

OHIO HISTORICAL CENTER BY IRELAND & ASSOCIATES

A PORTFOLIO OF CURRENT PROJECTS BY ULRICH FRANZEN

BUILDING TYPES STUDY: INDUSTRIAL BUILDINGS

SPECIAL REPORT: NEW TRENDS IN AUDIO-VISUAL DESIGN, PART 2

FULL CONTENTS ON PAGES 4 AND 5

# ARCHITECTURAL RECORD

JULY 1971

7

A MCGRAW-HILL PUBLICATION

THREE DOLLARS PER COPY



**One  
step  
and  
it  
all  
comes  
together.**

The setting is a bank—  
where space prevails.  
The floor is Palestra™ Vinyl Corlon®.  
And as it stretches from wall to wall,  
it fills what could have been  
a design void  
and brings functional components  
together elegantly.

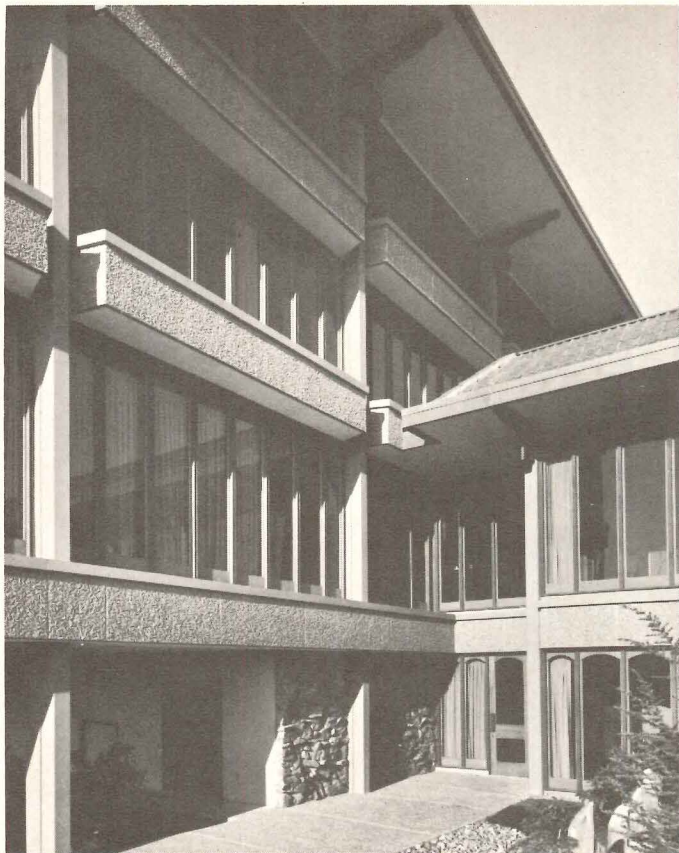
Here, Palestra Vinyl Corlon  
provides a base for relaxation,  
a base for concentration.  
It helps coordinate space and function.  
It adds dimension  
to the concept of "total architecture."

Palestra is just one of many  
Armstrong floors  
that can make an idea work.

For assistance or the  
flooring information you may need,  
please write us.  
Armstrong, 307 Rock St.,  
Lancaster, Pa. 17604.

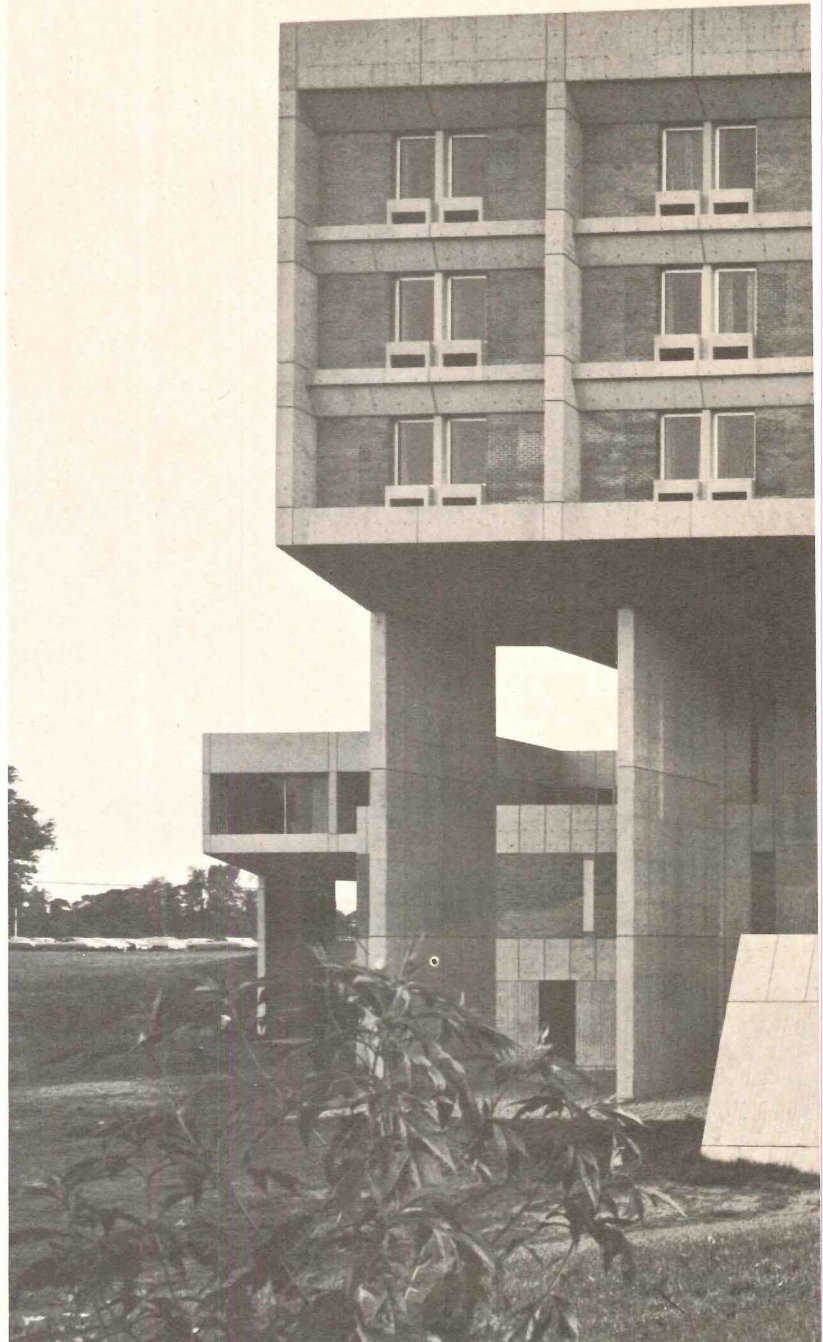
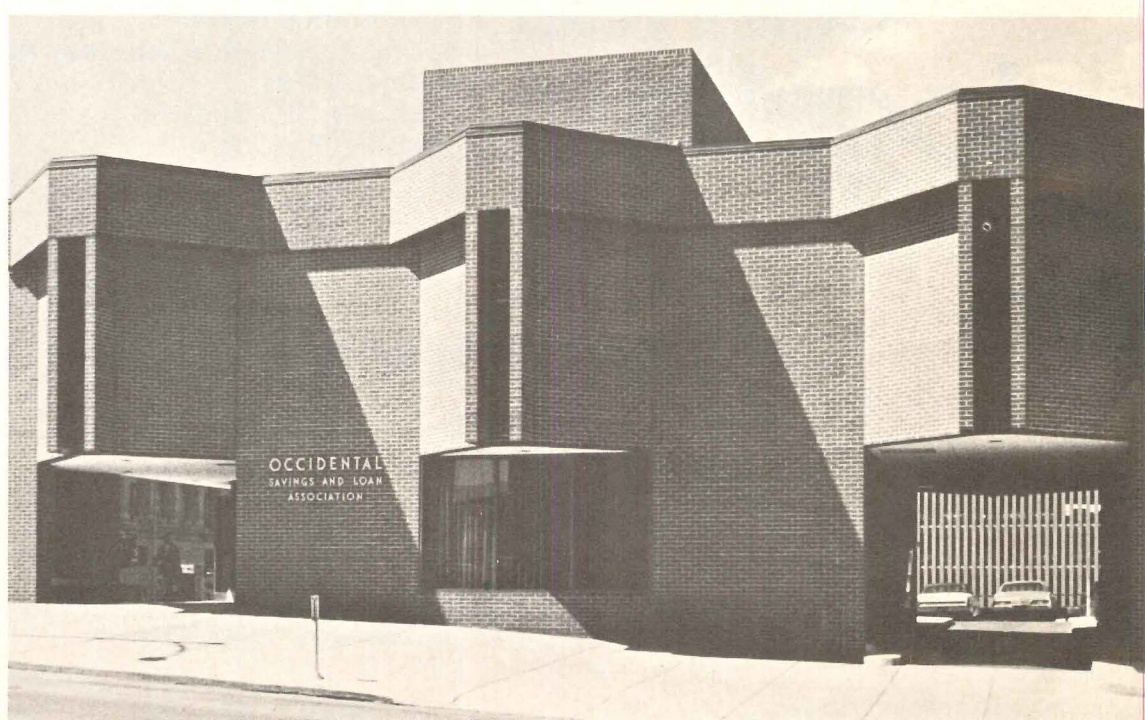
 **Armstrong**

BETHESDA HOSPITAL NORTH, Montgomery, Ohio.  
 ARCHITECTS: Adolf H. Roessling, AIA, of Smith, Hinchman & Grylls  
 Associates, Inc., Detroit, Mich. John V. Sheoris, Project Designer,  
 Sullivan, Isaacs & Sullivan, AIA, Architects and Associated  
 Engineers, Cincinnati, Ohio. GENERAL CONTRACTOR: Dugan &  
 Meyers Construction Co., Inc., Cincinnati. Dover traction elevators  
 installed by Dover Elevator Co., Cincinnati.



Above: NORTHWEST BUILDING, Bellevue, Washington. ARCHITECTS: Jack Woodman and Associates, Bellevue. GENERAL CONTRACTOR: Swanson-Dean Corporation, Bellevue. Dover Oilraulic Elevator with speed of 200 f.p.m. installed by Sound Elevator Company, Seattle.

Right: OCCIDENTAL SAVINGS & LOAN ASSOCIATION, Omaha, Neb. ARCHITECTS: Leo A. Daly Co. GENERAL CONTRACTOR: Lueder Construction Company, Omaha. Dover pre-engineered Oilraulic Elevator installed by O'Keefe Elevator Company, Inc., Omaha.





# Dover Delivers

elevators that satisfy your most critical  
esthetic and performance standards

Dover® Elevator systems are planned to complement your building design. From power source to control to cab decor they provide tenant-pleasing, reliable vertical transportation.

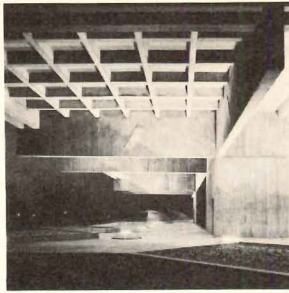
Pre-engineered models offer passenger comfort and minimum time loss features normally associated with more expensive custom-built elevators. And the options on cab finishes let you coordinate colors to building interiors. Elevators designed to the specific job

requirements are available in a range of sizes and speeds to satisfy almost any building. Because Dover delivers comparable high quality in both Oilraulic® and traction equipment, you can combine the two types for maximum efficiency and economy, while dealing with a single elevator supplier.

Call us for assistance on plans and specifications. Full cooperation with the architect, contractor and building

owner is an important part of the Dover Elevator system. Write for literature. Dover Corporation, Elevator Division, Dept. A-7, P. O. Box 2177, Memphis, Tenn. 38102. In Canada: Dover/Turnbull.





Cover: Historical Center, Columbus, Ohio  
Architects: Ireland and Associates  
Photo: Balthazar Korab

**EDITOR**

WALTER F. WAGNER, JR., A.I.A.

**MANAGING EDITOR**

HERBERT L. SMITH, JR., A.I.A.

**SENIOR EDITORS**

ROBERT E. FISCHER  
WILLIAM B. FOXHALL  
MILDRED F. SCHMERTZ, A.I.A.  
ELISABETH KENDALL THOMPSON, F.A.I.A.

**WASHINGTON EDITOR**

ERNEST MICKEL, Hon. A.I.A.

**ASSOCIATE EDITORS**

ROBERT JENSEN, A.I.A.  
JAMES D. MORGAN, A.I.A.

**ASSISTANT EDITORS**

BARCLAY F. GORDON  
JONATHAN HALE  
ANNETTE K. NETBURN

**EDITORIAL ASSISTANT**

DANISE PICONE

**DESIGN**

ALEX H. STILLANO, Director  
ALBERTO BUCCHIANERI, Associate  
JUDY GEIER, Assistant  
SIGMAN-WARD, Illustration  
JAN WHITE, Consultant

**EDITORIAL CONSULTANTS**

EDWARD LARRABEE BARNES, F.A.I.A.  
ROBERT F. HASTINGS, F.A.I.A.  
PAUL RUDOLPH, F.A.I.A.

**INDUSTRY CONSULTANTS**

GEORGE A. CHRISTIE, JR., Economics  
WILLIAM H. EDGERTON, Building Costs

**McGraw-Hill World News**

WALTER A. STANBURY, Director  
20 domestic and  
international news bureaus

**PUBLISHER**

BLAKE HUGHES

**SALES MANAGER**

LOUIS F. KUTSCHER

**CIRCULATION MANAGER**

HUGH S. DONLAN

**THE RECORD REPORTS**

**9 Editorial**

The A.I.A. starts debating goals for architecture—and for America

**33 News in brief**

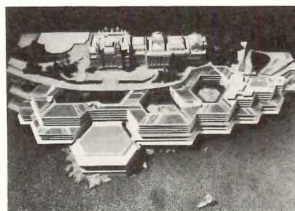
Short items of major national interest as well as award-winners and announcements.

**34 News reports**

A new urban play garden for children in New York; the saving of Henry Hobson Richardson's Glessner house as offices for the Chicago chapter of the A.I.A.; more news on the unionization of architectural employees in California.

**41 Buildings in the news**

Includes American Telephone and Telegraph Company's 1971 Architectural Review Honor Awards; a seven-tiered hotel, convention and luxury apartment house complex in front of the Monte Carlo casino; the Tel Aviv Museum; the Lyndon Baines Johnson Library.



**ARCHITECTURAL BUSINESS**

**55 Slide presentations**

Planning and preparing both script and art work for slide presentations on architectural subjects are described in detail in this four-page article adapted from a forthcoming book by architect Ernest Burden, who has made a specialty of these skills.

**62 Construction outlook: 1971 second update**

Figures for the opening quarter of 1971 show the biggest gains since 1968, with the GNP at last over the trillion mark and a real growth of about \$12 billion. George A. Christie looks behind these figures and resets some of the sights for an over-all upswing later this year.

**64 Indexes and indicators**

Access floor costs

ARCHITECTURAL RECORD (combined with AMERICAN ARCHITECT, ARCHITECTURE AND WESTERN ARCHITECT AND ENGINEER, July 1971, Vol. 150, No. 1. Title © reg. in U.S. Patent Office © copyright 1971 by McGraw-Hill, Inc. All rights reserved. Copyright not claimed on four-color illustration on the front cover and on pages 86, 87, 91, 94, 95, 99. Indexed in Reader's Guide to Periodical Literature, Art Index, Applied Science & Technology Index, Engineering Index, and The Architectural Index. Published monthly, except May when semi-monthly, by McGraw-Hill, Inc. Quotations on reprints of articles available. Every available effort will be made to return the material submitted for possible

publication, but editors and corporation will not be responsible for loss or damage. EXECUTIVE, EDITORIAL, CIRCULATION AND ADVERTISING OFFICES: 330 West 42nd Street, New York, N.Y. 10036. Other Editorial Offices: 425 Battery Street, San Francisco, Cal. 94111; 1249 National Press Building, Washington, D.C. 20004. PUBLICATION OFFICE: 1500 Eckington Place, N.E., Washington, D.C. 20002; second-class postage paid at Washington, D.C. OFFICERS OF McGRAW-HILL PUBLICATIONS COMPANY: John R. Emery, president; J. Elton Tuohig, senior vice-president—services; George H. Reppert, group vice president; vice presidents: Ralph Blackburn, circulation; John

## FEATURES

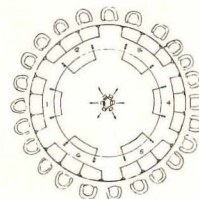
- 85 The Ohio Historical Center**  
One of the most significant buildings in Ohio architectural history houses both the state archives and a museum designed to dramatically convey the highlights of state history to young citizens.
- 107 Franzen: four current projects**  
A bank, a housing complex, a church and a laboratory: a cross section of projects that eloquently expresses a distinguished architect's current design philosophy.
- 117 CIDOC: Alternatives in design and education**  
Robert M. Golder reports on the controversial school in Cuernavaca, Mexico, that has been organized by Ivan Illich. Golder was there in February, 1971, to participate as a "teacher." The school, judging by its catalog of issues to be taken up between June and September of 1971, will continue its involvement in architecture and the environment, formulating alternative techniques for dealing with both.
- 119 Should Pittsburgh save Forbes Field?**  
A last-minute proposal to reuse the now-abandoned home of the Pirates for housing and community purposes has been made to the University of Pittsburgh. Pitt has plans to build new buildings there and finds itself locked in a controversy which institutions all over the country are facing today.

## BUILDING TYPES STUDY 424

- 91 Why not build factories people can enjoy?**  
A collection of design ideas and concepts for industrial buildings which improve the environment.
- 92 The Heberlein and Co. AG**, a plant in Switzerland by Walter Custer, Fred Hochstrasser and Hans Bleiker.
- 94 The Facelle Company**, in Oxnard, California by Albert C. Martin and Associates uses color and bold graphics.
- 96 Fagersta Steels, Inc.**, a Mountaintop, Pennsylvania plant by Bohlin and Powell with a spectacular entrance lobby.
- 98 Gordon Engineering Co.**, a remarkable low-cost building in Wakefield, Massachusetts by Elroy Webber.
- 100 Westinghouse Electric Vehicle Plant**, in Homewood, Pennsylvania by W.L. Roberts is an example of building where the workers live.
- 100 City Blue**, Louisville, by Jasper Ward, is a type of business well-known to architects but seldom presented with such verve.
- 102 Salsbury Laboratories** has built a research center around a courtyard by Perkins and Will near Charles City, Iowa.
- 104 Parkway West Technical School** by Campbell Green Cunzolo seems to grow out of a hilltop near Pittsburgh.
- 104 RCA's Graphic Systems Division**, Dayton, New Jersey by Vincent Kling effects a strong symbiosis between structure and site.
- 106 Acme Wire/Dura-Coat Inc.**, a small plant by Ron Yeo near Los Angeles, puts a garden between factory and office.

## ARCHITECTURAL ENGINEERING

- 123 The planning disciplines for audio-visual facilities Part 2**  
Meeting rooms and classrooms ultimately are judged by how well they facilitate communication, and, more and more, audio-visual media are playing a key role in this process. Part 1 discussed the guidelines for good seeing. Part 2 (conclusion) in this issue covers the requirements for good hearing, the requirements for electronic distribution of video and audio signals, the concept of electronic distribution of slides, film and TV, and suggestions for programming an audio-visual facility.



- 133 Product Reports**
- 74 Office Literature**
- 165 Update**
- 168 Record Impressions**
- 176 Advertising Index**
- 178 Classified Advertising**
- 179 Reader Service Inquiry Card**

R. Callahan, editorial; William P. Giglio, administration; David G. Jensen, manufacturing; Jerome D. Luntz, planning & development; Joseph C. Page, marketing; Robert M. Wilhelmy, finance.

CORPORATION OFFICERS: Shelton Fisher, president; Joseph H. Allen, group vice president—publications and business services; John J. Cooke, senior vice president and secretary; Ralph S. Webb, treasurer.

SUBSCRIPTIONS: Subscriptions solicited only from architects and engineers. Position, firm connection, and type of firm must be indicated on subscription orders; CHANGE OF ADDRESS or subscription service letters should be forwarded to Fulfillment Manager, ARCHITECTURAL

RECORD, P.O. Box 430, Hightstown, N.J. 08520. Provide old and new addresses, zip code or postal zone number. If possible, attach issue address label. Annual subscription prices: U.S., U.S. possessions and Canada: \$7.50 for architects, engineers and other individuals in the fields served, all others \$20.00. Other countries: \$18.00 to architects, engineers; others \$24.00. Single copies \$3.00. UNCONDITIONAL GUARANTEE: Publisher agrees to refund that part of subscription price applying to unfilled part of subscription if service is unsatisfactory. ASSOCIATED MCGRAW-HILL SERVICES: Daily Construction Reports (Los Angeles)—Dodge Building Costs Services—Dodge Construction News (Chicago, Denver, San

Francisco)—Dodge Construction Statistics—Dodge Reports—Dodge Spec-Fax—Management Control Service—Sweet's Construction Catalog Systems—Sweet's Canadian Construction Catalog Services—Sweet's Information and Library Centers—Sweet's Microfilm Systems. THIS ISSUE is published in national and separate editions. Additional pages of separate edition numbered or allowed for as follows: Western Section 32-1 through 32-6. POSTMASTER: Please send form 3579 to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 430, Hightstown, N.J. 08520.



Positive thermal break

# 1600 Curtain Wall

a standard system with custom flexibility

A simple modification by Kawneer's design engineering department easily adapted the standard 1600 Curtain Wall System to an application where floors are anchored in place from the top down...with the bottom story 30 feet off the ground. □ Result for Vancouver's new Westcoast Transmission Building:

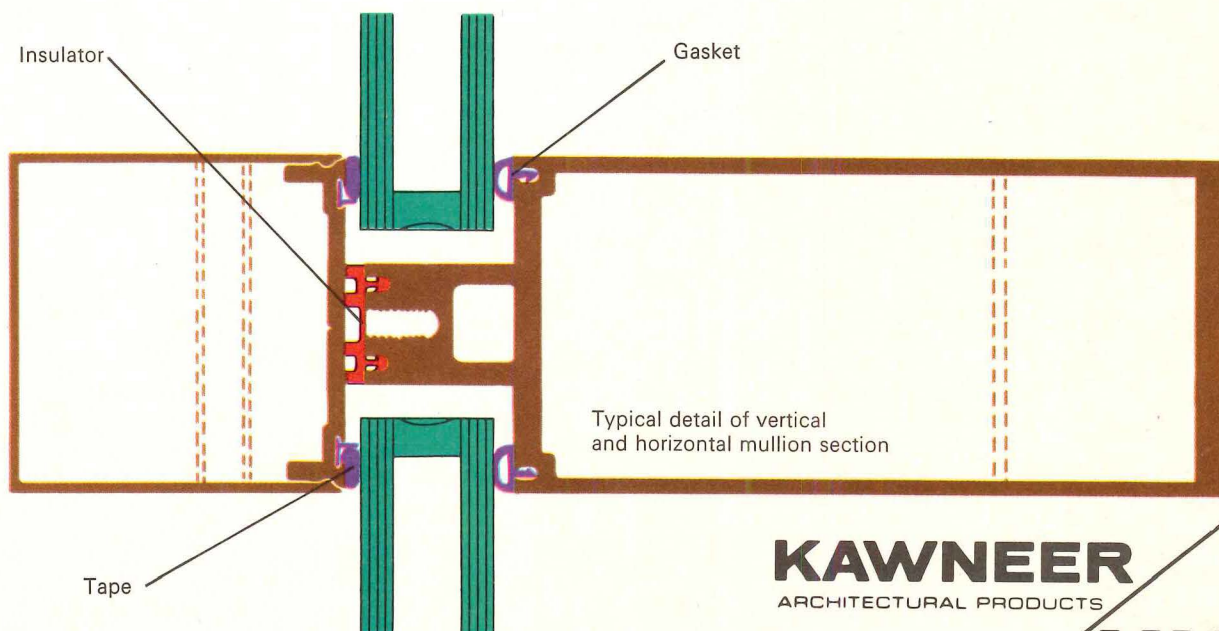


a "custom" application within standard budget requirements. □ That's how easy it is to specify 1600 Curtain Wall... in "ordinary" or "extraordinary" situations. □ And there are important dividends: 1600's positive thermal break eliminates contact between inside and outside surfaces. As a

result, heating and air conditioning costs are lowered and heat transfer (which contributes to interior condensation) is minimized. □ From the design standpoint, 1600's snap-on cover selection allows the architect to create strong verticals, shadow box effects or flush facings. All in optional Permaodic™ Finishes: No. 28

medium bronze, No. 40 dark bronze, or No. 29 black. □ In 1600 Curtain Wall—as in our complete line—you can depend on Kawneer to design out problems from the start... and meet the individual ones a particular project can bring. Attention to detail, that's the Kawneer concept.

Architects: Rhone & Iredale, Vancouver, British Columbia



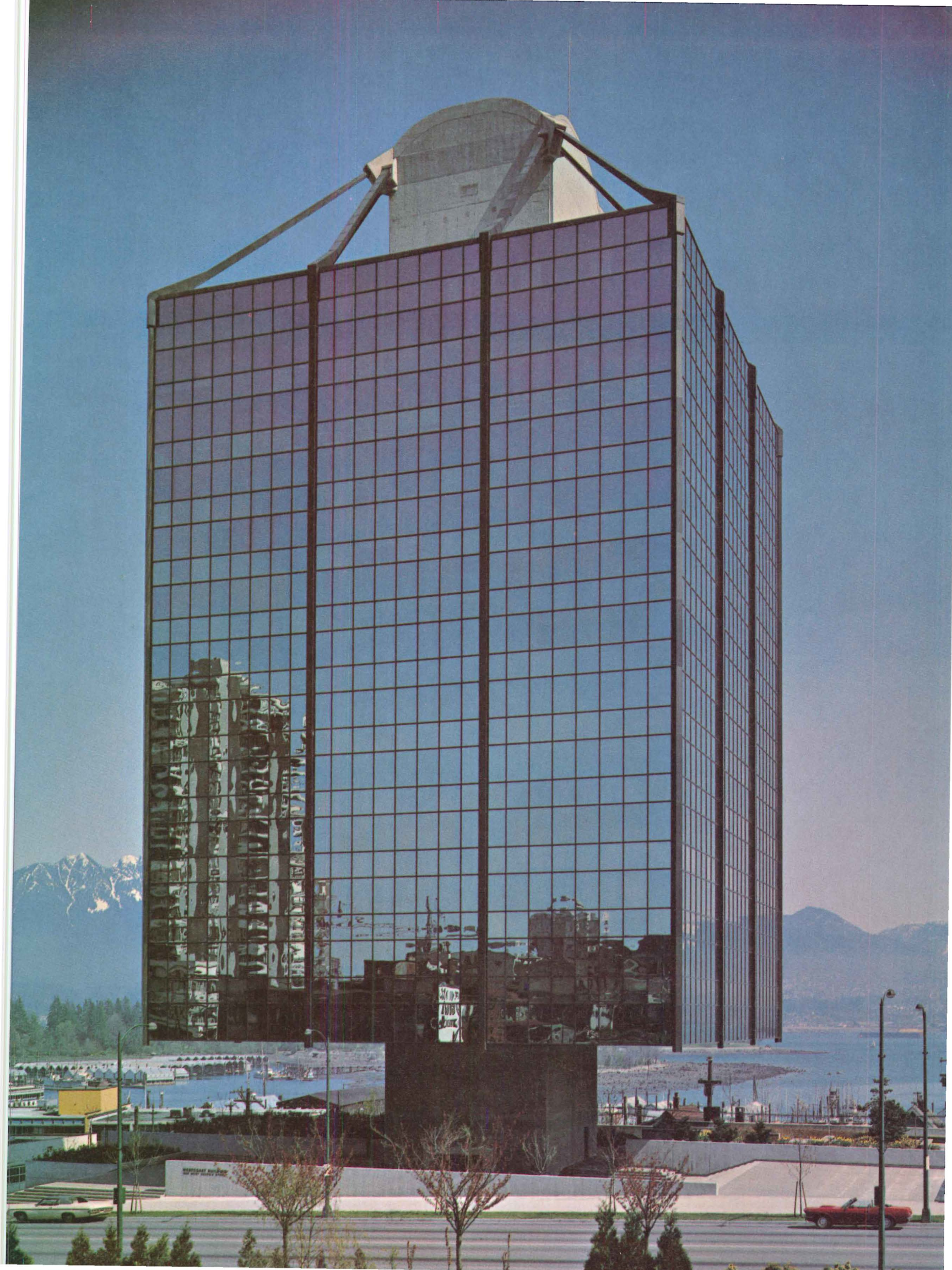
**KAWNEER**  
ARCHITECTURAL PRODUCTS


**AMAX**  
ALUMINUM

For full information, see your Kawneer representative or contact Kawneer Product Information, 1105 N. Front St., Niles, Michigan 49120.

For more data, circle 3 on inquiry card







**No, it isn't natural stone.  
Yes, it is commercial  
floor tile.**

It's TRAVERTINE DELUXE\* ...the new resilient FLINTKOTE™ floor in 9"x18" slabs. Deeply embossed vinyl polymer base with rich veining all the way through gives it that muted natural stone look. And TRAVERTINE DELUXE can be used anywhere — below, on or above ground level.

FLOORING PRODUCTS East Rutherford, N.J. 07073

\*Meets or exceeds the test requirements of Federal Specifications for vinyl asbestos tile.



*For more data, circle 4 on inquiry card*

## The A.I.A. starts debating goals for architecture—and for America

It is great to learn (from a little advance information, since this must be written before the A.I.A. Convention) that the Detroit convention will discuss the first draft of the A.I.A.'s first statement on national policy—a statement that will be, hopefully, a strong force for quality and direction as the industry builds and rebuilds the environment of man.

The policy statement—which next year's president, Max Urbahn, says "will not be, cannot be, and *should* not be a 'finished' document at any point in time," but which rather "must be a continually developing prospectus for public and private action in the interest of the nation, the community, and the individual"—is being developed by a Task Force on National Policy, which has the mission of "making an intensive study of U.S. land-use, settlement patterns, growth prospects, and housing and community needs." Task force head is Arch Rogers of RTKL, Baltimore; and Paul Ylvisaker, Princeton University sociologist-planner, is its professional consultant. Members include A.I.A. executive vice-president Bill Slayton, Ieoh Ming Pei, Jacquelin Robertson of New York City's Office of Midtown Development, and (ex-officio) Urbahn and A.I.A. president Bob Hastings.

Says Urbahn: "We have no idea that the task force will produce 'a solution' or 'the solutions' to the environmental crisis. But we do believe that the kind of evaluation we are attempting can offer a new perspective on the nation's environmental choices, and a new and more humane context for the public decision-making process."

What kind of list of goals is emerging

from the task force meetings? Here is a summary by Urbahn, presumably the basis for convention discussion and comment:

■ "A.I.A. must learn how to involve itself in helping shape national policy on environmental matters."

■ "A.I.A. must learn how to initiate as well as react to legislation, and especially at the national level. It should provide its chapters with tools for equivalent action at state and local levels."

If I may comment on these in advance: Taken together, these two goals seem the most critical and important developments that the architects could undertake. Not long ago, such "political activism" would have seemed unseemly for an august professional body. *But times they is a 'changin'*, and this kind of activism is exactly what is required these days—for activism (and legislative and administrative response to activism) is certainly the way most national, state, and local legislation—for good or evil—is developed.

I'd like to go a step further and use the not-altogether-respectable word "lobby". John Gardner forthrightly calls his Common Cause a "People's Lobby", and it is beginning to move mountains. The "conservation lobby"—though there is some evidence of overprotectionism at the cost of products (like wood) and services (like power) that we need—has indeed developed a real and generally admirable and valuable voice in helping shape government policy. So why can't the A.I.A.—just as individual architects serve as the agents of individual clients—become the agent of all the people in matters of environmental design? For as I wrote on this page

last month, "If—in the matter of how we are to live—the design professionals cannot come up with an agreed upon set of goals and techniques to reach those goals, then who can?"

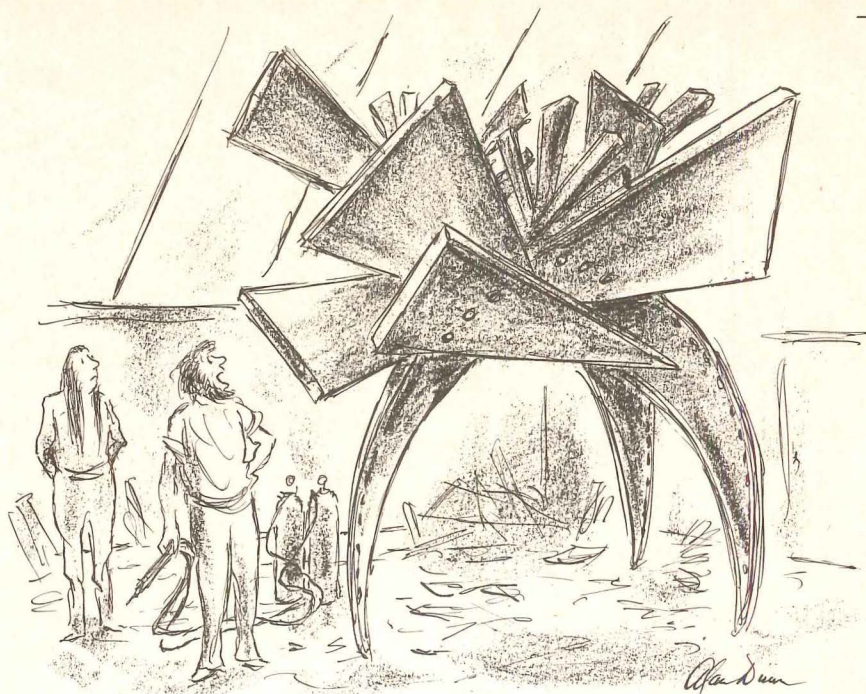
This kind of activism is not unseemly; it is essential. Just one example: It's my view that the *process* developed by the New York State University Construction Fund to get high quality architecture built in volume (RECORD, January 1971) might well be adopted by other states. I'm encouraged in that view by the number of requests for tearsheets of our article, and the number of queries 'phoned in after a brief mention of SUCF's accomplishments in a recent speech. There's a need for promotion of this kind of successful client/architect collaboration on behalf of the people—and why shouldn't A.I.A. (if it agrees) be the lobbyist for the idea of upgraded quality across the country?

Another example (now past): I think the people—all the people—would have profited and perhaps had more and better housing if the A.I.A. had taken a much stronger stand and role in Operation Breakthrough. Mind you, I don't insist that the A.I.A. (or anyone else, individually or as a group) agree with my view, expressed in many earlier editorials, that 1) the big need is *not* for a new technology, and 2) the system used for choosing the winning proposals was shockingly weak. All I feel is that when the government—and the involved consortiums of architects, engineers, planners, manufacturers and other corporations—are going to get that deeply involved in a nationwide program affecting (or possibly affecting) so many people and so much need, the A.I.A. ought to be a lot more involved than it was involved.

So hooray for the proposal that the architects as a group ought to get involved in shaping national policy.

The next two goals listed by Urbahn are also related:

■ "A.I.A. should take housing and land-use policy as first priorities for action. They



"Now all it needs is the university to go with it!"

should be—as in public and political discussion they seldom are—considered together as well as separately."

■ "A.I.A. must strengthen its commitment to social concerns. It should enlist the active support of mature professionals for the dedicated and trail-blazing efforts of students and young professionals in community design centers around the country. . . ."

Well, indeed the A.I.A. should and must. . . . Its commitment to social concerns, through the Task Force on Professional Responsibility to Society, has come a long way since the Chicago convention (RECORD, February, page 9).

But the commitment to housing and land-use policy as "first priorities" would be a new and important commitment. The "land-use" part, of course, relates strongly to the commitment for intervention in the policy-making and legislative area. I think it is appropriate and possible—certainly on the local chapter level, though preferably on the national level—for the architects to take a stand—or at least make recommendations—on the merits of new towns, highway planning (and the Federal Highway Trust Fund), population distribution, the growth of middle-sized existing communities, mining and forestry, air and water pollution, home rule over zoning, green belt recreation areas, and so on and on. The President, in his 1971 State of the Union Message, said "I will propose programs to make better use of our land, and to encourage a balanced national growth—growth that will revitalize our rural heartland and enhance the quality of life throughout America." With that kind of a lead, surely the assembled architects and other design professionals have a few suggestions to make—and ought to make them in the strongest possible terms before we get legislation (which others will have no hesitancy in advising on) that we really don't like very much.

On the matter of greater involvement

in housing, what more can any one say? There's so much bad history behind us, so much lack of involvement by architects (partly the architects' fault, and partly not), so much need, and so much possibility for not just housing but better living for people at all economic scales if the design professions do get effectively involved.

There are three other "goals"—relating to the A.I.A.'s internal communications, to architectural education, and to the role of smaller architectural firms (which properly are recognized "as the backbone of the Institute"). But these subjects, critical as they are, are quite separate, and will be the subject of separate comments later.

Goals—and action to meet those goals. That's what the A.I.A. leadership is calling for. My plea would be for all architects to help study and debate those goals, and when they are agreed upon, do everything they can—as individuals and as members of a large and prestigious organization—to implement them.

For as Max Urbahn told the annual conference of the Gulf State Region in a speech last month:

"It is time for us to remember that human beings have needs other than physical, and that great nations have needs beyond the political and economic. . . ."

"It is time for us to recognize and accept our responsibility for exercising public leadership on all of the issues relating to the designated—that is to say the man-made—environment. It is true that architects do not have all the answers, but it is also true that, as the generalists of environmental design, we are better equipped—by training, experience, and perhaps by instinct—to ask the right questions than are the politicians, or the economists, or the scientific specialists, or the technical specialists."

Right on, Max. —Walter F. Wagner Jr.

(For a press-time summary of Convention activity on the subject of goals, see News Briefs, page 33.)

### Quote by my kind of oil company chairman of the board

From a press release announcing the Fifth International Conference on Urban Transportation, to be held in Pittsburgh September 8-10, this statement by conference chairman (and board chairman of Gulf Oil) E. D. Brockett: "I don't believe we can make cities attractive to people merely by filling new superhighways with more and more cars and by leveling more downtown areas for parking lots.

"Because we are involved in the business of moving people, I and the oil company I work for believe we have a social responsibility to work for the best total transportation programs to benefit all. . . ."

### "... design more of that expensive labor out of the job"

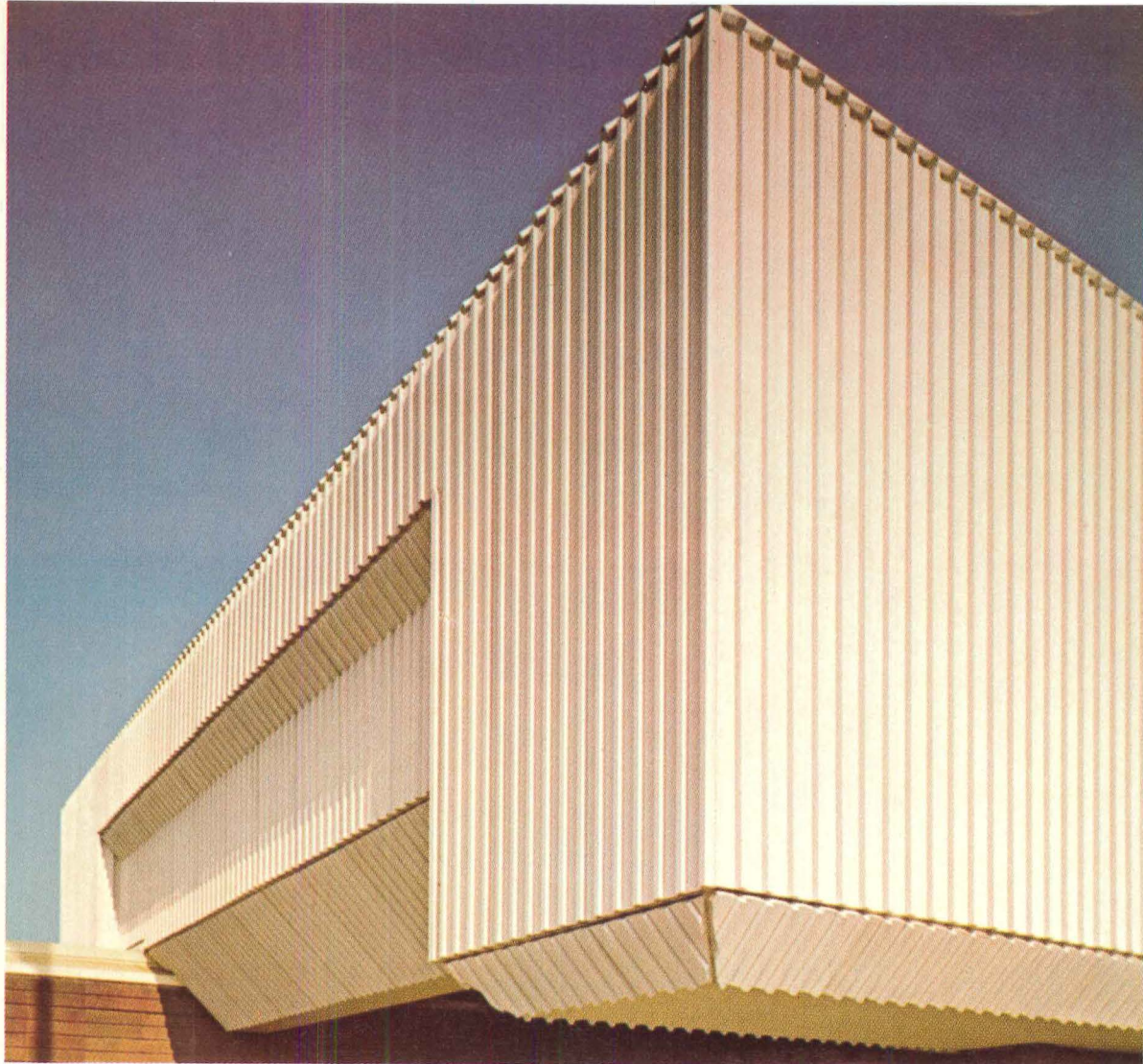
From a speech by George Christie, chief economist of F. W. Dodge, to the Connecticut A.I.A. and Producers' Council:

"What you have to do is design more of that expensive labor out of the project. It can only happen at the design stage. After that, it's too late. Anytime you can substitute an hour's worth of a building product manufacturer's factory labor—at, say, \$5 an hour—for an hour's worth of on-site labor at \$8, the project ends up \$3 less expensive. . . ."

### Weep a tear for the painters of Philadelphia

The President's construction stabilization panel has refused to approve a contract that would give Philadelphia painters a 51 per cent wage increase over two years. And while this news may not fill you with an over-all feeling of elation that sanity is on its way back, construction-industry-wage-wise, you at least have a daring new definition of when enough's enough.

—W.W.



*Bank of America, Fresno, California. Architect: Gene Zellmer, AIA, of Stevens & Zellmer & Associates, Fresno.*

# The massive look of masonry without the massive weight.

## Johns-Manville ACE Facespan® and Corspan™ Architectural Panels.

ACE Architectural panels provide the massive look and durability of masonry at a fraction of the weight and in-place cost. Because ACE panels are factory-made and engineered masonry, large panels of uniform strength with thinner cross sections are practical.

ACE stands for Asbestos Cement Extrusion. In an exclusive J-M process, a mixture of synthetic calcium, aluminum silicate binders and pigments reinforced with selected asbestos fibers is extruded and cured under hydrothermal conditions to form a masonry panel of great strength and dimensional stability.

Surface detail is finer than that of either precast or jobcast concrete. The strength and uniformity of ACE products mean

that panels as thin as  $\frac{3}{4}$ " can be used to replace quarried stone or precast panels three to four inches thick and weighing up to ten times as much.

Less weight means less building mass and lighter framing plus lower material cost. Large labor savings too. The ACE Facespan panels shown here were field cut and fabricated. Erection was simple; hand labor with no cranes or other machinery needed. Building time was cut considerably too.

ACE Facespan panels are for exterior use as curtain-wall panels, spandrels, fascias, etc. Shown is the Ribbed 3 pattern. Facespan is made in lengths of up to 15 ft.

ACE Corspan panels are similar but formed in a hollow-core, tongue and groove configuration to facilitate use as complete walls. These panels, in lengths of up to 20

ft., can provide both the finished exterior and interior surfaces in one unit providing further savings in weight, material, time and labor. Cores can be factory insulated for improved thermal insulation.

ACE panels come in a wide variety of attractive standard patterns. Custom extrusions are also available. Installation methods of all ACE products are simple and fast.

So, for the massive look of masonry without the massive weight, along with economy on material and labor, specify ACE Facespan and Corspan architectural panels.

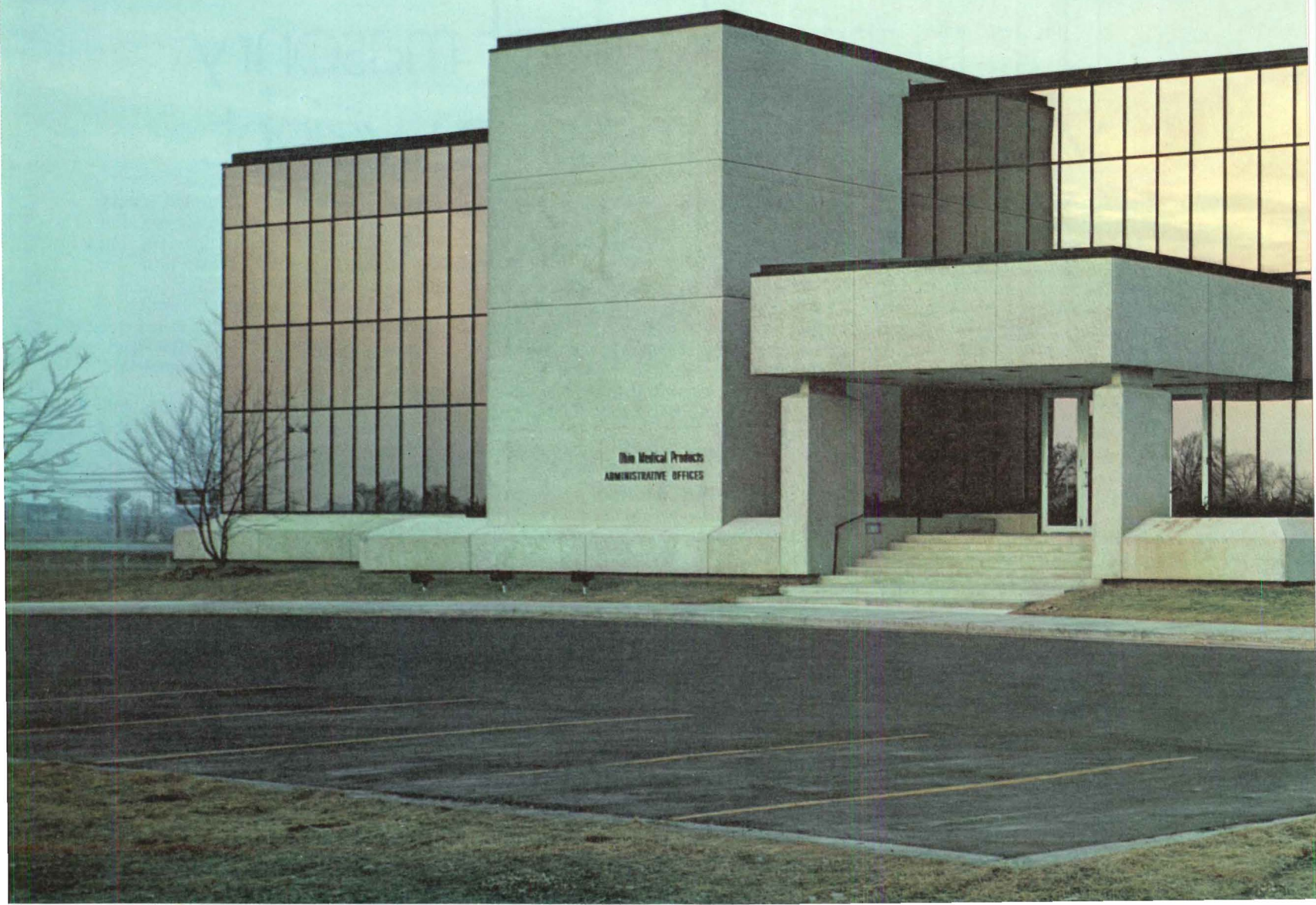
For installation details on the building shown here, and more information on Facespan and Corspan, write: Johns-Manville, Box 29, New York, N.Y. 10001.

**Johns-Manville** 



For more data, circle  
5 on inquiry card

# PPG Solarban<sup>®</sup> Twindow<sup>®</sup> Glass



The Ohio Medical Products Building is simple, striking and uncluttered.

Its PPG Environmental Glass is precise, clean and functional.

The architects for this building chose a PPG Environmental Glass, *Solarban Twindow* insulating glass, and used it as an active design medium.

They told us: "Transparent glass wasn't desirable. To be faithful to this client's image, the design could not be cluttered. It had to offer the same precision as found in the client's product." (Ohio Medical manufactures life-support systems.) "Our design ideal was 'simplified sculpture' and the *Solarban Twindow*

Units, with their high reflectivity, provided this. The reflections are precise and clean."

The *Solarban Twindow* glass also offered high visibility for the building and a constantly changing appearance in the facade.

In addition, the architects and engineers found that the performance of the glass would offset its higher cost by contributing to the reduction of HVAC equipment. This was determined by the computerized Building Cost Analysis, an exclusive PPG service for architects, builders, engineers and owners.

See PPG about *Solarban Twindow* Units—or the others in our family of Environmental Glass for your next building. Early in the design stages. There's a PPG Environmental Glass that you can use as an active design medium to meet any esthetic con-

sideration, solve any environmental problem and provide a solid return on investment. Write PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

#### PPG: a Concern for the Future

Owner: Ohio Medical Products, a division of Air Reduction, Inc., Madison, Wis.

Project Engineers: Mead and Hunt, Inc., Madison, Wis.

Architect: Strang Partners, Inc., Madison, Wis.

For more data, circle 6 on inquiry card



# Before electrical systems get into your buildings, you should get into this manual.

Here's where we bridge the communications gap between design and installation. So? So your carefully developed building designs will become the functional realities you had in mind. As an architect, engineer or building owner, you know how important the proper installation of electrical systems can be. And you know how installations that seem to save money at first can cost a fortune in the end. But how do you know your *next* building's electrical systems will all be installed in a neat and workmanlike manner? To meet increasingly sophisticated design requirements? To assure electrical system efficiency and dependability with minimum maintenance for years to come?

Your free copy of the NECA Standard of Installation tells you—shows you—how a qualified electrical contractor meets design requirements. Reliably, and with maintenance needs kept to a minimum. Mail the coupon or write on your company letterhead for your free copy. A quick reading may help you save money and grief.



National Electrical Contractors Association, Dept. B71  
1730 Rhode Island Ave., N.W.  
Washington, D.C. 20036

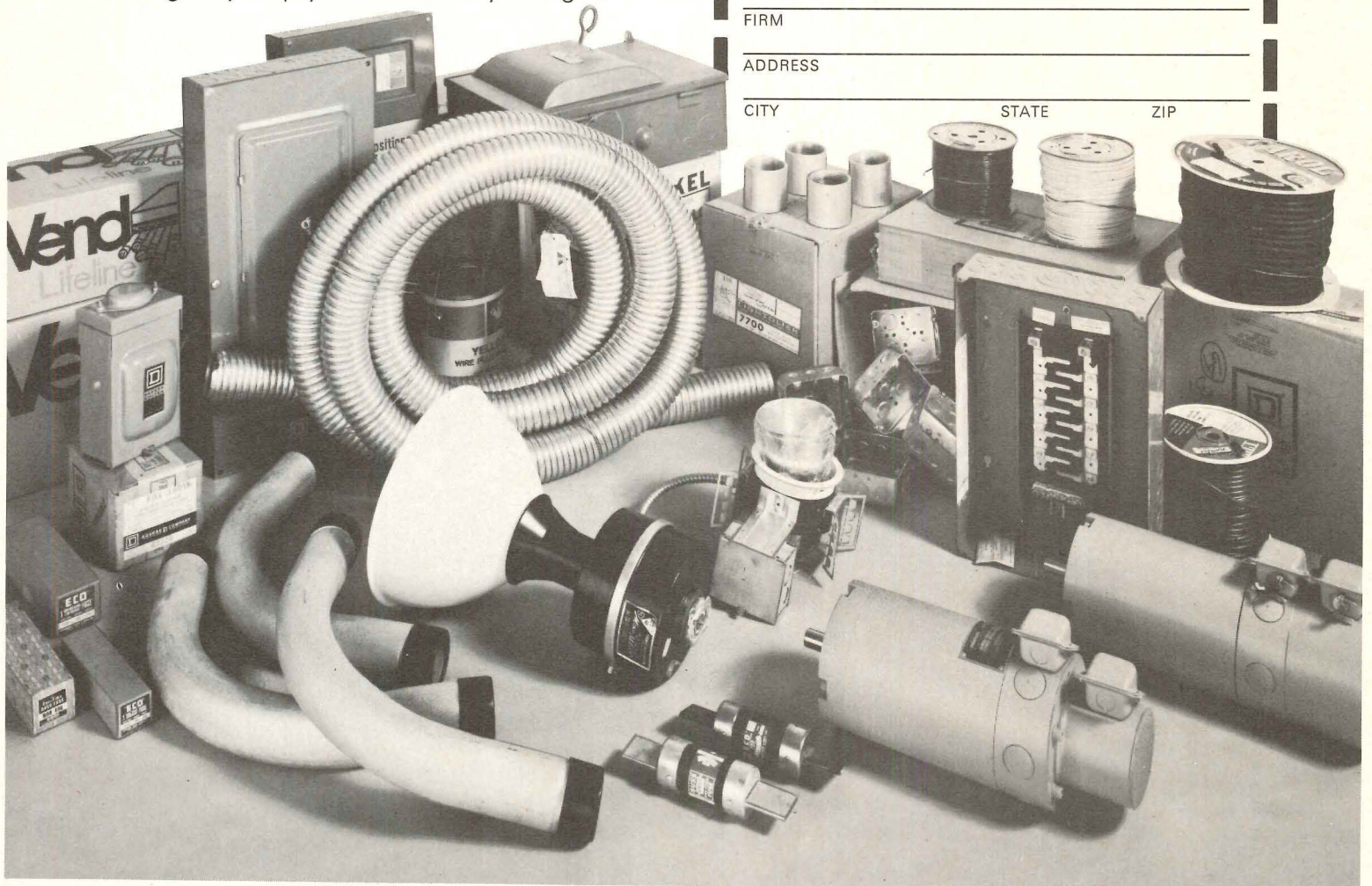
Please send a free copy of the NECA Standard of Installation, containing guidelines followed by qualified electrical contractors in the construction of quality electrical installations in modern buildings.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_





Enthusiasm runs high when you install the quietest, most easily personalized steel office furniture. Lyon comforts include an adjustable typewriter platform that extends or retracts to match individual needs. Lyon modular design lets you combine basic components according to personal preference. Double-wall construction with lavish use of honeycomb filler has such a comforting, muffled sound. Desk and file drawers glide almost inaudibly. There are comforts galore, including a handy stationery pedestal. Convenient

# The sheer comfort of Lyon says you care!

features like the exclusive "lock-in-top" that controls *all* desk drawers. Plus clean, crisp styling; so timely, so easy to live with. Call your Lyon dealer today!

Look for us in the Yellow Pages  
under "LYON OFFICE FURNITURE"

Lyon Metal Products, Inc.  
751 Monroe Ave., Aurora, Ill. 60507

- I'd like the name of my nearest dealer  
 Send my free copy of your full color brochure

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_



**LYON** OFFICE FURNITURE<sup>®</sup>  
Showrooms: New York, Los Angeles, Boston, Aurora, Ill.

When an industrial building doesn't need color for appearance, it certainly won't need it for protection, if you specify aluminum . . . because *aluminum protects itself*. You can save the cost of color by using plain, mill-finished aluminum on the roof and sidewalls. It resists corrosion with its own protective aluminum-oxide film.

As a result, aluminum's weathering rate actually *decreases* with time. Because of this, aluminum keeps maintenance costs low. That's why it's used on port facilities, power plants and buildings in the coal and chemical industries—wherever metal structures must resist the corrosive effects of harsh industrial by-products.

Specify aluminum on your next building. It's a good way to insure long building life and low maintenance costs. For more details, write Aluminum Company of America, 1640-G Alcoa Building, Pittsburgh, Pa. 15219.



