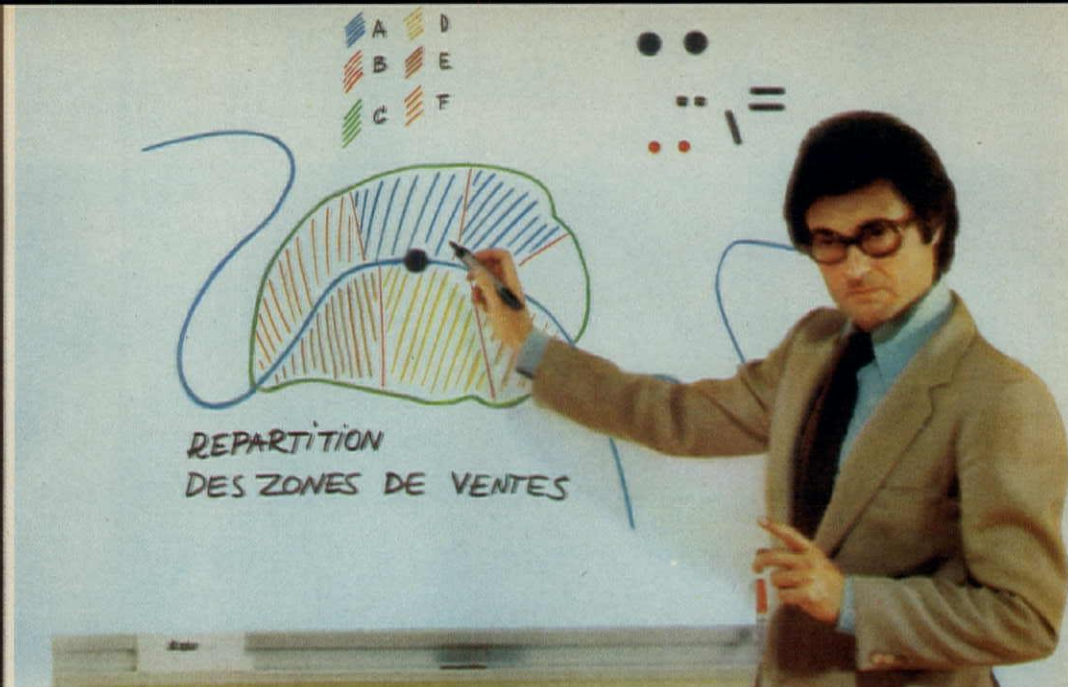
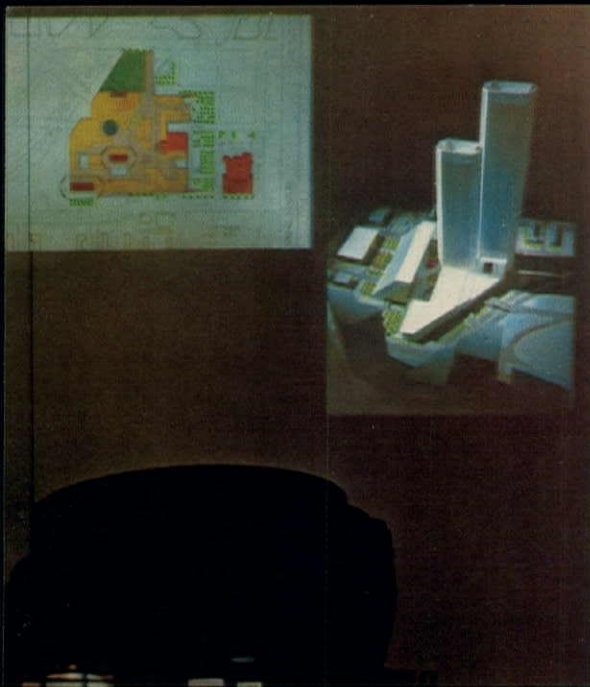
In principle, it is only proper to take an unbiased look at the Beaux-Arts, which after all produced much of the architecture around us that we have recently learned to love. But will it make a positive contribution?

In terms of public image, this exhibition and the forthcoming book can hurt; they will expose the lack of conviction in the architectural community and provide pretexts for various attacks.

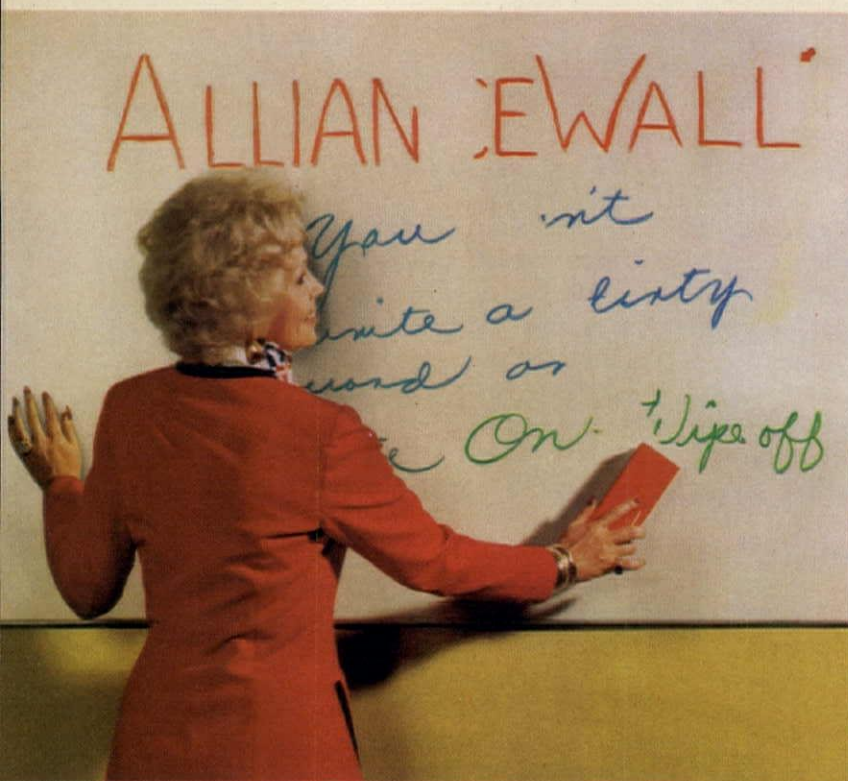
In terms of architecture's internal dialogues, the event can only help, if it does no more than raise some alarms. A serious examination of the Beaux-Arts (to the extent that it actually takes place) will sharpen our understanding of the early Moderns by clarifying the system they revolted against; it will place us on firmer ground for affirming or rejecting early Modern pronouncements.

Can we expect any lessons directly from the Beaux-Arts? Some, undoubtedly, but we must bear in mind the vast differences in circumstances. Authoritarian methods and standardized criteria cannot readily be transferred to a pluralistic culture. However we may long for the orderliness and confidence of the Beaux-Arts, we can never slip back into our grandfathers' world.

John Morris Dixon



You Can't Write A Dirty Word With AllianceWall Rite-On, Wipe-Off Panels. They're Absolutely Dustless.



Specially treated porcelain-on-steel panels and dry marker pens are combined to create a completely dustless writing system. Writing dries instantly and can be erased with a dry cloth or felt eraser. Laminated to low-cost gypsum board, the Rite-On, Wipe-Off panels are fire-proof, inexpensive to install and maintenance free. Floor-to-ceiling length or framed panels come in 50 decorator colors. Lighter shades make excellent projection screens. Panels also double as bulletin boards when used with miniature magnets. Boards can be used with any partition system. No special lighting system is required. Writing surface is guaranteed for 50 years.

For complete information write:

AllianceWall®
Corporation

Box 247, Alliance, Ohio 44601

Plants in Alliance, Ohio; Okmulgee, Oklahoma; Genk, Belgium; Odense, Denmark

Views

Long live the pines

Leafing through your August 1975 issue, I noted the article on "Beds of Academe," and particularly the article on Chandler Village at Worcester State College, Massachusetts. I believe the architecture is interesting and valid, though obviously not without its problems (as observed by David Morton).

One particularly jarring note to me, however, is the brutal and incorrect way the pines have been trimmed, leaving long studs of branches which are unsightly, prevent proper healing of the wounds created by trimming, and which leave the trees very susceptible to disease and insect damage. If the building contractor, landscape contractor, maintenance forces, or whoever is responsible for this outrage, does not know how to correctly "head-up" existing trees, he/she should consult a knowledgeable tree surgeon. There is no excuse for such barbaric practices.

Edward L. Bolce
Consulting Landscape Architect
New York, N.Y.

Quonset trademark

While we appreciate the publicity given to "Quonset" in your August 1975 issue of *Progressive Architecture* we are shocked at your failure to acknowledge that this is a registered trademark and that it is being used without our permission. Any reputable dictionary will confirm that this is a registered trademark.

National Steel Products Company, successor to Stran-Steel Corporation, developed the "Quonset" building of World War II fame and now markets a line of structures for the agricultural market under this trade name.

Gordon K. Rouze
Assistant Secretary
National Steel Products Company
Houston, Tex.

Middle East correction

The reference for Middle East practice (P/A Sept., 1975, p. 28) stated that the Overseas Private Investment Corporation (OPIC) in Washington, D. C. offers long-term financing up to 90 percent on eligible projects. The statement should have read that OPIC offers insurance up to 90 percent of eligible projects. P/A apologizes for any inconvenience to our readers due to this error. Further information may be obtained by calling OPIC 202/254-3260.

[The editors]

Color meets architecture

Your recent article (P/A, Sept. 1975), "The Road to Zanadu and Beyond" is a great contribution to the use of color in architecture and is even better than the author's previous writing, "The Powerful Hum of Color."

In this day of glass, granite, concrete, aluminum, and bronze, the vibrant excitement of color is a welcome relief. Except in the field of residential architecture, such application of massive exterior color is unknown.

As Chairman of the Inter Society Color Coun-

cil's major committee, "Color in Building," I welcome such exposure to the use of color. Prominent architects and colorists on the committee have been studying color applications in architecture and find a new interest in the use of exterior color. We have named this the "Brightstyle."

The use of inexpensive substrates such as masonry, steel, and wood require the dimension that good color can contribute. However, color is a dimension not readily understood in technical architectural terms. How does an architect specify a color to be used? By a sample? (It fades.) By a color card (printed in an ink not similar to the actual color and having a proprietary name)? There is an answer offered by the Color in Building Committee and approved by both American Architectural societies. This is the Universal Color Language, an application of the Munsell Color System.

Current committee activities in regard to color

specification deal with tolerances, surface dimension such as gloss and pattern, methods of indexing colors for office use, and methods of securing acceptance of the specification.

Your article is a treasure of color usage and can be certainly considered a useful tool in the promotion of color.

Milo D. Folley, AIA
Chairman, Committee 30
Color in the Building Industry
Syracuse, New York

Correction

The credits for the Roosevelt Island submission by Kyu Sung Woo (P/A, July, p. 60) should have listed Kerl Yoo, Megan Lawrence, Hong Bin Kang, Sun Kwon Kim, Sun U Nam, Joon Ku Ra, and Yong Jin Han as consultants instead of assistants along with Kenneth Halpern and Roberto Brambilla.

SOUNDBLOX[®]

Sound-Absorbing Structural Masonry Units

Backed by

PROVEN PERFORMANCE

- 10 YEARS' experience
- THOUSANDS of installations
- 10 MILLION blocks in place

CONTROL NOISE--CONTROL COST

Now for over 10 years, SOUNDBLOX units have offered an attractive, efficient and economical means for constructing sound absorbing walls — indoors or out. They are load-bearing and permit sound control to be built into the structure rather than having to be added separately at increased cost.

The usefulness of time-proven SOUNDBLOX has now been greatly extended by development of a second generation, SOUNDBLOX 2, with markedly greater acoustical efficiency.

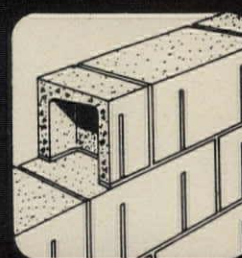
SPECIFY SOUNDBLOX WITH CONFIDENCE!

See Sweet's 1975 Architectural or Industrial Construction Files (9.1/Pr) or send for new 8-page folder giving complete technical information and in-use application illustrations.

Nationwide availability...made near your jobsite!



SOUNDBLOX 2...with a whole new dimension of sound absorption performance.



The Proudfoot Company, Inc.
ACOUSTICAL PRODUCTS

P.O. BOX 9, GREENWICH, CONNECTICUT 06830 A/C 203 869-9031

SITE... FORM... FUNCTION...

One of the most difficult architectural tasks is the successful incorporation of a highly functional contemporary building into a traditional and eclectic setting. This was the problem confronting Ezra D. Ehrenkrantz and Associates when they were commissioned to design three dormitories to be located in Harvard Yard, the University's hallowed inner campus; the success with which they resolved it has already been nationally acclaimed.

Meticulous attention was given to every building component, and we are particularly gratified that TCS (Terne-Coated Stainless Steel) was specified for all roofing. The governing considerations here were the material's unsurpassed longevity; its exceptional resistance to even the most severe corrosive attack, and its predictable weathering to a uniform dark gray which would be compatible with existing roofs on the campus.

FOLLANSBEE

STEEL CORPORATION
Follansbee, West Virginia

Circle No. 324, on Reader Service Card

ONE OF SEVEN BUILDINGS, CANADAY HALL, HARVARD UNIVERSITY,
CAMBRIDGE, MASS.

ARCHITECT: EZRA D. EHRENKRANTZ & ASSOCIATES,
NEW YORK, N.Y.

ROOFER: BURGESS & BLACHER COMPANY,
AVON, MASS.

(Photograph by Steve Rosenthal)





Certain things you can depend on.

Mom and Rover are pretty reliable. So is the inevitability of taxes. You can also put your faith in a few, very select mechanical devices.

One of them, that a lot of architects have depended on for years, is a Halsey Taylor water cooler.

Exclusive design features

It's no accident that our coolers deliver years of reliable service with very little maintenance. We've designed a lot of extras into them. Such as our exclusive automatic regulating valve that maintains a constant stream height regardless

of varying line pressures; heavy-duty start capacitors that assure compressor start-up, everytime; and our efficient pre-cooler that boosts cooling capacity by 60 percent.

We balance the complete cooling system for longer service and lower life cycle cost. And happier customers.

Color and textural harmony

Each of our welded unitized cabinets is topped by a buffed stainless steel receptor and Halsey Taylor's

unique anti-squirt twin-stream bubbler. To harmonize with virtually any interior, we offer cabinets in satin finish stainless steel, PATINA bronze tone stainless, eight different Polychrome colors and a choice of vinyl clad steels. We also offer the widest selection of water coolers in the industry.

Halsey Taylor water coolers. Not a big item in your specs but something you can honestly depend on. We'd like you to have our new catalog. Write to Halsey Taylor Division, 1554 Thomas Road, Warren, Ohio 44481.

Halsey Taylor
KING-SEELEY **KST** THERMOS CO.

HOW TO MAKE A BUILDING STAND OUT FOREVER:

STYLE AO

STYLE MS

GIVE IT OUTSTANDING, FOREVER KIND OF SIDING

New Agedroc is that kind of "indoor outdoor" siding. Its pebbled surface gives a time and weather-worn appearance — a look of ageless performance — that is totally new in building panels.

Agedroc is made by Atlas Asbestos, Canada's leading manufacturer of AC products. It's durable, and offers optimum resistance to deterioration due to weather. It is non-combustible and water resistant. It does not require paint but may be coloured where design requires colour.

It comes in standard four foot widths, 4 to 12 foot lengths and thicknesses from 1/4" to 1/2". Where required, Agedroc finish can be provided on custom molded fitments, feature strips, corner rolls, edging, etc. to complement Agedroc facade areas.

Agedroc must be considered one of the most attractive exterior and interior finishes.

For more information on Agedroc, write to us. Ask for Construction Commentary Vol. 2 No. 3.

IN SERVICE THROUGHOUT NORTH AMERICA
Manufacturing facilities in Montréal, Qué. and Mission, B.C.



ATLAS ASBESTOS COMPANY, Montreal

District Sales Offices (Canada):

5600 Hochelaga, Montréal, Qué. H1N 1W1 (514) 259-2531
131 Brown's Line, Toronto, Ont. M8W 3S7 (416) 259-9281
833 Cundy Ave., New Westminster, B.C. V3M 5P6 (604) 521-7751

Factory Representatives (U.S.A.):

Eastern States:
L. Robert Enslin, residence,
P.O. Box 221 Ambler, Pa. 19002
(215) 646-6661

Western States:

D. R. Stevenson, Atlas Asbestos Company,
833 Cundy Ave., New Westminster, B.C.
V3M 5P6 Canada V3M 5P6 (604) 521-7751

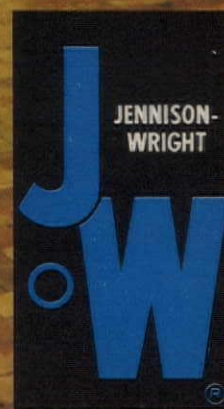
WE KEEP AN EYE ON THE FUTURE

Jennison-Wright Kreolite Wood Block Floors are adding new life to all sorts of establishments. The naturally beautiful effects of wood, and particularly end grain wood, have captured the imagination of eclectic owners, architects and designers. Though end grain wood blocks were originally created for industrial floors and have served that purpose long and well (for over 60 years) our new process using a clear, transparent preservative has opened up many new fields for this handsome product. (Developers of shopping centers, book stores, restaurants, etc., please take notice) It not only enhances

blocks blend beautifully at Abercrombie and Fitch, too!

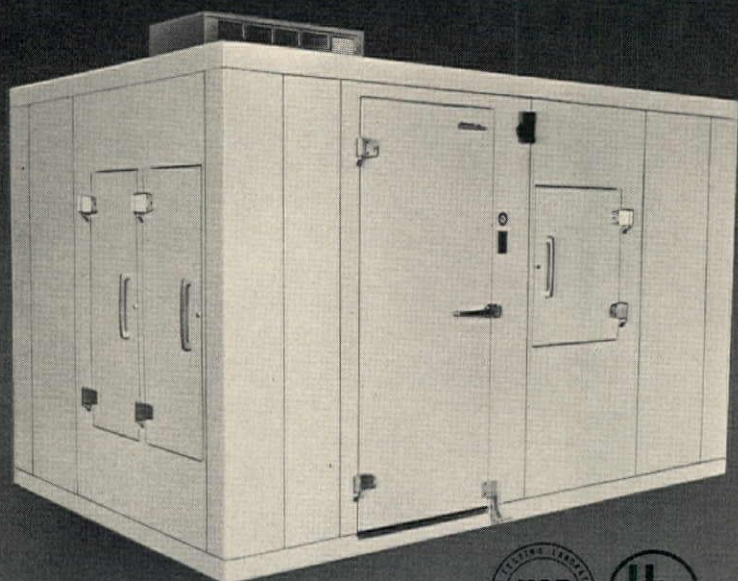
its environment with mellow warmth and charm, but it also offers extreme durability and relaxing "softness" for tired feet—and jangled nerves. This is truly a luxury floor that deserves the acclaim it is receiving. We'll welcome your expression of interest. Please write us .

The Abercrombie & Fitch Store, Oak Brook Plaza in Oak Brook, Illinois



The Jennison-Wright Corporation, P.O. Box 691, Toledo, Ohio 43694 . . . you'll find us in Sweet's Catalog and in the Yellow Pages

IT FITS



VOLLRATH WALK-IN COOLER/FREEZER

Name your dimensions and we'll provide a modular walk-in that fits . . . exactly. We use true, full-size dimensions, not nominals, making your specification work easier. Means more storage space, too. To insure a perfect fit, all components are factory tested. Vollrath walk-ins are fabricated in accordance with N.S.F. and U.L. standards, using the latest technology: foamed-in-place urethane insulation, posi-loc assembly, fully covered floors and ceilings, tight energy-saving joints and doors. Wide choice of options, finishes, self-contained or remote refrigeration systems to fit your needs and requirements.

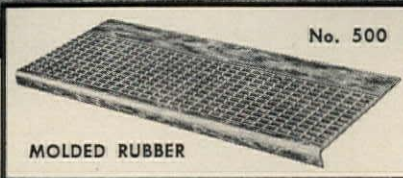
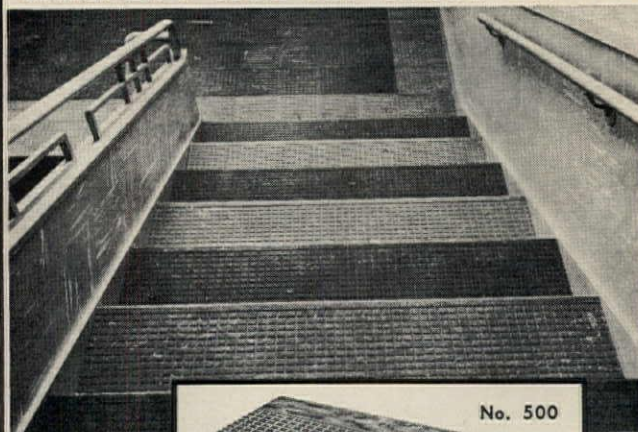
Ask your Vollrath equipment specialist for details, or send for our comprehensive design/specification manual.



Vollrath
THE VOLLRATH COMPANY • SHEBOYGAN, WIS. SINCE 1874

Circle No. 361, on Reader Service Card

CARPET? Not for these stairs!



FOR SAFETY, LONGER LIFE, CLEANABILITY, LOWER MAINTENANCE COST ON HEAVY TRAFFIC STAIRS CHOOSE MUSSON'S MOLDED RUBBER TREADS.

Musson No. 500 treads are the heaviest molded rubber treads. 5/16" thick, 12½" deep. Lengths: 24" to 72". Reinforced tapered nosing. Colors: Black or Marbleized Red, Green, Gray, Mahogany, Beige, Walnut, Birch, Oatmeal. Exclusive "Musson Safety Design".

Write For Catalog, Samples, Prices

THE R. C. MUSSON RUBBER CO.

1320 Archwood Ave.

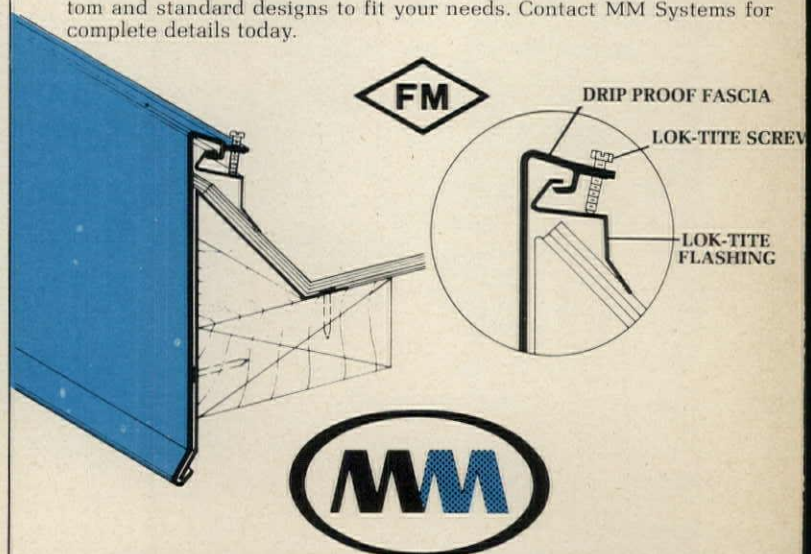
Akron, Ohio 44306

Circle No. 340, on Reader Service Card

THE MATERIALS MAKE IT... THE SYSTEM SHOWS IT

Send for MM Systems' FREE brochure and let us show you how our proven engineering designs can help you with your roofing construction needs. For example, the brochure includes MM Systems' FM approved DRIP PROOF fascia system with the exclusive non-penetrating LOK-TITE design.

All MM Systems' products are factory prefabricated and include custom and standard designs to fit your needs. Contact MM Systems for complete details today.



MM SYSTEMS CORPORATION

4520 ELMDALE DRIVE, TUCKER, GEORGIA 30084 / PHONE (404) 938-7570

Circle No. 344, on Reader Service Card

ANOTHER PEACH FOR GEORGIA.



Triangle Building, Atlanta, Georgia. Glass: Vari-Tran 1-114.
Architects: Thompson, Ventulett, and Stainback.
Mechanical Engineers: Mauldin & Associates.

A TRIANGLE OF LOF REFLECTIVE GLASS POINTS TO SAVINGS FOR NORTH BY NORTHWEST.

Within suburban Atlanta, the Triangle Building in the North by Northwest office community rises into the Georgia sky like a massive sculpture. When the owners chose this challenging design, they had to select a glass that would make it work. The selecting stopped when they discovered LOF reflective glass with Vari-Tran® coating in Thermopane® insulating units.

The owners of the Triangle Building liked the aesthetic qualities this glass added to their visually pleasing design. They were also impressed with its energy saving properties—the ability to cut solar heat gain during the summer and control building heat loss during the winter.

In fact, when they compared the cooling and heat load requirements of Vari-Tran 1-114 to those of 1/4-inch bronze-tinted glass the figures were more than impressive. Had they selected bronze-tinted glass for their building, the cooling load would have been 447 tons and the heating load 3.8 million BTUH. By choosing Vari-Tran 1-114 in Thermopane units, their cooling requirements were cut to 297 tons and the heating load to 2.2 million BTUH. A substantial energy savings could be realized for years to come.

What's good for the Triangle Building may be even better for a building you have in the works. Contact one of our highly qualified architectural representatives. He'll be glad to help you save energy dollars with our high performance glass. Or write Dan Hall, Libbey-Owens-Ford Company, 811 Madison Avenue, Toledo, Ohio 43695.

LOF

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.

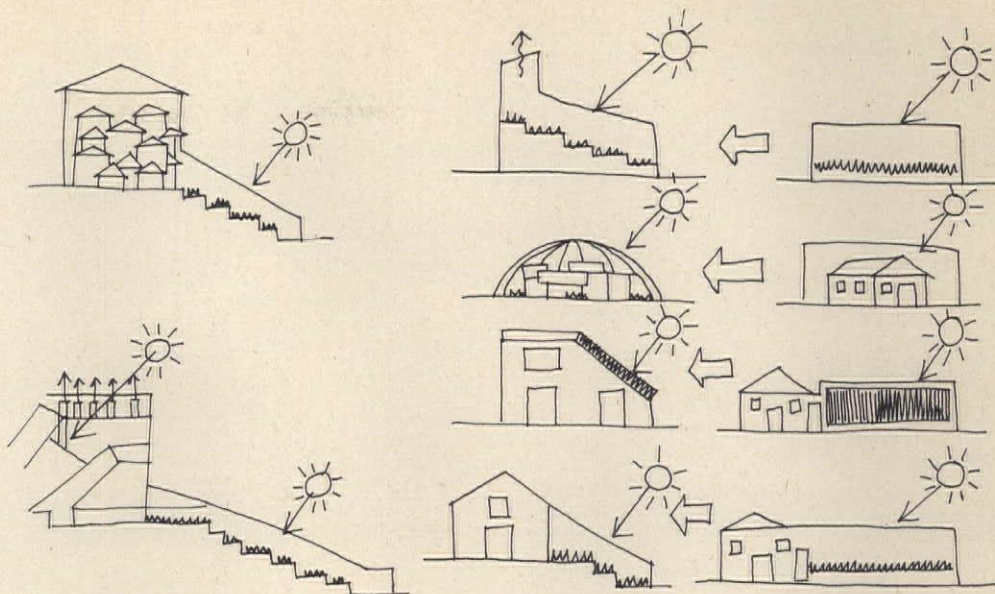
With Shakertown Panels you get all the things you like about individual shakes and shingles. Of course, there's one thing you won't get, and that's high labor cost. So why not find out more? Write us.



Shakertown® Panels

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

News report



Soleri introduces Two Suns Arcology

Paolo Soleri presented to an Eastern audience his recently completed Two Suns Arcology prototype of a solar energized city, research for which was substantially funded by a grant from the Xerox Corporation. The model of the Two Suns Arcology next will be on view for 12 weeks starting April 7 at Xerox Square in Rochester, N.Y.

The Two Suns Arcology is based on several effects of the sun. The greenhouse, chimney, and apse effects, as Soleri calls them. An arcology (city) is situated directly above a large, terraced greenhouse which sends up warm, moist air through the chimney effect into the city where it may be used or stored. Meanwhile, apse-shaped elements of the city catch sunlight in the winter providing natural heat; but in summer they shield the inhabitants from hot rays, providing natural cooling.

Soleri for years has advocated a harmonious blend of architecture and ecology ("arcology") and is in the process of building a small arcological city, Arcosanti, near Phoenix, Ariz. (P/A, April 1973, p. 76). His recent appearance in the East, at Spirit of the Earth Gallery, New Hope, Pa., was a fund-raising event to support his foundation's work at Arcosanti. The show and Soleri's two talks were expected to raise several thousand dollars.

Recently completed at the site are a ceramics apse and a second vault; landscaping and new retaining walls have given beauty to the project, which

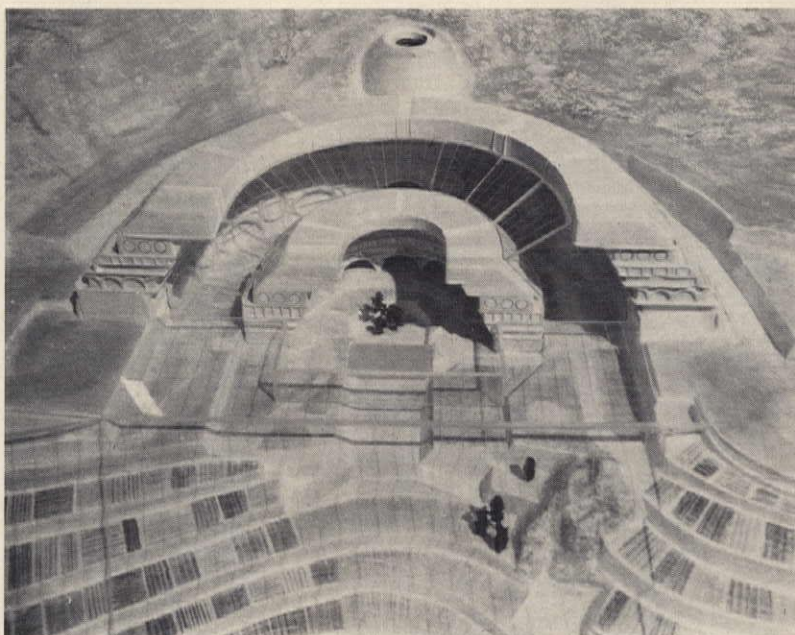
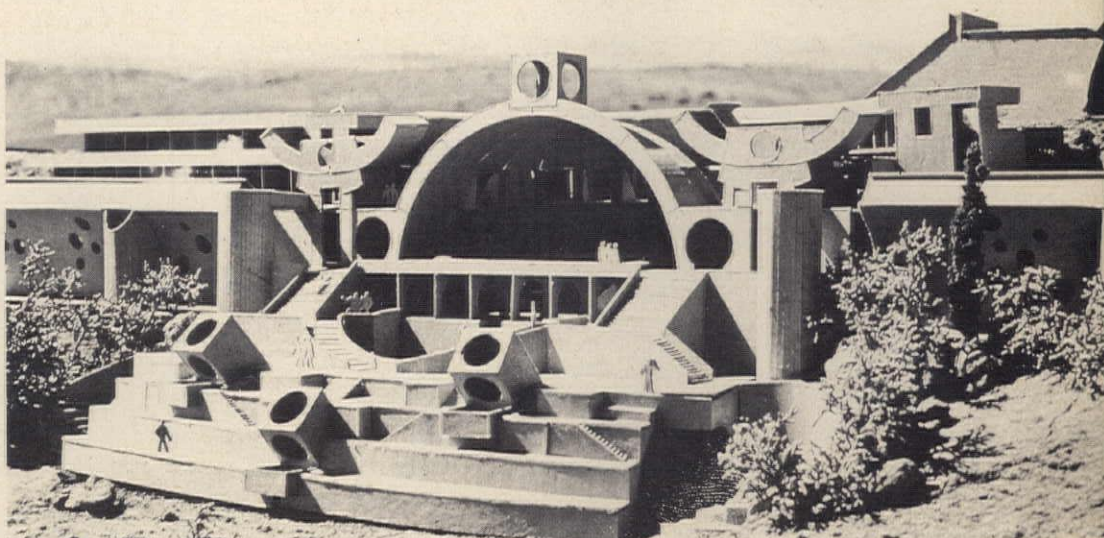


Photo: Sam Carter

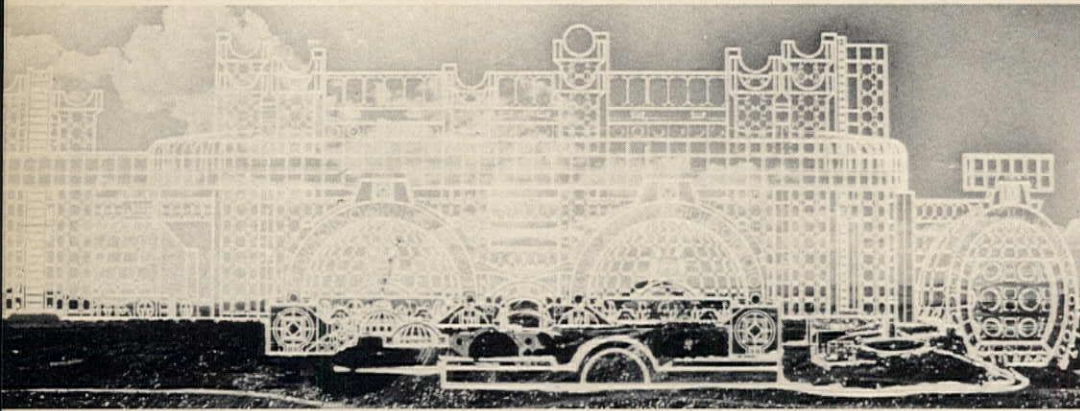
Two Suns Arcology model at Spirit of the Earth Gallery, New Hope, Pa.; next on view at Xerox Square in Rochester, N.Y.

Photo: Ivan Pintar



Teilhard de Chardin Cloister model.

Photos: Ivan Pintar



Montage of Arcosanti site, when completed.



Newest Arcosanti addition, Crafts 3 (left).

Photo: Sam Carter



Arcosanti Metals by Soleri on exhibition.

has been designated a Bicentennial celebration site. Already in use are a foundry, studios, and a vault for construction work. Nearing completion is a crafts/visitors center, and soon to commence is construction on a pool and small laboratory building.

Working drawings for a cultural/living center called the Teilhard de Chardin Cloister have been started. This project incorporates elements of the Two Suns Arcology—the greenhouse and apse effects—and drawings of it will be included in the exhibit at Rochester.

Soleri said the energy crisis has caused some redesign of Arcosanti—

“to introduce more clearly and critically” the ecological appreciation he has propounded for years. He named the prototype Two Suns Arcology “because it involves the physical sun . . . and the second sun, spiritual man.”

The city should not be shunned; rather, according to Soleri, it is the natural evolution from matter (entropic) to spirit (mental). Cities are themselves the result of a natural phenomenon, the urban effect, which is “the most fundamental aspect of life—interdependence.” A common mistake is to associate crime with density and city life, whereas in fact “a town was originated to fight criminality.” Our cities and natural resources are in a crisis because “we are over-technologized for our spiritual maturity.”

The answer is not to abandon technology but to develop a higher spirituality. “This epoch is, through technology, setting up for something not clear but, hopefully, for a greater spiritual intensity,” he prophesied.

At present Soleri is collecting material for his fourth book, which will discuss the urban effect in both ecological and theological terms. Other upcoming events and activities include a talk by Soleri before the National Council of Art Administrators meeting in Arizona Nov. 14; an appearance Nov. 18 at Gettysburg College, Pennsylvania; and a tour of Cosanti and Arcosanti by the Associated Student Chapters/AIA.

Parts of the special Soleri exhibition will remain on view at Spirit of the Earth beyond the mid-November closing: these include bronze and ceramic bells and Soleri’s newest collection of “Arcosanti Metals”—cast bronze figures several inches high. Some figures are

bells and some are set in separately cast metal frames. Also available is a series of four Bicentennial bells to be cast with the 1976 date. These bells are a polished textured cast bronze hanging from links of bronze and copper bars. [AC]

Singer Island competition announced

A major urban design competition has been announced for Singer Island, Riviera Beach, Fla. Sponsored by the city and Singer Island Developers, the competition involves design of an urban street and related commercial facilities. Awards totaling \$11,000 are offered, and the winning architect/landscape architect may be selected to complete the project. The professional adviser is Joseph Middlebrooks, AIA. Entries are due Jan. 15. Further information is available by writing Urban Design Competition, Riviera Beach, City Hall, Riviera Beach, Fla. 33404.

P/A jury picks 20 winners

Entries to the 23rd P/A Awards competition totaled 462, compared to last year’s 737, reflecting the profession’s sharp decline in new projects. The eight jurors picked 20 projects for awards or citations to be published in P/A’s January issue.

Chairman of this year’s jury was Cesar Pelli, of Gruen Associates, Los Angeles, who had been a juror in the P/A competition seven years ago. Serving with him as the architectural design team of jurors were Arthur Cotton Moore of Washington, D.C., Stanley Tigerman of Chicago, and William Turnbull, Jr. of San Francisco. Planning jurors were Raquel Ramati of New York and Donald S. Appleyard of Berkeley. Research jurors were W. Russell Ellis of Berkeley and Gary A. Hack of Ottawa, Canada.

The single family house category contained the largest number of submissions, 79, as it consistently has done, and elicited from Moore the comment, “I think it’s too bad, the only time we can find the architect happy and at work is on the single house.” There was a significantly small number of entries, 37, in the multi-family hous-

ing category. This concerned the jurors to the extent that they reviewed the entire category but eventually only singled out five for consideration, and ultimately selected none as a winner.

"Well," said Tigerman, "we can only respond; we can't initiate." Then he added, apparently alluding to lean economic times, "and that's what's with these guys—they're responding, too."

Russ Ellis said the research entries—there were 34—gave him a problem in that the overall quality was of such a level that he didn't have a "struggle picking out the great ones." And he felt none of the projects made any breakthroughs.

The planning team was looking for such criteria among its 61 entries as language chosen for communication, innovation, implementation, and community participation. One observation Raquel Ramati offered was that numerous entries dealt with street planning but none came out a winner.

Chinese architects repay U.S. visit

A delegation of 10 architects from Red China toured the United States for three weeks this fall, the guests of the American Institute of Architects. The visit had been in the planning since a group of 14 American architects toured China in the spring of 1974.

Their itinerary included visits to architectural offices and tours of 15 cities and communities plus such non-professional excursions as attending a horse show in Los Angeles.

The tour began in New York where they visited the offices of Max Urbahn, who organized the trip of Americans to China, and Stern & Hagmann, who also hosted a reception at the Architectural League of New York. They dined at Philip Johnson's, attended a reception at the home of I.M. Pei, and paid a visit to Bloomingdale's department store.

The one-day stay in Boston included a tour of the government center and a visit to MIT where they learned about computer applications in architecture and engineering.

In the mid-Atlantic area they met with senators and congressmen in Washington, visited Norfolk, Virginia Beach, colonial Williamsburg, Charlottesville, Annapolis, and the new



Design jury (clockwise) Tigerman, Pelli, Moore, Turnbull.



Planning jury Ramati and Appleyard.



Research team Hack (left) and Ellis.

Photos: William Slayton

towns of Columbia, Md., and Reston, Va. Among architectural sights were Dulles Airport, the International Monetary Fund Building, a Metro station, the Hirshhorn Museum, and the new addition to the National Gallery. They attended a performance at Kennedy Center and visited Georgetown and the White House.

A day was spent in Columbus, Ohio, touring Ohio State University and visiting a new housing project by SOM and a discount department store. In Columbus, Ind., they went on a tour arranged by J.I. Miller, honorary AIA, of Cummins Engine Company.

In Chicago for three days, they saw new buildings downtown, toured historic Oak Park, lunched on top of the Sears Building, and inspected O'Hare Airport.

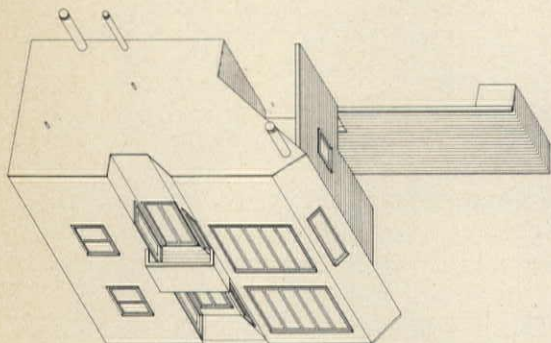
On to Los Angeles, they spent a morning at Disneyland, visited the University of Southern California and toured the Bunker Hill renewal area. Sights in San Francisco included the Xerox Data Systems Plant, Golden Gateway renewal project, a BART presentation, the Oakland Museum, Ghirardelli Square, and the Cannery.



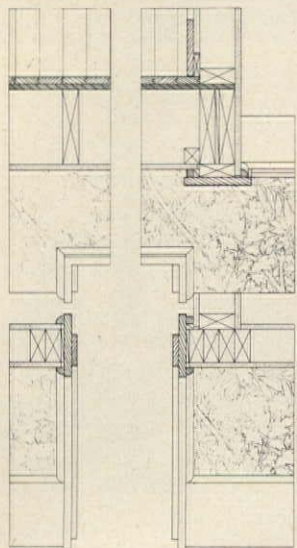
Chinese delegation head Ho Kuanh-tsien with former UDC chief Ed Logue (left) and AIA president William Marshall. Members of the delegation (below).



News report

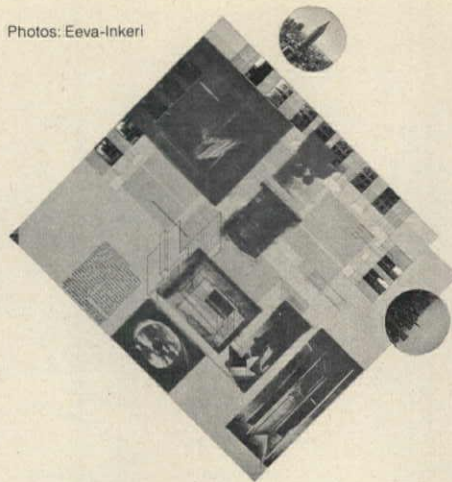


Charles House (above, below) by Stuart Cohen.

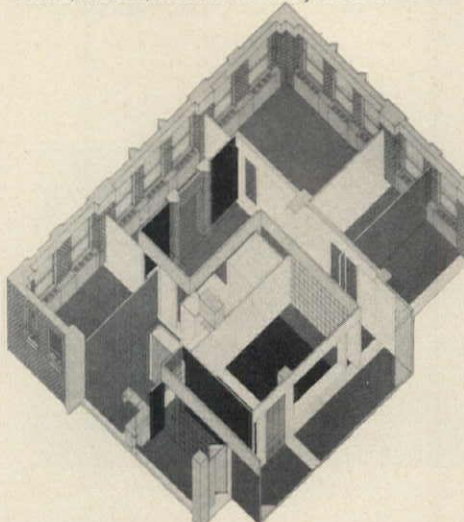


Detail of texture created visually by wallpaper.

Photos: Eeva-Inkeri



Views, moods, of a law office by Susana Torre.



Spaces in tension with matrix grid of law offices.

'Goodbye Five: Work By Young Architects'

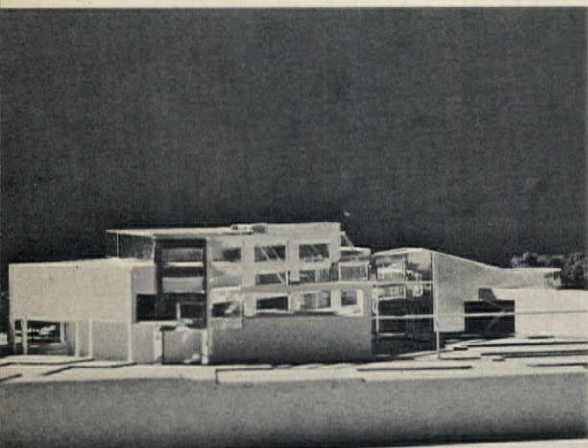
An exhibition entitled "Goodbye Five: Work by Young Architects" welcomes art back into the design realm. The show opened at New York's Institute for Architecture and Urban Studies, and is presently available for travel.

Nineteen architects and firms were represented in the show; there were a number who owed a debt to the New York Five and others of the Venturi camp—even a Miesian scheme or two. Yet the show seems to give the lingering impression that the greatest kinship is with the artist: especially the environmental sculptors and conceptualists who have been working the last seven or eight years with three- and four-dimensional light, space, line, form, and symbol.

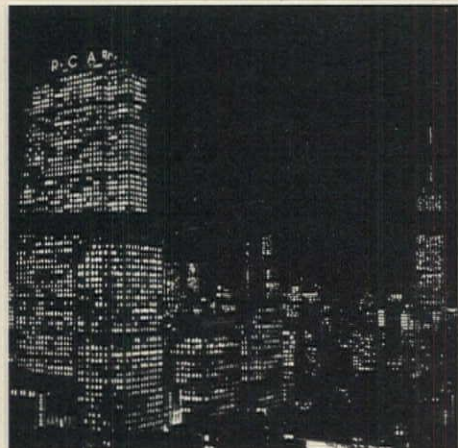
Although included in the show were architects from as far away as Houston and Chicago in the States and from Austria, Belgium, Holland, and Italy, the exhibit was most representative of the New York thought with its formal substance and intellectual exercises of puns and imagery. Social issues, participatory design, and environmental impact in the ordinary sense were not evident concerns.

Yet each designer was reaching for a level of art which, when absent, causes even the most practical design solution to fail. There is cause for rejoicing that art again is pursued as a tangible—even an essential—part of the building process.