**Some buildings  
don't need color.  
All they need is aluminum.**

Change for the better with  
Alcoa® Aluminum



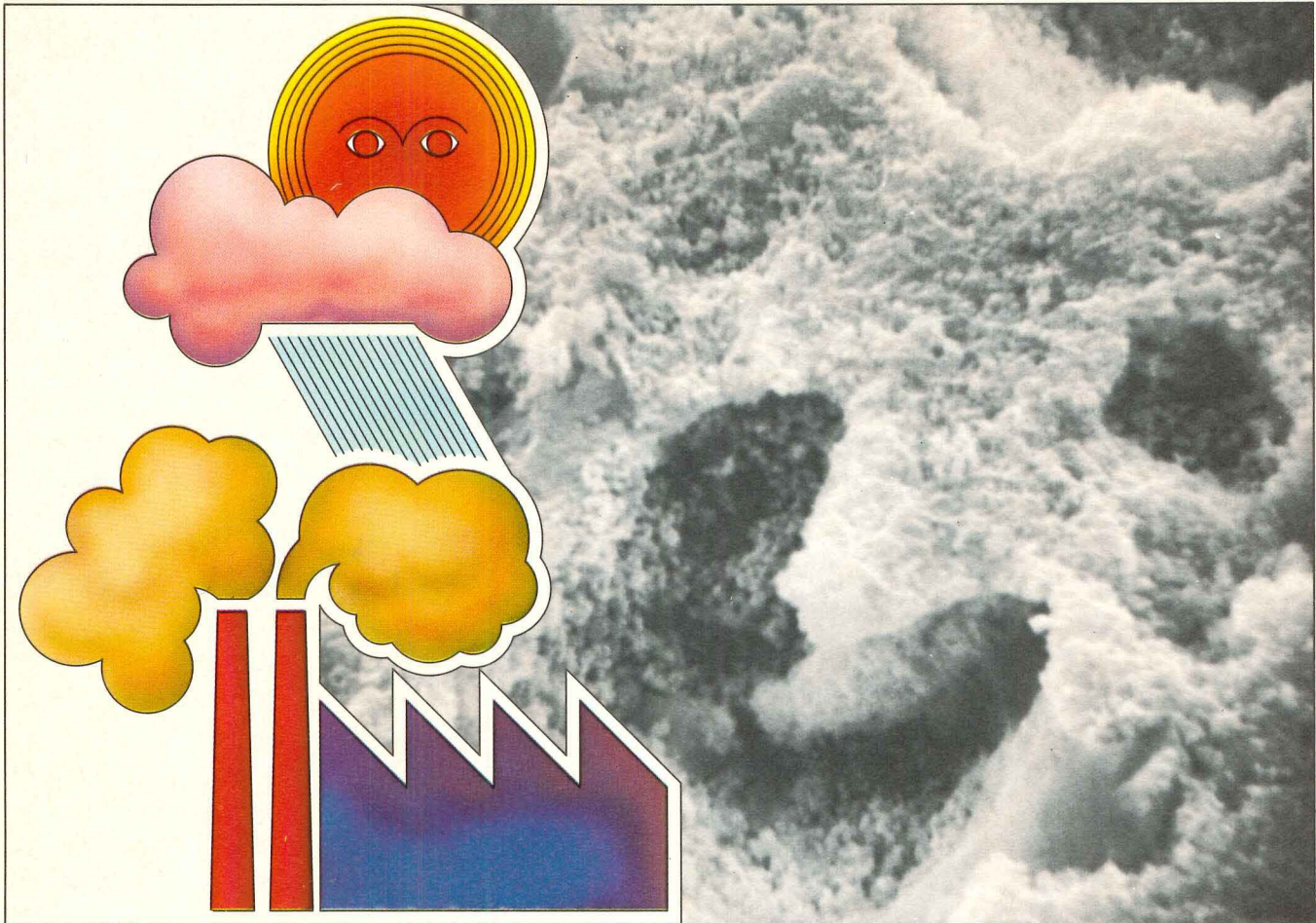
You're looking at a scanning-electron photomicrograph (2500 magnification) of a test sample of metal siding with an organic coating. The sample was exposed to a highly corrosive industrial atmosphere for four years. It typifies what happens to organic coatings with aging. Some reach this point in four years. Some take longer. Note the spongelike texture on the surface of the coating. The coating now retains considerable moisture.

Wet cycles last longer. The hydrophilic cells trap such contaminants as  $\text{SO}_2$ , which, when combined with water, becomes sulfuric acid.

At this critical point in the film degradation, it is important that the substrate be resistant to the corrosive effects of electrolytic action. These effects include chemical attack at the interface . . . underfilm problems causing flaking of the coating and loss of adhesion . . . and staining or streaking.

With aluminum, little electrolytic action takes place. An aluminum substrate helps rather than destroys a color coating. Which is something to consider when you're figuring costs. So, put your color on aluminum. It's the substrate that offers lowest maintenance costs and longest building life.

For more details, write Aluminum Company of America, 1640-G Alcoa Building, Pittsburgh, Pa. 15219.



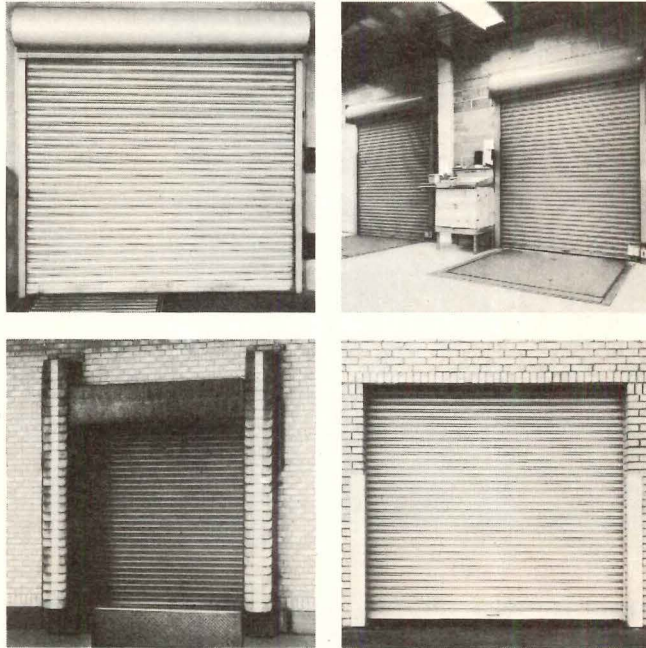
# When you need color, put it on aluminum. Or else.

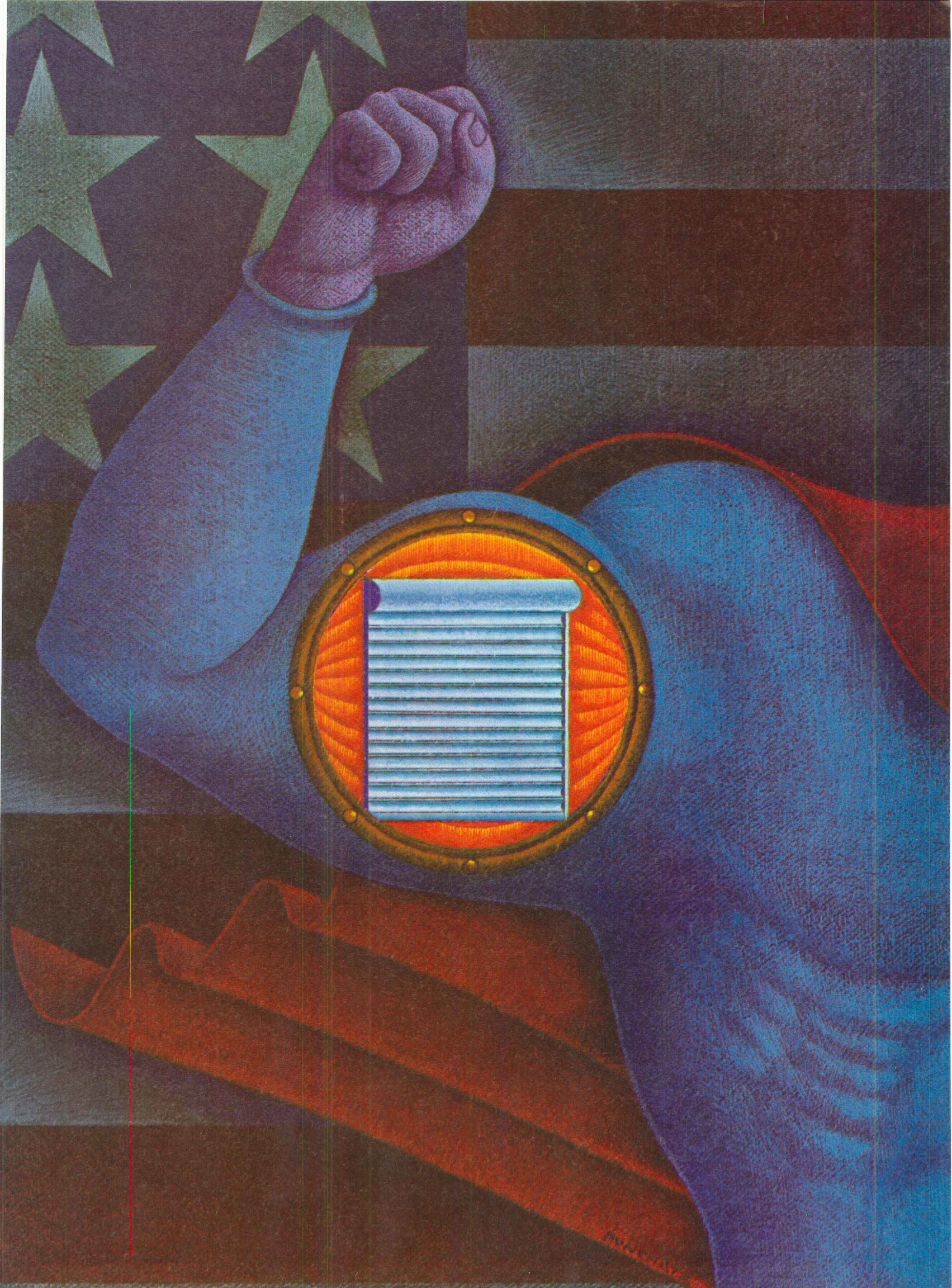
Change for the better with  
Alcoa® Aluminum

 **ALCOA**

# Super Door

That's what our Rolling Metal Doors are. They're versatile. Durable. Long-lasting. In short, Super. □ Rolling Metal Doors and Grilles are part of the vast array of doors and related equipment offered by our nationwide network of factory-trained distributors. When you specify any Overhead Door product, you do so with the utmost assurance that it will be delivered to your jobsite on time. □ Special Engineering and Design Service. . . new product development. . . full one-year warranty on all products. . . consistently top-drawer quality — these characteristics reflect our basic business outlook at Overhead Door. We market the greatest variety of door designs, functions, and materials from one source in America. And we've been doing it for 50 years. □ Specify Overhead Door products. You can live with them. Because they're Super.





# Wilson-Art



Solid Ivory Yellow



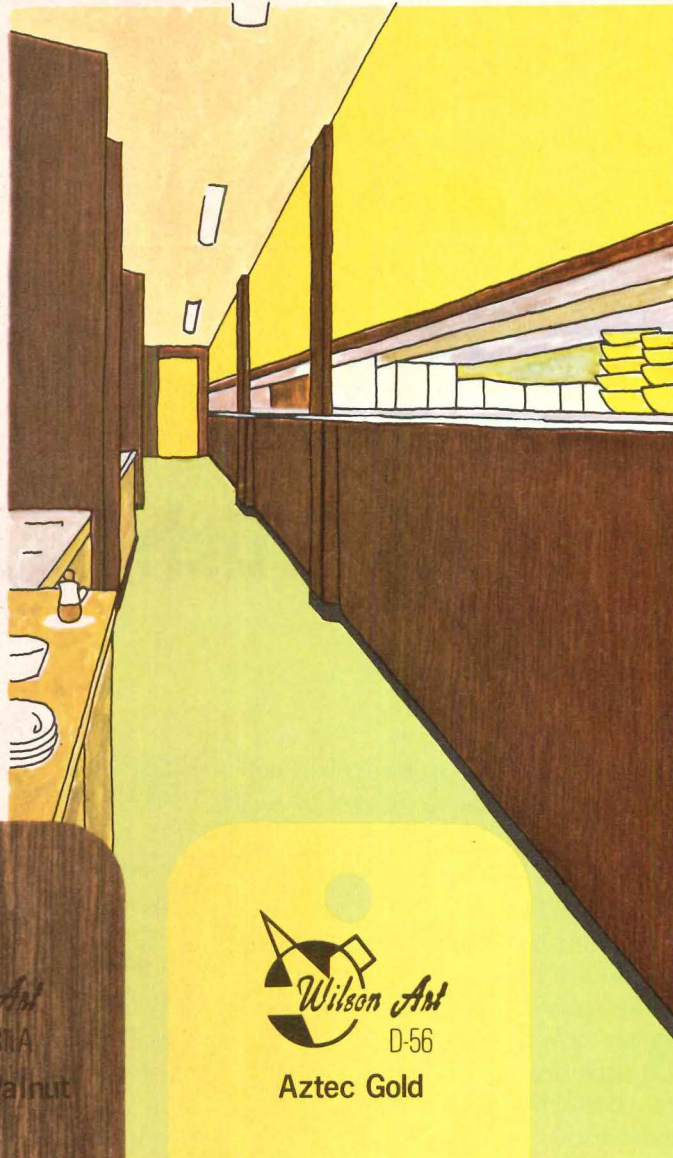
Solid Mandarin Red



Solid Pumpkin



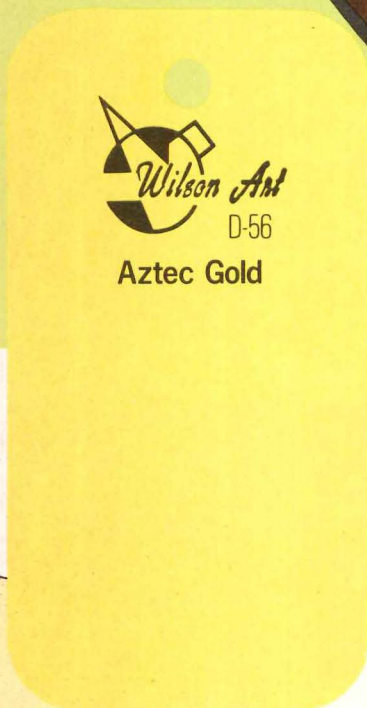
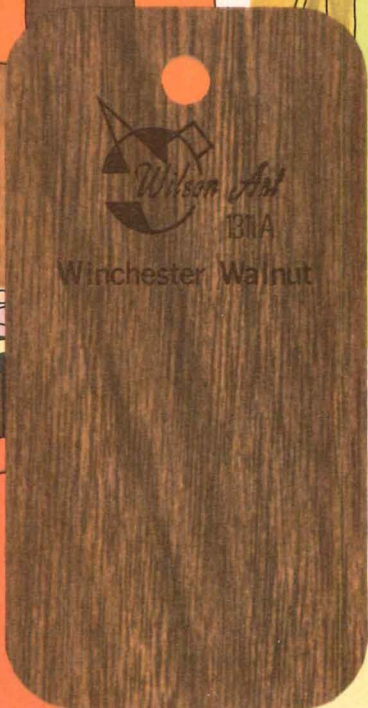
the one laminated plastic to specify  
when you are concerned with the *total* interior.



Authentic woodgrains play off vibrant solids, combining esthetic desirability with environmental function and low maintenance.

"Up Front" Wilson-Art beauty says, "Relax and enjoy," while Wilson-Art durability promises easy care.

"In back" Wilson-Art is the natural choice for a sanitary food preparation area with economic benefits.



For the finest service in the industry, contact the contract specialists—Wilson-Art Architectural Design Representatives—the helpful ones!

Atlanta	404 373-2223
Chicago	312 437-1500; 312 625-7590
Los Angeles	213 723-8961
Miami	305 822-5140
New Jersey	609 662-4747; 215 923-1313
New York	914 268-6892; 212 933-1035
San Francisco	415 782-6055
Seattle	206 228-1300
Temple, Texas	817 778-2711

When the chips are down,  
you can depend on Wilson-Art.



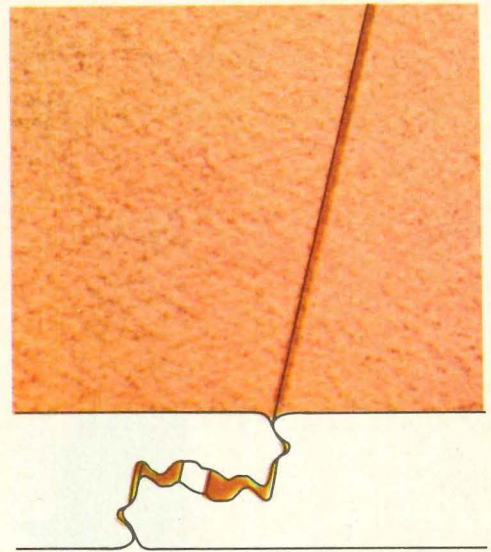
RALPH WILSON PLASTICS COMPANY . . . TEMPLE, TEXAS  
ARCHITECTURAL PRODUCTS DIVISION **DART**  
INDUSTRIES INC.

# Foam-Line walls

## Urethane insulation

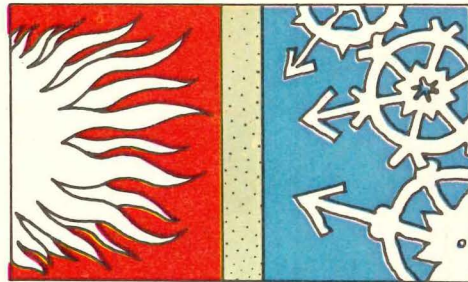
## Porcelain enamel finish

### \$3 sq ft installed



**FOAM-LINE:** An architectural wall system with urethane insulation plus porcelain enamel at a cost within range of an ordinary insulated and painted panel.

Foam-Line's low cost is possible because of a brand-new, continuous, in-line foaming, bonding and finishing process Robertson developed. This new process, plus Foam-Line's low installation costs, account for the tremendous savings. But there's more, including:



**THERMAL PERFORMANCE:** Heat transmission through Foam-Line is three times lower than conventional masonry. The U factor: .08. The secret: the 2" thick urethane core and the non-conductive side joints.

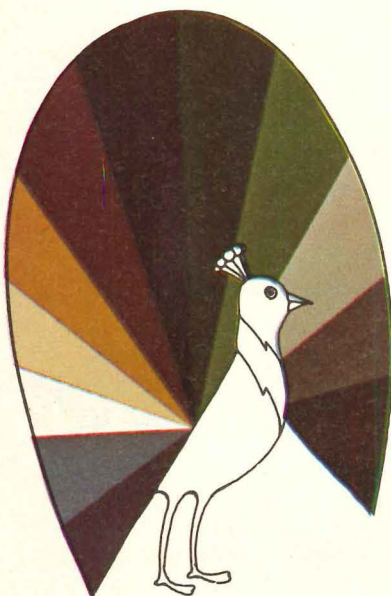


**U.L. LISTED FOAM-LINE** is the first panel to qualify for listing in a new category established by Underwriters' Laboratories, "Insulated Wall Panels." File R-5541.

**FLAT, MASSIVE APPEARANCE:** The hairline Foam-Line joints are so flush and tight they're hard to see from a few feet away. And the bonded urethane prevents "oil-canning," preserves a billiard table flatness. Long lengths (up to 30 ft) eliminate end joints for most applications.

**VITRALUME® FINISH:** When we say permanent, we mean permanent. Robertson's Vitralume—porcelain enamel on aluminized steel—is permanent, will not chalk and it's available in a spectrum of handsome colors.

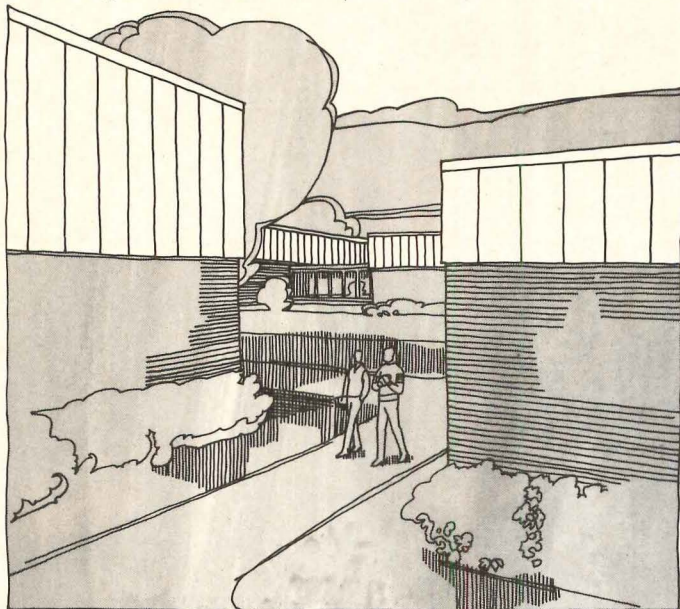
**ALL THIS FOR \$3 SQ FT\* INSTALLED:** To find out what Foam-Line will cost on your building, write H. H. Robertson Company, Room 1118, Two Gateway Center, Pittsburgh, Pa. 15222.



\* Costs shown are based on average material area, complexity and installation. For a quotation on a specific project, contact your local Robertson representative.

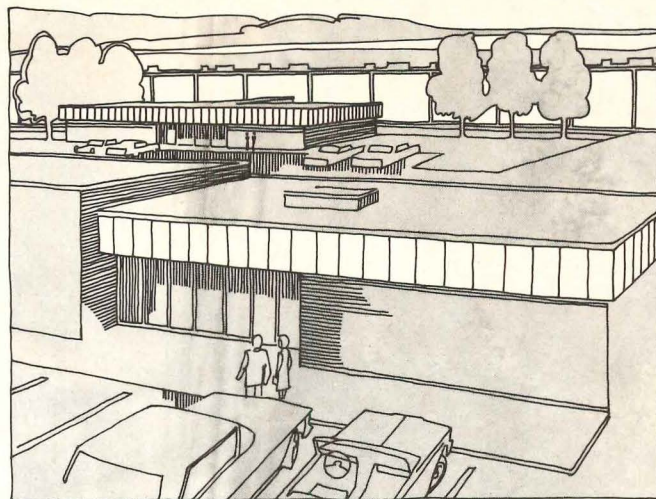


Austin Vocational Technical School, Austin, Minnesota.  
 Architect: Wick, Stansfield, Kagermeier/ Architects, Inc.  
 This building in the cold country takes advantage of Foam-Line's insulating performance. The installed cost of the basic wall was increased slightly by special extruded trim, but still a bargain in insulated wall systems with Vitralume® surface.

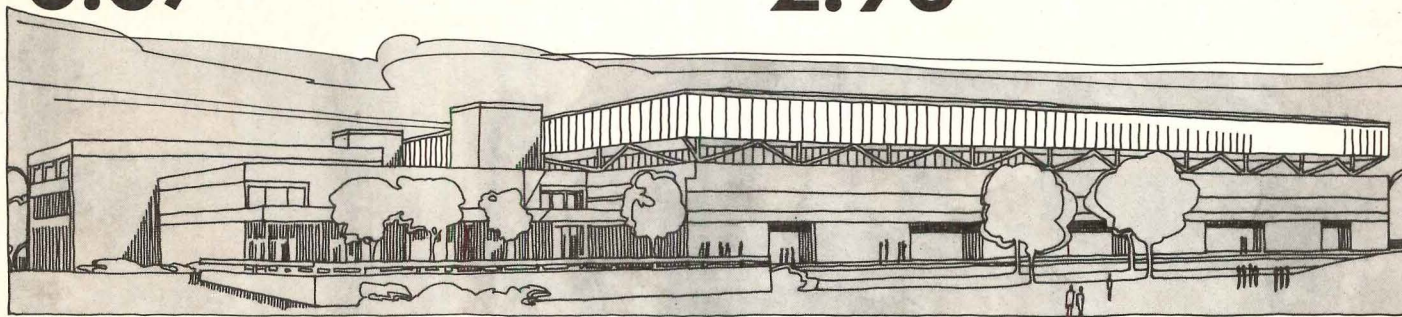


**\$3.07**

Rainbo Bread Company, Aurora, Ill.  
 Architect: Engineering Department  
 Campbell Taggart Inc.  
 27,500 square feet of Foam-Line walls, Vitralume® finish, installed by Robertson for \$2.98 P.S.F. Foam-Line delivers its optimum efficiency in such long-run, long-span applications.

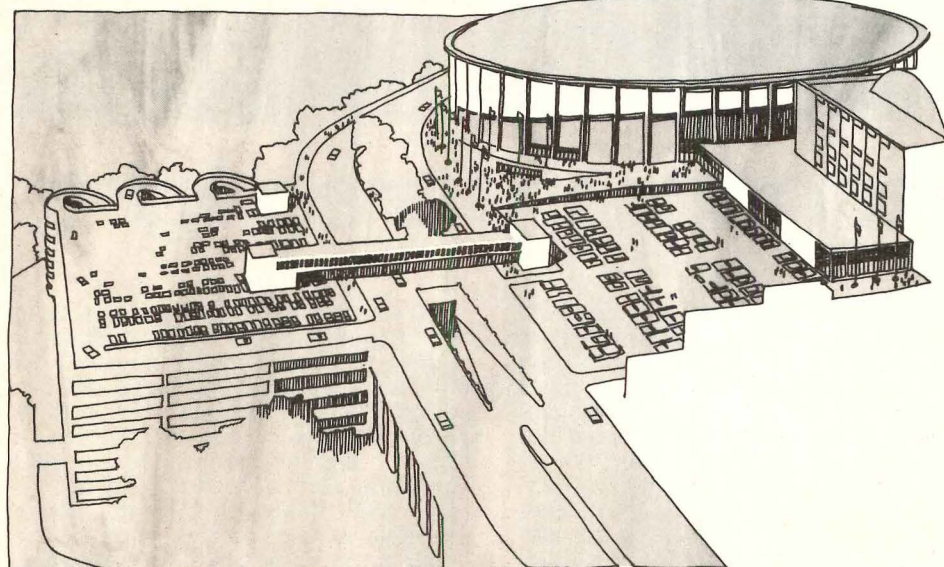


**\$2.98**



**\$3.54**

Rockland Community College, Suffern, N.Y. Architect: Schofield & Colgan.  
 Here Foam-Line is used as a fascia band. These short panel lengths increase the proportion of erection cost, compared to a more typical long-span wall. Even in this limited application the cost compares favorably with other fascia materials offering long term maintenance economy. Cost \$3.54 P.S.F., installed by Robertson; Vitralume® finish.



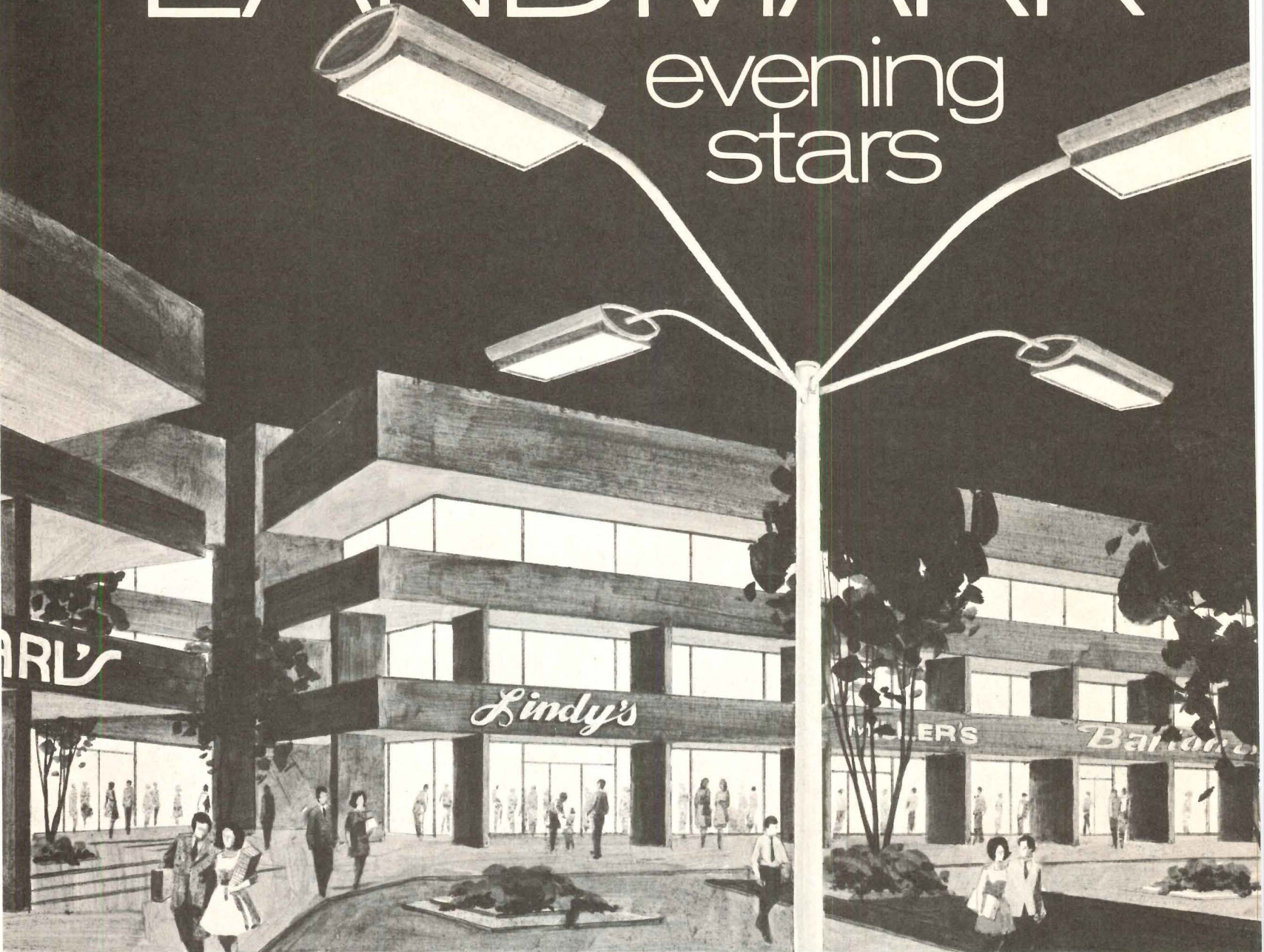
**\$2.65**

St. Paul Convention Center, St. Paul, Minn.  
 Architects: Haarstick, Lundgren & Associates;  
 The Cerny Associates;  
 Grover Dimond Associates;  
 Brooks Cavin, Architect.  
 The main arena is clad in 57,000 square feet of Foam-Line wall system, with Durasil® finish. Installed by Robertson for \$2.65 P.S.F.

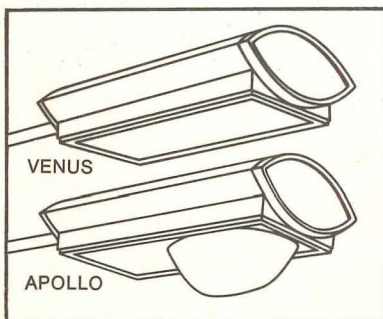
**ROBERTSON**

# LANDMARK

evening  
stars



## New contemporary area lights



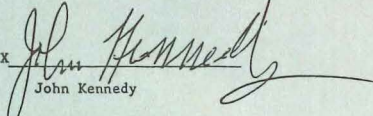
ITT Landmark offers another beautiful way to end the day with two versions of this advanced style, contemporary area luminaire. One with conventional glass refractor, one with flat, impact-resistant, tempered-glass diffuser. Whatever the application, shopping centers, parking lots, auto sales areas, and general outdoor lighting, this new series of luminaires will enhance the area by day and produce maximum illumination after dark. Mercury vapor in 100, 700 and 1000 watts and metallic halide in 400 and

1000 watts. Controlled light patterns with conventional refractors available in various IES types. The innovative flat diffuser produces pleasant, uniform lighting. Other features are: weather-proof gasketing, hinged aluminum housing, slip-fitter mounting, stainless steel hardware. Fixture is furnished in two-tone combinations of decorator colors. Available with or without photoelectric controls. For complete information, contact ITT Landmark Lighting, Southaven, Mississippi 38671.

LANDMARK LIGHTING **ITT**

For more data, circle 11 on inquiry card

# "Leisure World wanted a quality faucet that needed a minimum of maintenance. So I got them 50,000 Delta faucets!"

x   
John Kennedy

Kennedy Mechanical Contractors

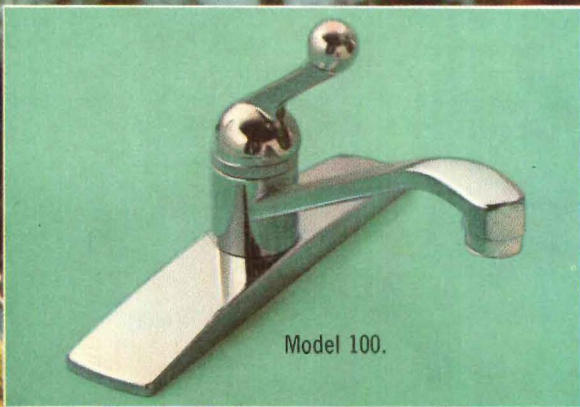
Leisure World is just that. A beautiful retirement community in California that's become a new living concept in America. And for the maintenance crew and the plumbing contractor, it's even more of a leisure world. Because during the 7-year history of Leisure World, they've hardly had to repair or replace any of the community's 50,000 Delta faucets.

But beside its great maintenance record, Delta single handle faucets were chosen because of their ease of operation. And because they look as good as they work.

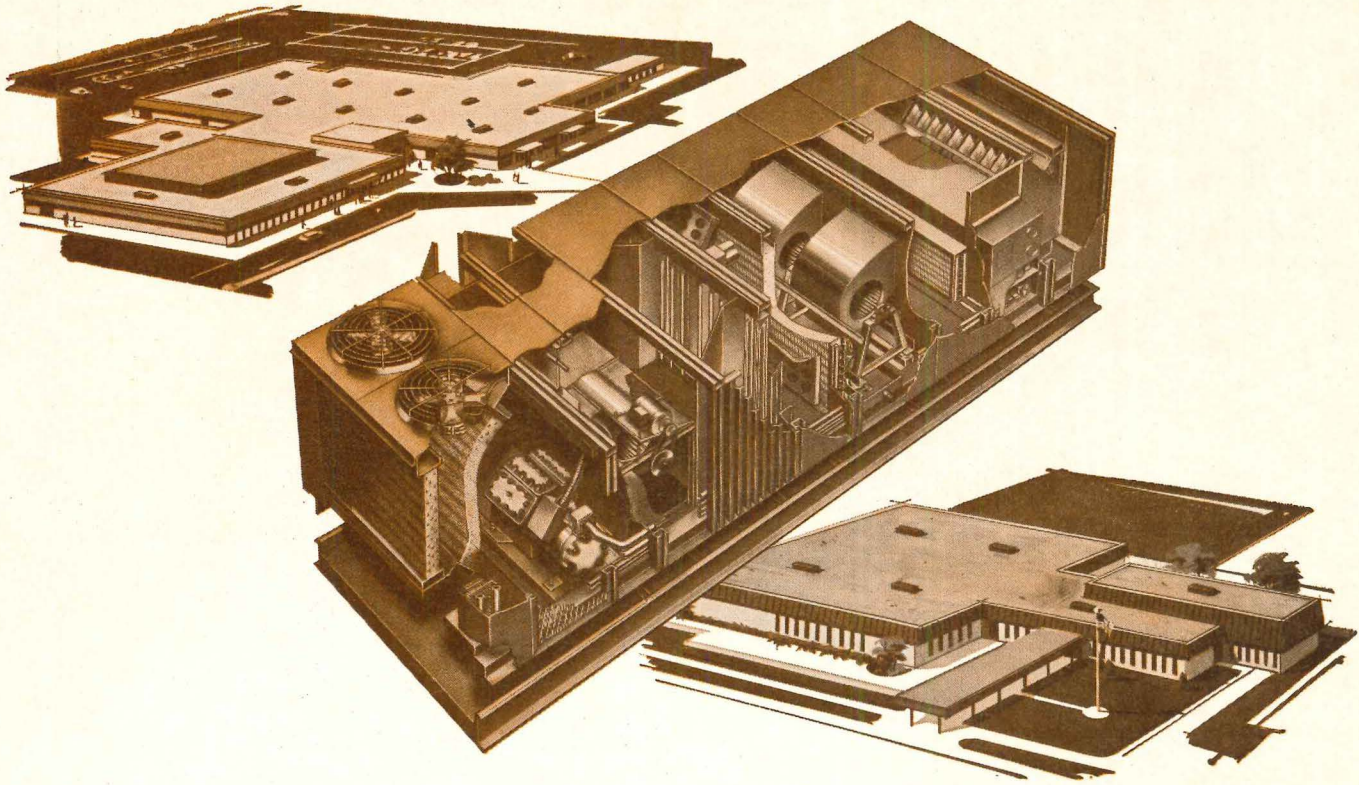
As John Kennedy said, "Seven years ago when Ross Cortese, the developer of Leisure World, awarded me the project, he said he wanted a Class A job. And with Delta faucets that's just what he got."

We can tell you even more about the full line of trouble-free Delta faucets. Just write Delta Faucet Co., a Division of Masco Corporation, Greensburg, Indiana 47240.

**Delta Faucet.  
Simply beautiful.**



For more data, circle 12 on inquiry card



# New McQuay® Multizone Roofpak® Units for Commercial-Industrial-Institutional Applications

McQuay's new ROOFPAK® Multizone cooling and heating units offer maximum air delivery capacity with unmatched flexibility. Capacities are based on 400 CFM per ton and the CFM can be varied plus or minus 20% from this standard. Now, air volume is available for high sensible load situations. Cooling capacities range from 15 to 40 nominal tons with gas furnace heating capacities from 400 to 600 MBH input.

Units are designed with draw-thru evaporator cooling coils for positive dehumidification control. Optional hot-gas reheat coils are available

for heating requirements, whenever refrigerant cycle is operative. Economizer cycle, centrifugal return air fan and roof curb are optionally available.

All units are shipped factory assembled, completely piped and wired. In keeping with McQuay quality, they're constructed of heavy gauge galvanized framing attached to a rugged base. Easily removable outer panels are fabricated of galvanized sheet metal, bonderized and painted with baked on enamel. Completely weatherproof. Simplified control system; each equipped with

a foolproof disconnect to prevent electrical accidents. Resiliently mounted compressors and isolated blower section virtually eliminate vibration and noise transmission.

Examine these features and be assured, you can "Look to the Leader" McQuay for complete environmental control in one package.

For complete information, ask your McQuay representative for the ROOFPAK® Multizone Heating and Cooling Units Catalog 202 or write: McQuay, Inc., Box 1551, 13600 Industrial Park Blvd., Minneapolis, Minnesota 55440.

Look to the systems leader . . .



McQuay®

For more data, circle 13 on inquiry card



## There's only one fence that gives you quality and features like these.

Only Anchor® Fence gives you Anchor quality—plus all these famous Anchor features.

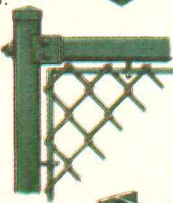
Take Anchor Permafused® vinyl-coated chain link fence, shown above. Many coated chain link fabrics are made with extruded vinyl. It's like slipping wire into a soda straw. Not Anchor. The tough plastic coating on Anchor Permafused is permanently fused to heavy steel wire in a special Anchor process. There's no room for moisture to form and corrosion to start between the wire and the coating. It's virtually unaffected by extremes of weather or corrosive atmospheres.



The vinyl-coated square corner posts, gate posts, and end posts are an Anchor exclusive. They're stronger than round posts of the same size, present a better appearance, and eliminate the need for ladder-forming bands used with round posts.



Another Anchor exclusive is the vinyl-coated gate. It opens a full 180° with a latch that works easily and efficiently yet can be locked quickly and positively. The rugged square-member construction provides rigidity and freedom from sagging, as well as a more handsome appearance.



Anchor vinyl-coated H-beam line posts are self-draining. Unlike pipe posts, condensed moisture drains away to stop interior corrosion before it starts.



And only Anchor gives you such a wide selection of fences. Permafused is available with or without barbed wire, with or without top rail. (The model illustrated above provides an extra measure of security because there is no top rail to be used as a climbing handhold.) Other Anchor Fences include galvanized steel chain link, aluminum chain link, Anchorweave, all-aluminum Privacy Fence, and many others.

Now then. If those aren't reasons enough to buy Anchor Fence, they should at least be enough for you to call your local Anchor man. He can tell you more.

(If you don't do anything else, send the coupon for a FREE color booklet full of exciting fence ideas.)



BEST SELECTION BEST PROTECTION



Send for FREE 16-page color booklet containing fence specifications and money-saving fence suggestions.

Mail coupon to: Anchor Fence, Dept. C-07  
6500 Eastern Avenue, Balto., Md. 21224

Name \_\_\_\_\_ Title \_\_\_\_\_

Firm \_\_\_\_\_

Street \_\_\_\_\_

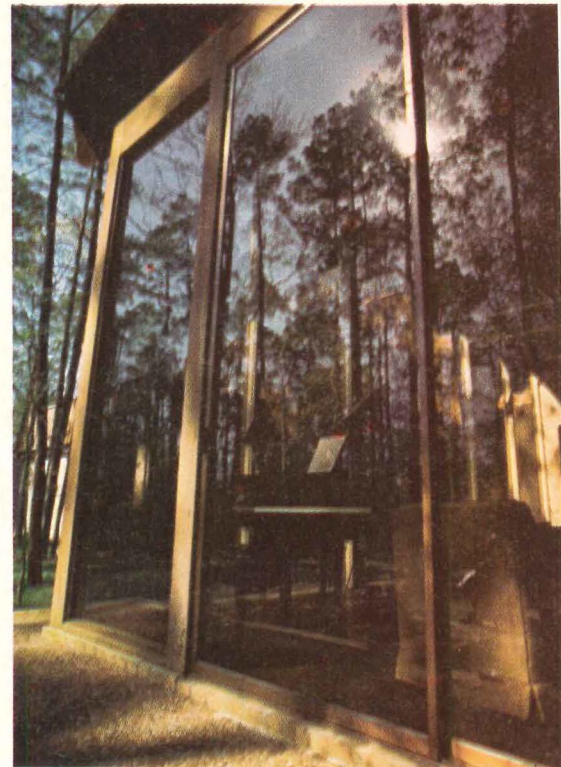
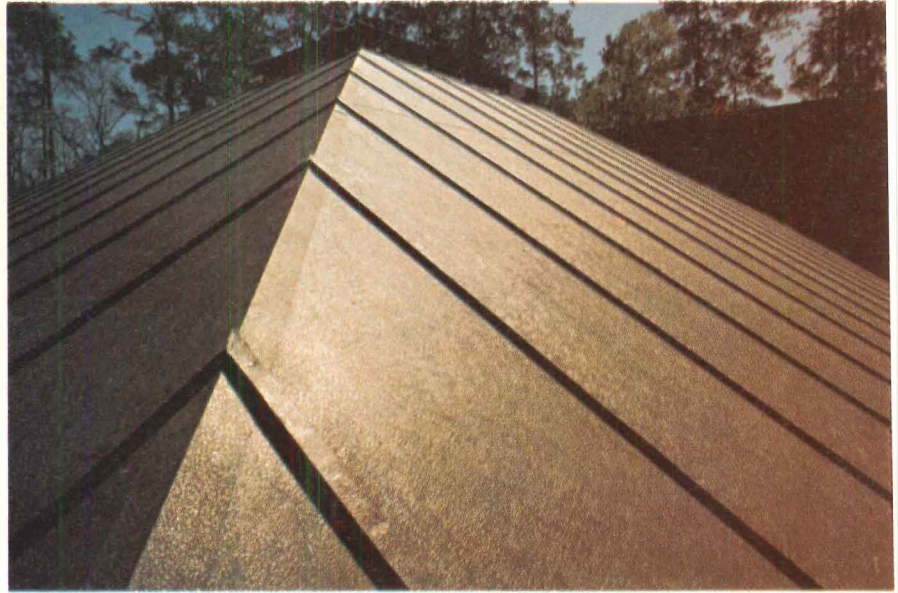
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Anchor Fence, a division of Anchor Post Products, Inc.  
Plants in Baltimore, Houston, Los Angeles; 48 branch offices

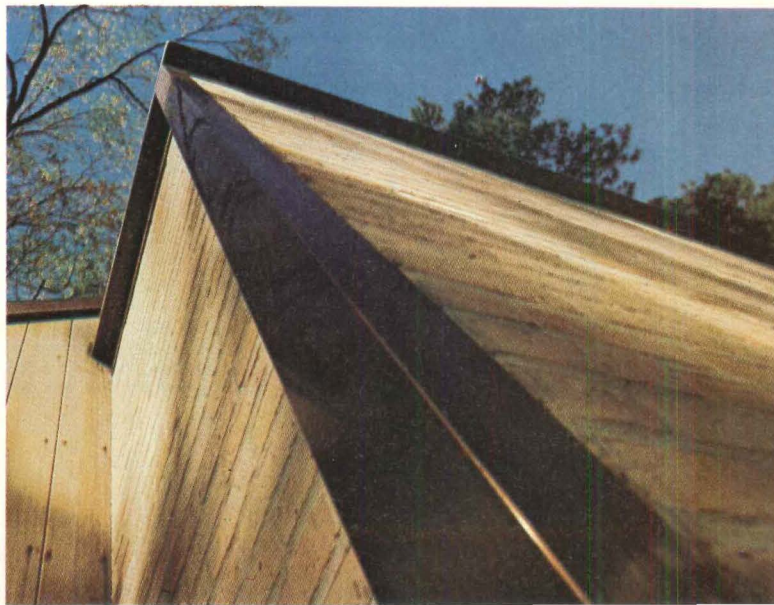
# Copper sheet. Obviously beautiful.

Here are some economical uses for copper that may surprise you. Using standard sheet copper. Available now. Every bank, restaurant, hotel, office building, house of worship and residence can be made more attractive and elegant with the quality features of copper. Feast your eyes.

**New copper/roofing system** (right). Large copper sheets bonded to plywood. Quick, easy to apply. Needs no special tools. **Clear film-finished copper roof** (below). Copper sheet laid over plywood deck in a vaulted design. Secured with hidden clips. Factory coated to preserve natural color. **Bronze sliding glass doors, windows** (below right). Brings the outdoors indoors. Beautifully framed in roll-formed bronze, a rich looking copper alloy. Quiet elegance that lasts.



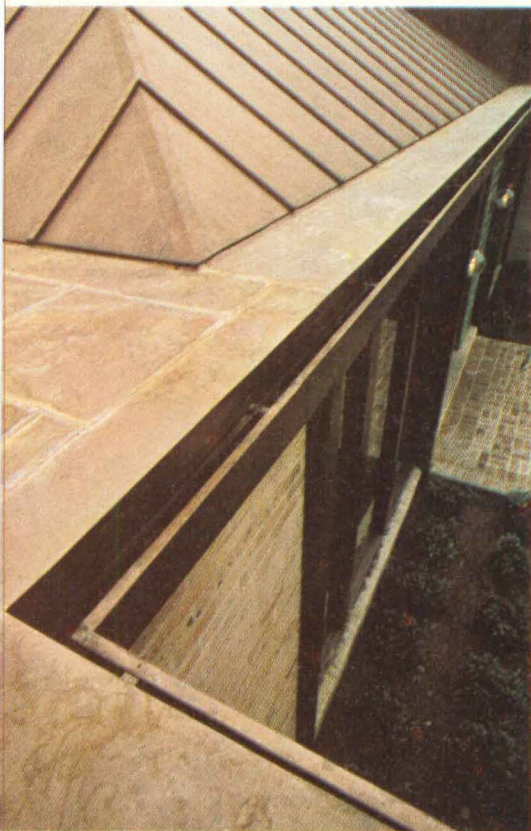
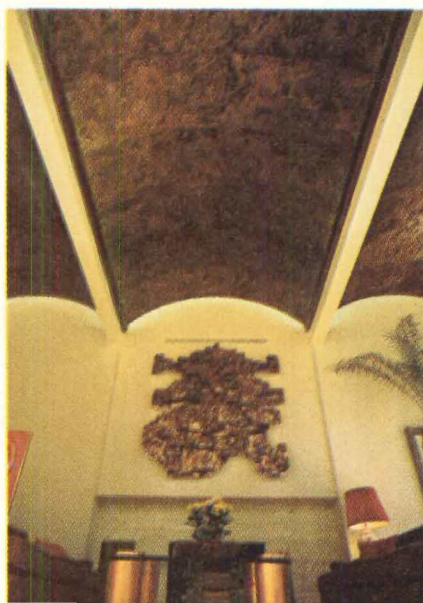
**Copper leaders that are an integral part of the design** (right). Copper's resistance to corrosion especially valuable here. Painting eliminated. Weathers naturally to a russet brown. **Copper vent hoods** (far right). Long-lasting, good-looking. New high-strength and economical copper strip is perfect.



# Naturally durable. Readily available.




**Bronze floor tiles (left).** Pebble textured bronze on copper sheet applied directly to concrete or plywood. Needs only minimum care. Foot traffic adds varied highlights of muted gold tones.

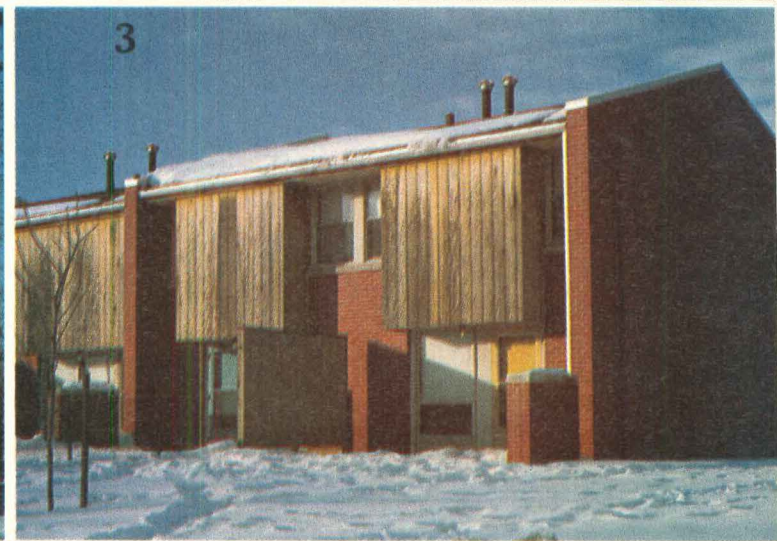


**Copper gutters and flat roofing (above).** Corrosion-resistant copper is as functional as it is beautiful. Highlights quality.

**Copper-accented entrance (above).** Stamped copper rosettes with a patina finish. Easily applied. **Copper-clad ceiling (left).** Chemically etched ultra-thin sheets of copper and brass in a kaleidoscope of tone and color. Every pattern unique. For walls, counters too. For details on these—or any other architectural uses for copper, brass and bronze—just write us.

Copper Development Association Inc.  
405 Lexington Ave., New York, N.Y. 10017

 **COUNT ON COPPER**  
For more data, circle 15 on inquiry card





# Why high-quality Andersen Windows belong in low-income housing.

If you're planning a public housing project, Andersen Windows are more practical on a total cost basis.

Made in complete units, they cost less to install. And there's no on-site exterior painting when you specify our Perma-Shield® Windows. Made with a thick vinyl sheathing on the outside, these windows will save significantly on maintenance costs over the years. They won't need scraping, painting or refinishing.

Fuel costs are lower. Andersen Windows are made with a solid core of wood—one of nature's best insulators. Our weathertight construction and welded insulating glass (optional) complete the tight design against heat, cold, dust and drafts.

Andersen Windows will cost less over the long run, and their beauty lasts as long as the building. That's why it pays to specify the best.

## 1. Minneapolis Housing for the Elderly

The architects wanted to make this large, 290-unit housing project into a real "home" for the residents. So Bettenburg, Townsend, Stolte and Comb, Inc. created a living community with friendly courtyard and recreation areas.

Adding warmth and pleasantness to the surroundings are Perma-Shield Fixed and Casement Windows equipped with welded insulating glass which seals out cold Minnesota winters and keeps residents snug and warm.

## 2. Columbia Court Public Housing

Precast concrete "shadow panels" give this 90-unit complex in Muskegon Heights, Michigan its distinctive look.

The architects, Haughey, Black & Associates, designed special recesses into the panels where Perma-Shield Casement windows fit snugly.

The white vinyl sheathing on the outside blends well with the smooth-surfaced concrete. These windows can be opened straight out, allowing elderly residents to clean both surfaces from the inside—another cost-cutting benefit of Andersen Windows.

## 3. Family Housing Project

Hackner, Schroeder, Roslansky & Associates received an award from the Wisconsin Chapter of the A.I.A. for this series of townhouse groups in La Crosse, Wisconsin.

They were cited for the use of materials which added dignity and distinction to these low-cost dwellings. Among the materials used were Andersen Beauty-Line™ and Narroline™ Windows.

Beauty-Line windows combine a fixed upper sash with a ventilating, awning-style lower sash. They can be used singly or in groups, making them as versatile as they are attractive.

## 4. Award-winning Low-Rent Apartments

Located in Herman, Minnesota, this group of one-story 4-plexes received an award from the Minnesota Chapter of the A.I.A. for being the best representative example of the theme of "Involvement."

The architects, R. F. Ackermann and Associates, carried the residential character of the neighborhood into these apartments with a warm and simple design.

Adding to this feeling are graceful gliding doors by Andersen. They open onto comfortable, private decks. Andersen Beauty-Line Windows provide picture window beauty at a practical price.

For more information on Andersen Windows and Gliding Doors, check your Sweet's file or contact your nearest dealer or distributor.

**Andersen Windows™**  
Window beauty is Andersen. Andersen Corp., Bayport, Minnesota 55003



**COLOR  
DYNAMICS®**  
adds functional  
color to the  
interior of  
a plant...  
for greater  
efficiency.

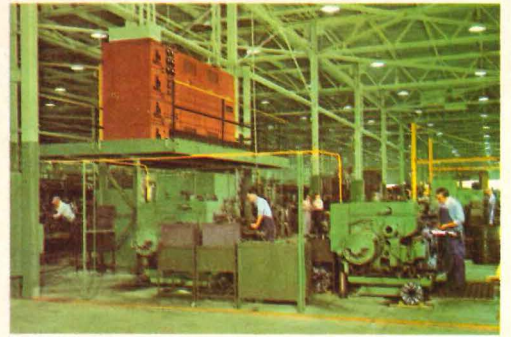
All too often, no more thought is given to painting the inside of a plant than to painting the inside of a cardboard box...

But that's where the action is—where profits are generated—and that's where *Color Dynamics* comes in.

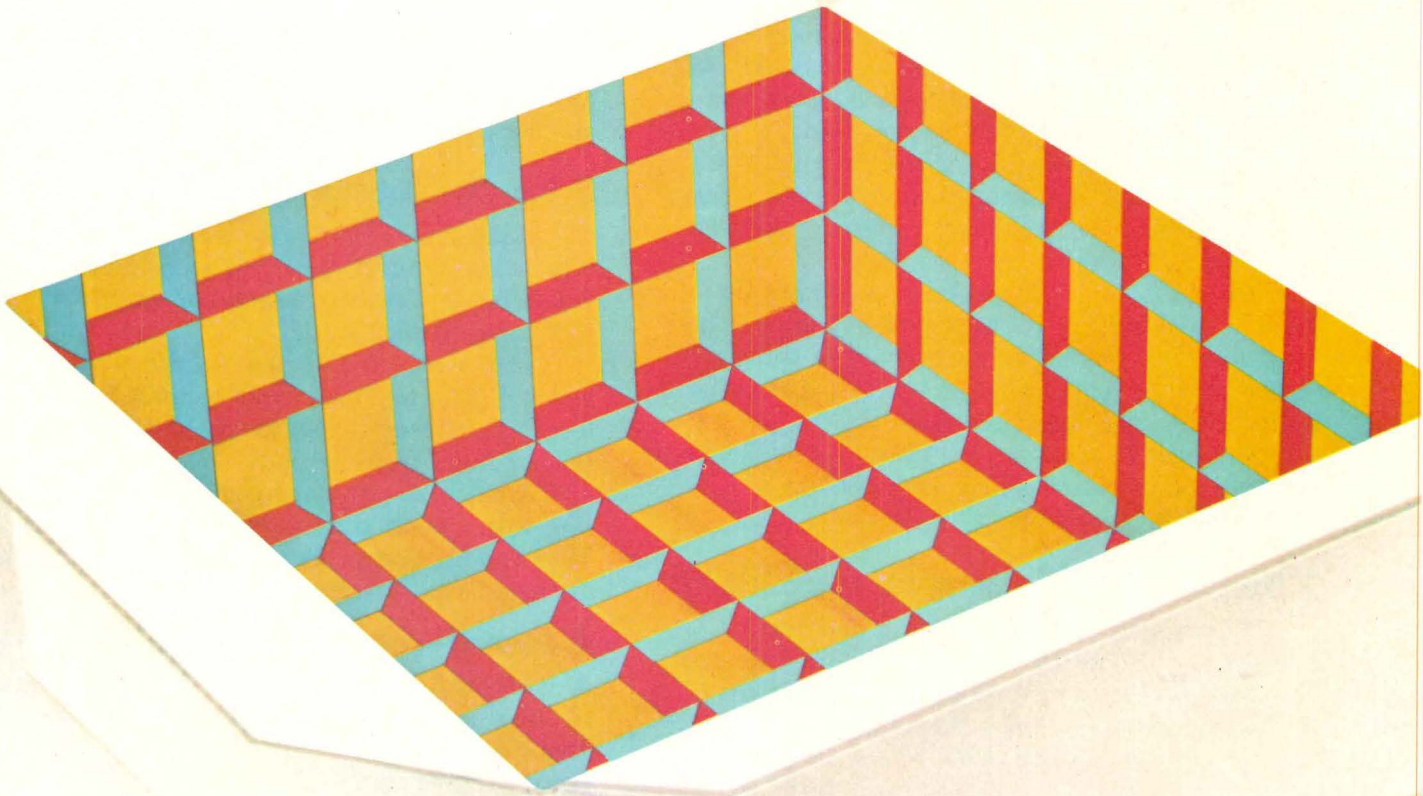
*Color Dynamics*, originated by *Pittsburgh Paints*, is the systematic use of color that combines function and decoration. It uses the principles of contrast, camouflage, proportion, and form to achieve the most effective functional colors for interiors. The result: greater efficiency, improved production both in quality and quantity, better employee morale, fewer accidents, less absenteeism and reduced eye fatigue.

When you specify *Pittsburgh Paints* for renovation, or new construction, you also provide economical, long-lasting paint protection. Write for free 16-page booklet on *Color Dynamics*. PPG Industries, One Gateway Center, 3W, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future



**PITTSBURGH® PAINTS**



**COLOR  
DYNAMICS®**  
the  
inside  
story



For more data, circle 17 on inquiry card

## News in brief

**The A.I.A. Convention in Detroit took a hard look at "The Hard Choices"** proposed by President Robert F. Hastings in directing urban growth, use of our resources, and "What we have to give up to create a livable environment." Clearly moved by the concerns expressed and actions suggested by an extraordinarily good group of speakers and panelists, the Convention voted on the last day of the meeting (June 25th) for resolutions with strong implications for increased social action and political action by A.I.A. For example, in an omnibus resolution on national priorities, the delegates accepted (after three years of rejection) a clause urging "the President and Congress to accelerate the reduction of our military commitments and involvements abroad to the absolute minimum consistent with our nation's security and restore, expand, and make more effective our national programs for the amelioration of life in all its aspects." Delegates also urged, through resolutions passed, the release of all money for housing appropriated by Congress but being withheld by the President; urged a stronger commitment (with trust-fund financing if needed) to meet the national goal of six million low-income housing units; and, in recognition of "the disaster character of minority high unemployment rates in ghetto areas . . . calls upon the Federal government to declare such areas 'disaster areas' and provide public service employment. . . ."