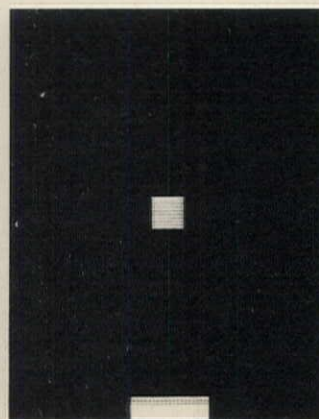
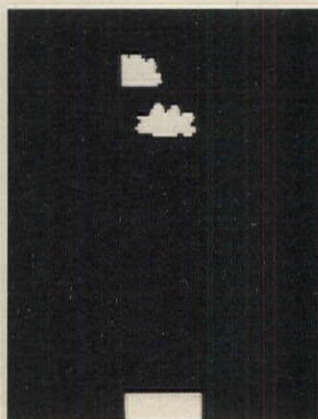
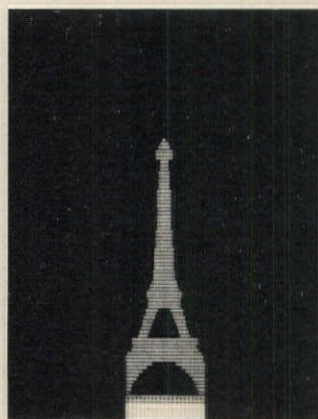
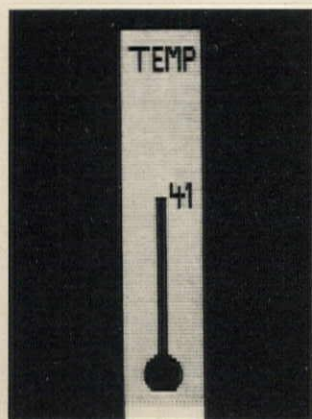
Speaking recently at the Institute on the subject of architecture, spirit, and art, particularly surrealism, John Hejduk, one of the New York Five, remarked that with the swing back to aesthetics from the 1960s preoccupa-



Model of NARAS Hall of Fame by Incahooots.



Lighting proposal for Manhattan by Allan Wexler.



World Trade Center selections from Wexler's Proposal for Manhattan Skyline—transformation through control of lighting within existing buildings.

tion with social concerns, architecture will see an influx of art imitators.

"Cheap surrealism is coming," he said, "because people feel they are artists way beyond their competence." He made clear, however, that he didn't hold this opinion of the work in the "Goodbye Five" exhibit.

Among the art-evocative works in the show were Allan Wexler's proposal for interior lighting of the World Trade Center towers at night to create images not only of the familiar Christmas tree but also of buildings such as the Eiffel Tower or of objects like a thermometer. Leon Krier also takes familiar objects—a chair for example—and through a series of drawings isolates the object and renders it disfunctional before recombining its elements into an architectural environment. Massimo Scolari's fine pencil drawings were of irregular geometric forms, and Richard Hammer's schemes combined minimal sculptural forms with existing structures, like a stairway between two buildings, to make a special place.

Technique also was a subject of invention: Susana Torre presented images of window views and photo fragments of memory screened on clear acetate superimposed over an office interior drawing. Studio Works: Hodgetts & Mangurian offered a dozen or more prints of the same building duplicated in a variety of color photocopies. Architects Incaboots: Casbarian/Samuels/Timme showed their Peaceable Kingdom School (P/A Sept, 1974, p. 24), a barn structure painted to match the environment, and a proposal for the National Academy of Recording Arts and Sciences Hall of Fame. Stuart Cohen's work included a small vacation home for a bachelor; the "texture" of the interior walls—not to be of rough or unfinished mate-

rials—is rendered by a leafy green chintz wallpaper, designed in the 1880s by William Morris, so that the view inside and out will be foliage.

For details on travel arrangements of the exhibit, write Andrew MacNair (organizer of the show and one of the exhibitors), Institute for Architecture and Urban Studies, 8 W. 40 St., New York, N.Y. 10018. [AC]

Black architects on political move

The four-year-old National Organization of Minority Architects (NOMA), meeting in September in Washington, D.C., was most concerned with the American Institute of Architects' proposed cutbacks in its minority affairs activities. The majority of NOMA's members also belong to the AIA, and although the AIA has cited a slow economy as its reason for budget-trimming, NOMA is fighting to save previous gains.

At stake is the full-time AIA staff position of Deputy Vice President for Minority Affairs which has been slated to be reduced to a part-time job with a reduced budget. In making its stand known, NOMA also has told the AIA that other key positions occupied by blacks, such as the Chairman of the Community Services Commission, must continue to be filled by a minority architect, that the commission's Advisory Council, chaired by a black, must be expanded, and that all AIA committees and task forces must have a minority representative.

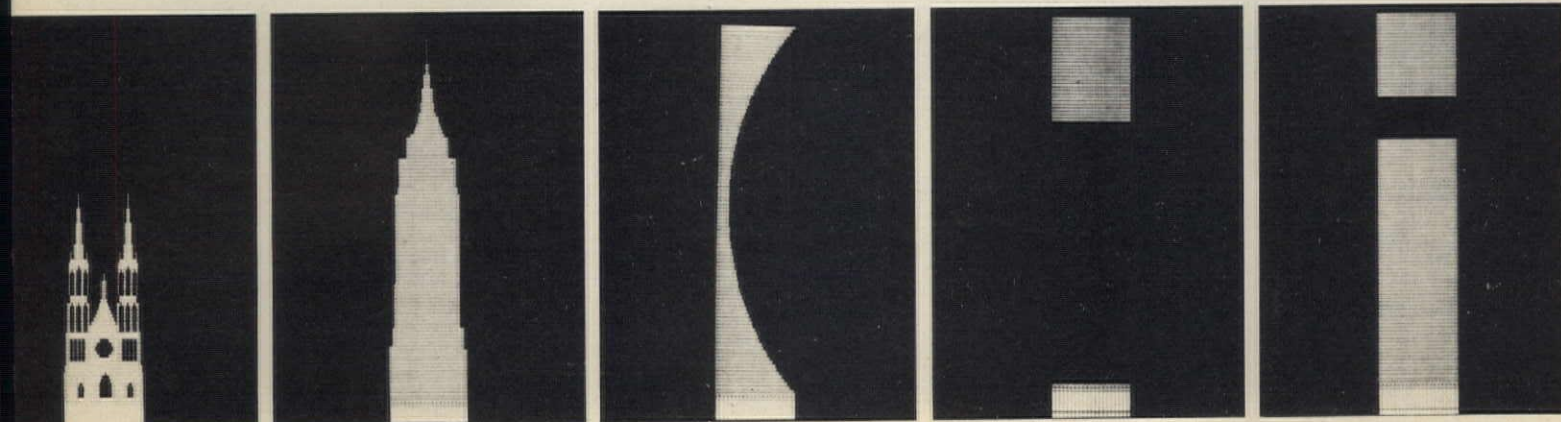
NOMA held its convention at the Joint Annual Minority Conference which brings together a growing number of organized minorities in the building field. New this year at the conference was the National Association of

Planners. Other conference groups are the United Mortgage Bankers of America, the National Association of Minority Contractors, and the National Association of Housing Specialists. The conference—held to coincide each year with the Black Caucus—attracted 160 registrants, and NOMA, with 28 members present, was the second largest in number after the contractors, who had 88 in attendance.

If the theme in the 1960s was social revolution, the theme in the 1970s, judging by this conference, is political revolution. Beyond dispute, the most rousing speaker during the three-day meeting was Dr. Hortense W. Dixon, executive assistant to the mayor of Houston, whose appeals to rise in unity and grapple with the political system met with bursts of applause and shouts. "You don't get something unless you give something," said Dr. Dixon, reminding them that "power yields nothing to anyone." In particular, she warned blacks not to allow their most valuable property in the inner city to get out of their hands. "In back rooms," she charged, "there are carefully planned strategies for redevelopment of property historically inherited by the poor—often the blacks."

The same position was voiced by Eddie N. Williams, president of the Joint Center for Political Studies, who returned to the theme—originally stated by the 19th-Century black statesman Frederick Douglass—"Power concedes nothing without a struggle." He said, "I find it inexcusable to see how in-architects stay aloof from the political fray and by their example discourage use of political power. Politics must be the new cutting edge of the civil rights movement."

Behind the unrest was an awareness that blacks receive a small fraction of



News report

the available construction work—particularly government work. A NOMA task force researching commissions by the GSA, the leading government builder, over a recent five-year period revealed that \$30 million in fees was paid for work, of which minority firms received less than \$750,000. Of that amount, \$49,000 was shared by black firms and the remainder went to two joint ventures of small black and large white firms—the white firms collecting the larger portion of the fees.

In this area, NOMA feels small firms in general—not just minority firms—are discriminated against, and it has proposed changes to the new GSA architect-engineer selection guidelines. Among them are provisions for redefining the sizes of firms to make more small firms eligible for work and for prohibiting large companies from competing with small ones for even the small projects—as has been the case during the recession.

NOMA honored its 12 founders during a joint awards presentation by giving onyx plaques to Wendell Campbell of Chicago; Leroy Campbell of Washington, D.C.; John Chase of Houston, Tex.; Jeh Johnson of Poughkeepsie, N.Y.; James Dodd of Sacramento, Calif.; Harold Williams of Los Angeles; Nelson Harris of Chicago; William Brown of Newark, N.J.; Pedro Lopez of St. Thomas, Virgin Islands; Robert Wilson of Stamford, Conn.; Robert Nash of Washington, D.C.; and Kenneth Groggs of Chicago, Ill.

New officers of NOMA are Leroy Campbell, who takes over from John Chase, president; vice-presidents Har-

old Williams of Los Angeles, Robert Nash, Charles McAfee of Wichita, Kan., and Jeh Johnson; Ernest Clay of Champaign, Ill., secretary; Robert Coles of Buffalo, N.Y., treasurer; and Arthur Silvers of Los Angeles, parliamentarian and historian.

Van Bruner of Haddonfield, N.J. was named Director of Student Affairs to begin organizing student chapters of NOMA at some 11 university and college campuses, and Robert Andrews, of Princeton University, will be the president of the NOMA-affiliated student organization. [AC]

Competition design for Harvard sports

For expansion of its athletic facilities, Harvard University has held an unconventional competition among ten architect-contractor teams, in which initial and life-cycle costs were weighed along with planning and design. Result: a winning scheme by The Architects Collaborative with Turner Construction Company, which draws motley existing structures into a well-organized complex and is outstanding for long-term operating economy.

For the participating architects, contractors, and their engineers, the competition represented a substantial expense, only a fraction of it covered by the \$5000 honorarium for each losing team. Some teams agreed to participate in the expectation that only four or five rivals would meet the university's exacting prerequisites covering experience and capabilities, but ten teams were ultimately invited to submit design/build proposals. Architecture firms competing besides TAC, in-

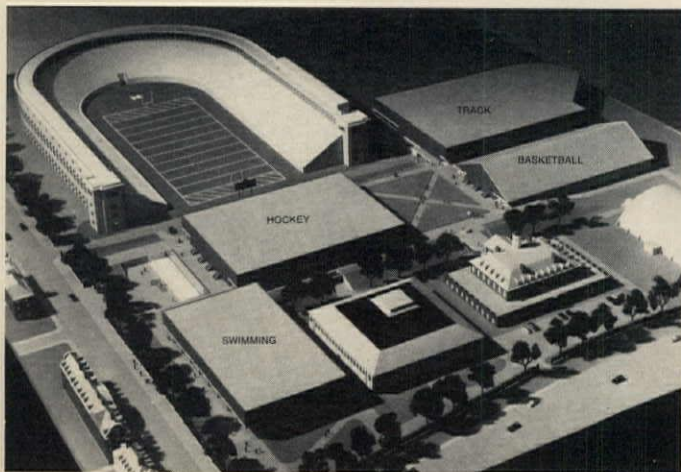
cluded: the Aldrich Co. of Cochituate, Mass. with Richard Moger of New York; Ellerbe Architects of Minneapolis; Finch-Heery, a joint venture of two Atlanta firms; Perry Dean Partners of Boston; Sert, Jackson & Associates of Cambridge; Hugh Stubbins & Associates of Cambridge; The Eggers Partnership and Ehrenkrantz & Associates, both of New York; Benjamin Thompson & Associates of Cambridge; Daniel F. Tully Associates of Melrose, Mass.

Competitors dealt with a highly detailed program calling for 250,000 sq ft of new construction, plus renovation of 75,000 sq ft. Evaluation was carried out by a "technical committee" of 18 professionals from the university faculty and staff in such disciplines as architecture, planning, engineering, construction and financial management, and athletic administration.

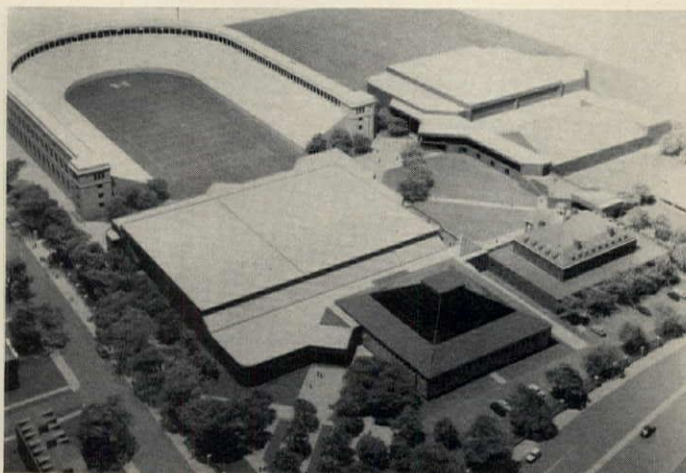
The first round of judging did not produce the anticipated winner, but rather a standoff between the TAC/Turner scheme and the one submitted by the Aldrich Company and Richard Moger (with the Carlson Corp., contractors). Each of these teams was asked to submit a revised scheme, responding to a list of deficiencies and discrepancies, for which an additional \$10,000 was offered, plus \$3000 toward the cost of a model.

Although the Aldrich/Moger/Carlson plan was said to be "impeccable" in terms of functional program, the revised TAC/Turner scheme won on the basis of its urban design qualities, as well as its long-term cost and scheduling advantages. Neither of these submissions was lowest in initial cost—a factor that some competitors assumed would be paramount. Although first costs cannot be easily compared, be-

Model: Model Associates Inc. Photo: Nick Wheeler



Winning scheme for Harvard athletic facilities by TAC/Turner team.



Runner-up design by Aldrich/Moger/Carlson team.

**A chair by Charles Eames —
it can make you feel comfortable
even if you never sit in it.**

It means you've achieved an effective solution to your seating requirements.

You've combined graceful, classic design with the rugged durability proved in thousands of applications, from offices to airports.

And, perhaps most important, the Eames Chair Group gives you versatility—a combination of shells coupled with a variety of bases make it adaptable to a wide range of seating needs.

Besides the versatile chair group shown here we produce other Charles Eames chairs to meet other requirements.

You'll find all of them comforting.

For more information on the Eames Chair Group contact your Herman Miller dealer, or write or phone the Herman Miller Sales Aid Center, (616) 772-9585, Zeeland, Michigan 49464.

herman miller



Photos: David Morton



Hallidie Building, first glass skin building, had ground floor 'modernized' in the 1950s.

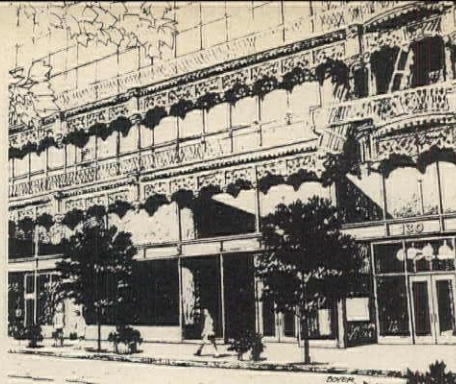
cause of numerous alternates, TAC's construction cost of about \$14.9 million was roughly the mean among submissions.

What distinguished the TAC/Turner scheme from all the others was the introduction of a raised walkway and plaza level, below which locker rooms and enclosed circulation for athletes and staff are tucked away behind planted berms. The apparent volumes of pool, basketball court, hockey rink, and other playing spaces are reduced. Spectators reach these facilities at an upper level, without crossing athlete circulation or demanding large-volume interior corridors, with their attendant maintenance costs.

Architecturally spectacular solutions were hardly encouraged by the program, with its constricting set of existing buildings, or the competition procedure. Instead, Harvard is getting a sound work of urban design likely to yield long-term satisfaction. [JD]

Architects buy S.F. landmark

San Francisco architects Kaplan/McLaughlin and a law firm have recently purchased the registered national landmark Hallidie Building at 130 Sutter St. The architects will restore the seven-story structure and then lease



Drawing of Hallidie Building restoration.

the space when construction is completed in about six months.

The building, considered the world's first true glass curtain wall structure, was designed by Willis Polk and completed in 1918 as a commercial venture for the University of California. It was named after Andrew S. Hallidie, an early regent of the university and inventor of San Francisco's famed cable cars. It was considered unusual in its day for its completely modern, open plan office spaces.

In the 1950s the glass and cast iron ground floor façade was brutally "modernized" and the original blue and gold Victorian Gothic ironwork of the cornices and balconies was changed to a dull green. Kaplan/McLaughlin will return the building to its original colors, which are those of the University of California, and will restore the ground floor façade with materials resembling the original ones as closely as possible. [DM]

Canadian competition offers \$100,000 prizes

The International Urban Development Competition, Regina, Saskatchewan, Canada, is offering a total \$100,000 in prize monies. The five first stage finalists each will receive \$10,000; three prizes totaling \$50,000 will be offered in the second stage—the division of the monies to be left to the jury. The deadline for entering is Dec. 7; proposals must be received by April 15, 1976.

Citizens of Regina will vote on the five finalists, and their selection will be counted as the "seventh member" of the jury. Jurors are Alexander Kouzmanoff of New York; Fumihiko Maki, Tokyo; Ray Affleck, Montreal; Douglas Fullerton, Ottawa; Dick Rendek and Clive Rodham, both of Regina. Further information is available by writing International Competition Registrar, Regina Rail Relocation, 1800 S. Railway St., Regina, Saskatchewan S4P 0A8, Canada.

Personalities

Joseph Esherick, FAIA, president of Esherick Homsey Dodge & Davis, San Francisco, has been appointed a special consultant on architectural design matters for the Department of State's Foreign Buildings Operations.

David Lewis, partner in Urban Design Associates of Pittsburgh, and Don Stull, head of Stull Associates, Inc. of Boston, have been named to the William Henry Bishop Visiting Professorships at the Yale University School of Architecture, New Haven, Conn.

Hilliard T. Smith, FAIA has received the Gold Medal, the highest award given by the Florida Association of the American Institute of Architects. Howard B. Bochiardy, AIA has been awarded the Anthony L. Pullara Memorial Member Award for outstanding service. Bill G. Eppes, AIA has been awarded the Architect Community Service Award.

Hal Box, FAIA, dean of architecture and environmental design at the University of Texas at Arlington, has been named southwest regional director and a member of the board of directors of the Association of Collegiate Schools of Architecture, and has been nominated to the board of directors of the American Institute of Architects. Robert H. Norris III has been appointed director of professional affairs and career planning and placement at UTA's new School of Architecture and Environmental Design. John P. Shaw will serve as a visiting professor in the school during the fall semester.

Hubert E. Jones has been named an associate professor in the Department of Urban Studies and Planning at the Massachusetts Institute of Technology, Cambridge, Mass.

Richard L. Tully, FAIA, senior partner of Tully, Ames, Elzey & Thomas of Columbus, Joseph Tuchman, FAIA, senior partner of Tuchman, Canute, Ryan & Wyatt of Akron, and Alexander C. Robinson, III, FAIA of Cleveland have received the Gold Medal from the Architects Society of Ohio.

George E. Kostitsky, AIA, AIP, president of Mt. Vernon Associates and a principal of Architecture Planning Research/Associates of Washington, D.C., has been named professor of architecture at Howard University, Washington, D.C.

It pays to know our multiplication tables.


You know how table shape, size and surface can vary according to application.

You know that tables designed by Charles Eames set a standard for classic design, function and durability.

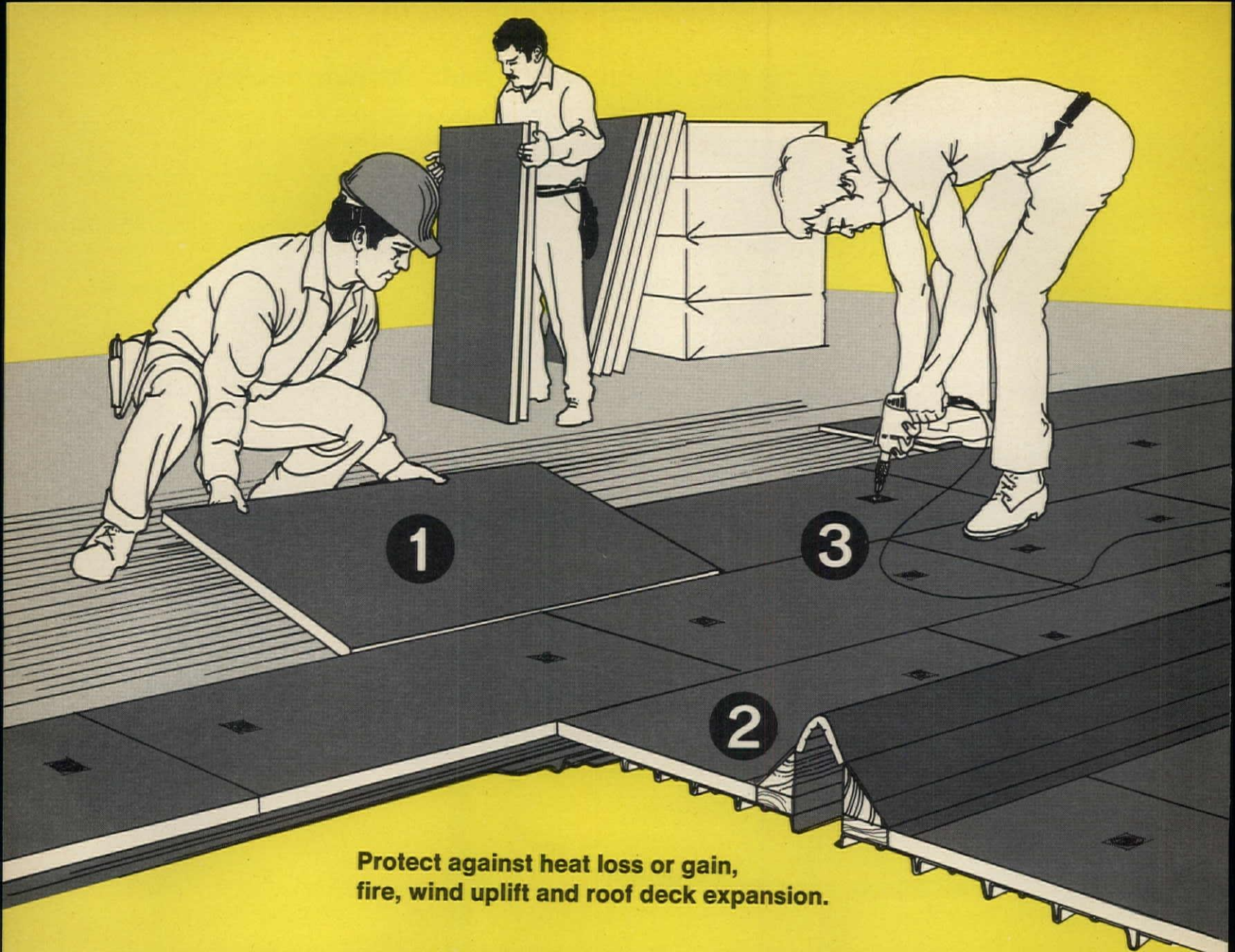
What you may not know is that Eames tables offer what is possibly the broadest range of size, color and finish options in the industry—150 standard, 500 variations.

Now it should be easy to figure which table is the best for you.

For more information on Eames tables contact your Herman Miller dealer, or write or phone the Herman Miller Sales Aid Center, (616) 772-9585, Zeeland, Michigan 49464.

 **herman miller**





Protect against heat loss or gain,
fire, wind uplift and roof deck expansion.

Security starts at the roof with GREFCO

1 Permalite® Sealskin® Rigid Roof Insulation

provides a better insulated roof for a longer time with less trouble. Composed of feather-light, non-combustible perlite, waterproofing agents and binder. Integral Sealskin surface treatment provides both resistance to bitumen soak-up and a superior bond of roofing felts to insulation. Resistant to vermin, mildew and rot. Easy to lay and fit. Non-irritating. FM and UL listed.

2 Metalastic® Expansion Joint Cover

is the only expansion joint cover that has a seamless extrusion. Perforated 2"-wide tempered steel nailing strip in each flexible vinyl flange provides positive fastening and avoids concern of use with dissimilar metals. Flexible at temperatures

down to -50°F . and resistant to aging, cracking and atmospheric pollutants. Will not loosen, shrink or corrode. Splicing takes only seconds regardless of temperature.

3 Perma-Fastner™ Roof Insulation Attachment System

holds better — saves bitumen. One specially designed, patented Perma-Fastner every four square feet holds board tightly to deck without adhesive — hot or cold — and provides positive protection against wind uplift, vibration and construction movement. Strong 3" x 3" steel distribution plates — not tin tabs — secure boards firmly without damage to insulation or felts. Self-drilling, self-tapping screws completely fill holes they make in deck. Perma-Fastner is FM and UL approved for use with GREFCO and other insulations.

Circle No. 326, on Reader Service Card

A subsidiary of General Refractories Company



GET ALL THE FACTS FROM
GREFCO, Inc./Building Products Division
2111 Enco Drive, Oak Brook, Illinois 60521 — (312) 654-4500

News report

Calendar

Through Dec. "Dessins d'Architecture de Le Corbusier" exposition, sponsored by la Fondation Le Corbusier, Paris, France.

Through Jan. 4. "The Architecture of the Ecole des Beaux-Arts" exhibit, The Museum of Modern Art, New York City.

Nov. 16-18. Conference on architecture for the justice system, sponsored by the American Institute of Architects, Key Bridge Marriott Motor Hotel, Arlington, Va.

Dec. 3-5. Conference on health facility planning and design in the developing countries, co-sponsored by the Health Services Planning and Design Program of Columbia University's Graduate School of Architecture and Planning and the World Trade Institute, One World Trade Center, New York.

Dec. 4-6. Fourth national seminar on bicycle and pedestrian facilities, sponsored by the Metropolitan Association of Urban Designers and Environmental Planners, Marriott Hotel, New Orleans.

Jan. 5-16. Second annual Building Construction Institute, University of Wisconsin, Madison.

Jan. 18-22. The National Association of Home Builders annual convention and exposition, Dallas Convention Center, Dallas, Tex.

Jan. 24-28. Two solar heating and cooling workshops and product exhibit, sponsored by the Solar Energy Industries Association, Hyatt House Hotel, Los Angeles airport.

Jan. 29-30. Fourth national architecture/engineering federal programs conference, sponsored by the Committee on Federal Procurement of A/E Services.

Feb. 3-6. Thirty-first annual conference of the Reinforced Plastics/Composites Institute, Shoreham-Americana Hotel, Washington, D.C.

Feb. 27-Mar. 27. "Form, Space and Symbol in Chicago Architecture" show, Cooper Union, New York City. The exhibit is organized by Stanley Tigerman, Benjamin Weese, and Stuart Cohen with Laurence Booth as advisor, and is supported in part by a grant from the Illinois Arts Council.

Mar. 10-14. International Conference on Visual Literacy, Hyatt Regency Hotel, Nashville, Tenn.

Noise a problem? no more!

Comfortable sound level is assured for Mutual Benefit Life Insurance offices by VICRACOUSTIC Wall Systems.
Architect: Grad Partnership

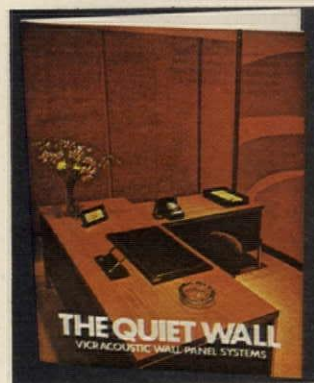


VICRACOUSTIC beautifully sound-conditions Western Union Data Services Company's Ter-micare Center.
Architect: Steven Papadotos

Specify the **Vicrtex** wall covering you want — Get the SOUND CONTROL you need with **NEW Vicracoustic** Wall Systems

Now you can control sound—beautifully!—with **VICRACOUSTIC WALL PANELS**. It's a brand-new idea from L. E. Carpenter that combines the sound-absorption of a glass fiber core with the decorative finish of any of the 85 **VICRTEX**® Vinyl Wallcoverings patterns. Ideal for all • **Perimeter Walls**
• **Interior Walls**
• **Free-Standing Landscape Panels**

Versatile? VICRACOUSTIC can be finished in a variety of ways, on one or both sides—buted, framed, or set out as separate panels. Five basic types, in standard and custom sizes.



Full-color catalog gives all the data, plus acoustical-test findings. Write or phone for your copy—do it Today!

L.E. CARPENTER

AND COMPANY

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



A DAYCO
COMPANY



Frederick Dielman's "Mechanical Development of Typography," 1901 (above) from Evening Star Building (interiors razed 1959). A.R. Willett's "War," 1902 from U.S. Capitol.



Photos: Courtesy Smithsonian Institution

Mural, mural on the wall

A blight called "battleship gray" or "federal green" has besieged federal office interiors for years. So a recent exhibit at the National Collection of Fine Arts, Smithsonian Institution, Washington, D.C. came as a startling surprise that there was a golden age, not long ago. "Art for Architecture: Washington, D.C. 1895-1925" celebrated the marriage of academic art and architecture so briefly consummated in America.

Inspired by the Renaissance in name (if not always in spirit) and by the vision of Chicago's World's Columbian Exposition of 1893, architects, sculptors, and mural painters collaborated in the decoration of over 400 buildings across the nation. Their art was meant to edify. A mural incorporated into architecture linked its buildings and occupants to the march of civilization. But the trauma of World War I crippled our faith in progress. After the lessons of mechanized war, we cannot see those allegorical figures extolling the virtues of culture without a smile.

The exhibit included photographs of completed murals in situ as well as original studies from seven archi-

tectural examples in the capital: Library of Congress, Larz Anderson House, Capitol, Evening Star, Georgetown University, Lincoln Memorial, and St. Matthew's Cathedral. Much of this is forgotten by official Washington—if not already destroyed. As such, the show and its checklist (GPC 891-749) seem that much more precious in the land of battleship gray. [RY]

Construction ban extended in Miami

A ban on major new construction projects in Dade County, imposed in April over problems with the local water supply, has been lifted. Only recently had the ban been extended to mid-November, but its removal was made possible by allowing more water to be pumped from the Biscayne Aquifer.

The ban covered all construction that would use more than 1300 gallons a day—including major apartment and office buildings. County officials said the moratorium was needed because the Miami-Dade Water and Sewer Authority already was committed to deliver more water (210 million gallons per day) than it was allowed to pump (190 million daily).

The county also has been caught in

controversy over zoning. Recent zoning decisions there and in St. Petersburg County have ignored comprehensive planning. In Dade County an auto dealership was allowed to locate in a residential area. In St. Petersburg 10 acres of peripheral metropolitan land was rezoned for four-story apartment buildings. People in the adjacent middle-income subdivisions have filed for redress in court.

Women's Hall of Fame competition

A competition to select a woman architect to design the Hall of Honors in Seneca Falls, New York, for the Women's Hall of Fame is underway, and the winner is expected to be named in the spring. When the competition was announced earlier this year, the response was so great that selection procedures had to be changed. As a result, a committee of nine was named to screen recommendations from which 12 will be asked to submit architectural plans.

An AIA jury then will meet to pick the winning design. The 11 participants in addition to the winner will receive cash awards. Those on the selecting committee are Nehama Courland, Doris Nathan, Joan Kavochka, and Eleanor Pepper, all of New York state and city chapters of the AIA; Megan Lawrence and Lenore Lucy, both of the Alliance of Women in Architecture, New York; Susana Torre and Marita O'Hare, both of the Archives of Women in Architecture, New York; and Ellen Berkeley, architectural critic.

Hardware handbook soon to be available

The Streetscape Equipment Sourcebook jury met at the AIA Headquarters in Washington, D.C. earlier this year to review 283 entries of street furniture ranging from high-mast lighting to paving. Sponsored by the Center for Design Planning under a grant from the National Endowment for the Arts, the selection process aims to give recognition to manufacturers and designers of street furniture of superior utility and visual appeal by publishing for the first time in the United States the juried results in a sourcebook.

Members of the jury were: Herbert A. Goetsch, president of the American Public Works Association and commissioner of public works, Milwaukee; William M. Goldsmith of Chicago, chairman of the Industrial Designers Society of America; William G. Swain of Pittsburgh, immediate past president of the American Society of Landscape Architects; Ralph Warburton, professor of architecture at the University of Miami, Coral Gables; and Harold Lewis Malt, ex-officio, industrial designer and planner, who is director of the Center for Design Planning. The Advisory Board to the Center includes representatives from AIA, ASCE, and NAHRO.

The jury selected 206 pieces of equipment from 57 manufacturers for inclusion in the Sourcebook. Ninety-one of the selections were in the "housekeeping and amenity" category which included litter receptacles, decorative and drinking fountains, clocks, newspaper racks, benches, planters, bike racks, and tree guards. Forty-six entered products were selected in the lighting category, among them high masts, and roadway and walkway fixtures.

The jury noted the relative lack of well-designed products in the areas of emergency call boxes and parking meters and the prevalence of massive electro-mechanical traffic control equipment in an era of miniaturized transistor technology. The jury also noted that the variety of well-designed products, which would be placed in varying environments, requires sensitive urban design to provide an optimal public space.

Publication plans for the Sourcebook, to be modeled somewhat after the successful British Design Index, are underway with availability expected in 1976. [Ralph Warburton]

'Continuous You' at South Bend

A stainless steel sculpture polished to a mirror finish and lighted by neon and argon-mercury lamps provides a welcome to the new pedestrian mall in downtown South Bend, Ind. The city commissioned sculptor John Mooney, a former Notre Dame faculty member, to create the piece, which stands 17 ft high. Its strengths, he feels, are its day and night versatility: by day it reflects

the surroundings and by night it creates its own environment.

"This union," declared Mooney, intensifies "the aesthetic heartbeat" of those who use the mall. The placement of the work, called "Continuous You," off the mall's axis draws pedestrians "like a visual magnet" causing them to become participants. The red and blue gaseous lamps are programmed to slowly change their intensity providing the work with its own kinetic quality.

Raymond Loewy: on loving a car

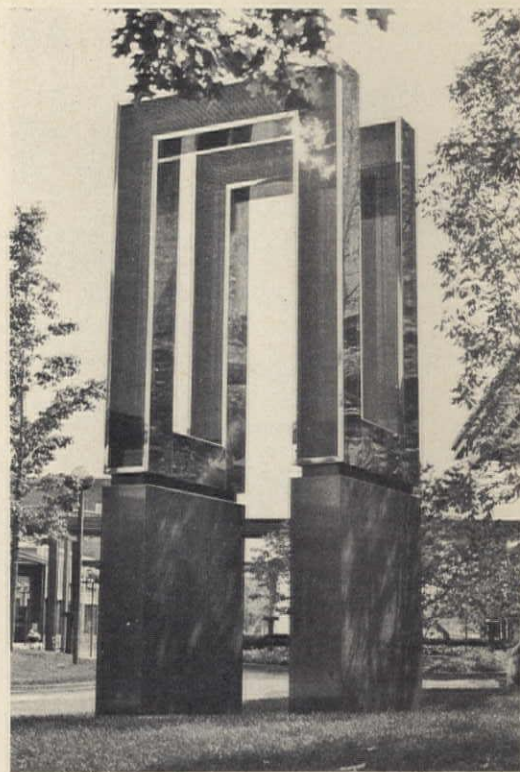
Man's best friend is his car—not his dog. Our technological slaves serve us with such grace and devotion that they might be nature's own creations. Of course they are not. The refrigerators, cars, packaging, and interiors we use are the products of a handful of gifted industrial designers and their followers. The Renwick Gallery, Smithsonian Institution, Washington, D.C. is currently honoring one of the most distinguished pioneers in "The Designs of Raymond Loewy" through Nov. 16.

Loewy's approach to industrial design has been characterized as "streamlined." That is, individual parts of an industrial object conform to a coherent overall impression. Awkward passages are pressed inside a smooth envelope. Structural transitions are concealed in rolling surfaces. Paradoxically, each completed form is infused with a dynamism which need not reflect its mechanical anatomy at all.

Since his successful redesign of the Gestetner duplicating machine of 1929, Loewy continues to pursue this vision of technological unity so characteristic of the modern movement. The array of his projects on display at the Renwick, including such well-known designs as Air Force One, Avanti, Coca Cola dispenser, Coldspot refrigerator, and packaging for Lucky Strike and Carling Beer, attests to how well he knows his craft.

Arrangements are being made for the show to travel to other museums after it leaves the Renwick, which originated the exhibition.

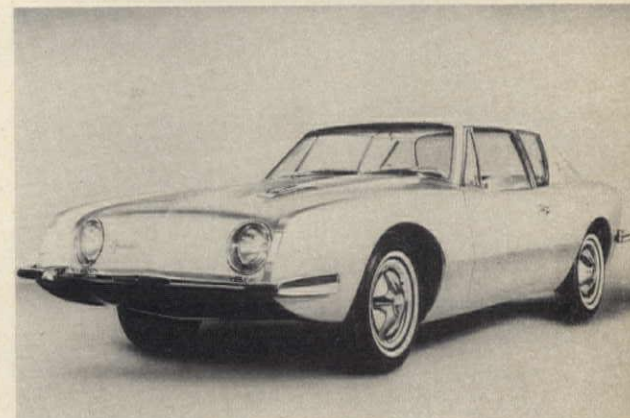
An illustrated catalog is available for \$2.50 plus 50¢ shipping and handling from the Museum Shop, Renwick Gallery, Smithsonian Institution, Washington, D.C. 20560. [RY]



'Continuous You' by day . . .

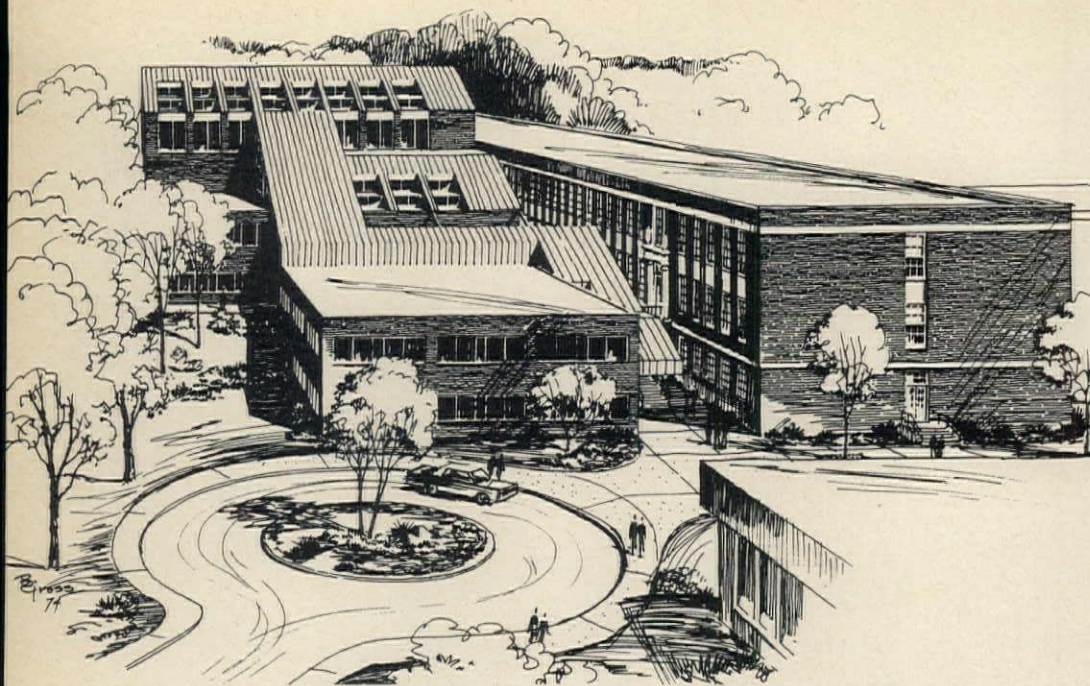


. . . and night.



Avanti designed by Raymond Loewy in 1961.

In progress



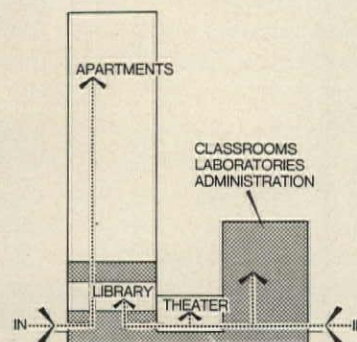
1

1 North Carolina School of the Arts—Newman Van Etten Winfree Associates of Winston-Salem, are architects for a \$3.8 million performing arts facility for high school and college students. Now under construction in Winston-Salem, the workplace will be a multi-level arcade connected to an existing linear classroom building and a gymnasium via bridges and stairs. In the new facility will be all training activities relating to music, dance, drama, and the library. Faculty offices will be along the arcade to encourage contact with passing students. Completion is scheduled for 1977. Acoustical consultants are Bolt Beranek & Newman of Waltham, Mass.

2



Photo: Marc Neuhof



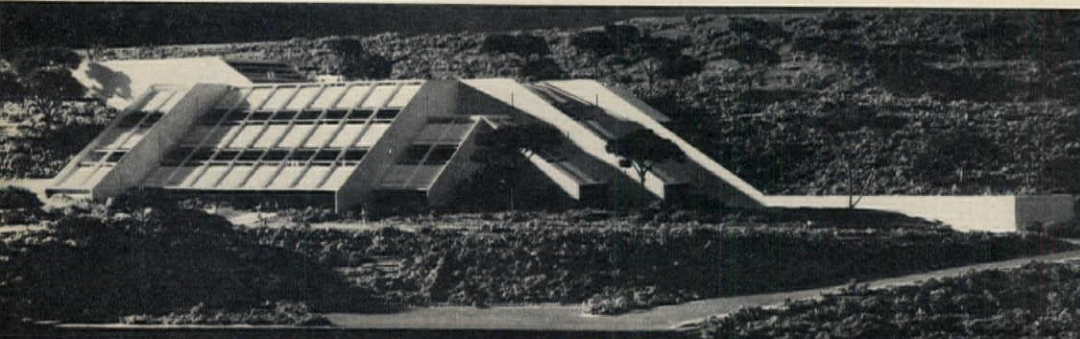
2 Theater, school, apartments in high-rise—A zoning variance permitted the first theater in 40 years to be built on the East Side of New York. The 250-seat hall is part of Marymount Manhattan College's expansion program, recently completed by architects O'Brien & Justin of New York. By leasing air rights over its new structure to an apartment builder, the school easily financed its construction costs. The first six floors of the 27-story building are for school use. The theater, as well as the new 2-story library, are available to the community as well.



3

3 Government building underway—A 500,000 sq ft building plus garage for 800 cars is under construction next to the old Knox County Courthouse. The \$25 million new building will serve as administrative offices for the city of Knoxville and the county. Architects in the joint venture are McCarty Bullock Holsaple and Lindsay & Maples, both of Knoxville. The main building is 13 stories and includes courtrooms and a jail. An assembly building, with rooms seating 450 and 250, connects to the main structure by a 2-story bridge.

4 Library at San Diego—Bursting at the seams with a third of its collection in storage, the Scripps Institution of Oceanography is building a new library in San Diego; completion is scheduled for October next year. The LaJolla firm of Liebhardt Weston & Goldman is designing the \$2.5 million facility, located just above a new marine biology building. Most of the three-story structure will be built into a hillside, and sun-shading concrete panels will protect the façade. The architects estimate that 48,000 kwhr will be saved in heating and cooling the building.



4

Photo: Robert Ward

5 Summer stage for the performing arts—Construction should be finished by May 1976, on the new \$6.5 million summer home at Fairmont Park of the Philadelphia Orchestra and other performing arts groups of the city. The shell seats 5000 while an additional 10,000 may be seated on the grass. The design objective of architects MacFadyen De Vido of New York was to accommodate the visual and acoustical requirements into a cohesive whole of a single form clad in tern steel. Acoustical consultant on the project is Heinrich Keilholz of Hanover, Germany.



Photo: Matis/Semel

5

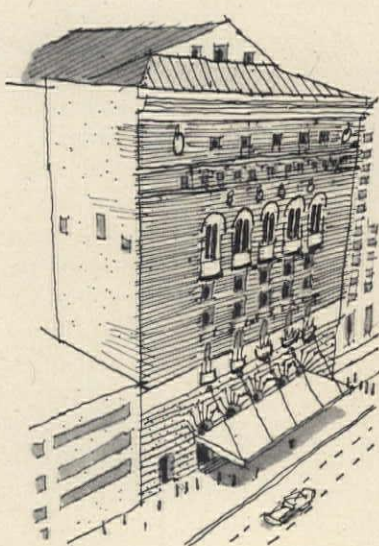
6



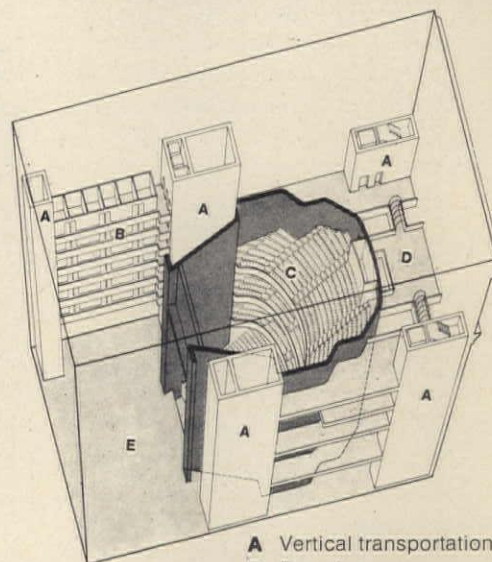
6 Speculation office park—The Lake Complex is a six-building office "campus" oriented around a small lake near St. Louis, Mo. The development company Blakewell Corporation-Corporate Square came to the Saint Louis Group, architects, with pre-purchased fabricated steel from which the architects devised one prototypical framing plan: a "T" shape. The low structures are finished in hard iron spot copper tone brick, solar glass, and a copper roof. The 1.5-acre lake also functions for waste water control.