The Building Team Conference, sponsored jointly by A.I.A. and Producers' Council, was well-attended and sparked the sharpest audience participation of the convention. The house was packed on opening day, but on Tuesday, when this program was in competition with business sessions of the A.I.A., architect attendance did fall off, leaving the discussion more in the hands of the 351 non-architect "Building Team" registrants and representatives of the exhibitors.

The tightness of the schedule resulted in poor attendance in the exhibit area, and much will be heard of this problem from manufacturers.

In the Institute business sessions, the Board reorganization that has been under study for several years was turned down, though the matter will clearly be resubmitted next year.

In sharp contrast to the last two years, student attendance was down (207) and there was little student activity. The speech by ASC/AIA Joseph Siff in tone and content reflected his philosophy of working "within the system" (Record, May) and his closing line provided one of the Convention's best reminders to architects: "Never be satisfied." Total attendance, predictably, was smaller than in recent years—a total of 3,300, including 1,138 corporate members.

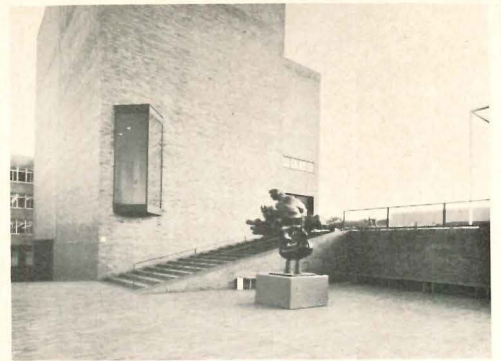
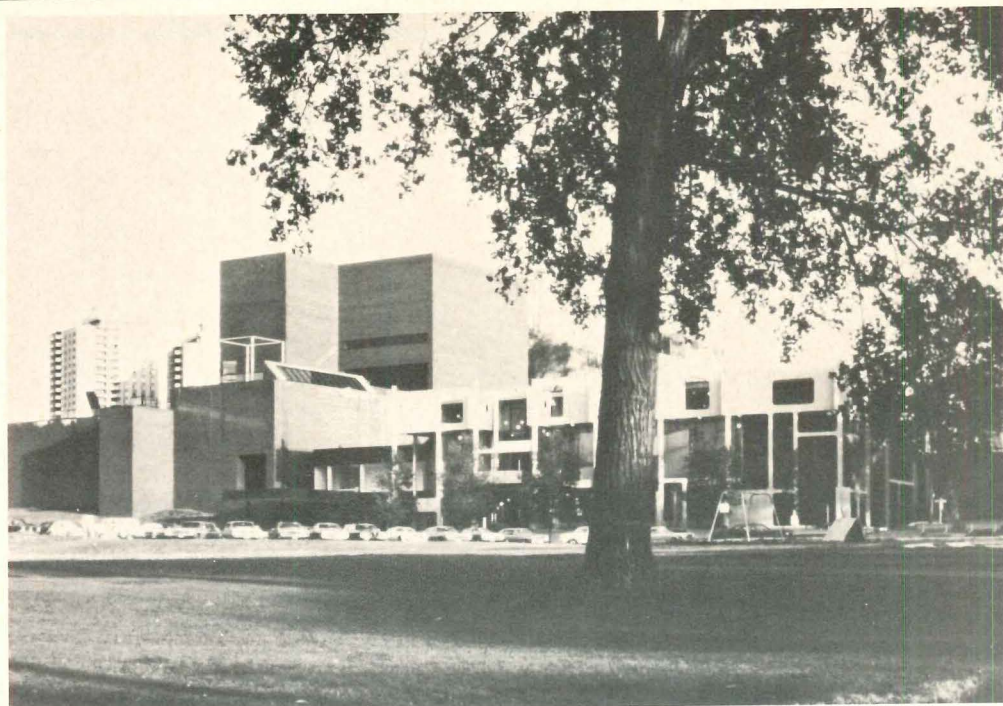
Louis I. Kahn's moving speech accepting the Medal of Honor closed the convention on a philosophical note; speaking of the problems and changes and divisions within the profession and in the processes of building, Mr. Kahn set this final note: "To be an architect is quite sufficient."

Complete convention coverage will appear in the August issue.

**Construction wage settlements moving back within reason**, new Labor Department figures show. Last year, increases averaged 18 per cent, but 21 contracts approved by President Nixon's Construction Industry Stabilization Board this month contained annual increases ranging from 5.2 per cent to 8 per cent, with an average of 6.1 per cent. One contract turned down (see Perspectives, page 10) called for 51 per cent.

**A National Domestic Development Bank to provide a major new source of capital funds** and technical assistance for cities, towns, school districts, and other local government bodies has been proposed by Senator Hubert H. Humphrey. The purpose of his bill, he said, is "to help relieve the shortage of funds confronting nearly every government jurisdiction and provide them with the capital to move ahead on vitally needed public projects; to facilitate economic development . . .; and to help promote better balanced rural-urban growth."

**The 1971 Bard Awards for excellence in architecture and public design**, given by the City Club of New York, went to the Graduate Center Mall of the City University of New York, Carl J. Petrilli, architect; and Technology Building II, New York University's University Heights campus, Marcel Breuer and Hamilton Smith, architects. Both were Awards of Merit. Jurors: Lewis Davis, Romaldo Giurgola, Sidney Katz, and Richard Meier. **The New York Chapter awarded** an honorary associate membership to Mayor John V. Lindsay "for his understanding of the significance of imaginative architecture and planning to the quality of life"; its Medal of Honor to Edward Larrabee Barnes; and a special citation to builder (HRH Construction Corporation) Richard Ravitch "for his vision and determination to overcome obstacles and to break the patterns of the past in accomplishing publicly financed housing of the highest quality." **Boston's Harleston Parker Award** "for the most beautiful piece of architecture, building, monument or structure within the city" went to Benjamin Thompson and Associates for their Design Research building in Cambridge (RECORD, May 1970).

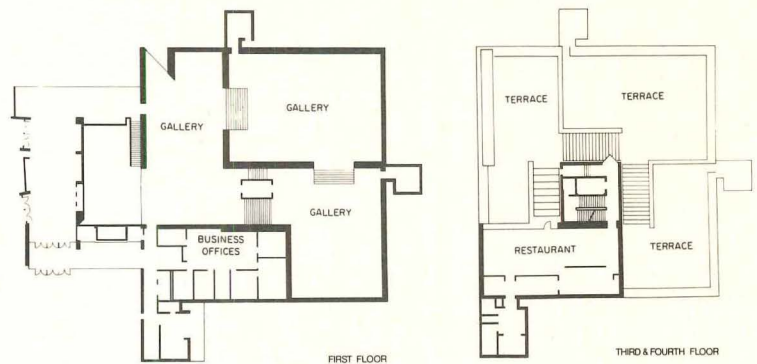


### Minimal sculpture inside and out; the new Walker Art Museum by Edward Larrabee Barnes

A new museum for the Walker Art Center of Minneapolis was opened on May 15, 1971, in Minneapolis. Edward Larrabee Barnes was the architect for the museum, which replaces an older building constructed in 1927 that had gone through several remodelings, and whose foundations and walls were becoming irregular through settlement. The new Walker Art Museum was a prestigious commission, as the Center has been prominent in Minneapolis since 1879, and is considered by some critics to have the pre-eminent collection of modern art in the Mid-west. The Walker Art center has been effective in reaching young audiences, in placing before the public the best modern painting and sculpture, and in broadening the social and urban concerns of the community.

The museum was officially opened with a huge party Satur-

day evening of the 15th at which time about 4000 guests circulated through the exhibition spaces and viewed the art; a stunning test of the building's circulatory abilities. It worked well; a viewer could see the paintings and sculpture that night, circulate slowly but comfortably from the beginning of the spiral route through the museum to its end, and still enjoy the party. A group of large-scale commissioned works were done especially for the new building, and were presented in the seven largest galleries and at the sculpture terrace on the roof. Twenty-two artists predominantly from New York, Los Angeles, and Minneapolis, participated in this commissioned series. Lynda Benglis' ominous polyurethane foam pieces jutted out of one long white gallery wall like huge black wings in descending series, and Larry Bell produced a shimmering two-panel



glass form that sometimes allowed the viewer to see himself, and sometimes seemed not to be there.

The architecture is a backdrop and shelter for the art inside, and outside it presents itself as a mannerly, simple, almost back-of-the-house addition to the Guthrie Theater, a flamboyant structure designed by Ralph Rapson in 1967. The new museum and the theater form a very compatible whole aesthetically, with a new entrance to both through the glass-walled

connecting link between them. Both the architect and the client wanted a structure that did not overwhelm or even compete much with the art inside, and that is what they achieved. The new museum represents a gain of more than 50 per cent in the exhibition space for the Art Center, and the Barnes' office also supervised some slight additions to the Guthrie Theater, expanding its existing white-panel facade screen without change.

### Private enterprise plans new town for central Philadelphia

On June 3rd, five corporations and a bank jointly unveiled plans by Philip Johnson for a 50-acre, private enterprise development covering 22 blocks in central Philadelphia not far from City Hall. The sponsors are: Smith Kline & French Laboratories, I-T-E Imperial Corp., Butcher & Sherrard, The Korman Corp. and Philadelphia Electric Co. The Girard Bank and other financial institutions will participate.

The master plan calls for 4,000 residential units, both rentals and sales, from townhouses to high-rise apartments; offices and shops totaling four million square feet and employing 20,000 people; 1,700 hotel rooms with convention facilities; enclosed parking for employees, visitors and residents; restau-

rants, theaters and cultural centers on a wide, tree-lined boulevard; and a two-acre town square. Twenty per cent of the new community, called Franklin Town, is to be open space. When construction is completed, in ten years, it will be used by 27,000 people during the day and 13,000 at night.

No Federal, state or city redevelopment subsidies will be requested so there will be no waiting for Washington. Franklin Town will privately finance all land and building purchases as well as relocation and demolition costs. The sponsors hope their project will stimulate the private sector's participation in the national effort to rebuild city cores. It is expected that twenty-eight times the current real estate

tax return amounting to \$10 million will be realized by this venture; and that over 1,000 new jobs a year will be created during construction. As the area is now occupied mainly by obsolete factories and parking lots, relocation will be at a minimum. And as over seventy per cent of the area is now streets or owned by Franklin Town, only 11 acres will have to be acquired.

For several years one of the sponsors, Smith Kline & French Laboratories, has been working with the community north of the development area to provide housing rehabilitation, job training, educational counseling, scholarship assistance and similar programs. The other sponsors are joining with Smith Kline & French in a non-

profit corporation which will continue and expand these programs.

In 1969 Jason R. Nathan, formerly administrator of the Housing and Development Administration of the City of New York, accepted responsibility for planning and developing Franklin Town as its president and chief executive officer. He says, "Franklin Town is an act of faith in Philadelphia. It is the vision of five corporate citizens who believe in Philadelphia's future. Their commitment to making Franklin Town a reality is the most tangible kind of corporate citizenship."

On June 4th the city gave tentative agreement to the proposal and authorized a relocation study which is now in process.

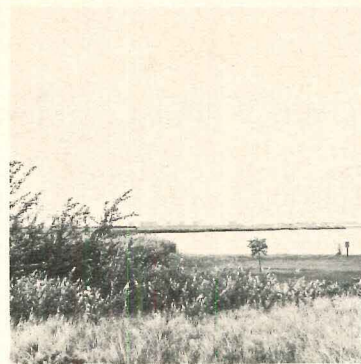
### A.I.A.-Ford Architectural scholarships awarded

Of the thirty 1971 winners of the American Institute of Architects and Ford Foundation scholarships awarded to students who would otherwise have no opportunity for a professional education there are twenty-one blacks, four Mexican-Americans, two whites, one Hawaiian, one Indian and one Puerto Rican. Three of them are women. They were nominated by architects, high school counselors, civic organizations, community design development centers and government-aided programs such as the Neighborhood Youth Corps.

The A.I.A. and the Ford Foundation each pledged \$500,000 in 1969 to support three separate groups of students. With present funding the last group will be selected in 1972. The amount of aid varies according to each student's needs and is renewable for five or six years until he gets his first architectural degree.

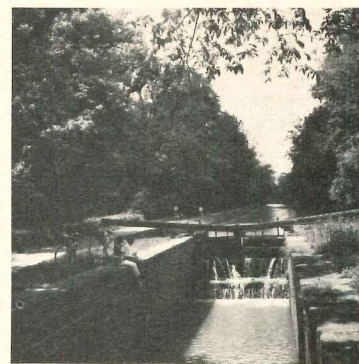
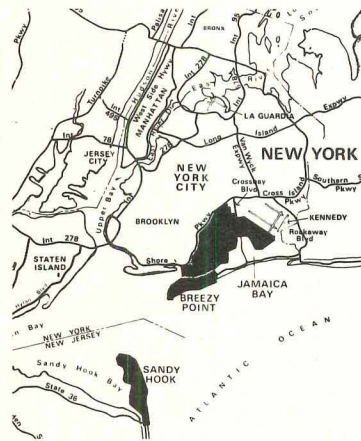
Among this year's winners is Armando Garza III whose parents live in a farm labor camp near Walla Walla, Washington. He redesigned downtown Walla Walla as a high school project. Josiah Hoohuli, from one of Hawaii's most depressed areas, has designed a day-care center for his community. The final plan, based on his drawings, includes the ideas of many members of the community. Franklin LaRose, from Fond-du-Lac Indian Reservation at Cloquet, Minnesota, wants particularly to work with Indian housing groups. In 1970, the first year of the program, only two of the twenty-three winners dropped out, fewer than expected.

Seven more students were chosen this year because local A.I.A. chapters contributed more matching funds to individual students.

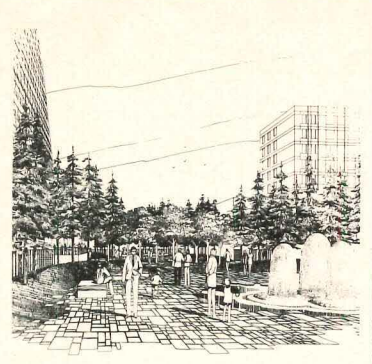


### Two unique close-to-the-city national parks underway . . . and a private park planned

Legislation to create Gateway National Recreation Area on the fringes of New York Harbor (photo above and dark area, map below) is under active consideration by Congress with strong Administration support. It is the largest urban recreation complex ever proposed by the government. Almost 23,000 acres of land and water are involved, all but 443 of them already publicly owned. Cost of land acquisition will be about \$39 million; development cost, just under \$100 million. Interior Secretary Morton noted that the new recreation area would "serve millions of persons who do not own



Mildred F. Scheritz



automobiles and who only infrequently escape crowded city conditions . . . A ferry transportation system is planned which would connect with terminals of existing bus and subway lines."

Morton, discussing the three major areas planned for inclusion in the park, pointed out that: "Sandy Hook is one of the most famous of East Coast landmarks. The nation's oldest operating lighthouse stands there." This area would have eight miles of ocean and bay beaches.

Jamaica Bay, one of the few natural areas left near New York City, is, Morton said, "an ecological treasure. . . . Breezy Point offers four miles of ocean beach and enough room to build extensive recreation facilities. This unit will be the most intensely developed of the three."

Stretching out from the heart of Washington, D.C. 185 miles to Cumberland, Maryland is The Chesapeake & Ohio Canal National Historical Park (center photo), created in the last days of the 1970 Congress. Justice William O. Douglas, writing 16 years ago when the park area was to be converted into a highway, said "The stretch from Washington, D.C. to Cumberland, Maryland, is one of the most fascinating and picturesque

in the nation. The river and its islands are part of the charm. The cliffs, the streams, the draws, the benches and beaches, the swamps are another part. The birds and game, the blaze of color in the spring and fall, the cattails in the swamp, the blush of buds in later winter—these are also some of the glory of the place." The thin ribbon of land, generally only 100 yards wide, for many years did not satisfy Congress' image of a national park. But their new action makes available to long-distance hikers, Sunday strollers, canoeists, and bicyclists a truly beautiful and readily accessible recreation area.

At a totally different scale, but a real service to the urban scene, is the pocket redwood park (above) planned adjacent to the Transamerica Pyramid building in San Francisco. The park, covering a half-acre strip, will provide a wooded pedestrian way through the middle of the block. Its designer, landscape architect Anthony Guzzardo, says that more than 100 redwood trees will be planted in the park. The largest that can be transplanted will be about 20 feet when installed, but since they can grow four to eight feet a year, "In 50 years we may have some 200-foot trees in there."

### Noise abatement study launched

The Environmental Protection Agency has established an Office of Noise Abatement and Control to investigate the causes and sources of noise and determine the effects on the public health and welfare in the United States. The Noise Pollution and Abatement Act of 1970 directed the EPA Administrator to set up such an office. Alvin F. Meyer, a former HEW official, has been named acting director of the new office which will determine effects of noise at various levels, projected growth of noise levels in urban areas through the year 2000, the psychological and physiological effects on humans, effects of sporadic and extreme noise as compared with constant noise, effect on wildlife and property (including values), effect of sonic booms on property, etc.

The results of the EPA investigation, which will include public hearings, are to be reported to Congress, together with recommendations for legislation or other action, not later than December 31, 1971.

### A.I.A. launches three new professional programs

The new State Government relations program, to be headed by Lawrence S. Stinchcomb, will assist local chapters with legislative problems at the city, county, or state levels by acting as a clearinghouse for information from all states and the Federal government. At first, the program will concentrate in the field of professional practice, in such areas as statutes of limitation.

The second new program—Continuing Education—will be headed by Dr. Stuart W. Rose, and will work toward preparing professionals for their roles in areas of research, housing, project and construction management, development, and urban and regional planning.

The third—a new Codes and Regulations Center—will be headed by James R. Dowling, who will be responsible for developing A.I.A. as a clearinghouse for information, and for promoting architects' involvement in effecting code and regulation changes.

James D. Morgan

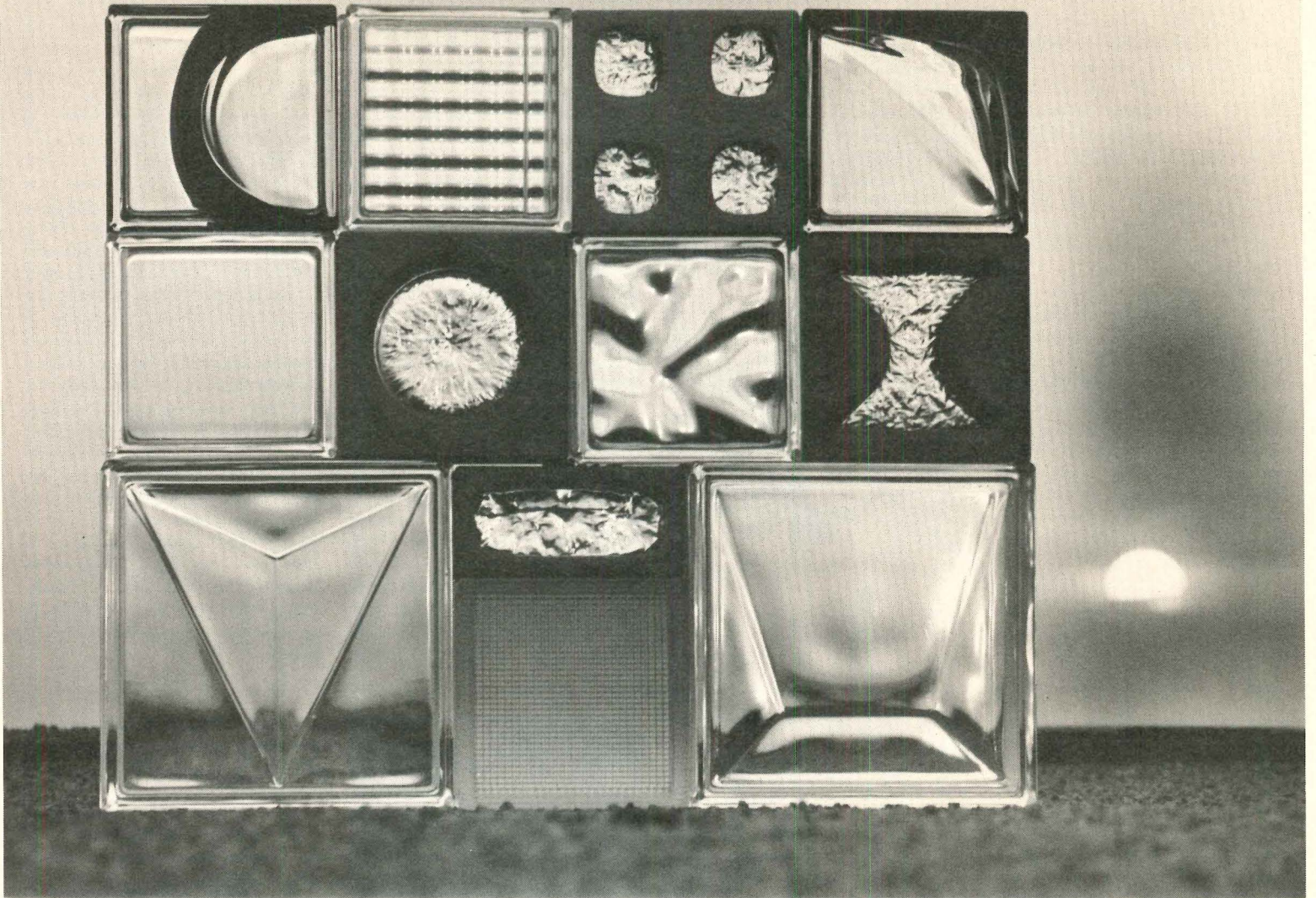


### Symposium honors M.I.T.'s Dean Anderson on retirement

To honor Lawrence Anderson's retirement from a forty-year tenure at M.I.T.'s School of Architecture, a symposium entitled Art in Civic Scale was held at Kresge Auditorium recently. Fifteen speakers, including long-time M.I.T. faculty members John E. Burchard and Gyorgy Kepes as well as sculptors Louise Nevelson and Claes Oldenburg, examined the major topic in three separate discussion panels. The most heavily attended session, which included Kepes, Oldenburg, José Luis Sert, Dean Emeritus of Harvard's School of Design, and Dr.

Jerome B. Wiesner, M.I.T. Provost, was also the liveliest. After a clash between Sert and Oldenburg, each maintaining in his own way that art needs no functional excuse but thoroughly at odds over the means, Mrs. Ilse Gropius rose from the audience and reminded all of her late husband's commitment to the idea that human values are the only legitimate basis for art. Her point was driven home by the eloquent and unsettling remarks of Elma Lewis, director for more than thirty years of a Boston art school for blacks. "The artist's responsibility," said Mrs. Lewis, "is to cause right action; right action is beauty." Lawrence Halprin, on the same panel, closed the session with a neat epigram: "Lifeless art is no good, artless life is no good." A later reception honoring Dean Anderson, shown with former secretary Barbara Porter Schofield, wife of New York City architect Robert H. Schofield, brought over two hundred alumni and other architects together ranging from graduates of Beaux Arts days to men deeply involved in programs of computer-assisted design.

# Pittsburgh Corning announces twelve beautiful ways to accent concrete, steel or aluminum.



It's the new look of glass blocks. Patterns, textures and sculptured effects with the emphasis on accent. Skyscraping designs with long, narrow lines of light and texture. Low, solid designs with patterns and relief. Light, shape, harmony or contrast. It's the new look of glass blocks to spark your imagination for new uses.

But still with functional advantages like control of light, noise, insulation and solar heat. Without maintenance. For more information on the many different styles, patterns and characteristics of glass blocks, write Pittsburgh Corning Corporation, Dept. AR-71, One Gateway Center, Pittsburgh, Pa. 15222.

**PITTSBURGH**  
**pc**<sup>®</sup>  
**CORNING**

*For more data, circle 21 on inquiry card*



# made-to-measure protection with KINNEAR rolling grilles

A key controls opening or closing this large Grille on Stuarts in the Seminole Mall, Seminole, Florida.



Also manufacturers of Automatic Steel Rolling Fire Doors and Counter Shutters.

After-hour security is always of prime concern to the building designer and store owner. With Kinnear Rolling Grilles, you get positive protection, attractive design, carefree and easy operation, and no restrictions on dimensions. Store fronts both large and small with one or more openings can be easily fitted with Kinnear Grilles that will more than "measure up" to every security challenge.

A perfect example of Kinnear adaptability is Stuarts store in the new Seminole, Florida Mall. The wide, open entrance is protected by rugged but graceful motor operated Kinnear Grilles. With a "turn of a key," these Grilles can be silently and quickly raised or lowered. The opened Grilles disappear completely out of sight — and out of the way — above the store opening where the operating mechanism is also concealed. The compact rolling curtain principle developed by Kinnear has never been excelled, and the people of Stuarts echo their acceptance when they say, "Our Kinnear Grilles are convenient, as well as decorative . . . they suit our needs perfectly."

The Seminole Mall is one of the newest of many attractive shopping malls whose stores have found Kinnear Grilles to be the best "see-through protection" available. Window shoppers can still admire the store's displays through the closed Grilles. And for the centralized climate control, the Grilles allow uninterrupted circulation of air.

Kinnear's "Registered" Life-Extension policy, backed by a nationwide service organization, assures maximum Grille efficiency and minimum maintenance.

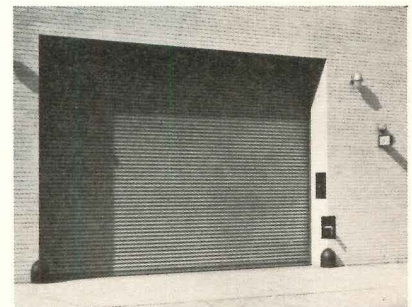
Let Kinnear consult with you on your newest project or present building for proven entryway protection with Kinnear Rolling Grilles. Write or call. No obligation.

## KINNEAR CORPORATION and Subsidiaries

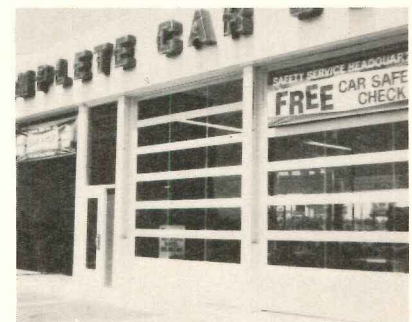
1860 Fields Ave., Columbus, Ohio 43216

Factories:

Columbus, Ohio 43216 • San Francisco, Calif. 94124  
Centralia, Wash. 98531 • Toronto, Ont., Canada



Kinnear Steel Rolling Doors offer maximum protection for shipping and receiving entrances — or store front vandalism protection.



Kinnear Aluminum "RoL-TOP" Doors are the market's "best buy" for auto service centers or where vision is essential.

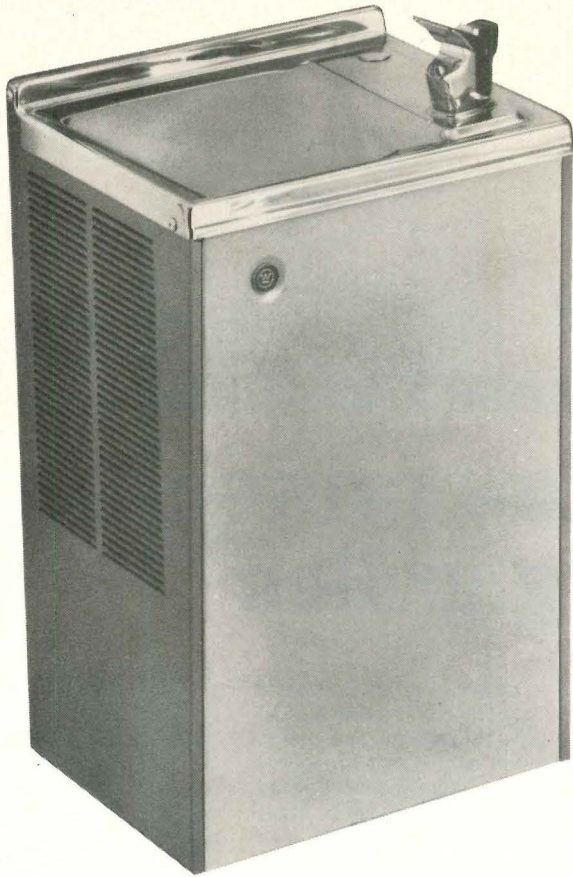


Saving Ways in Doorways Since 1895

Offices and Representatives in all Principal Cities — listed in Yellow Pages Under "Doors." Also see Sweet's!

For more data, circle 22 on inquiry card

# Water Colors.



Frost White  
Platinum Beige  
Metallic Bronze  
Nugget Gold  
Dusty Olive  
Coral Red

Just install them and Westinghouse Instant Cold Water Coolers turn into water colors on your wall. Install easily, too. Packed with each Wall Mount is a time saving installation template. Only Westinghouse has these colorful ways to make your Water Coolers a thing of beauty. Also available in brushed satin stainless-steel or two-tone olive-beige enamel.

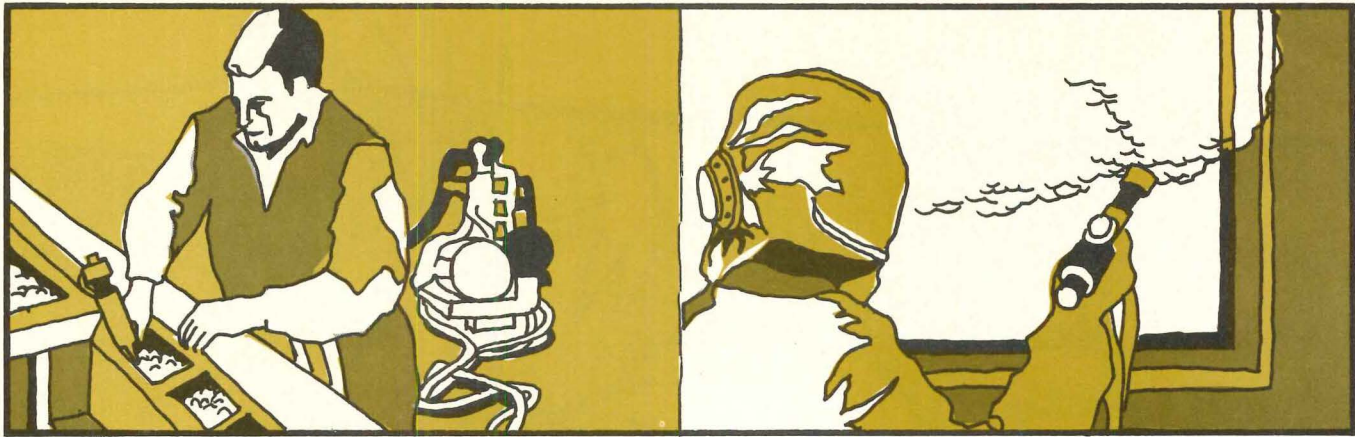
You can have instant hot water, too, with our hot water accessory. Factory-installed on all models. Backed by Westinghouse Nationwide Sure Service. See Sweet's Files. Or refer to "Water Coolers" in the Yellow Pages. Westinghouse Water Cooler Dept., Columbus, Ohio 43228.

You can be sure...if it's

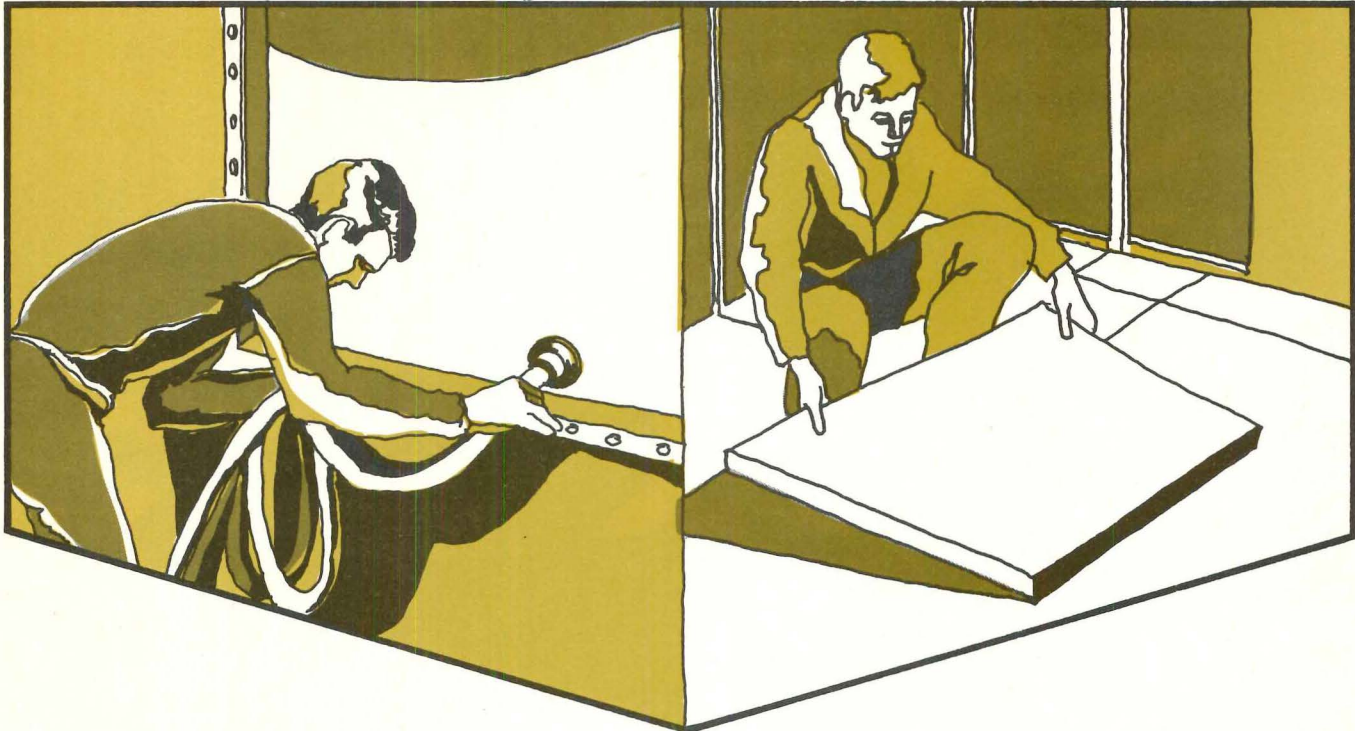
**Westinghouse** 

*For more data, circle 23 on inquiry card*





**THE BEST INSULATION YOU CAN BUY  
IS THE EASIEST AND MOST ECONOMICAL TO INSTALL**



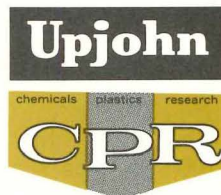
**ISONATE®  
SPRAY, FROTH, AND  
POUR SYSTEMS  
AND BOARD STOCK  
FROM UPJOHN  
CAN DO IT BEST**

See Sweets Catalog

**CPR DIVISION THE UPJOHN COMPANY**  
555 Alaska Avenue, Torrance, California 90503

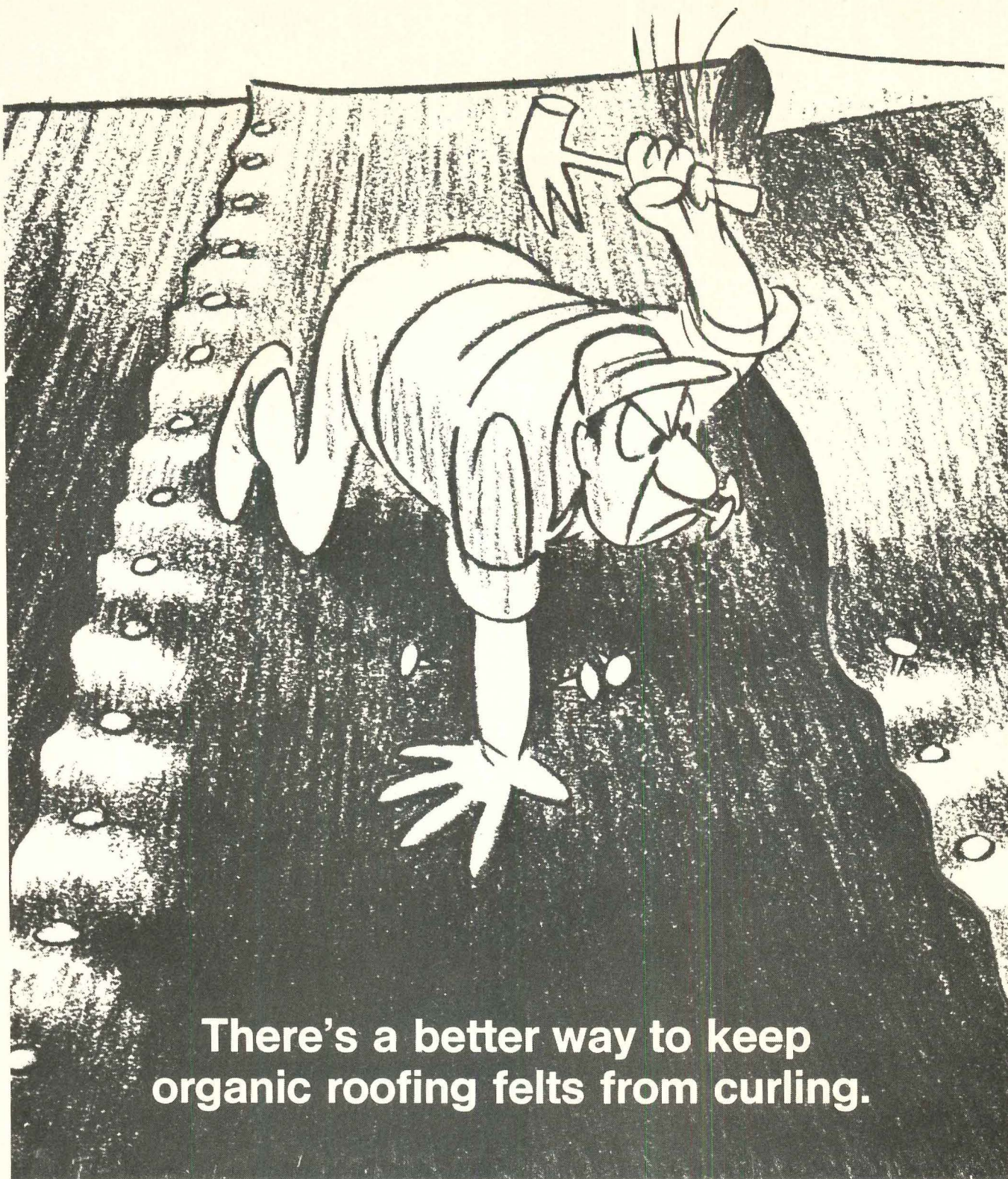
- Please send me more information on CPR insulation.
- Please have a CPR Sales Engineer call.
- Please send me the name of your representative in my area.

Name, Position \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_



**CPR DIVISION THE UPJOHN COMPANY**  
555 Alaska Ave., Torrance, Calif. 90503 • Tel. (213) 320-3550

For more data, circle 24 on inquiry card



**There's a better way to keep  
organic roofing felts from curling.**

## **Use J-M asbestos felt.**

The pliable asbestos felt in a Johns-Manville asbestos built-up roof stays where it belongs. Unlike coated, organic felts. And once it's down, it stays down, lasts longer.

Special perforations also allow air to escape, eliminating callbacks

for blistering. And of course, J-M asbestos smooth surface roofs don't need gravel and use up to 100 lbs. less bitumen per square than organic roofs. All of which should help keep your hair from curling when you add up your costs.

For more details, call your J-M district sales office, or write: Johns-Manville, Box 290-BI, New York, N.Y. 10016.

**Johns-Manville** 

*For more data, circle 25 on inquiry card*

**American Telephone and Telegraph Company 1971 Honor Awards**

In its first architectural review in three years American Telephone and Telegraph Company—which claims to have the next largest building construction program after the Federal government—has chosen five honor award-winning buildings from 406 entries including equipment and office buildings, garages and renovations. Jurors were architects Joseph Amisano, Hugh

Stubbins and Oswald Thorson. Not shown is a repeater building in Johnson, Arkansas by Dan Cowling and Assoc., Inc. With a flood condition necessitating a two-story structure, eight steel columns were handsomely used to support the exterior stairs and walkways and overhanging roof. The Jury, free to give many or no awards, gave 14 merit awards and 18 honorable mentions.

*Bill Engdahl, Hedrich-Blessing*

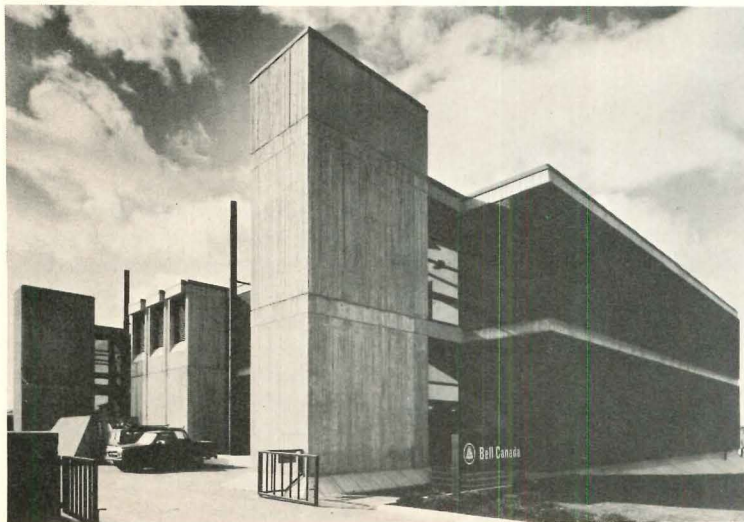


**The District Plant Office and Garage**, Detroit, Mich., by Smith, Hinchman and Grylls, Assoc., Inc., architects, occupies a highly visible, downtown urban renewal site. Its sculptural qualities were attained by expression of vehicle ramps, stairwells, garage levels and the general office area. The poured concrete was sandblasted.

**The Central Office**, Willowdale, Ontario, Shore & Moffat & Partners, architects, has an exposed structure of rough finished, poured concrete. Scale was reduced by varied massing of service elements. The infill brick was chosen to blend with surrounding residences. Expressed floor lines will enable vertical expansion to be integrated into the design.

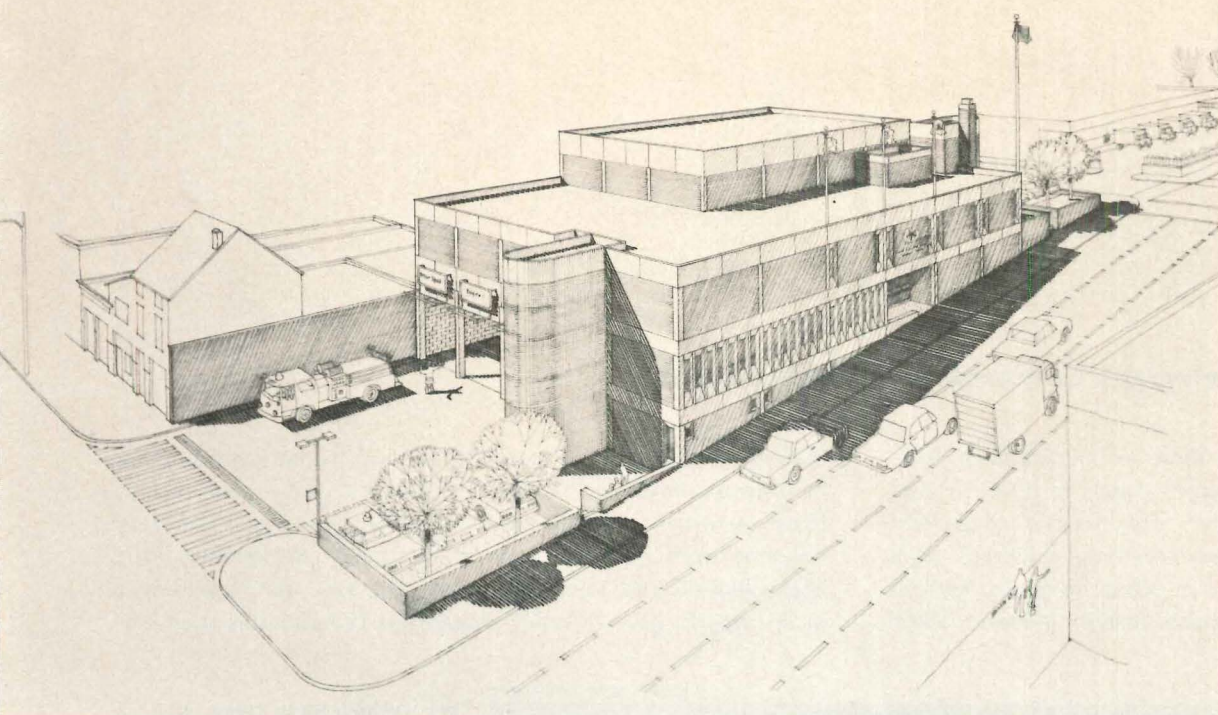


**The Data Processing Center** in Don Mills, Ontario by Webb, Zerafa, Menkes, architects of Toronto, is a steel structure with 20- by 40-ft. bays providing the flexibility required for large computers and open offices. Bronze Laurentian granite aggregate used in precast concrete above the entrance contrasts with grey bush hammered concrete below.

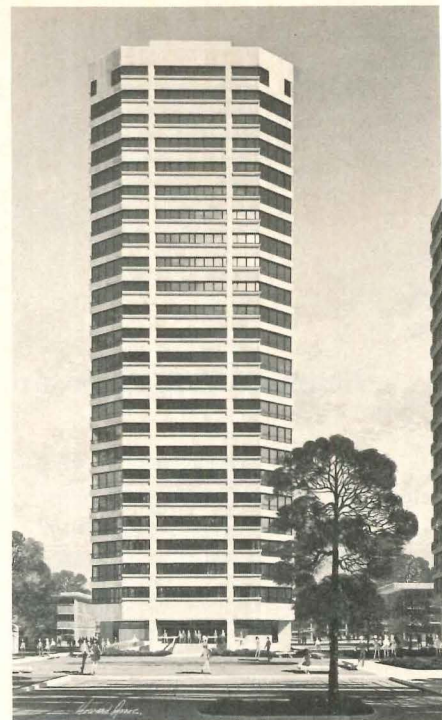


**The Overseas Operating Center**, South Jacksonville, Fla., Reynolds, Smith and Hills, architects, is located in a suburb near its supply of labor. A large atrium provides

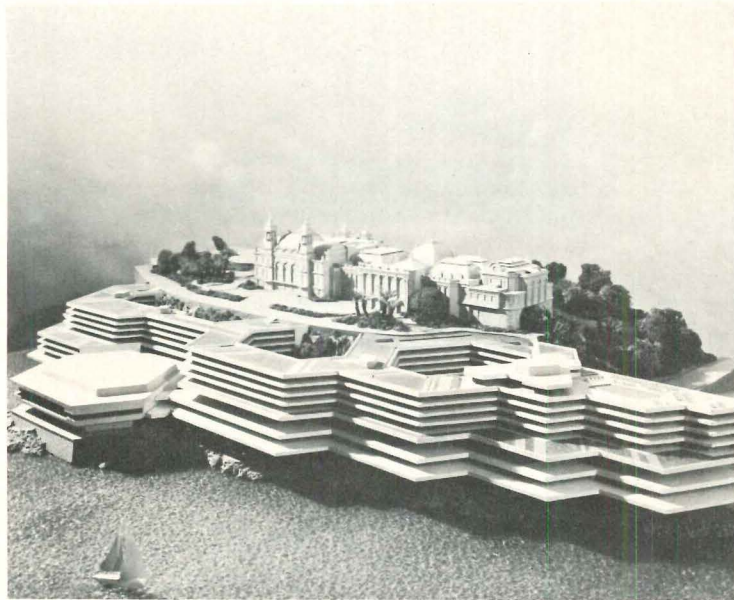
the spacious, outdoor atmosphere characteristic of the area, and permits a minimum of openings on the exterior for maximum security. An additional floor is planned.



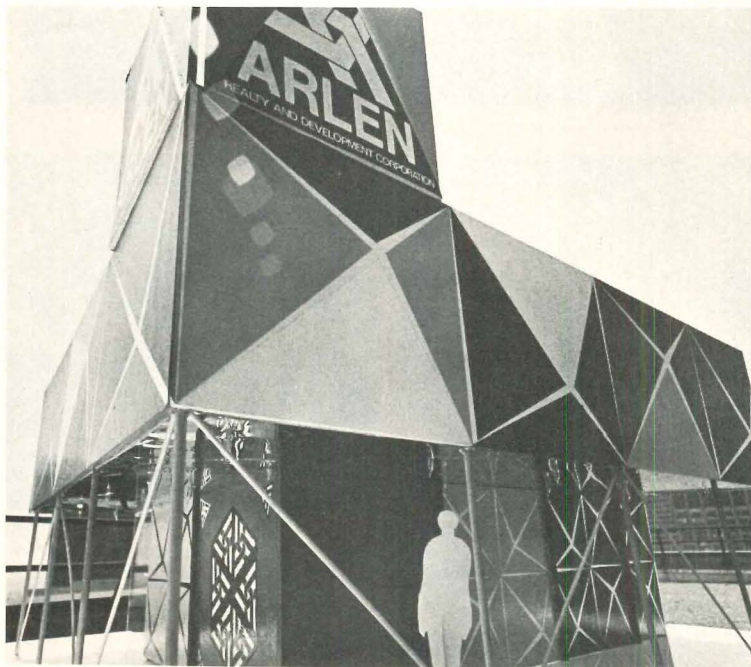
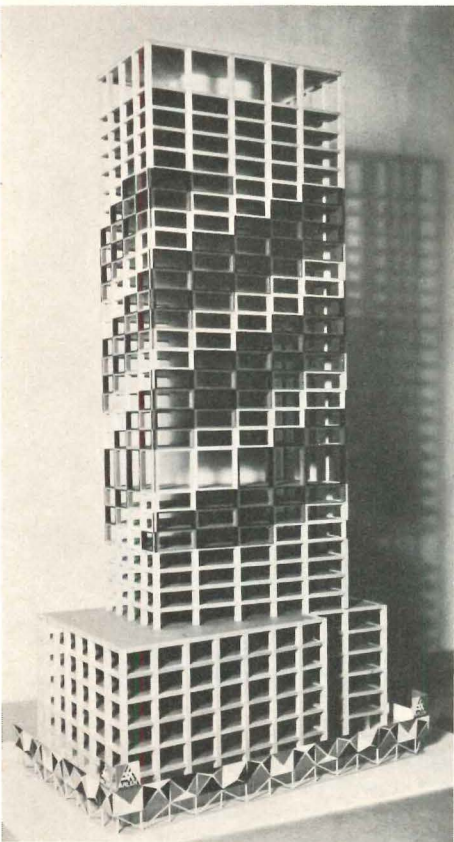
**Center City Fire Station**, Wilmington, Del., by Dollar, Bonner & Funk, architects, now under construction, houses two independent fire stations, one on top of the other and facing in opposite directions on a sloping site. For visiting school children there's a gallery corridor off the mezzanine offices which overlooks the apparatus room.



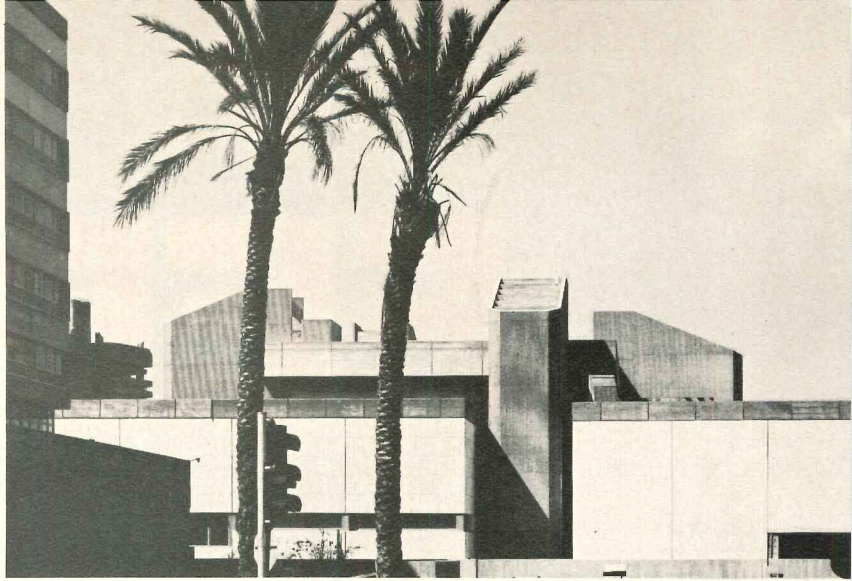
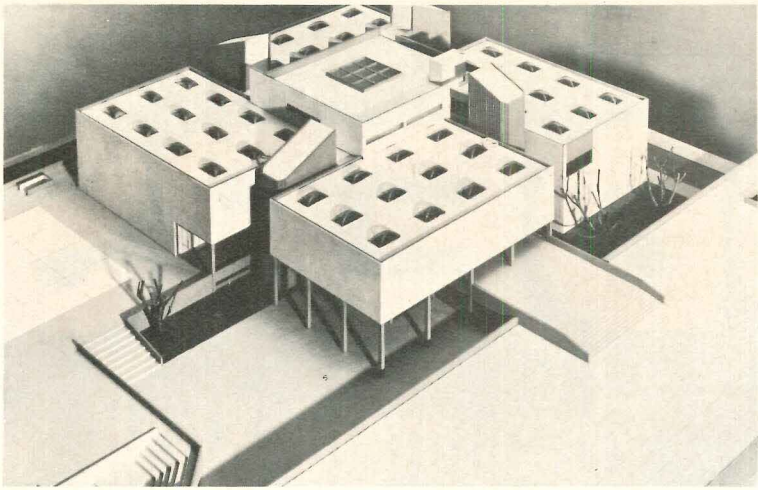
**Westgate II**, Massachusetts Institute of Technology, Cambridge, Hugh Stubbins and Assoc., architects, will house 400 graduate students. The 24-story tower overlooking the Charles River, with community facilities on bottom and top floors, has two-, three- and four-student apartments with living rooms in the chamfered corners of the building.



**Loew's Hotel, Luxury Apartment and Convention Complex**, Monaco, Dr. Herbert Weisskamp, chief architect with Neue Heimat International, and Jean Ginsberg and Jean and Jose Notari, architects, will be a seven-tiered structure overhanging the shore in front of the Monte Carlo Casino which will retain its unobstructed view of the Mediterranean.

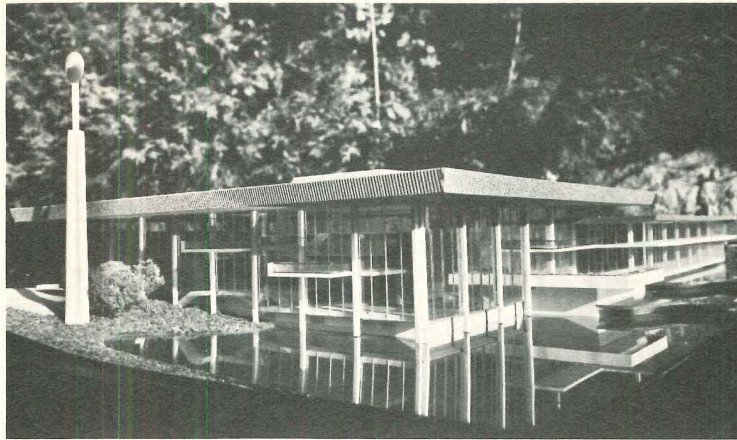


**Art will adorn construction** of the Arlen Realty and Development Corp. building in New York City. Nasso Daphnis and Tania, artists from City Walls Inc., have used geometry and primary colors on the construction walkway—with a mylar ceiling—and tower. The designs will be executed by Environmental Design Associates which not only paints walls but finds and raises funds for them.

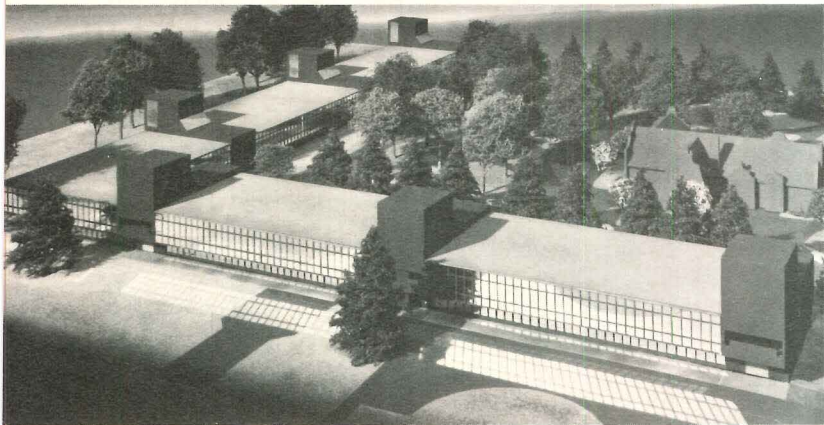


**The Tel Aviv Museum**, Israel, was designed by I. Yashar and D. Eitan as a result of a national competition with international judges. Its four pavilions surround a central art library and 30-ft.-high hall to be used for openings. The sculpture garden is left of entrance plaza. Underground parking auditorium, and cafeteria are provided.

© Louis Checkman

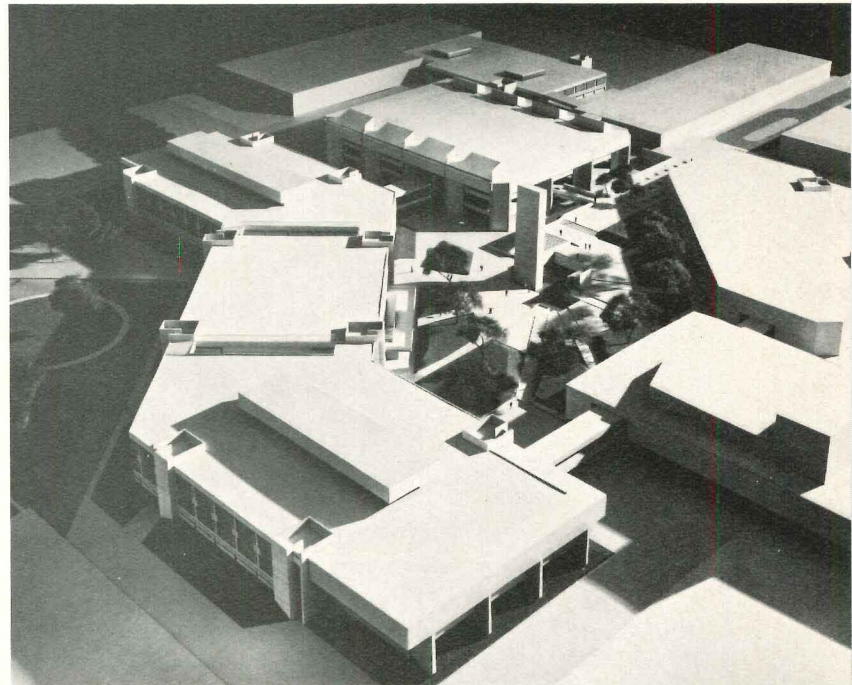


**Library and Cultural Resource Center**, Huntington Beach, Calif., Dion Neutra & Assoc., architects, is Dion Neutra's first major project since his father Richard's death. Reflective glass and lake waters will mirror each other. The Center will have facilities to attract the whole family: art gallery and workshops, natural history and play areas, community room and food, etc.



**Ramapo College of New Jersey**, Mahony & Zvosec/Kenneth DeMay (of Sasaki, Dawson, DeMay) associated architects, on a wooded site, displaced few trees and re-

flects remaining ones in walls of mirror glass. Slate covers stairs and mechanical cores. A systems approach reduced construction time by over a year.



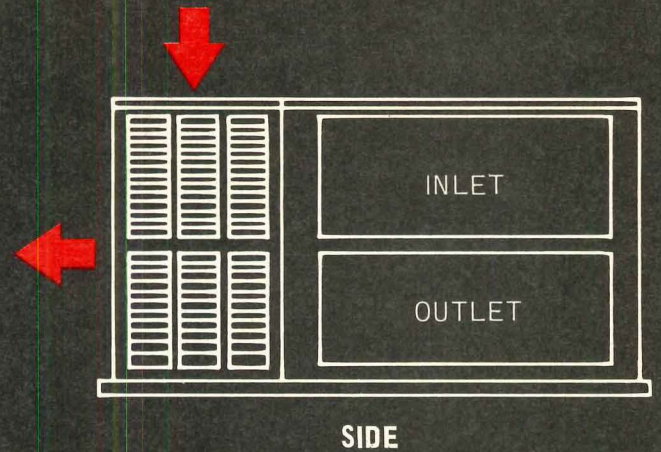
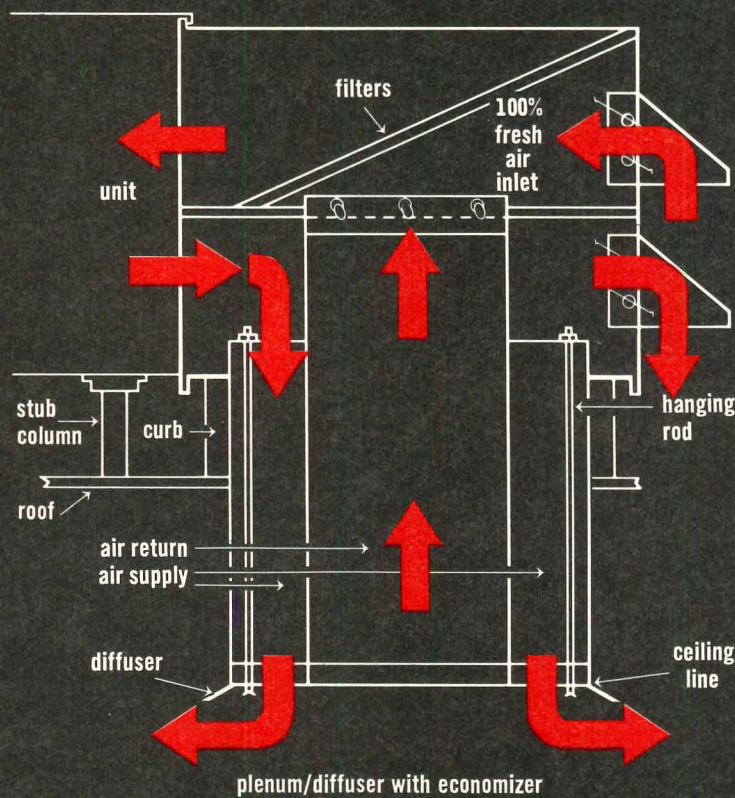
**The Lyndon Baines Johnson Library**, University of Texas, Austin, Skidmore, Owings & Merrill, Brooks, Barr, Graeber & White, architects, is becoming known as Lyndon's Pyramid. The combined museum and library is an eight-story monolithic structure with an 85 ft square and 55 ft high Great Hall with one glass wall exposing five levels of archives.



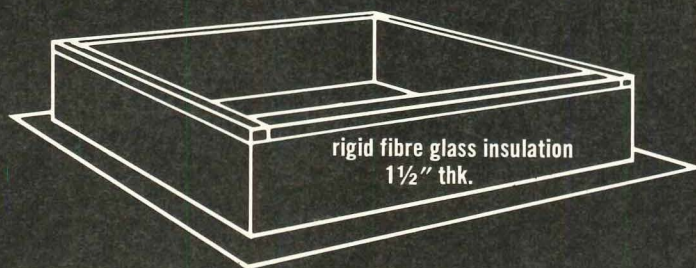
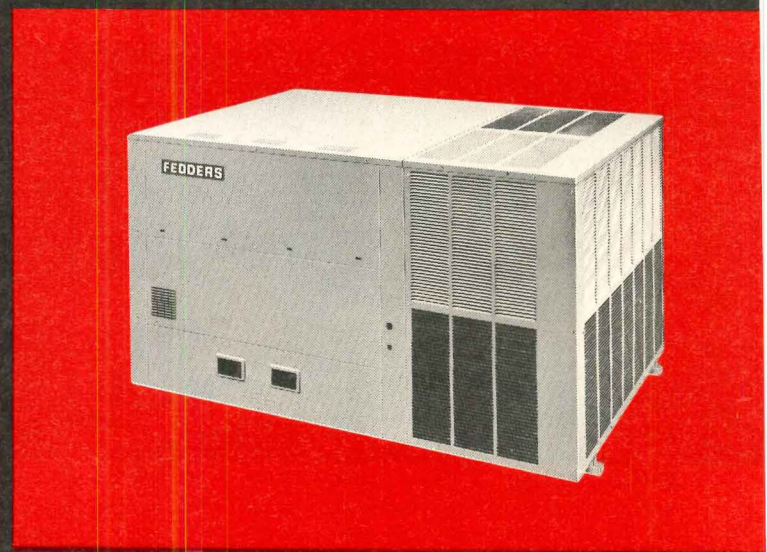
**Washtenaw Community College**, Ann Arbor, Michigan, Tarapata-Mac Mahon-Paulsen Assoc., Inc., architects, will have nine closely related buildings linked by enclosed pedestrian bridges and surrounding a mall. The master plan received an Award of Merit in the Community and Junior College Design Awards program co-sponsored by A.I.A., A.A.J.C. and HEW.

# FEDDERS

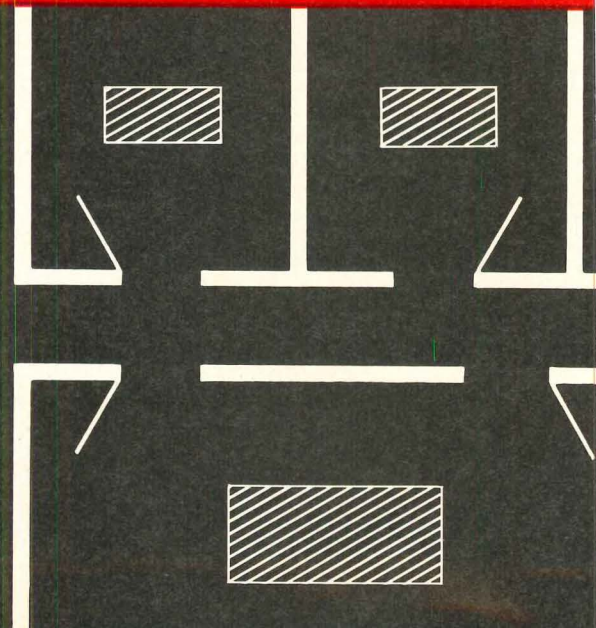
Equipment Shall Be



SIDE



roof curb



# Submittal # 1

## Fedders Adaptopak Rooftop Heating

## ...And Air Conditioning

**because** Fedders gives you flexibility plus in air conditioning and heating any structure. From the smallest office to the largest arena Fedders has exactly the right model to do the job the best way possible. Take the job shown in plan view below . . . Fedders models fit every requirements from the two ton rooftops to cool the offices to the 50 ton units for the large meeting and dining areas.

All models 6 tons and more bring even further flexibility and economies with operational capacity reductions in both heating and cooling. Dampers and economizers permit cooling operation to 0°F. and fresh air up to 100%.

Adaptopak rooftops have exceptionally low silhouettes and power vents eliminate unsightly stacks. Side discharge and returns permit ground level slab mounting. All units are completely fabricated and tested at the factory. Each is an integral system, not a patchwork of heating and cooling components forced into compatibility. Condenser air is discharged upward along with the operating sounds of the powerful compressors and motors to minimize sound transmission to surrounding areas and to the structure. Fedders rooftops have exceptionally low maintenance records because of the durable com-

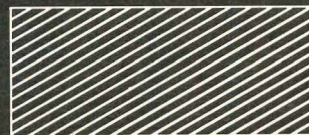
ponents . . . because each unit is completely assembled and tested at the factory . . . because problems have been anticipated with preventions such as automatic pilot relighting. Compact design and rigging provisions permit installation of any of the 42 Adaptopaks at minimal costs. Add this to low initial equipment costs of \$200 or under per ton and it becomes a practical necessity to specify Fedders rooftops.

Fedders full range of air cooled and water cooled chillers, air handlers, terminal air conditioning and heating (see submittals 2 and 3 this issue) give you the opportunity to have one brand you can rely on for all your air conditioning and heating.

For further information, write the Fedders Technical Information Department.

**FEDDERS**  
**CENTRAL AIR CONDITIONING & HEATING**  
**EDISON, NEW JERSEY 08817**

*For more data, circle 26 on inquiry card*



Carter-Day...systematics for air pollution control

# Code compliance at low cost: the inside story of Carter-Day's Daynamic™ Dust Filter.

Carter-Day's Daynamic Dust Filter meets today's air pollution control codes. Modular, add-on design permits capacity expansion as your plant's dust control requirements increase; a built-in savings. Modular construction allows easy entry through existing doors for inside erection.

Daynamic is a wide-application, large air volume work-horse. Capacity from 2500 scfm to 500,000 scfm and up with 99.99+ % efficiencies. Ideal for chemicals, food, steel mills, non-ferrous metal plants. Equally effective in corrosive or abrasive atmospheres.

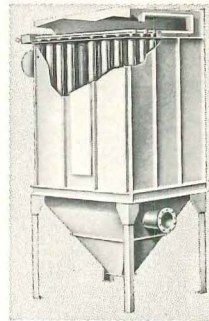
Price is lowest in industry, and delivery from stock. Operating and maintenance costs are nil; no internal moving parts, no lubrication, no plant air requirements. One man, no tools, easily changes filter tubes. Less than 12 psi reverse air cleaning action extends filter tube life.

There are other Carter-Day Dust Filters. Our "RJ" filter, up to 61,000 scfm, has long been the industry's standard. Its range extends from light to heavy loads (1500 lbs. per minute, for example). Or our "CS" filter, up to 38,000 scfm, features exclusive combined shock design to handle problem materials such as carbon black, metallurgical fumes, clays, cement, chemicals. Also recommended for sticky

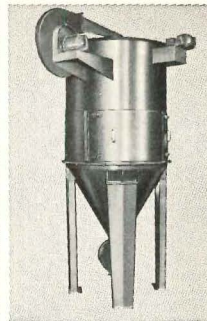
atmospheres such as process drying applications.

With these filter products, Carter-Day offers systematics — a total systems approach to your air pollution control program. A single, professional source from problem survey to design, fabrication, installation to after-sale attention.

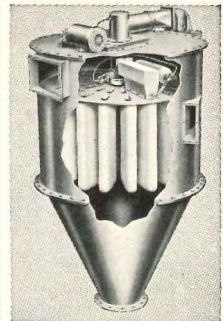
To find out exactly what we can do for you, write Carter-Day Company, 655 - 19th Avenue N.E., Minneapolis, Minnesota 55418. In Canada: Simon-Day Ltd., Box 488, Winnipeg, Manitoba.



Daynamic Dust Filter



"RJ" Dust Filter



"CS" Dust Filter



**Carter-Day HC**

Minneapolis, Minnesota 55418 A HART-CARTER COMPANY ©

CARTER-DAY • HART-CARTER AMERICAS • HART-CARTER INTERNATIONAL • HART-CARTER MINNEAPOLIS • HART-CARTER PACIFIC • HART-CARTER PEORIA • HART-CARTER PLASTICS • SIMON-DAY LTD.

For more data, circle 27 on inquiry card





## TERNE . . . FORM, COLOR, FUNCTION

From a functional standpoint, Terne metal has a durability measured in generations rather than years, and its inherent affinity for both form and color permits any visual roof area to become a significant component in design. These characteristics are probably sufficient in themselves to explain Terne's increasingly important role in contemporary architecture, but they are further enhanced by relatively moderate cost.

## FOLLANSBEE

FOLLANSBEE STEEL CORPORATION • FOLLANSBEE, WEST VIRGINIA



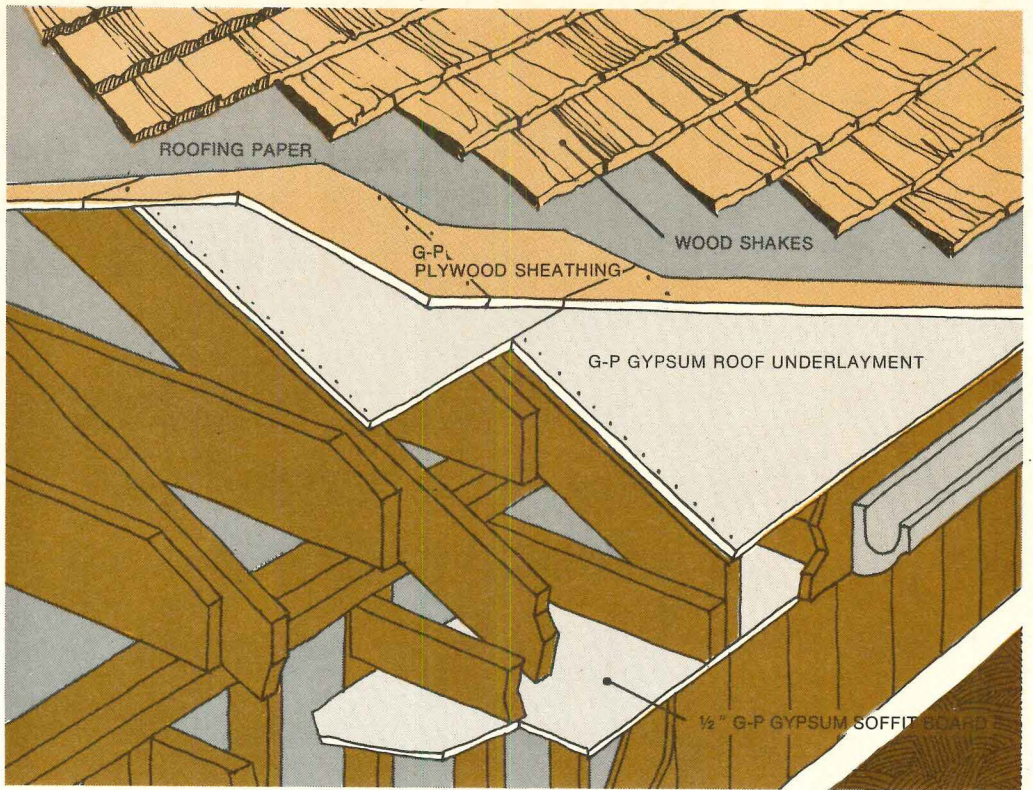
School of Nursing  
and Morrison Hall,  
Sharon General Hospital,  
Sharon, Pa.  
Architect:  
Brooks & Redfoot,  
Sharon, Pa.  
Sheet Metal Contractor:  
The Woodward Company,  
Warren, Ohio  
Photographs: Frank S. Pavliga

For more data, circle 28 on inquiry card

“Is there a fire control system that really works for roofs?”



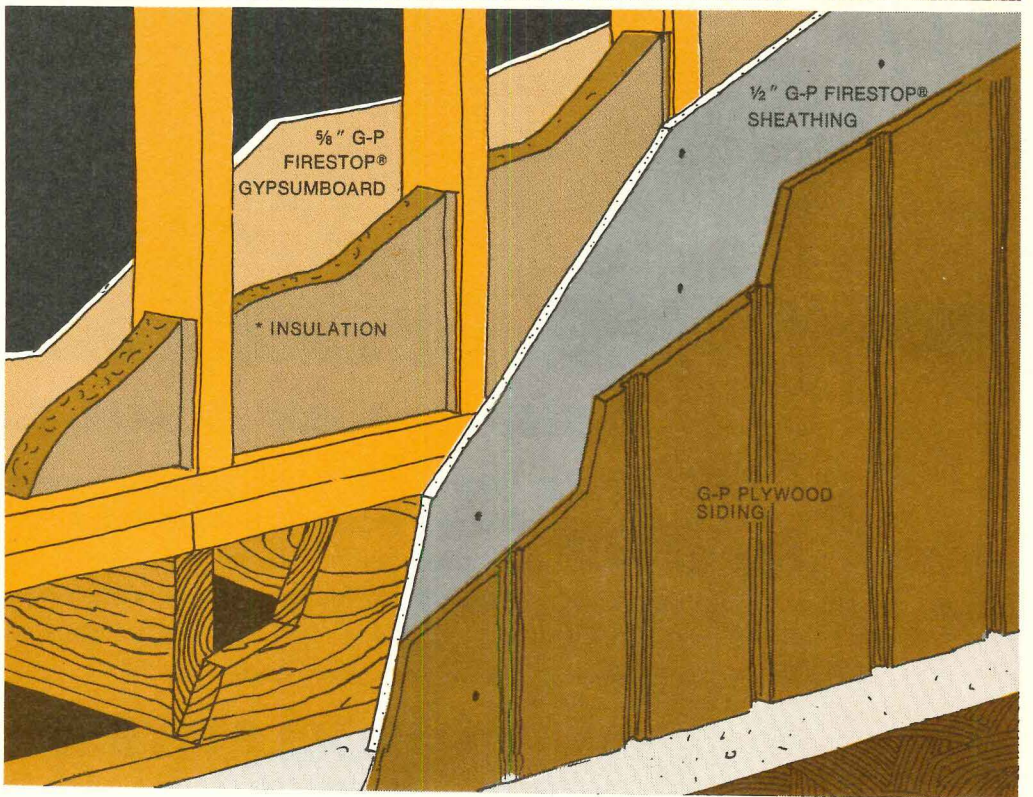
Yes! G-P's new Gypsum Roof Underlayment gives you excellent fire protection for roof construction. It's 1/2" thick gypsumboard with a fire resistant core and special paper that is easily placed over the rafters. Solid plywood or strip sheathing is laid over it. Then put up a wood shake or any other kind of roof you want. And Gypsum Roof Underlayment will prevent flames from burning through the roof structure.



“Why does my fire control system in exterior walls cost so much?”



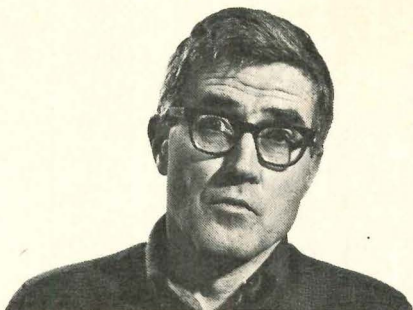
Fire control doesn't have to be expensive. Not when you use G-P's FIRESTOP®. It gives you a one-hour fire rating in exterior walls. 5/8" FIRESTOP® gypsumboard is applied over wood studs with insulation. And then on the outside wall, 1/2" FIRESTOP® sheathing is attached and covered with 3/8" (or 5/8") G-P plywood siding.



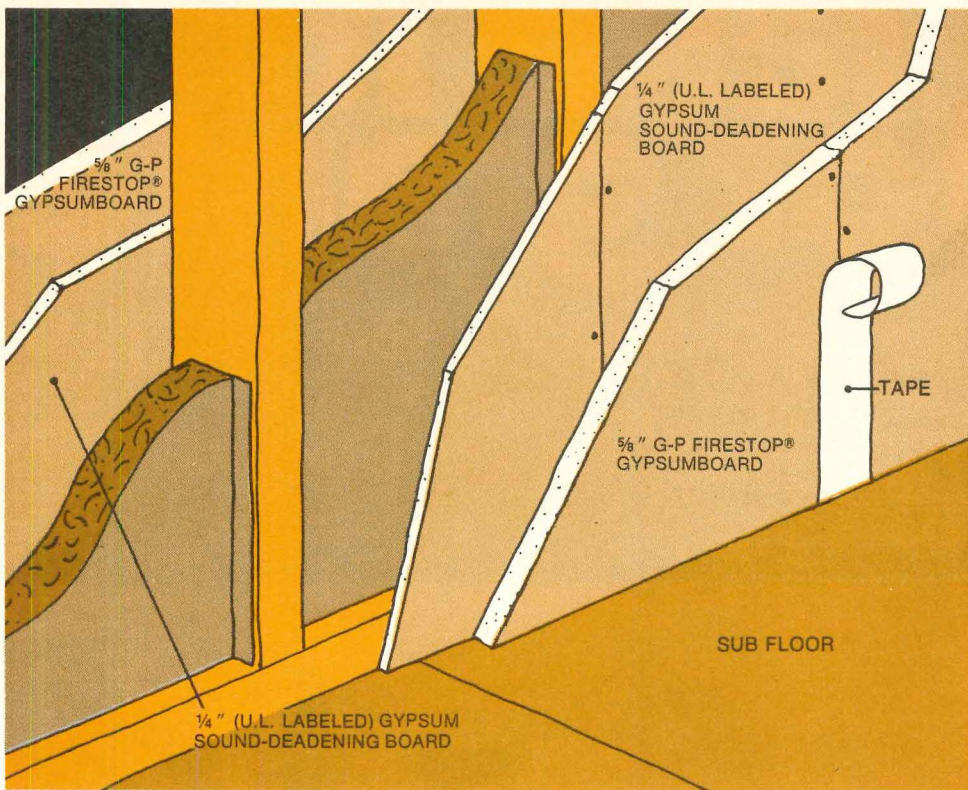
\* INSULATION NOT REQUIRED TO MEET FIRE RATINGS

**G-P has the answer  
sound control in**

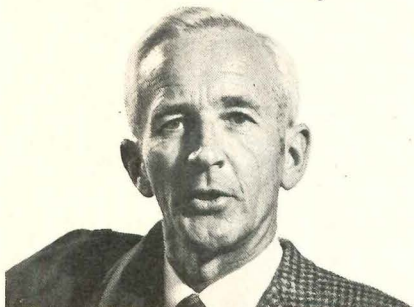
"How can I get sound control that works in interior walls?"



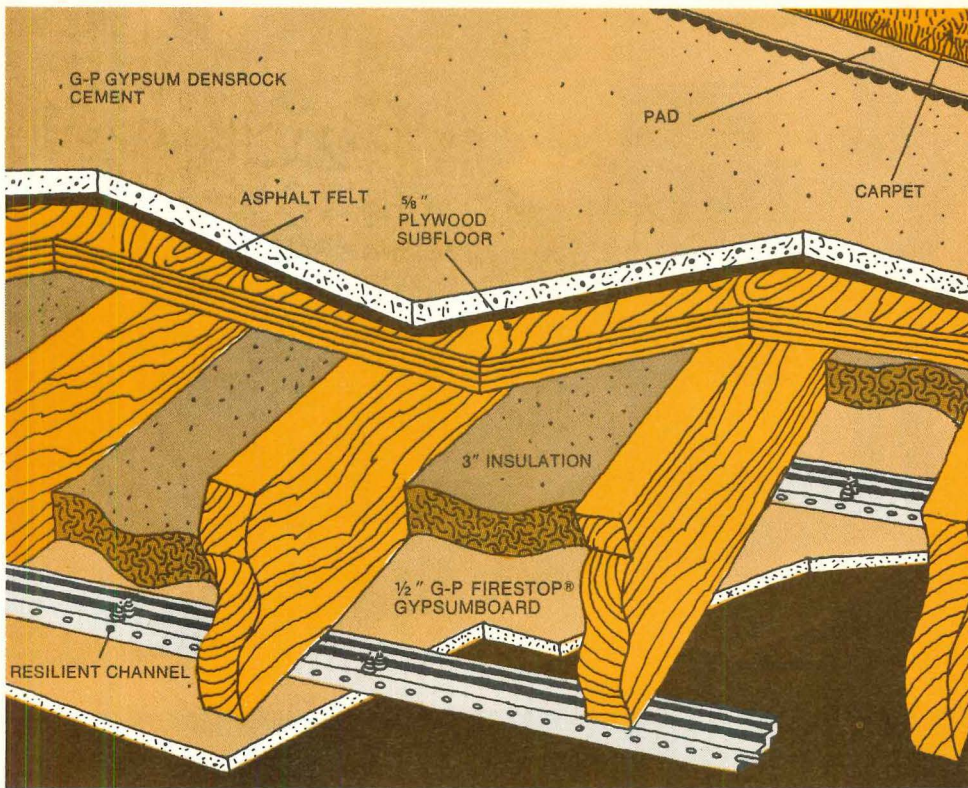
It's easy. Just have wall studs with 1½" insulation installed. Then over both sides of the studs, have G-P's ¼" (U.L. labeled) Gypsum Sound-Deadening Board attached and then covered with ⅝" FIRESTOP® gypsumboard. That's it! Gives you an STC of 50 with a one-hour fire rating.



"Floor and ceiling systems cause me trouble ... and cost me money."



Use Georgia-Pacific's floor/ceiling system and they won't cause you trouble. Or a lot of money. Just have a ⅝" plywood subfloor installed over 2" x 10" wood joists, 16" on center, with 3" of insulation. A layer of asphalt felt is added. Then ⅝" G-P Densrock™ gypsum cement is troweled in. And the pad and carpet can be laid down. For the ceiling of the lower unit, a resilient metal channel is nailed to the joist. And ½" G-P FIRESTOP® gypsumboard is applied. This system gives you an STC of 58, an INR of +22, and an IIC of +72.



**GP GEORGIA-PACIFIC**  
GYPSUM DIVISION  
Portland, Oregon 97204

# to economical fire and low-rise construction.

For more data, circle 29 on inquiry card

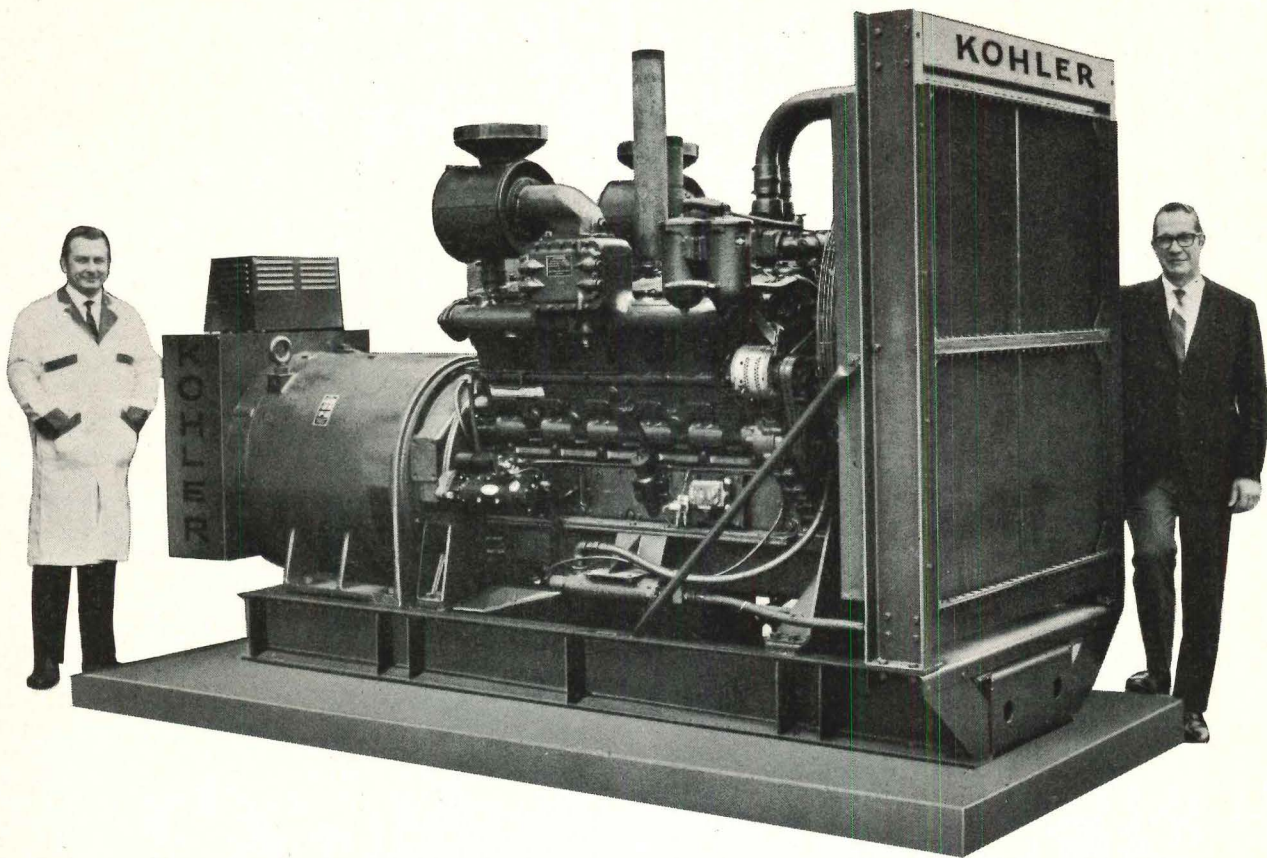
# Take it for granted.

Take for granted the job-matched dependability of a Kohler standby electric plant.

For big jobs, choose a brushless 500,000 watt set. Or find your problem solver from 63 other models with more than 300 significant adaptations. Gas, gasoline or diesel fueled. With a full line of accessories, including automatic takeover and special exhaust silencers (so important in hospitals and nursing homes).

Whatever your standby power needs, Kohler and its distribution organization has the right size electric plant and accessories.

And you can take for granted our world-wide acceptance. Kohler gives you sales and service throughout the United States. Plus international distribution in 50 countries. And Kohler has electric plant manufacturing facilities in Mexico and Canada as well as at the parent factories at Kohler Co., Kohler, Wisconsin 53044.



**Kohler  
Electric Plants.  
We work hard  
to make them  
hardly  
noticeable.**

Kohler Co., Kohler, Wisconsin

For more data, circle 30 on inquiry card

# BEAUTIFUL OUTSIDE

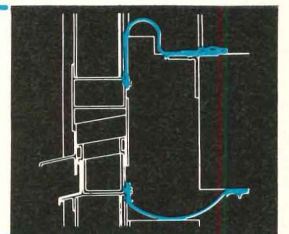


and  
beautifully QUIET  
inside—

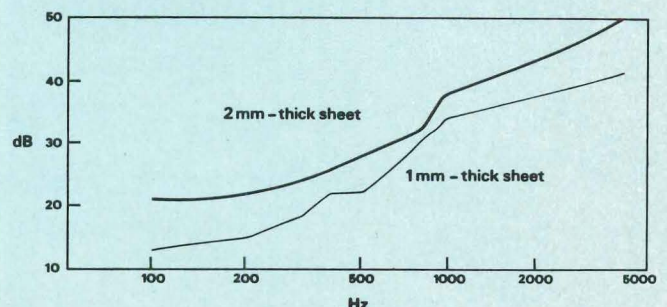
with the help  
of LEAD

Lead-filled natural rubber sheet prevents noise leaks from one floor to another in the new Pirelli Centre in Milan. It forms a flexible sound barrier sealing the gap left between the floors and the curtain wall to allow for thermal movement. □ Known as Gade (Gomma Alta DEnsita = high density rubber) the material contains a high proportion of a lead compound. It was developed by Societa Applicazioni Gomma Antivibranti and, as shown in the graph, a sheet only 1mm thick can provide 30 decibels reduction at 1000 Hz. □ In addition to its sound attenuating capability, lead-filled rubber will not transmit vibration and can be easily cut to shape and installed in any type of gap. Similar materials such as leaded vinyl are used for like purposes in the U.S.A. □ This is another example of how architects and designers are using lead to improve the quality of life by keeping things quiet. □ St. Joe supplies quality lead—industry puts it to work.

At right—Section through curtain wall showing position of lead-filled rubber sheet seals.



Below—Effect of different thicknesses of lead-filled rubber sheet on sound attenuation.



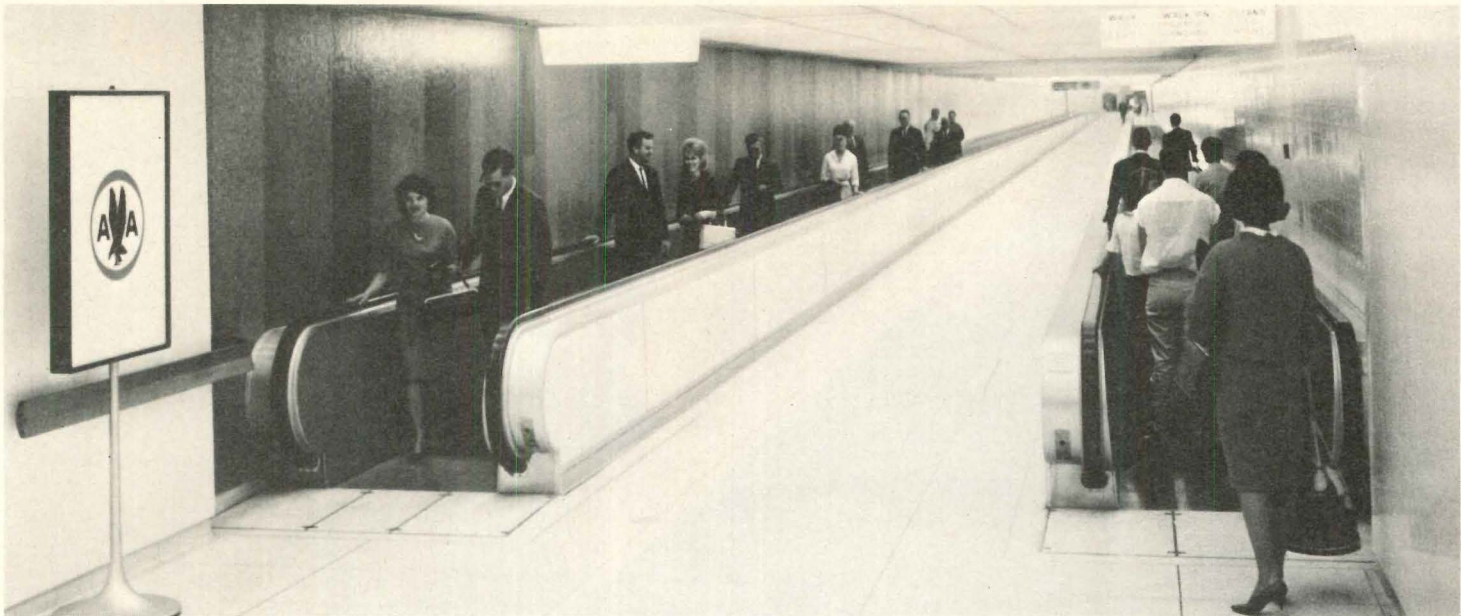
**ST. JOE**  
MINERALS CORPORATION

250 Park Avenue  
New York, New York 10017  
Tel. (212) 986-7474

**Take the  
long walk  
out of  
your  
building  
plans**



# Goodyear Speedwalk and Speedramp systems carry over 100,000 people every day



SPEEDWALK horizontal belt passenger conveyor

SPEEDWALK® and SPEEDRAMP® systems are the proven way to move people. They're used today in air terminals, shopping centers, stadiums, industrial complexes, and other applications.

SPEEDWALK is a horizontal passenger conveyor system that lets people step on, put down their bags, and ride to the end at up to 180 feet per minute. Or walk on the belt at their normal speed—plus 180 fpm.

A SPEEDWALK system can provide controlled movement of pedestrian traffic. Reduce walking time and distance by 40% for airline travellers moving from an air terminal entrance to the boarding gates. It can direct "through traffic" from one major store to another in a big shopping center. It can keep

crowds moving to prevent congestion in a stadium or amusement center.

However you use it, there's no waiting, no need for operators, and almost no maintenance.

And it's just as easy to move people between levels, with a SPEEDRAMP system. SPEEDRAMP is the multi-level passenger conveyor system with no steps to cause problems for people with baggage, carts, strollers or wheelchairs.

SPEEDWALK and SPEEDRAMP systems are surprisingly low in cost. And they're on line now, ready for delivery whenever your plans call for them.

For our new brochure, write Goodyear, Transport Systems, Akron, Ohio 44316.

SPEEDRAMP incline belt passenger conveyor



## New Speedwalk and Speedramp installations under construction at...

**Louisville, Ky.** Delta Airlines, Standiford Field. Completion, May, 1971

**Cleveland, Ohio** Cleveland Hopkins International Airport. Completion, June, 1971

**Meriden, Conn.** The May Company, Meriden Mall. Completion, July, 1971

**Speedwalk/Speedramp systems keep you ahead of the crowd**

# GOODYEAR

For more data, circle 31 on inquiry card

# New Fascia System by SILBRICO

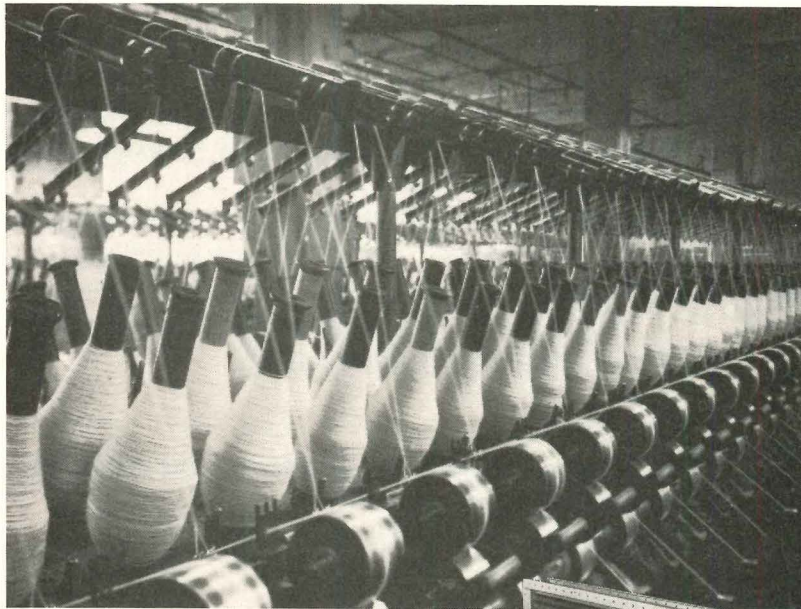
A fascia, water dam, gravel stop, curb and cant . . . all in one simple, durable system. The Silbrico extruded aluminum fascia system is designed and installed to meet Factory Mutual roof perimeter flashing requirements of Data Sheet 1-49 to resist wind uplift of 60 lb./Lin. Ft. of wall. It controls water, prevents leakage at the roof perimeter, withstands high winds, hides building irregularities and provides a most attractive non-corrosive, durable fascia for any building. An exclusive vinyl seal throughout an extruded aluminum liner-flashing is held tight by the Silbrico "Cam-Lock" locking device to assure a positive water seal always. Wide variety of finishes and colors. Compare fascias . . . then specify "the tough one" . . . the Silbrico Fascia System. Write for details, specifications and brochure showing complete range of sizes.



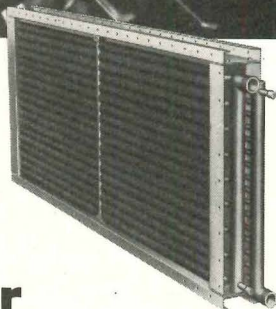
**SILBRICO CORPORATION**  
6300 RIVER ROAD • HODGKINS, ILLINOIS 60525  
CHICAGO PHONE (312) 735-3322



For more data, circle 32 on inquiry card



*AEROFIN HEAT TRANSFER COILS come in many sizes, configurations, and circuitry—with copper or aluminum helical fins. Designs range from preheat or reheat applications, sprayed coil humidification control, freeze-up hazard reduction, to customized climate systems.*



Textile production efficiency fights excessive yarn "ends down" due to relative humidity — and close-tolerance machine needle-breakage caused by temperature variations. Textile's problems may well have a message for you.

### Critical Control Jobs Call for AeroFin Coils

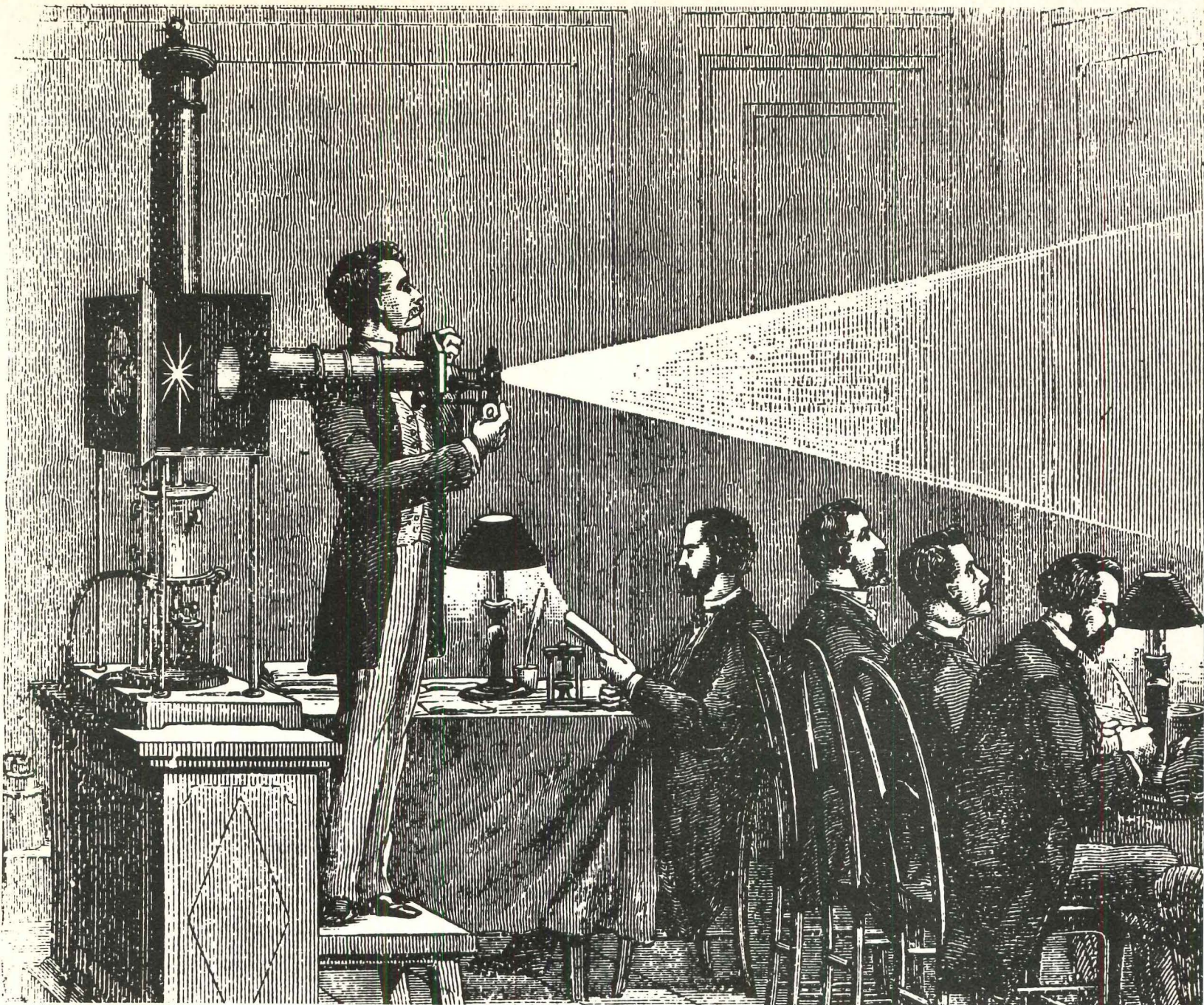
Whatever your heat transfer application — industrial, commercial or even energy system design — AeroFin Coils deliver balanced thermal efficiency. AeroFin has the proven-on-the-job fin design — the technology for any tough fan-system project on your boards. Call our specialists in: Atlanta, Boston, Chicago, Cleveland, Dallas, New York, Philadelphia, San Francisco, Toronto, Montreal.

## AEROFIN

CORPORATION • LYNCHBURG, VIRGINIA 24505  
AeroFin is sold only by manufacturers of fan system apparatus. List on request.

# Nobody is fussier about humidity and temperature than textiles





## SLIDE PRESENTATIONS

This article is adapted from "Architectural Delineations, a Photographic Approach to Presentation" by Ernest Burden, copyright 1971. The 320-page, 8½ by 11 inch book will be published in August by the McGraw Hill Book Company. Price: \$18.50 and well worth it. The author, Ernest Burden, is an architect who lives and works in New York City, where he provides his clients with architectural renderings, graphics and color slide presentations. He has also established a color slide program which provides examples of world architecture, traditional and modern, to universities and museums throughout the country.

By ERNEST BURDEN

For many years architects have been asked to make presentations to describe their services to potential clients, school boards, or other public agencies. By utilizing slide projection as their means of visual communication some architects have achieved surprisingly successful results.

When you decide to give a slide presentation for the first time some advance planning will be in order. First, you must determine the size of your audience, and some of the physical aspects of the room you are going to use, and finally, the size of your budget. With these in mind you are in a position to carefully plan and program your approach.

The visual aids that accompany most talks are either difficult for an audience to read or cumbersome to move about. They are generally quite inflexible. Slide presentations, on the other hand, are so versatile as to encourage the use of many diverse elements to tell the story. In short, slide presentations can become a totally creative tool in the hands of an imaginative person.

### Planning the storyboard

You can begin to plan your show with a device used for many years by the movie and television industry, called the storyboard. This device makes it possible to plan an entire show in any amount of detail and for any number of slides prior to shooting.

First you will need a master sheet to guide you in programming your show. The best way to make one is to rule off a sheet with two- by two-inch frames and draw within these frames both the horizontal and vertical slide formats.

With this as an underlay sheet, begin to plan your show. Start with the opening sequence—for the most important parts of the show and the most difficult to plan are the opening and closing sequences. Then fill in between. Once you have completed a rough storyboard, you will see slides that can be changed around and some that should be eliminated. The storyboard shown here was set up for a double image projection shown side by side. Therefore, the storyboard was laid out in pairs of slides and each frame could be planned in relationship to the other. This storyboard also facilitated the numbering of the slides for their respective left and right projectors, and for writing and keying of the script.

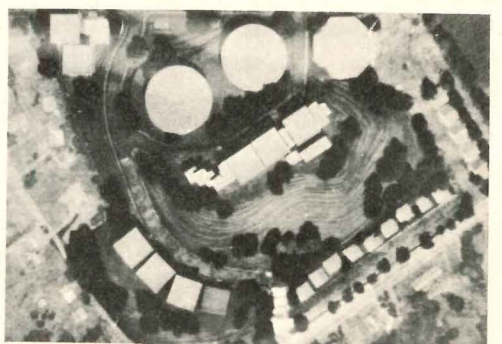
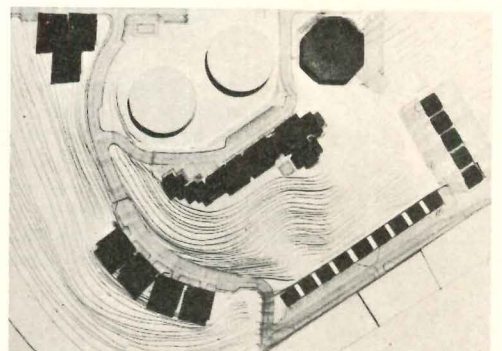
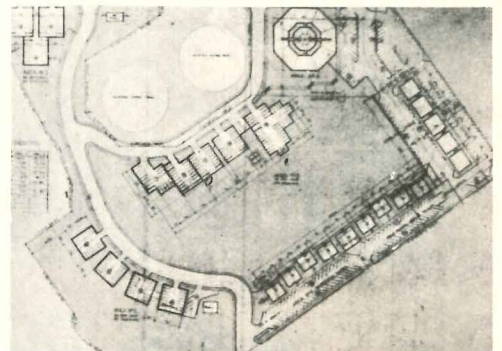
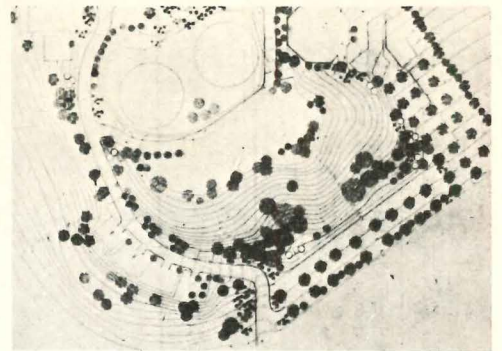
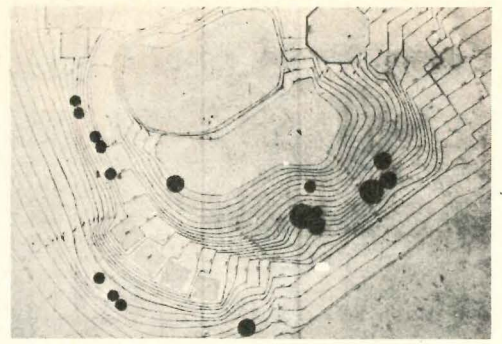
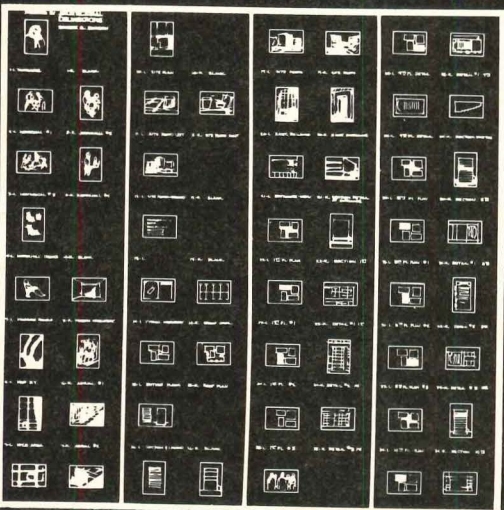
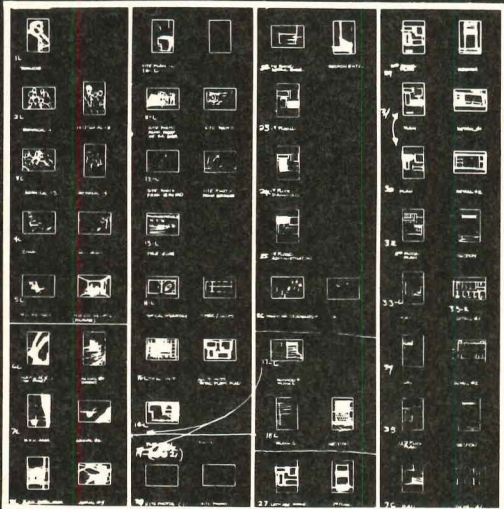
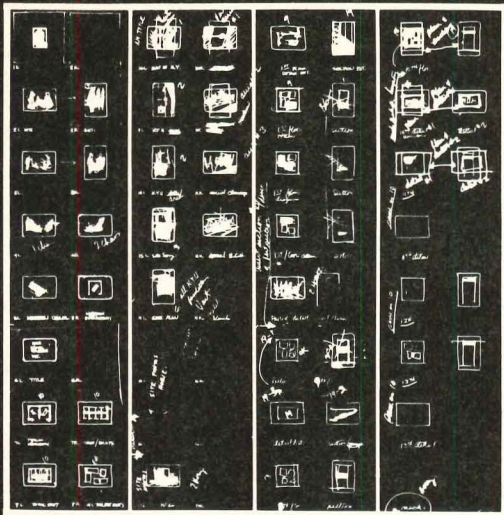
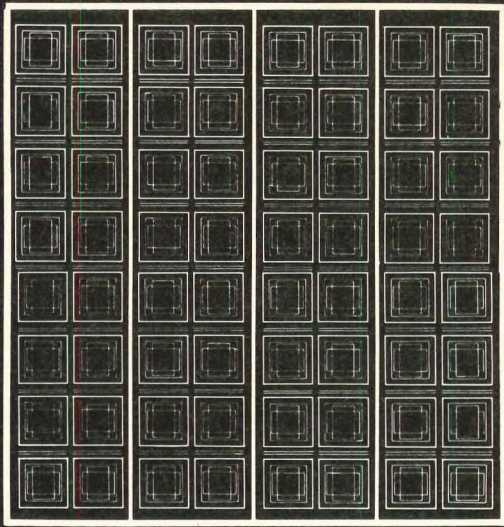
### Planning the script

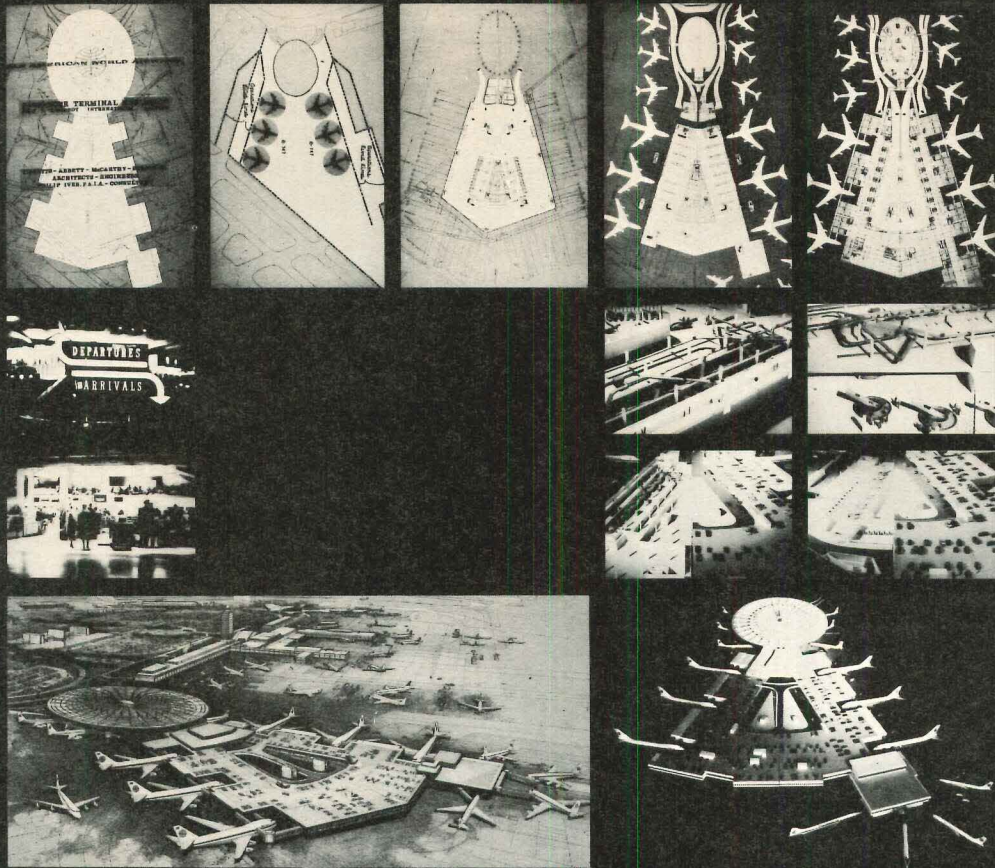
Your script is the mortar that will hold your slides together. Before you actually begin writing, project all the slides in the order you plan to show them. Look at them alone the first time through. Then ad-lib a commentary about the slides as you project them. This will get you involved with the material, and you will begin to see how long each slide should be left on the screen. At this stage, the overall pattern of your show will begin to emerge. All this should take place before you have written a word.

There will be times when you will not want, or need, a caption for a particular slide. Once you have all the captions written, read the script aloud. It will sound choppy at first. Smooth out the writing by analyzing the slides as you read. Strive especially for clarity and continuity.