7 Ballet home—For 35 years the American Ballet Theatre has been homeless, storing its scenery in Philadelphia and music and costumes in various locations around New York. Soon it will move into a home: the renovated Manhattan Center, which was built in 1906 by Oscar Hammerstein as an opera house. Architects Johansen & Bhavnani of New York are in charge of the \$10 million project which will include storage space for five complete shows, accommodations for radio and television broadcasts, new lobbies, circulation and signage systems, and high density public elevators. Work will begin next year and be completed in 1977. Theater consultant is Clyde Nordheimer of Jean Rosenthal Associates.

8 Bank in Virginia—Scheduled for completion in January, the Clarendon Bank & Trust headquarters building, Tyson's Corner, Va., rises on the highest spot of Fairfax County with a panoramic view of metropolitan Washington. Its three components are 4, 8, and 12 stories built of steel frame and precast concrete panels. Banking operations will occupy half of the 160,000 sq ft net area with the other half available for lease. Parking is for 600 cars.



Ashok M. Bhavnani '75 7



- A Vertical transportation
- B Dressing rooms
- C Performance hall
- D Lobbies
- E Stage and backstage

8

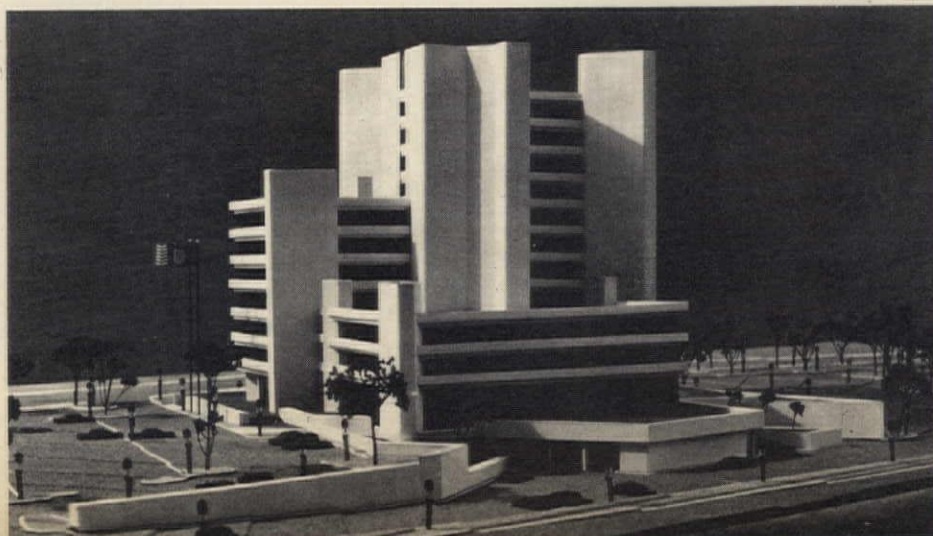
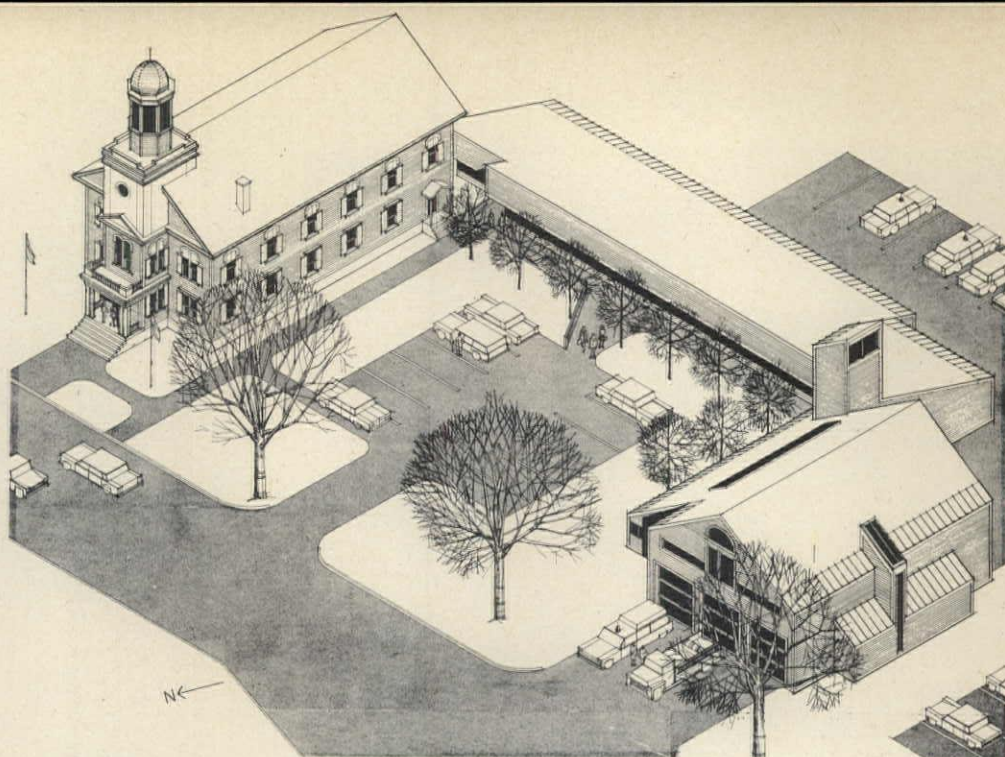


Photo: G. Kent Keech

In perspective



Westford, Mass., Town Hall and new fire station.



Town Hall, police station (center), and fire station.

New England tradition

Ecodesign of Cambridge went out of its way to make sure Westford, Mass., had new fire and police stations worthy of the colonial ambience of the town. Being the first building erected in the town in 100 years, the new facilities deserved to be the best, yet the town was small, and the times hard.

The architects realized that the townspeople's taste—ruling out "Disneyland colonial"—and their original budget were incompatible, but Ecodesign saw a solution in applying to the Economic Development Administration set up by the Secretary of Commerce. Not only did they locate the source, but they also rushed the plans to meet the application deadline—and as a result secured \$314,000 funding of the \$445,500 building, which opened less than a year ago.

This made the firm's design proposals all the more acceptable when they were presented at the town meeting where, in New England custom, 600 people (the client) came to vote on the project. What won their approval was Ecodesign's careful presentation showing how the linking of the new stations to the 150-year-old Town Hall was in the native tradition of inter-connecting farm buildings or of joining church structures to the parsonage.

The structural forms, although contemporary, are based on the same strong simplicity and grace which characterizes buildings of the New England village. The white aluminum siding, maintenance-free, is handled like wood and from a distance is virtually

undistinguishable from the natural material because Ecodesign detailed the corners with real wood.

Although linked by a covered walkway, the police and fire stations are practically independent. Even Ecodesign's suggestion to have a common lounge was rejected because the police department felt the firemen, volunteers, had more leisure time and would be a poor influence. The sparing use of windows in the police station also was among the chief's requirements.

The fire department chose to keep such traditional—now optional—features as the pole and the hose-drying tower. The more modern approach to parking fire trucks was used, and so the trucks enter the double-door garage from one direction and exit another. With both of these doors of glass, they provide an excellent opportunity to view the nearby woods.

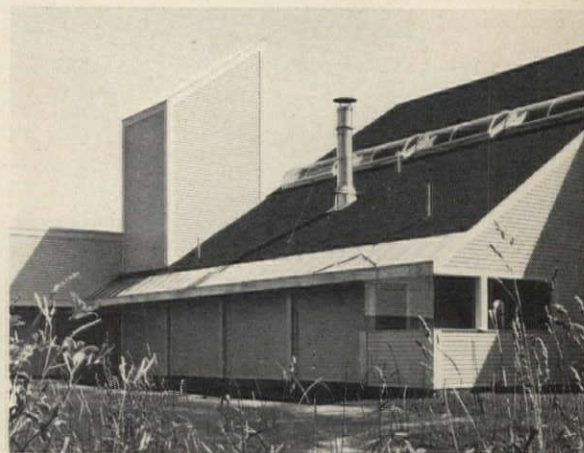
The training area of the fire station is a second-story loft suspended by cables from the roof truss. Overhead is a skylight that also illumines the first floor entry. The pole well, marked by a narrow, two-story-high window, is painted green inside so that when lit at night it provides a bright contrast to the white exterior.

The solution further intensifies the compactness of the New England town by relating closely to the Town Hall and forming a court between the buildings, which leaves the prized town green undisturbed for another generation's enjoyment. The stations have won for Ecodesign an Honor Award from the New England regional AIA.

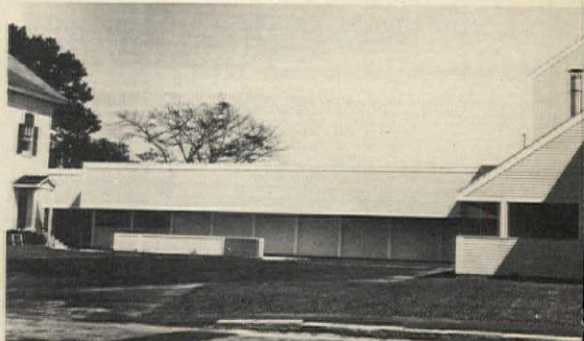
Photos: Courtesy Ecodesign



Fire station showing window for fire pole on west wall.



East elevation of fire station with hose drying tower.



Police station unites buildings with covered walk.



Colorail is often specified simply because it is available in eleven colors and adds a lively accent to a variety of settings. But that's just part of the story.

The Colorail System also combines the structural advantages of aluminum, and the color advantages of plastic handrail mouldings and post cladding. Most colors are equally durable indoors and out; consult BLUM about direct sunlight exposures.

Moreover, Colorail components can be fabricated in many ways, or interchanged with those of other BLUM railing systems. In short, it offers the luxury of custom design with the economy of standard component production.

Best of all, the Colorail System is available, from stock, through local fabricators everywhere. For complete information, including engineering data, request Catalog 12. Or see the BLUM listing in Sweet's Architectural or Industrial file.

Installations shown, clockwise from top:

GIMBEL GYMNASIUM UNIV. OF PA,
Philadelphia, Pennsylvania
FIRST FEDERAL SAVINGS AND
LOAN ASSOC.
Niles, Michigan
SARAH COVENTRY BUILDING
Newark, New York
CARDEMPORIUM
New York, New York

Arch: Bartley, Long, Mirenda, Reynolds &
Noble

Arch: Lambert J. Soucek, Jr.
Bank Building Corporation

Fabr: Van Dam Iron Works, Inc.

Arch: Sherman & Sherman

Fabr: Vance Metal Fabricators

Arch: Lee Kennedy

Fabr: Allied Bronze



JULIUS BLUM & CO., INC., CARLSTADT, NEW JERSEY 07072

N. J. (201) 438-4600 • N. Y. (212) 695-2236

TELEX 13-3491 • TWX 710-989-0112

THE MOST COMPLETE SOURCE FOR ARCHITECTURAL METALS

The Colorail® System



In perspective

Fitting in

A new 50,000 sq ft, three-level building has been slipped into a posh suburb of New York City, hardly noticed.

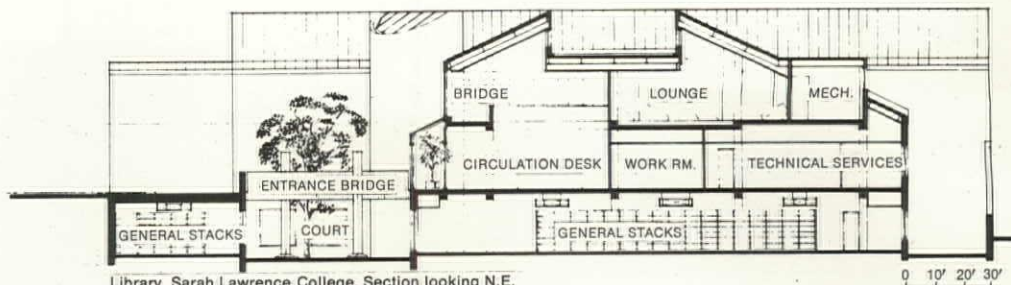
Design of the new 200,000 volume library at Sarah Lawrence College in Bronxville was dictated primarily by two concerns: the rocky, sloping site and the residential character of the surrounding neighborhood. In response to these conditions, architects Warner Burns Toan Lunde partially imbedded the structure into the rock, and also broke the main building masses into small, slant-roofed sheds. The recently finished building is unmistakably "modern," but the fractured arrangement of its masses around an open courtyard, and the consistent use of sand colored brick for the walls, reminds one more of old French farm buildings than of the typical American college library building.

Because of the excavation around the building the entrance is at the middle level. From grade, a wooden bridge spans the courtyard to the main entry. The courtyard itself becomes a well to bring light to the center of building's lowest level. On the north and east sides the walls are extended to form enclosed, outdoor patios that also function as light wells.

Inside, carpeting is laid in "super-graphic" patterns to define various areas and to relieve the monotony usually found in stack areas. In the lounges, easily movable furniture is installed so students can arrange it as they wish; one lounge is furnished with styrofoam-filled "bean bags."

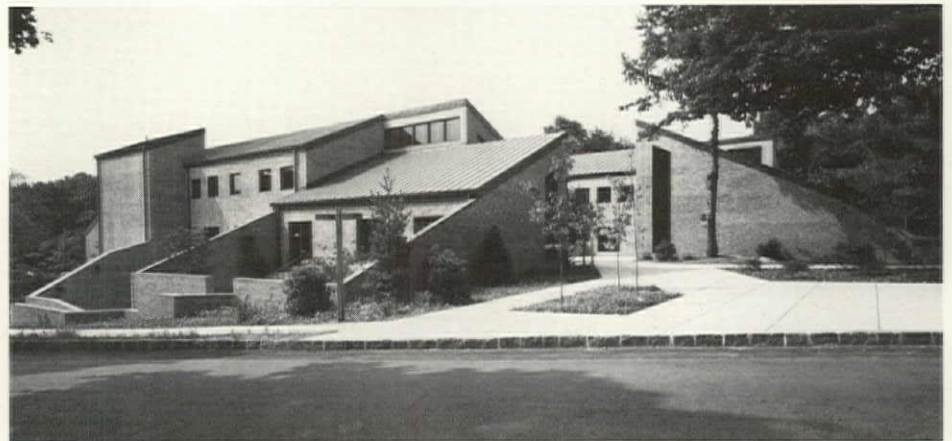
The building structure is poured-in-place concrete, with steel beams, steel decking, copper finished roofs and, of course, the sand-colored brick which is used for both interior and exterior walls. In addition to elevators, spiral steel staircases connect levels, but the main stairwell is a brick-enclosed cylinder that protrudes into the courtyard where it is seen as a silo-like form.

Ivy will soon cover much of the building, and then it will blend so well with the bucolic setting it may be missed if one isn't looking for it. [DM]



Library, Sarah Lawrence College. Section looking N.E.

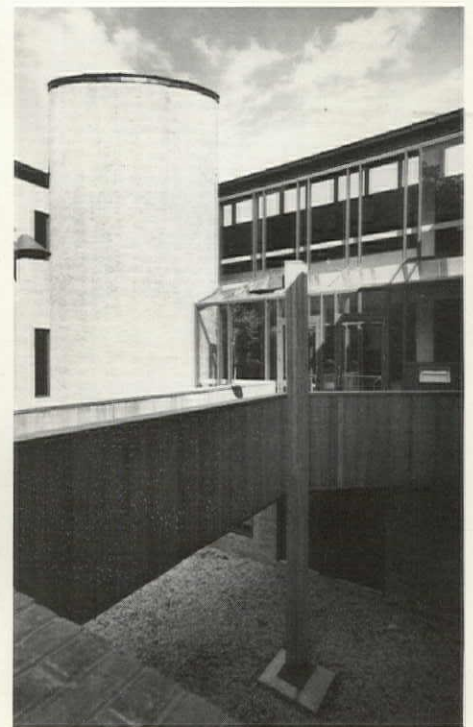
View from north corner toward entrance courtyard (above).



"Supergraphic floor" in stacks (above).



Entry bridge over courtyard (right).



Upper level "bean bag" lounge (below).



The performance of change



Set from "The Devils". Sets, costumes and lighting by Peter Wexler.

The evolution of changing forms in the performing arts has a direct effect on the architectural design of the spaces in which they are to be performed.

The human race has, for centuries, supported, encouraged, and participated in the performing arts. Whether theater, ballet, opera, or music, people flock to be spectators of each other and of the performance that unfolds on stage.

When compared to the social and technological advances that have been realized since the time of the Greeks, the evolution of these art forms over the centuries of their existence seems imperceptible. The form of the Greek theater, determined by the need for speech clarity and good sight lines, was a pragmatic response to the performance of their drama. The linear, attenuated qualities of the Gregorian Chant were well suited to the dark, mysterious realms of the Medieval church; the composition and performance of chamber music and the early, small scaled symphonic works in drawing rooms and salons dominated an era of princely court patronage. Historically, the evolution of an art form was rather closely tied to (and dependent upon) the concomitant evolution of the form of the place in which it was presented.

Looking at the constructions of the last half of the 20th Century, it might be reasonable to question what has become of the continuity of tradition. Operatic and musical composition, as far as public taste is concerned, halted abruptly after the turn of the century and recently completed halls attest to these tastes in their mock 19th-Century splendor. Performance of contemporary music is mostly relegated to church basements, yet when performed by a major symphony orchestra in a concert hall, it is still presented in the most traditional manner. The new French In-

stitute for Research and Coordination into Acoustics and Music is the only new facility for contemporary music that will once again encourage and support the traditional relationship between art form and place: It is a space for composition as well as performance.

The theater has been the one realm where, at least on the surface, experiment has taken place both in content and presentation, allowing a less formal surrounding and, presumably, more intimate involvement on the part of audiences. At one extreme is the Living Theater's interpretation of classic drama which forces reaction and response to the actors as they confront members of the audience. It denies the passive, spectator role of the audience simply because it makes most of the audience uncomfortable, whether or not they choose to respond. As these dramatic forms break from the traditional format, the theaters have gone from the opulent, gilded proscenium to construction scaffolding and bleacher seating. All the gadgetry and technology for variable theater seating and flexible staging has proved so burdensome (and virtually useless) that other devices have been found which accomplish the same ends more simply. Concepts of set design, too, have changed from the realism of painted backdrops to the more abstract representations of space and ambience through light and sound.

Yet somehow, in the end, these devices only involve us for the brief moment of their novelty or newness; their value lies in the unexpected. The manner of staging may or may not have anything to do with the intent of the drama; it may broaden and intensify our experience at the same time that it obscures the essence. Meanwhile, our comfort lies in remaining as spectators to an on-going drama of performance which has at once nothing and everything to do with our own experience. [Sharon Lee Ryder]

Kind of uptown

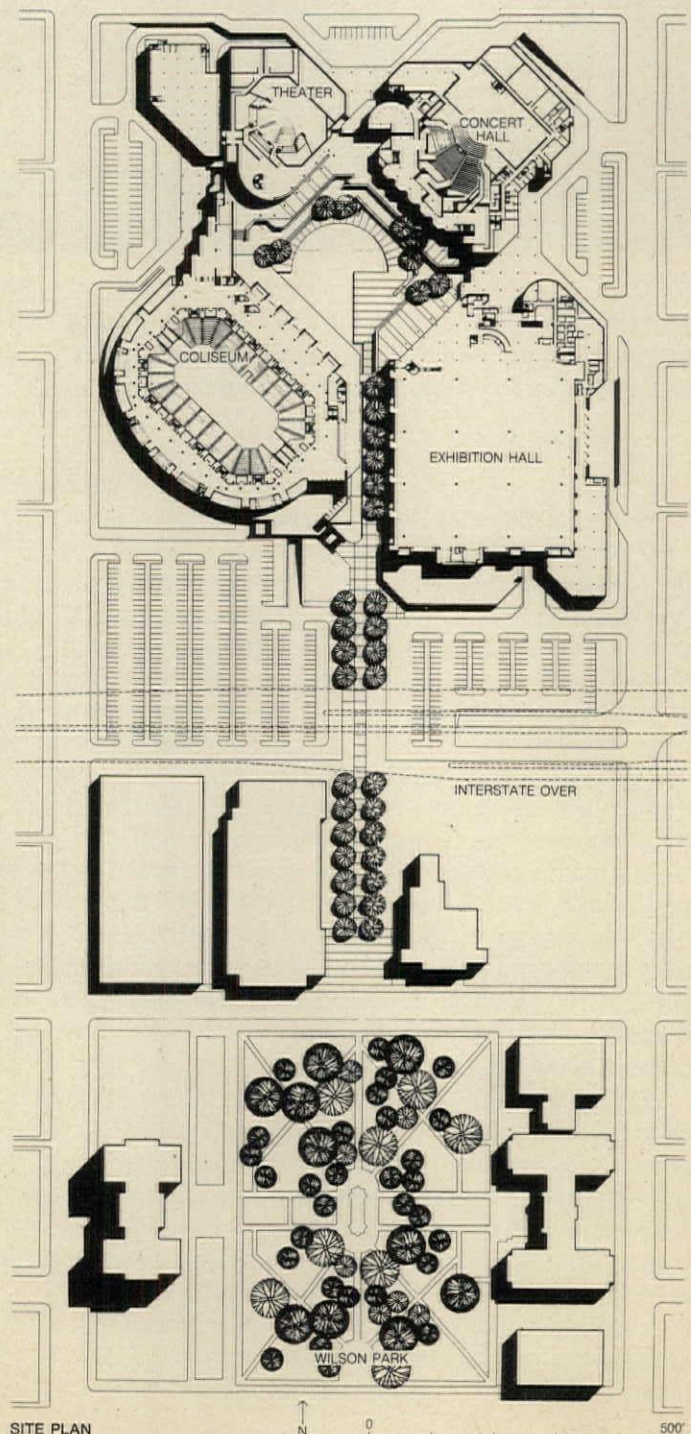
The sound in the new Concert Hall in Birmingham, Alabama, by Geddes, Brecher, Qualls, Cunningham can be adjusted to meet almost any acoustical need.

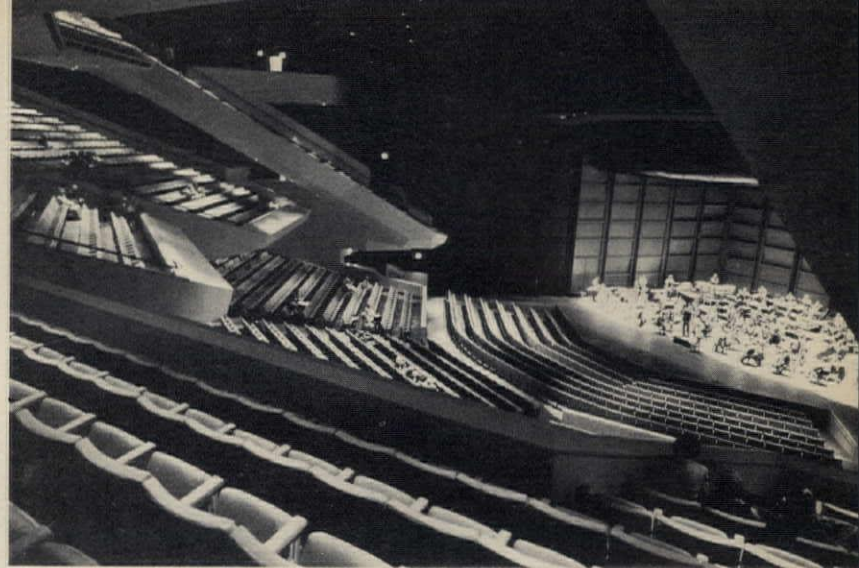
The new Birmingham-Jefferson Civic Center Concert Hall is one part of a much larger complex located on 23 acres of urban renewal land adjacent to the city core. When the entire center is finally completed—only the coliseum and landscaping are left to be finished—Birmingham will have a new 100,000-sq-ft exhibition hall, a 17,000-seat coliseum, a 1000-seat theater, and a 3000-seat concert hall.

The buildings are organized on the site to relate to each other both physically and visually. Physically, they are tied to each other by a series of walkways and ramps; they are associated visually by facing into an inner courtyard, and consequently, into each other. The main reasons for this arrangement were the surrounding mixed-use industrial buildings and an elevated expressway at the southern border. With such surroundings and no chance for controlling them with a future renewal program, the architects turned the buildings in on themselves and got an extra urban bonus through the creation of the new inner courtyard, which will soon be complete with fountains, outdoor seating, and restaurants.

The walkways ringing the courtyard make it a special place to promenade and to see and be seen, since going to the theater, a concert, or exhibition is an event in itself in Birmingham (as it surely is almost anywhere). The difference in Birmingham, however, is that this idea of promenading is carried a little further; it is consciously admitted and reflected in the buildings, and particularly in the concert hall design, where the sweeping forms of the lobbies and stairs were specially shaped to encourage and enhance the act of promenading.

The most important part of the concert hall, however, is beyond the lobbies, in the auditorium itself, and particularly in the space above it. In the auditorium the 3000 seats are broken into smaller groupings than would be normal in a hall of this size. Because of the architects' desire to have as many people as close to the stage as possible, the room is extra wide, with the back wall closer to the stage. The width permitted (and required) more aisles; this in turn allowed



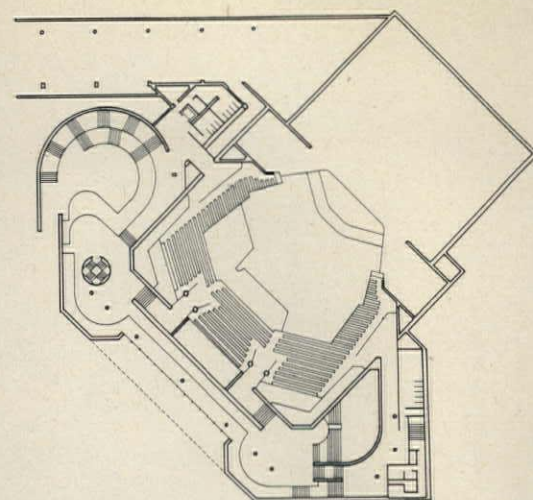


The four buildings at Birmingham-Jefferson Civic Center face to an inner courtyard, away from the surrounding neighborhood (site plan, left). A pedestrian mall connects the center to Wilson Park and downtown. In the Concert Hall (this page), seating is broken into small groups, as in some European halls, to bring a sense of intimacy to the 3000-seat hall.

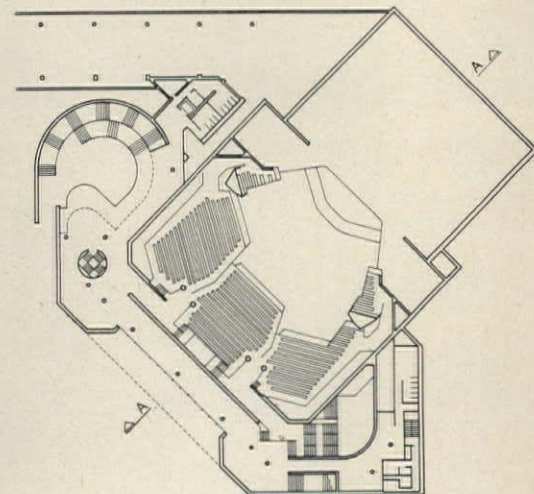




Concert Hall's lobbies (above and below, right) and terraces (below) are designed for promenading. Acoustical attic (far right) controls sound.



SECOND BALCONY

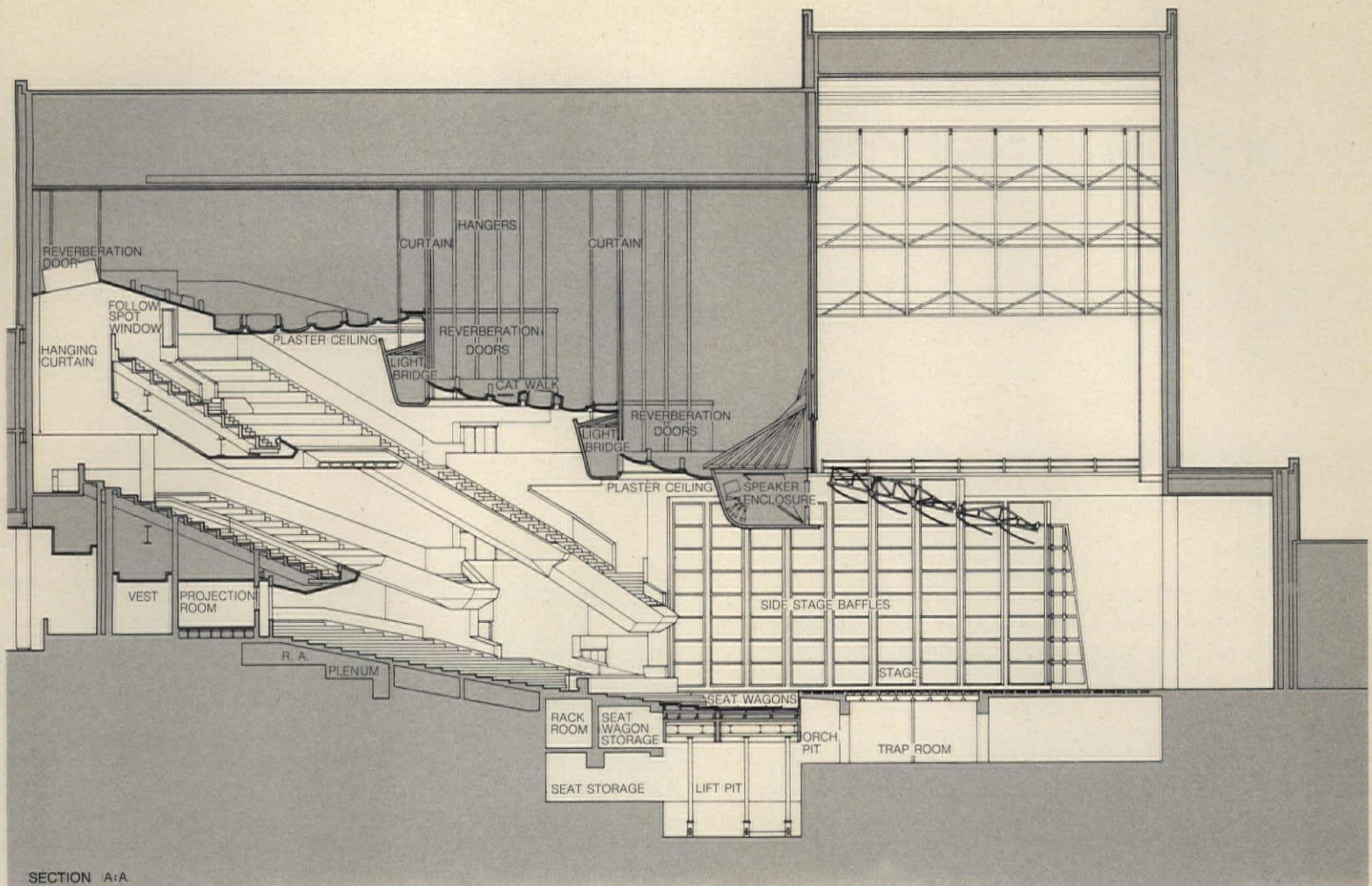


FIRST BALCONY



the clustering of seats into relatively small groupings, giving each cluster an "identity" of its own, and bringing the large hall a sense of intimacy. The idea is carried further in the balconies; they are designed as a series of separated, cantilevered trays that jut into the space at different angles and at different depths, thus reinforcing the idea of intimacy and negating the anonymity so common in large halls. If the hall is reminiscent of Scharoun's Berlin Philharmonic Hall, it is not surprising; it was that hall that convinced the architects to follow through with this design.

Above the auditorium, a huge acoustical chamber controls the sound reverberation time from the stage, depending upon the degree to which its doors are opened or closed. When the doors are closed, as they are for speech,



the reverberation time is one second; when completely opened, as they are for opera or orchestral works, the reverberation time is two seconds. In addition to the many adjustment points between these two extremes, the system is augmented by rows of motor-operated felt curtains within the chamber. In effect, the hall can be adjusted to meet virtually any acoustic need. And, in fact, a speaker on the stage can be heard clearly on the last row of the top balcony without amplification. None of this is gimmicks, though. The acoustics are reported to be superb.

In the concert hall the same materials are used that are used throughout the rest of the center. The building is steel frame, in this case with double walls. Like the other buildings, though, it is clad in precast concrete panels. Inside, the same red carpeting, vinyl asbestos tile, and specially finished concrete block partitions common to the center are used. The lighting is either downlights or wall washers; there are no chandeliers. The consistency of materials comes from the desire that no building in the center should seem to be favored over another, but the effect of it is of simplicity and discretion.

Soon after the opening of the concern hall, dance critic Oliver Roosevelt of the *Birmingham News* wrote, "During our ballet intermission we could look out our mural windows and see the audience lining up for the Dionne Warwick show a couple of hundred feet away. That's kind of uptown, now, isn't it?" He may be right in the kind of ambience he was thinking of, but he surely could not be thinking of the designs for most of the other new "cultural" cen-

ters in the uptowns of the U.S. In most cases, wouldn't we be very fortunate to be able to say, "That's kind of Birmingham, now, isn't it?" [David Morton]

Data

Project: Concert Hall, Birmingham-Jefferson Civic Center, Birmingham.

Architects: Geddes, Brecher, Qualls, Cunningham; Robert F. Brown, associate designer; John Serke, project manager; Peter Frink, theater designer; Ronald Frost, construction superintendent.

Program: a 3000-seat concert hall designed to meet an extremely wide range of acoustical requirements, and to relate to other major facilities of new civic center.

Site: 23 acres of formerly mixed-industrial, urban-renewed land adjacent to the core of the city.

Structural system: steel frame with double wall and roof.

Major materials: exterior is clad with precast concrete panels; walls in public circulation areas are specially finished concrete block. All ceilings are plaster, walls in audience area are plaster. All floors are carpeted.

Mechanical system: terminal reheat air conditioning has large ducts to allow introduction of tempered air at low velocity to eliminate acoustical interference. A large acoustic chamber over seating area controls reverberation time of sounds emanating from stage by opening or closing its doors; this system is augmented by rows of motor-operated felt curtains within the chamber.

Consultants: Paul Weidinger, structural; Leonard Weger Associates, mechanical-electrical; Evans & Young, plumbing; Bolt, Baranek & Newman, acoustical; Jean Rosenthal Associates, theatrical; Geddes, Brecher, Qualls, Cunningham, interiors; Henry Arnold Associates, landscape.

Client: Birmingham-Jefferson Civic Center Authority.

Costs: \$18,325,000 was the cost for 3000-seat concert hall and 1000-seat theater; the costs have not been separated.

Photography: George Qualls except bottom left p. 42, courtesy Dover Stage Lifts.

Orpheus Nebraskensis

For the third time since its original opening in 1925 Omaha celebrates a new life for its Orpheum Theater; the Leo A. Daly Company leads community efforts.

If you are a Nebraskan born about the turn of the century, last January 17 was the date for a nostalgic revisit to an old friend. Even if you couldn't remember when Omaha's glittering Orpheum Theater—or, earlier, the Creighton—hosted the vaudeville and stage stars of the late twenties and early thirties, the evening was memorable.

The occasion marked the reopening of the Orpheum after the years of decline that followed the death of vaudeville. Converted for movie use, the theater did a slow fade and finally closed in early 1971, after losing money for two years. What had been a splendid French Renaissance-Revival house by Rapp & Rapp of Chicago in 1927 was a shambles in 1971. According to the Leo Daly Company's observations, the roof leaked badly (small waterfalls), and plastic sheets had been suspended under the ceiling to protect patrons from falling plaster. Chandeliers and walls were dulled by layers of dirt, seat bottoms were gum-covered and graffiti filled all restroom walls.

You wouldn't recognize the place now, unless you were one of those aforementioned Nebraskans; then it would look marvelously familiar. It looks just like it did in its heyday, but with a new role. Today it is Omaha's Performing Arts Center (still called the Orpheum), host once again to full-dress audiences and star performers, now of music, dance, and drama. But before the transformation and the gala opening came the hard work.

Beginning in 1972, a proposal for the Orpheum's conversion to a performing arts center was made by Downtown Omaha, Inc. The only facility Omaha had for performing arts was its civic auditorium with vastly inferior acoustics. A local nonprofit civic organization, Ak-Sar-Ben, offered to buy the \$135,000 theater and give it to the city on the condition that the city refurbish it. In response, the city formed the nonprofit Omaha Performing Arts Center Corporation to run the theater and issued \$1.5 million in revenue bonds to pay for remodeling.

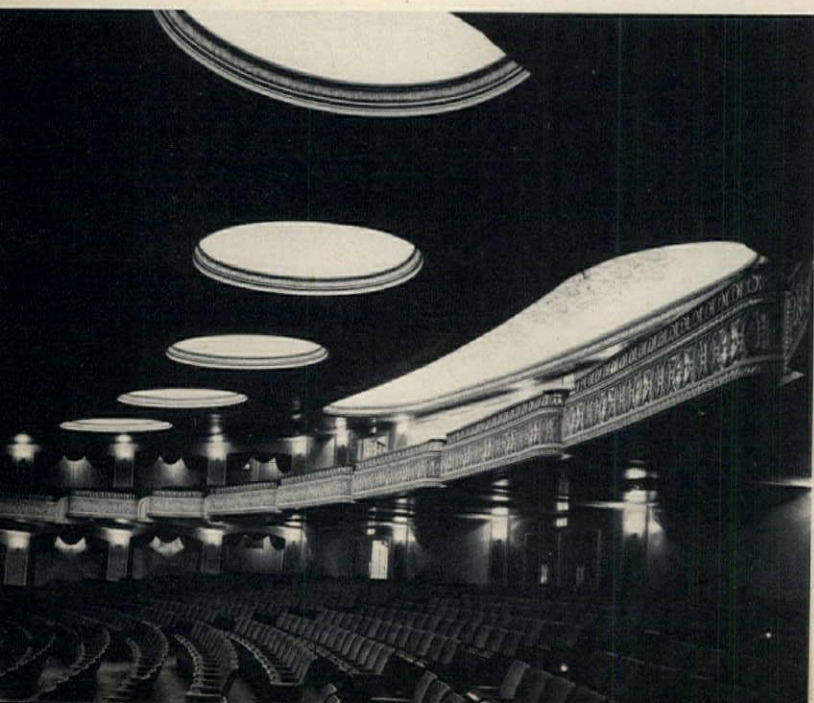
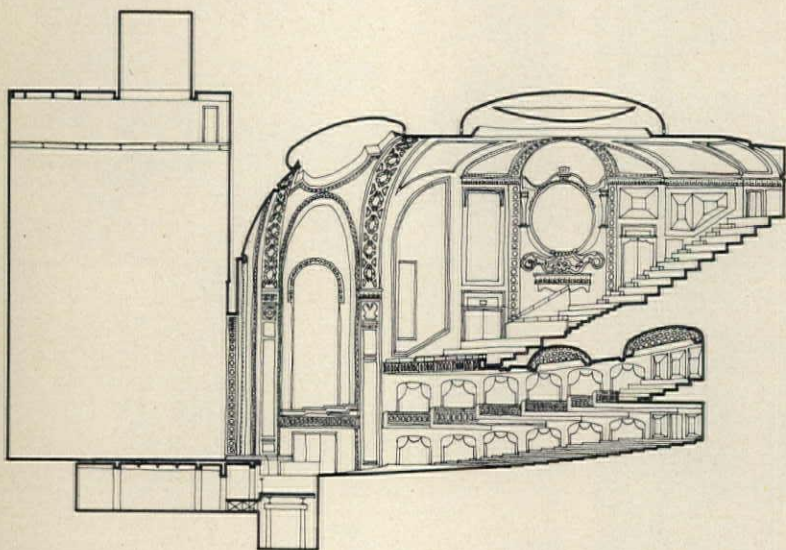
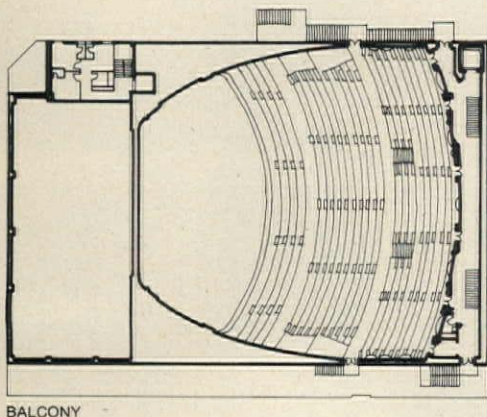
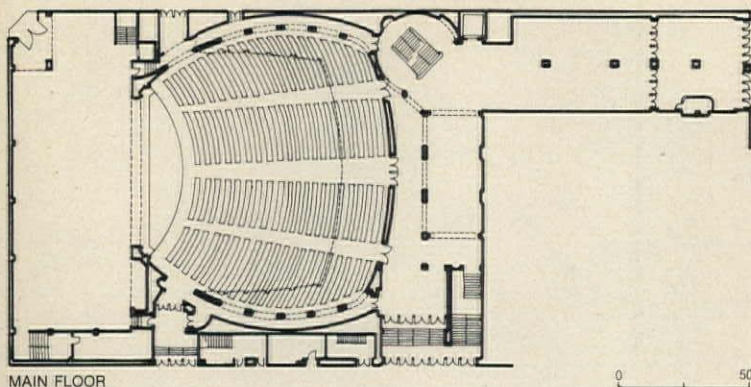
Still there were roadblocks: a newly discovered tax delinquency of \$14,000 turned up in county records; because





Walls and ornament (top, left), coated with dirt before cleaning (upper photo), were restored to original condition (lower). At the outset, (above, below) falling plaster and years of dust.





Orpheum Theater

the lobby belonged to another building, rent money would be required; and projected expenses outstripped built-in contingencies. The 1972 city administration agreed to foot half of the tax bill, but the new 1973 administration balked at both the tax bill and the lobby arrangement. Finally, however, the City Council and Downtown Omaha, Inc. agreed to split the tax bill, and Omaha businessmen offered to raise at least \$250,000 to cover rising restoration costs. The county agreed to grant the theater tax-exempt status, after payment of delinquent taxes. But there was still the lobby. There was also determination; a scant 16 minutes before Omaha's mayor planned to veto a City Council resolution for restoration contracts, the Omaha Symphony Association announced its intention to purchase the 3834-sq-ft lobby for \$72,000 and grant the city its free use. With these developments, the City Council voted to accept low bids for general construction and to increase the city's stake from \$1.5 million to \$1.8 million.

Now that the political/economic battles were won, the physical effort could begin. Orchestrated by the Leo Daly office, it was a composite group that moved in on the old hall. *Restoration*, as distinct from *remodeling*, was the concept put forth by the Daly group from the beginning. With the seemingly endless rise in costs, the cause was taken up by many interested individuals and groups. One "group," Stanley Gross and George Rice—the Omaha Theater Organ Society, Inc.—resumed their work on the huge Wurlitzer organ, a volunteer service before the Orpheum closed, for the same fee as before, none. It is their hobby; Gross teaches chemistry and Rice is a research assistant, both at Omaha's Creighton University.

Yet another organization, members of the College of St. Mary Alumnae Association, mobilized to clean 300 bronze and crystal light fixtures, saving an estimated \$30,000. Several contractors donated work amounting to thousands of dollars. Painstaking craftsmanship of the type presumed dead for decades was required in many areas. The fallen plaster decoration, for instance, had to be reconstituted by using castings from moulds of adjacent intact examples.

Among the few major changes from the original plan, the extended stage is probably the most visible. Site size precluded the desired 20-ft repositioning of the rear stage wall, so a compromise of 15 ft brought the total depth to 45 ft. Existing columns were repositioned to give the backstage an unobstructed 80-ft width. The orchestra pit was enlarged to hold 80 musicians instead of the original 20, and a new hydraulic forestage lift was installed, possibly a first for restoration. With the lift, the orchestra pit can be stationed at various depths; the organ can be moved with the orchestra, or used on-stage; scenery can be easily moved from lower storage to stage; main floor seating can be expanded, using the lift platform, as can the stage itself.

The audience seating capacity was reduced from 2877 to 2700, because of the pit expansion, provision for wheelchair patrons, and to allow the wider seats required by this decade's audiences. New avocado green nylon seats were selected to blend with the original design. Silk wall trim panels were changed to cloth-textured vinyl to comply with fire codes. Existing stage-level dressing rooms were re-



The glittering return of the lobby (below) and the sellout audience.

moved, and new ones were built in the basement where, in 1927, rooms that housed the animal acts were located—including animal bathtubs. Other deviations from the 1927 design were minor ones involving updating water fountains and adding lighting (mostly hidden) in the auditorium.

After removing the hot pink popcorn stand, which movie days had inflicted on the lobby, the space was repainted and the original furnishings were returned. Original draperies were cleaned and rehung, and the cleaned and re-wired chandeliers were installed. Heating and air conditioning were upgraded, as were the stage rigging and the sound systems.

Acoustically, the hall was found to be dead—acceptable for movies and sound systems, but not for performing arts. Acoustical consultant Robert C. Coffeen called for a demountable, movable shell, with adjustable depth, on stage for performances and a flat ceiling that could be flown from the rigging. One other major addition to the acoustics is a proscenium sound reflector, an “eyebrow” above the stage to direct sound. Symphony performances dictated the hardening of sound in some areas, so convex diffusers were installed on the side aisles, and a major convex dome was installed in the ceiling.