### Building continuity

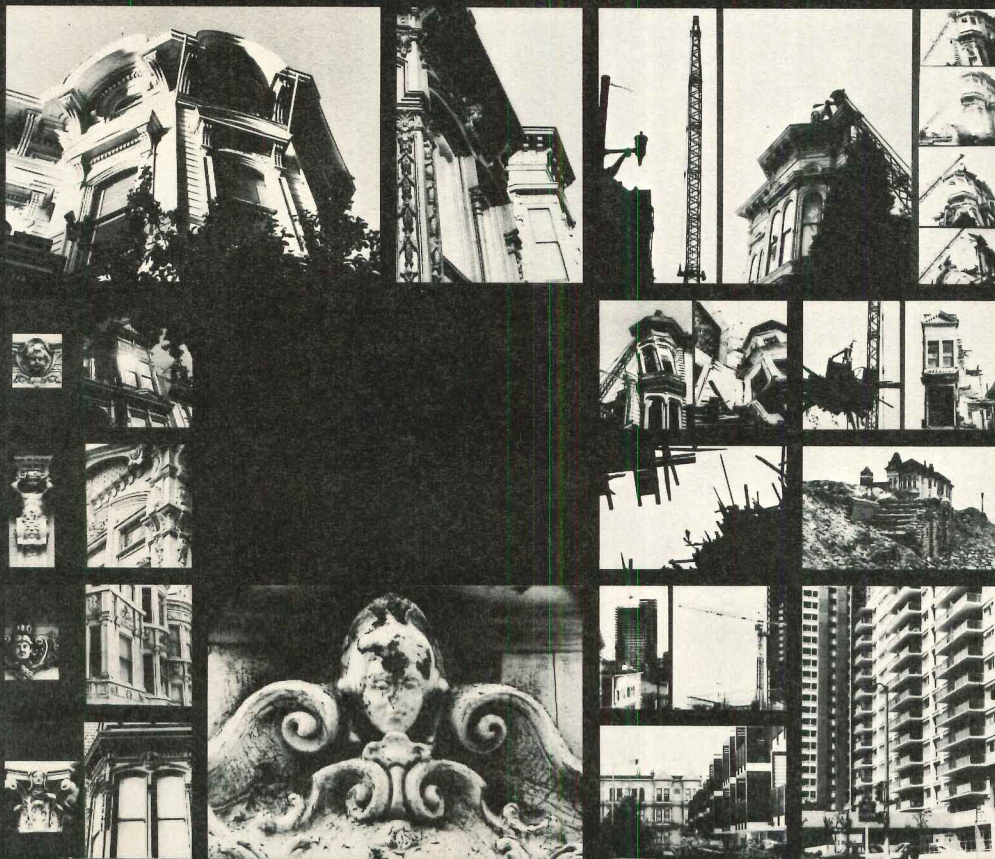
There are many ways to achieve continuity. Perhaps the most effective is to build a series of slides revolving around a central idea. Shown here is a series of plans depicting various stages of development of a multiple-use land development. The series includes the existing contours and trees, new grades with proposed landscaping, a land use plan showing dwelling units, and a parking diagram. Finally, two stages of a presentation model were shown. These were all in full color using lap dissolve projection. The entire sequence, including commentary, took less than two minutes of a fifteen-minute program.





PAN AM TERMINAL EXPANSION. A color slide program prepared for Tippetts-Abbett-McCarthy-Stratton, Architects and Engineers to show as an example of one of the firm's major projects.

FACADE. A black and white and color slide presentation, with recorded musical background and narration, used as an entry in the A.I.A. Slide Show Competition 1970. Material for the show was taken from a book under design by the author.



### Creating a story

Behind every good presentation is much experimentation, some selective analysis, and a lot of imagination. For when these shows are brought before the public they must be polished to meet the occasion. The story line must be clear, concise, and convincing. There should be an introduction, a statement of ideas, a development of these ideas and a conclusion.

### Preparing the artwork

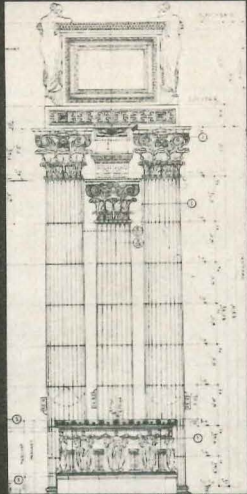
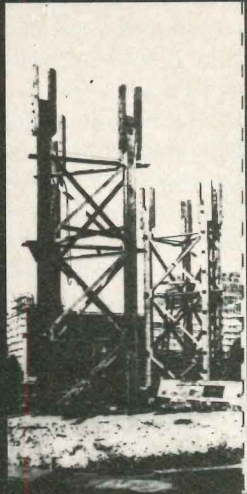
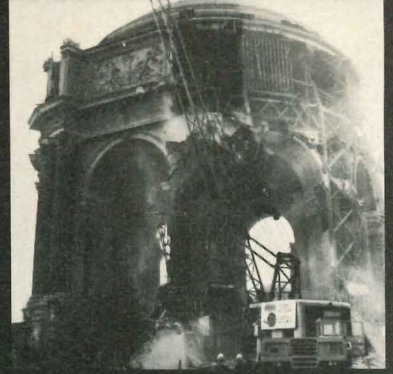
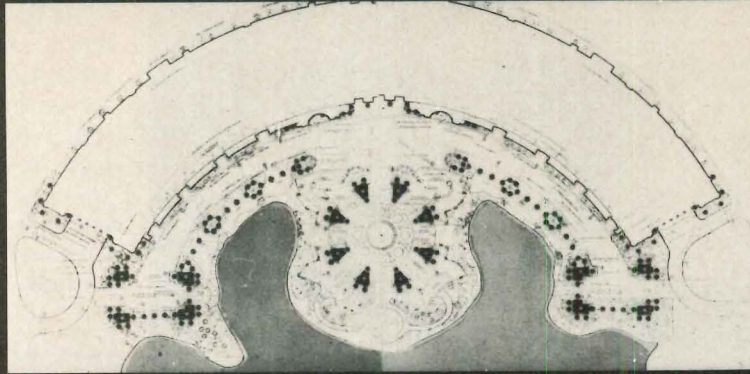
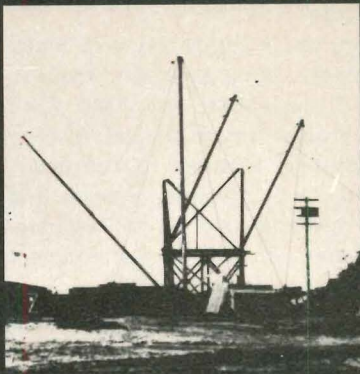
It is always a good precaution to prepare a sample of artwork at a reduced scale and have it photographed to determine how the art will look when enlarged. Any defect on the original, or in the slide itself, will be greatly enlarged upon projection. Lettering on architectural plans will be too small to read. The plans should be reduced to 11 by 14 inches and larger lettering applied on that size. The slides must be very carefully photographed—as out-of-focus, poorly cropped or improperly exposed slides are of course distracting. It is important to work out a shooting schedule early in the program, by working backwards from your presentation date. However, unless you allow time at the end for re-shooting, editing, reviewing and rehearsals, you will be in a rush at the end.

### Presenting the show

In planning a slide show to present before an audience be sure you are familiar with the physical arrangement of the room. All equipment should be in good working order and the operation of all systems should be second nature. It is a wise idea, when possible, to rehearse your show in the same room a few hours before presenting it. An unrehearsed program will be full of minor flaws which can embarrass the speaker and upset the audience.

### Multiple projection made easy

The slide presentation "Facade" was designed for entry in a competition. Therefore, competition rules dictated its form. The subject matter was selected for its timeliness in the ever-increasing war on community ugliness. It depicted the story of a group of buildings slated for destruction and the eventual construction of new buildings to take their place. To portray this amount of material on the screen would have required multiple projection, but the competition rules did not allow this. Therefore, all the photographs selected were prearranged, cut out, and mounted on black cardboard. Then the composite was re-photographed onto one single 35mm frame. This allowed up to 250 pictures to be shown on 80 single 35mm slides. Certain parts of the slides were carefully masked to crop off any area not wanted on the composite slide. The end result was a multiple-image presentation using a single projector and a single slide each time. The possibilities of combinations using this approach are endless.



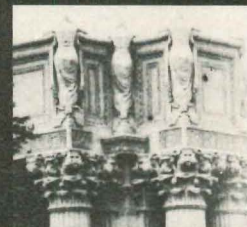
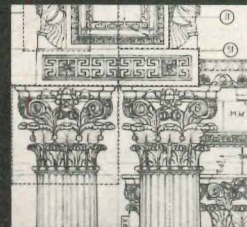
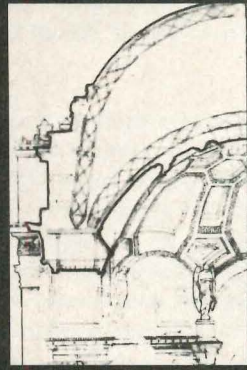
### Co-ordinated presentations

The slide show entitled "San Francisco's WILDFLOWER, the Palace of Fine Arts" was presented to the A.I.A. Slide Show Competition in 1970, where it received a special commendation award. It was later shown in its entirety at the first joint New York/New England Regional A.I.A. Convention. The show was a color version of a book published previously by the author under the same title.

The slide presentation told the story of the construction of a temporary fair building, its eventual demolition, and ultimate reconstruction in permanent materials. The show was programmed as a single, lap dissolve projection, set up within an automatic framework. A tape recorded musical background was interspersed with narration to provide the story line.

Any presentation can be enhanced by the addition of a tape recorded narration and musical background. Oftentimes a criticism is raised that a "canned" talk is inferior to a live lecture. This may be true if the lecturer is a professional speaker—but most architects are not professional speakers. The recorded narration has the benefit of sounding professionally executed. Use your own voice only if you are certain it records well.

The best type of recorder to use for this type of presentation has two recording channels, one for the speech and triggering mechanism and one for the music background. Any portion of either may be erased and re-recorded without affecting the other. This makes any show easy to set up as an automatic show. Many projectors have variable automatic timers built in, which is very useful if the show does not have to coincide with the narration. The main thing to strive for is a clear portrayal of your idea and the best way to achieve this is by a practiced, controlled and professional-as-possible presentation.



# People-proof panelboards.

Protect lighting panels with tamper-proof Mono-Flat® trims—standard on all Square D lighting panelboards. When the Mono-Flat front is properly installed and locked, it's practically impossible to get at the inside without the key. The lock is flush with the surface of the door so there is very little room for someone to insert a screwdriver under the lock and pry the door open. And the trim screws are inaccessible behind the locked front. Mono-Flat fronts come with one of either of two key changes so standard and emergency

lighting can be keyed differently.

On a more aesthetic note, the Mono-Flat front has a smooth appearance that can easily be papered, painted, or otherwise covered to blend in with the surrounding decor.

Mono-Flat enclosures are easy to install. They hold themselves in place while the trim screws are locked. And the front of the panel can be adjusted in or out if the box is set improperly in the wall.

Mono-Flat trims are now standard on all Square D lighting panelboards

as well as on several smaller power panelboards. Anytime you have a panelboard application, select a people-proof Square D panel with a Mono-Flat front to make it look its best.

For specific engineering data on Mono-Flat panelboard fronts, contact your Square D distributor. Or write, Square D Company, Dept. SA, Lexington, Kentucky 40505.

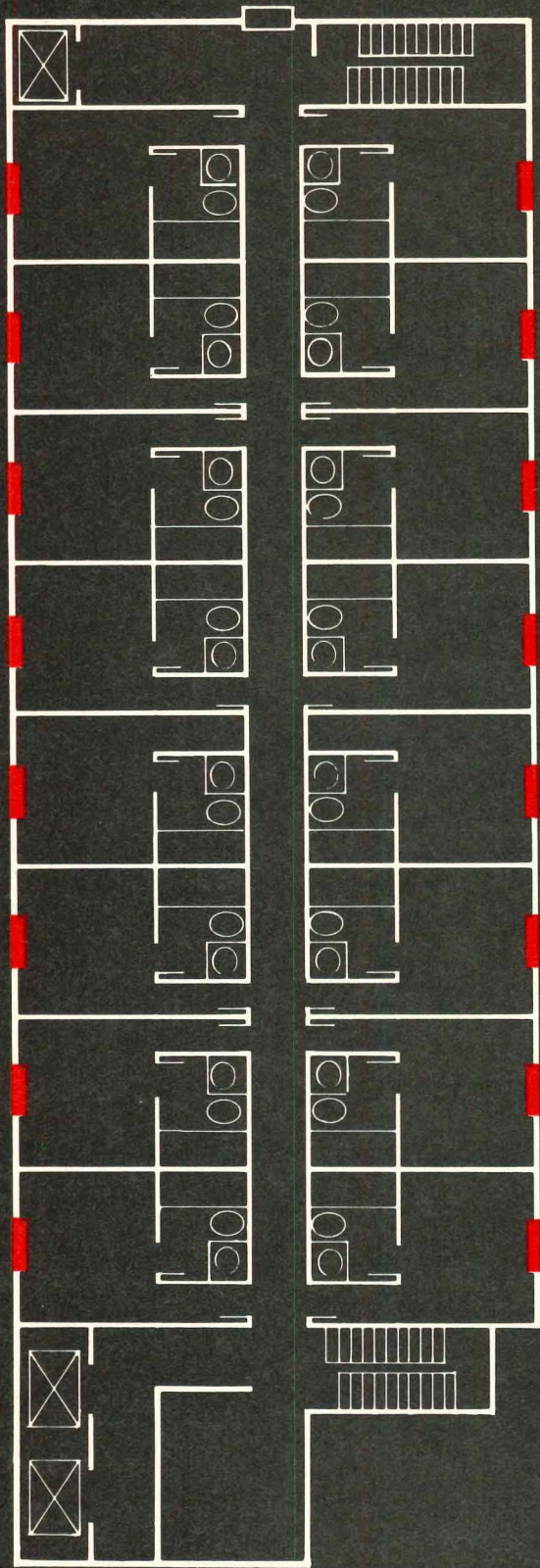


**SQUARE D COMPANY**

*Wherever Electricity is Distributed and Controlled*



For more data, circle 33 on inquiry card

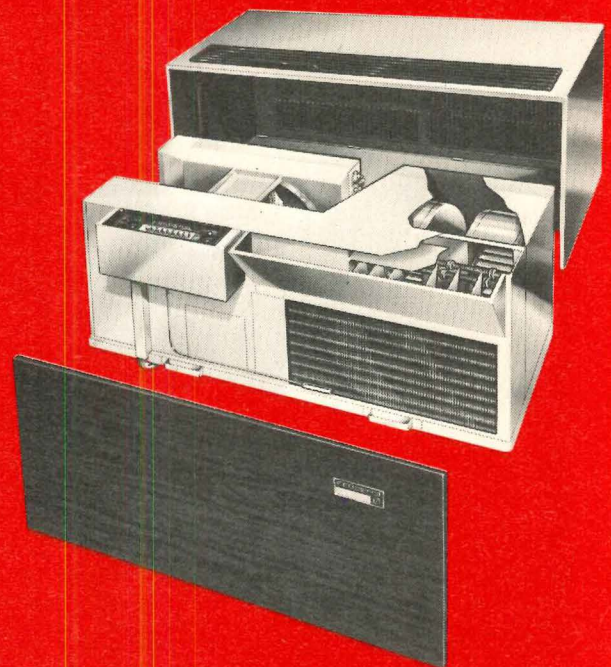


# FEDDERS

## Equipment Shall Be

**because** Unizone permits individual room control and is especially suitable for itinerant occupancy as units may be shut down when rooms are not in use. It is also ideal for perimeter rooms where cooling or heating needs fluctuate widely. The broad, flexible line of 35 Unizone models meets every cooling, every cooling/heating, and every wiring requirement for motels, nursing homes, apartments, and other lo- and hi-rise buildings, whether new or older construction. Whenever economical zonal cooling or heating is required, Unizone does the job — reliably and quietly.

Unizone is increasingly specified because of its extreme degree of quietness. But then quietness was among the major design criteria when Unizone was engineered. The sleeve is acoustically insulated with heavy glass fiber batts. Unizone has twin double-inlet blowers



# Submittal # 2

## Unizone Terminal Air Conditioning and Heating

for softer delivery of room-side air. A separate motor drives the condenser fan — this Unizone is quiet outside the building as well. Lavish use of steel and aluminum — rather than low cost substitutes — assures durability.

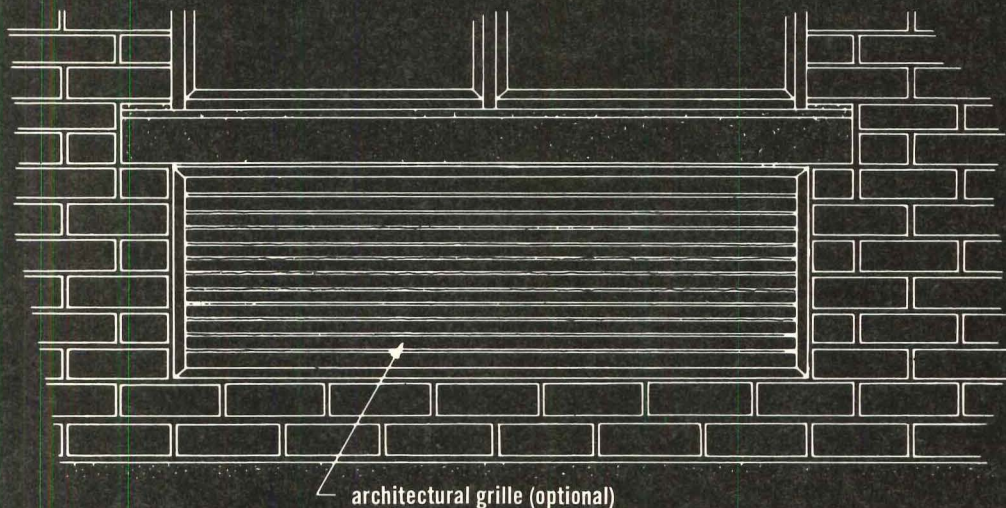
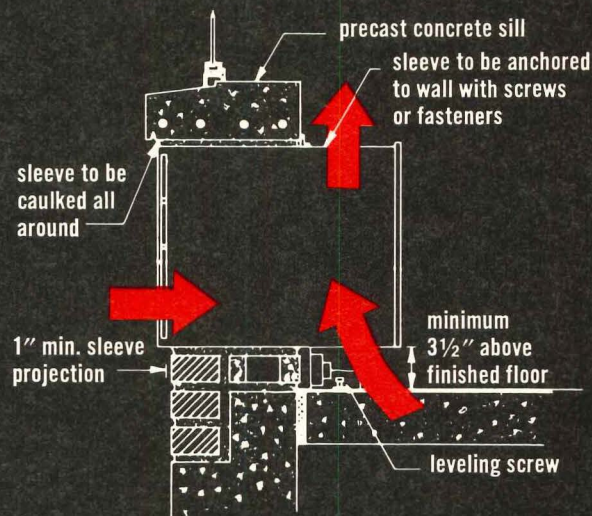
Capacities in cooling are 7,000, 9,000, 12,000 and 15,000 Btu/hr. Resistance heating ranges from 5,500 to 17,000 Btu/hr. Hydronic heating ranges from 6,950 to 24,600 Btu/hr. Models are available in 230, 208, 230/208 dual voltage and 277 volts.

Unizone sleeves are installed as the building is constructed with the chassis inserted at a convenient later date. A sub-base permits Unizone to fit wall thicknesses from 1" to 12". Sub-bases are available with electrical receptacle to meet U.L. regulations and local codes. An optional horizontal line exterior louver is also available.

The Unizone packaged terminal unit is studded with fine features. It will cool a room interior without coil freeze-up even when outside ambient temperatures are as low as 35°F. A large damper door permits up to 20 percent fresh outside make-up air in keeping with the requirements for hospitals, schools, and nursing homes.

Unizone is simple to operate. There are color-keyed pushbuttons, which include three cooling speeds, and two heating speeds on heat/cool models. Other controls include a rotary thermostat and rotary air exchanger. Unizone has a concealed, owner-adjustable fan or continuous cycle selection switch. Air vanes are also owner adjustable and are easily directed.

*Examine Unizone and by all means listen to it. You'll then understand its popularity with specifiers and with tenants.*



**FEDDERS**  
CENTRAL AIR CONDITIONING & HEATING  
EDISON, NEW JERSEY 08817

For more data, circle 34 on inquiry card

George A. Christie  
 Vice President and Chief Economist  
 McGraw-Hill Information Systems Company

## Construction outlook 1971: second update

As a gauge of recovery from 1970's recession, this year's early GNP data gave you a choice of interpretations. At face value the numbers for 1971's opening quarter were a considerable improvement over anything 1970 had to offer. In current prices, the rate of GNP finally made it over the trillion dollar hurdle (to \$1,021 billion). After adjustment for the substantial amount of inflation still packed in this total, there was \$12 billion of real growth. You have to go all the way back to the beginning of 1968 to find as big a gain.

The other side of the story is that when you take GNP apart, it turns out that too much of this growth came from special situations—makeup for last fall's auto strike; buildup in anticipation of this summer's probable steel strike; and a heavy volume of subsidized housing. What was lacking was the spontaneity or thrust of a self-generating expansion. The consumer, on whom much depends this year, was still playing it close to the vest; the Federal government was spending a bit more at home and less in Vietnam, but there was no net increase; businessmen, unhappy with 1970's profits and uncomfortable about 1971's excess capacity, began cutting back on their investment plans. Between December (when the auto industry went back to work) and April industrial production crept mostly sideways while unemployment stayed above six per cent. That's no way for a recovery to behave. In fact, the best that can be said for 1971's flimsy recovery is that it needs all the support it can get through the critical summer months.

Here's what we expect during the rest of 1971 for those areas of economic activity that bear most directly on the demand for construction:

**Federal Government:** the deficit-conscious Administration will reluctantly step up its spending soon (a tax cut is a less likely alternative). Blocked funds are coming forth, but proposed \$2 billion Accelerated Public Works Program is meeting stiff resistance.

**State/Local Government:** most of the benefit from last fall's decline in bond rates has been felt; recent surge of state and municipal borrowing will subside as the interest rate structure edges upward in 1971's second half.

**Business Capital Spending:** latest survey of

investment intentions still promises a small gain this year, but the margin is narrowing. Early 1971 contracting for business construction shows utilities booming, commercial building perking up, industrial construction weak.

**Housing:** no problems in sight. There's more than ample mortgage money around, and with the economic recovery as tenuous as it is, the Administration isn't likely to pull the rug from under one of the few strong sectors by cutting corners in its housing subsidy program.

At the end of four months, 1971's total of construction contract value was four per cent ahead of last year's amount for the same period. Not a big gain, it's true, but it carried special significance. The first four months were 1970's best. The big gains will soon begin to pile up as 1971's strengthening construction demand is matched against last year's spring and summer slump.

A big housing year is already in the bag. By spring the rate of housing starts had already reached—even surpassed—the 1.8 million level anticipated for the year as a whole. A more or less steady volume of homebuilding through the second half—close to the strong current rate—will result in a 26 per cent gain in residential building contract value this year and a 20 per cent increase in physical volume (square feet).

While the housing outlook has not

changed materially since our *First Update* (April), it's time to recognize some new developments in the nonresidential building markets. The recent caution in business investment planning is especially evident in manufacturing industries and our forecast of 1971 industrial construction has been modified accordingly. Contracting for hospitals and health facilities, which declined sharply during 1970's credit squeeze, recovered nicely through last year's second half and appeared headed for a good gain in 1971. Disappointing first quarter results have reduced that potential, however. Several other important building types in the nonresidential group—commercial buildings, schools, and public buildings—are coming along according to earlier expectations and need only minor upward adjustments at this point.

The net effect of these interim adjustments on the total of the nonresidential building group is negligible, reducing the previous forecast from +4 per cent to +3 per cent. A generally stronger second half of 1971 is expected to turn the first half decline into a gain before the year is out.

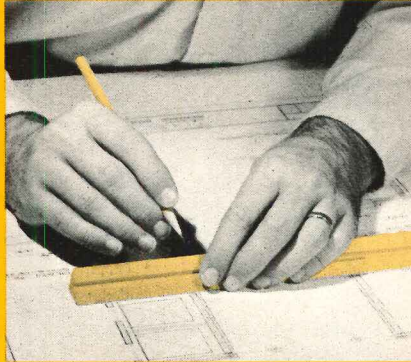
For 1971 as a whole, construction contract value is now estimated at \$76.7 billion—a gain of 13 per cent over last year's total. The seasonally-adjusted *Dodge Index* is expected to average 138 in the third quarter and 141 in the fourth, bringing the annual average to 139 (1967=100).

### NATIONAL ESTIMATES

construction contract value (millions of dollars)		1970 actual	1971 forecast	per cent change
<b>nonresidential buildings</b>	commercial	\$9,091	\$9,350	+ 3%
	manufacturing	3,614	3,075	-15
	educational	5,233	5,500	+ 5
	hospital/health	2,823	3,000	+ 6
	public	1,016	1,250	+23
	religious	582	575	- 1
	recreational	1,137	1,300	+14
	miscellaneous	940	1,025	+ 9
	TOTAL	\$24,436	\$25,075	+ 3%
	<b>residential buildings</b>	one- and two-family homes	\$15,531	\$19,250
apartments		7,854	10,500	+34
nonhousekeeping		1,409	1,500	+ 6
TOTAL		\$24,794	\$31,250	+26%
TOTAL BUILDINGS		\$49,230	\$56,325	+14%
<b>nonbuilding construction</b>	streets, highways and bridges	\$7,545	\$7,800	+ 3%
	utilities	4,058	5,500	+36
	sewer/water supply	3,255	3,500	+ 8
	other nonbuilding construction	3,848	3,600	- 6
	TOTAL	\$18,706	\$20,400	+ 9%
TOTAL CONSTRUCTION		\$67,936	\$76,725	+13%
DODGE INDEX (1967=100)		123	139	



mind if we reduce one of your dimensions?



**shorter passenger destination time than ever before is delivered by HAUGHTON'S new 1092-IC elevator control system.**

Change your building!? You bet! The time dimension—passenger Destination Time—will be the shortest you've ever known.

It happens this way: Micro-miniature integrated circuits pack 1092-IC with more electronic logic than any conventional system can provide. Every factor affecting passenger service is sensed and responded to

—instantly. More than double the "alertness" of any other system.

Then, whenever a call button is pressed, an elevator will respond and deliver the passenger to destination faster, more directly than ever before.

1092-IC never lets well-enough alone. It pays millisecond attention to all changes in load, location, commitments, interference;

constantly allots and reallots calls to cars that are in the best condition to serve them.

No more "bus stop" waits. No more "milk-run" trips. No question about it—here is the world's fastest and most efficient elevator service. And you may take more of our words for it:

**Write us for your copy of the HAUGHTON 1092-IC brochure.**

**RELIANCE**  **HAUGHTON ELEVATORS**  
ELECTRIC COMPANY  
P.O. BOX 780, TOLEDO, OHIO 43601

*For more data, circle 35 on inquiry card*

**ACCESS FLOOR COSTS**

Special raised flooring systems for computer rooms, communications facilities, or laboratories are being specified for an increasing number of building types. These floors are a pedestal-and-metal-stringer system with (usually) 2-ft. square panels faced with plastic or resilient tile. The floor has a basic elevation of 12 inches. The entire room including partition, access floor, acoustical treatment, power wiring, airconditioning, and a smoke alarm, will cost \$30.00 to \$35.00 per square foot.

**Building cost indexes**

The information presented in the tables indicates trends of building construction costs in 33 leading cities and their suburban areas (within a 25-mile radius). The table to the right presents correct cost indexes for non-residential construction, residential construction, masonry construction and steel construction. Differences in costs between two cities can be compared by dividing the cost differential figure of one city by that of a second city.

The table below presents historical building cost indexes for non-residential construction; future costs can be projected after examining past trends.

All the indexes are based on wage rates for nine skilled trades, together with common labor, and prices of five basic building materials are included in the index for each listed city.

1941 average for each city = 100.00

Metropolitan area	Cost differential	Current Indexes				% change year ago res. & non-res.
		non-res.	residential	masonry	steel	
<b>JULY 1971</b>						
U.S. Average	8.3	350.1	328.7	343.4	335.2	+ 8.26
Atlanta	7.9	451.4	425.6	440.1	431.7	+ 10.98
Baltimore	7.9	367.5	345.5	359.7	351.2	+ 11.11
Birmingham	7.4	319.5	297.2	311.3	305.5	+ 3.41
Boston	8.7	344.2	324.3	340.4	331.4	+ 12.49
Buffalo	9.0	383.3	360.0	377.7	366.8	+ 7.21
Chicago	8.3	397.5	377.9	385.1	379.5	+ 7.67
Cincinnati	8.8	378.0	355.7	370.7	361.5	+ 11.58
Cleveland	9.5	397.6	374.1	389.5	380.6	+ 8.44
Columbus, Ohio	8.4	377.8	354.7	368.3	361.7	+ 9.28
Dallas	7.6	345.3	334.4	338.7	331.2	+ 9.69
Denver	8.3	382.1	359.5	379.5	366.8	+ 9.51
Detroit	9.4	389.8	371.3	389.3	375.8	+ 7.96
Houston	7.7	341.6	320.8	333.3	327.2	+ 7.99
Indianapolis	8.0	331.1	310.9	323.4	316.8	+ 7.76
Kansas City, Mo.	8.2	334.6	315.2	326.7	319.2	+ 8.91
Los Angeles	8.0	383.4	350.5	371.6	365.8	+ 7.76
Louisville, Ky.	7.6	345.7	324.6	337.7	330.9	+ 8.19
Memphis	7.7	335.6	315.1	326.7	321.2	+ 8.46
Miami	8.1	372.1	354.5	363.8	355.4	+ 8.12
Milwaukee	8.6	404.8	380.1	400.8	388.0	+ 6.01
Minneapolis	8.7	370.9	348.9	364.4	354.7	+ 6.85
Newark	8.9	350.7	329.2	346.1	337.5	+ 10.10
New Orleans	7.3	332.9	314.2	328.7	320.8	+ 7.04
New York	10.0	388.5	361.2	376.5	368.5	+ 7.57
Philadelphia	8.4	361.2	344.1	355.5	347.1	+ 8.02
Phoenix	7.7	195.7	183.8	189.1	186.2	+ 8.68
Pittsburgh	8.7	342.7	322.4	337.7	328.5	+ 6.41
St. Louis	8.7	365.5	345.0	360.6	350.1	+ 7.10
San Antonio	8.0	143.0	134.3	140.0	136.4	+ 9.05
San Diego	8.1	140.2	131.6	137.2	134.6	+ 6.56
San Francisco	8.9	492.4	450.1	487.5	473.6	+ 5.34
Seattle	8.8	357.0	319.5	354.6	340.4	+ 6.40
Washington, D.C.	7.8	329.9	309.7	320.3	314.8	+ 11.03

Cost differentials compare current local costs, not indexes.

**HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL BUILDING TYPES, 21 CITIES**

1941 average for each city = 100.00

Metropolitan area	1962	1963	1964	1965	1966	1967	1968	1969	1970 (Quarterly)				1971 (Quarterly)			
									1st	2nd	3rd	4th	1st	2nd	3rd	4th
Atlanta	298.2	305.7	313.7	321.5	329.8	335.7	353.1	384.0	399.9	406.2	408.1	422.4	424.0	445.1		
Baltimore	271.8	275.5	280.6	285.7	290.9	295.8	308.7	322.8	323.7	330.3	332.2	348.8	350.3	360.5		
Birmingham	250.0	256.3	260.9	265.6	270.7	274.7	284.3	303.4	303.5	308.6	310.2	309.3	310.6	314.6		
Boston	239.8	244.1	252.1	257.8	262.0	265.7	277.1	295.0	300.5	305.6	307.3	328.6	330.0	338.9		
Chicago	292.0	301.0	306.6	311.7	320.4	328.4	339.5	356.1	362.2	368.6	370.6	386.1	387.7	391.0		
Cincinnati	258.8	263.9	269.5	274.0	278.3	288.2	302.6	325.8	332.8	338.4	340.1	348.5	350.0	372.3		
Cleveland	268.5	275.8	283.0	292.3	300.7	303.7	331.5	358.3	359.7	366.1	368.1	380.1	381.6	391.1		
Dallas	246.9	253.0	256.4	260.8	266.9	270.4	281.7	308.6	310.4	314.4	316.1	327.1	328.6	341.4		
Denver	274.9	282.5	287.3	294.0	297.5	305.1	312.5	339.0	343.4	348.4	350.3	368.1	369.7	377.1		
Detroit	265.9	272.2	277.7	284.7	296.9	301.2	316.4	352.9	355.2	360.5	360.6	377.4	379.0	384.6		
Kansas City	240.1	247.8	250.5	256.4	261.0	264.3	278.0	295.5	301.8	306.8	308.8	315.3	316.6	329.5		
Los Angeles	276.3	282.5	288.2	297.1	302.7	310.1	320.1	344.1	346.4	355.3	357.3	361.9	363.4	374.2		
Miami	260.3	269.3	274.4	277.5	284.0	286.1	305.3	392.3	338.2	343.5	345.5	353.2	354.7	366.8		
Minneapolis	269.0	275.3	282.4	285.0	289.4	300.2	309.4	331.2	341.6	346.6	348.5	361.1	362.7	366.0		
New Orleans	245.1	284.3	249.9	256.3	259.8	267.6	274.2	297.5	305.4	310.6	312.2	318.9	320.4	327.9		
New York	276.0	282.3	289.4	297.1	304.0	313.6	321.4	344.5	351.1	360.5	361.7	366.0	367.7	378.9		
Philadelphia	265.2	271.2	275.2	280.8	286.6	293.7	301.7	321.0	328.9	337.7	335.7	346.5	348.0	356.4		
Pittsburgh	251.8	258.2	263.8	267.0	271.1	275.0	293.8	311.0	316.9	321.6	323.3	327.2	328.7	338.1		
St. Louis	255.4	263.4	272.1	280.9	288.3	293.2	304.4	324.7	335.2	340.8	342.7	344.4	345.9	360.0		
San Francisco	343.3	352.4	365.4	368.6	386.0	390.8	402.9	441.1	455.4	466.9	468.6	465.1	466.8	480.7		
Seattle	252.5	260.6	266.6	268.9	275.0	283.5	292.2	317.8	325.4	335.1	336.9	341.8	343.3	347.1		

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.0) divided by the index for a second period (150.0) equals 133%, the costs in

the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0 ÷ 200.0 = 75%) or they are 25% lower in the second period.



**Evans world's  
largest producer  
of cedar plywood  
siding**

combines the bold natural beauty of Western Red Cedar with the application ease of plywood in an exciting combination of design effects. Several dramatic patterns in Cedar-Sawn and Cedar-Etched faces produce a distinctive siding for homes and commercial structures. Panels may be applied factory stained or may be allowed to weather naturally to a beautiful silver gray. Cedar Plywood Siding is weather, decay and termite resistant. Available in  $\frac{5}{16}$ " ,  $\frac{3}{8}$ " ,  $\frac{1}{2}$ " ,  $\frac{5}{8}$ " thickness and from 4' x 8' to 4' x 16'. This product is guaranteed for the life of the structure.

In Canada call 604-327-1131.

Evans Cedar Plywood Siding is ideally suited to today's discriminating customer.

For full information please return coupon below.

**EVANS PRODUCTS CO.**  
1121 S.W. Salmon • Portland, Oregon 97208

Please send me full information on  
Evans Cedar Plywood Siding

Name

Address

City  State  Zip

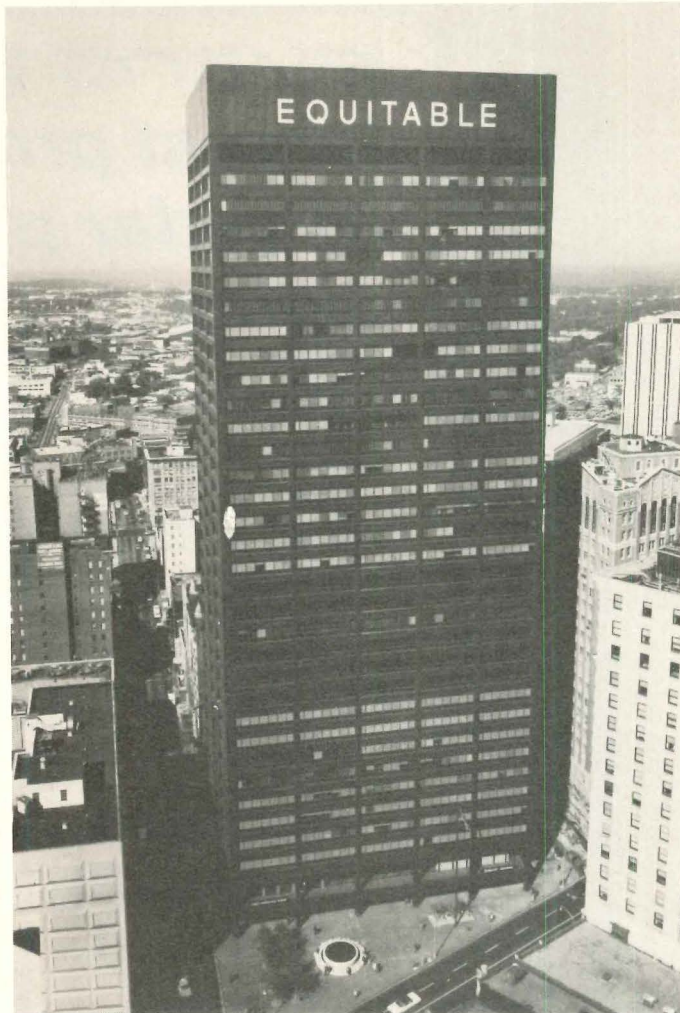
**Evans**  
PRODUCTS COMPANY  
FOREST PRODUCTS GROUP

# The building- the architect- and the sealing system- depend on Du Pont Neoprene.

Equitable Life Assurance,  
Atlanta, Georgia

Skidmore, Owings & Merrill

Preformed glazing gaskets  
of Du Pont Neoprene made  
by The F. H. Maloney Co.



Preformed gaskets of Du Pont Neoprene are the modern, dependable way to seal glazing or other curtain wall panels. They are neat for better appearance, resilient to keep a tight grip and maintain the seal. They are dependable because of Neoprene's proven resistance to sun, weather, heat, cold, ozone, chemicals and physical wear. And, Neoprene won't propagate fire.

DuPont makes Neoprene, not gaskets.

For more information on the architectural uses of Neoprene, write Du Pont Co., Room 22029, Wilmington, DE 19898.

**DU PONT** Neoprene  
REG. U. S. PAT. OFF.

*For more data, circle 37 on inquiry card*



## à la mod

Dominant design accents the modern mood.

Simple cylinder core substitution  
for fast, foolproof relocking.

Tune in on today.

Unmistakably Russwin.

Russwin, Berlin, Connecticut 06037.

In Canada — Russwin,  
Division of International Hardware.



Carson Design

For more data, circle 38 on inquiry card



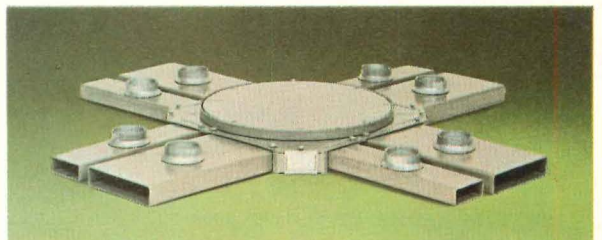
## **A painless solution to the communications gap.**

If communicating were eliminated, there wouldn't be any gap. No communications. No communications gap. But that's no answer. A simpler solution to the problem is merely plan ahead with Walkerduct. And turn the communications explosion into a mild pop. With a Walkerduct Underfloor System in your building specs, these hard facts won't bother you at all. The average phone conversation is 20 per cent longer than just a few years ago. Four out of ten business phones move every year. And who knows how many more phones we'll need tomorrow. Then there's data



processing, Picturephone\* service, closed circuit TV, computers—that's a lot of cable. And aggravation. But by running all the communication, power and signal requirements under the floor inside Walkerduct, you've got nothing to worry about. The building is safer, more efficient and able to handle any future needs quickly, easily and neatly. Without tearing up the floors. Without spending a small fortune. Contact your nearby Walkerman for more information. Or write: Walkerduct, Parkersburg, West Virginia 26101. In Canada: Walkerduct of Canada.

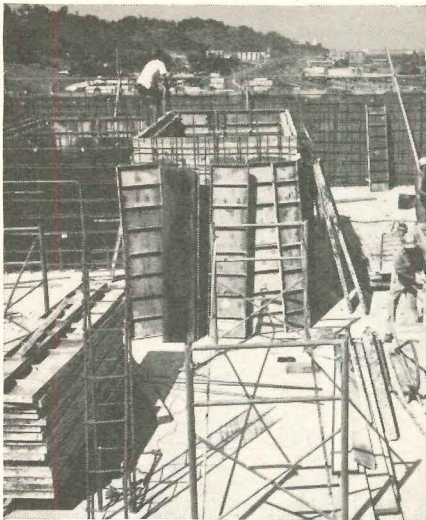
*For more data, circle 39 on inquiry card*



**walkerduct**<sup>®</sup> WALKER/  
PARKERSBURG  
A **textron** DIVISION

\*Service Mark of AT&T Co.

# IDEA, SIMPLE & INGENIOUS



Jack Ninteman, Project Manager, L. J. Ninteman Construction Co., San Diego, California, ganged one half of the 60 ft. long, 8 ft. high shear wall on the new Mission Valley Holiday Inn, San Diego. 2 x 6 ft. and 2 x 4 ft. Symons Steel-Ply Forms were used in a staggered sequence. The extra foot of formwork at top and bottom of the form gave:

1. a reference point to set the gang section against concrete placed previously at the lower end, and
2. furnished a slab edge form that automatically provided a form for the floor slab that followed.

Said Jack Ninteman about Symons Steel-Ply Forms —

*"We believe this forming system is stronger and safer than any other we've used. Now, with 5,000 lb. strength ties available from the same supplier, we can engineer the system so it's foolproof. And to a greater extent than ever before, our forming isn't dependent on labor."*

Use Symons Steel-Ply Forms on your next job. Complete information is available on request.

**SYMONS MFG. COMPANY**  
DIVISION OF  **SYMONS CORPORATION**  
122 E. Touhy Ave., Des Plaines, Ill. 60018

For more data, circle 40 on inquiry card

## OFFICE LITERATURE

for more information circle selected item numbers on Reader Service Inquiry card, pages 179-180

**ELECTRIC BASEBOARD HEATERS** / Two series are presented in an 8-page bulletin. Features include a cast aluminum heating grid which reportedly prevents sharp fluctuations in room temperature, available in one series, and an aluminum finned tube element which is said to improve heat transfer capability, offered in the second series. ■ The Singer Co., Climate Control Div., Auburn, N.Y.\*

Circle 400 on inquiry card

**METAL FURNITURE** / A line designed for hospitals, nursing homes, and general institutional use is presented in a catalog. Included are bedside cabinets, desks and dressers, over-bed tables, lounge chairs and beds. ■ Central Metal Products, Inc., St. Louis, Mo.

Circle 401 on inquiry card

**INFORMATION MANAGEMENT** / An electronically-controlled system especially designed to accommodate original files is discussed in a 4-page folder. A motor-driven conveyor system automatically stores and retrieves individual file bins. The system can be ordered to fit available space, and is designed particularly for hospital use. ■ General Electric Co., Medical Systems Dept., Milwaukee, Wis.

Circle 402 on inquiry card

**TAPESTRIES** / A collection consisting of two groups, one by American artists, the other by French artists, is presented in a catalog. All tapestries are hand-woven in wool or silk. ■ Atelier International Ltd., New York City.

Circle 403 on inquiry card

**MOBILE PANELS** / A line of space dividers designed especially for schools using the open-plan format is described in a 12-page catalog. Specifications and panel accessories are shown.

■ Peabody Seating Co., North Manchester, Ind.

Circle 404 on inquiry card

**ALARM DEVICE** / A signal unit equipped to send eight different sounds to alert for bomb evacuation, tornado, fire or civil defense, is described in a bulletin. ■ Federal Sign and Signal Corp., Blue Island, Ill.

Circle 405 on inquiry card

**LIGHTING FIXTURES** / A line of recessed incandescent lighting is described in a 96-page catalog. Over 400 items are presented. Specification and performance data are included.

■ Lightolier, Jersey City, N.J.

Circle 406 on inquiry card

**COMMERCIAL-INDUSTRIAL DOORS** / Data on upward-acting sectional doors, electric operators and accessories is given in a 24-page catalog. Construction materials include wood, steel, aluminum and fiberglass. ■ Overhead Door Corp., Dallas, Texas.\*

Circle 407 on inquiry card

**HEATERS** / A line of steam-hot water unit heaters is described in a 44-page catalog giving performance data, heating capacities, and specifications. ■ Modine Mfg. Co., Racine, Wis.

Circle 408 on inquiry card

Additional product information in Sweet's Architectural File

## In Montgomery Ward's parking ramp on the west coast



## this is how they seal expansion joints...

Permanently, with ACMASEAL Compression Seals of Neoprene. The compartmented elastomeric extrusions are available in sizes to maintain a watertight seal through joint movements ranging from a minimum of 3/32" to a maximum of 3". Resisting weather, abrasion, oils, salt solutions, heat and low temperatures, ACMASEALS have performed in similar situations for over 10 years without drying out or breaking up. In pavements, bridge decks and structural concrete wall surfaces throughout the world, they represent real economy in maintenance free expansion joint sealing. For complete specifications, send for your Data File #107-71.



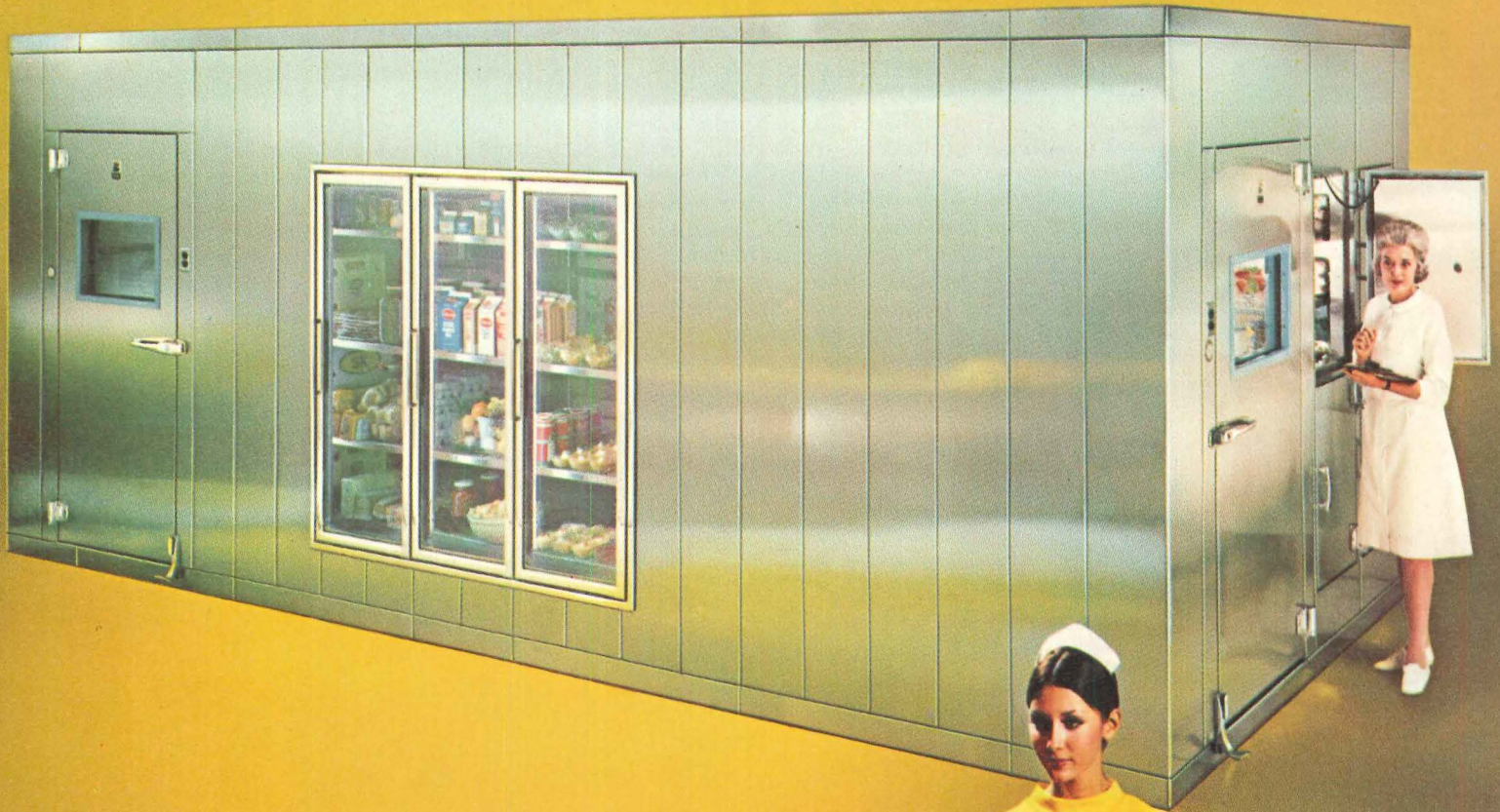
**ACMASEAL**<sup>®</sup>

THE ORIGINAL NEOPRENE COMPRESSION SEAL

A Product of ACME Highway Products Corporation  
33 Chandler Street, Buffalo, New York 14207

For more data, circle 41 on inquiry card





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

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

There's an  
evolution in the  
kitchen



© 1971 ALL RIGHTS RESERVED.



Airport parking has gone from an annoying problem to an unbelievable headache. Traffic jams effectively close some airports to automobiles during peak arrival and departure hours.

And real estate has gone from expensive to exorbitant if available at all.

But there is a system that provides parking for several thousand cars right next to the terminal. A way that saves passenger travel time, relieves traffic jams, cuts real estate costs. And brings in revenue.

Just talk to Otis. Tell us your parking problem. We'll design, manufacture, install and maintain a computer-controlled, completely automated, parking system for you. A system that is five, ten or twenty stories high. Or, if you prefer, a multi-level underground system that permits overall construction above.

The driver takes a ticket from an automatic dispenser, drives his car into a "parking port" and leaves.

The Otis system selects the parking space. Parks the car safely. Computes the fee when the driver returns.

Issues a receipt. And retrieves the car—untouched by human hands.

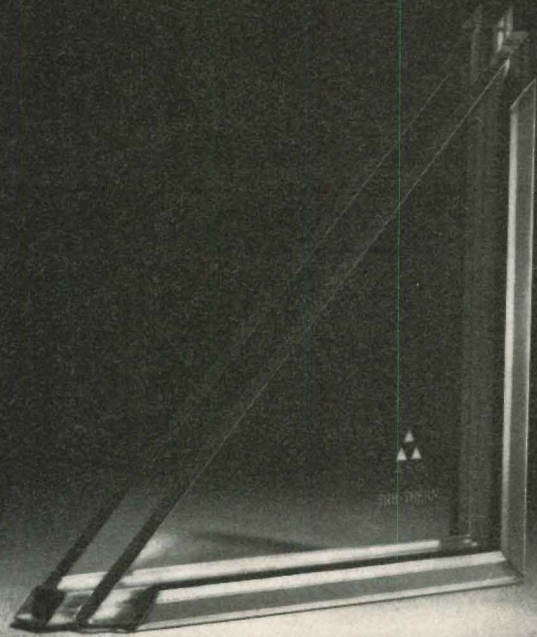
Otis is ready to help solve your parking problem. And will take complete responsibility for the installation. Otis has the world's largest service organization to maintain the equipment and keep it operating at peak efficiency. Think about Otis the next time you are driving around looking for a parking space... and miss a flight.

**Otis**<sup>®</sup>  
HAS A SYSTEM

**Anyone who wants to  
park 3500 cars on only 3 acres  
next to the terminal...  
should talk to Otis.**

For more information on Otis airport parking systems, write on your letterhead to Dept. R-7, 260 Eleventh Avenue, New York, New York 10001.

In insulating glass, too...  
the difference is made by ASG.  
We call it Tru-Therm®



Tru-Therm sells better because it performs better. And it performs better because no other thermal glass in the country gives you all five of these advantages:

**1. A choice of glasses.**

Choose from Starlux® twin-ground, polished plate in combinations of clear, bronze and gray, or fire-polished Lustraglass® sheet. They give superb transparency and clarity, free of distortion.

**2. A sealant that stays flexible permanently.**

Tru-Therm is sealed with polyisobutylene, the sealant with the lowest moisture barrier transmission rate in the industry. It stands up to year after year of ultra-violet radiation, stays permanently flexible wherever it's installed.

**3. The best lock-seam spacer.**

To make Tru-Therm work even better, ASG delivers the best lock-seam spacer made to provide added strength and eliminate squeaks under high wind load. Its special shape locks the sealant permanently in place and keeps the interglazial area pure and dry. Joints are silver-soldered for maximum strength.

**4. A superior desiccant.**

ASG removes all moisture between the lites with a superior desiccant, and provides vapor-free performance for the life of the unit. It works together with the polyisobutylene sealant and

lock-seam spacer to insure a care-free window with no costly call-backs.

**5. A stainless steel edge protector.**

ASG gives you an extra edge with this stainless steel band around each Tru-Therm unit. It protects the unit during installation and exerts a continuous pressure to assure a permanent seal regardless of temperature or atmospheric conditions. ASG places an extra barrier of sealant around all edges for further protection.

And we warrant every Tru-Therm unit for 20 years. You can't do better. Send for complete specs.



**ASG Industries Inc.**

Post Office Box 929, Kingsport, Tennessee 37662

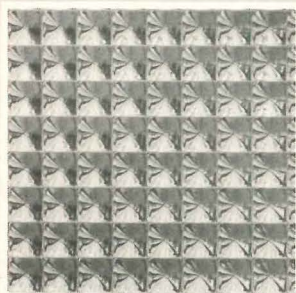
# The New KSH-19 Lighting Panel is NOT Revolutionary

(but it's just about everything else a panel can be!)

Most important—it proves again that anyone who still thinks injection molding is the only way to produce top quality lighting panels . . . is way behind! Yes. KSH has proved it again!

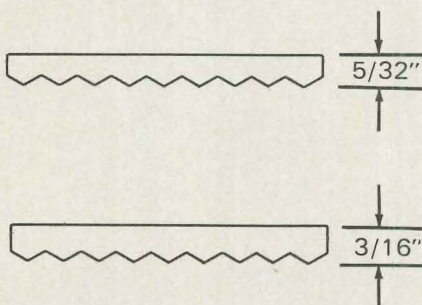
**KSH-19 is extruded. And it will equal or excel the performance of any injection molded panel of similar design. WE GUARANTEE IT. YOU CAN SPECIFY IT WITH CONFIDENCE. Now, check the features:**

## MALE CONICAL PRISMS

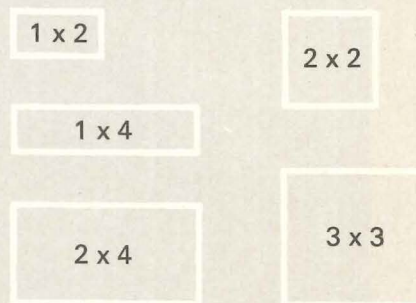


A basic design. Every prism clean and sharp for top performance.

## CHOICE OF THICKNESS



## MANY SIZES



## COLORS

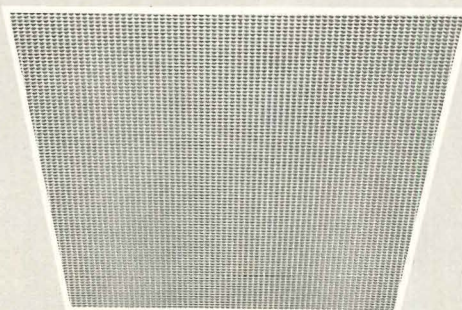


**Clear**—like crystal for maximum efficiency



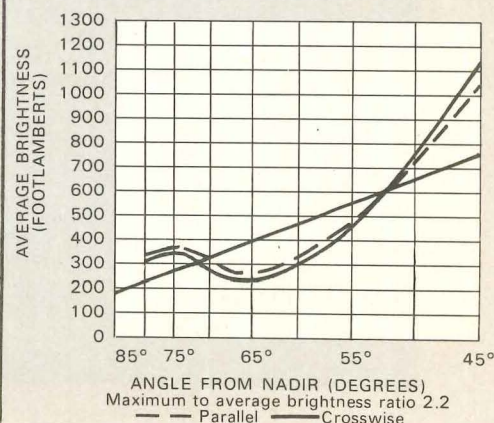
**Silvertint**—soft for extra-low brightness

## NO SHOW



Excellent lamp hiding power. No harsh streaks.

## LOW BRIGHTNESS



Ask for Technical Bulletin KI-778

**KLITE**<sup>®</sup>

KSH, INC.  
10091 MANCHESTER  
ST. LOUIS, MO. 63122

For more data, circle 45 on inquiry card

Different floors in your buildings lead different lives. Some get walked on, spilled on, wheeled on and even dropped on.

Others just have to look beautiful. And still others have to do both. So it seems natural to use special flooring made for special needs.

That's where your GAF Representative comes in. He can help you tailor just the right flooring for your buildings.

For example you might use a Royal Stoneglow tile for an especially heavy traffic area. It features very long wear and no-wax maintenance.

Then for a medium traffic area you might choose highly decorative sheet vinyl which now has interim Federal Specification Number L-F-001641 (GSA FSS). It wears well too, but features warmth and comfort underfoot. And like the tile it's fire-safe.

Your GAF Representative features such a broad line, that no matter what your needs are, he's sure to have the right style and color for you.

For more information contact:  
GAF Architectural Dept. A-7  
140 W. 51 Street N.Y., N.Y. 10020.



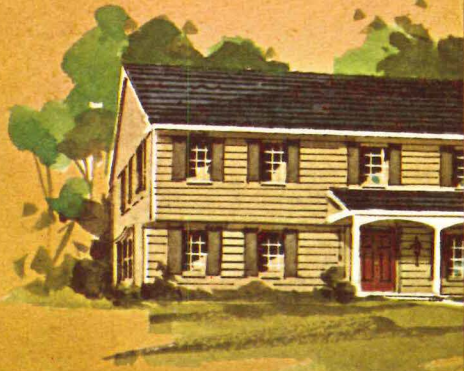
## GAF introduces floors for the way your buildings really work.