The Orpheum seems to have no enemies. It has so endeared itself to the public that it has been host to sellout audiences since that night in January. Its rich unamplified acoustics have earned it praise from many quarters, and it pleased the visiting Harkness Ballet Company as well.

Like Oakland's Paramount (P/A, July 1974, p. 50), the Orpheum story embodies all the elements of civic determination at many levels—technical proficiency, design care, and just plain love. Omaha and everyone involved in the Orpheum's rebirth deserve to be proud of it. They are to be applauded for giving our cities yet another precedent to follow. Try it, you'll like it. [Jim Murphy]



Gloria in transit

The "Mighty Mobius" tent designed by Imero Fiorentino Associates is a portable theatrical performance space equipped for power, light, and sound generation.

You can still find places without electricity in New York City. On May 22, 1975 the American Symphony Orchestra entered the Sheep Meadow in Central Park to play a Bicentennial evening concert. Awaiting it was an audience of New Yorkers sprawled on a grassy field. Plus an unusual creature called the "Mighty Mobius," a theatrical performing tent by Imero Fiorentino Associates, lighting designers, designed to accept power, light, and sound equipment.

What seemed, at a cursory glance, like just another tent did not behave so passively at all. From the edges of its fabric a galaxy of light burst forth in a parade of changing constellations. Sound issued from its flanks in great swells and soft whispers. And the interior, which the tent parted open on two long sides of an elliptical plan to reveal, was a rotating turntable stage.

The performing arts share an affinity for *al fresco* surroundings that is at least as old as Greek drama. Natural circumstances have conspired with the performers to enhance the presentation: a hillside cups its audience in a natural amphitheater that focuses sound projection and clears sight lines for each spectator to the performing space below him.

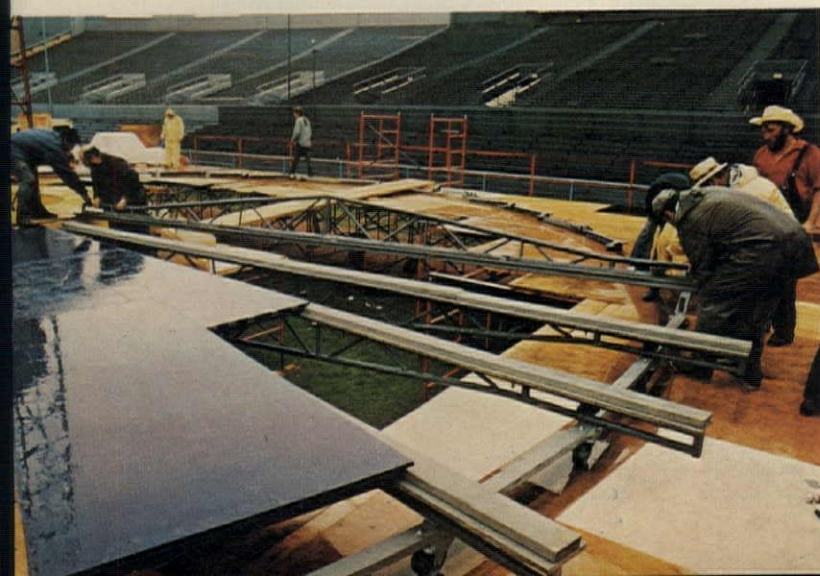
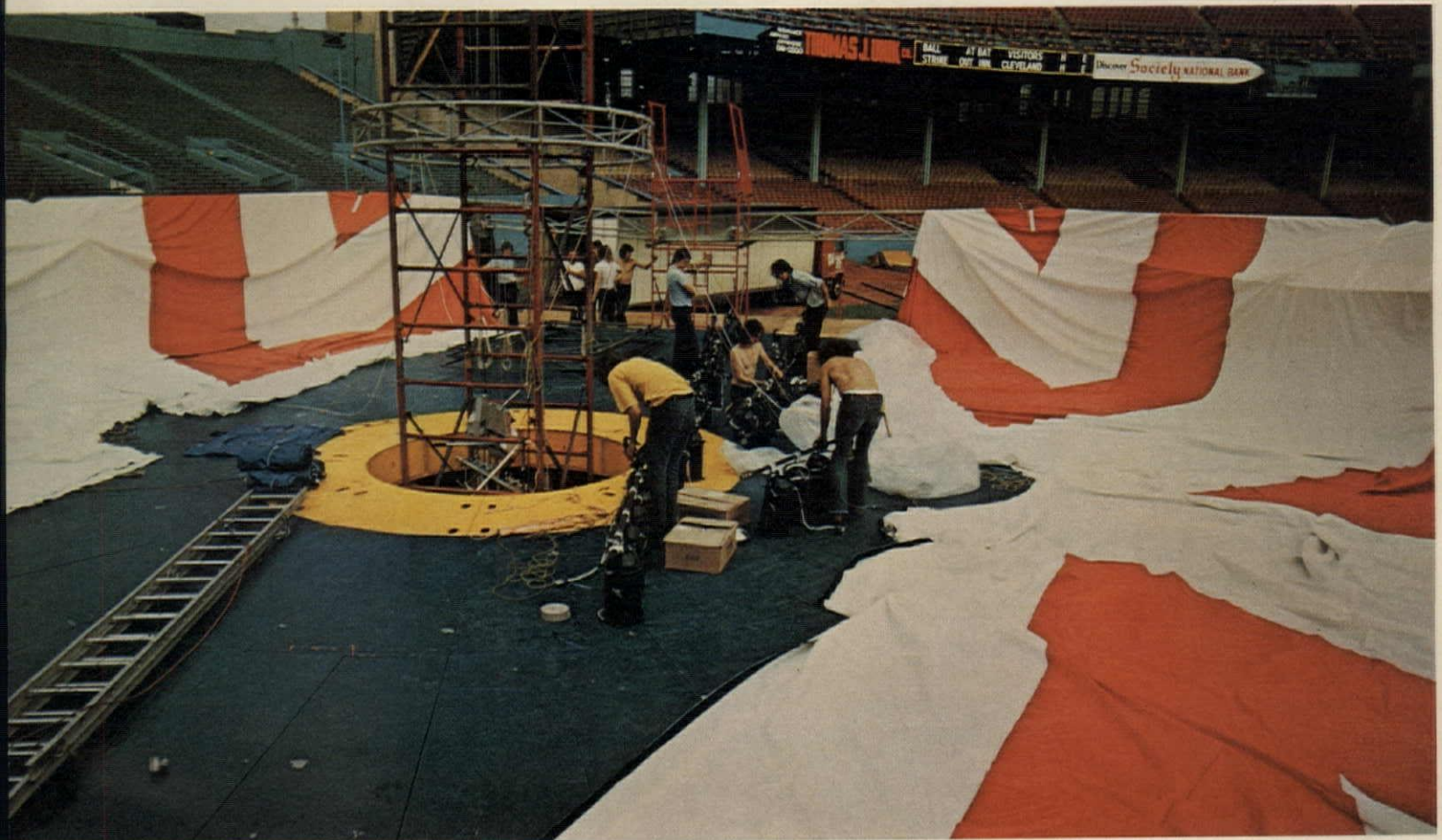
Our civilization is too impatient to scour the landscape for natural amphitheaters. So the "stage" must travel to us. A good many outdoor plays and concerts are thus housed in somewhat jerry-built constructions. Their casual approach to the problem can often be seen more as an excuse to relax outdoors than to attend a live performance.

The "Mighty Mobius" is a solution to its designer's own recurring outdoor assignments. IFA needed a portable proscenium stage that could facilitate rapid changes of sets and performers, carry and sustain any combination of theater, arena, and special effects lighting and, not incidentally, provide a platform for sound-reinforcing equipment.

Though a previous solution ran sets, performers, and flat cars on railroad tracks past a fixed scaffold stage, its components were not especially portable.

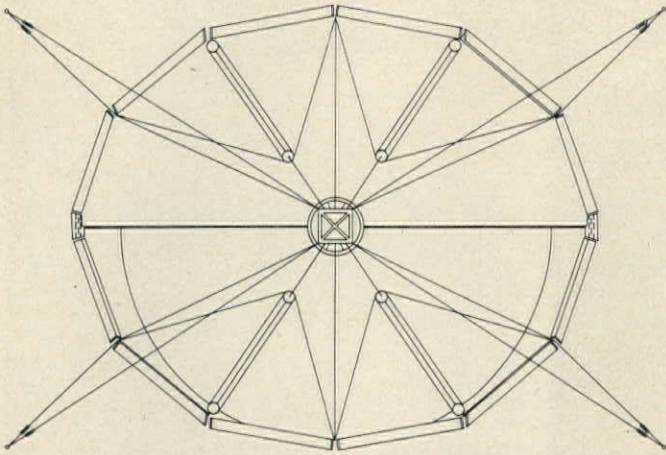
Redefining the solution as a 32-ft-high tent upon a stan-





The "Mighty Mobius" takes form. Left to right, top to bottom show various stages of assemblage: tent is hoisted to final position when ring rises to top of support tower; two arches that hold tent's lower boundary are pinned to plates 70 ft apart on scaffold platform; turntable structure is centered around heavy cast core from which putlogs will radiate; tent membrane is attached at side to arches and at center to ring before hoisting; the completed tent at May 22, 1975 Bicentennial concert in New York; turntable receives putlogs and wedge-shaped planks.

Technics: Tent



The "Mighty Mobius" in plan, with trusses in place and cables taut.

standard 60' x 80' pipe scaffold platform requires special attention to wind bracing, but offers unique opportunities as well. The structure is relatively light in weight for the area it covers. Its components are less costly and are easily replaceable since they are selected from stock construction catalogs. Assembly is fast: six hours for the tent.

Arise

The erection sequencing begins with the construction of a scaffold platform and its central support tower. It continues with the assemblage of two pinned truss arches which form the tent's lower boundary, and a tent ring which forms the tent's apex. The tent membrane is then attached to arches and ring. Finally the arches and ring are hoisted by cable and winch, taking the membrane into position. If a turntable is required, this is created at the tower's base either before or after the erection of the tent. A castored hub of heavy built sections receives castored scaffold putlogs which ride on a peripheral circular track; wedge-shaped floor panels fastened to plates atop the putlogs plank over the void to furnish a performing surface.

Coming as pieces packed in standard truck bodies, the "Mighty Mobius" has been designed for maximum efficiency and simplicity. Multiple components are interchangeable where possible. For example, ten of the twelve 17'-6" triangular trusses of the truss arches are identical, as are the 48 putlogs and their three tiered bands of floor panels. All pipe sections are of equal diameter throughout the entire structure. The tent membrane, a vinyl and nylon mesh sandwich bonded ultrasonically, is tough yet workable, and can be readily handled by workmen inexperienced in rigging. Cables that suspend the tent and brace the structure for wind loading can be finely adjusted as well, some with the aid of turnbuckles.

The play's the thing

What makes this tent structure so useful to the performing arts is its ability to accept lighting and sound equipment—without which an outdoor performance often dissipates. Lighting equipment is carried both on the truss arches and the support tower, and can also be mounted on cantilevered beams attached to the tower. Sound equipment can be located with equal ease. This minimizes the artistic compromises so often necessitated by the absence of adequate

outdoor structural support for stage apparatus. A battery of portable generators is also available to supplement or entirely deliver electrical service.

IFA has created lighting designs for countless visual spectacles such as sports, theater, television, and music. The firm is convinced that lighting for show business should be designed by specialists—certainly not by architects alone. The architectural technique for designing light distribution is simply too inflexible for the dynamic lighting requirements of performers. Nor do manufacturers generally provide the needed design sophistication.

A complete discussion of these architectural shortcomings could fill more pages than are available here. IFA does offer the following food for thought:

- 1 What mix of activities must be lighted? Since professional sports competitions may cost more to stage than an arena can recoup, many a program manager may want to include other forms of entertainment whose lighting designs differ enormously. Basketball has little need for follow spot lighting. A circus needs many such units and the ports in which to place and operate them.

- 2 Are there adequate roof and catwalk load capacities and working space? Show business requires a variety of technical devices whose preferred operating position is often above the performers and the audience. This places a considerable live load on the roof structure, which must be planned to accept extensive and spacious catwalks and service elevators to give stage technicians ready access to working stations.

- 3 Are there appropriate personnel to operate the lighting? Sophisticated new equipment may strain both the skills and patience of stagehands and their unions. Before an architect and his lighting designer specify technological wonders, they must be sure the house can operate them.

- 4 Will the light beams clear all major building structures? Horror stories about lighting schemes that never reached the stage are all too common in show business. A building's structure must not interfere with its lighting plots. Careful checking by the lighting designer can prevent this.

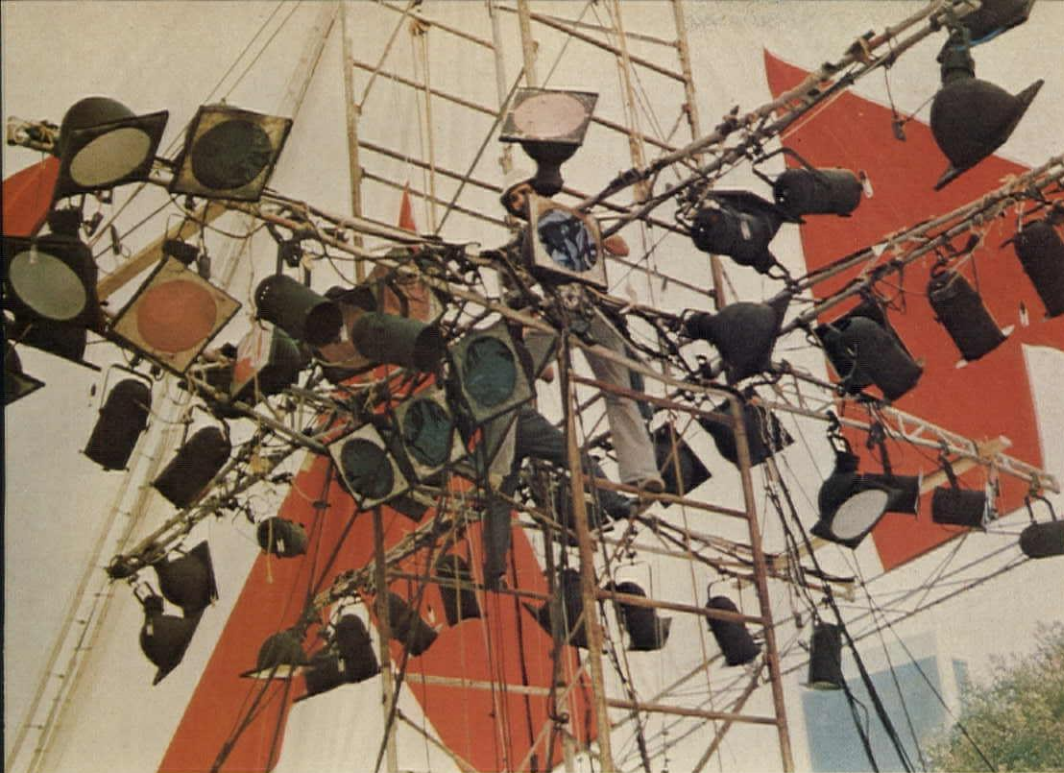
- 5 Where is power, and how much is available? Show business lighting needs heavy power requirements, especially for television. The sources must be convenient and generous. If an unimpeded floor is vital to performers, the power drops would be better placed high overhead.

- 6 Will the building's HVAC handle lighting heat loads? As energy problems remind us, lighting generates a lot of heat. Formidable show business lighting heat loads must be well ventilated by an HVAC system sized to take them.

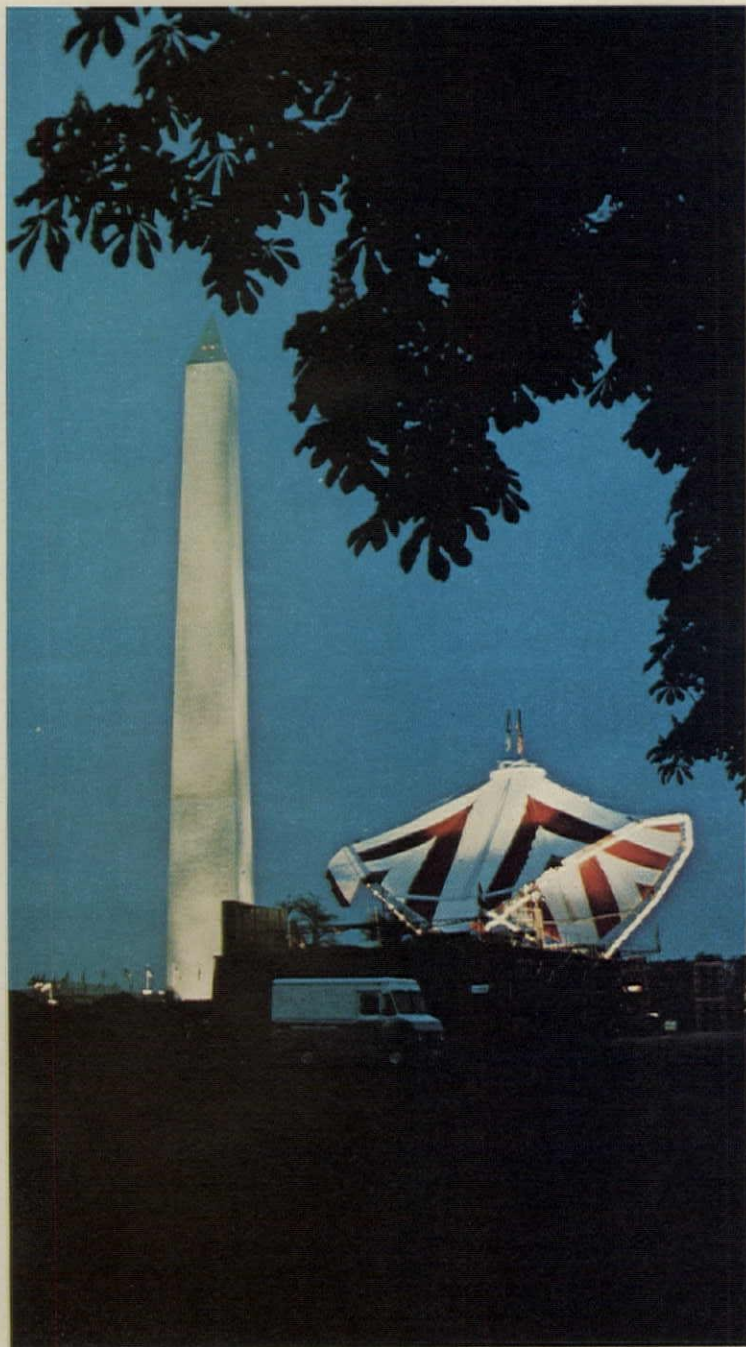
- 7 Who is the lighting designer/consultant? Office and factory lighting are generically different from that of show business. A good theater lighting designer has proved himself—in the theater.

In this context, the "Mighty Mobius" serves as a practical test laboratory for IFA lighting techniques. Because of its popular demand by performers, the tent has traveled to an extreme range of environments. Its versatility seems to be more in its willingness to accept an endless array and arrangement of equipment than in its nature as a tent. As one would expect, the secret of show business lighting is controlling where it wants to go. Playful and unpredictable as it may seem, the "Mighty Mobius" has found that secret.

[Roger Yee]



In performance with the "Mighty Mobius." Left to right, top to bottom: support tower and cantilevered truss beams carry comprehensive lighting installation; Be Kind to People celebration in Washington, D.C.; Bicentennial concert in New York with American Symphony Orchestra and Macy's fireworks display; on the road with the Rolling Stones, for whom a special tent design was developed and installed.



Interior architecture

Theater in the raw

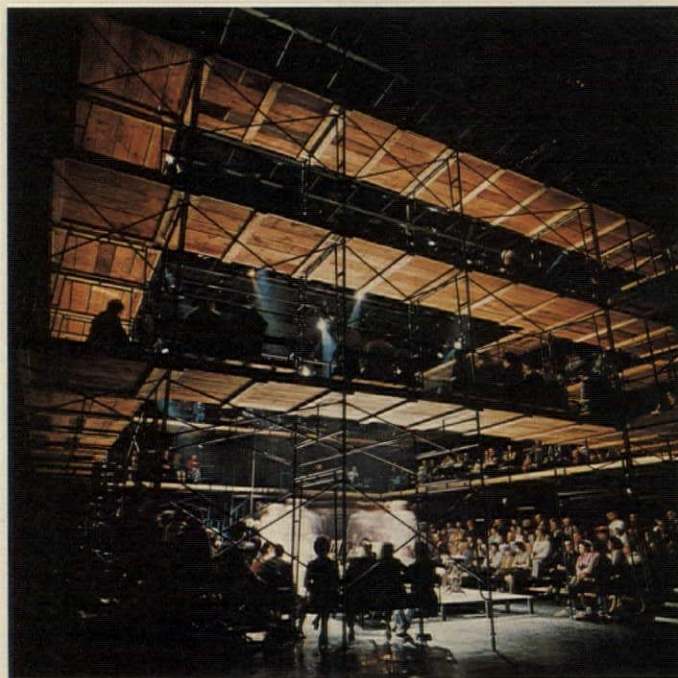
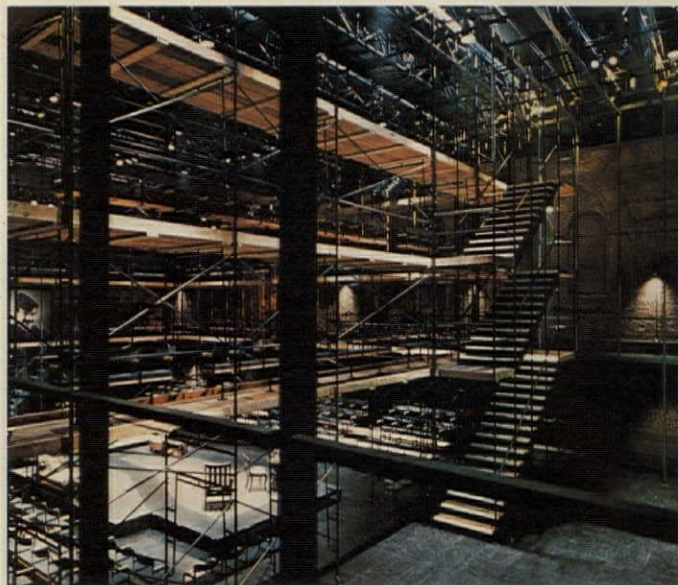


Taking over the renovated Carnegie Library, the Pittsburgh Public Theater found the cupboard bare, and set about the task of filling it economically.

When architects Demaino & Pedone renovated the Carnegie Library in Allegheny, Pa. several years ago, the thought was to use one of the spaces for the 300-seat Allegheny Community Theater. But it turned out that if 300 seats were put into the space, virtually no room would remain for a stage or the actors. Except for occasional functions, the space was not used for over a year after the renovations had been completed. The Pittsburgh Public Theater, under the artistic direction of Ben Shaktman, took over the space for a 12-week season opening this fall and Shaktman invited Peter Wexler to design their three productions. When Wexler arrived in Allegheny and found the group with little money and the theater with no seats, he had to find a solution.

Fascinated by the existing space with its Romanesque-arched brick walls, he left it untouched, as an envelope, and inserted the theater structure into it. His idea for the theater seating, stage, production, and costumes was that they be temporary: rented, demountable, and returned when no longer needed. It involved limited investment in permanent equipment for the group with a limited budget. The theater structure is created from scaffolding and pine planking, three levels high, reaching to the underside of the lighting grid (already hung in anticipation of the space being used as a theater). The first two tiers are used for seating; the third tier has additional stage lighting. The bleacher seating on the main floor and on the scaffolding is simply detailed—foam cushions, canvas backs, and wood arms—for about \$4 a seat. For two of the productions, the seating will remain as shown; for the third, the bleachers on the main floor will be swung around to form a U.

The theater was set up in three weeks' time (budget was not the only limitation) by employing local young people. The entire theater including seating, costumes, lighting, and scenery for three productions plus labor and fees was done for less than \$80,000, about one-fifth of what it would cost to do a production at the Met, and they already have seats. [Sharon Lee Ryder]



All Photos, Jack Weinhold

Some sound advice

Using words to describe sounds we cannot see leaves us wondering if what we mean by what we say has anything to do with what we thought we heard.

Two elderly ladies were riding the escalator in New York's Philharmonic Hall shortly after it opened when one lady, seeing the Lippold sculpture suspended directly above her, asked her companion if she knew what it was. The companion, looking up, replied, "You don't suppose those are the bad acoustics everyone's been talking about?"

Now, 13 years later, it's easy to be amused by such tales as Philharmonic Hall undergoes its seventh, and hopefully final, renovation. But back in the late 1950s and early 1960s when the hall was being designed and built, in an age of post-war technology when America was experiencing the prosperity of Supreme Being, the expectation was that this new concert hall would be the finest in the world. It would have been un-American to have expected otherwise. After all, good halls had been built for hundreds of years; it seemed mere child's play compared with sending men into space.

But as the first sounds were heard on opening night, it became clear that man's expected marvels had not materialized into a magnificent hall. The critical reviews that followed were, to say the least, unflattering. While everyone was quick to criticize, it became painfully clear that no one knew quite what to do. The profession of acoustics was not the exacting science that everyone had blissfully assumed—not that

many would have considered it an art.

Wallace Sabine, a physics professor at Harvard University, is credited with the first acoustics research around 1900. In an effort to explain the phenomenon of the audible persistence of sound in a room, he postulated a theory of reverberation and developed an equation for calculating its length. For more than 50 years, reverberation was considered the one key ingredient necessary for a successful musical space, while the realm of acoustical knowledge abounded with myths to explain various other sonic phenomena.

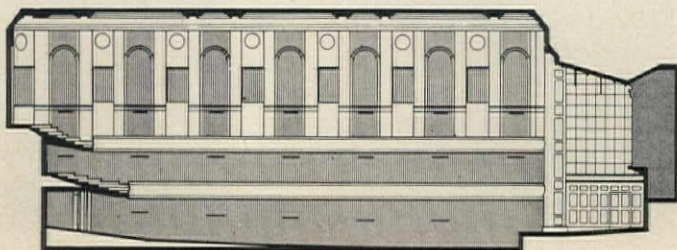
The Philharmonic Society's concern for the acoustical quality of the new hall, expressed in a letter to Bolt, Beranek & Newman, the initial consultants, was totally preoccupied with getting just the right amount of reverberation time. At the time of their Philharmonic commission, Leo Beranek undertook an analysis of the world's major concert halls (*Music, Acoustics and Architecture*, John Wiley and Sons), the first effort that had been made to analyze criteria for the musical experience and establish some design parameters. The irony is, of course, that three months after the publication of this work, Philharmonic Hall was judged a failure. The Philharmonic Society should have been pleased: The hall had a classic, mid-frequency reverberation time of 2 seconds. The problem, then, was obviously much more complex than adequate reverberation time. The "missing bass," reputed to be lurking behind the clouds, was never found, even after the ceiling was pulled down and replaced. As studies and experiments continued in an effort to un-

tangle the mysteries of this failure, many other factors began to emerge as necessary components of successful musical acoustics and a rather shaken profession began trying to counter its severely tested credibility.

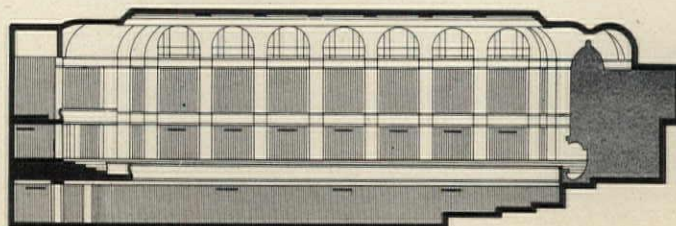
Just how does one design a hall to ensure a good acoustical environment with any accuracy or predictability? Assuming that the acoustical consultant has done his homework and knows how to isolate the structure from aircraft vibration, fire and police sirens, as well as other miscellaneous air-borne noise, assuming he has isolated the structure from the vibrations and noise of any mechanical systems, and assuming he has succeeded in keeping all children under the age of 12 out of the hall, he is then ready to proceed.

Prior to any presumed body of knowledge, a hall like Boston Symphony (1900) was modeled after the hall it was replacing, The Boston Music Hall, which was copied from the New Gewandhaus in Leipzig which was copied from the old Gewandhaus. Without much working knowledge of the reaction of sound in a contained space, this method proved useful. Assuming the original hall was good and that a more or less faithful copy was made of the overall proportions and construction methods as well as all the detailing, then the results were fairly predictable, although one could not say just why, with any certainty.

Predictably, science has advanced to the point where such outright plagerism is no longer necessary, and designers can get on with the business of being inventive. Progress has led us to believe that, in any



Shakespeare's *Much Ado About Nothing*, New York Shakespeare Festival, 1972 is pre-World War I America, by Ming Cho Lee, theater designer.



Boston Symphony Hall, model for the classic, rectangular concert hall.

contained space, there are three components to the listening experience: direct energy, sound waves reaching the listener directly from the source; reflected energy, direct sound which is bounced and scattered from nearby surfaces before reaching the listener; reverberant energy, the audible persistence of a sound once the source has ceased vibrating.

While seemingly a rather simplistic analysis, it is the critical balance of these three elements that determines the actual quality of sound which is perceived by the listener. This singular "quality" is, in reality, a complex synthesis of many factors. Beranek, in his book, was perhaps the first to analyze and define these factors and, while the importance he may attribute to any single one may be questioned, his overall analysis remains useful for communication. Intimacy, warmth, clarity, liveness, balance, blend are some of the words used to state the qualitative criteria.

Yet, given all the definitions, there is no formula, partly because we are dealing with the difference between acoustical measurement and perceptual experience. As late as 1965, Theodore Schultz of Bolt, Beranek & Newman published a paper in the *IEEE Journal* detailing the results of some research experiments. In a simulation of the natural patterns of sound in a concert hall (direct, reflected, and reverberant energy), some rather startling findings emerged. Removing the low frequency energy from the direct and reflected sound was not considered a significant decrease in bass by 61 percent of the test subjects, while removing the same low frequency energy from the reverberant field was considered a significant decrease by 93 percent of the subjects. Obviously, the ear didn't need to hear the low frequency energy in the early arriving sound. As long as it was present in sufficient strength in the later arriving sound, the perception of warmth (bass) remained.

But what also came to light was the rather critical energy levels that had to be maintained between the direct, reflected, and reverberant fields. In the same test setup, when the level of the reverberant energy was dropped 2 decibels and the low frequencies again removed from the direct and reflected fields, there was a significant detection of loss.

A mixed bag of tricks

No current practitioner would quarrel with the need for intimacy, warmth, clarity, balance, etc. The means to these ends, however, while not hotly disputed (except, per-

haps, by music critics), vary considerably from one consultant to another. Paul Bonner of Texas won't live without his "bumps" even though he has a hard time convincing some architects of their virtues; Christopher Jaffe won't give up his forestage canopy; BB&N favor variable reverberation (in case of difficulty); Cyril Harris won't take on a job if it can't come out looking like Boston Symphony Hall; and Paul Veneklasen is deep into unraveling the mysteries of floor slope. In all fairness, it must be said that, despite the quiet fanaticism, each professional favors those devices which, in his experience, have succeeded in the past. There are no revolutionaries in this field and even someone like Harris, whose work has stirred little controversy, won't really discuss a hall until it is completed.

The American experience

As if by way of apology, acousticians are all very quick to point out that the American predilection for multi-use halls has made the problem of musical acoustics even more difficult. These types of spaces must also be adequate for opera, ballet, and theater, requiring articulate speech and enormous stage houses for storing scenery. The pure concert hall, a precedent in all of Europe's great halls, finds infertile soil here where the economics in most communities cannot support a single-use space. Increased audience size, another result of economic considerations, is also antithetical to good acoustical design. Listening to opera at Washington's Kennedy Center with its 2400 seats is a participatory experience, while one remains a spectator at the 3800 seat Met in New York.

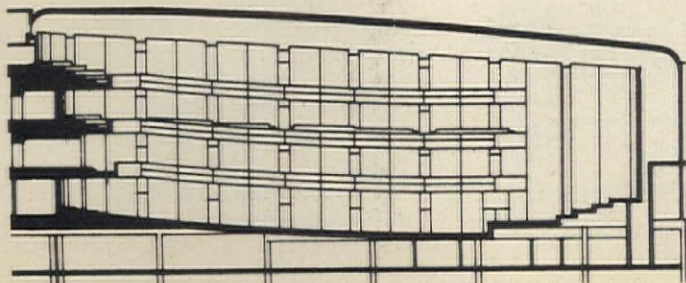
These two types of facilities, single-use or multi-purpose, also reflect the two prevailing approaches for the development of good acoustical design. The pure concert hall approach uses only the boundary surfaces for the development of all acoustic criteria, while the multi-purpose hall, of necessity, must also employ inner systems.

The rectangular shoebox-style hall, like Boston Symphony Hall or the Grosser Musikvereinsaal in Vienna, are models for current pure concert hall design by Cyril Harris. So far, Harris has been responsible for such reported successes as the Concert Hall at the Kennedy Center and Minneapolis' Orchestra Hall, and he is currently laying his reputation on the line by undertaking the latest renovation of Philharmonic Hall.

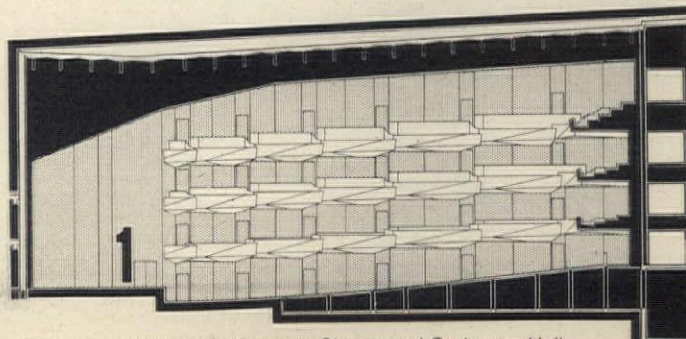
Both the Concert Hall and Orchestra

Hall make use of boundary surfaces to realize acoustic criteria. The orchestra is positioned on a raised stage along one narrow end, speaking directly into the main volume of the hall. This source area is unyielding (rigid); the three walls, ceiling, and floor reflect all of the sound energy generated by the Orchestra. The vertical splays along the rear and side walls of the stage, as well as throughout the rest of the hall, help diffuse the sound. Likewise, the hexagonally coffered, plaster ceiling and the 11 crystal chandeliers, each 12 ft long, act as diffusion elements in the Concert Hall, while a different architectural device for the same purpose was employed in Orchestra Hall. The two balcony fascias, tilted slightly downward toward the orchestra are detailed in a similar manner to the side walls. In this type of hall, these fascias are critical in returning reflected energy to the center of the orchestra seating area, as are the angled side walls surrounding the stage area. The volume above the balcony, called a "hard cap," must be sufficient in size to develop the reverberant energy.

Because of the reliance on the boundary system for the distribution of sound, there are certain predictable characteristics to the quality. As all of the energy from the orchestra is returned directly into the volume of the hall, the first rows of seats often suffer from a glut of sound, particularly at the louder levels, that may not be as balanced orchestrally or contain as much reflected energy as farther back in the orchestra seating. In addition, it is more difficult to obtain a multiplicity of early and secondary reflected energies when relying strictly on boundary surfaces unless the hall has been kept narrow enough. Some noted European halls have successfully added an inner system of reflectors over the stage to change the ratio of direct to reflected sound, reducing the arrival time of early reflections in the mid and high frequencies while allowing the low frequencies to reach the upper, reverberant portion of the room. The reverberant field in these halls, however, more than adequately emphasizes the low frequency energy. (The Concert Hall at Kennedy Center has a decay time of 2.5 sec. at the low frequency end, 1.8 at mid frequency). This type of hall generally never fails in this regard as the sheer volume of the space allows the lower frequencies to develop sufficiently. A rough figure given by most acousticians is 300 ft³/person for adequate volume, although this figure can vary considerably (Boston has 252 ft³, the

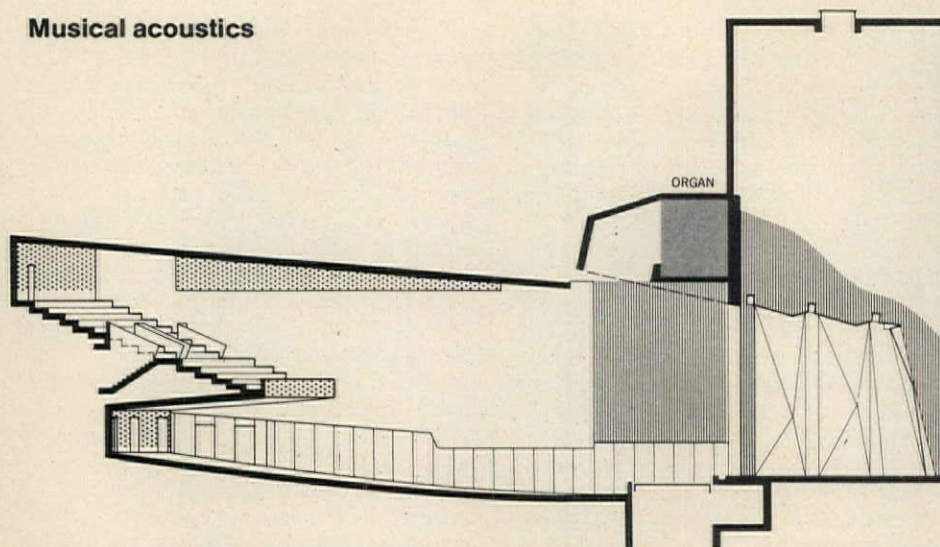


New Gewandhaus, Leipzig, Germany served as the model for Boston Symphony Hall.

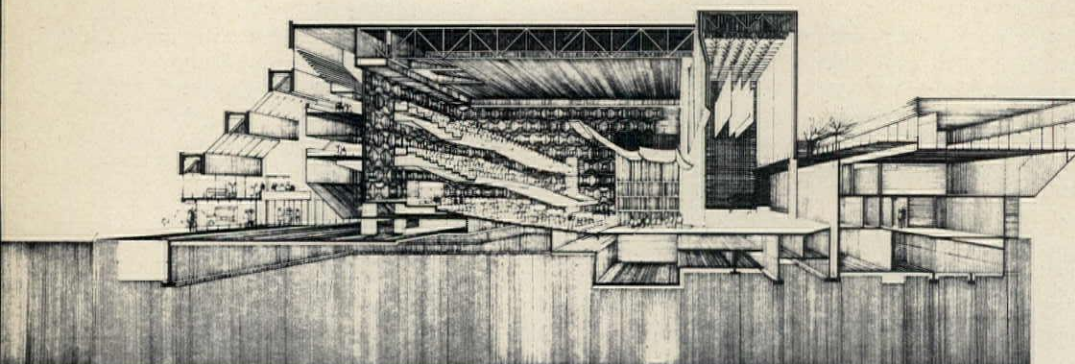


The Concert Hall at the Kennedy Center and Orchestra Hall, Minneapolis, were both modeled after the traditional Boston Symphony Hall.

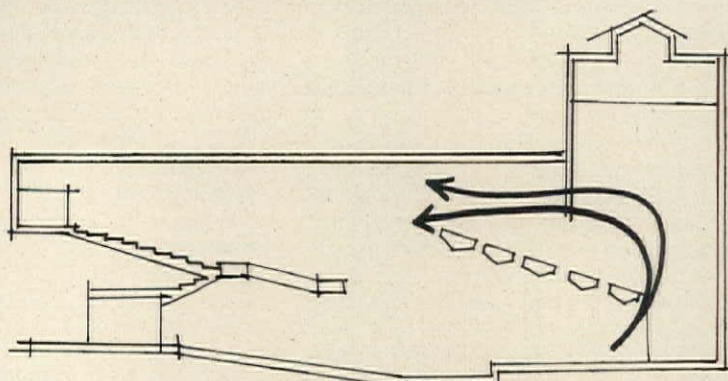
Musical acoustics



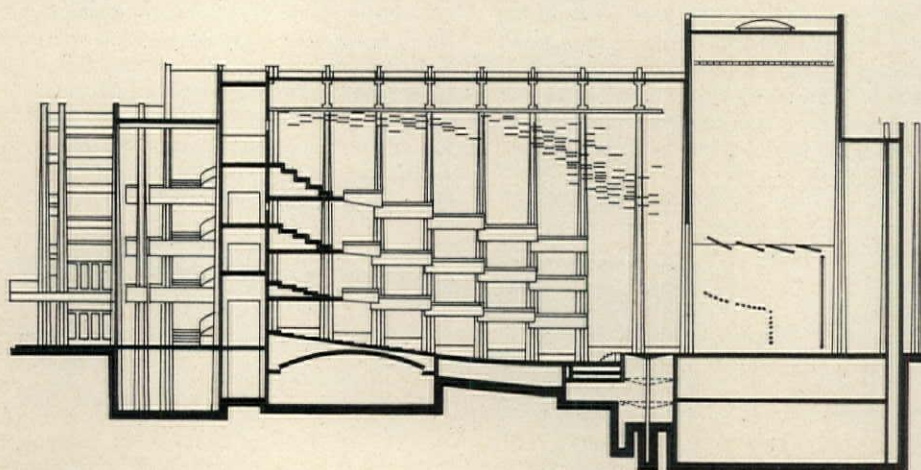
Ford Auditorium, Detroit, with rigid shell enclosure in stagehouse.



Hamilton Place, Hamilton, Ontario, where orchestra is forward of proscenium.



Savannah Civic Auditorium, stagehouse used to develop reverberant energy.



Clowes Hall, Indianapolis, variable acoustics are achieved by changing the angle and height of the reflecting panels in the concert shell.

Concert Hall 250 ft³) depending on the seat spacing, since occupied seats constitute the major absorptive area in any hall.

In adapting the full stage, multi-purpose hall for concert use, two different approaches can be taken. The first follows the theory of the pure concert hall, using the boundary surfaces and erecting a contained shell (one that reflects all the sound energy) on the stage as was done in Ford Auditorium in Detroit. These types of shells are not appropriate, however, when the volume or shape of the hall are not sufficient for the full development of necessary early reflections or of adequate reverberant energy.

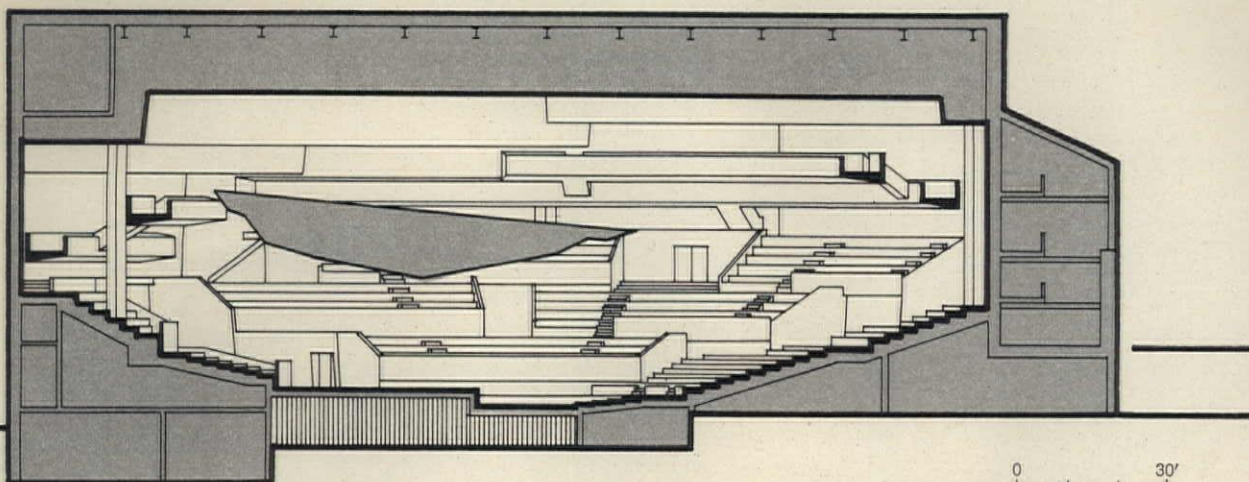
Another option is to move the orchestra forward of the proscenium, closing off the stagehouse completely, as was done in Hamilton Place, Hamilton, Ontario, by Russell Johnson (formerly of BB&N). Again, the volume and shape of the space would determine whether the boundary surfaces could be relied upon for the development of all acoustical criteria or whether suspended reflectors should be added.

The last approach developed to date uses the stagehouse as a reverberant chamber, acoustically coupled to the main space. An articulated shell (lighter in weight than a contained shell, more easily moved and adjusted) is used to surround the orchestra and to reflect mid and high frequency energy. Low frequencies pass through the shell into the upper stagehouse area, because of the type of shell construction. Provided there is an adequate opening into the main volume, this low frequency energy can be re-introduced into the main hall rather successfully. Surprisingly enough, Carnegie Hall, although a pure hall in other respects, demonstrates this principal well because of a small stagehouse behind the proscenium curtain and above the lightweight canvas reflectors. In the renovation of the Portland Convention Hall, where it is not possible to couple the stagehouse directly to the main volume because fire codes dictate that a fire curtain must remain closed, Paul Veneklasen electronically coupled the spaces with a microphone pickup in the stagehouse and speakers mounted in the rear side walls.

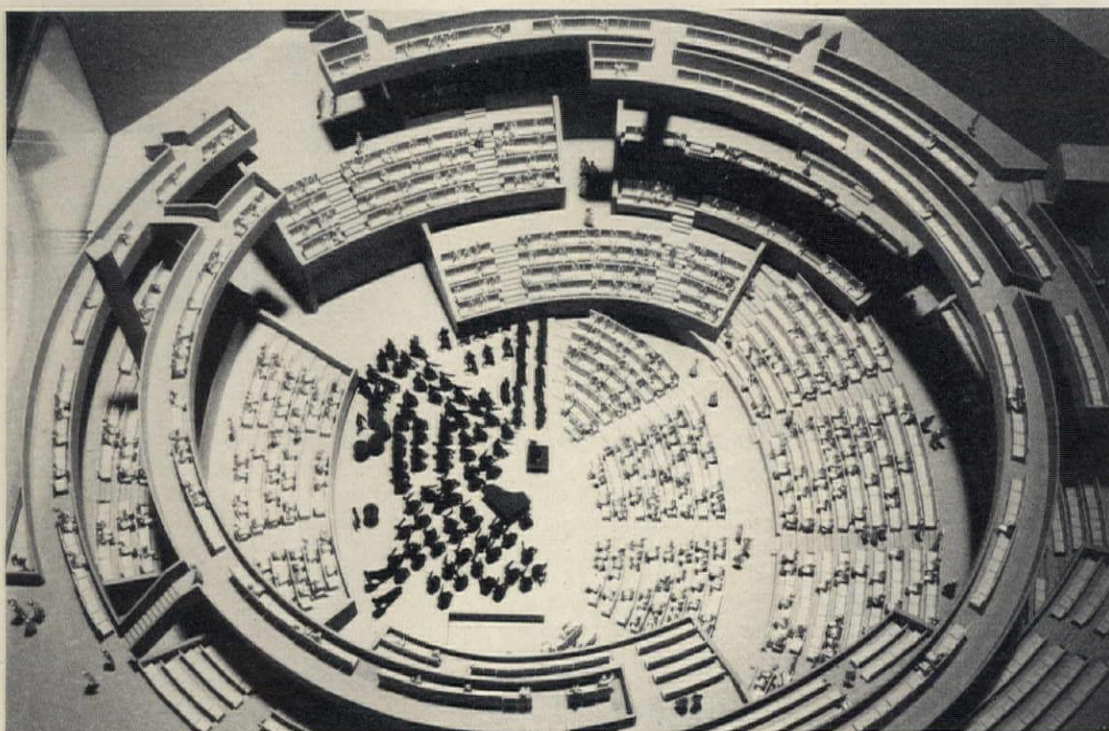
If all else fails

One interesting outgrowth of the multi-purpose hall has been the development of devices for variable reverberation times. The principal exponent of this approach is Bolt, Beranek & Newman as well as two former members of the firm, Russell Johnson of New York and Jack Purcell of Purcell-Noppé, Los Angeles.

For the Spokane Hall, a multi-purpose hall using the coupled stagehouse as a reverberant chamber for symphony concerts, Jack Purcell developed a series of 10 curtains above the acoustically transparent wood ceiling, any number of which can be drawn to cut the mid frequency reverberation time from 2.1 to 1.6. Hamilton Hall uses floating balconies as a means of distributing reverberant energy to the nor-



The new concert hall for Denver takes its form from the Berlin Philharmonic. A canopy, positioned over the orchestra, and reflecting panels sloped close to the angle of the seating will ensure that adequate reflected energy reaches the audience in the circular hall.



mally starved under-balcony seats at the same time that adjustable banners are employed in this surrounding space to cut the reverberant energy when necessary. Another example of a variable reverberation principal has been developed by B.B.N. Based on their previously discussed experiments on the critical ratio between reflected and reverberant energy, this system utilizes a reflecting array to change this critical ratio. By removing some of the reflecting panels, the amount of early reflection is decreased as the amount of reverberant energy increases. At Clowes Hall, Indianapolis, a similar principal was used for the stage enclosure. Individual rows of reflector panels, operating on motorized winches, offers adjustability of height and angle that alters the projections of sound into the main volume. In many ways, although this type of approach is more costly to install, it offers much more delicate "tuning" possibilities than the use of variably absorptive surfaces.

The amount of experimentation that takes place in the building of a new facility,

however, is negligible. Traditional forms and traditional devices are adhered to with a certain fanaticism; more, perhaps, as a result of some reticence on the part of the musical community, than a lack of willingness among architects or acousticians. The Berlin Philharmonic was the first new facility (1963) to be built that broke out of the more traditional modes, although a precedent for this form can be seen in the Concertgebouw, Amsterdam. Skepticism abounded, as much for the acoustics as for the break in the traditional format, less formal, more intimate. Critical reviews deemed the hall a success and now, 12 years later, the first such hall in this country is being designed for Denver by Hardy, Holzman, Pfeiffer, with Jaffe as the acoustical consultant. A surround hall such as this changes the normal relationship of performers to both audience and enclosure and therefore demands that all the acoustic criteria be developed by somewhat different means. Because the sound is dissipated in a 360 degree circle, reflectors must be positioned over the or-

chestra, not only to balance and blend on-stage sound for proper ensemble but to provide early reflected energy to the audience with a properly sloped forestage canopy.

One difficulty in this type of facility is the conflict inherent in providing a multiplicity of early and late reflections to the entire audience and at the same time developing a sufficient reverberant field. By using the outer walls and ceiling as a boundary system, reflections can easily reach the rear of the hall if the distance from the reflecting surfaces is not too great. In bringing these surfaces closer to the audience, however, other means must be found for developing a reverberant field as the volume at the top of the hall will probably not be sufficient in itself. In Denver, Jaffe is using an acoustical moat under the stage area which works on the same principal as a stagehouse reverberant chamber. The moat extends under the first few rows of seats and is coupled to the volume of the room through openings around its periphery and under the seats.



The concrete stage enclosure of Ravinia with acrylic reflector panels.

The acoustic arena

Perhaps the area of greatest acoustic experimentation lies in the outdoor music pavilions, where it may be easier, having broken some of the rules, to break a few more. Most pavilions seat more people under cover than any acoustician would permit in an enclosed hall (3500 or more) and, without benefit of walls except around the orchestra enclosure, the development of acoustic criteria depends entirely on the use of inner systems.

Ravinia, the summer home of the Chicago Symphony, is an astonishing facility, in many respects better than a good many enclosed halls in this country. The current facility was renovated in 1970 when a new orchestra enclosure was added by architects Holabird & Root with Jaffe as the acoustician. The existing location of the pavilion close to the property line made it impossible to design a reverberant chamber to the rear of the enclosure. Instead, Jaffe designed a concrete stage, twice the size of the former one, then installed a series of movable, vertical acrylic reflectors. When pulled away from the concrete walls, these reflectors allow a reverberant field to develop behind while reflecting and blending the mid and high frequencies for orchestral balance. An overhead array is used to deliver early reflected energy to the audience area. The natural reverberant field is developed in the upper volume of the pavilion, but this type of energy can be quickly dissipated when there are no walls to contain it. There are six speakers mounted above the reflecting array which electronically assist in reinforcing the re-

verberant field; four articulating speakers gently assist in giving clarity to soloists.

A sound field is established in the grassy area adjacent to the pavilion by the use of column speakers for delayed direct sound reinforcement with clusters of three reflected energy speakers mounted directly beneath. Jaffe has quite successfully developed sound fields of this sort for the New York Philharmonic in Central Park and for outdoor concerts in St. Louis. A simulation of the natural listening experience can be achieved by the careful placement of direct source speakers with the proper time-delay, coupled with delayed, reflected energy speakers.

The Hollywood Bowl

Like Philharmonic Hall, the Hollywood Bowl has been plagued with acoustical difficulties since it was built and, like Philharmonic Hall, it is currently undergoing yet another renovation. The similarities end there, however, for the Bowl's physical problems seem so insurmountable that it is a wonder anyone would risk his reputation trying to correct it. Paul Bonner, as the Bowl's current acoustical consultant, is feeling rather humble.

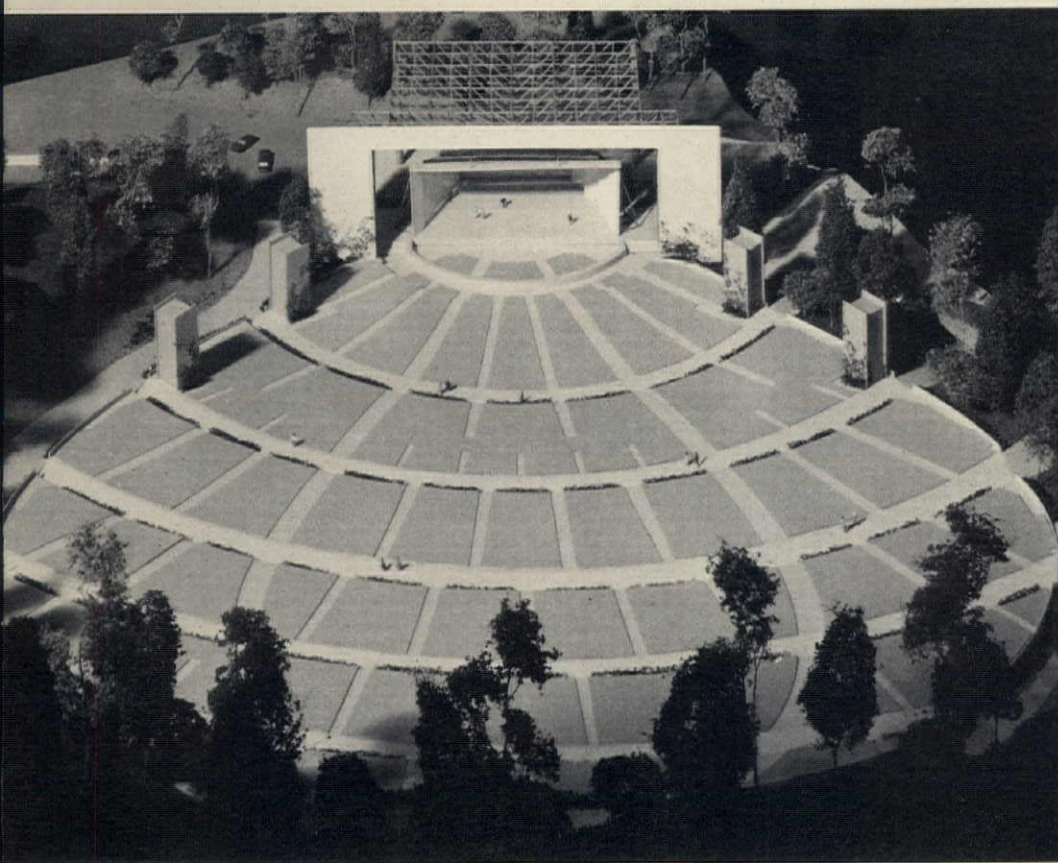
The principal concern at the Bowl has been to provide adequate sound for 17,000 seats. Besides the problem of size, the Hollywood Freeway, police helicopters, and stray airplanes produce sonic marvels more audible in the upper sections of seating than the full orchestra.

The current proposal for the Bowl renovation is the most extensive yet undertaken. It includes a new, demountable

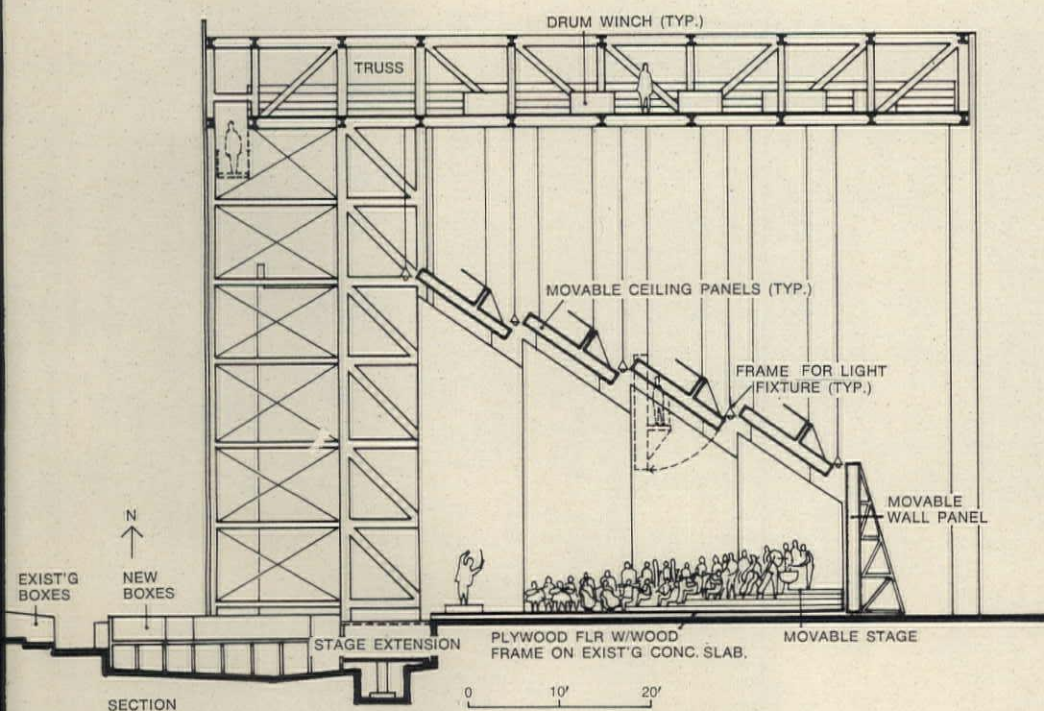
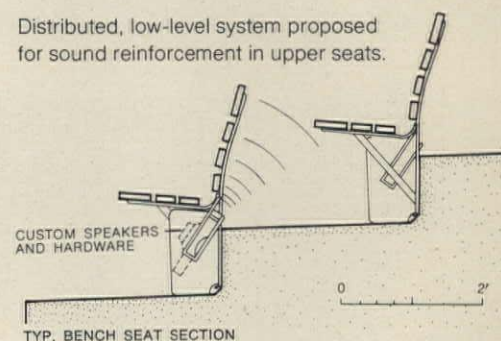
shell with more adequate backstage facilities (and, presumably, fewer inherent acoustical difficulties) as well as a distributed, low-level sound reinforcement system intended to create uniform sound pressure levels in all seats. This type of system, a concept without precedent, calls for a large number of small speakers to be mounted under the wooden seats and spaced 15 ft to 20 ft horizontally, row by row. The speakers would furnish a low level of sound slightly after the arrival of the direct sound by means of a digital delay. Reinforcement systems, with the proper time delay, can raise the sound level 3 db without the slightest detection by the listener.

There seems to be one inherent conflict in the application of this type of system to this situation, however. In order to maintain any sense of realism with a sound reinforcement system, the level of sound from the speaker must be perceived as lower than the direct source and arriving slightly later. Given the lack of direct sound pressure in the upper sections of seats, if the reinforcement level is raised 3 db above the level of direct sound, source identification problems might result for the listeners. Yet, if it doesn't have sufficient strength, its impact will be negligible.

Even if a critical balance can be established, the concept behind this type of system (other types of speaker systems have been ruled out as inappropriate) raises another concern. Bonner describes the theory as being able to move the listener's ears to the front row while leaving his body seated. The perceptual experience of



Distributed, low-level system proposed for sound reinforcement in upper seats.



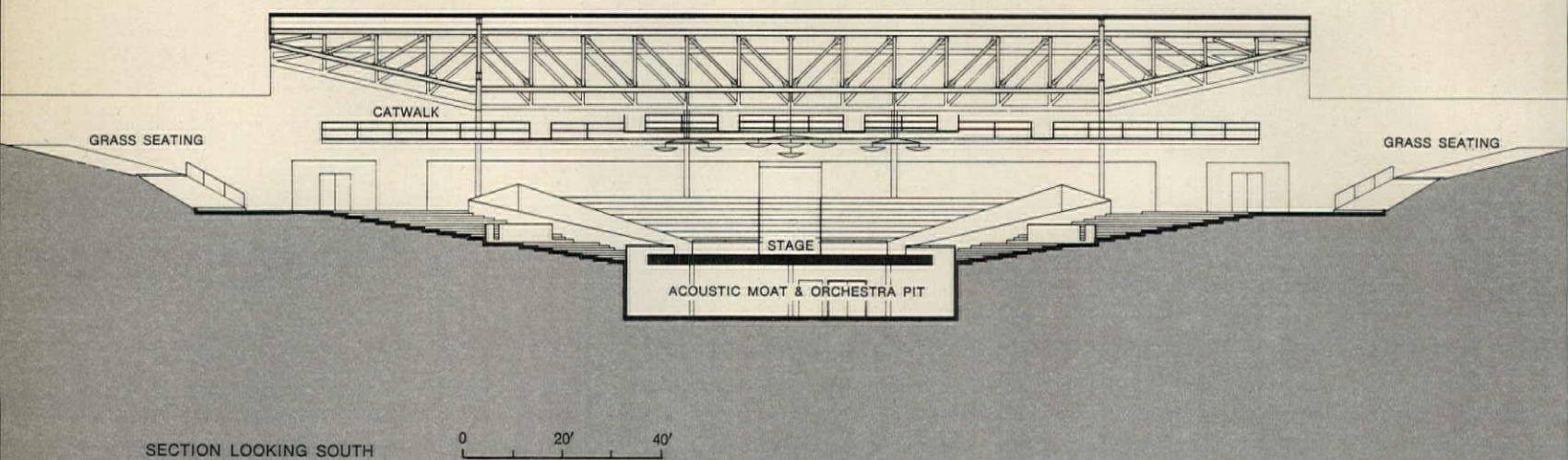
The proposed shell for the Hollywood Bowl would be a space frame structure with a demountable shell hung from the trusses.

sitting 500 ft from the orchestra while the orchestra sounds as if it were a mere 50 ft away may result in such confusion for the listener that, no matter how subtle any reinforcement system is, its benefits may not be fully appreciated.

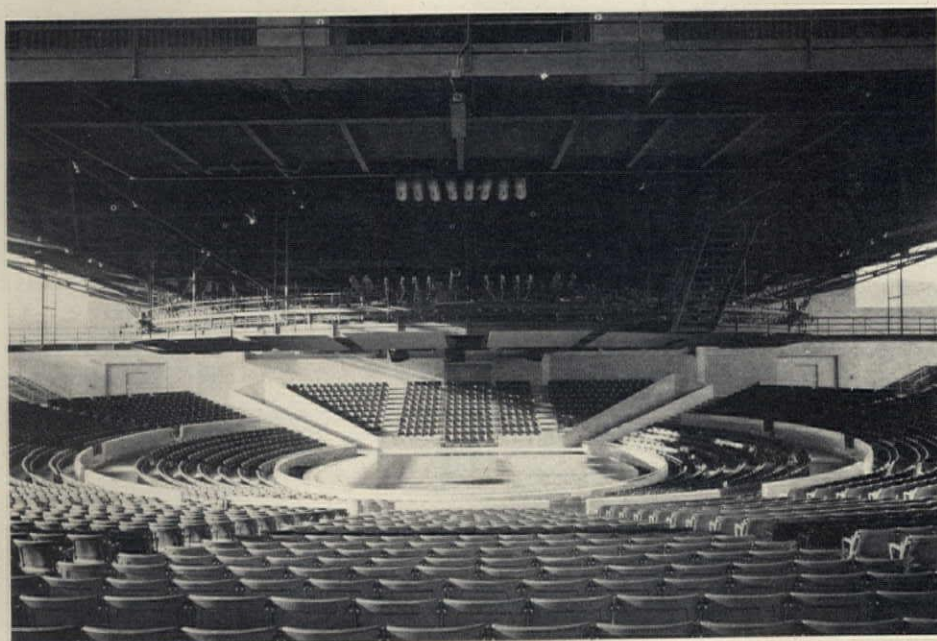
A test of the system was made by installing a limited number of these speakers, 15 ft apart, in the rear section of seats. Theoretical criticism aside (for what in the end matters is not what you think, but what you hear), the system, in actual fact, does acceptably raise the level of sound without causing any source identification problems. When the balance between the direct sound and the reinforced level is properly adjusted (and the tolerance range is very small), an awareness of the system comes only when it is switched off. (The preference established during the tests was 1 to 2 db louder for the system with the time delay in the range of 320 ml sec. at a distance of almost 500 ft. Even though the system is louder than the source level, identification problems do not exist because of the Haas effect: the principal which says, basically, that with the proper delay time, reinforced sound will be perceived as lower, although it may be as much as 3 db louder.)

As a consequence of establishing the right delay and the proper level of the system, perceptual difficulties are not an issue partly because the listener is, in fact, not transported to the front row, but, rather, gently lifted off his seat. Problems of budget, maintenance, and installation aside, if the system is used, the sound at the Bowl will be positively enlightening.

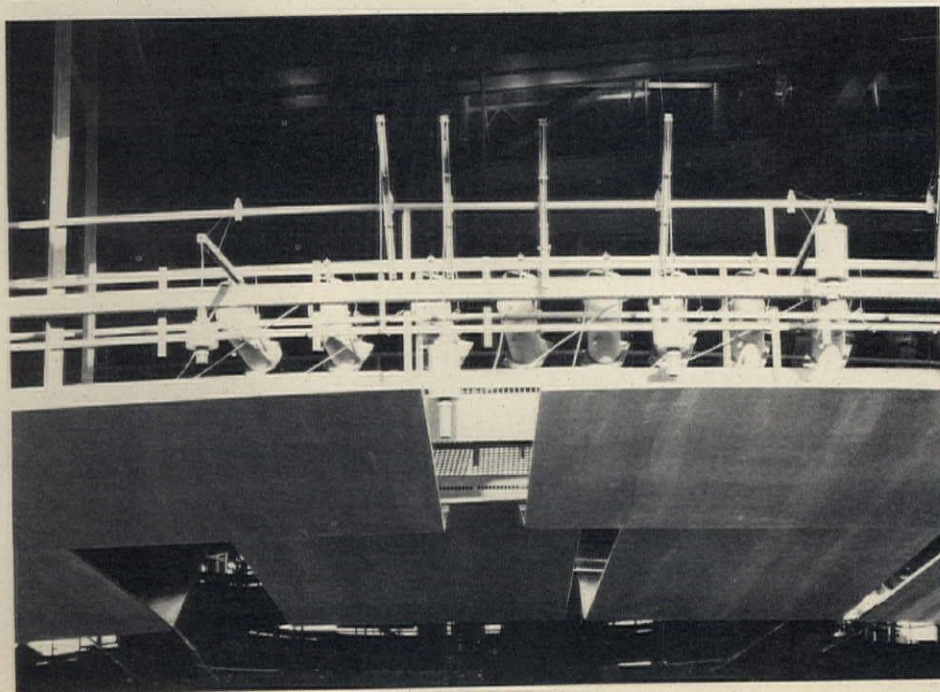
Musical acoustics



Section of the Concord Pavilion (left) shows the canopy hung from the catwalk. Because of the circular plan, the lawn area enjoys a visual intimacy with the performers, unusual in outdoor pavilions.



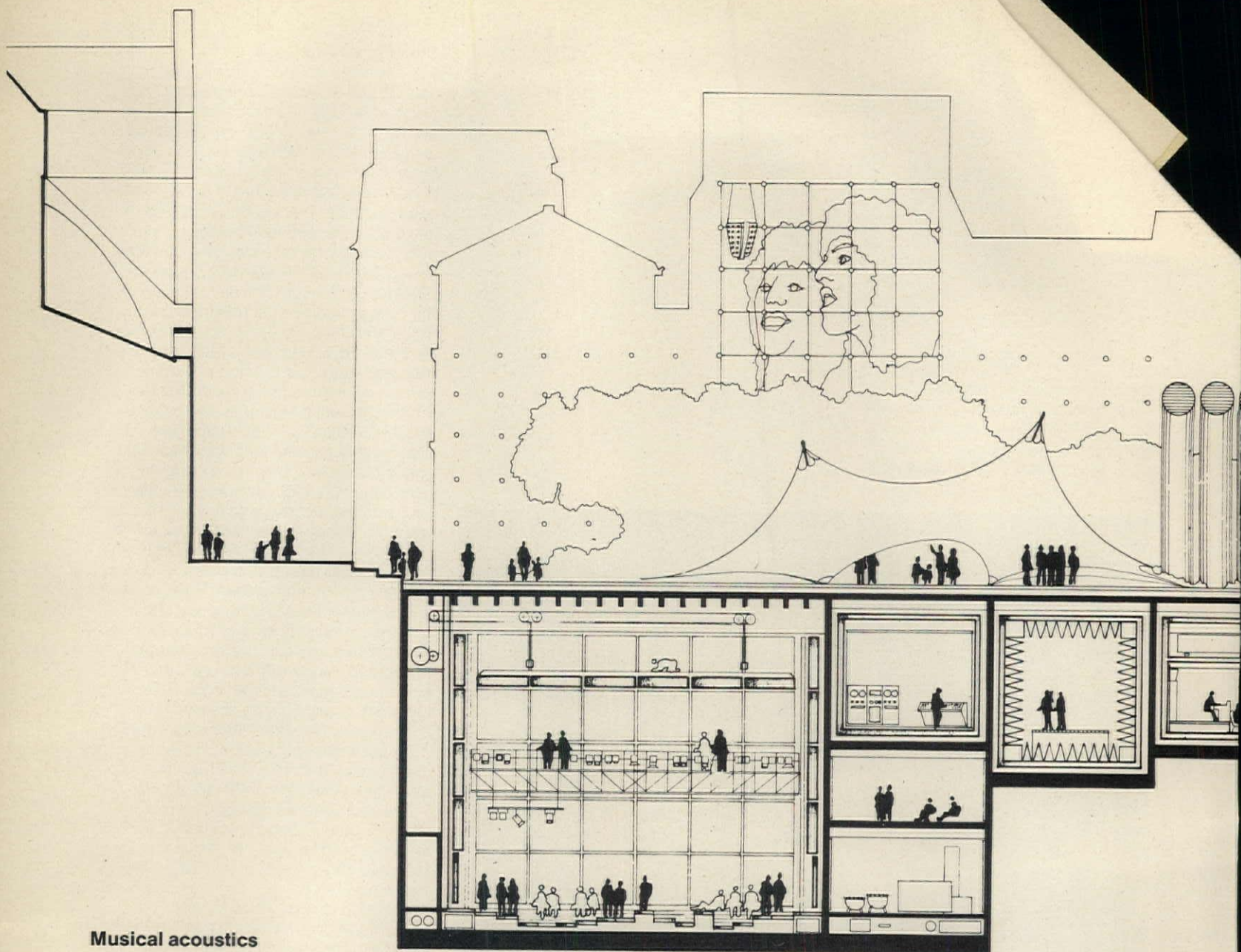
Catwalk (below) shows the resonators used to pick up energy for the resonance system. Panels below return reflected energy to audience.



Concord Pavilion

The newest pavilion to open is Concord, outside San Francisco designed by Frank Gehry with Jaffe as the acoustician. The pavilion itself is a full 360 degree (off-center stage) facility with a raked lawn on three sides, and, in many ways, this facility offered Jaffe the opportunity to test many of his concepts that will be incorporated into the Denver facility. There is a canopy over the stage for reflecting and blending sound within the orchestra. A ring of the reflector panels encircles the outer edge of the canopy to distribute reflected energy to the audience. As with any circular facility, the direct sound field is less intense than one might like, due to the fact that there is no enclosure for the orchestra. What is gained, however, is an intimacy and involvement with the performers, not present in more traditional facilities. This configuration also precludes designing a reverberant chamber and, as there was no fascia on the roof to contain any of the reverberant energy, other means had to be found to maintain a sufficient reverberant field. This was the first opportunity Jaffe had to try the moat concept. Here, as in the design for Denver, the space underneath the orchestra is used to develop reverberant energy which is then reintroduced into the pavilion through an acoustically coupled opening surrounding the moat. In addition, an assisted resonance system was installed, incorporating a series of frequency-selective microphone resonators mounted full circle just above the edge of the reflector panels.

The microphones pick up reverberant energy which is then strengthened and reintroduced through a series of speakers mounted above the canopy. During the design stage, the pavilion roof had been raised 12 ft to conform to local building code requirements, adding considerable volume to the pavilion. When the facility finally opened, the reverberant field was too developed and absorptive material had to be added in the catwalks above the canopy. Another change, as a result of the increased roof height, was the loss of some of the reflected energy toward the rear of the audience, and Jaffe feels that more reflectors extending further out would have helped. Here, as in Ravinia, Jaffe employed a series of articulating speakers to enhance soloists' voices but, while the effect is not as subtle, the problem lies not in the concept but probably in the volume setting or microphone placement. Regardless, the sound for the 3000 people within the pavilion is still remarkable. What is more astonishing, however, is the quality of sound for the 6000 people on the lawn. Although time-delayed reinforcement of the direct sound occurs through five speakers mounted along the periphery of the roof, it is not necessary. The configuration of the lawn provides enough visual intimacy that the natural sound levels, though weaker than inside, would probably suffice. This is one case where Jaffe should have left his electro-acoustical baggage at home; his natural talents are enough.



Musical acoustics

Centre d'Arts

Curiously, nowhere in our progress, has anyone willingly broken all the rules. We seem still rather intent on building opulently traditional facilities for rather conventional music. Historically, in Europe, musical forms developed partly as a response to the spaces in which they would be performed, but what would Philharmonic Hall inspire, except perhaps a Lament in B minor. It seems natural, then, to look to Europe for the tradition of continuity (or vice versa) and to the first facility that does represent a radical break from the traditional format.

The Institute for Research and Coordination into Acoustics and Music will be headed by composer Pierre Boulez, currently the Music Director of the New York Philharmonic Orchestra. The facility, part of the Centre d'Arts in Paris, is sponsored by the French government and designed by Piano & Rogers, winners of the Plateau Beaubourg competition.

The Institute will encourage a range of interdisciplinary research by both scientists and musicians into such subjects

as psycho-acoustics, computer science, theories of sound, perception, linguistics, and sociology, and is intended primarily to support the continued exploration into contemporary music, its composition and its performance. The means and the end are one and the same: a space that is for performance, research, and composition. The space is 35' x 90' x 45' high with a capacity of 400 people: All six sides are variable. The ceiling is vertically movable in three independent sections allowing a 4:1 volume change; the floor is a modular panel system with interchangeable finishes; the walls are a series of rotating triangular panels, with one reflecting surface, one absorbent surface, and one diffusing surface allowing a 4:1 variation in reverberation time. Beyond the physical capabilities of the space, a computer will provide added electronic reverberation as performance or composition demands. In addition to film and slide projection capabilities and a total cover sound system, a series of rolling beams will be used for spatial interaction of performers.

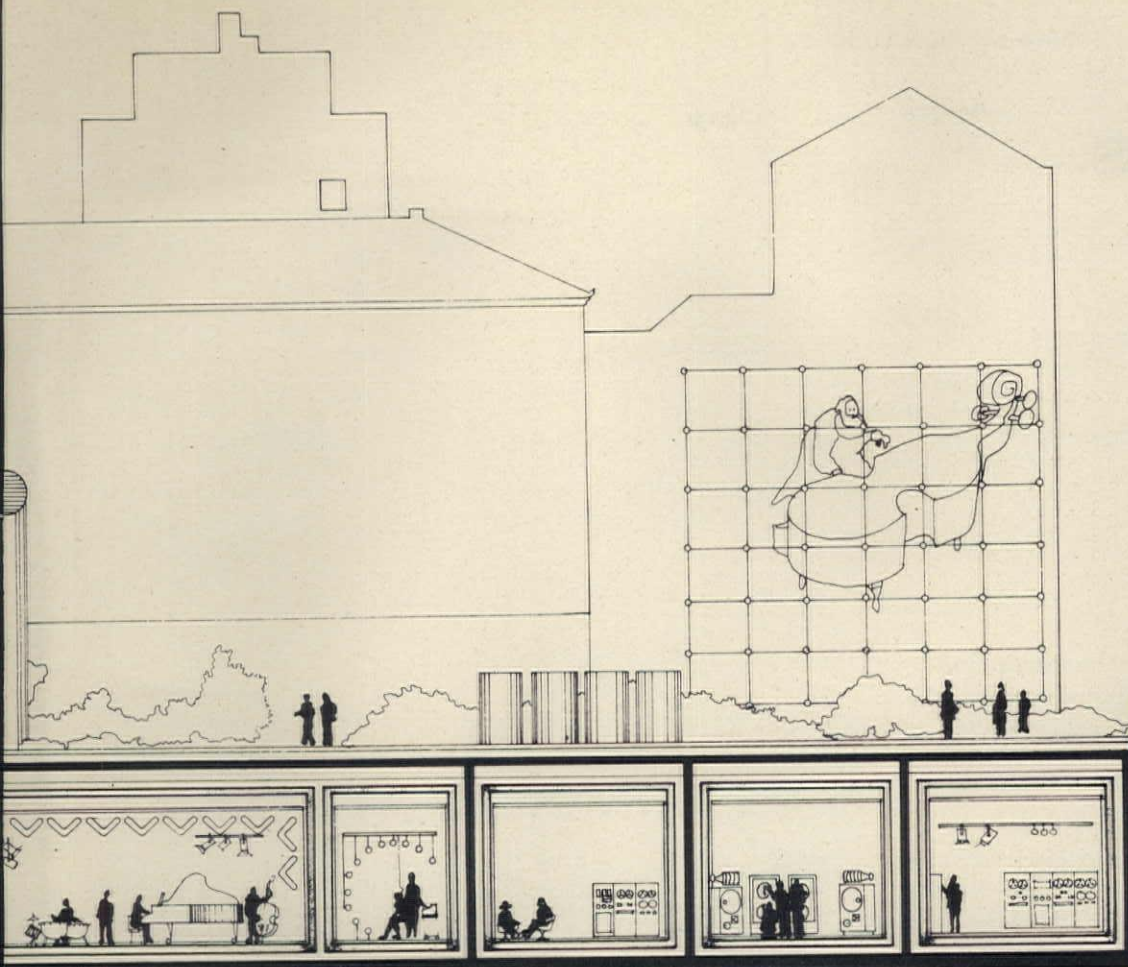
The space is conceptually an instru-

ment, to be played, programmed, and explored. It was never conceived as a completed, finite object, but more as a tool for process and evolution of ideas. What results from its use will be limited only by the imaginations of the people using it.

Faint imitations

Except for black tie, rustling silk, opera lights, and limousines, what's really happened to the experience of going to a concert? Why has all our progress left us somewhere just after the turn of the century, building faint, steelframe imitations of past grandeur? Why does it take the French, handy in the forefront musically, to establish the first experimental facility, while our only outrageous offering is Virgil Fox playing the Rodgers Electronic Organ at the Filmore East. (The French, alas, also invented son et lumière.)

Where then is the state of our art, that we are still striving to build adequate traditional concert halls when generations have succeeded before us? Where then is our art, if concert hall architecture only panders to the tastes of audiences whose mu-



Section through the Institute for Research and Coordination into Acoustics and Music in Paris is part of the Centre d'Arts. The large space at the far left is for composition and performance; the other spaces are for research. Photo (below) of the Rug Concerts held during the summer at Philharmonic Hall, New York City.



sical preferences don't include much composed after 1920. In recent years during the summer months, a series of Rug Concerts, started by Boulez, were held at Philharmonic Hall. Seats were removed, rugs and cushions put in their place; the orchestra was moved out into the middle of the hall and the stage given over to the audience. Not only were the concerts a sell-out, a good proportion of which were given over to contemporary music, but the enthusiasm and response of the audience was electrifying. Such supposed sacrilege of the hall, however, was no doubt permitted because it was never a highly regarded place to hear "good" music. Now, with the impending renovations, the new hall (and it assuredly will be a rectangular shoebox) may not permit such violations of its newly established sanctity.

Maybe we've been so stereoed and TVed that our traditions have become rooted in the tube and transistor. Maybe, as victims of our own technology, the ultimate sonic experience is a set of headphones and the freedom to plug in and tune out. [Sharon Lee Ryder]

Street smarts

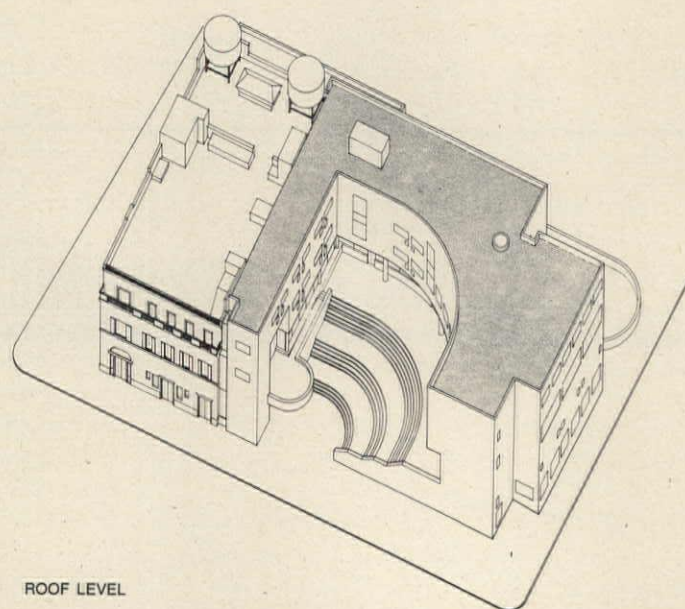
Architects talk of an architecture of inclusion and accommodation, of the need for a building to fit into the surrounding environment; here is one facility that does—appropriately; a neighborhood arts center.

This building may not necessarily elicit exalted rhetoric to evoke its architectonic forms or spaces. Nor may it swiftly stir architects to controversy and diatribe. It's simply a modest, well-designed, community-based arts center for New York City's Henry Street Settlement, a nonprofit social service organization. Yet the Arts for Living Center by Prentice & Chan Ohlhausen represents certain professional attitudes toward the role of architecture in general, and cultural centers in particular. The architecture may be modest, but it is significant.

Architecturally, the center could best be described as a "background" building. Sited in a Lower East Side neighborhood of low- and medium-rise brick apartment buildings, houses, shops, and police stations, the rather boxy structure with its dark red brick takes on the "dumb and ordinary" character of its surroundings.

At a very specific level, the building is a carefully constructed composition that takes its cues from the Henry Street Playhouse next door. In joining the center to the 1920's quasi-Federal-style playhouse, the architects sought to respond as sensitively as possible to the scale, proportion, and massing of the older structure. First, they maintained the street line by designing a "wall" building with an amphitheater/plaza boldly carved out of its entrance plane. Since the new entrance to the center thus recedes from the street, the frontality of the older playhouse next door is still asserted, and it continues to read as the major façade. The architects also play subtle tricks with the alignment of the walls on either side of the carved-out plaza. One continues the plane of the playhouse's façade to the west; the other is set back 5 ft to align with the supermarket to the east.

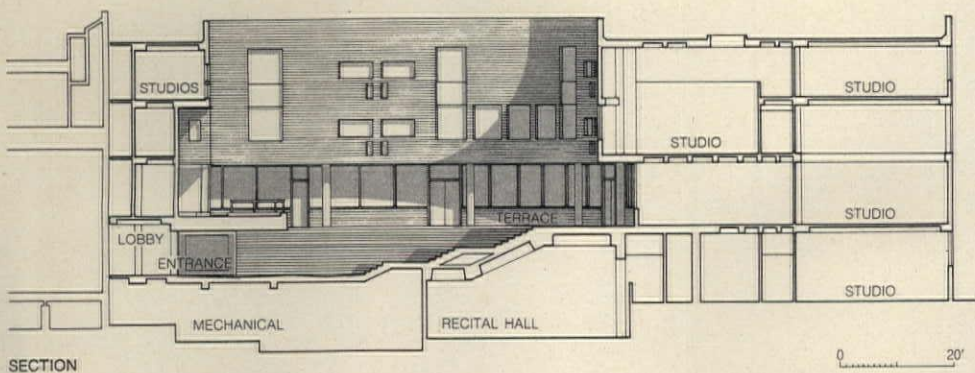
Because of the setback and the gradually stepped profile of the easternmost wall, pedestrians coming from this direction are directed toward the entrance plaza as the center itself is gradually revealed. From the other direction, the old playhouse façade arrests the attention of passersby. In



ROOF LEVEL

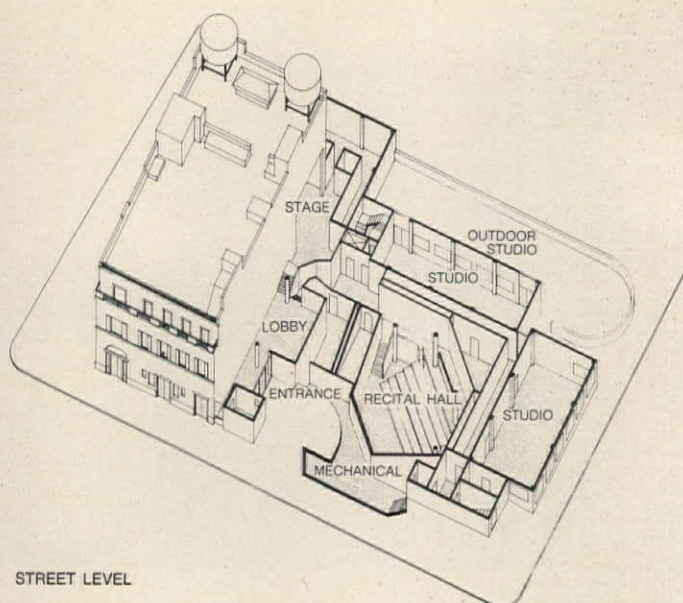
addition, the entrance doors to the new center, at the edge of the uppermost semicircular terrace, are oriented westwardly so that the entrance and plaza quickly come into the line of vision. In approaching the entrance through the amphitheater/plaza one becomes aware of the metaphorical qualities of this "stage," replete with cantilevered pulpit facing onto "stage center."

With regard to the center's facing material, Prentice & Chan, Ohlhausen sensibly selected a dark red brick matched as closely as possible with the brick of the older playhouse. Figuring that the same mortar would appear much lighter on their new structure than on the 50-year-old playhouse, the architects chose a darker shade. Similarly, they opted for black mullions and door frames instead of the white frame and sash of the adjoining structure, to de-emphasize the difference in scale between the two buildings. While programmatic needs required larger spaces and a higher building for the Arts for Living Center, which in turn are expressed on the elevations, the architects wanted to play down the shift in scale as much as possible. This careful attention to the visual links between the older and newer structures is exhibited in other details as well. Where old and new structures join on the Grand Street elevation, the playhouse's string coursing was echoed by the

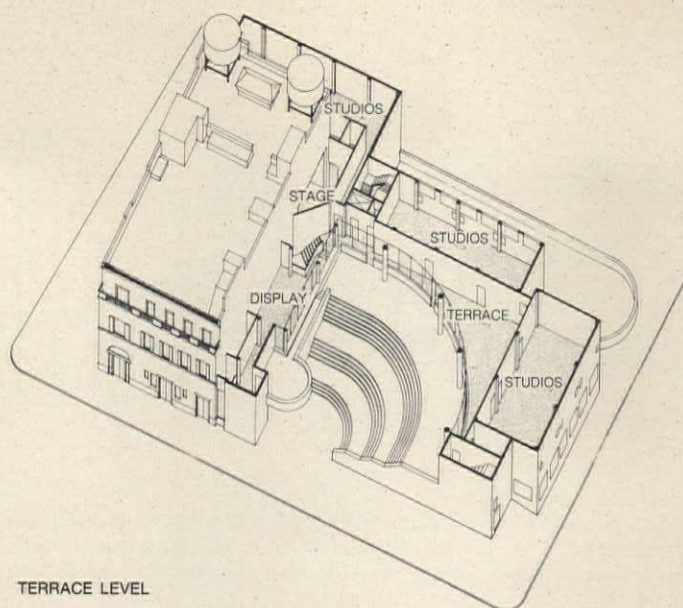


Entrance to the Art for Living Center is through a large amphitheater (right and below) that faces Grand Street in New York's Lower East Side. The arts center adjoins the Henry Street Playhouse and is carefully designed to relate to the 1920s quasi Federal structure.

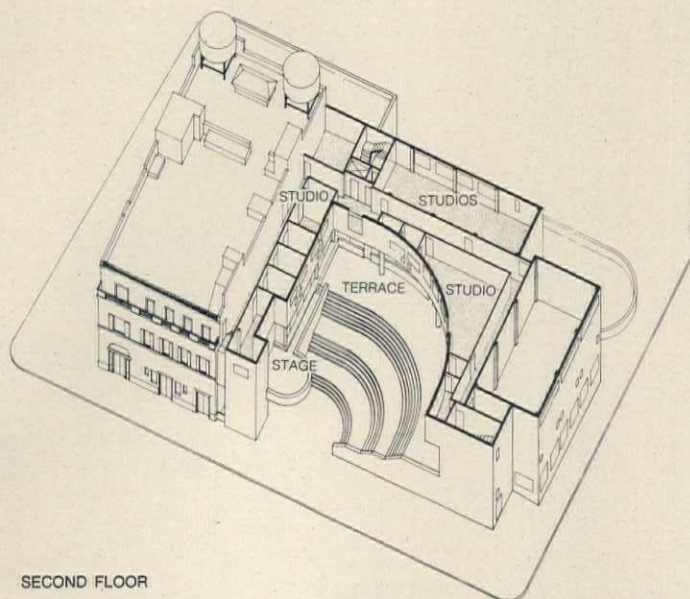




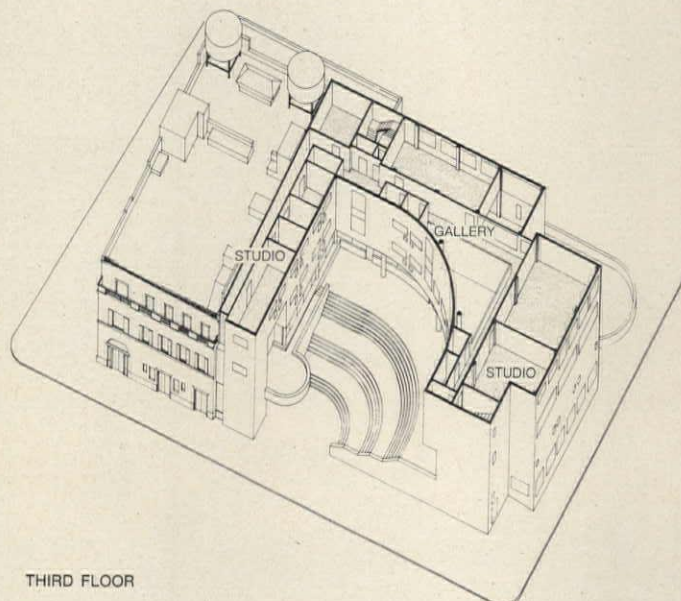
STREET LEVEL



TERRACE LEVEL



SECOND FLOOR



THIRD FLOOR

Arts for Living Center, Henry Street Settlement

change in brick pattern above a side window. An even more direct connection is evident in the extension of white coping at the parapet and roof lines of the playhouse.