For more data, circle 46 on inquiry card

# Caradco gives

## OUR C-100: THE ECONOMY WINDOW PACKAGE



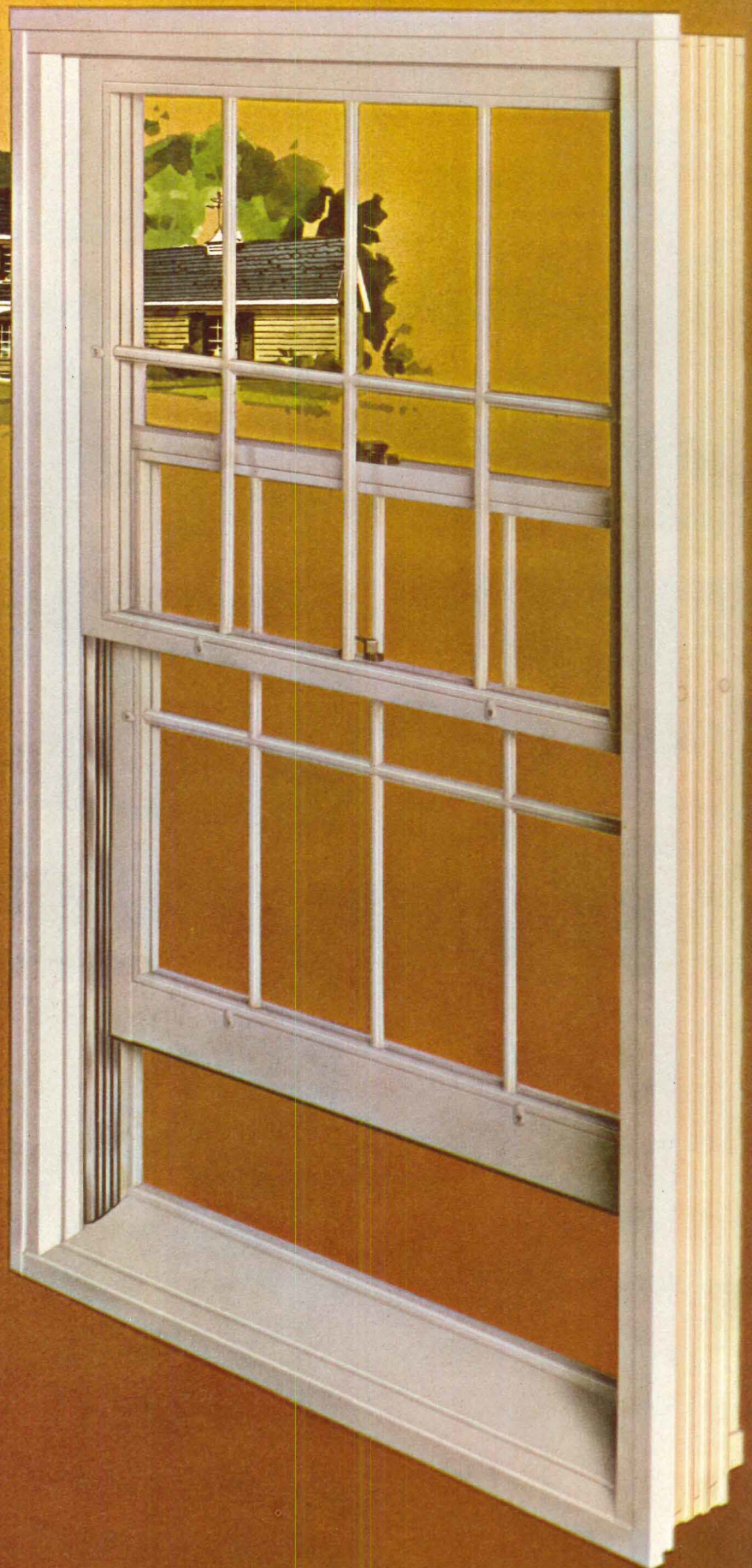
Before C-100' came along windows could be a pain. Like having to climb ladders or not being airtight. Our C-100' did away with such nonsense.

*The sash lifts out for easy inside cleaning, then snaps back weathertight. What keeps it tight is something you get only from*

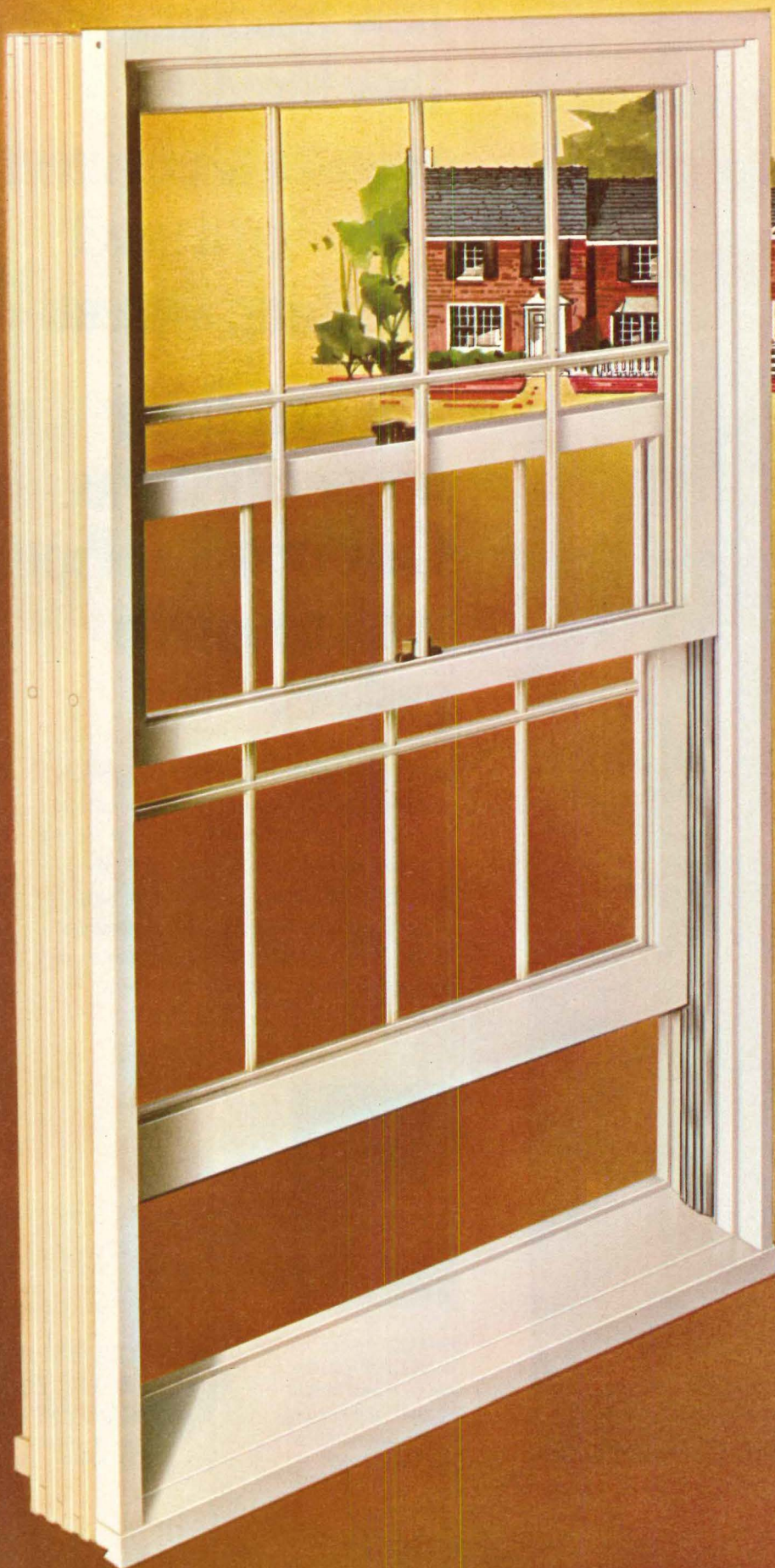
*Caradco: stainless steel weatherstripping with proven trouble-free performance. So you can forget call-backs, enjoy reduced on-site labor costs. Factory treated and primed, too. It looks great. And*

*it's a complete package—grilles, storm panels and screens. Now the clincher: C-100' carries a competitive price. No wonder so many builders are switching to*

*Caradco.*



# you a choice



## OUR PF-C100: THE PREFINISHED WINDOW PACKAGE



Here's the window that put an end to painting and clean-up expense. Our PF-C100 is *completely prefinished*. We clad the frame in vinyl to give *maintenance-free protection*. The sash is every bit as carefree. Outside, it's covered with a 4-step finish that outlasts conventional finishes two or three times. Inside, it's wood-toned stabilized to resist water and soil—you refinish only to change tone or color. And only Caradco gives you *vinyl gasket glazed insulating glass*. It all adds up to a lot more window for your dollar.

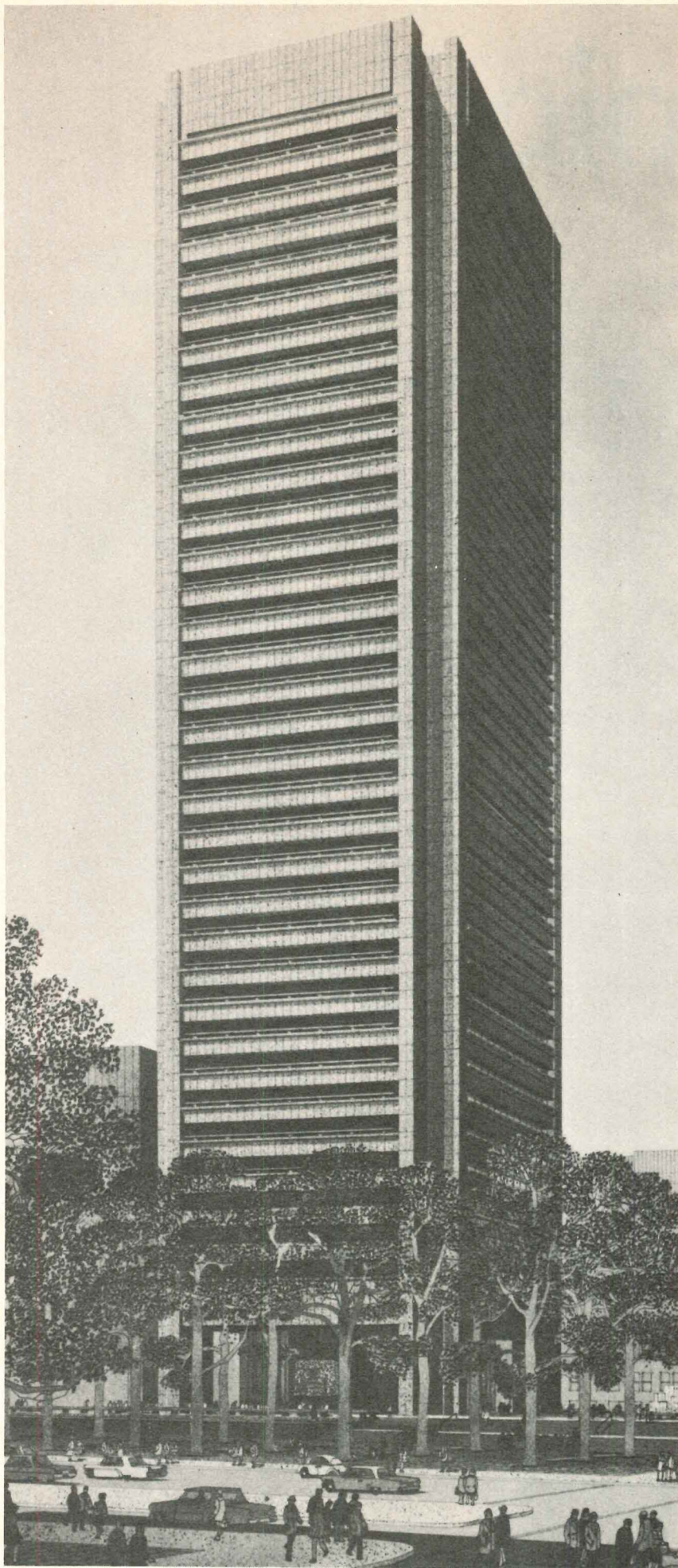


THE WINDOW AND  
DOOR PEOPLE

Dubuque, Iowa 52001

Eastern Assembly Plant,  
Hainesport, New Jersey  
Ohio Assembly Plant,  
Columbus, Ohio

For more data, circle 47 on inquiry card

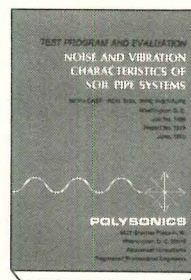


United States Fidelity & Guaranty Headquarters,  
Baltimore, Md. Architect: Vlastimil Koubek, AIA.  
Acoustical Consultants: Polysonics Acoustical Engineers.

For USF & G's  
new headquarters  
they hired an  
acoustical engineer  
to design a quiet  
plumbing system.

The first thing  
he specified was  
Cast Iron Soil Pipe  
with neoprene  
gaskets.

Noise pollution is a definite problem in today's new office buildings. Acoustical engineers are employed to design "noise out and efficiency in." That's why they specify permanent Cast Iron Soil Pipe—"the quiet pipe"—joined with gaskets of Du Pont neoprene. A two year study proved it the quietest DWV system.



**FREE!** Complete details of this study are compiled in this 30-page engineering report. Request it on your letterhead.

**CAST IRON  
SOIL PIPE  
INSTITUTE**  
2029-K STREET, N.W.  
WASHINGTON, D.C. 20006

For more data, circle 48 on inquiry card



Lucky Whip whipped in on Firth's Carpet of Herculon®...



...and lucked out.

The carpet is Firth's Futurama. It's made of HERCULON\* olefin fiber. The pattern is "Legend;" and it earned its name. We piled ripe, juicy strawberries on it, and covered them with a mountain of creamy Lucky Whip® dessert topping. Then we cleaned up the whole works. Quickly and easily.

The stain release of HERCULON, coupled with uncommon resistance to abrasion and fading gives you the ideal carpet for

any commercial installation. Lucky Whip and strawberries couldn't make an impression on Firth's Futurama. But the "Legend" pattern will make a beautiful impression on your clients.

For more information contact Fibers Merchandising, Dept. 115, Hercules Incorporated, Wilmington, Delaware 19899.

Specify carpet of Herculon® by Firth.



\*Hercules registered trademark.

For more data, circle 43 on inquiry card

For more data, circle 49 on inquiry card

Stainless steel and leather.  
The Gardner Leaver lounge chair. Hand crafted  
luxury for men, from Steelcase.

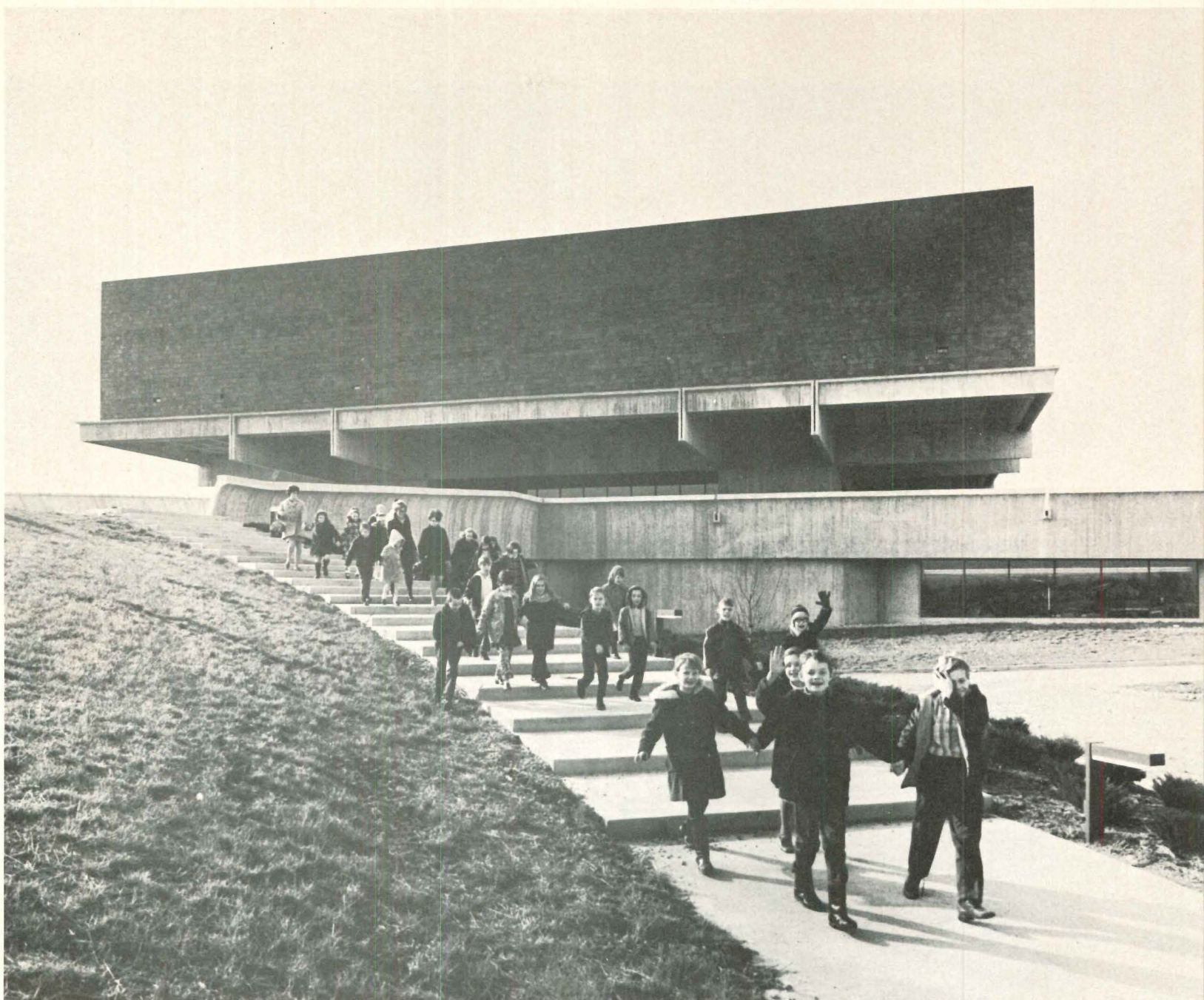
About \$1,000.

Two other complementary chairs  
and tables. Also hand crafted, but  
less expensive. Also stainless steel and leather.

Write Steelcase Inc., Grand Rapids, Michigan,  
for folder 148. Or visit our  
showrooms. In all major cities.

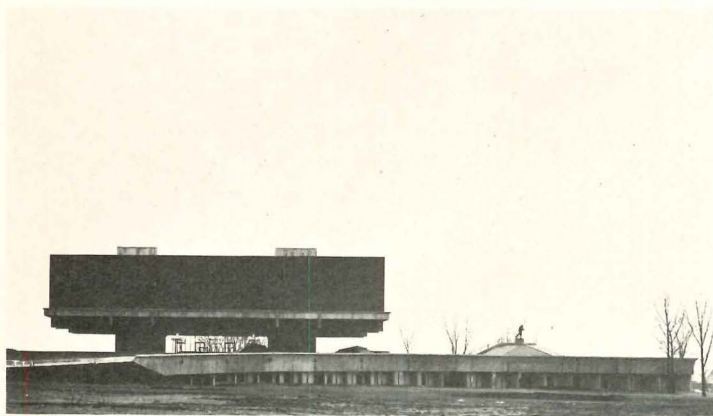
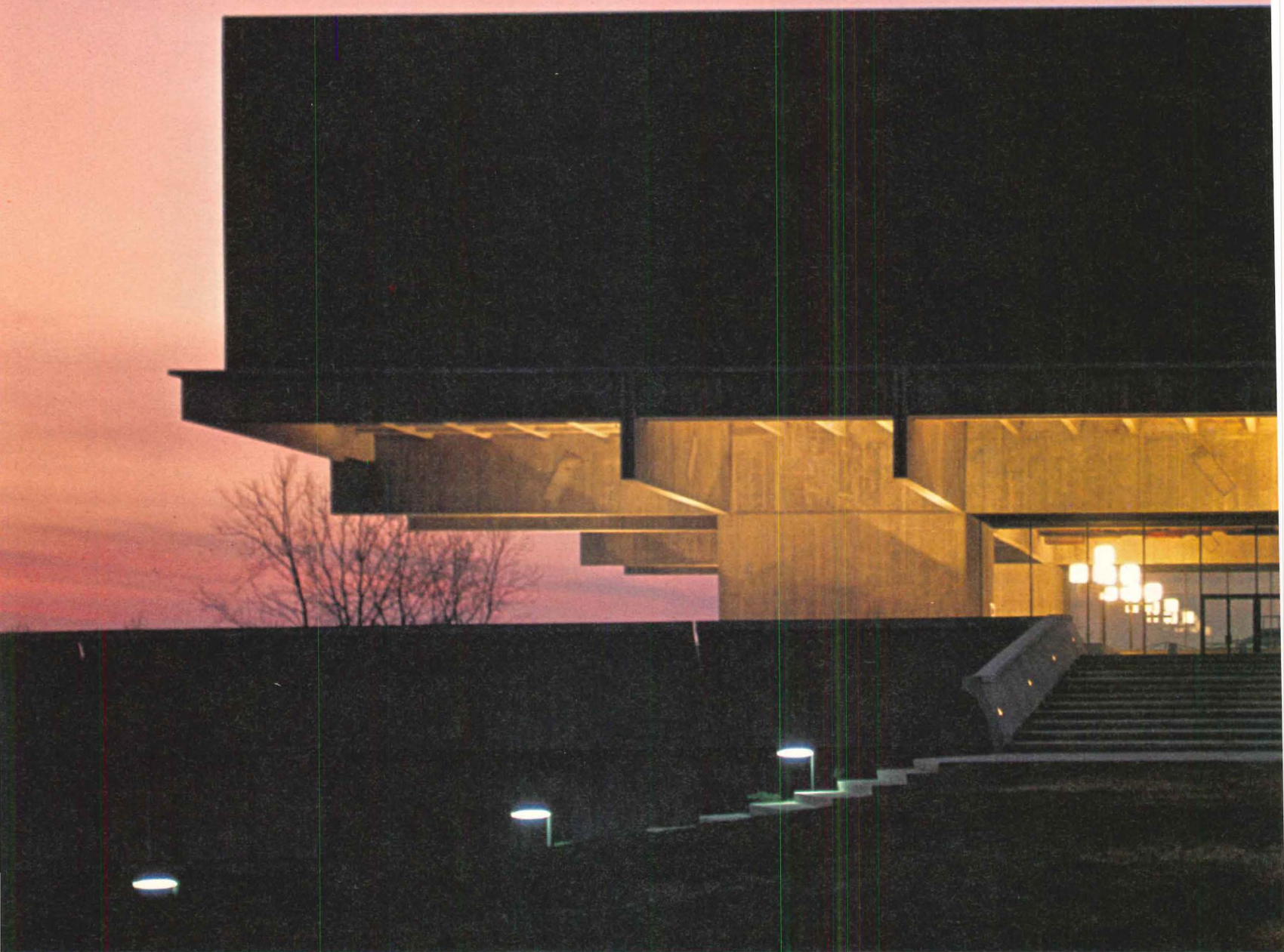


Steelcase



## THIS MUSEUM IS MAINLY FOR KIDS

These Ohio children are heading back to their schoolbus having just been given a sophisticated yet exciting exposure to the history of their state. Located in Columbus, near the center of Ohio and adjacent to the interstate highway connecting Cleveland and Cincinnati, the new Historical Center was conceived by the Ohio Historical Society primarily as a teaching device. The Society saw the need to show—and dramatically—young citizens that Ohio is more than just a place one passes through to get from East to West. And that point of view explains their courage in commissioning the young, vigorous firm of Ireland and Associates to do the job. The client's choice has been fully justified: 300,000 visitors will come here this year, almost ten times more than visited the old museum in a year. And in the bargain, they got what is no doubt the most architecturally significant public structure built in Ohio since the State Capitol building of 1841.

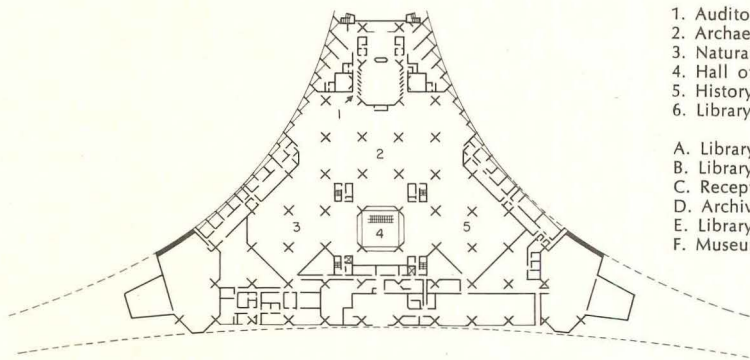
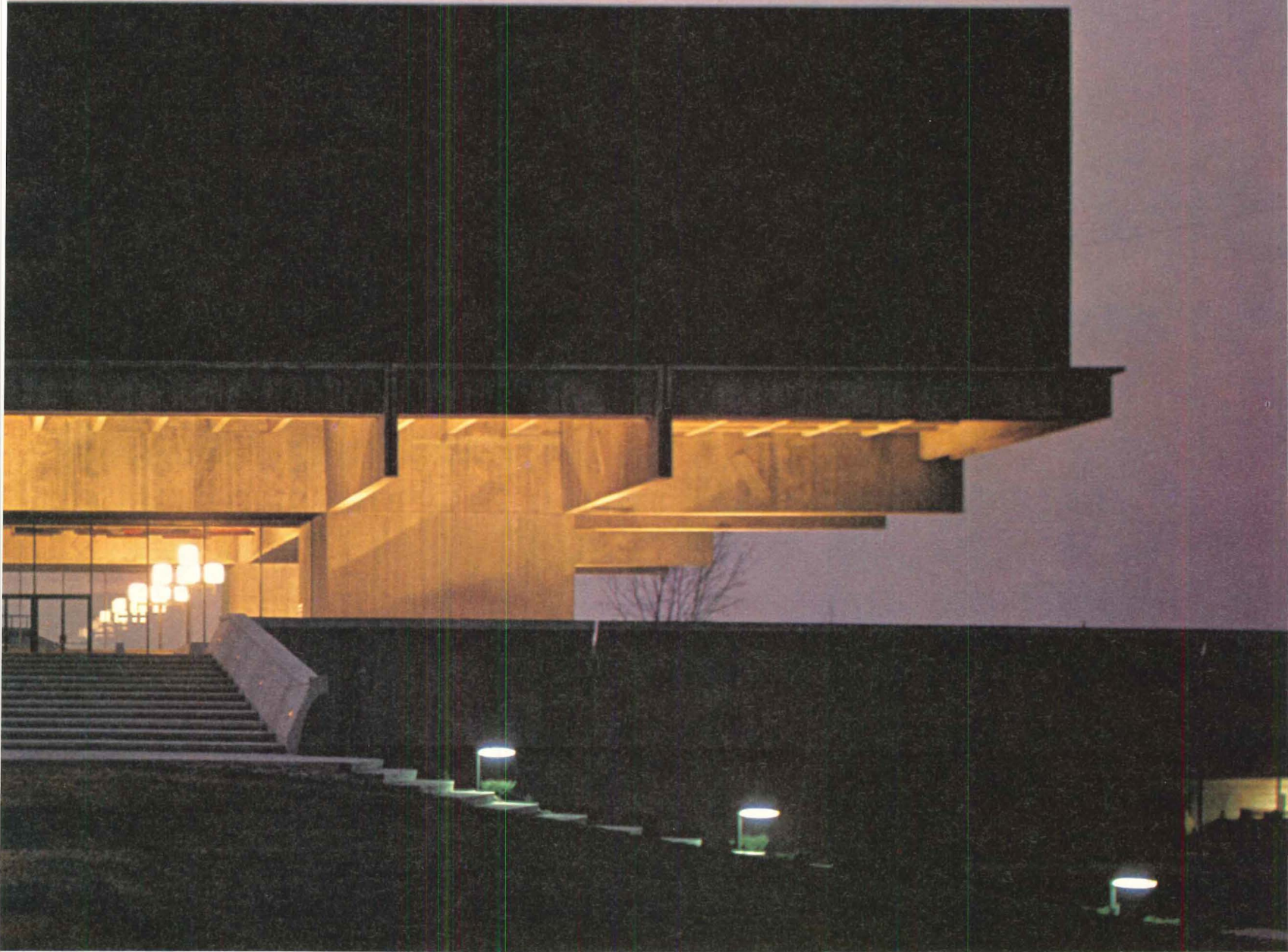


Balthazar Korab photos

The Historical Center is, in fact, more than a children's museum. The most visible portion, which seems almost to hover above its podium, above, is the state archives and historical library. As the section, opposite page, shows clearly, the soaring library structure and the horizontal, nearly invisible, museum share a grand common space, the Hall of Fame, in which renowned Ohioans are commemorated.

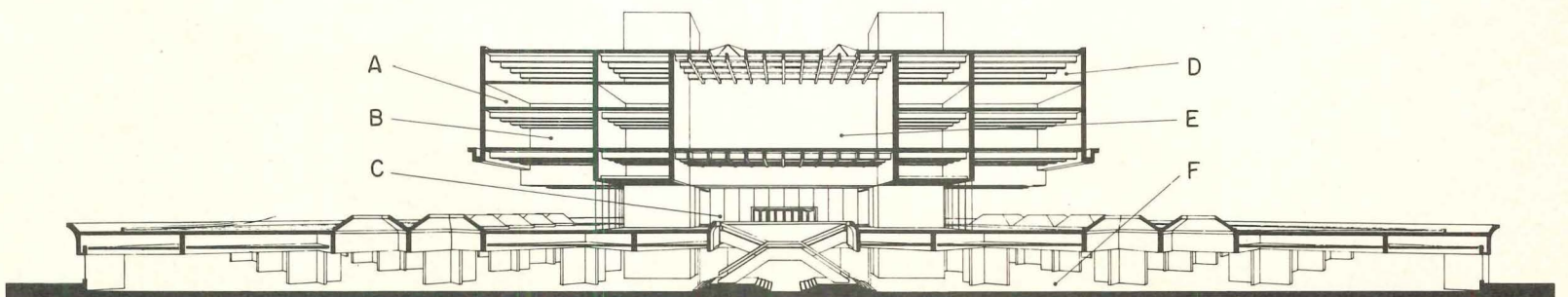
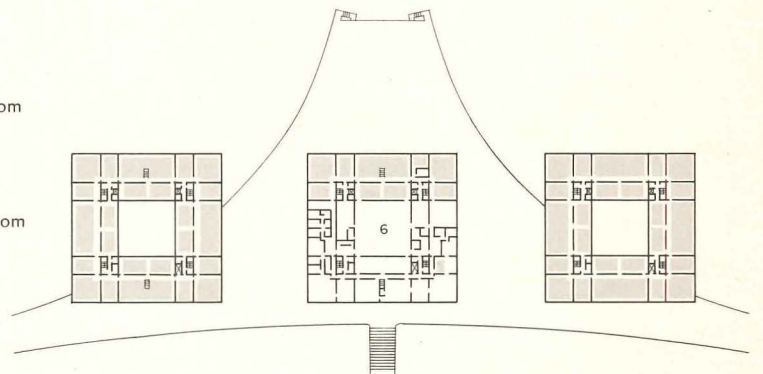
Four massive columns, containing various services, support the breathtaking overhangs of the library. Forty-foot-high shear walls form a two-way, post tensioned grid that carries the weight of almost six miles of library shelving. Including the museum and reception level, the total floor area of the Historical Center is 271,762 square feet. The exterior walls have been sheathed with salt-glazed chute tile, an Ohio masonry product used principally in farm buildings.

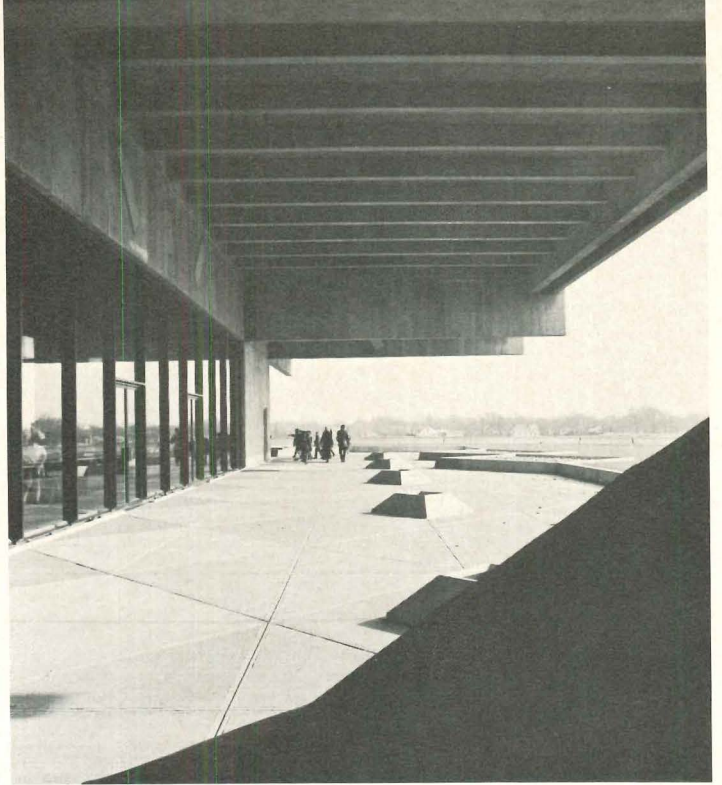
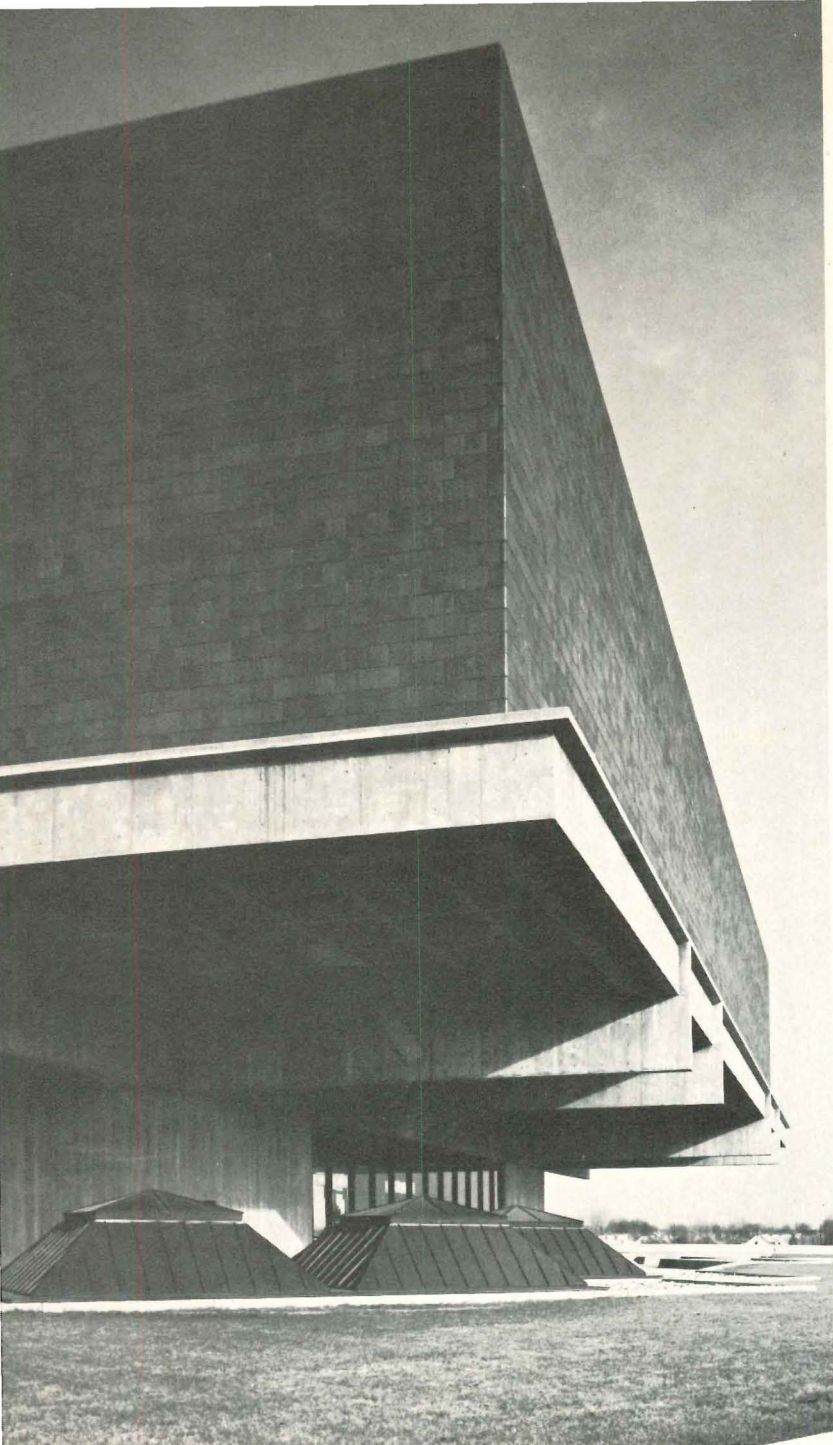
As the busloads arrive, the children directly enter the auditorium for a briefing before being conducted through the exhibits. Then they come up onto the main level to see the changing exhibits around the Hall of Fame and return to their buses past the statue of the World War I doughboy, left. "A few stragglers always have to be pulled off the statue before the bus can leave," chuckles architect Ireland.



1. Auditorium
2. Archaeology
3. Natural History
4. Hall of Fame
5. History
6. Library reading room

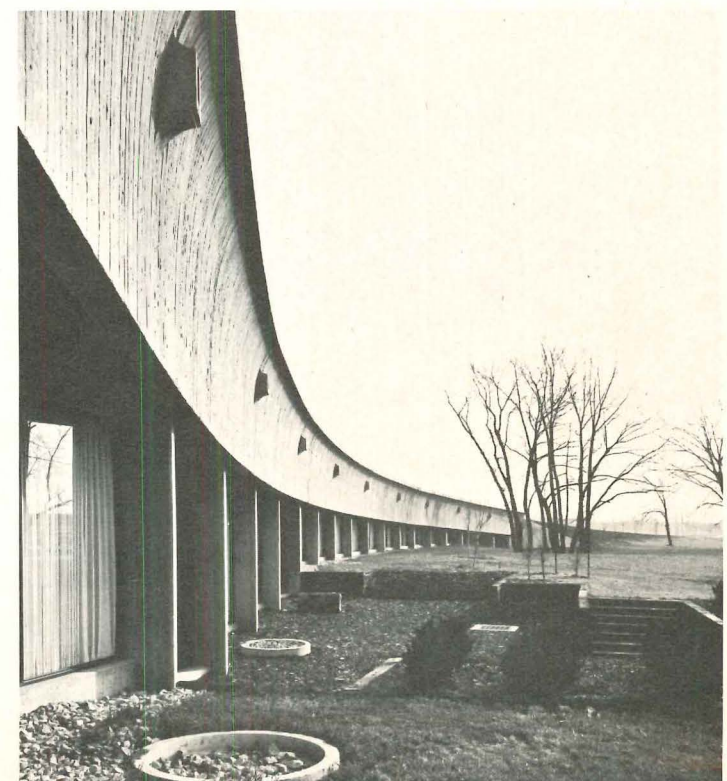
- A. Library stacks
- B. Library offices
- C. Reception level
- D. Archives stacks
- E. Library reading room
- F. Museum

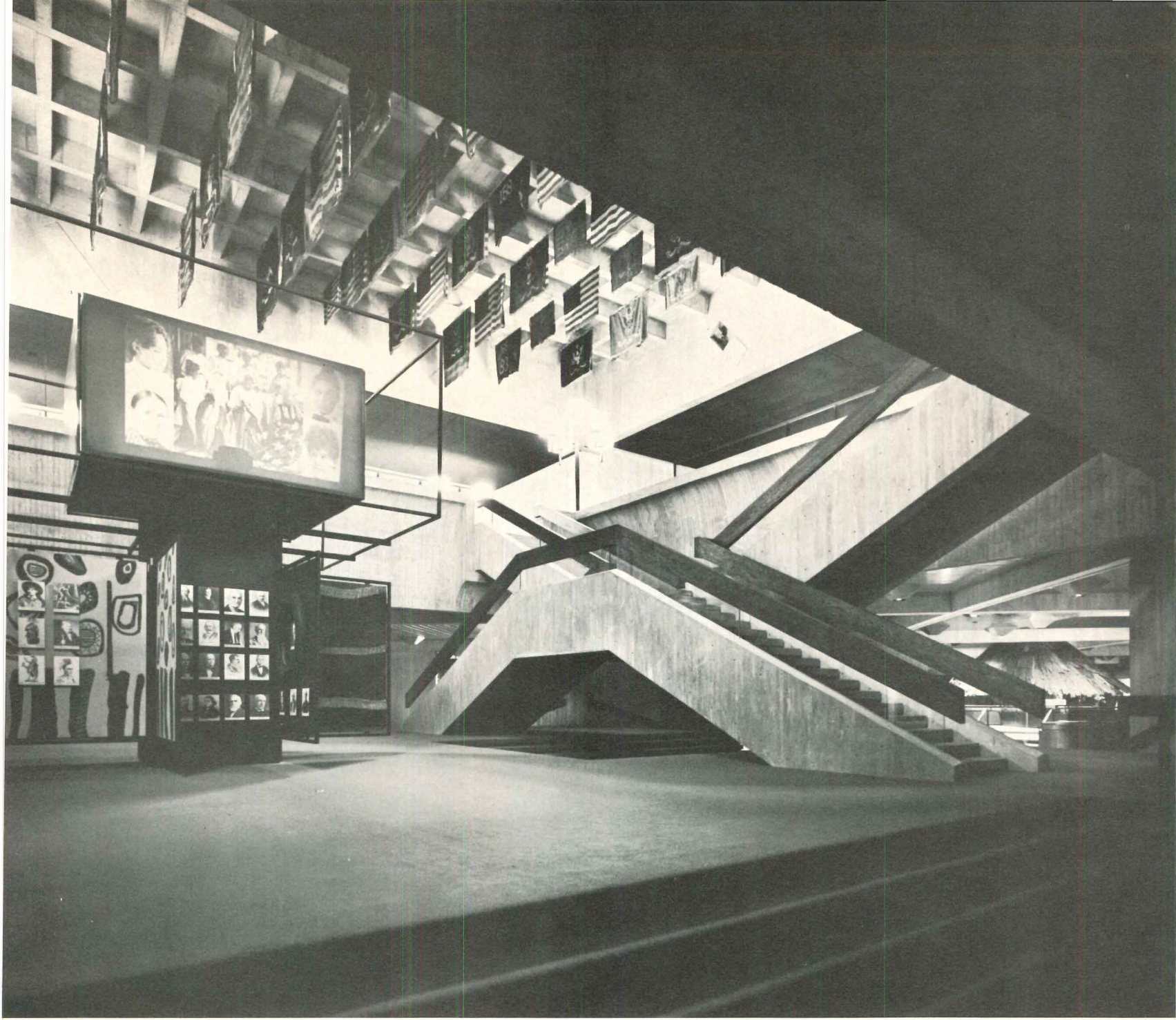


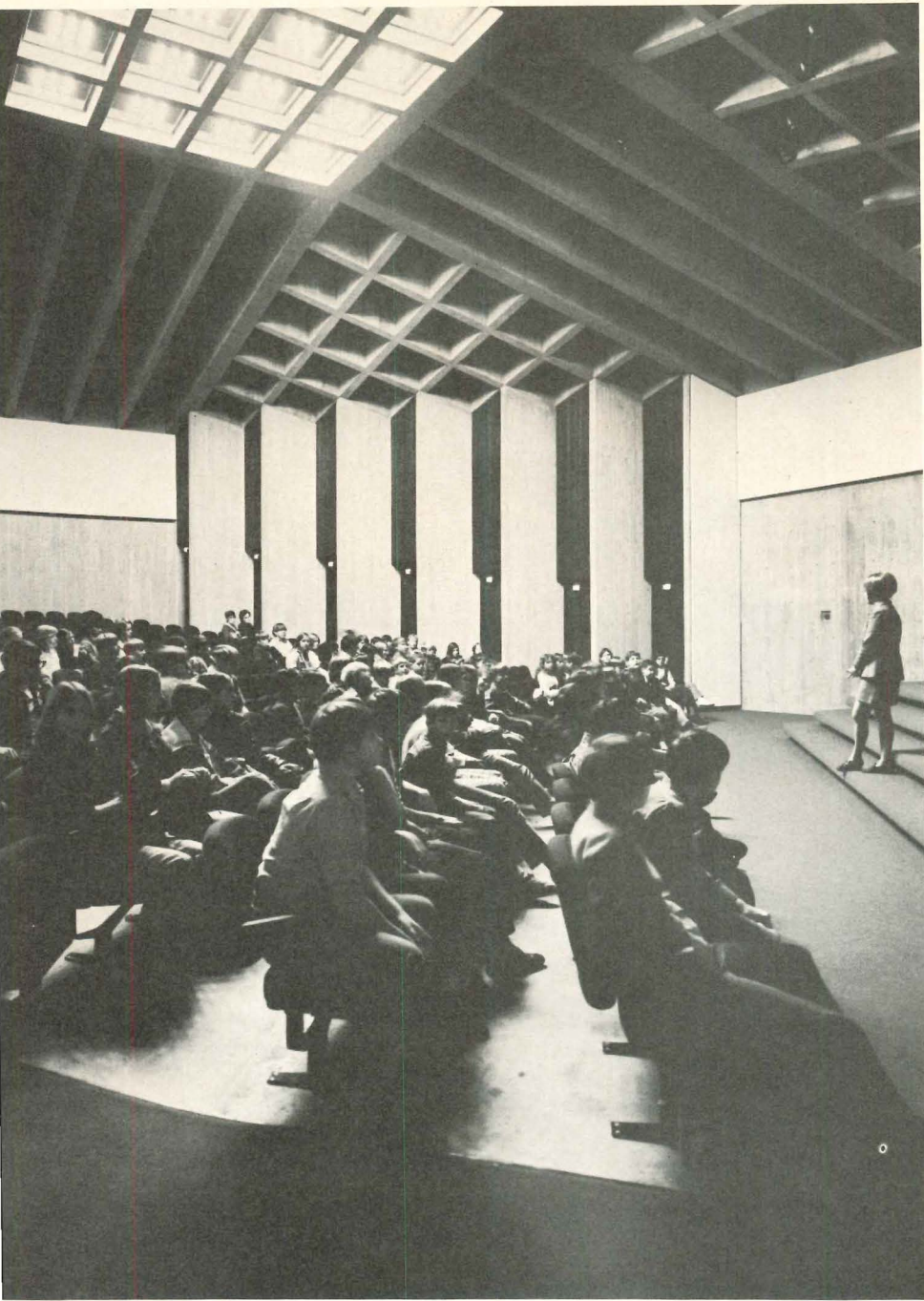


The free relationship of the diagrid museum structure to the foursquare library geometry is obvious, above, as skylights placed above essential exhibits seem to meander in like sheep grazing near an ancient temple. The edges of the triangular museum form glazed office walls behind which curators and interested scholars work to classify and study the treasures of the museum and to prepare new exhibits. Working with Herb Rosenthal, the Oakland Museum exhibits consultant, the architects devised the cruciform columns as a matrix into which displays can be placed. Three small theaters, each accommodating exactly one busload, present short films and students are able to walk into a full-size replica of a house of the Adena culture, a high point in Ohio's prehistoric Indian civilizations. Historical forms of transportation, bottom left, opposite page, form an exhibit in the history section. Two hundred Civil War battleflags dominate the Hall of Fame and its grand staircase.

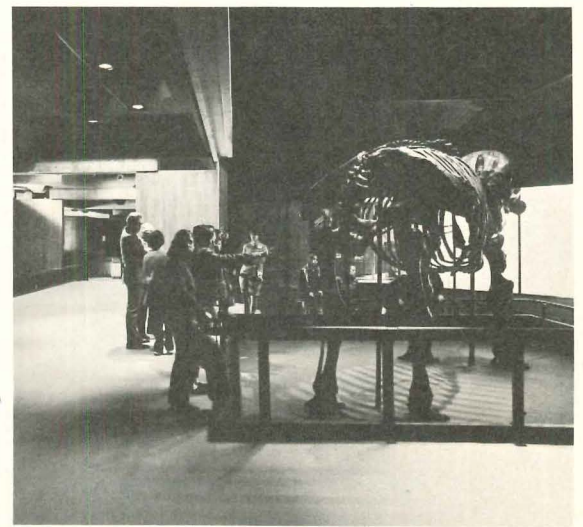
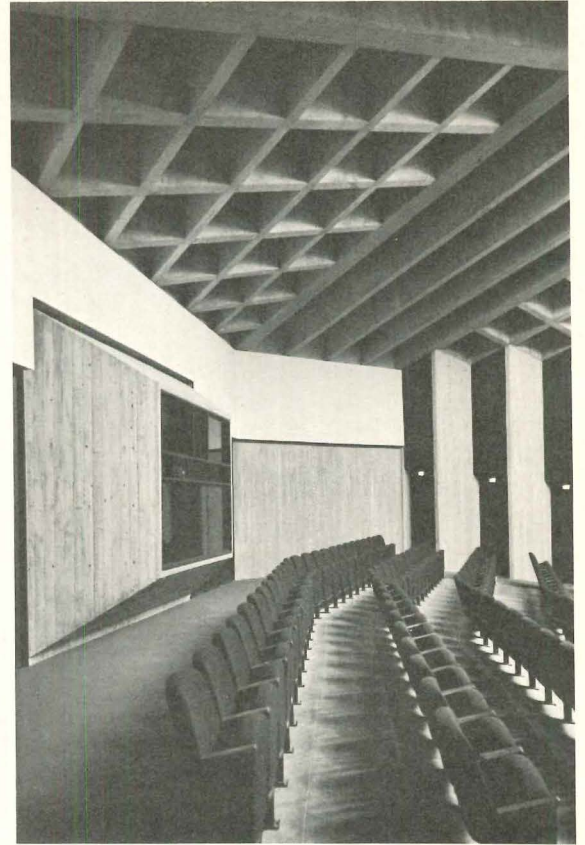
HISTORICAL CENTER, Columbus, Ohio; Client: *The State Department of Public Works for the Ohio Historical Society*. Architects: *Ireland and Associates—W. Byron Ireland, partner in charge; George S. Bullford and Walter S. Withers, project architects*; structural engineers: *Korda and Associates*; mechanical engineers: *Kramer, Comer and Passe*; acoustical consultant: *Dr. Perry Borchers*; exhibit consultants: *Herb Rosenthal and Associates*; exhibit lighting consultant: *H. A. Williams and Associates*.







One of the five history teachers who serve as museum guides is briefing four or five groups of students who have just arrived at the museum, left. With her colleagues she will then take them through the exhibits, one of which, a giant mastodon, is shown below. The coffered roof of the auditorium forms the mound on which the doughboy statue stands. The reading room of the library, below left, is formed by four shear walls.





Jonathan Green



## Why not build factories people can enjoy?

Granted that industrial buildings must be economical to build and maintain and that the first design priority is operational efficiency, why can't they also be pleasurable to work in and enjoyable to look at? Must human values be ignored in order to maximize technological benefits? Of course not. On the fifteen pages which follow, ten projects are presented which go beyond economy and efficiency to satisfy architectural criteria as well. Each of them has made use of an inexpensive idea or an intriguing design approach that could have application elsewhere.

The examples chosen fall into basic categories: those that deal with improved human environment, and those that enrich the natural environment. Some of course do both—for instance, on the next page, the winner of the 1971 Reynolds Memorial Award. An elegant Swiss industrial building with a beautifully detailed curtain wall, it was given the following citation by the jury: "The project demonstrates a sensitive response which includes both good design and an esthetic solution to a major human problem, a good working environment. The jury was pleased that a project had been submitted the nature of which will become an increasing challenge to our society, and it hopes that this award will encourage both architects and industry to devote greater attention to this type of building."

Another outstanding example of economical design is the Gordon Engineering Company, above and page 98. For ten dollars per square foot, architect Elroy Webber has provided excellent working quarters set so gently onto the site that the abundant natural beauty of the Massachusetts landscape is heightened, not destroyed.

Finally, since many of the buildings shown are located in the suburbs, the nicely-done plant for Westinghouse's Electric Vehicle Plant in Homewood, Pennsylvania, by W. L. Roberts, page 100, points to still another problem—one that is perhaps more important than any others mentioned here. If blacks are going to continue to be denied free access to housing near suburban industries, perhaps it is up to industry to build new factories on appropriate sites in the inner city.—James D. Morgan

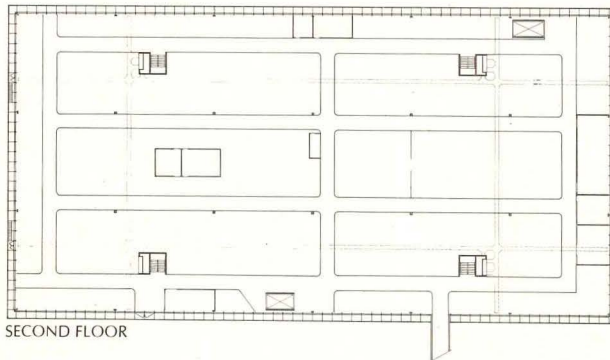
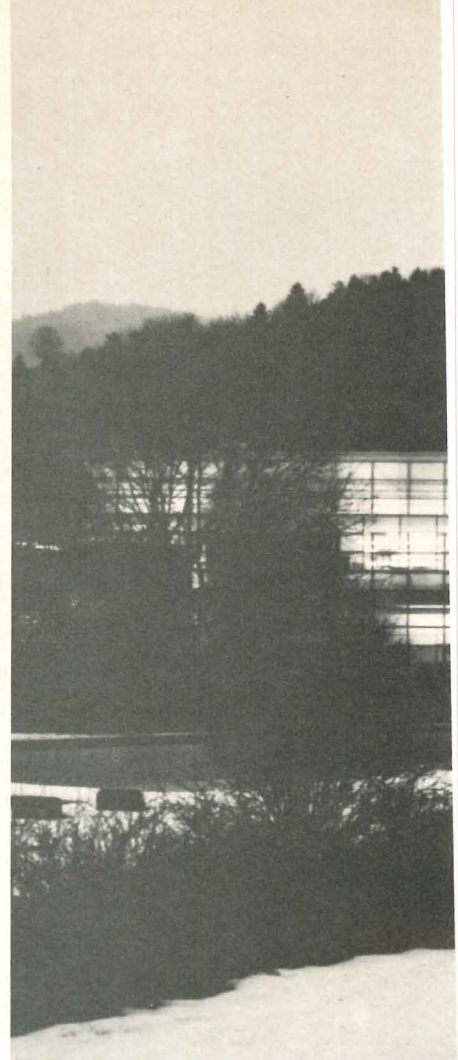
## Why not make a curtain wall to see through?

The winner of the 1971 R. S. Reynolds Memorial Award, a Swiss industrial building, was cited more for its humanistic and environmental qualities than for its innovative use of aluminum. In its report, the Reynolds jury emphasized its pleasure at finding a well designed factory that takes both the exterior and interior human environment into account. Many aspects of the care in planning for an optimal working space are evident in the design. All production workers, for instance, are located on the second floor, where views outside are best. The open layout of manufacturing departments encourages a feeling of close inter-relationship between employees in various areas.

Aside from the more intangible benefits of an insulating wall through which workers can keep in touch with the outside world, the architects noted some solid economic facts: "Complex investigation showed in this case that if all factors were considered—such as the ratio of floor area to perimeter, operation expenses, maintenance and installation costs—and if all these factors are weighted in an optimal solution, the price of such a curtain wall is no longer a disturbing factor and can be justified." Aluminum seemed a natural material to the architects for the light-weight cantilevered solar glass sun-screen which also serves as a maintenance platform and fire escape.

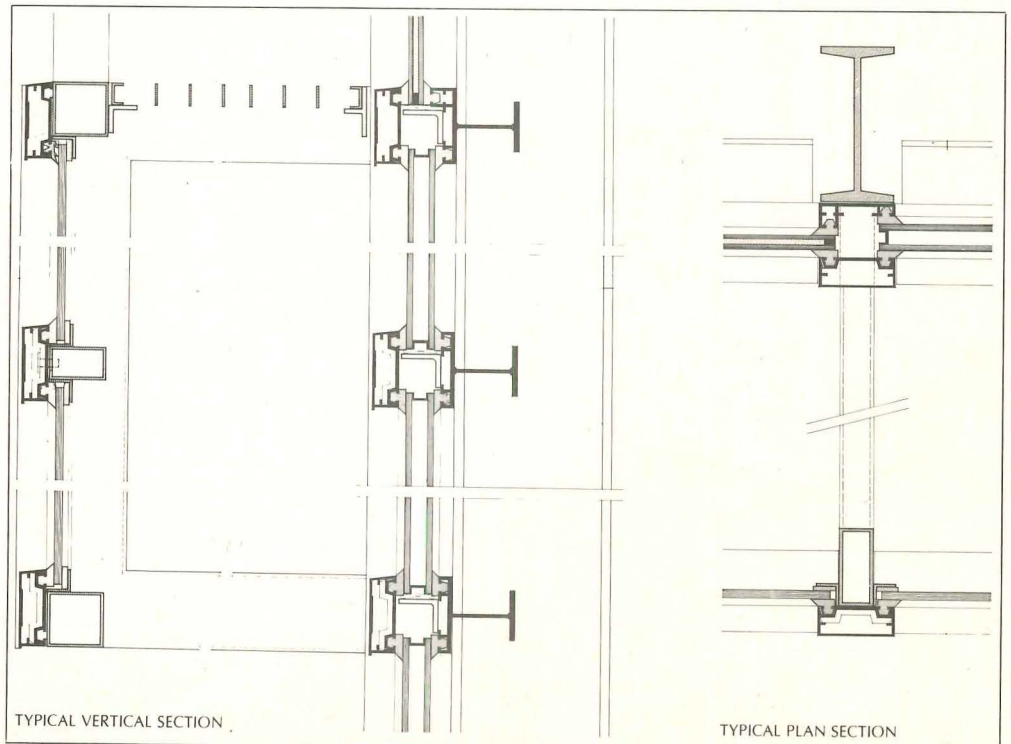
Although some of the technical concepts in this building may not be applicable in American industrial construction, there are obvious lessons in the way the building relates to its site. As more and more plants are built in rural areas, the designers would do well to consider the advantages of opening the walls to sunlight and natural vistas.

MASCHINENFABRIK HEBERLEIN AND CO. AG, Wattwil, Switzerland. Architects: Professor Walter W. Custer, Fred Hochstrasser and Hans Bleiker.