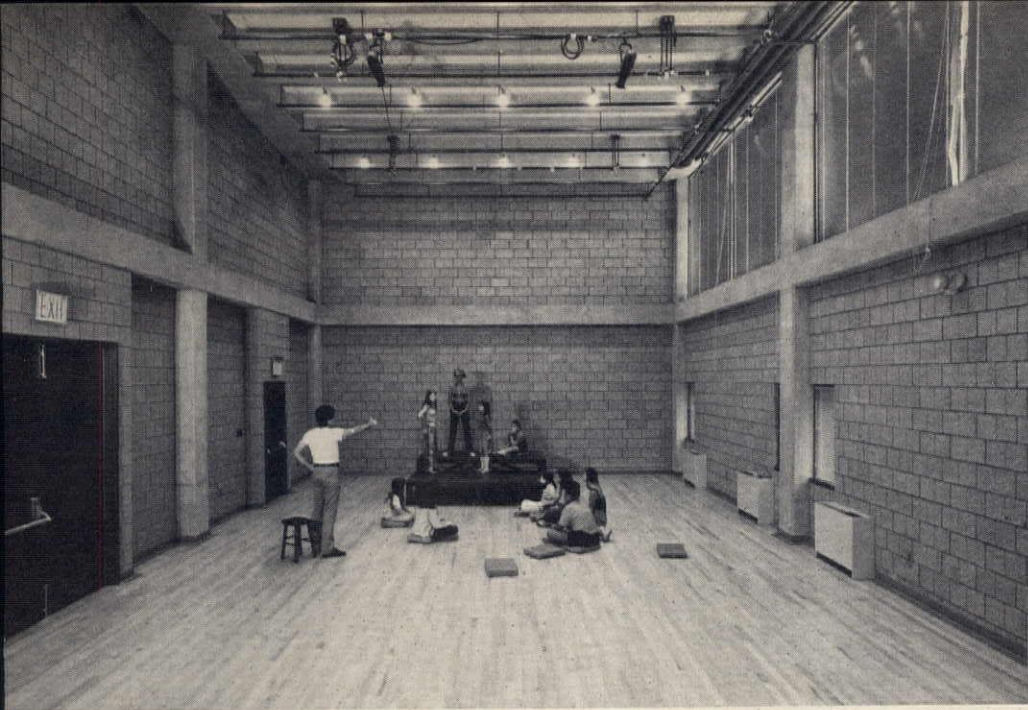
On the eastern elevation facing Willett Street, the architects attempted to scale down the proportions of the center to relate to the smaller Bialystoker Synagogue (also a landmark) next door. Here a re-entrant corner and an even fenestration rhythm breaks up the massing of the building and ties it (somewhat less successfully than it might) to the 1826 fieldstone temple, formerly a rural Protestant church.

Because a 30-ft-wide open space was required to separate the rear of the center from the historic synagogue, a narrow outdoor plaza was formed. Here, a 5-ft drop in grade had previously spurred the synagogue to build a retaining wall, which they wanted to keep. (Relations with the temple, once quite close, have become distant as Henry Street's membership changed from primarily Jewish to an assortment of other cultures and nationalities.) Thus the architects turned the wall into a curved backdrop for a seat-

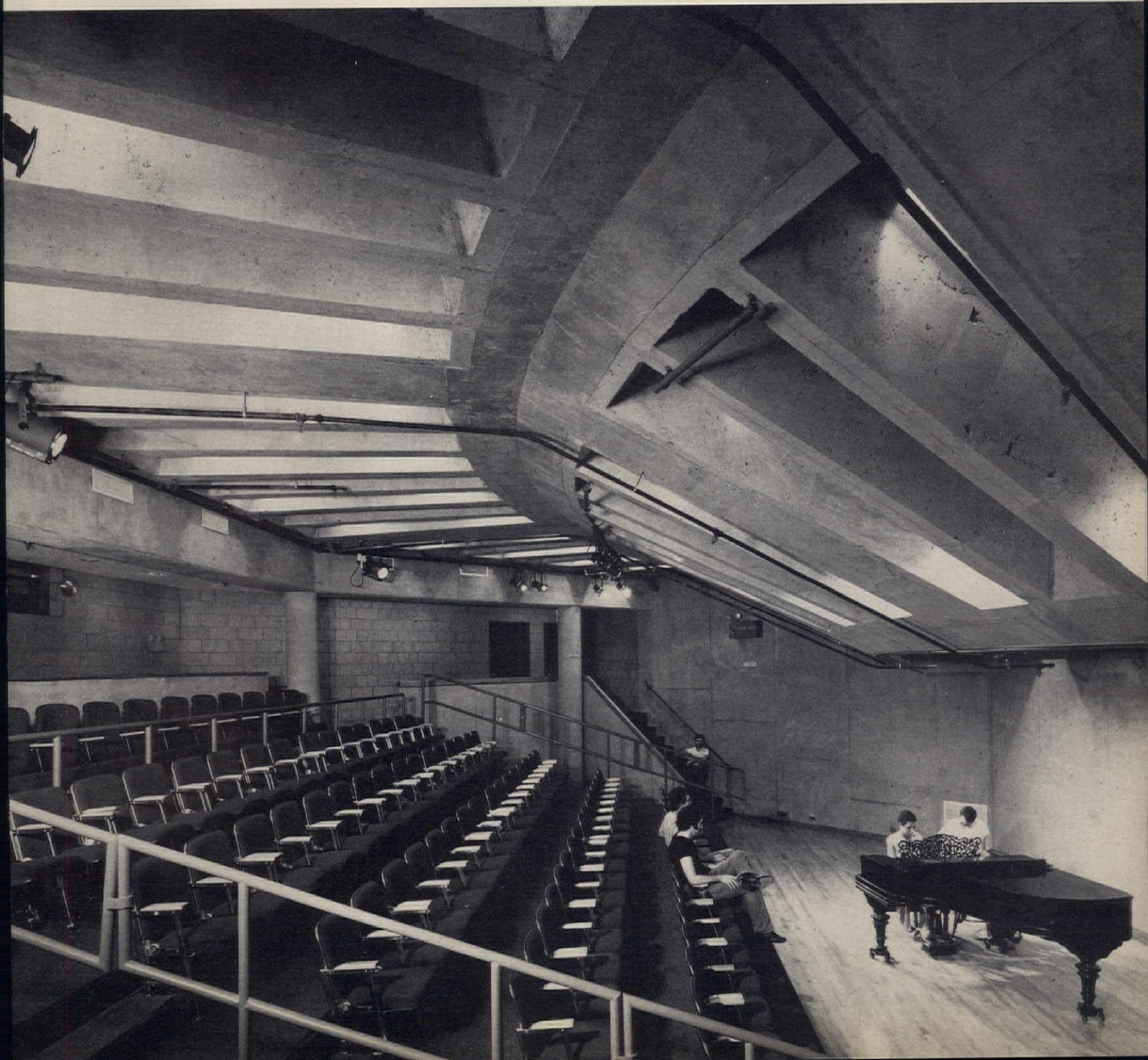
ing area that in turn repeats the curve of the amphitheater and the pulpit at the front of the building. Not too long ago, all these considerations of directly tying new building to old might have been branded as fussy or spurious. A building, it if were a well-designed thing unto itself would de facto harmonize with the surrounding environment. Several hundred travertine blockbusters later, a new attitude pervades.

Besides the design's rather explicit acknowledgement of prevailing architectural thinking, it receives added importance from other factors. It is a *neighborhood* arts center. The building has to accommodate a number of art programs, provide a neighborhood gathering place, and (it is hoped) promote community spirit. In order to do so, it must communicate to the public a sense of accessibility as well as retain its own prominence and identifiability.

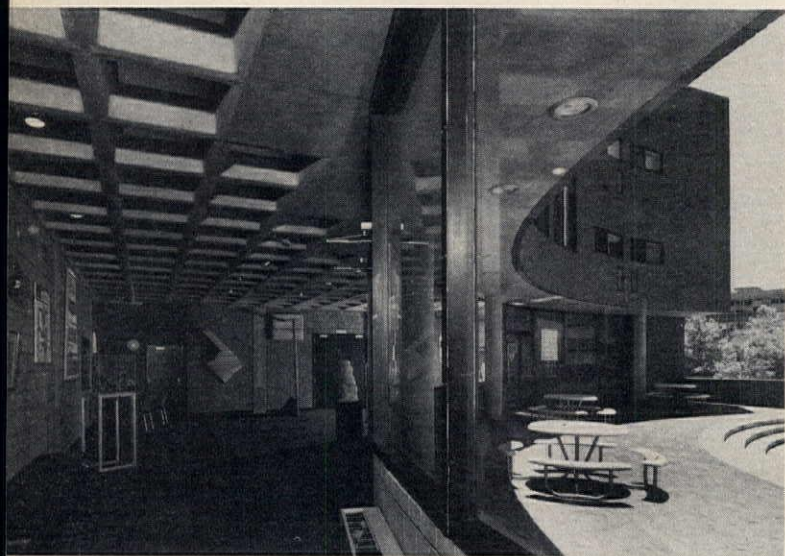
Back in the 1960s, a cultural complex wasn't necessarily asked to be accessible—only visible. But the notion of integrating cultural activities into everyday life through small neighborhood centers gained popularity in the years of disenchantment with the sterility and monumentality of cultural palazzi. Still, neighborhood facilities are not necessarily easier to build, albeit cheaper; this one took eight



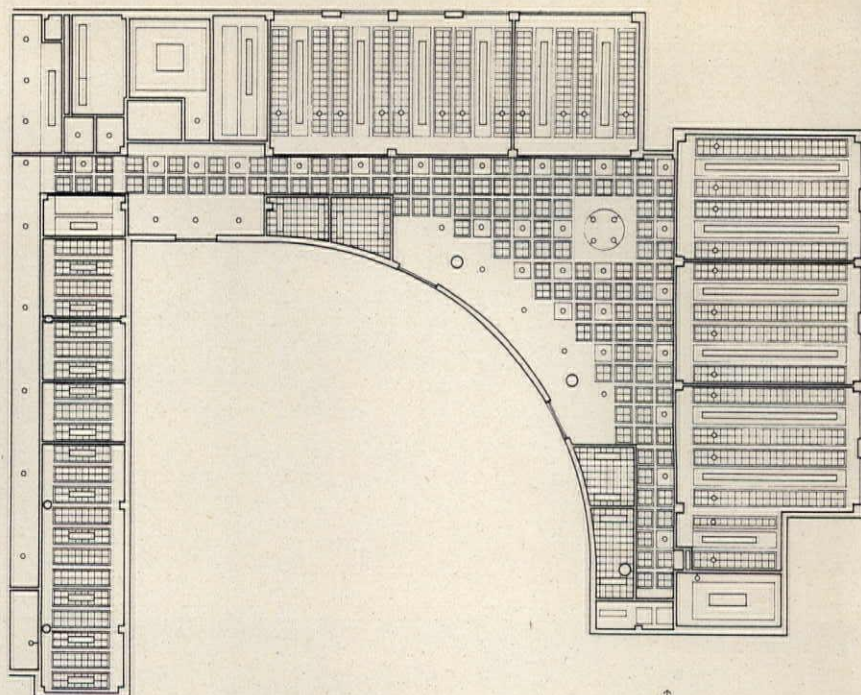
The recital hall (below) under the plaza can seat 80 in collapsible chairs on folding bleachers. Since music staff desired a live sound only hard materials—concrete block set into concrete frame, poured concrete and wall, concrete trough ceiling—predominate. The experimental theater workshop of double height (left) is kept deliberately minimal for flexibility in performance uses.



Arts for Living Center, Henry Street Settlement



The concrete waffle and ribbed slab flooring is exposed, as shown in lobby (above) and ceiling plan (right). The architects renovated the old playhouse (below), by widening the stage, opening up the orchestra pit, installing new lights, drywalls, and rigging, painting interiors and building a new control booth with dimmer system in rear of balcony.



THIRD FLOOR REFLECTED CEILING PLAN



years for its planning, fund raising, design, and construction. And in this case the center had something of an edge over other neighborhood cultural centers: The Arts for Living Center is part of an intensive health, welfare, and social service program that dates back to 1893. While most of Henry Street Settlement's social services are sprinkled throughout a number of buildings in the Lower East Side district, cultural activities—drama, music, dance, arts, crafts, video, and film—required a new centralized space. (Meanwhile, the Settlement's administrative offices are still located, as they were at its founding, in three landmark Classical Revival houses built in 1832 on Henry Street, a block away from the center.)

Henry Street Settlement was founded by a nurse, Lillian Wald, to help eastern European immigrants, mostly Jewish, deal with the horrors of 19th Century urban life. Now, the Settlement aids a range of minorities in adjusting to the horrors of 20th-Century urban life—a group that includes blacks, Puerto Ricans, Chinese, and elderly Jews. As Henry Street's constituency has changed, so have the expectations and demands made on the Settlement. Before, the Settlement essentially served a homogeneous, closely knit group with strong familial and ethnic ties, but a desire to assimilate into New York's middle-class social and economic fabric. Today this is not so much the case. The younger community members may want to get out of the ghetto, but the creation and maintenance of separate cultural identities vis-a-vis the rest of the world has replaced the yearning to assimilate into main-stream America.

Clearly the social goals of the center must remain strangely ambivalent, predicated as they are on bringing various minorities together for cultural purposes, while allowing them room for ethnic expression and separatism. (One can see the analogy to the symbolic elements of the architectural solution—to stand apart as something unique in the neighborhood, while at the same time melting in with the physical surround.) Under these circumstances the reason for the size and placement of the amphitheater-like plaza at the building's entrance becomes vividly clear. But its inclusion called for a tight parti, with the center's interior spaces wrapped around the court and an 80-seat recital hall wedged underneath it.

To amplify interior space, the Arts for Living Center's recital hall shares its lobby with the old Henry Street Playhouse on this subterranean level. And where the space was left between the curved entrance façade and the orthogonally placed corridors on the second and third floors, the architects placed a double-height painting studio to overlook the plaza. Meanwhile, the rest of the studios were designed essentially as double- or single-height containers fitted with lights and exposed duct work to accommodate any variety of functions.

Interior finishes in both the old playhouse and the new Arts Center were kept deliberately simple: in the old playhouse because of the wood wainscoting already there, and in the center because of the art (by workshop members) that will eventually be displayed. Basically, the playhouse required a widened stage, opening up the orchestra pit, replacing canvas on wood frame walls with dry-wall, some coats of paint and new lighting, etc. Studio and backstage spaces were added at the rear. Interior finishes for the arts building posed a bit of a challenge—they had to be cheap

in cost but rich in tone to reinforce the character of playhouse. Fortunately, the architects found an exceptional concrete block for interior partitions: a lightweight pumice stone block ground and polished; its aggregate surface emanates a warm and deep hue. (Too bad the block is currently too absorptive for outdoor use.) Carpeting and incandescent downlighting further dramatize interior public spaces throughout the center.

With a modest budget (\$2.3 million) Prentice & Chan,



A display space on the terrace (main) level features arts created at the center.

A large painting studio facing onto the court, can be viewed from the third-level.



Arts for Living Center, Henry Street Settlement

Ohlhausen have been able to do a lot with this building—socially, architecturally, urbanistically. It is still too soon to tell how successfully the flexible design solution responds to all the particular demands of the program. (Even before completion several studios were converted to offices on the terrace level.) And the plaza, especially, could prove to be less in demand than its size would warrant. Unless actively used for outdoor concerts and productions, the amphitheater and pulpit may function more as gestures of the center's intentions than as integral functioning parts of the complex. Yet perhaps the gesture itself offers enough of a *raison d'être*, for the center makes very important and significant overtures to its physical context, to the landmark Playhouse next door, and to the community at large. Too often architecture, concerned about optimum use of its square footage, neglects those intangible aspects that will ultimately affect its continued use. [Suzanne Stephens]

Architects tried to break down the massing of the east elevation to harmonize with the landmark Bialystoker Synagogue, one of the few remaining fieldstone churches in New York.

Data

Project: Arts for Living Center, Henry Street Settlement, New York City.

Architect: Prentice & Chan, Ohlhausen, Architects: Lo-Yi Chan, partner-in-charge; N. Jerry Maltz, Richard Visconti, Hugh Weisman, project team.

Program: building to adjoin the existing Henry Street Playhouse which seats 350 persons. The new structure would provide theater support facilities and flexible studios for music, dance, drama, television, film, photography, pottery, painting, and sculpture. An 80-seat recital hall plus exhibit areas and offices is also included.

Site: 23,900 sq ft on a busy thoroughfare in New York City's Lower East Side.

Structural system: reinforced concrete frame with waffle and ribbed slab flooring, masonry infill.

Major materials: poured concrete, brick, concrete block, vinyl asbestos tile, carpeting, built-up roofing, acoustic tile ceiling, insulation board, aluminum window frames.

Consultants: Clarese Peterson, Prentice & Chan, Ohlhausen, interior designer; Hecht, Hartmann & Concessi, mechanical engineers; Robert Silman, structural engineer; Ranger Farrell & Associates, acoustical engineers; James J. Romeo and Clyde L. Nordheimer, theater consultants; John Baranello & Sons, general contractor.

Client: Henry Street Settlement, Bertram Beck, director; Deborah Beck, client representative.

Costs: \$2,370,000 including renovation of Playhouse; \$56.17 per sq ft.

Photography: Nathaniel Lieberman.



Getting the paper out

William T. Lohmann

Converting rough drafts of specifications into their publication forms is time consuming work that new data processing equipment can economically perform.

Regardless of size, type of practice, or ideological bent, all architectural offices face the problem: efficient specification processing, the means of converting a specifier's rough draft into a form which can be reproduced in quantity. For most of us it is akin to getting a newspaper on the street, with traumatic deadlines, questionable accuracy, elusive grammar, and last minute changes.

The first draft of specifications gives a clue to its ultimate processing. A marked-up, red-lined copy of an earlier project spec must be typed by hand. No other way. The same is true for drafts assembled from manufacturers' data, or those written "from scratch" for a job.

Editing master specification text, however, is more efficient for typing and is mandatory for computer processing. Master specifications offer quicker production, reduced errors, fast incorporation of new information, and force a degree of organization on the preparation process. Early initial editing results in closer coordination between drawings and specifications.

Where do master specifications come from? Commercially available master specification services are probably of the greatest value for most offices. MASTERSPEC, developed by the AIA, is most comprehensive and is kept current for subscribers by professional specifiers. Initial cost to a small office is about \$400 for the first year, \$250 annually thereafter. An office of 30 technical employees would pay approximately \$350 annually after the first year. Other master specifications may be purchased without the update service. An in-house developed master can be tailored to the unique needs of an office.

A survey conducted in the Chicago area last year revealed the current state-of-the-art in processing techniques. Response from 170 architectural and engineering firms indicated that 45 percent of the firms still use previous project specs as a basis for preparing new specifications and 59 percent type their documents by hand. Another 20 percent send their specs to outside typing services. Thirteen percent reported use of automatic typewriters and

only 8 percent rely on computer processing.

In a follow-up seminar in April, sponsored by the Chicago Chapters of the AIA, the Construction Specifications Institute, and the Consulting Engineers Council of Illinois, some distinct guidelines emerged.

For the small office, typing by hand may be the right solution. With an electric correcting typewriter (\$600-\$800), your secretary/receptionist can process 20-25 pages per day if uninterrupted. Or an outside service can type any specification in a few days for about \$3-\$5 per page.

But an investment of \$6000 in a "next step" automatic typewriter with storage capacity can double the secretary's output, reduce proofreading to edit changes, turn out formatted error-free copy, and be used for other work as well. Such machines use magnetic cards or tape for limited storage of text and are most efficiently used with a single master specification. More advanced machines may be purchased for approximately \$12,000 or leased for about \$300 per month.

The middle-sized office of 10-30 people can also benefit from use of an automatic typewriter but should consider a "third step" computer operation. Depending on office work-load and availability of local services, this step may be a service company (which processes the marked-up draft and returns finished copy) or an on-line terminal in your own office (through which your operator transmits edit commands to a remote computer, final printout returning by air shipment). Costs are \$1-\$2 per page for each approach plus approximately \$120 per month for in-house equipment. Billing for on-line service is based on storage costs, connect time, process units, and printout.

Both types of processing require stored master text, but allow virtually unlimited editing. The advantages are many: easy update of the stored text, processing of 100-200 pages per day, automatic formatting and page numbering, and final printout of an entire specification overnight. But be certain that proper "hands-on" training and later assistance are available.

The problems of the large office are usually those of cost and process control for a great number of projects. In most instances, one of the on-line systems or a local service company will meet those needs. Any firm which already has its own computer for accounting or engineering, however, should evaluate its use for specifications.

Call it the "fourth step." Text editing programs are available for IBM 1130 and 360 machines and similar equipment, although storage capacity and print equality may have to be improved. Input is via punched cards or on-line keyboard. Besides the cost advantages of in-house operation (also \$1-\$2 per page), some programs offer automatic relational editing of text, checklist generation, error reports, billing summaries, and other advanced features.

When evaluating equipment and services for processing specifications, present requirements must be carefully considered. But the trick is to keep informed on developments one step ahead of your current needs. As technology improves and costs come down, you may be ready for the next step before you realize it. □

Author: William T. Lohmann, AIA, SSI is Chief Specifier for C. F. Murphy Associates, Chicago, Illinois.

Court denies challenge to zoning ordinance

Bernard Tomson and Norman Coplan

Although the New Jersey Supreme Court has declared invalid a zoning ordinance that made it financially impossible for low-income groups to purchase homes, the U.S. Supreme Court, by a split decision, affirmed a lower-court decision elsewhere on the ground that the challenging parties lacked standing to prosecute.

In March 1974 the Supreme Court of New Jersey ruled that under the New Jersey Constitution, communities in that state could not enforce zoning ordinances which were tailored to preserve the amenities of suburban living for the upper-middle class and which, at the same time, made it financially impossible for low income and minority families to acquire homes in that community. ("It's the law," P/A, Aug. and Sept. 1975). It was our conclusion in discussing this decision that its rationale was such that it could well be adopted by the courts of other states and that this decision might have a dramatic impact on land use regulations throughout the United States.

However, the United States Supreme Court has recently made a determination, although technical in nature, which may result in the diffusing of many of the challenges that are being made to zoning ordinances throughout the United States. This case (*Warth v. Seldin*, 43 U.S.L.W. 4906) involved a challenge to the zoning ordinance of the town of Penfield, N. Y. (a suburb of Rochester, N. Y.) based upon the claim that such ordinance was in violation of the United States constitution in that it resulted in the exclusion of poor and minority groups from securing low and moderate income housing in the town. The challenge had been mounted by 1) a not for profit corporation whose purpose was to foster action to alleviate the housing shortage for low and moderate income persons in that area; 2) several individual Rochester taxpayers; 3) several Rochester area residents with low or moderate incomes who were also members of minority racial or ethnic groups; and 4) a Rochester Home Builders Association, embracing a number of residential construction firms in the Rochester area.

The threshold question for determination by the United States Supreme Court was whether the aforementioned parties had the appropriate status ("standing") to institute

the action challenging the zoning ordinance. The District Court had dismissed the complaint on the ground that the petitioners lacked standing to prosecute the action, the United States Court of Appeals affirmed this determination, and by a split decision of five to four, the United States Supreme Court affirmed the decisions of the lower courts.

The majority of the Supreme Court held that the nonprofit corporation, whose objective it was to promote low and moderate income housing, and the individual Rochester taxpayers and residents did not have appropriate standing to challenge the ordinance in that any harm to them was caused indirectly by the exclusion of others and that, therefore, they would not be permitted to raise "the putative rights of third parties." Insofar as the Rochester Home Builders Association was concerned, the majority of the Court pointed out that this organization alleged no monetary injury to itself and had no standing to claim damages on behalf of its members, since whatever injury may have been suffered is peculiar to the individual member concerned, thus requiring individualized proof of both the fact and extent of injury and individual awards. This organization, stated the Court, was not entitled to prospective relief in the "absence of facts showing the existence of any injury to members of sufficient immediacy and ripeness to warrant judicial intervention."

In the minority opinions, the dissenting justices attributed the majority's technical conclusion, which resulted in an avoidance of the merits of the case, to its hostility to such merits. One of the dissenting opinions states:

"While the Court gives lip-service to the principle, oft-repeated in recent years, that 'standing in no way depends on the plaintiff's contention that particular conduct is illegal,' in fact the opinion, which tosses out of court almost every conceivable kind of plaintiff who could be injured by the activity claimed to be unconstitutional, can be explained only by an indefensible hostility to the claim on the merits. I can appreciate the Court's reluctance to adjudicate the complex and difficult legal questions involved in determining the constitutionality of practices which assertedly limit residence in a particular municipality to those who are white and relatively well-off, and I also understand that the merits of this case could involve grave sociological and political ramifications. But courts cannot refuse to hear a case on the merits merely because they would prefer not to, and it is quite clear, when the record is viewed with dispassion, that at least three of the groups of plaintiffs have made allegations, and supported them with affidavits and documentary evidence, sufficient to survive a motion to dismiss for lack of standing."

Even if the United States Supreme Court does not modify its conclusion in future determinations, the Court's decision will not eliminate all lines of attack upon prevailing land use regulations. Legal actions which are instituted under state constitutional provisions are not necessarily subject to the same rationale as is reflected in the majority opinion of the Supreme Court. Some state courts, as in New Jersey, may find "standing" where the United States Supreme Court found none and the legality of exclusionary zoning may be determined on a state by state basis. There is much pending litigation on this subject and the challenge by low-income and minority groups to zoning regulations will undoubtedly continue. □

Two theaters in one civic center

STAGE LIFTS BY DOVER

The Birmingham-Jefferson Civic Center in Birmingham, Alabama, features two separate and completely equipped theaters. The smaller seats 1,000 for straight plays, the larger hall seats 2,960 for concerts, operas, and other musical productions. Each of these two theaters is served by two Dover Stage Lifts. Thus each has a fore-stage area that converts from stage to audience seating area to orchestra pit. For information on Dover Stage Lifts, write Dover Corporation, Elevator Division, P. O. Box 2177, Dept. B, Memphis, TN 38101.



DOVER

Stage Lifts

Circle No. 323, on Reader Service Card

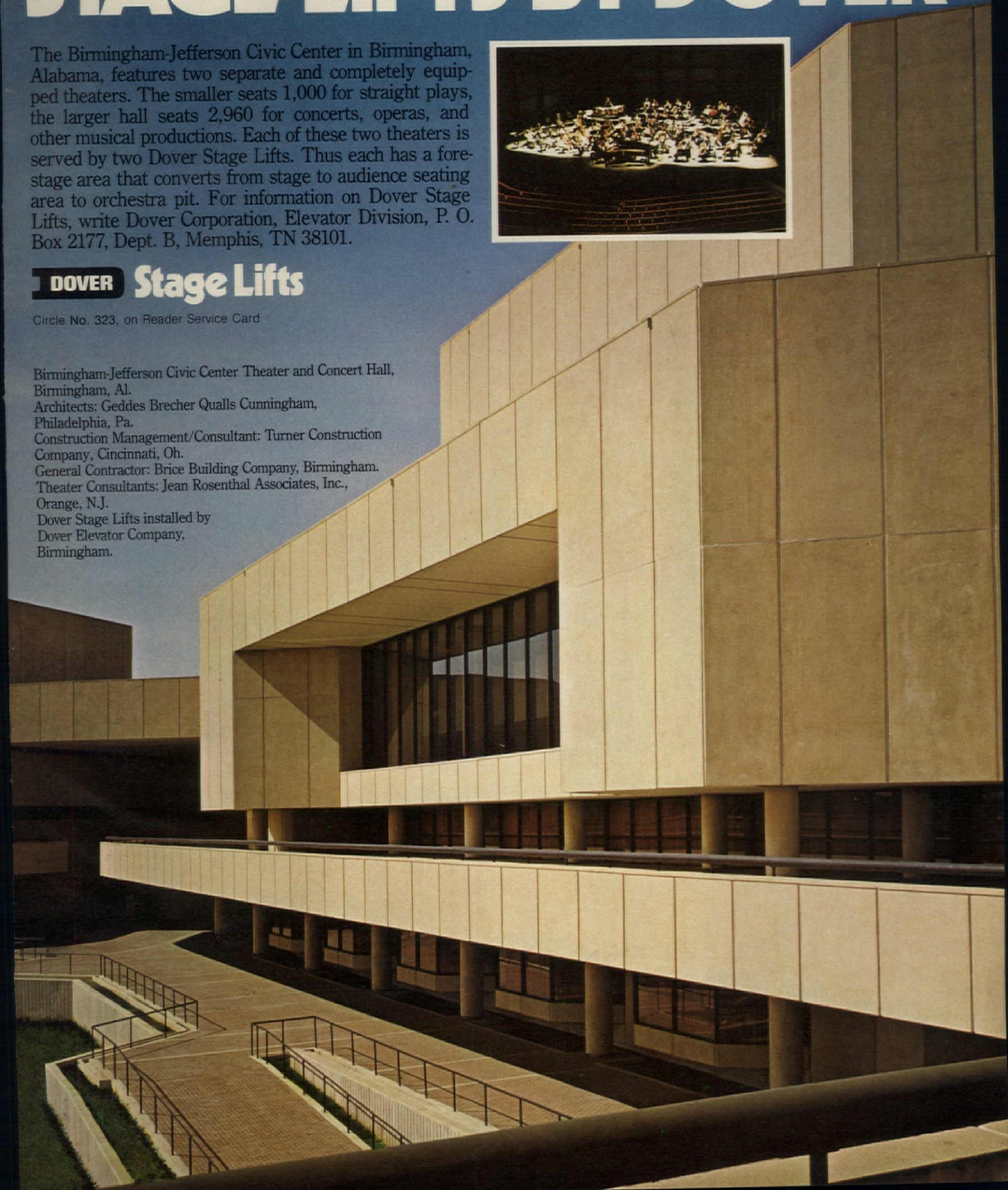
Birmingham-Jefferson Civic Center Theater and Concert Hall,
Birmingham, Al.

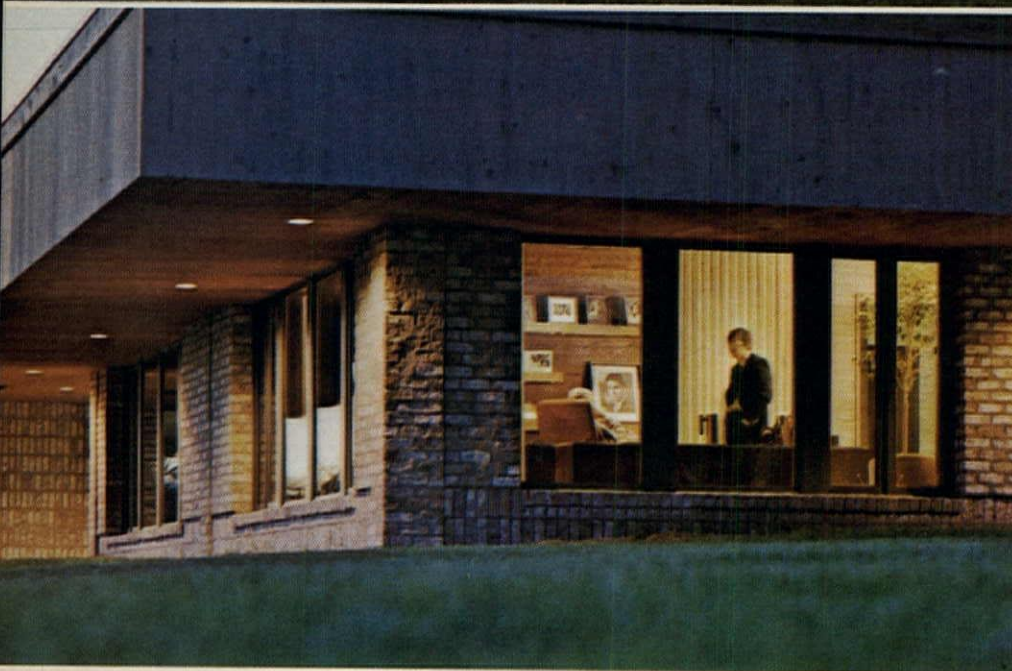
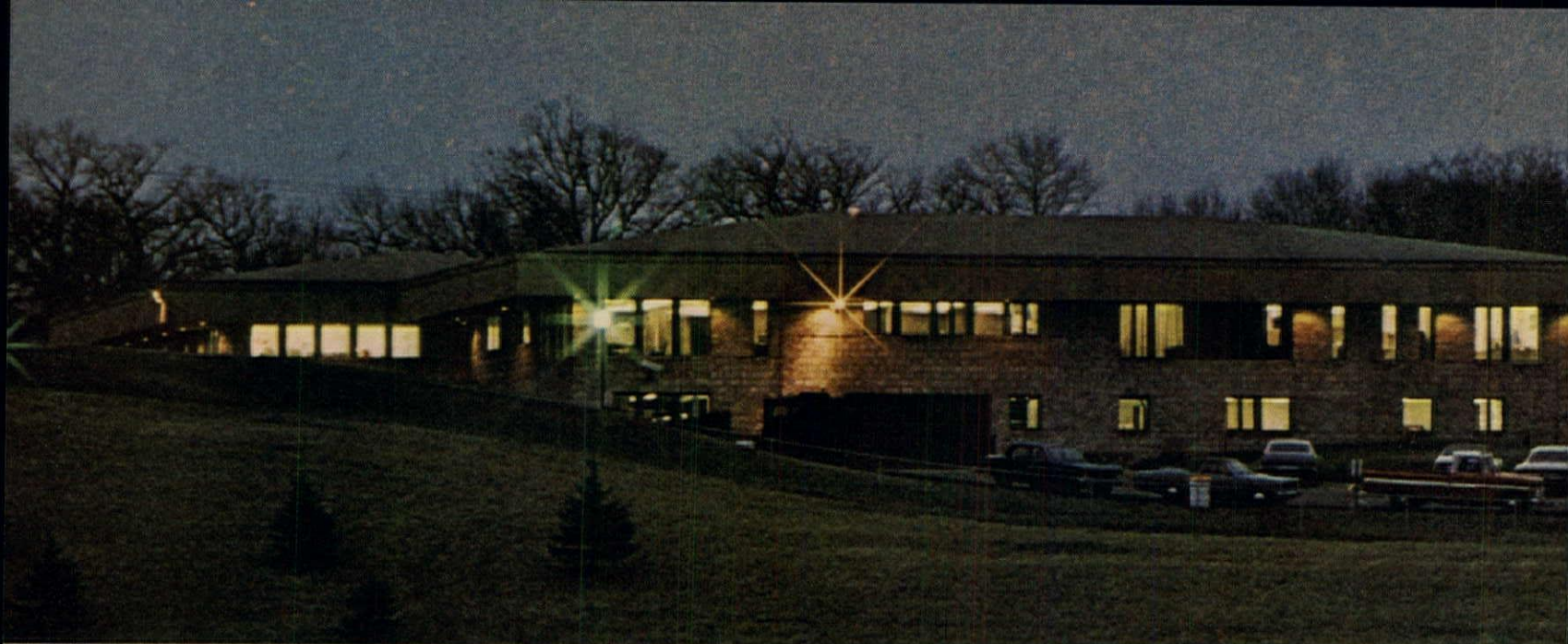
Architects: Geddes Brecher Qualls Cunningham,
Philadelphia, Pa.

Construction Management/Consultant: Turner Construction
Company, Cincinnati, Oh.

General Contractor: Brice Building Company, Birmingham.
Theater Consultants: Jean Rosenthal Associates, Inc.,
Orange, N.J.

Dover Stage Lifts installed by
Dover Elevator Company,
Birmingham.





Outside, a low maintenance, acrylic coated aluminum exterior in one of 11 colors available.

In a Pella Clad Wood Window, all exterior wood surfaces are covered with an acrylic coated aluminum skin. An outside finish that is known for its durable, low maintenance qualities. Equally important, however, is the fact that our clad exterior lets you select colors, shapes and sizes that complement your plans. Naturally. Pella Clad Wood Windows. Available in three standard (a) and eight special colors. On our Casement, Awning, Double Hung, Fixed and Trapezoidal Windows.



(a)

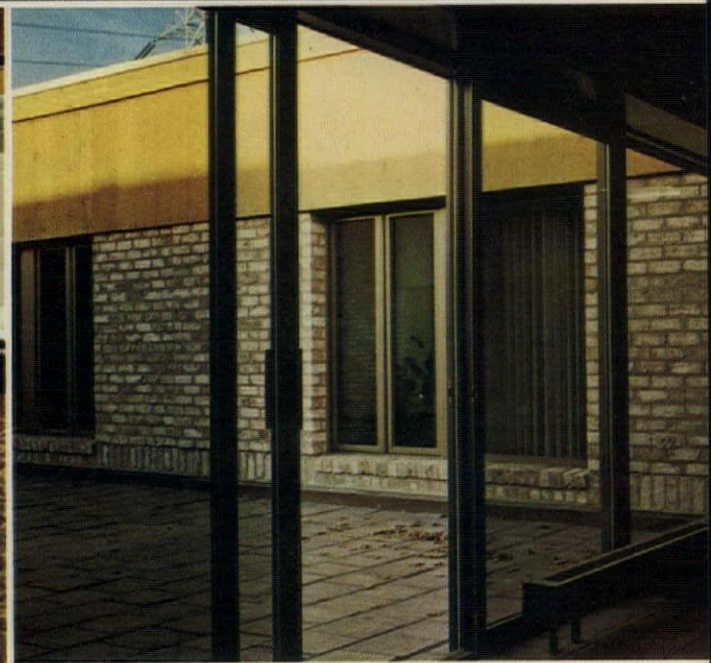
Inside, the natural warmth and beauty you expect to find in a quality wood window.

While we recognize the need for a low maintenance exterior, we are also well aware of the natural warmth and beauty that a wood window contributes to a building's interior. So we were very careful to preserve these two qualities when we designed the Pella Clad Wood Window. For example, the exterior aluminum skin never penetrates the frame or sash (b). Leaving the natural insulating value of the wood intact. And the natural beauty of the interior wood surfaces completely undisturbed.



(b)

**At Fingerhut's new headquarters,
this Pella Clad window system
blends in beautifully,
inside and out.**



Architect: Ackerberg and Associates Inc. Architects Builder: Nystrom Constructors Inc. Windows: Pella Clad Casement and Fixed Units

Afterward, the convenience of maintaining a center-opening Pella Clad Casement Window.

Routine maintenance is a factor to be considered. Because, in a lot of ways, it has a lot to do with your clients' ongoing satisfaction with their new structure. Our clad casement windows have a unique hinging system which allows the sash to rotate a full 90°, to the center of the frame (c). So the outside glass can be easily reached, and washed, from inside the building. And this same kind of built-in satisfaction is also found in our Awning, Double Hung and Horizontal Pivot Windows.



(c)

Pella Clad Sliding Glass Doors are as solid, as beautiful and as maintenance-free as a Pella Window.

Pella Clad Sliding Glass Doors combine the natural beauty and insulating value of wood with an exceptionally solid framing system. Welded steel T-sections (d) frame the glass in the slender wood panels. This prevents warping and keeps the panels aligned for smooth, easy operation. Pella Clad Sliding



(d)

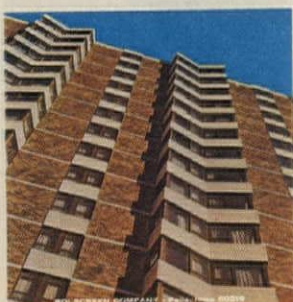
Glass Doors let you extend the view, without having to sacrifice inside appearance or comfort. They are weathertight, even under severe weather conditions. Available in all 11 colors.



OUR 50TH YEAR

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

**CLAD WINDOWS
SLIDING GLASS DOORS**



Please send me your 24-page brochure on Pella Clad Windows & Sliding Glass Doors. I am specifically interested in: ☐ Double-Hung Windows, ☐ Casement Windows, ☐ Awning Windows, ☐ Sliding Glass Doors, ☐ Wood Folding Doors.

Name _____
Firm _____
Address _____
City _____ State _____ ZIP _____
Telephone _____

Mail to: Pella Windows & Doors, Dept. T35K5, 100 Main St., Pella, Iowa 50219.
Also Available Throughout Canada This coupon answered within 24 hours.



From top to bottom, VPI solid vinyl floor tile patterns permeate the tile's entire thickness, *can't* wear off. Here's a tile you can use in heaviest traffic areas... even school corridors... and still have pattern for the life of the floor. We guarantee it.

tighter fitting

VPI tiles give you a virtually seamless floor, because they're Micro-Squared™ to a tolerance of $\pm .002$ "... a standard unequalled in the industry. Vertical edges are cut absolutely perpendicular to tile surfaces, and tile thickness is precision controlled. Here's engineering perfection we guarantee.

stronger holding

Use VPI adhesive with VPI tile for a positive bond... every time. VPI "dead-set" adhesive hardens *clear through*, prevents lateral movement, shrinkage, and seam gaps.

Select from established patterns and colors. Specify VPI solid vinyl tile for long-range economy, ease of maintenance, and a "forget-about-it" installation. See Sweets, or write for catalog.

51-282

better quality
because it's

VPI

VINYL PLASTICS INC.

3123 S. 9th ST., SHEBOYGAN, WIS. 53081 • PHONE 414-458-4664

Books

The Future of the City



The Future of the City: New Directions in Urban Planning by Peter Wolf. New York, Whitney Library of Design, 1974, 207 pp, illus., \$20.50.

Reviewed by William Morgan, assistant professor of architectural history, University of Louisville.

Books on the city and urbanism have recently appeared in such profusion that it is difficult even to begin to assess which are worthwhile. Peter Wolf's *The Future of the City* (commissioned by the American Federation of Arts under a grant from the Ford Foundation) is one of the more significant ones. It is not a mass of statistical data culled from some governmental agency computer, nor is it one of those coffee-table productions comprising slick diagrams and wide margins. It is rather a solid and serious study of the current state of the American city, how it came about, and its possible future evolution. In fact, *The Future of the City* would make an excellent text for the last part of a "History of Cities" course, supplementing classics by Steen Eiler Rasmussen, Kevin Lynch, and others.

The book is divided into nine major headings—Downtown, the Street, the Urban Highway, Public Transportation, Land Use Regulation, and so forth—within each Dr. Wolf sets out the present situation, outlines the historical background, and draws upon what he feels to be the more exemplary and promising planning projects, all accompanied by excellent, if rather familiar illustrations. As the author offers only educated guesses as to the shape of cities to come, and gives a strong historical emphasis of the book, the title is somewhat misleading. The subtitle, "New Directions in Urban Planning," brings to mind the Braziller series on "New Directions in Architecture," and in fact the format is similar.

[continued on page 92]

the haller program
is inherently flexible,
inherently mobile.

M	T	W	T	F
4	5	6	7	8
11	12	13	14	15
18	19	20	21	22
25	26	27	28	29

Haller flexibility permits design specification from a wide range of planning choices, relating to both functional and aesthetic criteria. Selection of components from numerous options that work within a predetermined modular framework are then factory assembled and shipped completely set up to the job site.



Haller mobility permits smoother, faster, more purposeful paper flow. Mobile pedestals and roll carts facilitate movement of vast quantities of paper with fewer chances of loss, confusion and error.

 herman miller

For more information contact your
Herman Miller dealer, or write or phone
the Herman Miller Sales Aid Center.
(616) 772-9585, Zeeland, Michigan 49464.

Circle No. 359, on Reader Service Card

FLEXCOTM

RUBBER COVE BASE



The only rubber base made in 120-ft. continuous rolls

FLEXCO has the only seamless rubber base—120 foot rolls! It's established choice of leading architects, builders and contractors because of its precision gauging, uniform height, beautiful molded finish and wide range of 15 choice colors. 2½", 4" and 6" set-on base with matching molded corners, 2½" and 4" flat base, and 4" and 6" end stops give you a complete line for volume selling. Rubber Flex-Cove is also available in 48" lengths.

FLEXCO also makes a complete line of rubber and vinyl stair treads with matching risers and stringers, rubber tile, vinyl tile, conductive vinyl tile, vinyl stair nosing and vinyl corner guards.



Flexco, division of
TEXTILE RUBBER CO., INC.
P. O. Box 553
Tuscumbia, Alabama 35674

Please send me samples and complete information about Flexco Rubber Cove Base and other Flexco commercial flooring products.

Name _____

Firm _____

Address _____

City _____ State _____ Zip _____

Telephone _____

Circle No. 368, on Reader Service Card

Books continued from page 90

Each chapter is summarized at the end with simple statements, such as "The street is the major public space of the city and should be predominantly for pedestrians and public transit," or "Environmental concerns coupled with new concepts of land ownership rights will change the legal basis of property rights." These guideposts help the reader to focus on the major points, since if this book has any fault, it is that it supplies almost too much information. But then Dr. Wolf has attempted to make comprehensible a subject that is by definition almost unmanageable. This is a long book and had the mass of material been arranged somewhat differently, say, by placing the examples in a separate section, the lay reader might not be so easily discouraged.

It is important that *The Future of the City* reach beyond the architect and professional planner to the general public, for the book's great virtue lies in its explanation of the revolution that has occurred in planning in the last ten years. *The Future of the City* is actually a catalog of changing attitudes and practices—changes largely brought about by popular concern with the city and a general questioning of the political, social, and economic forces that have fashioned the urban environment in the past.

Just as the vocal protest movements of the 1960s have evolved into the quiet revolution of the 1970s, parallel changes have occurred in the planning of cities. Perhaps the most fundamental change has involved the break-up of America's long love affair with the automobile. The \$63 billion spent on interstate highways since the 1950s has only served to scatter the coherent elements of urban cores to the suburbs like a centrifuge. Furthermore, we are dusting off certain ancient concepts, such as planning cities on human activity, rather than on geometry or utopian panaceas. Similarly, we now recognize that cities won't come back until the environment does. And just as the sacred doctrine of "Progress" that has given us cities that are built according to monetary gain at the expense of human cost is being challenged, we are undergoing the painful readjustment of accepting the fact that the right to develop land should belong to the public, not to the private developer.

While the need to reassess our attitudes towards housing, transit, zoning, land use regulation, and the environment, may perhaps be all too obvious (especially to planners), certain basic axioms need to be restated. While Dr. Wolf's book does explore the variety of possible new directions planning may take, it more importantly reminds us that there is no one set way to think about cities, and that most of our preconceived ideas—and past writings—are outmoded. It is also just as certain, as the author states, that we are in a period of adjustment, that our cities grew too fast the first time around, and that American cities of the late 1970s "may well be more contained, more humane, and far more desirable."

Despite the puzzling jacket photograph, which shows the author in a bucolic rural setting, Dr. Wolf is refreshingly optimistic about the future of cities. While not everyone will agree with him, he has provided an excellent historical survey of the post-war American city, as well as an ideal starting point for the necessary discussion on its future. □

Acoustical, Functional, Beautiful Tectum Sound Blocks.

They're acoustical because they absorb up to 70 percent of all the sound that strikes them.

They're ideal for helping people in close quarters work in harmony.

They're functional because they are easily applied with special clips to any wall surface, and tough Tectum resists the hard usage found in schools and offices. Each Tectum® Sound Block is three inches thick and 15½ inches square.

They're beautiful because of Tectum's unique texture and availability in nine standard decorator colors. Also available in white for

on-the-job spray painting, in a color of your choice, using any alkali-stable flat latex paint.

Call your local Gold Bond representative and ask him to prove that Tectum Sound Blocks are as versatile—and as good—as we say they are. They're also in Sweet's Architect and Interior Files, or you can write Gold Bond Building Products, Division of National Gypsum Company, Dept. PA-115T Buffalo, N. Y. 14225.

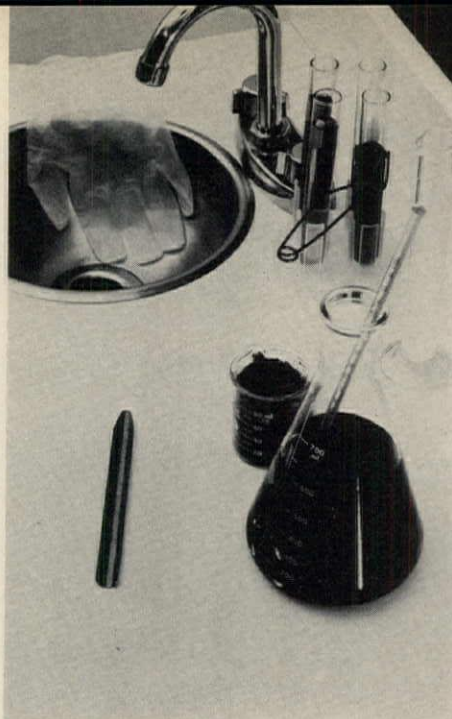
**We're gypsum,
and then some.**

Circle No. 342

Gold Bond®
BUILDING PRODUCTS



Products and literature



Laminated plastic

Laminated plastic that is chemically resistant comes in 14 vivid colors. Chem-Surf is said to be suitable for laboratory work surfaces in pathogenic, dental, medical, education, and photo labs, and nurses stations. It is said to be virtually unaffected by over 100 reagents in stain-resistance tests. Soli-Core is a chemical resistant self-edging to match Chem-Surf colors. Wilson Art. Circle 101 on reader service card

Club chair is part of the Atrium Series, which also includes a love seat and a sofa. Units are mounted on recessed plinth bases of genuine American black walnut. The insert end panels are matched walnut veneers. Monarch Furniture Corporation.

Circle 102 on reader service card

Talking calculator. Audio Response Calculator has a solid-state synthesized voice that, maker states, is natural sounding. It announces each entry and the results of every calculation. An 8-function calculator provides both an 8-digit visual display and solid state voice readout for the basic four functions plus all numeral entries and results. Each spoken work is digitized and stored permanently in its own individual Read-Only Memory (ROM) for a voice readout. Master Specialties Company.

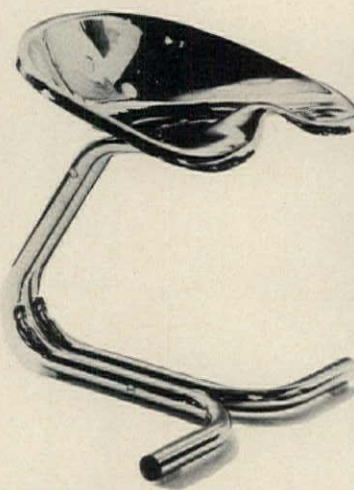
Circle 103 on reader service card

Desk top binding machine binds loose type-written or printed sheets into finished booklike volumes for architects' reports and proposals. Binding allows pages of the bound volume to lie flat when opened. Unit accommodates sheets up to 14 $\frac{1}{2}$ -in. size (computer form dimension) at the binding edge, and bound volumes can be from $\frac{1}{8}$ to 1 $\frac{1}{2}$ in. thick. It permits adding or deleting pages from bound volumes. Xerox Corp.

Circle 104 on reader service card

Ecological toilet has been specially designed as a nonpolluting alternative to traditional plumbing systems. Swedish-made unit is entirely self-contained, allowing wastes to decompose naturally under controlled conditions without chemicals, water or incineration. The Ecolet was designed for use in summer homes, cottages, boats and recreational vehicles. Recreation Ecology Conservation of United States, Inc.

Circle 105 on reader service card



Tractor seat stool is offered in a choice of chrome or red, white, blue, or black epoxy finish. Seat is balanced on a stem of bent and polished chrome steel. Design Import, Inc.

Circle 106 on reader service card

Letters and numbers in reconstructed marble are available in types such as off white with gray veining, red-brown with off white veining, and black with off white veining. Helvetica style letters are 2-, 4-, and 6-in. high. Thickness varies from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. with fascias hand polished to a high luster contrasting with the matte texture of the sides. Three-dimensional letters and numbers are suggested as being suitable for architectural graphics, displays, and identification and signage in general. Building Research and Development Corporation.

Circle 107 on reader service card

Carpet cushion for residential and commercial use is a slab type sponge rubber available in .310, .350, and .400 gauges and meets all flammability requirements of the Pill Test. It is available in 54-in. and 9-ft widths. Dayco Corp.

Circle 108 on reader service card

Narrow face door frames can be furnished with either a 1, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 1 $\frac{3}{4}$ or 2 in. face dimension at no extra cost in jam depths from 4 $\frac{1}{2}$ in. through 12 in. in $\frac{1}{8}$ in. increments. They are available either knocked-down or welded. Curries Manufacturing, Inc.

Circle 109 on reader service card



Club chair



Letters and numbers



Polycarbonate plastic sheet. Tuffak is marketed for use in window glazing in schools, industrial plants, commercial buildings, and public housing. Material comes in standard sheet sizes ranging from 24" x 48" to 72" x 96" in thicknesses from $\frac{1}{32}$ in. to $\frac{1}{2}$ in. and in film gauges from 5 to 30 mils. It is produced in clear, colorless form and in solar tints for heat and glare control. According to manufacturer, Tuffak will not chip, break, or shatter when bombarded with missiles such as sharp rocks, bricks, or bottles. It can be bent, twisted, and hammered without breaking. Rohm and Haas Company.

Circle 110 on reader service card

Mirrored ceiling panels are made from fire-retardant acoustical ceiling panels covered with an aluminized back surface film stretched to form a mirror. A $\frac{1}{8}$ -in. air space between the film and the acoustical tile backing acts as a cushion. Shatterproof surface is said to offer distortion-free light reflection. United States Gypsum Co.

Circle 111 on reader service card

Symbol of access signs identify buildings with doorways wide enough to allow passage of a wheel-chair and indicate restrooms which have support bars for the disabled. They also identify sloping ramps, ground level entrances, specially reserved parking places, level walks without curbs at crosswalks, elevators which can be used by the handicapped, and public telephones and drinking fountains placed low enough so they can be used by persons in wheelchairs. Offered in a variety of signs, plaques, and decals. Seton Name Plate Corporation.

Circle 112 on reader service card

[continued on page 96]

Announcing

MONDRIAN

LOCKER



**New Low Decibel Lockers
combine artistry of
styling with remarkable
sound control.**

Each grouping of Republic's new achievement in locker design offers the effect of a Mondrian painting.

Aptly named for the Mondrian style of design — Mondrian, who made an art of straight lines and blocks of solid color.

Locker groupings and corridors literally become instant works of art, aesthetically pleasing to enhance your overall school design.

We achieve the Mondrian effect with an imaginative flush-front design.

Nothing projects beyond the face of the locker. There are no visible vents, no projecting handle, no projecting lock. Sheer beauty.

Unobtrusive one-quarter-inch frame surrounds the door edge. You design your own Mondrian with Republic's choice of 19 colors.

Ventilation is accomplished through Republic's exclusive Verti-Vent design.

Artistry comes to lockers. Send the coupon for product information.

*MONDRIAN is a trademark of Republic Steel Corporation.

Republicsteel
Industrial Products

Circle No. 349, on Reader Service Card

REPUBLIC STEEL CORPORATION
Industrial Products Division, Dept. PA
1038 Belden Avenue NE
Canton OH 44705

- ☐ Please send information on flush-front MONDRIAN* lockers
☐ Please have a salesman contact me

Name _____

Address _____

City _____

State _____

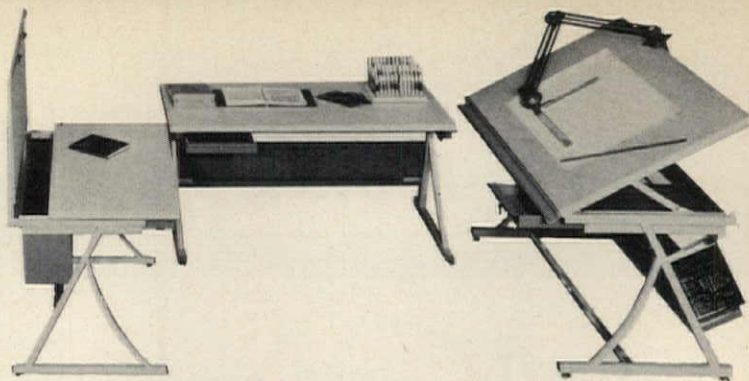
Zip _____

Products continued from page 94

Clock. A 24-hour-time clock that contains a tuning fork movement and operates on a single flashlight battery. Measures 15 in. across. Ideal for those who find it necessary to convert to 24-hour time. Biscayne Specialty Corporation.
Circle 113 on reader service card

Elevators. The IVO Oilraulic Elevator is pre-engineered for installation in existing two- and three-story buildings. It has an inverted hydraulic piston and a lifting frame which attaches to the cylinder to support the car. Applications include educational and religious buildings, motels, apartments, clinics, nursing homes, small offices and parking garages. Dover Corporation.
Circle 114 on reader service card

Intensive care door. The 4-way unit has two center doors that slide on tracks and outer doors which swing open. Center panels can slide to join the swinging doors, locking automatically to provide a 14-ft open space for transferring patients and equipment. Completely manual with only three mechanical parts, doors are almost maintenance free, states maker, and comply with non-electrical requirements for the use of oxygen. Available in two-, three-, or four-door units in either standard aluminum or wood construction, they fit openings up to 14 ft with no center poles. Century Institutional Products.
Circle 115 on reader service card



Visual planning board. Called Planalog Management Systems board, it is said to eliminate the need for a computer, calculations, and complex network drawings as it uses color coded bars instead. Each function is assigned a color, from excavating to carpeting. When a job starts is determined by where the bar starts. A fence indicates where it must end. Envirodyne/Planalog.
Circle 116 on reader service card

Work Station for architects, engineers, and draftsmen includes a semiautomatic drafting table, a reference table, and a plan desk. Working height is easily adjustable from 29 to 37 in. or any variation in between. Comes in two-tone gray with a complete range of optional custom colors available. Plan Hold Corporation.
Circle 117 on reader service card

Elastomeric sealant tapes are designed to provide an impenetrable, low-pressure seal in applications that might involve water, acids, gases, or air-borne particulate matter. Said to be capable of retaining a seal with a temperature range of -20 to +120 F, and adhere to virtually any substance. Tapes can be applied to untreated polyethylene, bitumen, unpainted wood, wax treated cloth, and galvanized or stainless steel. Suggested applications include sealing butted or overlapped joints and seams or cracks in almost any material. Suited for maintenance and repair on metal buildings, storage bins, tarpaulins, floating docks. 3M Company.
Circle 118 on reader service card
[continued on page 100]

**You
know
your
tile
will
last.**



**We
know
our
epoxy
grout
will
last.**

The grout is less than 10% of the cost of the tile floor or wall. But 90% of failures are the result of using the wrong grout. That's why architects demand the highest quality, most durable grouts and setting beds available — Atlas Rezklad epoxy grouts and setting beds.

Atlas epoxies have proven their ability to resist acids, alkalis, cleaning agents, salts and greases, while exhibiting low absorption and resistance to freeze-thaw cycles. Atlas epoxy grouts have the added assurance of a three-component system — resin, hardener and filler — to guarantee easy workability and proper curing for consistent high-strength quality. So on your next job, specify the grout that will last... specify Atlas epoxy grouts and setting beds.

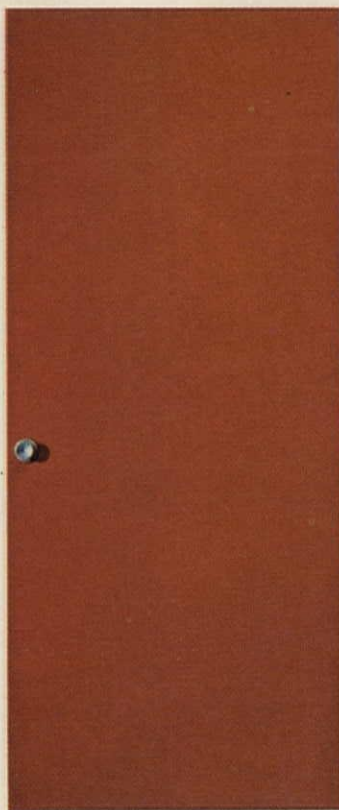


**ATLAS MINERALS & CHEMICALS
DIVISION** ESB INCORPORATED
Mertztown, Pennsylvania 19539 (215) 682-7171

IN CASE OF FIRE, PICK THE FIRE DOORS THAT WON'T TRANSMIT HEAT LIKE HOLLOW METAL DOORS.



1.



2.



3.



4.

Weldwood® Fire Doors have an extra degree of protection. They won't transmit heat like hollow metal doors. So, the unexposed side doesn't get hot enough to be dangerous.

U.S. Plywood's insulation is the reason why. It's Weldrok®, an amazing incombustible mineral core that retards heat transmission.

Covering this built-in safety feature are some of the world's most beautiful wood veneers.

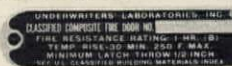
Look at doors numbered 1, 3 and 4. They come in cherry, birch and walnut. Perfect for executive offices, hotel lobbies, restaurants and apartment buildings.

While door numbered 2 is ideal for schools, hospitals or

wherever a colorful but tough laminated fire door is needed. Besides vermillion, they're available in blue, gold, black and yellow plastic surfaces.

U.S. Plywood makes Weldwood Fire Doors in a complete range of time ratings including ¾ hour, 1 hour and 1½ hours.

When your specifications call for a fire door, ask for Weldwood. And make sure to look for this label on



a Weldwood Fire Door. It's your proof

that you're getting an extra degree of protection.

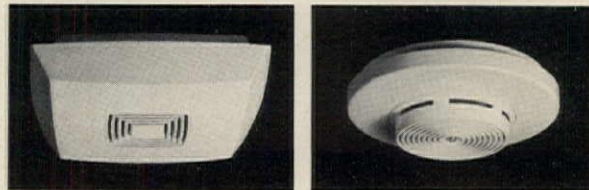
For everything else you need to know about Weldwood Fire Doors, call your local U.S. Plywood Branch Office.

WELWOOD FIRE DOORS



U.S. Plywood
Champion International Corporation

Unique answer to multi-family fire detection.



BRK's new MCP741 Master Control Panel and advanced ionization detectors solve many of the special problems of apartment house fire detection.

Basically, a BRK system consists of at least one ionization detector in each apartment, and a centrally located Master Control Panel, to which the ionization units are connected by a simple 2-wire circuit. The ionization detectors will sound an alarm in the affected apartment, as well as a general alarm at the Panel and throughout the building.

Each ionization detector has terminal strips to which heat sensors and rate-of-rise detectors can be connected. There's a *battery conversion* feature, too, allowing the ionization detector to be cut out of the building's system and operated on battery power alone. If an apartment has too many nuisance alarms that disturb the whole building, its detector can be placed on battery operation, confining alarms to that apartment only.

To insure each apartment's privacy, while allowing tests of its detector, BRK has key-operated test stations for hallway location. The key not only tests for "power on", but also checks the unit's circuits and sensitivity. Hallway pull boxes are also part of the BRK system, and are connected to the MCP741 Control Panel. This advanced solid-state panel accommodates up to 8 zone modules, each capable of handling up to 60 detectors. Overall, the system can accommodate hundreds of ionization detectors, plus an almost infinite number of heat and rate-of-rise detectors and pull boxes.

Other features include remote annunciation, battery backup power and float recharge system in the control panel, UL listing of detectors and panel, easy installation, and reliable operation. For more facts write or phone BRK Electronics, Div. of Pittway Corp., 525 Rathbone Ave., Aurora, Ill. 60538. Phone: (312) 892-8721.



BRK
ELECTRONICS

First in Fire Warning

Circle No. 318, on Reader Service Card



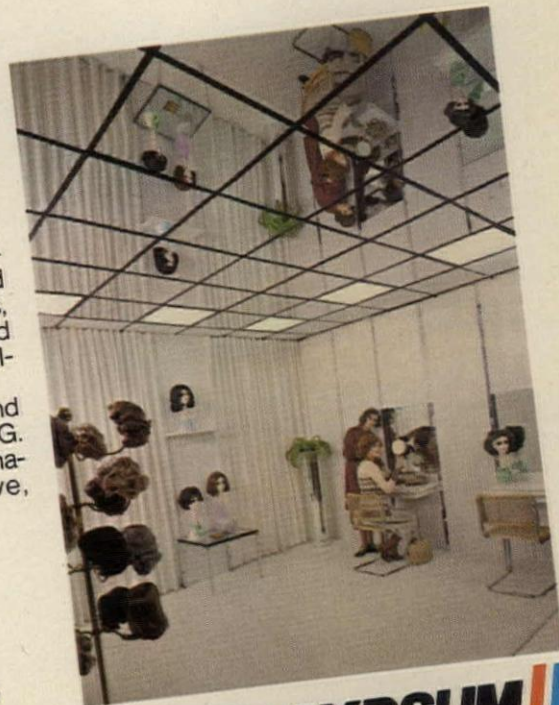


New from U.S.G. The mirrored ceiling that absorbs sound!

New VISTA SONIC® Mirrored Ceiling Panels are a dazzling breakthrough in acoustical ceilings. These lay-in panels are made of fire-retardant acoustical material that is covered with a tough, aluminized surface that reflects light with distortion-free, optical clarity. But these mirrors are shatterproof. They take minor impact without damage. And the non-static surface minimizes dust build-up, makes cleaning easy.

Imagine the dramatic decorating possibilities to merchandise your products and create an expansive atmosphere in offices, waiting rooms, restaurants and lobbies. And what a help for your security and surveillance monitoring.

VISTA SONIC Panels come in 2'x2' and 2'x4' sizes, and are available through U.S.G. Acoustical Contractors. For more information, write to us at 101 S. Wacker Drive, Chicago, Ill. 60606, Dept. PA-115.

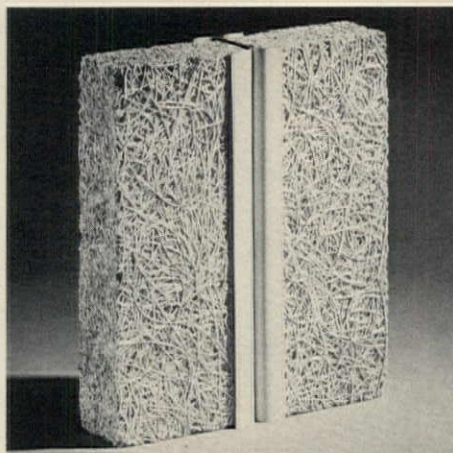


VISTA SONIC

Mirrored Ceiling Panels

UNITED STATES GYPSUM
BUILDING AMERICA

PetriCal Super-Tee System is said to enable 2½-, 3-, and 3½-in.-thick cement-fiber roof decks to span up to 8 ft. The subpurlin consists of a 16 gauge steel, roll formed 2½" x 2" H section. Super-Tee may be welded direct to the joist, or the PetriCal may be nailed to wood purlins. The H section weighs 1.6 lbs per lineal ft. and its textured surface is prime painted white. The Dual-Tee and Channel Reinforced Systems are available for spans up to 6 ft. Tile is used with bulb tees and can be used for spans up to 144 in. No additional subpurlin supports are necessary for the plank system. Cornell Corp. Circle 119 on reader service card



PetriCal Super-Tee System

Literature

Fire tests of expanded polystyrene. Series of brochures detailing the results of full-scale, enclosed corner fire tests under various construction conditions is now available. Each of the six-page brochures describes the rationale for the tests conducted by Underwriters Laboratories, test objectives and procedures, test results, and a transcript of a narrative recorded by UL engineers during the test. Each also contains appropriate temperature graphs, and full-color reproductions of 35mm photos taken during each test. Expanded Polystyrene Block Molders Group.

Circle 201 on reader service card

Desks and seating. Three brochures containing illustrations of desk and credenza collection, lounge seating, and executive seating, as well as a complete descriptive catalog are available to architects, designers, specifiers. Davis Furniture Industries, Inc.

Circle 202 on reader service card

Soft Shell Structures is the name of a brochure which illustrates in full color some of the many uses to which air and membrane structures may be put. Made in Japan, the structures are available in the United States. Industrial Covers Division, Holcombe Industries, Inc.

Circle 203 on reader service card

Precise Light. Six-page brochure describes luminaire that produces knife-edge property line cutoff without using energy-robbing louvers or glare shields. Light's projection optical system was computer-designed primarily for use with energy-efficient high pressure sodium lamps. Other information in the brochure includes details on the lightweight corrosion-resistant FRP housing, mounting arrangements, plus installation and maintenance information. Request CLX Precise Light brochure. Crouse-Hinds Company. Circle 204 on reader service card

Compartments and cubicles. Color brochure illustrates and describes laminated plastic toilet compartments, shower dividers, and vanity centers, gives dimension drawings and specifications. Request catalog No. TP-7507. Complete line of toilet and bath accessories are shown in color in washroom equipment catalog. Request catalog No. P 7506. Both are available to architects and designers from Bobrick Washroom Equipment, Inc.

Circle 205 on reader service card

Sound-control wall systems are described in full-color guide for architects and interior designers. Vicracoustic wall units come in five different constructions, with wide selection of finishes, over 85 patterns of vinyl wall coverings, and many colors. Request *The Quiet Wall*. L.E. Carpenter and Company.

Circle 206 on reader service card

[continued on page 104]

Solid Hardwood Plank
Paneling...
what plywood sheet
paneling tries
to imitate!

Back in the 'good ol' days' all paneling was plank paneling. Then, American ingenuity took over. Plywood sheet paneling became the accepted imitation. But, Townsend wants you to know that the good ol' ways are still available: **Someone still makes it like it was meant to be made.** Real hardwood planks shaped and finished like fine furniture. Send for Townsend's Designer Sample Kit and see for yourself.

THINK PLANKS . . . NOT PLYWOOD

Townsend POTLATCH CORPORATION
WOOD PRODUCTS, SOUTHERN DIVISION

Clip and mail

Please send me FREE 4-page, full color brochure ☐
and/or Designer Sample Kit ☐ for which I've enclosed
\$5.00.
Please check appropriate box or boxes.

NAME

FIRM

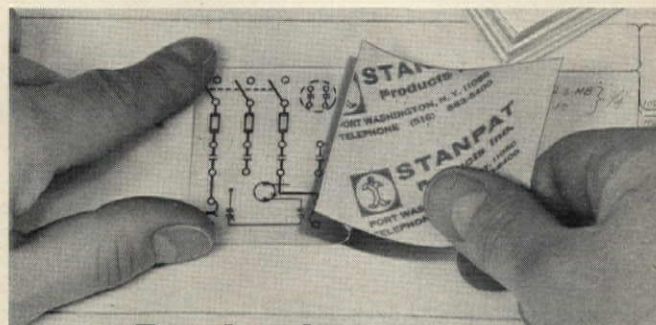
ADDRESS

CITY

STATE

ZIP

TOWNSEND, P.O. BOX 916, STUTTGART, ARKANSAS 72160



**Ready when you
are, Mr. Draftsman.**

**Instant-use STANPAT
appliques eliminate
repetitive detail drawing.**

Stanpat will pre-print your repetitive diagrams, details, symbols and title blocks, eliminating hours of costly repetitive drawing. Stanpat pre-printed polyester appliques save drafting dollars and insure mistake proof, professional drawings. Appliques feature anti-static, no-curl, no "ghost image" properties, plus a special matte surface that withstands erasures. Sharp, clean, reproduction every time, even on microfilm.

Write for free samples and literature. Send request direct to Stanpat Products Inc. for immediate reply.



STANPAT PRODUCTS INC.

Dept. P4, 366 Main St., Port Washington, N.Y. 11050
Telephone 516 883-8400

faithfully serving the architect and engineer for over 30 years

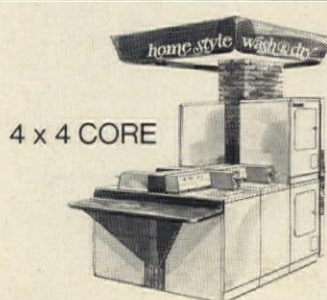
New Maytag-equipped *home style* Laundry. It can cut your costs, while giving tenants homelike comfort and convenience.

Everything's grouped
in a functional cluster, like in
a home laundry room.

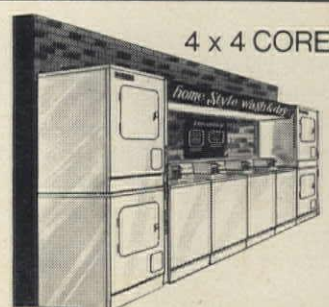
Save as much as 40% to 50% on gas with the
new Maytag D21 Dryer, compared to regular 30-lb. dryers.



2 x 2 CORE



4 x 4 CORE



4 x 4 CORE

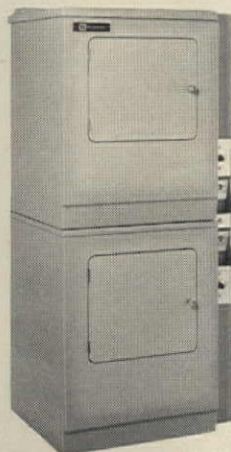
Flexibility is the keynote. Washers and dryers can be arranged in a variety of configurations to fit your needs.

Another "first" from the dependability people, this Maytag breakthrough can help you cope with the space, money, and energy crunch.

In small space, with a small investment, the exclusive Maytag-equipped Home Style Laundry lets you provide tenants with a totally unique laundry with homelike atmosphere and step-saving convenience, plus equipment for optimum care of all fabrics.

And look at the possible advantages for you compared to traditional laundry rooms: Lets you use areas never before practical. Smaller space needed. Smaller initial investment. Lower operating cost. More profit per square foot. All-Maytag equipment for dependability and tenant satisfaction.

Mail card now for free facts. No postage needed.



Two
separate
dryers
in
half
the
space
of
one
large
dryer.

Made possible by the energy-saving new Maytag D21 Dial-A-Fabric™ Dryer.

- It's actually two single-load dryers stacked one on top of the other. Each is functionally independent.
- It can save you 40% to 50% on gas compared to regular 30-lb. dryers. Or 20% to 30% compared to 30-lb. dryers with electric ignition, factory-built heat reclaimers, and lowered Btu input. Electric model uses half as much electricity as 30-lb. electric dryers.
- Choice of coin or exclusive ticket-operated models which use an electronic ticket, helping avoid coin-box problems and improving security.


MAYTAG
THE DEPENDABILITY PEOPLE
THE MAYTAG COMPANY, NEWTON, IOWA 50208

Literature continued from page 104

Sound Control Ceilings is the name of 48-page booklet on broad line of commercial and institutional sound ceilings. Brochure illustrates 24 architectural ceilings, including those expressly designed for offices, shopping malls, schools, cafeterias, and medical research facilities. Described and detailed are product's properties and related applications, sound absorption and sound attenuation capabilities, available surface patterns, finishes, sizes, and styles. Text covers installation techniques and fire-rated ceiling systems. Request booklet number AC-206A. Johns-Manville.

Circle 214 on reader service card

Window blinds. Brochure describes and illustrates the many specialty blinds for triangular, trapezoidal, skylight, and other unusual windows, includes schematic diagrams and specification, gives technical data in chart form, and answers questions about sun control, heat gain and loss, and maintenance costs. Levolor Lorentzen, Inc.

Circle 215 on reader service card

Newsletter. *Construction Management World Newsletter* is written monthly for architects involved with construction management projects. Sample copy may be obtained from Construction Management World Newsletter.

Circle 216 on reader service card

Rigid and flexible foams are described in eight-page illustrated brochure. The foams which require no pumps or heaters for their use, are rigid froth-in-place, rigid pour-in-place, rigid, semi-rigid and semi-flexible foam-in-place, and a molding or continuous-pour flexible foam-in-place. Booklet also contains a cost comparison chart, a schematic of the system, and a checklist of typical applications for each type of foam. Olin Corporation.

Circle 217 on reader service card

Siding. Installation manual for Sanspray, a stone-aggregate plywood siding, tells how to achieve the architectural stone look with standard tools and techniques. Detailed drawings cover varieties of panel, molding, and joint treatment. Fire classification data and wide range of color options are included. U.S. Plywood.

Circle 218 on reader service card

Locks. Featured in catalog is complete product line including information for comparing, selecting, specifying, and installing locks. Request S75. Schlage Lock Company.

Circle 219 on reader service card

Business furniture. 1975 edition of 95-page illustrated catalog in full color contains comprehensive line of furniture and accessories including two new desk series, designer shell seating, recessed handle files, and limited editions of pewter and copper etchings. Cole.

Circle 220 on reader service card

High impact plastic. A transparent, polycarbonate plastic for passenger transit shelter use is described in a brochure, *Lexan MR-4000*. The plastic complies with ANSI codes (Z97.1 and Z26.1) for transparent safety glazing and, according to maker, offers weatherability and mar-resistance. General Electric Company.

Circle 221 on reader service card

Washroom Accessories. Catalog covers complete line, gives specifications, dimensional drawings, and data on optional features. Bradley Corporation.

Circle 222 on reader service card

Wallcoverings. A 9"x11" wallcoverings swatch book is available to interior design and architectural offices. Swatch book contains a complete guide to the 24 designs and textures and 107 colorways in gravure-printed, scrubbable, strippable, pretrimmed, fabric-backed vinyls and Mylars. Included are federal specifications CCC-W-408A test data, architects specifications, and color photographs. James Seeman Studios, Inc.

Circle 223 on reader service card

Signs and graphics. Design and specification catalog is a guide for designing, selecting, and specifying appropriate signs and graphics. Products and services are arranged by generic category and are further divided into standard products and custom services for quick reference. Best Manufacturing Company.

Circle 224 on reader service card

Insurance: How high is up?

As your insurance costs soar, Shand, Morahan invites you to look beyond the major insurer.

Since the announcement of triple-digit premium increases for Professional Liability coverage, many architects and engineers are discovering the advantage of Classic Coverage offered through Shand, Morahan & Company, the nation's second largest underwriter for this type of insurance.

Rather than dictating blanket increases for blanket coverage, we have the time and flexibility to tailor your coverage and premium to your exact exposure.

Classic Coverage is tuned to today's court costs, court decisions and escalating claims and settlements, with limits to \$10 million. You can even cover *prior acts with new, higher limits*. It's a plan in which you can have total confidence.

When do you renew this year? Ask your broker or agent now for the Shand, Morahan & Company bid.

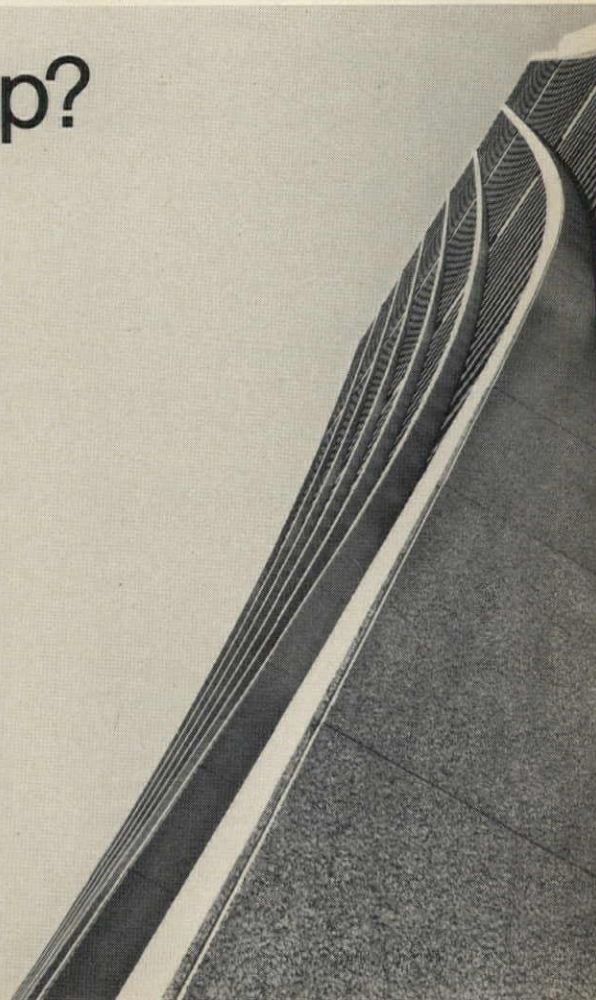
It may bring your costs a little closer to earth.

The Classic Coverage.



Shand, Morahan & Company, Inc.

801 Davis Street Evanston, IL 60201 312/866-9010
Cable Shanmor Telex 72-4328





FULLSPACE... the file with the movable aisle!

If you tried to provide your clients with this much storage or file space using ordinary files or shelves, you'd need 6 aisles and up to 4 times the floorspace. FULLSPACE does it with just one aisle that opens where it's needed. Furthermore, when the aisle is opened, all the space on both sides is exposed, greatly reducing access time.

But there's more to FULLSPACE than space-saving and efficiency. High quality finishes in handsome wood grains or colored laminates create handsome furniture that complements any decor.

Want more information? Write today, or call us collect.

LUNDIA 
The World's Record Holders®

LUNDIA, MYERS INDUSTRIES, INC.
 Lafayette & Capitol Way, Jacksonville, Ill. 62650
 217/243-8585

Notices

Appointments

Barry John Baker and Sylvain Bournhonesque have been appointed associates of Esherick Homsey Dodge & Davis, San Francisco.

Randall J. Gordon is a new associate of Collins & Rimer, Architects Inc., Cleveland, Ohio.

Howard A. Melton has been promoted to senior vice president, head of

the general practice division of Heery & Heery, Architects and Engineers, Atlanta, Ga.

Thomas S. Rooney has been named president of Connell/Metcalf & Eddy, Coral Gables, Fla.

James E. Klein has joined Kenneth Balk & Associates, Inc., Architects-Engineers-Planners, St. Louis, Mo., as project manager, project management division.

Alan Rosen, AIA has been appointed director of the Los Angeles regional office of Welton Becket & Associates. Gene Taillon and Patten W. Brooks have been made vice presidents in the firm's Houston office.

New addresses

Geddes Brecher Qualls Cunningham, Architects, 12 Nassau St. Princeton, N.J. 08540.

McFarland-Johnson-Gibbons Engineers, Inc., 171 Front St., Binghamton, N.Y. 13905.

Baker & Associates, 105 Peavey Bldg., 730 Second Ave. South, Minneapolis, Minn. 55402.

Haas: Greenfield: Associates, 2438 W. Third St., Los Angeles, Calif.

New firms

James G. Peacock, AIA and Thomas C. Steen, AIA have formed Peacock & Steen Architects Planners, 1600 First National Bank Bldg., Peoria, Ill. 61602.

W. Gray Smith, AIA, AIP has opened a practice for architecture, planning and urban programming at Juniper and Locust Sts., Center City, Philadelphia.

Albert B. Hall, Architect, 7007 Preston Rd., Dallas, Tex. 75205.

Glenn G. Gauzza, Architect, 346 W. Baltimore Pike, Media, Pa. 19063.

The firms of William Jordan, Architect and Edward J. Meiers, Architect have formed Jordan & Meiers Architects, P.A., 2020 21st Ave. South, Nashville, Tenn. 37212.

Roger Taunton-Rigby, AIA has established an architectural/planning firm at Farrar Rd., Lincoln, Mass. 01773.

Robert H. Levine Architect & Planner, 3 Brentwood Ave., White Plains, N.Y. 10605.

Organizational changes

Loebl Schlossman Dart & Hackl is the new name for Loebl Schlossman Bennett & Dart, Chicago.

Miller, Wihry & Lee, Inc., landscape architects, engineers and planners, has opened an office at 1511 K St. N.W., Washington, D.C. with Edward B. Ballard as manager.

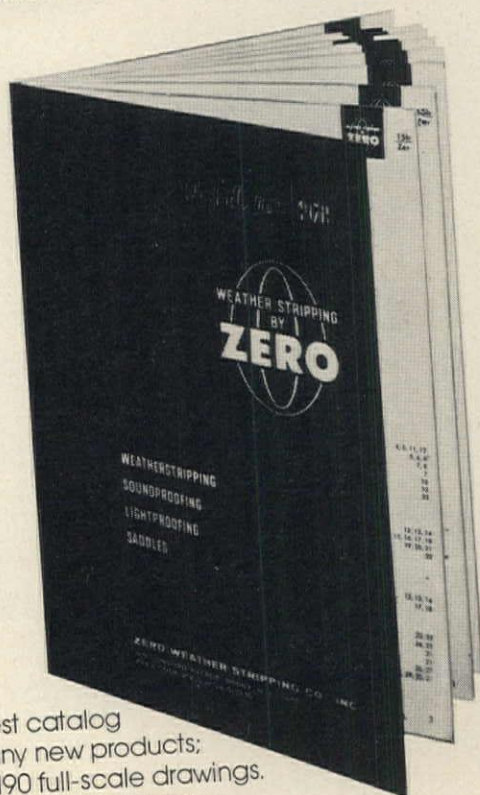
Broome, Oringdulph, O'Toole, Rudolf & Associates, Architects and Planners is the new name for Broome, Selig, Oringdulph & Partners, Portland, Oregon.

Heery & Heery, Atlanta-based architects and engineers, has formed a division specializing in educational and institutional projects. Lauren H. Goldsmith will head the division.

Bohlen, Meyer, Gibson & Associates, Inc., Architects & Planners of Indianapolis, has added an interior design division headed by Barbara Eden.

New edition now ready!

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



Zero's latest catalog shows many new products; contains 190 full-scale drawings. Write today for your copy.



Zero Weather Stripping Co., Inc.
445 Concord Avenue, New York, N.Y. 10455 • (212) LU 5-3230

1924-1976...52 years of opening the door to progress

Another introductory offer to new members of the ARCHITECTS' BOOK CLUB

 <p>463/45X STANDARD STRUCTURAL DETAILS FOR BUILDING CONSTRUCTION by M. Newman Pub. Price, \$19.95 Club Price, \$11.60</p>	 <p>256/284 ARCHITECTURAL RENDERING, 2/e by A. O. Halse Pub. Price, \$24.50 Club Price, \$16.95</p>	<div> <p>ANY ONE</p> <p>of these great professional books</p> <p>for only \$1⁰⁰</p> <p>VALUES FROM \$7.50 to \$32.50</p> <p>Special \$1.00 bonus book comes to you with your first club selection</p> </div>	
 <p>237/514 ARCHITECTURAL DRAWING AND PLANNING, 2/e by Goodban and Hayslett Pub. Price, \$10.95 Club Price, \$7.50</p>	 <p>231/15X STRUCTURAL ENGINEERING HANDBOOK by Gaylord and Gaylord Pub. Price, \$35.00 Club Price, \$24.95</p>		
 <p>513/686 NEW DIMENSIONS IN SHOPPING CENTERS & STORES by L. G. Redstone Pub. Price, \$19.95 Club Price, \$13.95</p>	 <p>678/502 LEGAL PITFALLS IN ARCHITECTURE, ENGINEERING AND BUILDING CONSTRUCTION by Walker, Walker & Rohdenburg Pub. Price, \$17.50 Club Price, \$12.25</p>		
 <p>096/473 TIME-SAVER STANDARDS FOR ARCHITECTURAL DESIGN DATA, 5/e by J. H. Callender Pub. Price, \$32.50 Club Price, \$24.95</p>	 <p>700/753 ENCYCLOPEDIA OF URBAN PLANNING by A. Whittick Pub. Price, \$34.00 Club Price, \$24.00</p>		
 <p>256/187 THE USE OF COLOR IN INTERIORS by A. O. Halse Pub. Price, \$19.50 Club Price, \$13.95</p>	 <p>022/208 INTERIOR SPACES DESIGNED BY ARCHITECTS by B. F. Gordon Pub. Price, \$25.95 Club Price, \$18.95</p>	 <p>287/341 STANDARD HANDBOOK OF ENGINEERING CALCULATIONS by T. G. Hicks Pub. Price, \$19.50 Club Price, \$14.25</p>	 <p>162/182 TIME-SAVER STANDARDS FOR BUILDING TYPES by DeChiara and Callender Pub. Price, \$32.50 Club Price, \$19.50</p>
	 <p>089/248 ARCHITECTURAL DELINEATION by E. E. Burden Pub. Price, \$21.95 Club Price, \$14.50</p>	 <p>629/382 MODEL BUILDING FOR ARCHITECTS AND ENGINEERS by J. R. Taylor Pub. Price, \$18.50 Club Price, \$11.50</p>	

SAVE TIME AND MONEY BY JOINING MCGRAW-HILL'S NEW ARCHITECTS' BOOK CLUB



THIS new professional club is designed to meet your day-to-day needs by providing practical books in your field on a regular basis at *below publisher prices*. If you're missing out on important technical literature—if today's high cost of reading curbs the growth of your library—here's the solution to your problem.

The Architects' Book Club was organized for you, to provide an economical reading program that cannot fail to be of value. Administered by the McGraw-Hill Book Company, all books are chosen by qualified editors and consultants. Their understanding of the standards and values of the literature in your field guarantees the appropriateness of the selections.

How the Club operates: Every month you receive free of charge *The Architects' Book Club Bulletin*. This announces and describes the Club's featured book of the month as well as alternate selections available at special members' prices. If you want to examine the Club's feature of the month, you do nothing. If you prefer one of the alternate selections—or if you want no book at all—you notify the Club by returning the card enclosed with each *Bulletin*.

As a Club Member, you agree only to the purchase of four books (including your first selection) over a two-year period. Considering the many books published annually, there will surely be at least four you would want to own anyway. By joining the club, you save both money and the trouble of searching for the best books.

MAIL THIS COUPON TODAY

ARCHITECTS' BOOK CLUB

P.O. Box 582, Hightstown, New Jersey 08520

Please enroll me as a member and send me the two books indicated below. I am to receive the bonus book at the special introductory \$1.00 price and my first selection at the discounted member price, both to be shipped on approval. I may return them in 10 days and request to have my membership cancelled without obligation. If I keep the books, I agree to take three other club books of my own choosing during the next two years, at the low club prices, guaranteed to be a minimum of 15% (often more) under publishers' prices. (Postage and 25¢ handling charge is added.)

Write Code No. of
Book You Want
for \$1.00 here

Write Code No. of
Your 1st Book
Club Selection here

NAME

ADDRESS

CITY

STATE ZIP

A36150

TEST THEIRS.

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

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

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

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

We perfected paper in 1933

TEST OURS.