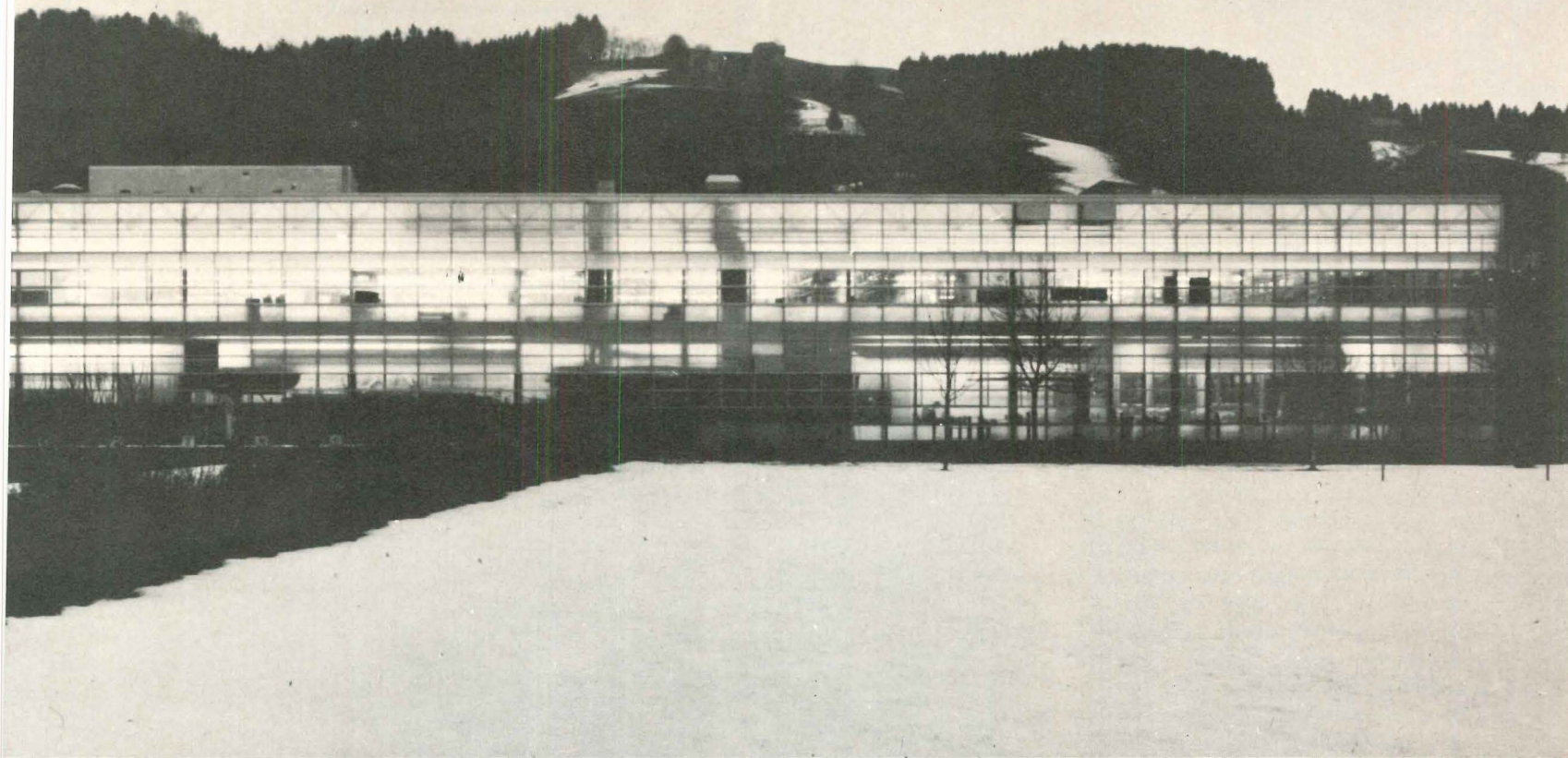
SECOND FLOOR

Maschinenfabrik Heberlein, one of the first buildings of an industrial complex being built near Zurich, has a clarity that is typical of the best European industrial building. Seen at night, above, the glowing facade seems a fully logical extension of the plan and wall details, left. The cantilevered glass and aluminum sun-screens, above left, are obviously important in controlling the effects of both sunlight and heat while still permitting a clear view for the workers of the nearby river and the alpine hills beyond.



TYPICAL VERTICAL SECTION

TYPICAL PLAN SECTION



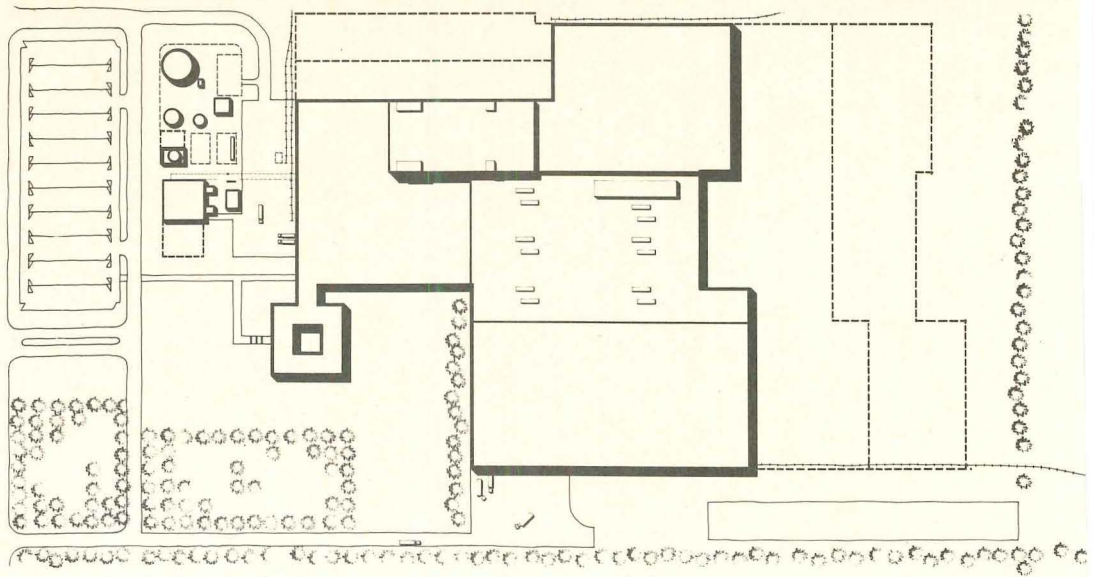
## Why not use color and bold graphics?

The use of bold graphics and color on a large scale—city walls for instance—has become quite common. But, except for color-coded utility systems, they are seldom found in industrial buildings. The graphics department at Albert C. Martin and Associates, a Los Angeles firm which does many large industrial buildings, has found opportunities to remedy the lack in two recent projects, one of which is shown here.

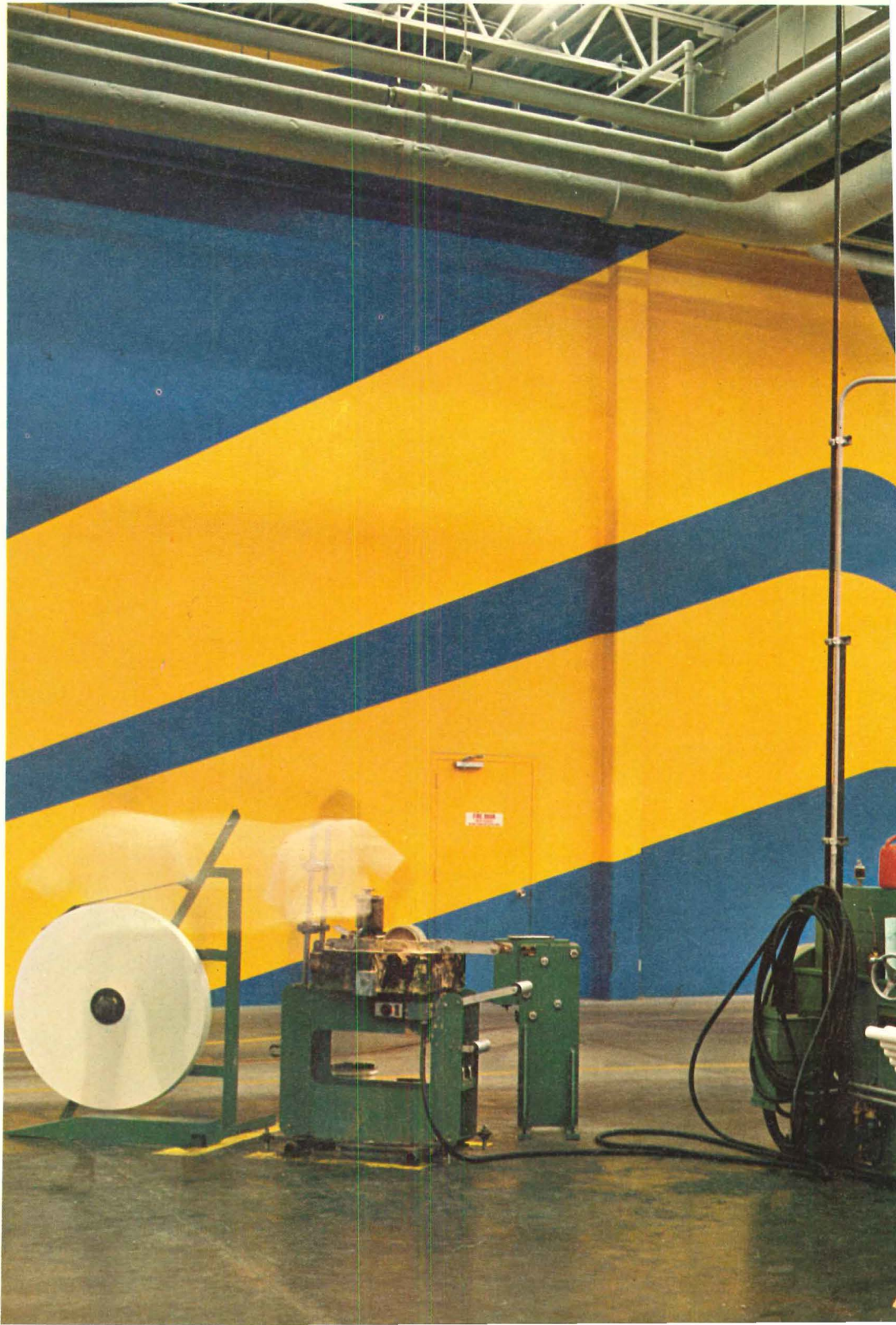
Walter Brucker, an interiors project director at ACMA, finds that the wall designs have several advantages. "Not only do they serve functional needs such as identifying areas within huge buildings and locating exits, but they provide human scale and psychological identification for the workers." In essence, the super-graphics provide a kind of status symbol. "They identify the worker's job area and give him an environment he can relate to" said Brucker. The graphics department feels that employees form personal and subconscious attachments to the designs and areas do acquire a unique personality because of them. They emphasize that the technique should not be used merely as a decorative device, but should be an integral part of the interior space planning.

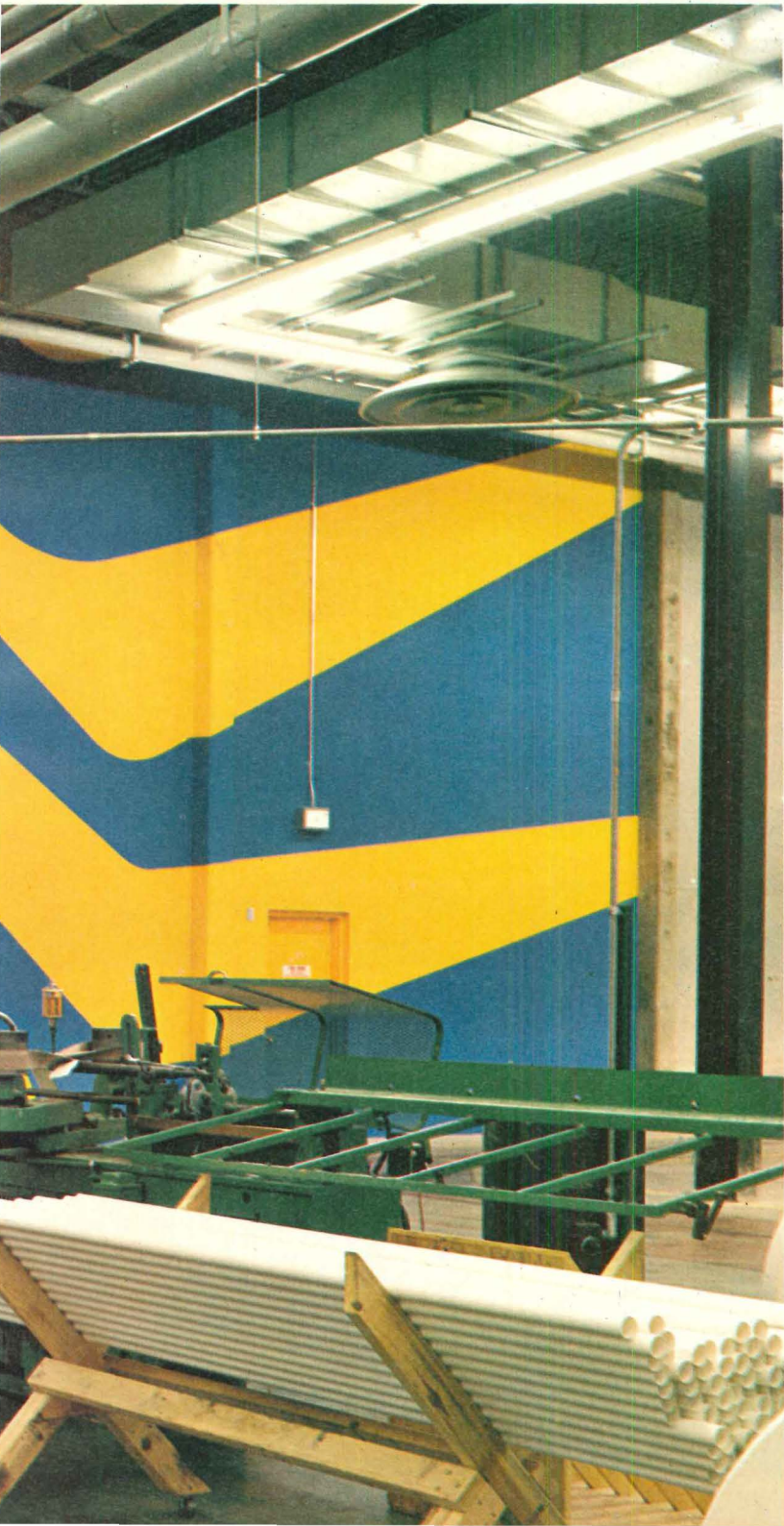
To be sure their designs really do relate to the workers in a particular environment, the ACMA designers have, on some projects, solicited employee response through questionnaires after the facility has been in use for a while. The next step, of course, is to encourage employees to design and paint their own murals on the factory walls. If the lay designers were given a simple statement of objective goals the work should accomplish, a program in effect, a competition within each plant might produce excellent results, functionally and psychologically.

THE FACELLE COMPANY, Division of International Paper Company, Oxnard, California. Architects: *Albert C. Martin and Associates*—partner in charge: *John Day*; project director: *John Rollow*; interiors project director: *Walter Brucker*; contractor: *Swinerton and Walberg*.

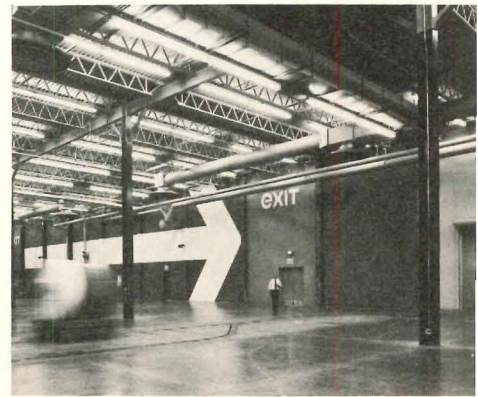


Wayne Thom photos





The Facelle Company's new tissue products manufacturing plant in Oxnard, California has 940,000 square feet or 21 acres of enclosed space in one building. And that may be doubled as the site plan, above left, indicates. Thus the need for a bold means to identify the various areas of the facility. The architects have provided, in this first stage of construction, over half an acre of graphics designed both to identify areas and to help workers in those areas feel at home there. To provide both rhythm and scale in a 300-foot-long passage connecting the office and the manufacturing area, the designers have spelled out the company name over the entire length, above left. Five other examples indicate the variety in color and form found in the graphics throughout the space. An attempt was made in every case to capture the essence of the process near which the mural is located. This exuberant one, left, is in the disposable diaper department. Exit signs, right, can be seen from 200 yards away.



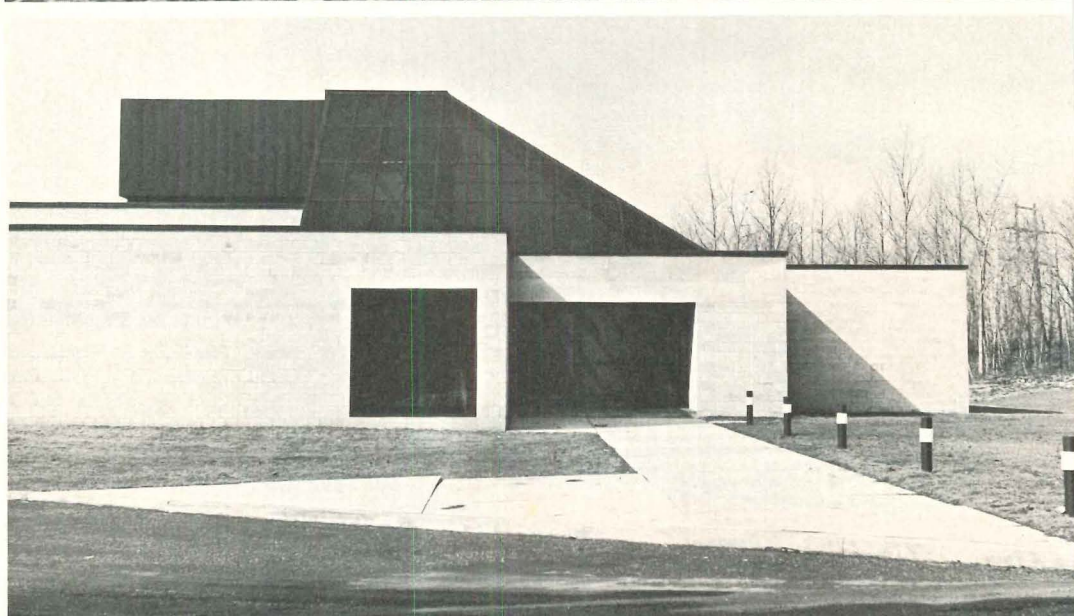
## Why not build an entrance that benefits everyone?

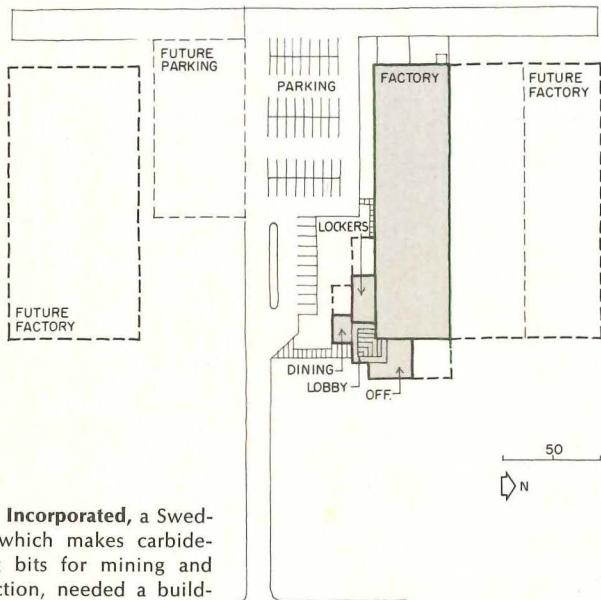
So often in industrial buildings the visitor's entrance, with severe chairs, aerial photos of branch factories on the wall and some back issues of trade magazines on a table, seems a forgotten corner of the plant. No one but the receptionist is there and the vitality of the production operations inside is certainly not expressed. Partly because of the very tight economic program for the Fagersta Steels building (\$16.50 per sq ft), but also because they wished to avoid a similarly dead reception area, Architects Bohlin and Powell made sure it was thoroughly integrated with the rest of the facilities.

Furthermore, by making it a bold element in an otherwise severely straightforward building, the architects have provided a working pivot point around which the building always will revolve, no matter how much it expands. In this case the room serves many functions. Office and factory employees both may use it to enter each morning and to pass through on the way to lunch. Visitors have little trouble, of course, finding the entrance. Passersby, both day and night, have a landmark which becomes a living symbol. Thus the additional cost is more than justified by intangible benefits conferred upon employees and the community.

The real accomplishment is larger still, however. The architects have faced the problem of the low-budget industrial building, have extracted the humanistic aspects and have used them with great assurance to produce a building built of the most economical materials yet with great and enduring style. Which is—at \$16.50—a great deal indeed.

FAGERSTA STEELS INCORPORATED, Mountaintop, Pa.; Sponsoring agency: Luzerne County Industrial Development Authority; Architects: Bohlin and Powell; structural engineers: Vincent B. Szykman, Inc.; mechanical and electrical engineers: Roushey Associates.





**Fagersta Steels Incorporated**, a Swedish company which makes carbide-tipped drilling bits for mining and heavy construction, needed a building which could expand easily to five times its original size. The design solution, above, with the sky-lit entrance lobby as the only unchanging element, makes it possible for every other element to grow as needed. The formal clarity of the scheme is apparent in the exterior photographs. The liveliness necessary to relieve such restraint is supplied by the solar gray acrylic roof which has varying degrees of transparency throughout the day. The indoor foliage and the lively banners, designed by Annie Bohlin, are always visible from the road, slightly higher than the building. Unpainted concrete block bearing walls and exposed steel beams and roof deck are the structural materials throughout the entire building. The floors in the office are carpet, in the lobby, brick pavers.

*Frank Burnside Jr. photos*



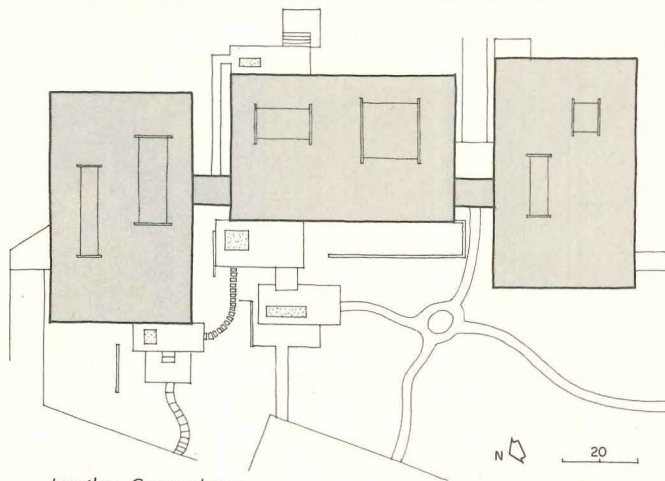
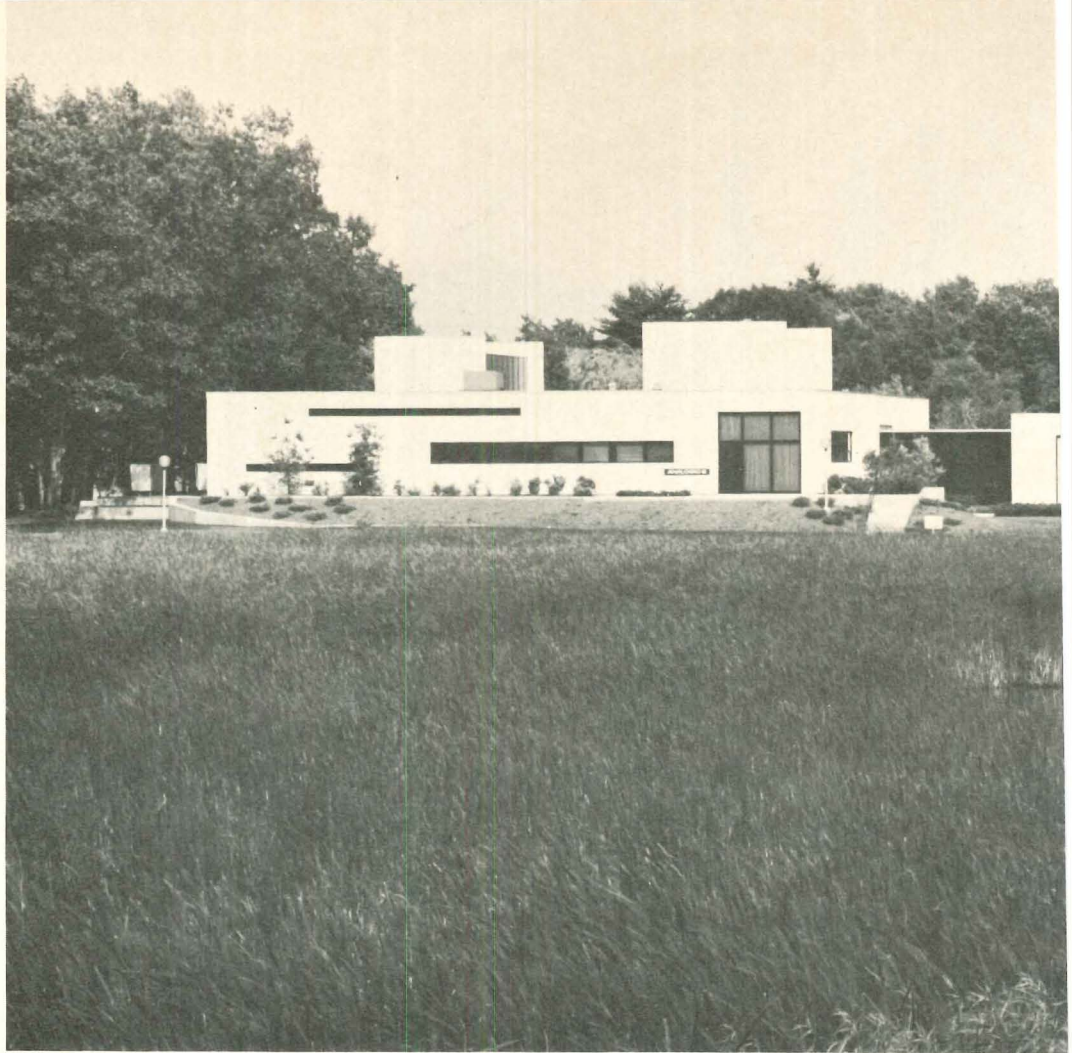
## Why not tie into the landscape?

Although architects have been trained for many years to analyze the site thoroughly, how many really bother when designing an industrial plant? And there are those, of course, who see the building as a man-made object set into nature and so refuse to bother. But with "ecology" on everyone's lips today, it is a question which must be considered even when designing factories.

There are many advantages to modifying the building to fit the site rather than the other way around—as the Gordon Engineering Company complex shows. Using three identical structures (each involved in a separate phase of electronic component design and manufacture) connected by steps inside the links, Elroy Webber was able to respond to very subtle changes in grade without aggressive grading. Thus the building, although clearly not trying to blend with nature, seems far more sympathetic to its site than most factories ever do.

The economic advantages are also impressive. Grading costs include not only the initial shaping of the land, but the reapplication of topsoil and replanting. And the less the earth is moved, the easier that will be. Furthermore, water runoff problems, not always completely foreseen, can of course be minimized if nature's patterns are disturbed as little as possible. Finally, by keeping parking away from the building, as Webber did here, the effect of paved parking lots on groundwater conditions around the foundations is minimal. In this case, slightly more than five per cent of the total project cost was spent on site work and landscaping, yet the result seems very rich indeed.

GORDON ENGINEERING COMPANY, Wakefield, Massachusetts; Architects: *Elroy Webber Associates*; structural engineers: *Loomis and Loomis*; landscape design: *Elroy Webber Associates*.

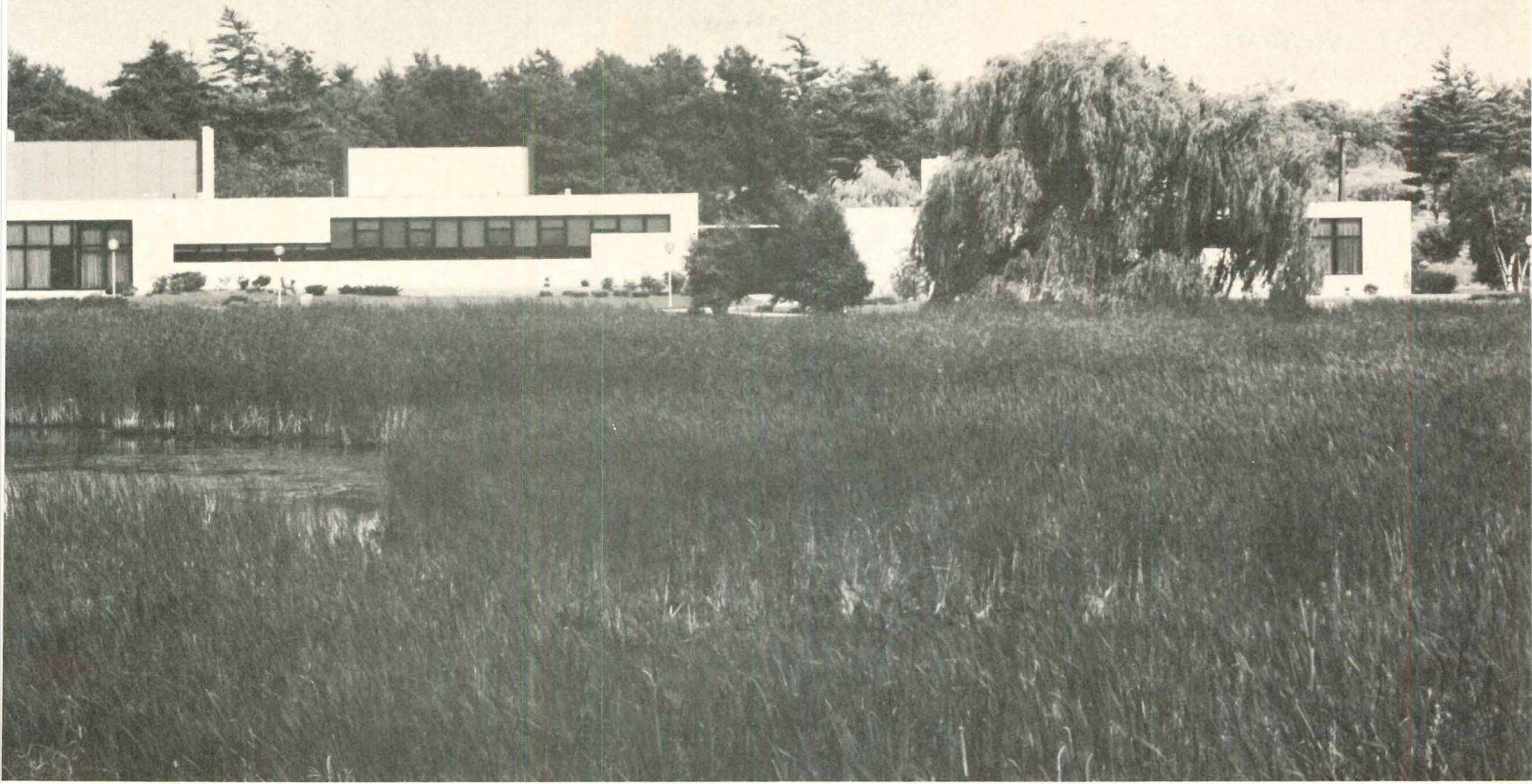


Jonathan Green photos

The Gordon Engineering Company's building is not only beautifully related to its site, but is an outstanding example of economic industrial building design. In order to meet package-builder prices — \$9.50 per square foot in 1969—architect Webber chose to build three small identical buildings rather than one larger one. Short steel spans, simple masonry bearing walls, flexible mechanical equipment, low fire ratings all resulted from his decision. Seen from across the neighboring marsh, a bird sanctuary, above, the horizontality of the buildings is especially apparent. The terrace outside a conference room, right and on page 91, also helps to integrate building and site.



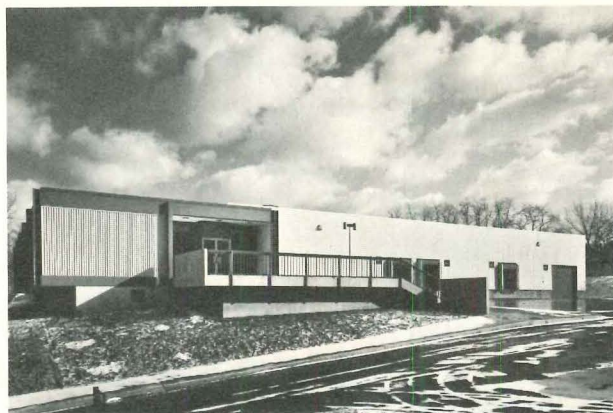




## Why not put the factories where the workers live?

Community involvement has produced seventy-five new jobs and a sense of pride for Homewood, Pennsylvania. When Business and Jobs Development Company, a black organization in Homewood, was assigned 14 acres of urban renewal land, they approached several large corporations proposing to build industrial facilities which local people could reach by walking. Westinghouse accepted the idea and then went out of its way to provide a show-place for future development. Not only did the corporation, through its Corporate Design Center, assist architect Roberts budget-wise to produce a handsome building, but they initiated production of an electric vehicle which definitely seems a product with a future.

WESTINGHOUSE ELECTRIC VEHICLE PLANT, Homewood, Pennsylvania. Architects: *Walter Roberts Associates—Bruce Macdonald, project architect*; structural engineer: *McDonald Phillips*; mechanical engineer: *Paul S. Park*; site engineer: *Ebert Clifford*.

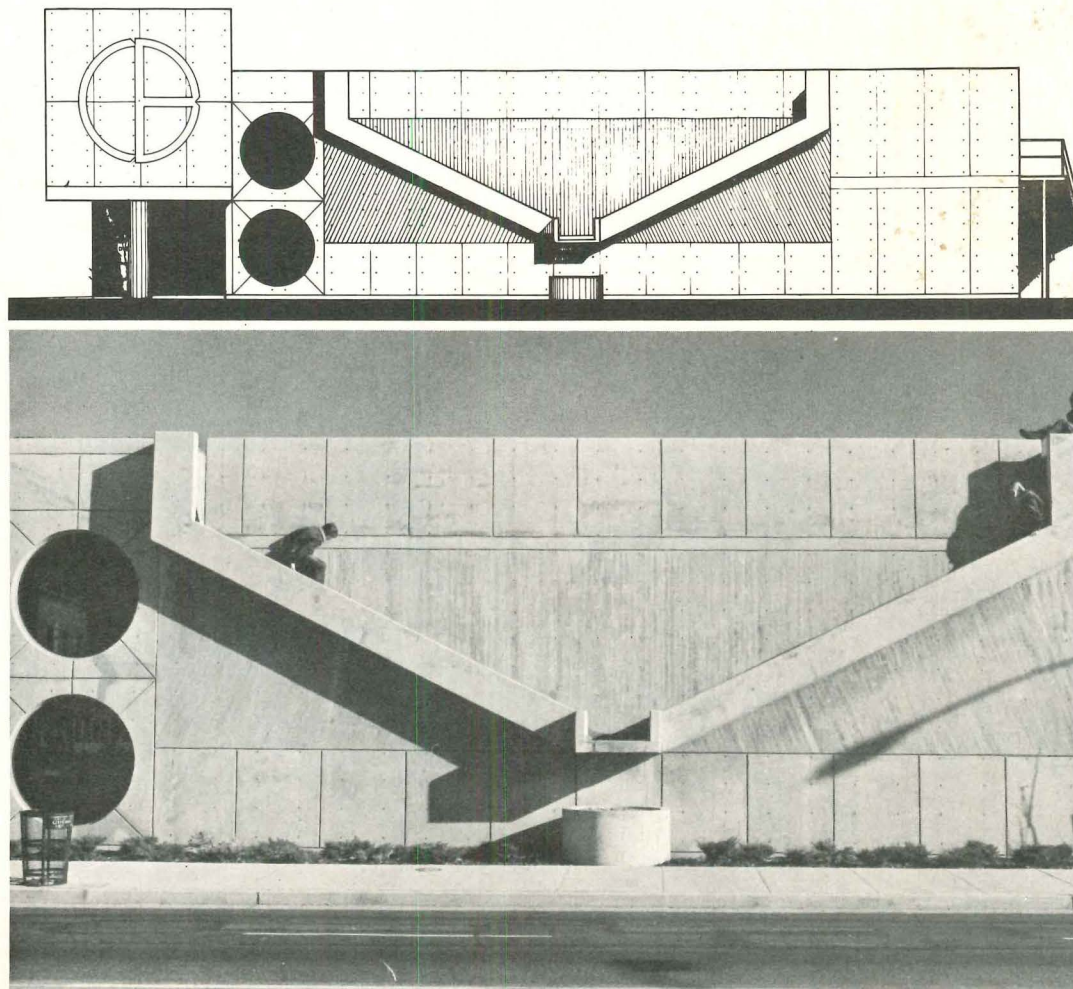


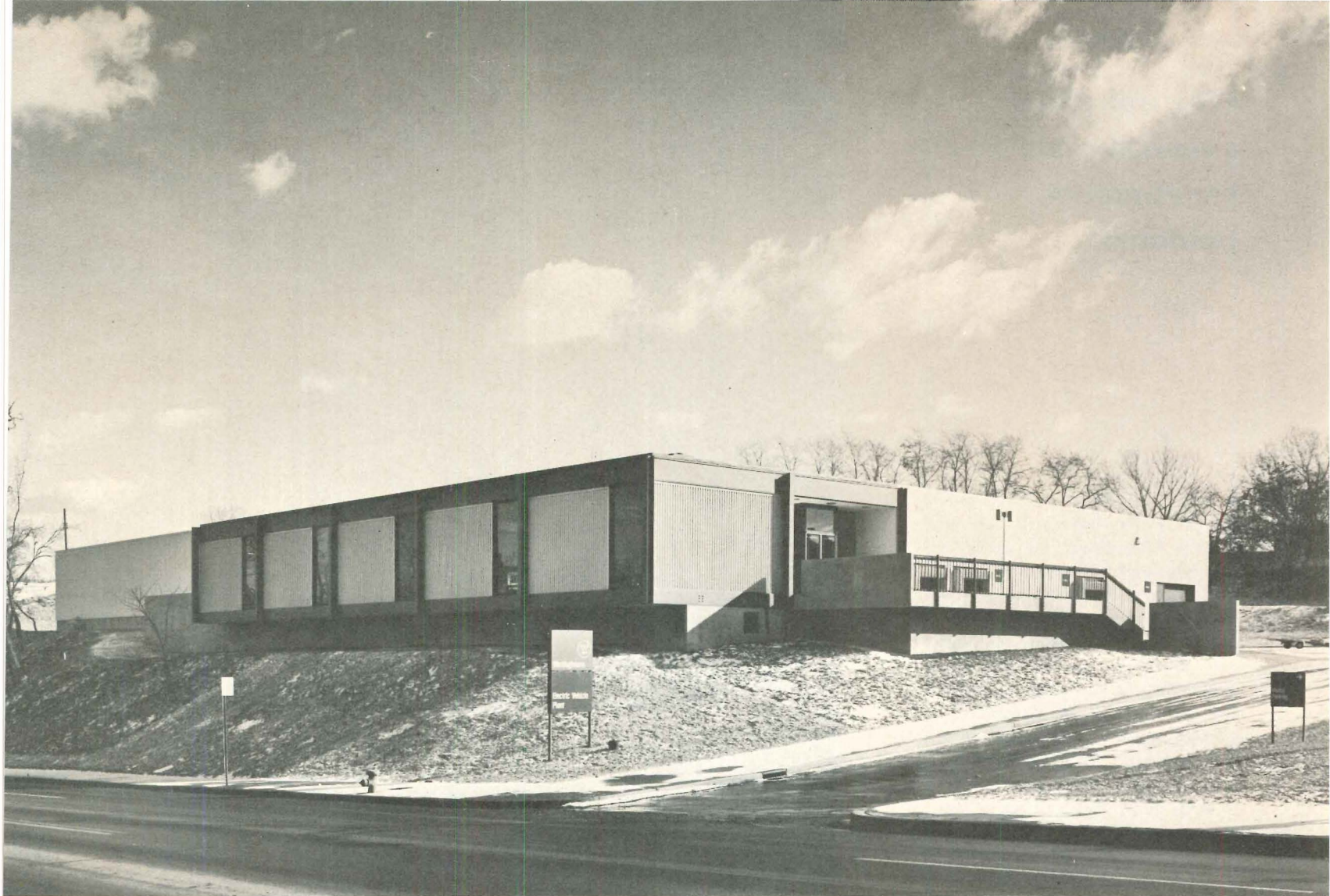
The Westinghouse Electric Vehicle Plant was built on a site carved out of a typical Pittsburgh hillside, right. The clean lines of the two steel structures, emphasized by the heavy fascia and cantilevered floor structure of the office building, add to its importance to the community. Managed and staffed entirely by blacks, it has become a symbol of hope to Homewood. The electric vehicle manufactured there, presently sold as a utility and maintenance cart for use inside large industrial buildings, may also be a symbol of hope as a prototype for future pollution-free automobiles.

## Why not do a playful building?

"Someone in the office suggested that a bright blue cube would look nice on the corner of the building," says Jasper Ward explaining the genesis of the design. The round windows, the human-scale rainspout and the rich surface textures were all fairly easy to accomplish in reinforced concrete. Such architectural humor, rare in any type of building, can be especially important in industrial buildings where blank, unrelieved walls stretch for hundreds of feet. As problems of motivation for workers on assembly lines become more apparent, perhaps it is the architect's job to suggest visual techniques which will relieve the sense of bleakness and inhumanity that industrial buildings so often convey.

CITY BLUE PRINT COMPANY, Louisville, Kentucky. Architect: *Jasper D. Ward*; structural engineer: *Senler-Campbell and Associates*; mechanical engineer: *Kaestner-Lynch Associates*.

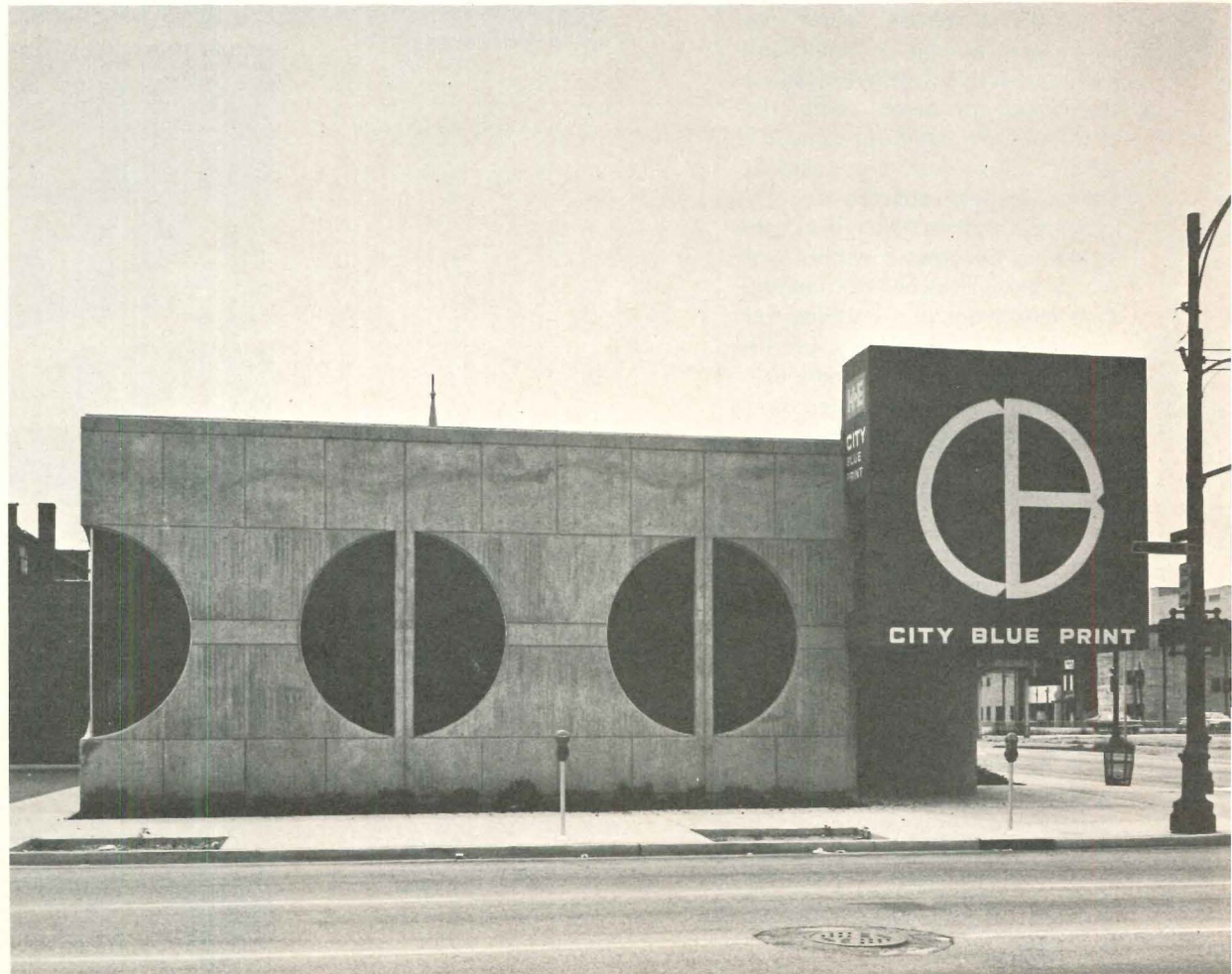




Joseph W. Molitor photos



City Blue Print of Louisville is an unexpectedly lively building. The decision to build on inexpensive urban renewal land combined with the location at a prominent intersection gave the architect an opportunity to propose a far more ebullient design than the client had originally planned. A two-story display space looks out through the round windows of the principal facade, right. The wall with the slightly over-stated rain gutter, left, runs along the blue print room which of course requires no fenestration. A large storage room on the second floor is reached by an exterior ramp as well as by interior stairs. The indented circle in the blue cube could be used for another advertising symbol should City Blue move.



## Why not create a human-scale environment outdoors?

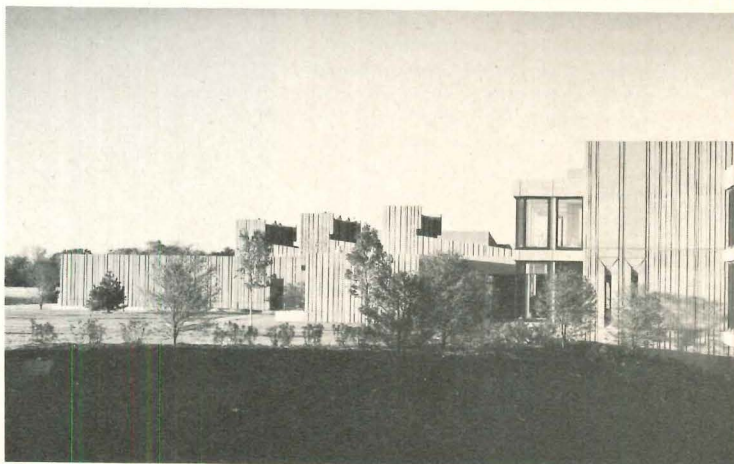
In order to attract scientific personnel of the highest caliber to Charles City, Iowa, the Salsbury Laboratories have built a research center that provides a remarkable degree of human amenity. More like an elegant university building than anything else, the structure nonetheless is designed to facilitate vigorous study toward increased poultry production. But the company's philosophy stems from more than the pragmatic need to keep its work-force happy. The company's founder, Dr. Joseph Salsbury, had nurtured an attitude of community service and increased knowledge as part of his business of providing products to make the raising of chickens easier.

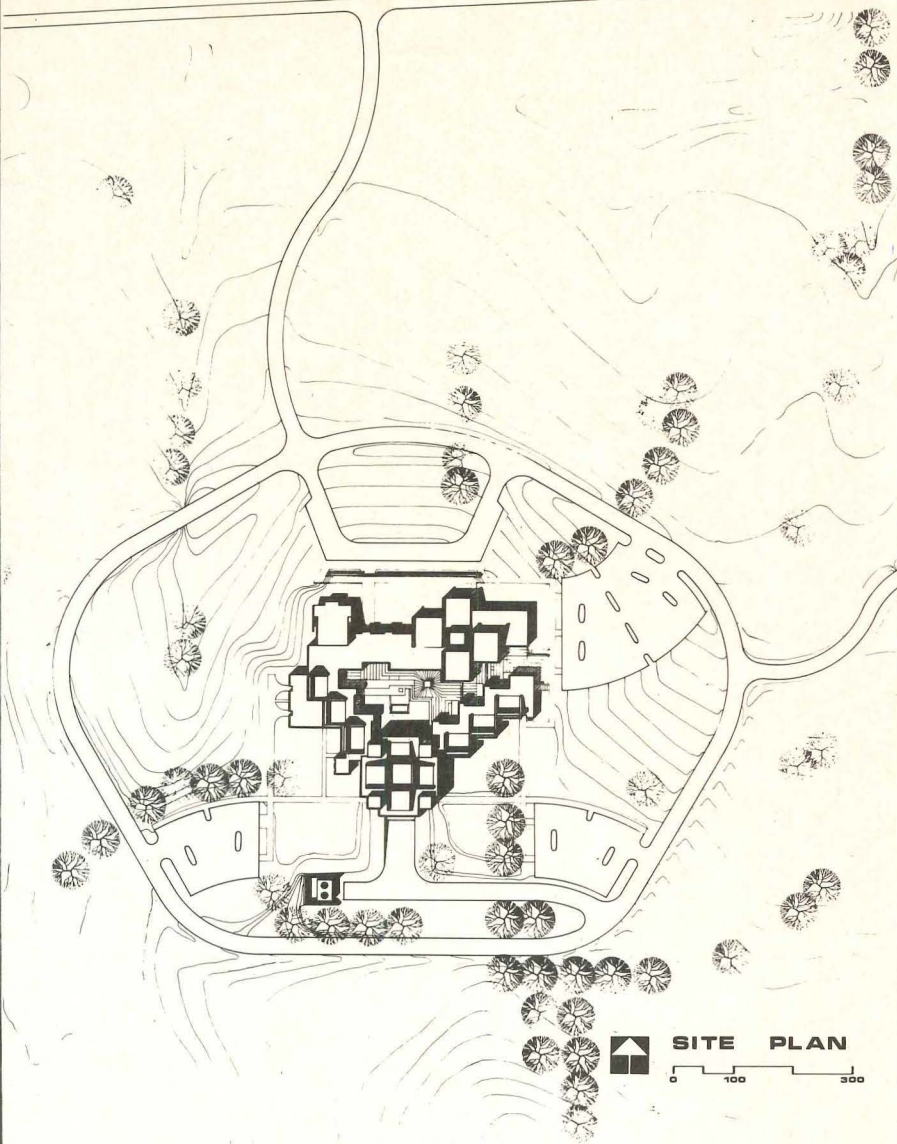
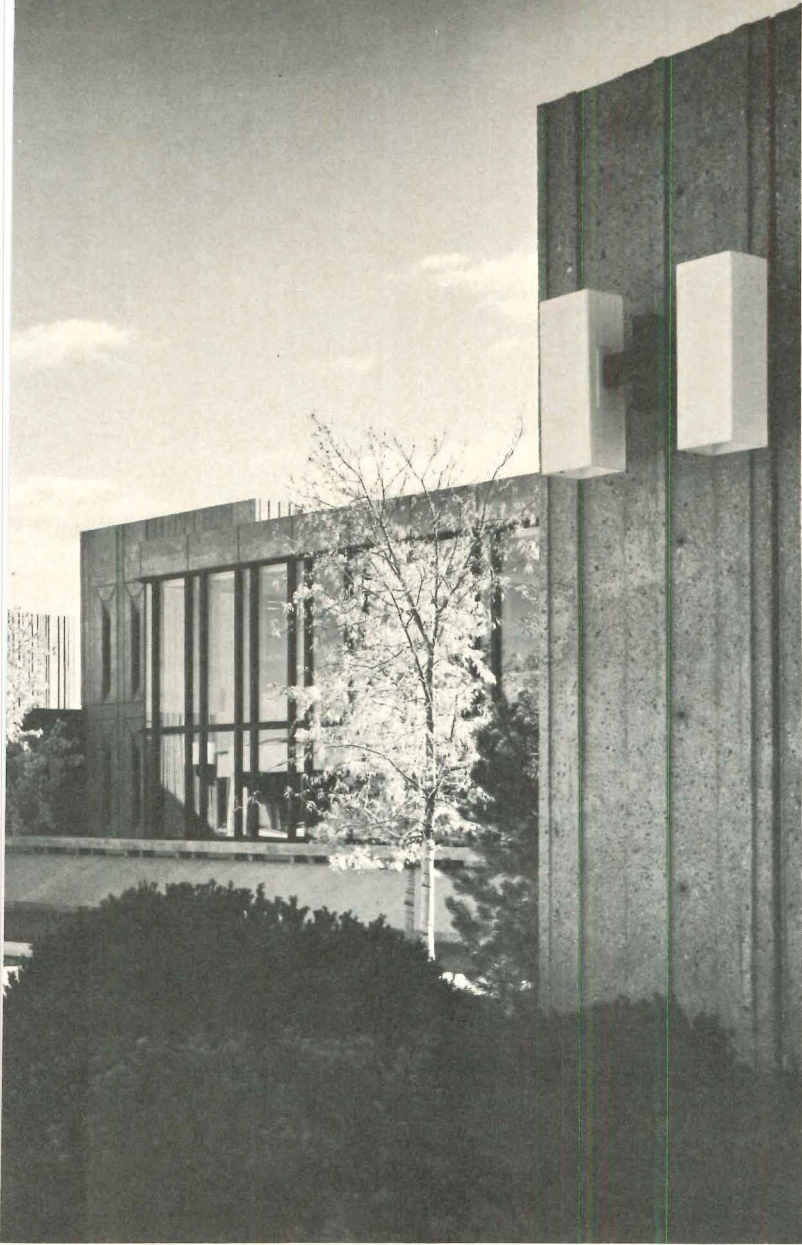
Thus a scheme which was developed around a beautifully-planted courtyard with flowing water meant for quiet, contemplative times, for lunch on sunny but windy days, even for concerts, seems entirely appropriate. Not only the architectural focus, the courtyard becomes a symbol with which the employees can identify. One works not in a building, but next to a garden. The present head of the firm, Dr. John Salsbury, has also encouraged constantly changing exhibitions of current art by Midwesterners. Since he feels the building is the best piece in his art collection, Dr. Salsbury certainly includes the architect when he says: "The work of the modern artist stimulates many questions. He experiments. He is an innovator. Art hopefully will help us remember that in our business lives we too must be creative and innovative."

SALSBUURY LABORATORIES RESEARCH CENTER, Charles City, Iowa. Architects: Perkins and Will—Philip Will, Jr., partner in charge; Robert Sullan, project architect; Mozhan Khaden, designer; structural and mechanical engineers: P & W Engineers, Inc.



Barr, Hedrich-Blessing photos





Salsbury Laboratories' Research and Administration Center is surely one of the most urbane spots in Iowa. Set out on the prairie, the new complex contains not only the interesting architectural spaces shown here but facilities for sophisticated research to improve poultry production. A two-story cruciform structure on the south side of the courtyard contains research labs and a library. Wrapping around the courtyard on the north side are the one-story administrative areas, largely open plan, and on the northwest corner, a 250-seat auditorium. Most of the people working in the administrative wing can easily look into the courtyard from their desks. The laboratories themselves represent a high standard of technical planning. Modular planning within labs permits easy modification. New one-story lab buildings can be added with ease to the existing complex because of the free-form plan and the large site. To provide visual unity yet minimize the dominance of buildings over the natural environment the exterior walls are cast-in-place, sandblasted concrete and the window frames are charcoal gray.



## Why not build a berm to help hide the building's bulk?

Malcolm Wells, noted architect-conservationist, would ask why not put it entirely underground—arguing that until the vast roof areas of most industrial buildings are covered with vegetation, environmental benefits will be negligible indeed. But if the berm cannot be said to provide substantial ecological advantages, it certainly does provide visual ones.

In the case of Parkway West Technical School by Campbell Green Cunzolo, the principal result is to minimize bulk. Sited on a hill, the berm makes the building seem to grow out of the hilltop, rather than seem a structure placed there by a conscious intent. The earthworks of ancient fortresses, built with a completely different intent of course, are what makes them seem so much a part of the landscape. When the architect is faced with a completely flat site, however, the berm is a very handy design tool indeed. Even a two-foot-high berm around a building placed at an angle to nearby streets will make it seem to have been built on a pre-existing mound and therefore to belong there (RECORD, February 1969, pages 160-161). Vincent Kling, architect of the RCA building, by increasing the berm until it almost meets the sloping fascia, produces a compelling symbiosis between structure and site.

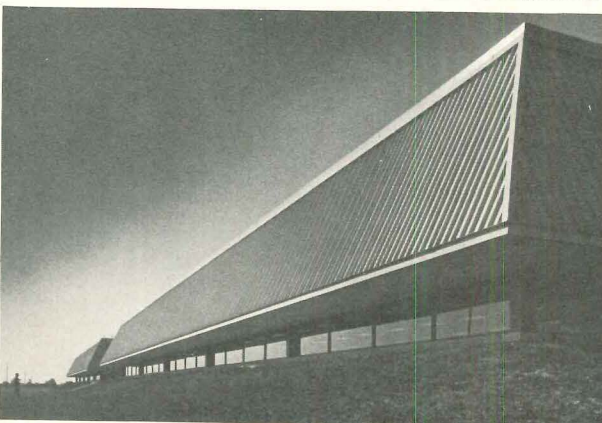
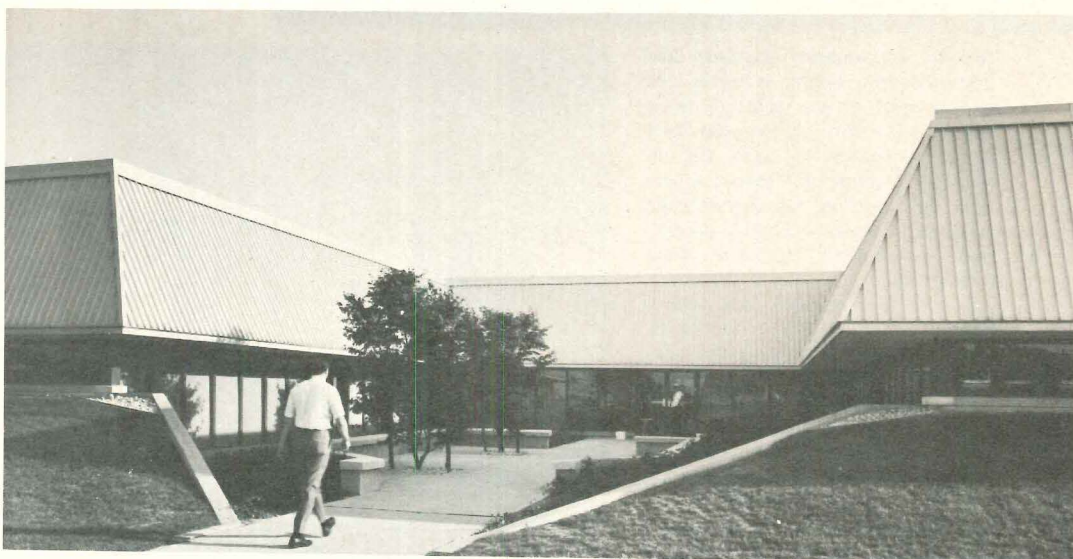
Nothing could be more economical than a berm, after all, because the topsoil removed during evacuation for the floor and foundations of the building must be disposed of in any case. Not only is it cheaper to mow a lawn than paint a wall, but the consistent temperatures of earth next to occupied spaces can help reduce air conditioning loads also.