•Free Catalog•

Please send us your catalog of samples and suggested price lists. We use drafting paper

for: _____

Name _____

Title _____

Firm Name _____

Address _____

City _____

State _____ Zip _____



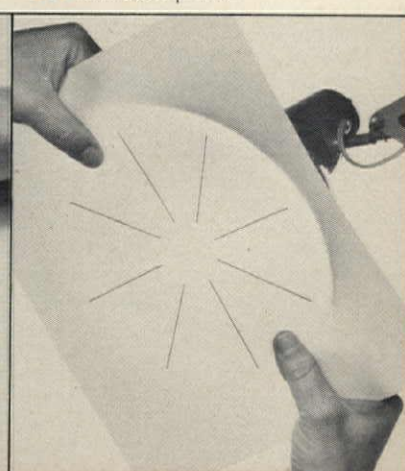
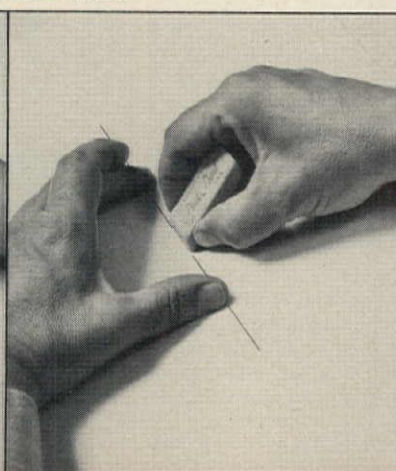
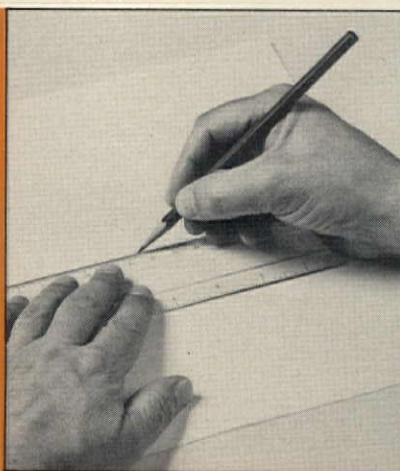
CLEARPRINT PAPER CO., 1482-67th STREET
EMERYVILLE, CALIFORNIA 94608

PA500

1. Lay down a line on your drafting paper.

2. Erase and redraw the same line in the same place several times.

3. If you see a ghost, the paper isn't Clearprint.



Building materials

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

Concert Hall, Birmingham-Jefferson Civic Center, Birmingham, Ala. (p. 40). Architects: Geddes, Brecher, Qualls, Cunningham, Philadelphia, Pa. Precast concrete panels: Castone Corp. Concrete masonry units: Willcutt Block Co. Carpet: Commercial Carpet. Ceiling plaster: U.S. Gypsum. Metal screen acoustical panels, hollow metal windows and doors: Birmingham Ornamental Iron Co. Panic exits: Von Duprin, Dor-O-Matic. Interior paint: O'Brien Paints. Cueing/Intercommunication speakers and controls: Soundolier. Sound amplification: Altec. Stage lifts: Dover. Stage lighting: Kliegl Bros. Lobby lighting: Lightoller. House lighting: Kliegl Bros. Air conditioning fans: Trane. Grilles and registers: Barber Coleman.

Orpheum Theater restoration, Omaha, Nebr. (p. 44). Architects: Leo A. Daly Co., Omaha. Structural steel, Paxton & Vierling Steel Co.; Plaster work, Radachi Plastering Co.; Genon vinyl wall surfacing, Dwoskin, Inc., division of General Tire & Rubber Co.; cut pile carpet, Mohawk; Paint and stain, Pittsburgh (McGill Painting); Stage lift, Dover (O'Keefe Elevator Co.); Stage controls, Electro Control, Inc.; Stage curtain and rigging, Metropolitan Stage Co.; Public seating, Irwin Manufacturing Co.; Symphony chair, Thonet Industries; Acoustical stage shell, Wenger Corp.; Steam and chilled water, Northern Systems Central Downtown Plant, division of Northern Natural Gas; General contractor, Foster-Smetana Co.

Arts for Living Center, Henry Street Settlement, New York City. (p. 64). Architects: Prentice, Chan, Ohlhausen, New York City. Poured-in-place concrete: Portland Cement by Saylor's. Brick exterior walls: Glen-Gery. Paving: Hastings Pavement. Carpet: Masland. Vinyl Asbestos tile: Armstrong. Acoustic tile: Armstrong Cork. Built-up roofing: Barrett. Liquid membrane water-proofing: Tremco. Insulation board (perlite): Grefco. Concrete block partitions (ground and polished): Samson Industries. Aluminum windows: Milco and Wausau. Hollow metal doors: Williamsburg. Steel overhead doors: J.G. Wilson. Steel elevator doors: Otis. Entrance doors, aluminum: Kawneer. Locksets: Corbin. Epoxy paint: Tnemec. Latex and Alkyd paint and stain: Pittsburgh Paint. Hydraulic elevators: Otis. Lighting (exterior): McPhilben, Keene, Gotham. Lighting, interior: Kenbert, Neoray. Plumbing fixtures: American Standard, Kohler, Elkay. Sprinklers: Star Sprinkler Co. Electric Distribution: Slater Electric, Federal, Pacific, Circle Industries. Pipes: Youngstown, Phelps Dodge. Heating (city steam): Dunham Bush and Trane. Air conditioning: Carrier, Agitair, Robertshaw, Trane.

BUILDING BOOKS

JAMES STIRLING Buildings and Projects 1950-1974

Introduction by John Jacobus

A wide-ranging survey of a modern master's achievement, with 675 illustrations covering 26 major designs in Europe and America. \$30.00

THE OREGON EXPERIMENT Christopher Alexander

With Murray Silverstein, Shlomo Angel, Sara Ishikawa, and Denny Abrams

Alexander's radical theories are put into practice in this officially accepted plan for the expansion of the University of Oregon. 47 photographs, 15 drawings. \$12.50

FIVE ARCHITECTS

Eisenman, Graves, Gwathmey, Hejduk, Meier

Preface by Arthur Drexler/

Introduction by Colin Rowe

A new edition on the Five's much-discussed challenge to the values of functionalism. 62 photographs, 132 drawings. \$25.00 cloth, \$9.95 paper

BURNHAM OF CHICAGO Architect and Planner

Thomas S. Hines

This critical biography is "as good a book on Burnham as we are likely to get or need for quite a few years." —*Progressive Architecture*. 150 illustrations. \$19.50

SKYSCRAPER STYLE Art Deco New York

Cervin Robinson and Rosemarie Haag Bletter

"A superior work on every level. . . Robinson has taken some photographs which deserve to become classics." —Paul Goldberger, *New York Times Book Review*. 115 photographs. \$20.00

THE VICTORIAN COUNTRY HOUSE Mark Girouard

Informed and comprehensive, this survey examines the social, technological and architectural significance of the country house. Catalogue of houses, 421 photographs, additional drawings. \$41.00

ARCHITECTURE Sinclair Gauldie

Drawing on examples from many different cultures, Gauldie shows how to analyze a building: as a union of functional, structural and aesthetic intentions. Photographs and drawings. \$11.95 cloth, \$6.95 paper

OXFORD UNIVERSITY PRESS 200 Madison Avenue
New York, N.Y. 10016

Job mart

Situations open

Architect/Hospital Planner: For long established Midwest A&E firm. Must have minimum of 5 years experience in planning of hospitals and health related facilities. Excellent compensation and fringe benefits. Reply with complete resume to Box 1361-873, *Progressive Architecture*. An equal opportunity/affirmative action employer.

Architectural Designer or Interior Designer: 70 man midwest based firm seeks experienced (5 years) designers. Registration preferred. Excellent opportunity to work on variety of projects; total design responsibility and capability desired. Send 2/3 samples of work and resume to: Bill Gustafson, Lorenz Williams Lively Likens and Partners, 2600 Winters Bank Building, Dayton, OH 45402.

Dean, College Of Architecture: The University of Florida announces the opportunity for the

position of Dean which will be filled by July 1, 1976. Programs within the College include: Architecture, Building Construction, Landscape Architecture, Interior Design, and Urban and Regional Planning. Qualifications include: (a) Broad background of professional experience in architecture, planning, and construction (b) Masters degree or equivalent (c) Administrative, management, and public relations experience (d) Teaching experience in an accredited professional program. Interested candidates are to send their resume and references by January 1, 1976 or write for more information to: Professor Bill Eppes, Chairman, Search Committee, College of Architecture, 119-C AFA Complex, University of Florida, Gainesville, Florida 32611. The University of Florida is an Equal Opportunity—Affirmative Action Employer.

Faculty Positions: School of Architecture at Oklahoma State University has two faculty positions open. Academic rank and salary

will depend upon the candidate's qualifications. 1. *Environmental Control Program*; teaching and research in areas of low- and alternate-energy application, mechanical engineering, lighting and acoustics. Master's degree required with either or both undergraduate and graduate degrees in Architecture or Architectural Engineering. Teaching and practical experience desirable. 2. *Design/Building Systems*; teaching and research in Design, Construction Materials and Systems, Construction Documents. Master's degree and several years of practical experience required; teaching experience desirable. Oklahoma State University is an Equal Opportunity/Affirmative Action employer. Minorities and women are urged to apply.

Senior Architectural Designer: 100+ man architectural office in Houston with substantial overseas workload seeking [continued on page 116]



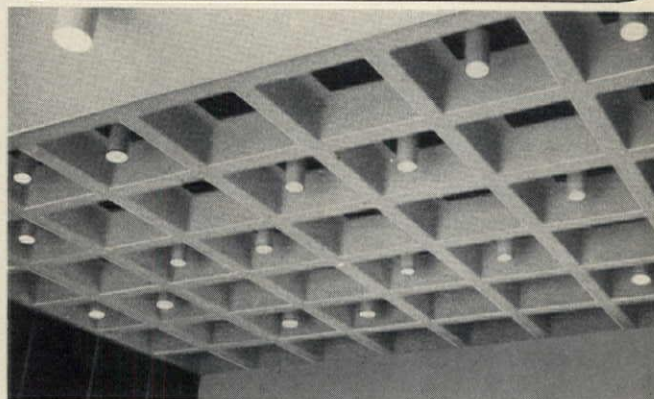
Plant Lamp
Bottom Sphere: clear acrylic.
Top sphere: opal acrylic.
Two circline fluorescent lamps.
Inner: 22 watt grow-light.
Outer: 32 watt warm-white for efficient light and attractive color.
Table: 34" high x 16" wide.
Floor: 44" high x 16" wide.
Pendant: 48" high x 16" wide.

Request New Catalog

lighting associates

305 East 63 Street, New York, New York 10021 (212) 751-0575

distinctive light and sound



Visitors to the lobby of the Naval PX (Millington, Tenn. Naval Air Base) are impressed by the abundant light and controlled sound. This results from its waffle-ceiling pattern with acoustical tile in all voids. Poured over MFG Concrete Forms, the ceiling is strong, utilitarian and handsome. Want a strikingly pleasing effect in YOUR building? Ask us.



MFG CONCRETE FORMS COMPANY
Box 675PA • Ashtabula, Ohio 44004 • 216/998-1241



BOLD and *Beautiful* that's copper.



One of the most eye-appealing materials at your command is copper. It ages beautifully, lasts for decades and is easy to work with.

The Revere system* of Laminated Panel Construction lowers the cost of installing copper because both the metal and the supporting deck can be put down in one operation. You enjoy additional savings because Revere laminated panels use light weight copper which is considerably less expensive than standard 16 ounce copper.

These versatile, 2' x 8' panels are ideal for roofing, fascias, mansards, siding, ceilings and a host of other applications. For the full story, along with detailed drawings and specs, send for our free brochure on the Revere System of Laminated Panel Construction. Revere Copper and Brass Incorporated, 605 Third Avenue, New York, N.Y. 10016.

*Patent pending.

REVERE
COPPER • BRASS • ALUMINUM

experienced, talented Senior Designer capable of handling major projects from inception to completion. Ability to make presentations desirable. Preferably with 8-10 years experience with leading major design firm. Reply to Neuhaus + Taylor, 1700 Post Oak Tower, Houston, Texas 77027.

The University of Hawaii: Is seeking a Head for Architecture/Environmental design. Responsibilities: academic administration, financial management, program and staff development, and teaching. Qualifications: degree(s) in architecture, planning, or environmental design with sufficient practice and teaching to qualify for full rank. Compensation: commensurate with background and experience with excellent fringe benefits. Appointment: effective August 1976 with selection to be made during the spring. Application: resumes and references should be sent before December 15, 1975 to Chairman, Search Committee, Room 204—2528 The Mall, Univ. of Hawaii, Honolulu, Hawaii 96822.

Volunteer Peace Corps/VISTA: Architects/planners needed for Peace Corps projects in Latin America, Africa, Asia; VISTA projects

in 25 U.S. cities. Housing projects, design of schools, hospitals, community centers, rehab., university teaching, regional planning, etc. Expenses paid, travel, medical, vacation and living. U.S. citizen. Singles or couples only. Information: Lynn Rothenberg, ACTION, ORC Box A-2, Washington, D. C. 20525.

Situations open

Architect: A.I.A., NCARB, 18 years experience, strong in administration and project coordination. Seeks affiliation or position with architect, engineer, or developer. Reply to Box #1361-813, *Progressive Architecture*.

Architect: BAE., Registered in Lebanon, 9 years experience in the Middle East, 4 in U. S. Fluent in Arabic and English. Seeks position of scope and responsibility with firm doing work in Mideast. Prefer position where managerial skills, experience and contacts there would be of benefit. Write (Box 1361-880), *Progressive Architecture*.

Architect: M. Architect, 29, Turkish, resident in England, nine years experience in Europe and continental, diversified projects.

Interested in creative position with design oriented firm. West Coast preferred. Resume, transcript and references on request. Please reply to Box No 1361-879. *Progressive Architecture*.

Architect: NCARB, registered in Connecticut. 12 years of diversified experience and responsibility in design, production and coordination for several multi-million dollar projects, including own practice. Seeks challenging position with architects or engineers. Will relocate. Resume on request. Reply Box #1361-881, *Progressive Architecture*.

Architect: 38, Graduate of M.I.T. twelve years experience, five as principal own firm, wishes position with progressive firm. Comprehensive experience all aspects of practice. Resume on request. Bert Bishop, 11 Jefferson Avenue, Kingston, N.Y. 12401.

Architect: 45, U.S. citizen. Over 20 years international experience in all phases. Strong in design. Worked in England, Germany, Middle East, Africa and U.S.A. Seeks responsible position domestic or overseas. [continued on page 118]



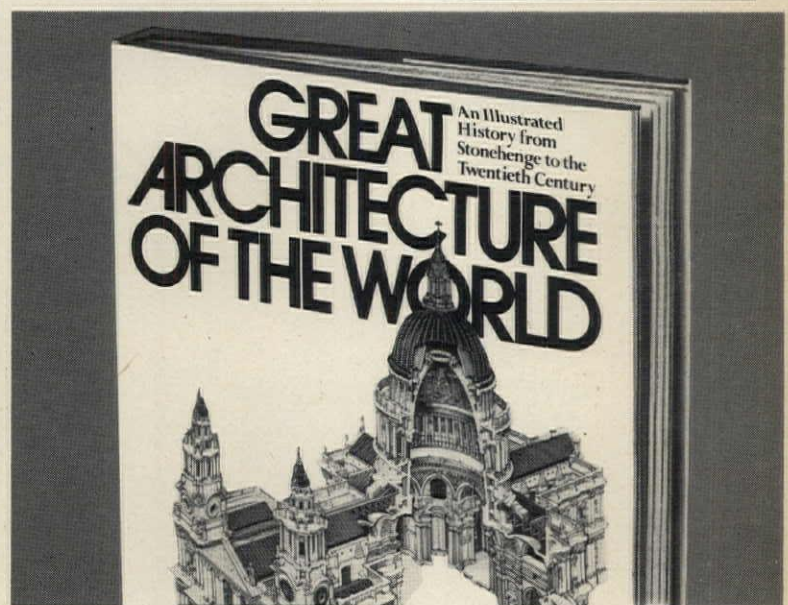
Put on
a happy fascia

One that stays happy, too. Because Hickman Modu-Line fascia panel systems completely eliminate oil-canning. Modu-Line is a custom system. So it's available in any spacing you need from 4 to 24 inches. And comes in lengths up to 24 feet. You select from a big variety of battens, and a bunch of colors and finishes. The result is a handsome, custom system. And one that lasts. Hickman. The flexible system that never flexes once you put it up.

Available in CANADA

HICKMAN
Aluminum Construction Products

W. P. Hickman Company, Inc. / 175 Sweeten Creek Rd.
P.O. Box 10505 / Asheville, N.C. 28803 / Tel: (704) 274-4000



A lavish illustrated history of world architecture

800 illustrations, including 320 unique original drawings, 444 in full color

Compiled by 14 eminent scholars and edited by Sir John Julius Norwich, this superb pictorial guide encompasses every period of architecture from man's most primitive structures to his latest, most ambitious works. Matchless cutaway reconstructions and specially created drawings convey an

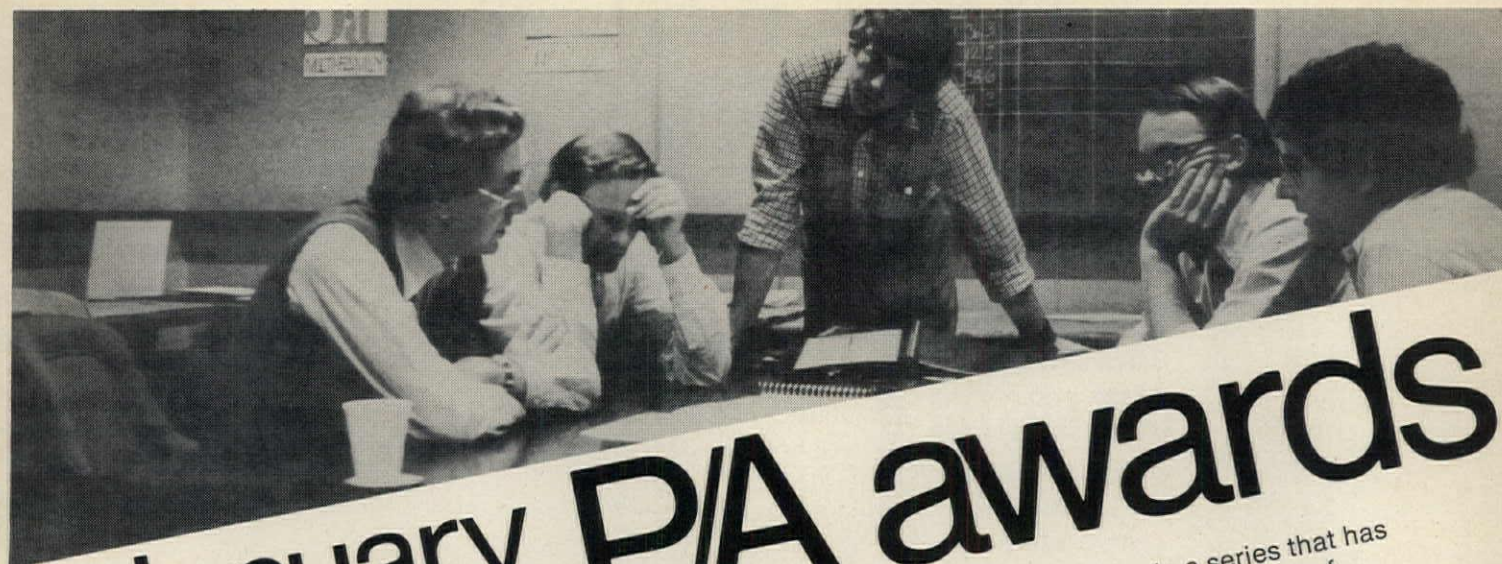
understanding of building structure better than any other book has been able to do.

GREAT ARCHITECTURE OF THE WORLD
Peter Blake, American Consultant.
\$24.95 until 12/31/75; \$29.95 thereafter.
Now at your bookstore

RANDOM HOUSE
201 E. 50th St., New York 10022



Circle No. 364, on Reader Service Card



in january P/A awards

The 23rd annual P/A Awards Program, next in a series that has become a tradition in the profession, will be the subject of P/A in January. Every year, a jury of eight prominent professionals from the U.S. and Canada convenes at P/A's offices to review hundreds of submissions and choose a few for the coveted awards and citations.

And every year, the architectural audience awaits this issue as an indicator to promising directions. Along with lively commentary by the jurors on the state of design, P/A readers will get a preview of landmarks to come.

Job mart continued from page 116

Any location. Write Box #1361-875, *Progressive Architecture*.

Architectural Designer, Draftsman, Delineator: Married, children, 20 years total involvement, all building types. Desire versatile opportunity with mature office, quality standards. New York State or New England area. Reply to Box #1361-851, *Progressive Architecture*.

British: Degrees in Architecture and Planning with British registration. 12 years experience primarily in physical planning and mostly acquired in United States. Would like NCARB registration by reciprocity by working in registered architect's office, preferably in the Washington-Baltimore area. Box #1361-877, *Progressive Architecture*.

Consulting Engineer Associate: Need an associate in New York? Broad knowledge of codes and zoning, structural, mechanical and electrical. Architectural services available. Box 1361-878, *Progressive Architecture*.

Executive International: Director Design and Engineering with 500 company. Top connections U.S. and Europe. Multilingual. Registered Architect Planner. Client contact and administration. Position required to head diversified office. Box 1361-874, *Progressive Architecture*.

Facility Planner/Programmer: B.Arch., M.B.A., multiple registrations, NCARB pending. 13 years international experience: client relations, development feasibility, pre-design analysis, programming, fast-track project management, large-scale interiors, construction supervision, specifications. Seeks part-time or permanent work at \$30,000 with architects, engineers, developers, corporations. N.Y.C. area, will relocate for opportunity. Tel: 516-665-3224.

Interior Designer: 29, Finnish, 5 years of experience in architectural firms (also in U.S.A.). Been involved in university-, hospital-, and hotel-design. Speaks fluent English. Seeks position with progressive architectural firm. Prefers California or N.Y.—will consider other areas. Design samples by request. Mr. Urmas Virta, Lönnrotinkatu 35 D 54, 00180 Helsinki 18, Finland.

Post-graduate: Gold Medalist Building Engineer with basic qualification in Civil Engineering and two years experience in Building Design, Construction and Supervision seeks employment offers. Write to: Ashok Agrawal, 15/63, Jawahar Nagar, RAIPUR, M.P., India."

Progressive: New York City architectural firm seeks merger or association with out

of city firm, interested in geographical expansion and strengthening promotion and production activities. Express interest with a letter to Box #1361-862, *Progressive Architecture*.

Registered Architect: B. Arch., 28, family, currently project architect. 8 years diversified architectural and construction experience. Seeks managerial related position with advancement potential in architectural, construction or development firm. Metropolitan location in New York, Pennsylvania or Maryland area preferred. All other locations considered. Reply to Box 1361-882, *Progressive Architecture*.

Registered Architect/Planner: 37, seeks responsible and challenging, design oriented position at management level with progressive architectural, A-E, or design-build firm. Over twelve years of diversified experience including subway station planning and coordination with architectural and engineering offices in New York City. Metropolitan New York or New England locations are preferred. Reply to: Box #1361-876, *Progressive Architecture*.

Architectural services

Charette/Model Supplies: Study and presenta-

Handbook

The Action Office Acoustic Handbook

a guide for the open plan
facility manager, planner
and designer

By Robert Propst
and Michael Wodka
Herman Miller Research
Corporation

Introducing "The Action Office Acoustic Handbook"

This new handbook, authored by researchers Robert L. Propst and Michael Wodka, provides the office planner, designer, and facilities manager with a long-awaited guide to acoustical control in the open plan office.

Organized into nine easy-to-read chapters, the book deals with the many variables of acoustical problem solving. The chapters include: Acoustical Objectives in Space Planning; How Sound

Travels; The Elements and How to Control Them; A Facility Performance Check List; How to Tune and Balance The Action Office; How to Treat Special Problems, and; References and Resources.

The book can be used as a basic text, an easy reference tool and as a guide to additional sources of helpful information from articles, books and experts. A glossary of important acoustical terms and definitions offers additional help and understanding.

To order your copy,
simply fill out and mail
this coupon to:

Please send me _____ copies of
the Action Office Acoustic
Handbook at \$5.50 per copy
(plus applicable tax).

Herman Miller Research
Corporation
3970 Varsity Drive
Ann Arbor, Michigan
48104

_____ check enclosed _____ bill me
Other books available

_____ The Office: A Facility Based on
Change \$3.50
_____ The Dormitory Experiment \$5.50

Name _____

Title _____

Firm _____

Address _____

State _____

Zip _____

Circle No. 343, on Reader Service Card

tion model materials: hot wire foam cutters and dense foam; basswood; scale cars-people, trees and furniture; modelscopes; cork and chipboard for contour models; fabricated foam contour models delivered complete. Available at our New York and Cambridge stores. Mail orders: Charrette Corporation, 2000 Massachusetts Ave., Cambridge, Mass. 02140.

Equivalency Exam & Professional Exam: Simulated tests at a reasonable cost. Inquire: ARCHINFORM (Formerly "PH. Lee"), P.O. Box 27732, Los Angeles, California 90027.

Historical Architectural Watercolors: painted traditionally, old master quality. Send research photo(s) of building(s). We originate/compose people, horses, carriages/autos in period around building(s). Paper: Arches/22"x30". Send your own quotation: \$150-\$300., based upon complexity; we usually accept it. Nationwide Architectural Arts, Inc., Box 21251, Seattle, WA 98111.

Nationwide Architectural Arts, Inc.: 3-5-day national service for budget renderings: Realistic, full-color, full-bleed, landscaped, with figures/autos, board about 20"x30", one main structure rendered (high rise accepted). Views: Eye level \$159.-\$289.

Aerial \$239.-\$389. You may send your own fair budget quotation; we usually accept it (uniqueness with value). Rendering finished in 3 days if you send a usable perspective (your advantage because exact view known). Complex renderings, models, mosaics & super graphics: Your choice of highly specialized artists. Airmail drawings: Phoned acknowledgement. Free air shipping USA/Canada. New clients: C.O.D. Budget/complex services only: Box 21251, Seattle, WA 98111. Color catalog only: Box 615, Rochester, MI 48063. Artists: Commissions available nationally (send no samples).

Rendering Services: Top professional rendering service coast to coast. Architectural, urban, landscape, interiors, industrial, advertising illustration in pen and ink or colour for the best reproduction. Portfolio by appointment. Allow maximum time for job completion. Please call Mark de Nalovy-Rozvadovski (203) 869-4598, 25 Birchwood Drive, Greenwich, Conn. 06830.

RitaSue Siegel Agency: Ms. Woody Gibson introduces creative architects, interior designers and urban planners to our international clients. RitaSue Siegel identifies and evaluates industrial and graphic designers. You are invited to submit confidential resumes. Our clients pay all fees. 60 W. 55th

St., N.Y.C. 10019, (212) 586-4750.

Vitruvius Designs Corp: Artistic renderings and scale models, for a better image. Commercial interiors from sketches to shop drawings. Regular drafting services available. Write Box 1316 Dept. PA, Radio City Sta., N.Y., N.Y. 10019 (212) 697-5499.

Notice

Please address all correspondence to box numbered advertisements as follows:

Progressive Architecture
c/o Box.....
600 Summer Street
Stamford, Connecticut 06904

Advertising Rates

Standard charge for each unit is Fifteen Dollars, with a maximum of 50 words. In counting words your complete address (any address) counts as five words, a box number as three words. Two units may be purchased for thirty dollars, with a maximum of 100 words. Check or money order should accompany advertisement and be mailed to Job Mart c/o Progressive Architecture, 600 Summer Street, Stamford, Conn. 06904. Insertions will be accepted not later than the 1st of the month preceding month of publication. Box number replies should be addressed as noted above with the box number placed in lower left hand corner of envelope.

Important

Effective with the January, 1976 issue, the cost for each unit will be Twenty-Five dollars. Two units will cost Fifty dollars.

P/A Book Store

Described on the following pages are architectural books that are now available to you from leading publishers. Each has been selected for its usefulness to you in the various aspects of your professional practice.

Book orders will be forwarded to the publishers who will bill you direct, including all required state and local taxes. As purchases of professional and business publications are tax deductible, we suggest that you retain copies of the publishers' invoices.

Reader Service

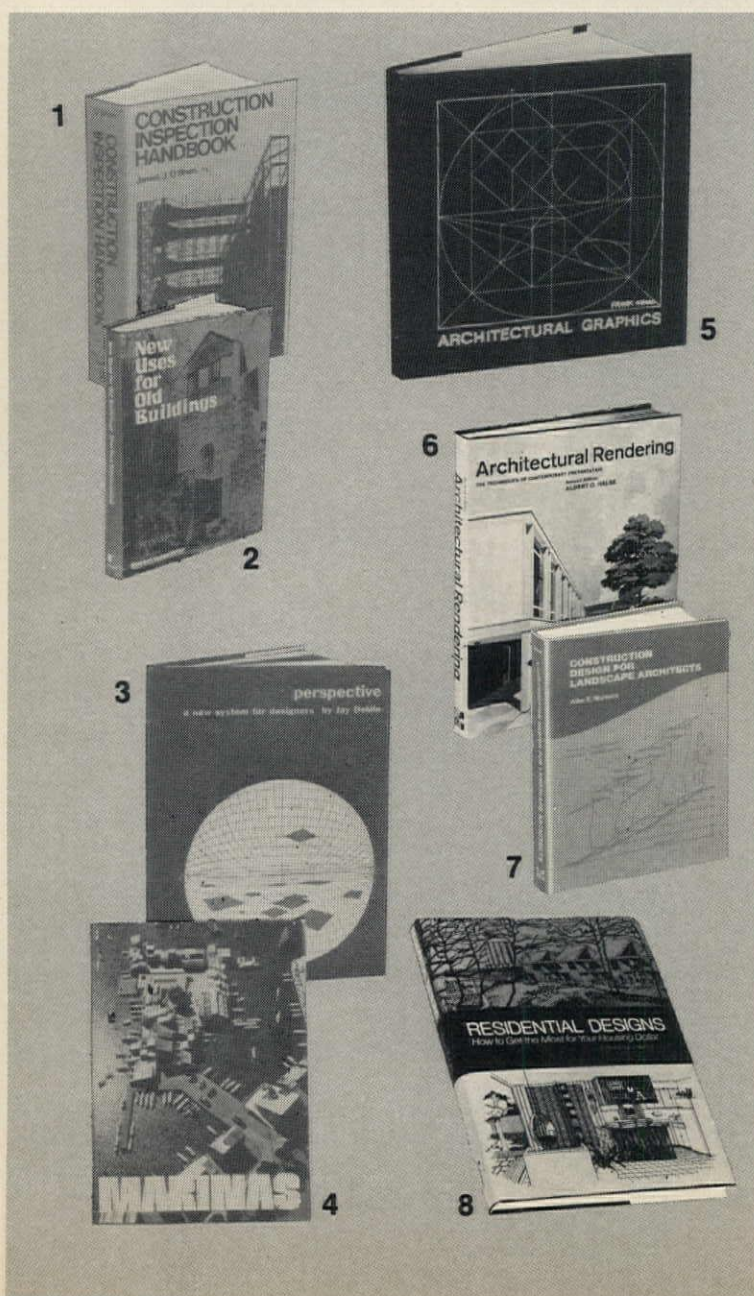
As a service to the profession, Progressive Architecture provides easy-to-use Reader Service cards in the back of each issue to speed your book

orders to publishers. To order books, simply circle the appropriate number or numbers on the card, add your name and address and drop in the mail. Postage is paid by P/A, and your order will be forwarded immediately to publishers for shipment to you.

Subscribe to Progressive Architecture

To subscribe to P/A or to renew your subscription, check the appropriate boxes on the Reader Service card.

We cannot accept book orders from outside of the United States unless they are accompanied by a money order.



1 Construction Inspection Handbook

By James J. O'Brien,
512 pp., 140 illus., ... \$17.95

Outlines the duties, requirements and interests of the construction inspector. Describes the "whys" as well as the "how-tos" involved in observation of construction quality. Including handy checklists to work from, the book shows you exactly what should be reviewed and inspected.

Circle B601 under Books.

2 New Uses for Old Buildings

By Sherban Cantacuzino,
280 pp., illus., ... \$29.95

'New Uses for Old Buildings' presents an architectural concept whose time has come. There are many unused or under-utilized buildings existing today whose construction and detail — which can never be recreated — should be preserved. But today's increasingly sophisticated demands for standards and services, as well as tighter codes for fire and safety, make the conversion of an old building to a new one a formidable task.

Circle B602 under Books.

3 Perspective: a new system for designers

By Jay Doblin,
68 pp., illus., ... \$7.50

The first system developed to solve the kind of drawing problems encountered by designers. Eliminates the complex mechanical drawing that an architect normally employs in his traditional way of working with plans and elevations. The system offers a simpler method of visualizing any three dimensional object accurately and quickly.

Circle B603 under Books.

4 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 ex-

pertise in planning and design, which this up-to-date guide provides.

Circle B604 under Books.

5 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; freehand sketching and diagramming; and effective presentation of design proposals.

Circle B605 under Books.

6 Architectural Rendering The Techniques of Contemporary Presentation

By Albert O. Halse, 326 pp.,
illus., 2nd edition, 1972 ... \$24.50

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 B606 under Books.

7 Construction Design For Landscape Architects

By Albe E. Munson,
256 pp., illus., ... \$11.50

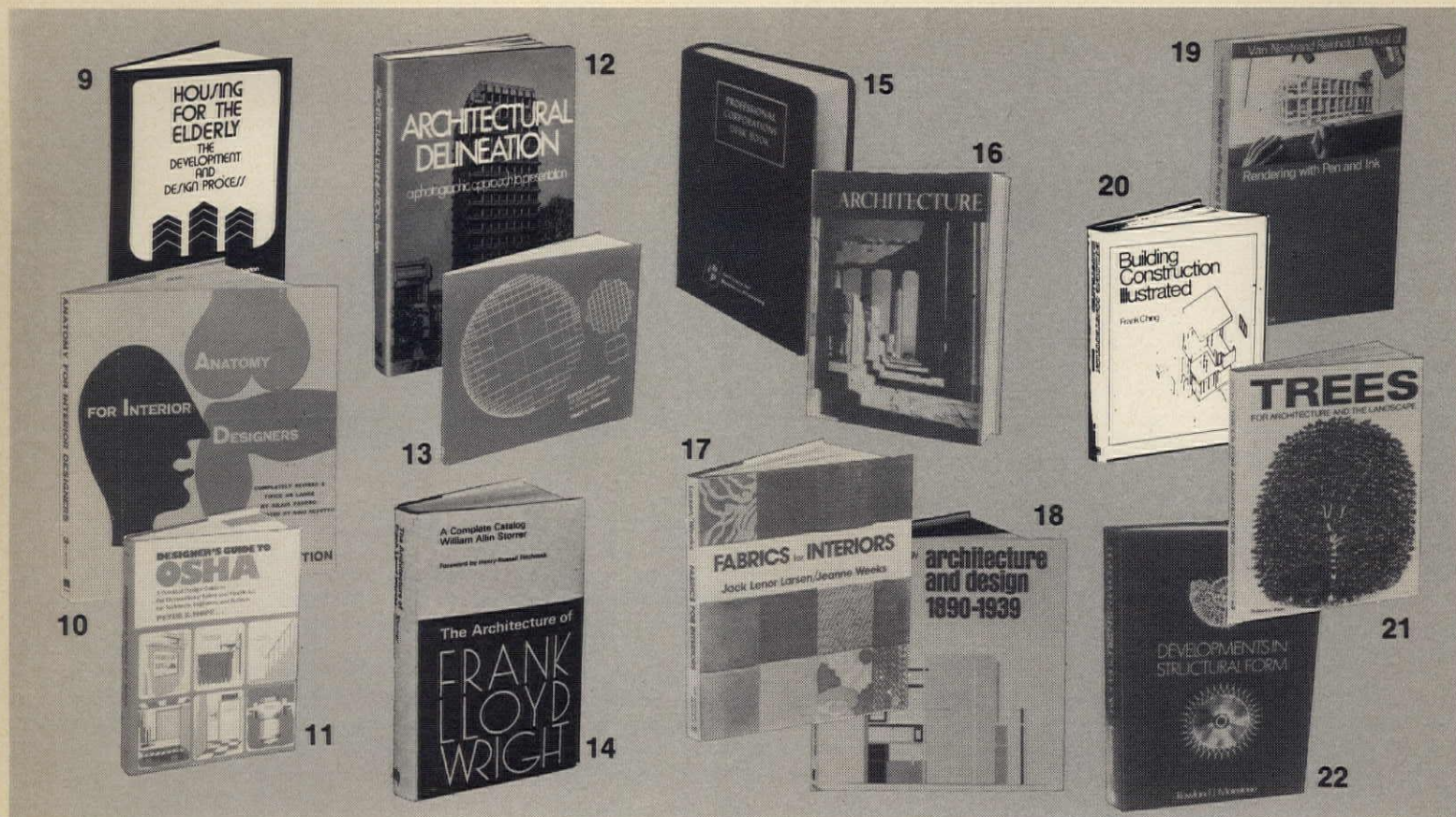
This volume is a complete guide to the preparation of a building site for construction or landscaping. The book was written for use as a rapid refresher for the practicing landscape architect as well as a handy reference guide to short-cut methods that will be of interest to the civil engineer doing site improvement plans.

Circle B607 under Books.

8 Residential Designs

Edited by David E. Link,
192 pp., ... \$14.50

Hi-rise or low cost, condo, multi-family, custom or townhouse, here's a design book that shows you the very best in



every class. Complete collection of designs with over 200 illustrations featuring techniques used by some of the nation's leading builders, planners and designers.

Circle B608 under Books.

9 Housing for the Elderly

By Isaac Green, Bernard E. Fedewa, Charles A. Johnston, William M. Jackson and Howard L. Deardorff, 174 pp., illus., . . . \$13.95

This book provides ready-to-use guidelines for producing high quality housing for older Americans. It shows the kinds of housing that meets the physical, social and perceptual needs of senior citizens. Emphasized are types of shelter, environments and services required by independent elderly tenants as well as those who need limited health and social services.

Circle B609 under Books.

10 Anatomy for Interior Designers:

Third Edition
By Julius Panero, 160 pp., illus., . . . \$9.95

This is a comprehensive book of graphic standards for designers of interiors. It contains all the data the reader needs for designing around people, designing people in and designing things for people to use: the basis of design, residential and commercial applications, lighting, material on horizontal and vertical movement, storage space, furniture, windows, and doors.

Circle B610 under Books.

11 Designer's Guide to OSHA

By Peter S. Hopf, A.I.A., 288 pp., illus., . . . \$17.50

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 B611 under Books.

12 Architectural Delineation A Photographic Approach to Presentation

By Ernest Burden, 288 pp., illus., 1971 . . . \$21.95

In this illustrated book, the author demonstrates a simple, flexible method of using photography to depict architectural projects in true perspective. Also how to create models for photography and how to put together an effective slide presentation.

Circle B12 under Books.

13 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.

Publisher will bill you direct before shipping any book.

Circle B613 under Books.

14 The Architecture of Frank Lloyd Wright: A Complete Catalog

By William Allin Storrer, \$9.95

The first fully complete catalog of every building designed by Wright that was actually constructed — 433 in all — includes a photograph of practically every one of them, and a descriptive note on the materials used, the plan, and the circumstances of construction.

Publisher will bill you direct before shipping any book.

Circle B614 under Books.

15 Professional Corporation Desk Book

Published by: The Institute for Business Planning, Inc., 427 pp., illus., . . . \$29.95

You see at a glance which form of practice is best for you — partnership or corporation. The Desk Book compares the opportunities and pitfalls of each. It singles out retirement planning, especially in light of the new Pension

Reform — the biggest single reason why so many professional men have opted for a corporate form of practice.

Circle B615 under Books.

16 Architecture

By David Jacobs, 191 pp., illus., . . . \$10.00

Stunning modern photographs juxtaposed with plans, cross sections, scale models and historic views form a vivid counterpoint to the authoritative text. A five-page chronology relates events in the history of architecture to other cultural and political developments.

Circle B616 under Books.

17 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 B617 under Books.

18 Architecture and Design, 1890-1939

Edited by Timothy Benton and Charlotte Benton; with Dennis Sharp, 264 pp., illus., . . . \$12.50

This concentrated study of the rise of the Modern Movement in architecture and design covers the half century during which attitudes toward these practical arts were changing dramatically. Based solely on original source material, this book contains extracts from the writings of such influential men as: Adolf Loos, Henry Van De Velde, Hermann Muthesius, Walter Gropius, Le Corbusier, Mies van der Rohe, Bruno Taut, Louis Sullivan, and Frank Lloyd Wright.

Circle B618 under Books.

19 Rendering With Pen And Ink

By Robert W. Gill, 368 pp., illus., . . . \$6.95

This paper-back edition is a copiously illustrated guide to the techniques and methods of rendering, including sec-

tions 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 B619 under Books.

20 Building Construction Illustrated

By Frank Chin, 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 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 B21 under Books.

22 Developments in Structural Form

By Rowland J. Mainstone, 350 pp., illus., . . . \$25.00

The seemingly hard and mechanistic world of architectural structures is presented here in a humanistic light. Over 300 photographs and drawings, accompany the richly imaged text. Mainstone's real triumph, perhaps, is his simultaneous consideration of the physical principles of structures, materials of which they are made, ways in which they may be built, and the history of man's involvement with them. Publisher will bill you direct before shipping any book.

Circle B622 under Books.

Advertisers

Alcan Building Products, Div. Alcan Aluminum Corp.	6
Wyse Advertising	
Alliancewall Corp.	8
Battle Advertising, Inc.	
Amana Refrigeration, Inc.	1
Grey-North, Inc.	
Andersen Corp.	4, 5
Campbell-Mithun, Inc.	
Atlas Asbestos Co.	12
Ardiel Advertising Agency Ltd.	
Atlas Minerals & Chemicals Division	96
Lieberman, Harrison, Inc.	
Azrock Floor Products	Cover 2
Glenn, Bozell & Jacobs	
Blum, Julius & Co., Inc.	33
Seery-Hill Associates	
BRK Electronics, Div. of Pittway Corp.	98
Carpenter, L.E. & Co.	27
Harold Marshall Advertising Co.	
Clearprint Paper Co.	112
Hoefler, Dieterich & Brown, Inc.	
Copper Development Association, Inc.	71 thru 84
Ross Roy of New York, Inc.	
Cornell Corp.	104
Duerre, Turk & Associates	
Dover Corp.	87
The Caldwell Agency	
Flexco, Div. of Textile Rubber Co., Inc.	92
Jarman Associates, Inc.	
Follansbee Steel Corp.	10
George Hill Co.	
Gaco Western, Inc.	32 Wa
Kraft & Smith	
Grefco, Inc.	26
Boylhart, Lovett & Dean	
Halsey Taylor	11
Dudreck, De Paul & Morgan, Inc.	
Hickman, W.P. Co.	116
John H. Rosen Advertising, Inc.	
Jennison Wright Corp.	13
Phillips Associates, Inc.	
Johns Manville, Holophane Div.	Cover 3
Broyles, Allebaugh & Davis, Inc.	

Kalwall Corp., Kal-Lite Div. Synerjenn Group	117
Koppers Company, Inc.	35 thru 38
The Advertising Center	
Libbey-Owens-Ford Co.	15
Campbell-Ewald Co.	
Lighting Associates, Inc.	114
Givaudan Advertising, Inc.	
Louisiana-Pacific Corp., Weather-Seal Div.	117
Belden/Frenz/Lehman, Inc.	
Lundia, Myers Industries, Inc.	109
Ross Llewellyn, Inc.	
Master Builders	2
The Jayme Organization, Inc.	
Maytag Company	105, 106, 107
Leo Burnett Co., Inc.	
McGraw-Hill Book Co.	111
MFG Concrete Forms Co.	114
Watts, Lamb, Kenyon & Herrick, Inc.	
Herman Miller, Inc.	23, 25, 91, 119
Center For Communication Planning	
MM Systems Corporation	14
Mackey, Green & Associates, Inc.	
Musson, R.C. Rubber Co.	14
Fred Bock Advertising Co.	
National Gypsum Company	93
Fuller & Smith & Ross, Inc.	
Olympic Stain, Div. of Comerco, Inc. .	Cover 4
Kraft, Smith & Lowe	
Oxford University Press	113
Franklin Spier, Inc.	
PPG, Industries, Inc.	101-103
Ketchum, MacLeod & Grove, Inc.	
Progressive Architecture Bookstore ..	120, 121
Proudfoot Company, Inc.	9
Harrison House	
Random House, Inc.	116
Sussman & Sugar	
Republic Steel Corp.	95
M & F Advertising	
Revere Copper & Brass, Inc.	115
Clyne Company, Inc.	
Rolscreen Co.	88, 89
Kerker & Associates	
Shakertown Corp.	16
Solkover, Davidge & Jenkins, Inc.	
Shand, Morahan & Co., Inc.	108
Hakanson & Associates	
Soss Mfg. Co.	104
Brewer Associates, Inc.	

Stanpat Products	100
Morton Advertising, Inc.	
Townsend Paneling	100
Tri-Ad of Germantown	
U.S. Gypsum Co.	99
Needham, Harper & Steers Adv., Inc.	
U. S. Plywood, Div. of Champion Int'l	97
Grey Advertising, Inc.	
Uvalde Rock Asphalt Co.	Cover 2
Glenn, Bozell & Jacobs	
Vinyl Plastics, Inc.	90
Andrews Advertising, Inc.	
Vollrath Company	14
Creative Concepts	
Zero Weather Stripping Co., Inc.	110
Harvard, Peskin & Edrick, Inc.	

Advertising Sales Offices

Stamford, Connecticut 06904: 600 Summer Street 203-348-7531
James J. Hoverman Director of Sales
Harrington A. Rose, District Manager
Pittsburgh, Pennsylvania 15222: Three Gateway Center—Room 1827 412-281-9421
Robert S. McGinnis, District Manager
Chicago, Illinois 60601 2 Illinois Center Bldg., Suite 1326 312-565-1282
Jerrold E. Driscoll, District Manager
Cleveland, Ohio 44113: 614 Superior Ave., W. 216-696-0300
John F. Kelly, District Manager
West Coast 16250 Ventura Blvd. Suite 300 Encino, CA 91436 213-981-4863 (Toll free from LA: 872-2184)
Phil Muller, District Manager
Atlanta, Georgia 30308: 805 Peachtree Bldg.—Room 505 404-874-6427
Harmon L. Proctor, Director of Southern Operations
London, SW1H, OBH, England 14 Broadway John Lankester, Representative
Verviers, Belgium 1 rue Mallar Andre Jamar, Representative
Tokyo, Japan Bancho Koheki 15 Sanyecho, Skinjuku-ku Genzo Uchida, Representative