PARKWAY WEST TECHNICAL SCHOOL, North Fayetteville Township, Allegheny County, Pennsylvania. Architect and engineer: *Campbell Green Cunzolo*—*J. Ronald Reynolds*, project architect.

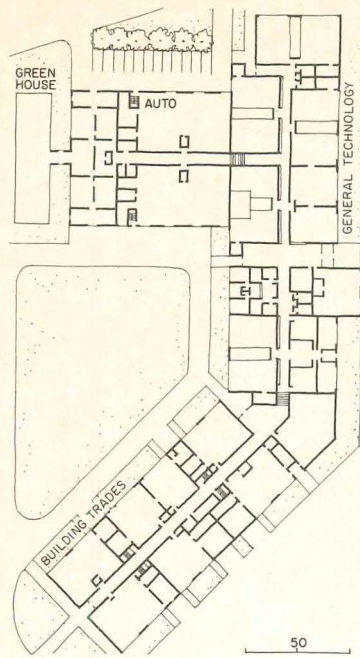
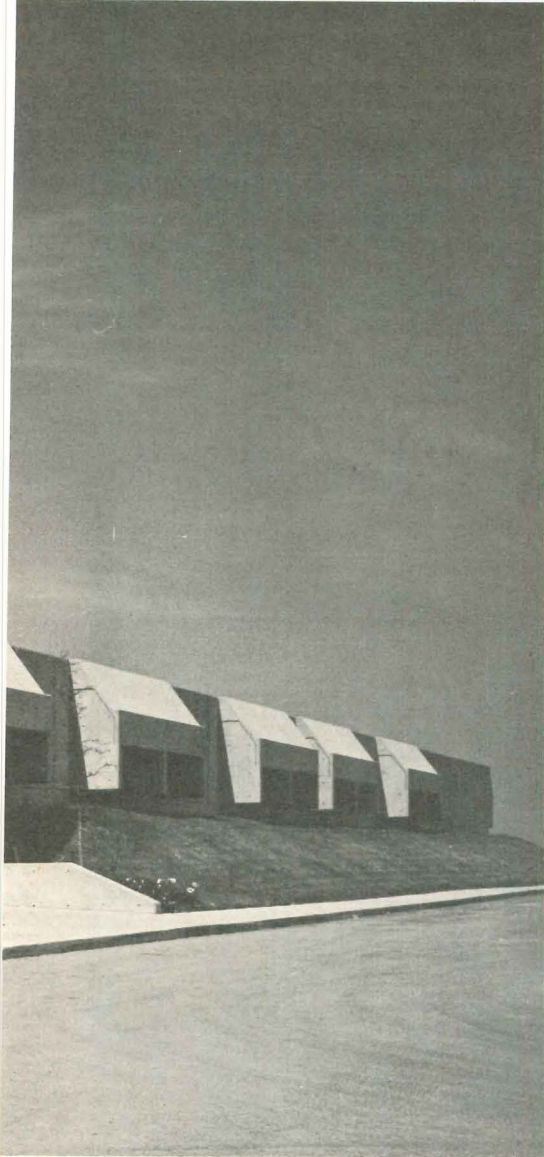
GRAPHICS SYSTEMS DIVISION, RADIO CORPORATION OF AMERICA, Dayton, New Jersey. Architects: *Vincent G. Kling and Partners*, *Jonathan P. Naylor*, coordinating architect; structural engineers: *Hughes-Foulkrod*; mechanical engineers: *Robert J. Sigel, Inc.*



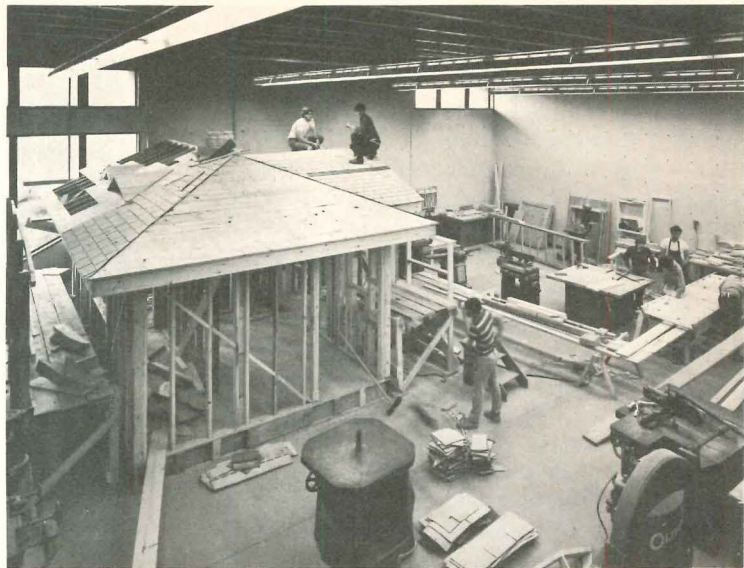
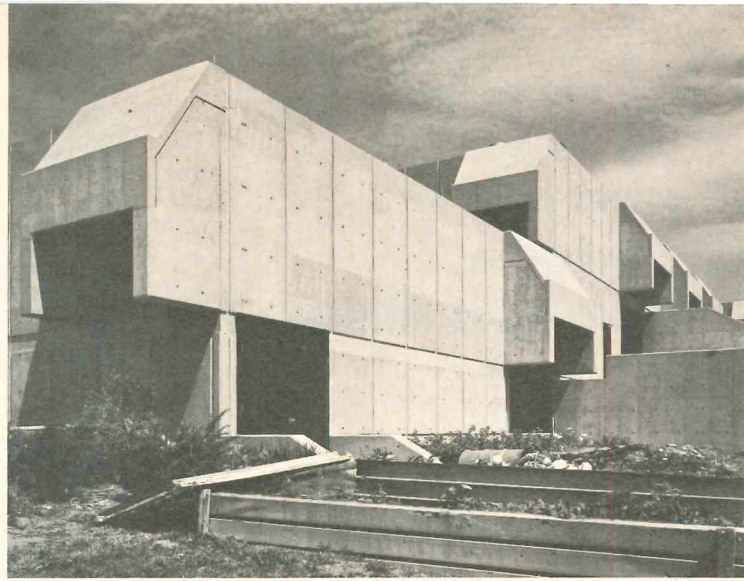
*William Boyd photos*



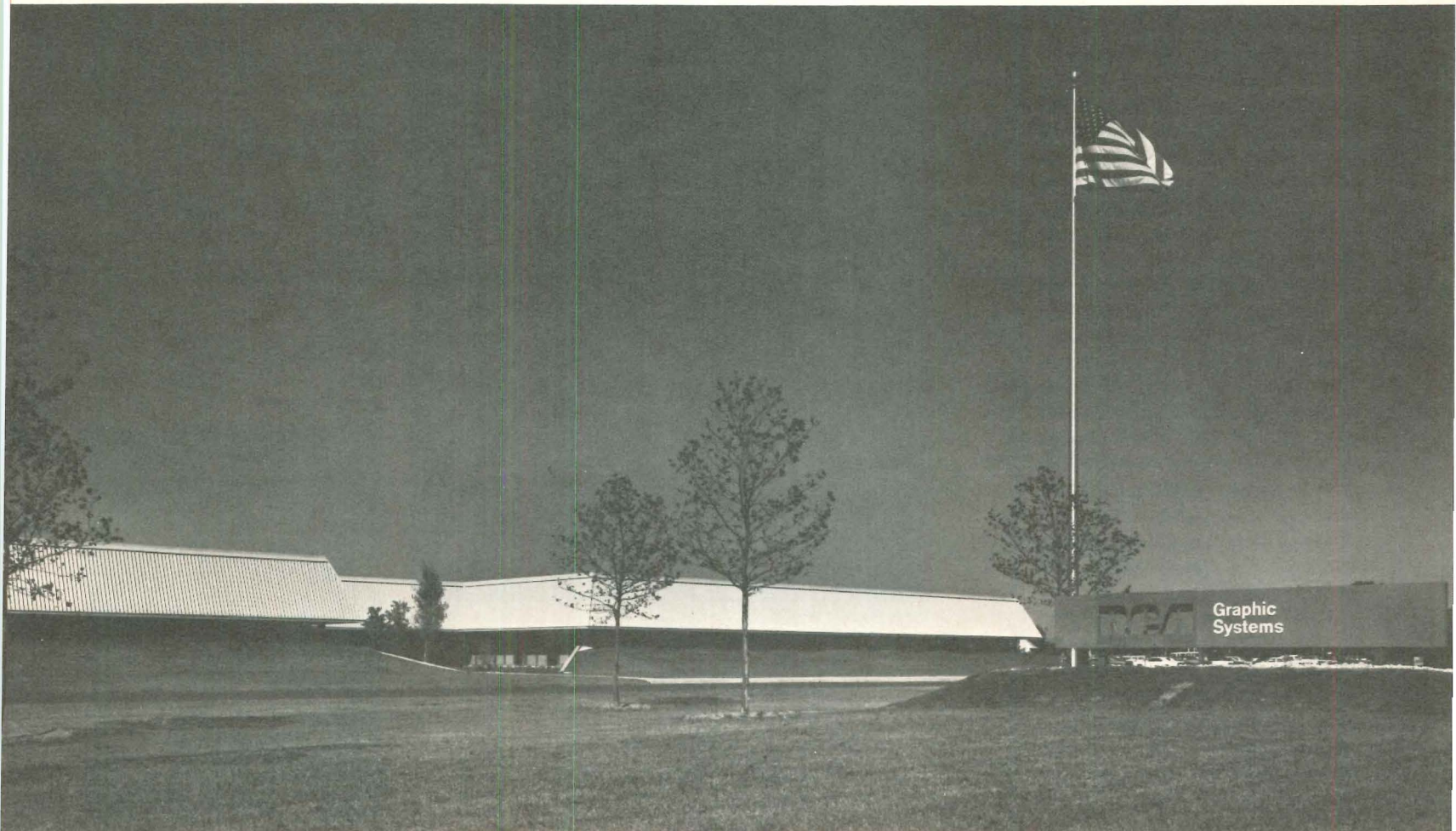
The Graphic Systems Division of RCA produces electronic equipment used in newspaper and magazine printing. Placed on very nearly level farmland, the berm and the sloping fascia of corrugated steel, left, make the 56,700-square-foot building seem very much a part of the site. A continuous band of windows between the two elements gives everyone a sweeping view of the countryside. A sheltered courtyard leading to the lobby and the showroom for the division's products, above and right, provides an obvious but welcoming entrance to the simple, elegant building complex.



**Parkway West Technical School** near Pittsburgh has problems similar to an industrial building, one of them being a size definitely out of proportion with neighboring farmhouses. Behind the grassed slope and the rhythmic concrete sunshades, are flexible spaces for teaching a wide variety of technical subjects, including housebuilding, right. Classrooms near the entry, left, are used for courses in marketing research and accounting as well as medical technology and electronics. Panel-formed concrete surfaces with carefully-placed lug holes providing an additional counterpoint seem appropriate for a technical school.



Lawrence S. Williams photos

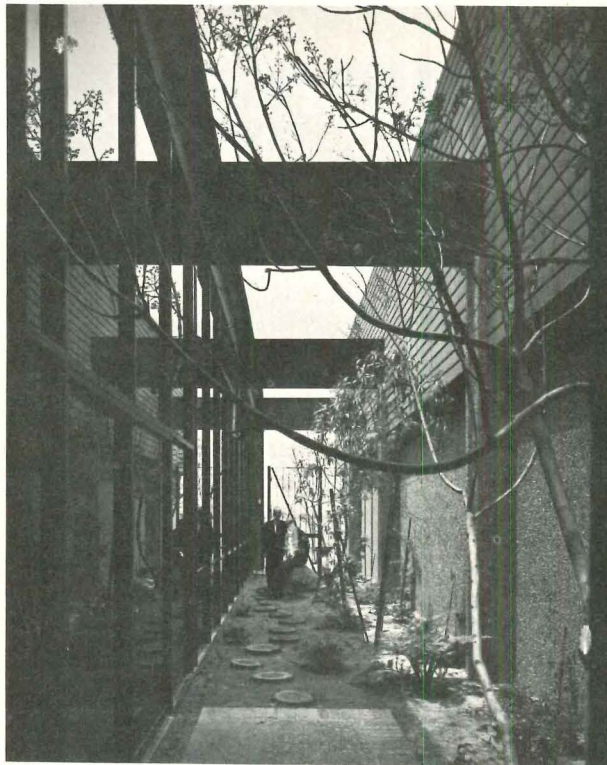


## Why not put a garden between plant and offices?

Many small and medium-size industrial buildings have an office building standing in front of the main structure because, however much the designer might wish to integrate them, the budget won't allow it. Architect Ron Yeo has turned that problem into an asset by putting tiny gardens between the two buildings. Instead of large windows facing the road, a brick wall with high windows greets visitors to Acme Wire. The flying laminated beams provide a suitable accent. But once inside, the tops of trees in the gardens are visible through high windows on the rear of the office wing. Everyone working there shares in the changing patterns of foliage and shadow on the cinnamon-colored steel fascia of the plant.

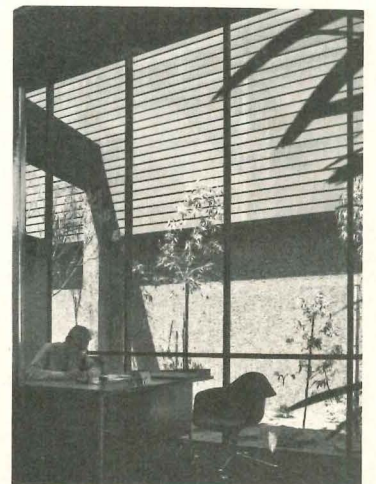
Partly because his client was a family business and gardens seemed appropriate, but also because he has been tucking small gardens into other projects, Yeo had no trouble using the spaces with assurance. In southern California's arid climate, the protected garden works very well, although anything will grow out in the open, including the lush lawn, top, if the ground is irrigated. These gardens have jacaranda trees which shade the ferns and other low plantings. Plantings obviously will vary in other parts of the country. But even in the coldest climate, evergreen shrubs, trees and groundcover will make a handsome low-maintenance garden. On the other hand, employees with a green thumb may wish to use their talents at work as well as at home thus providing everyone there with the delights of nature close at hand.

ACME WIRE/DURA COAT INC., Garden Grove, California; architect: Ron Yeo; structural engineers: Steinbrugge and Moon; landscape architects: Lang and Wood.



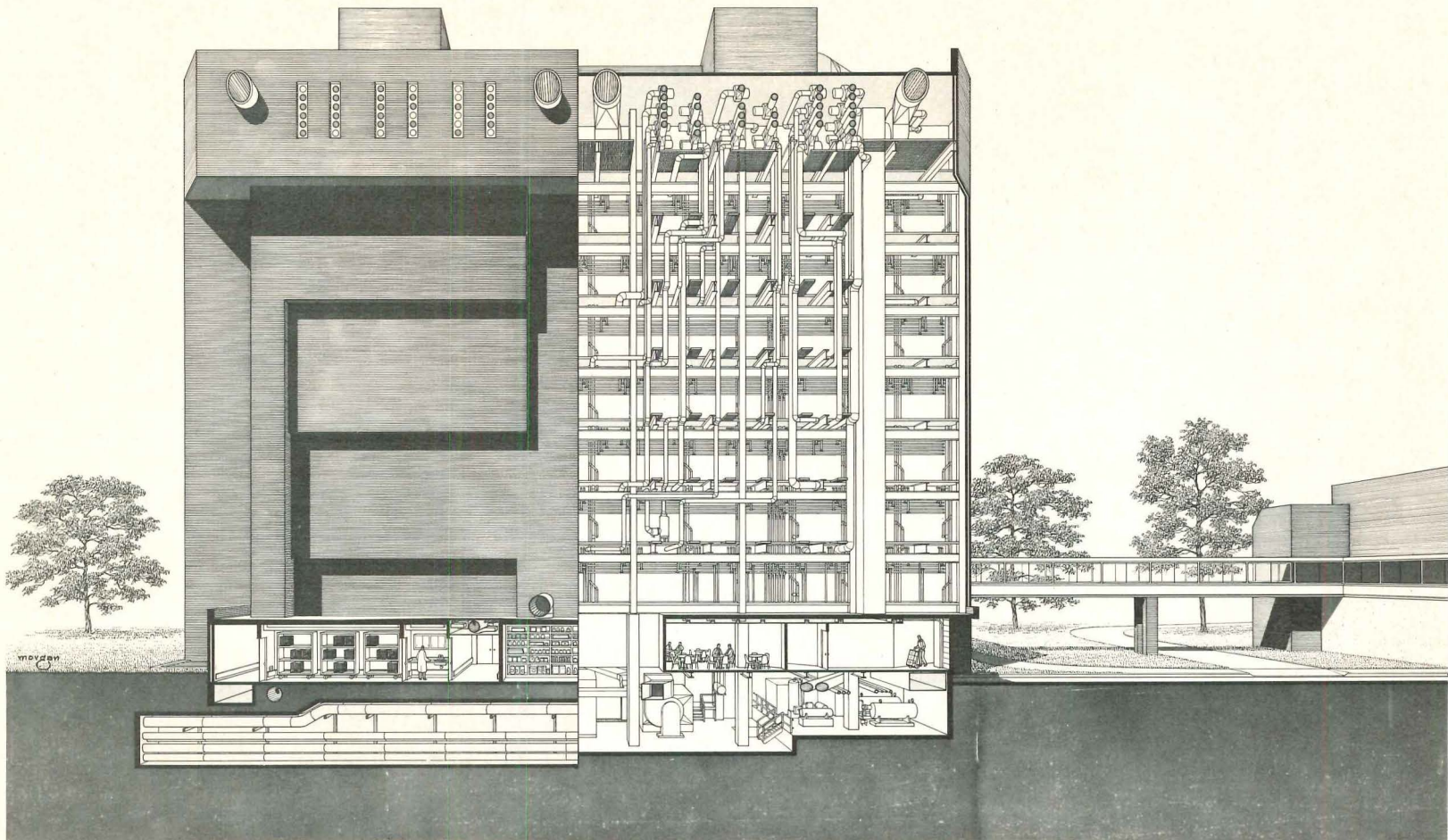
Julius Shulman photos

Acme Wire/Dura Coat, Inc. got its new plant for \$7.65 per square foot including furniture and landscaping, says architect Yeo, mainly because a negotiated contract with Saffell and McAdam, contractors, kept costs down. Stressed skin roof panels on a laminated wood beam system, used both in factory and offices made structural work go very fast. The factory walls are tilt-up concrete panels with exposed aggregate topped by a deep fascia of weathering steel corrugated sheet material. Four offices share the garden with water, above, while others look into a long, narrow garden, left and below. Still a third garden is adjacent to the employees' lounge. Two elements, containing offices, restrooms and corridors connect the plant and office wing.





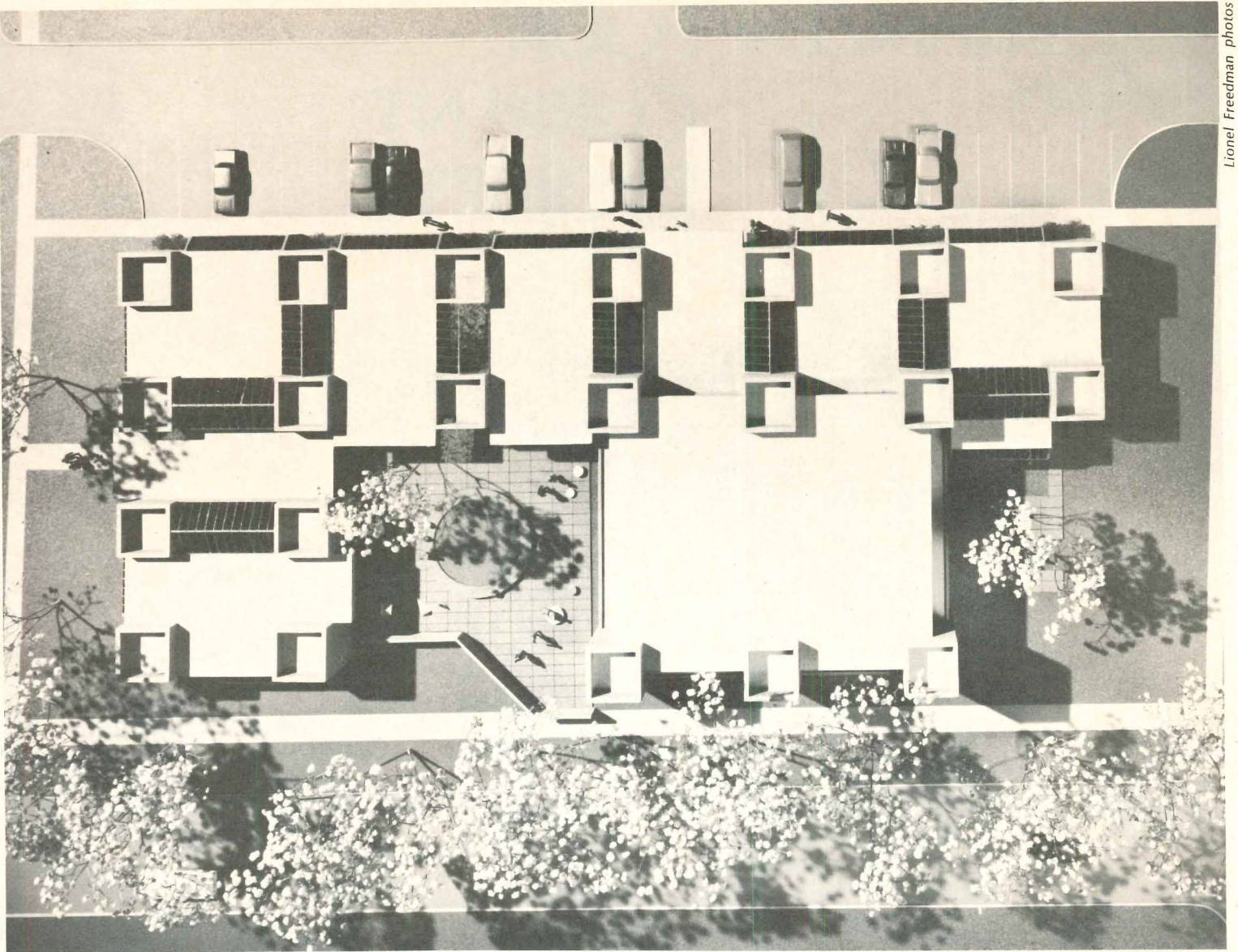
# FRANZEN: FOUR CURRENT PROJECTS



For Ulrich Franzen there are no general solutions. Each of the four projects shown here and on the pages that follow is shaped by a specific set of programmatic and environmental circumstances and respects the limits these circumstances impose. For Franzen, this means trying to seek out and respond to what is unique about each new locality and project before seeing what he can carry over from the last. "Context architecture" is his phrase for describing both this process and the result it yields.

For the First Unitarian Congregation of Richmond, Virginia, (see page 108), he has designed a church that is more than a church. For Cornell University's School of Veterinary Medicine (above and page 114), he has designed a laboratory tower that, more truly than most, organizes the program's complex, multiple functions into legible, architectural forms. An innovative housing scheme in Utica for New York's Urban Development Corporation and a bank in Binghamton, New York, complete the portfolio.

What carries over from project to project is not esthetic baggage. Franzen travels light. It is a consistent sensitivity to human needs (whether or not they are expressed in the program), a keen sense of the purpose and an obvious, non-apologetic delight in spatial excitement and sculptural detail.



## FIRST UNITARIAN CHURCH OF RICHMOND, VIRGINIA

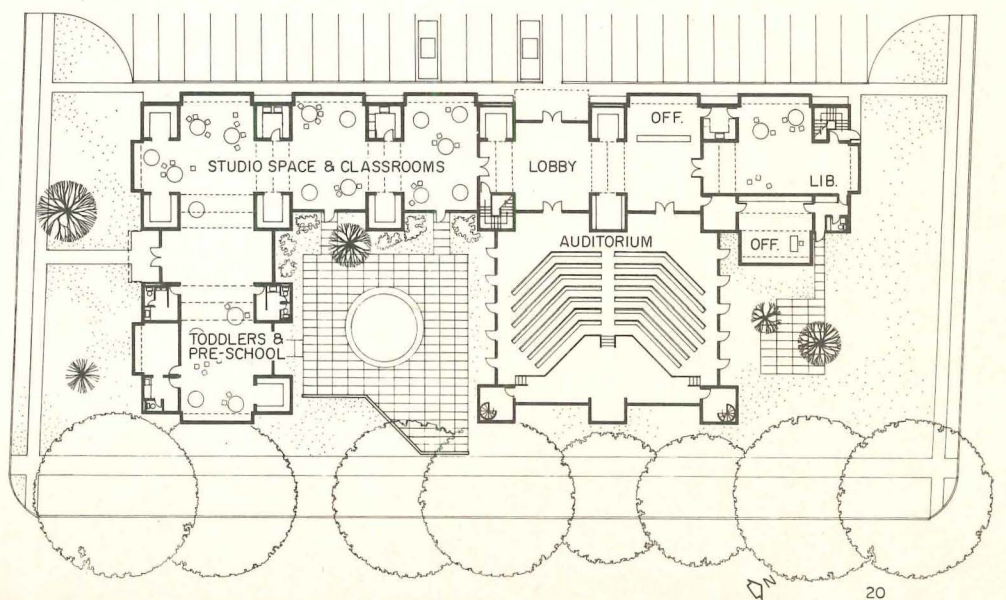
It was quickly apparent when the Church building committee met with its architect that what was wanted was no ordinary church. Sensitive to the changing nature of religious instruction and worship itself, the committee wanted a structure that would act as a community focus all week long. The program that emerged from these discussions was admittedly experimental. It called for a large meeting room supported by a series of spaces that are inviting for

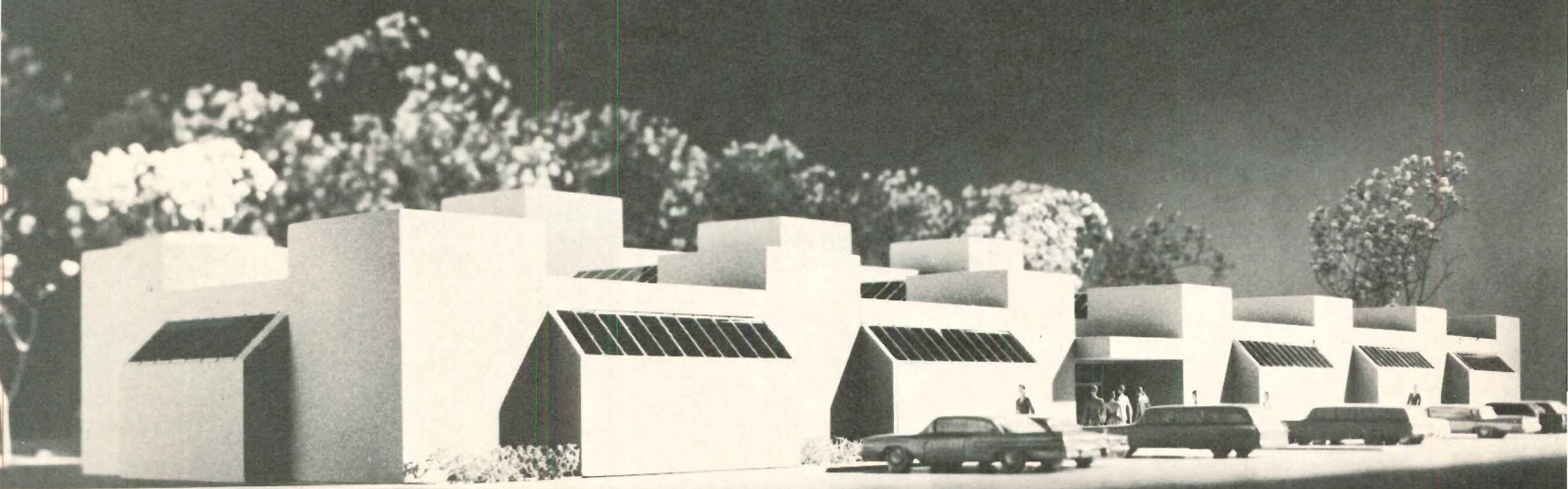
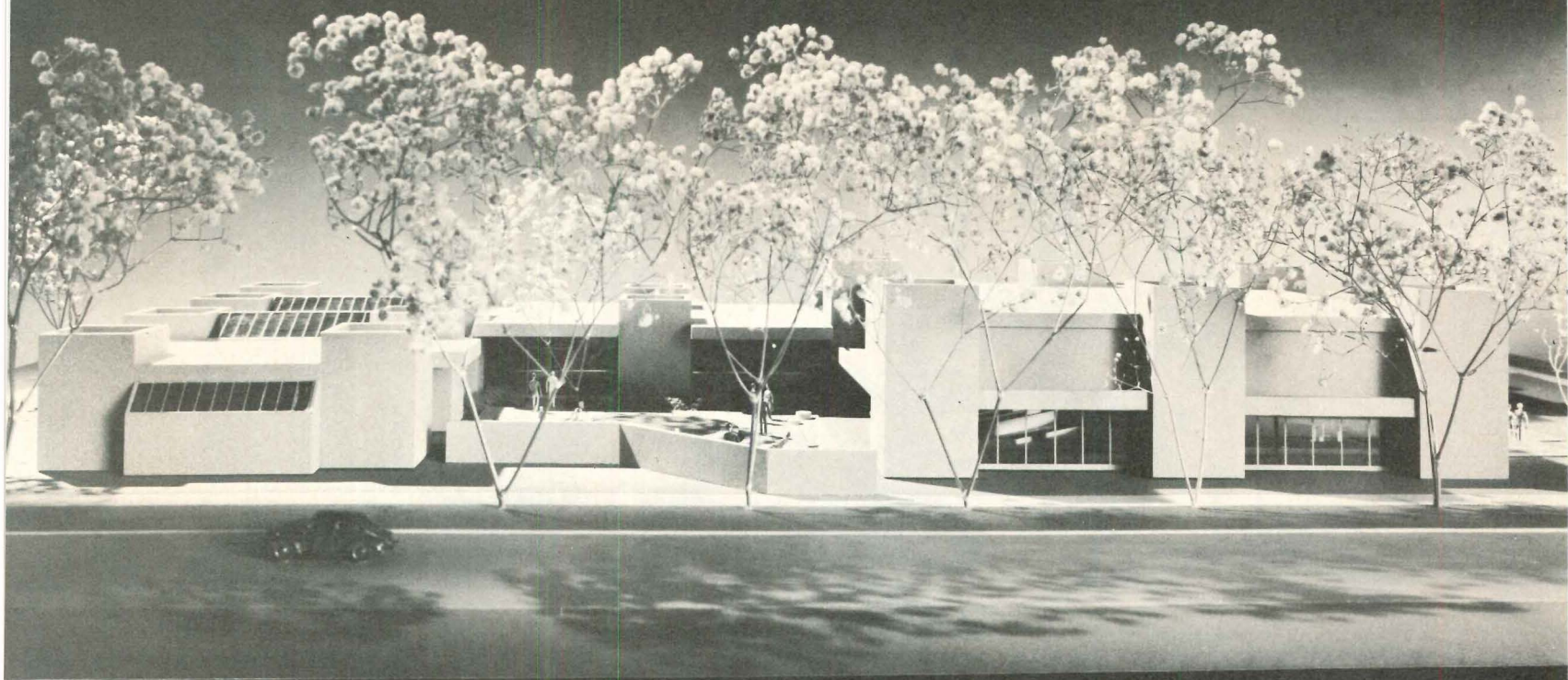
uses not directly related to worship but keyed to the congregation's social and creative values. The result (see plan) is a series of open-plan studios for painting, ceramics, wood working, sewing, and similar pursuits. On weekends, these studios are to be used for small-group religious instruction. These spaces open to a common, landscaped court so the functions can spill outdoors when the weather is appropriate. The large meeting room, used Sun-

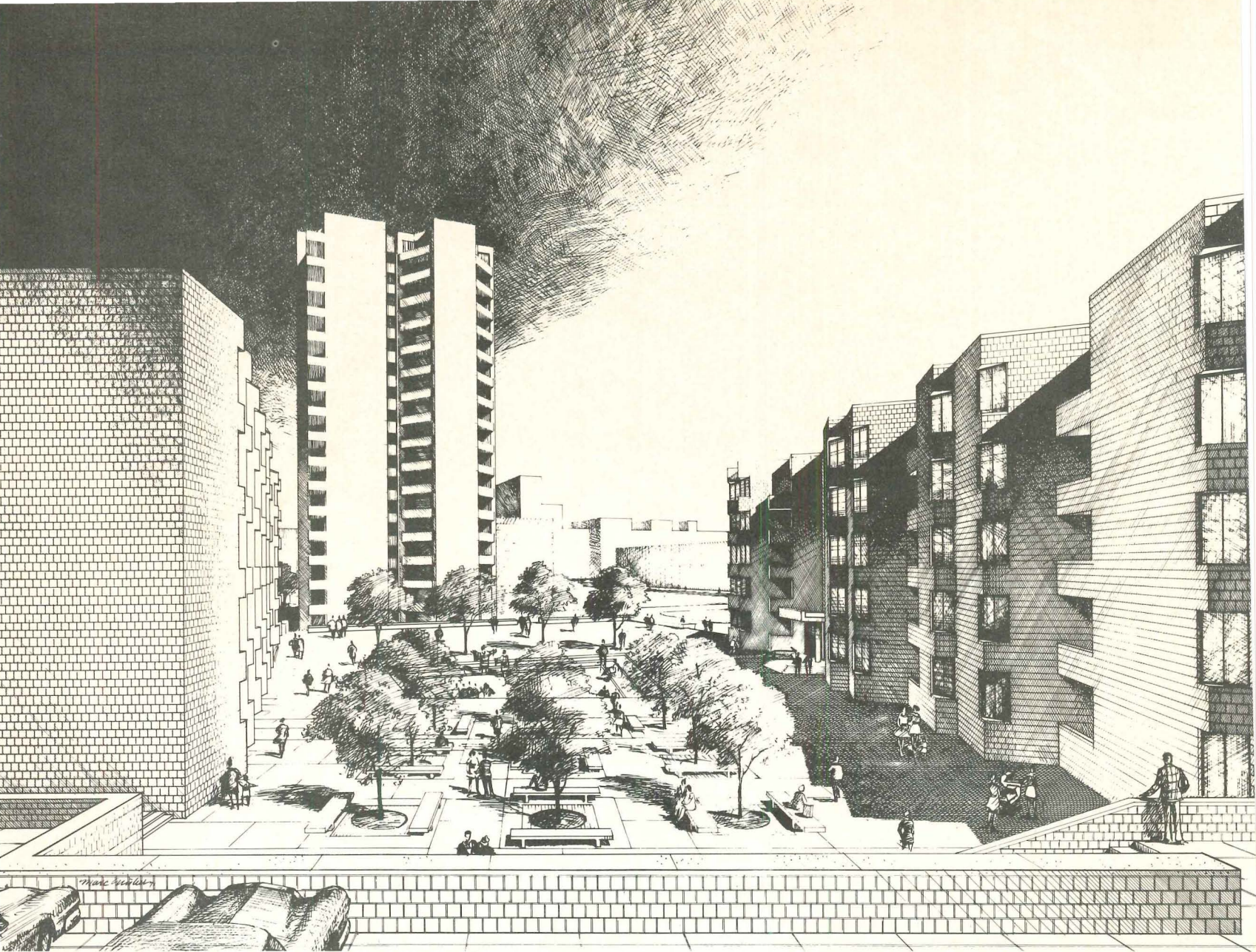
days as a sanctuary, can double during the week as a space where the community can gather for concerts or discussions.

Then general character of the building finishes will be informal and the structure itself scaled to the surrounding residential community.

Architects: Ulrich Franzen and Associates—associate in charge: Allen Anderson. Structural engineers: Aaron Garfinkel & Associates; mechanical engineers: Benjamin & Zicherman.







## URBAN DEVELOPMENT CORPORATION HOUSING FOR UTICA, NEW YORK

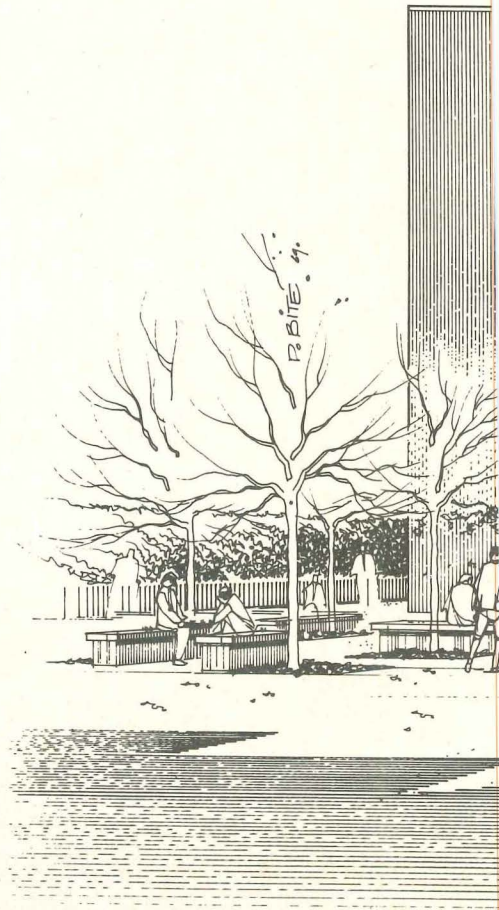
Part of a major urban renewal effort, this appealing scheme will provide 300 units of moderate income housing on an urban site close to the city's commercial center. The project contains a seventeen-story tower and two similar five-story apartment structures grouped to enclose a pedestrian plaza and oriented so that the low-rise elements visually engage the adjoining residential street. The grounds surrounding the buildings will be developed for parking and for recreation.

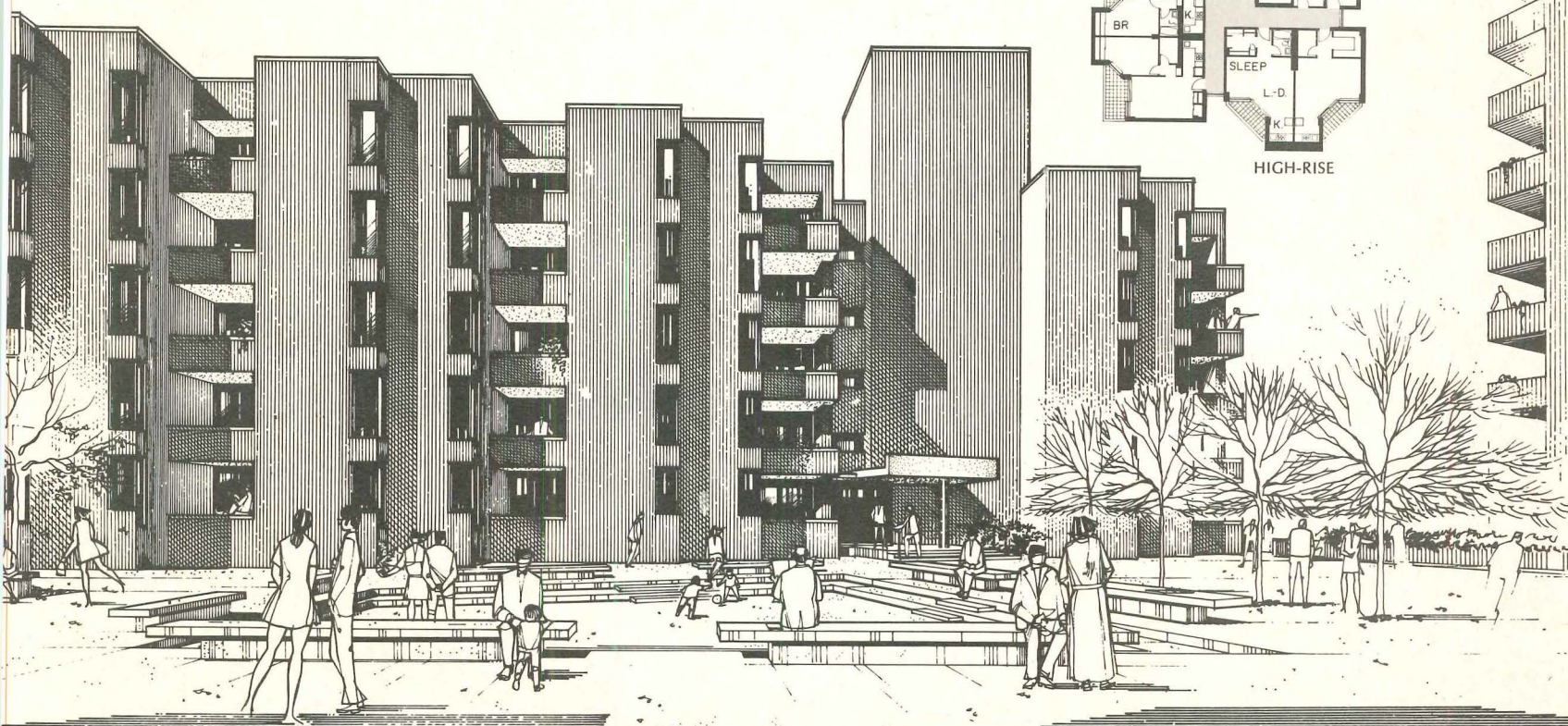
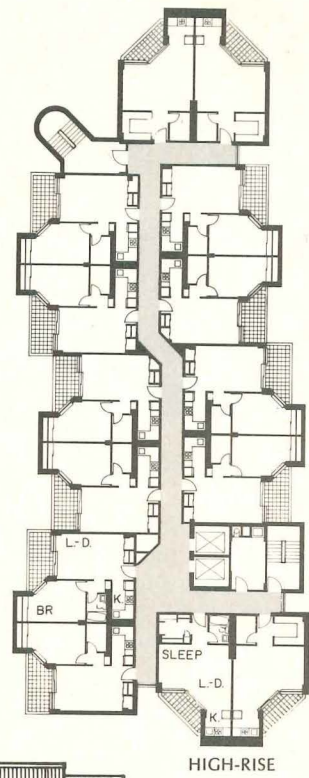
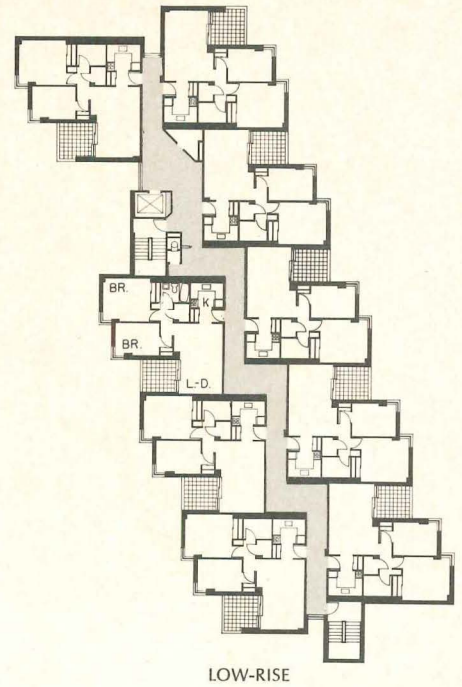
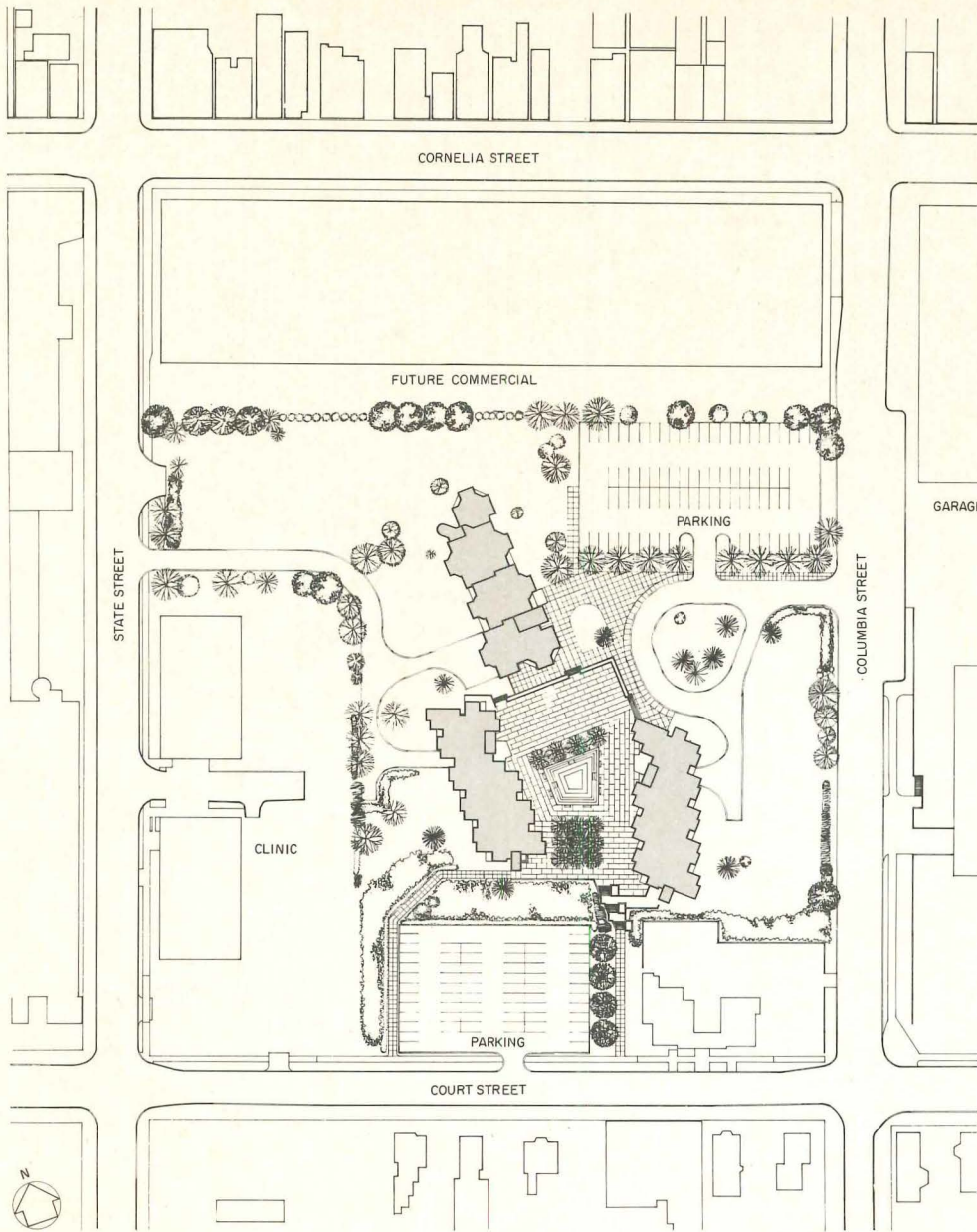
The apartment plans use space economically but provide some unexpected amenities in the form of offset corridors

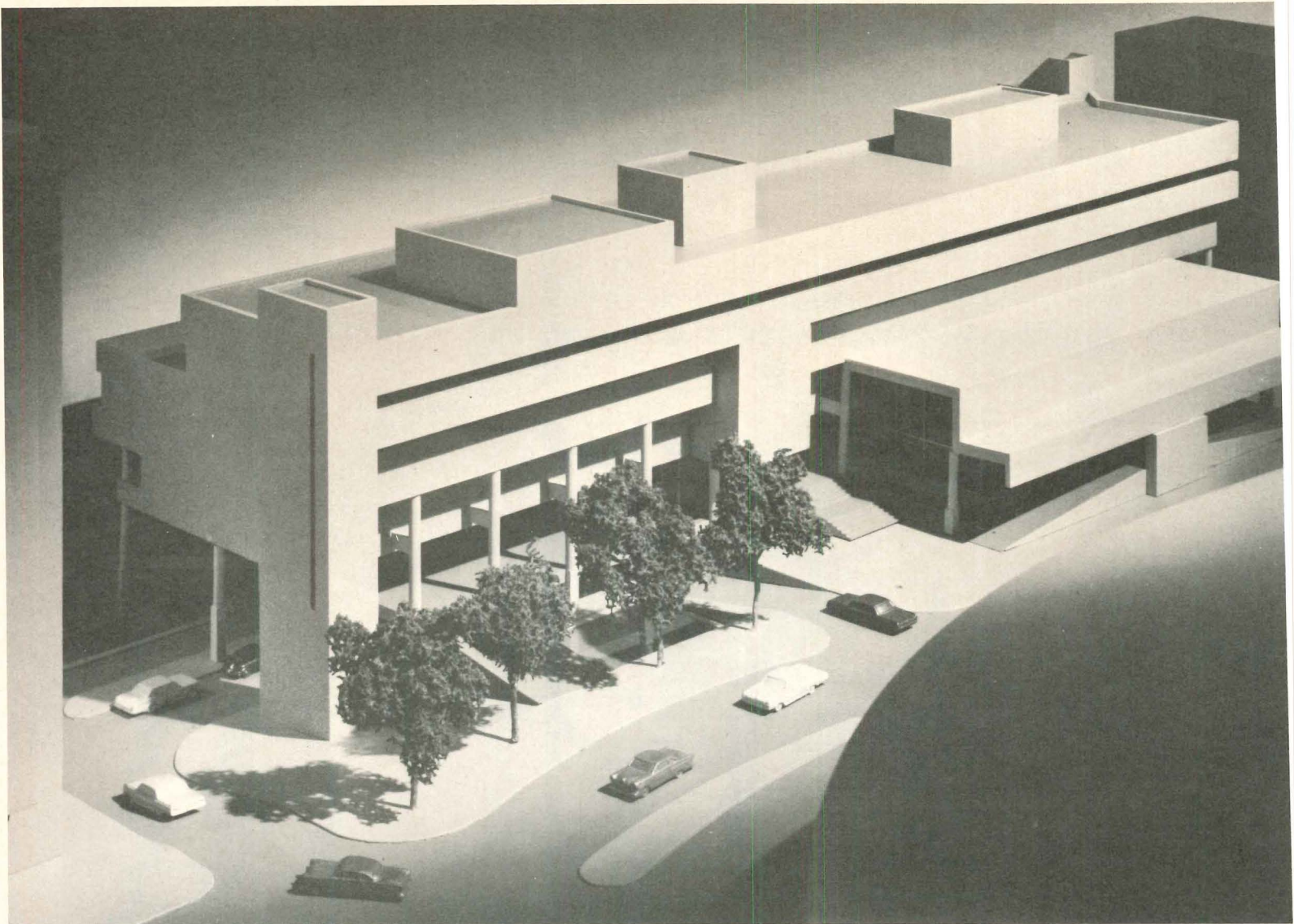
into which natural light is introduced at various intermediate points. All buildings will use flat plate construction. Exterior walls will be built in an oversized (8 x 8 x 4 in.) brick, laid up in a single wythe using high-strength mortar.

The whole composition is strongly articulated. The individual elevations, advancing and retreating, opening and closing, never seem "worked" or lose their rectilinear sturdiness.

Architects: *Ulrich Franzen & Associates*—*Samuel Nylan*, associate in charge; structural engineer: *Aaron Garfinkel & Associates*; mechanical engineers: *Benjamin & Zicherman*.







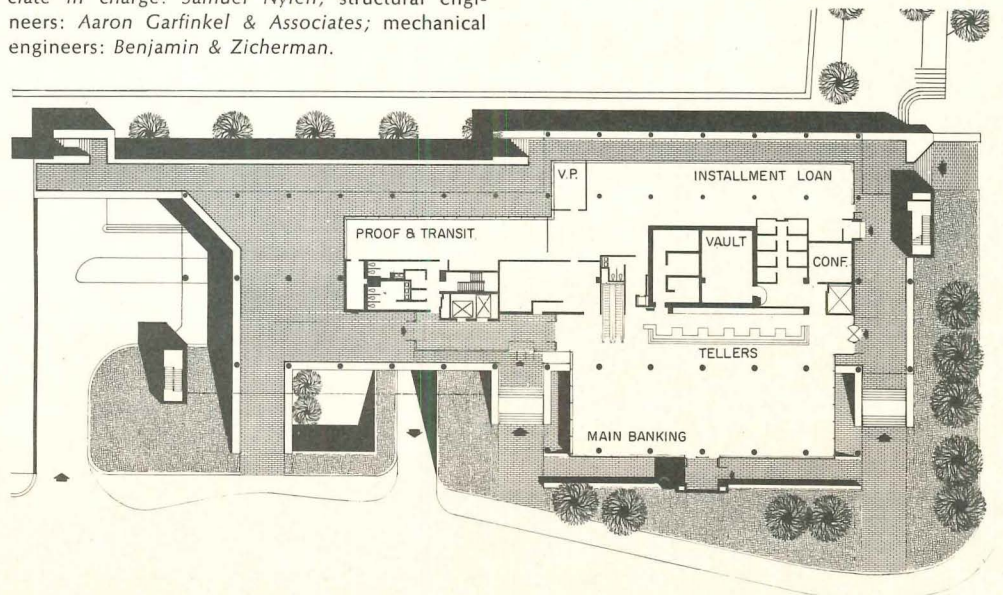
Lionel Freedman photos

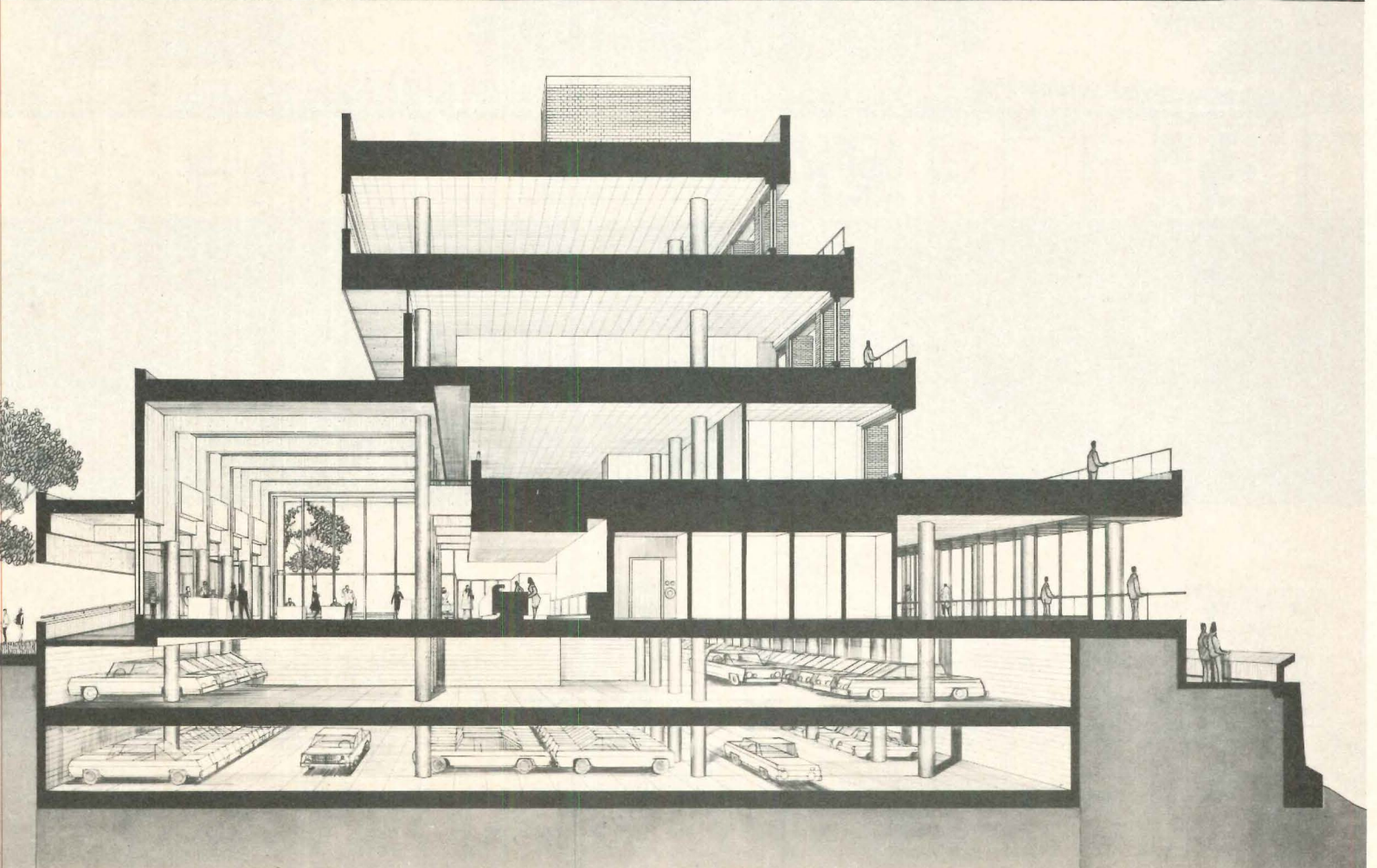
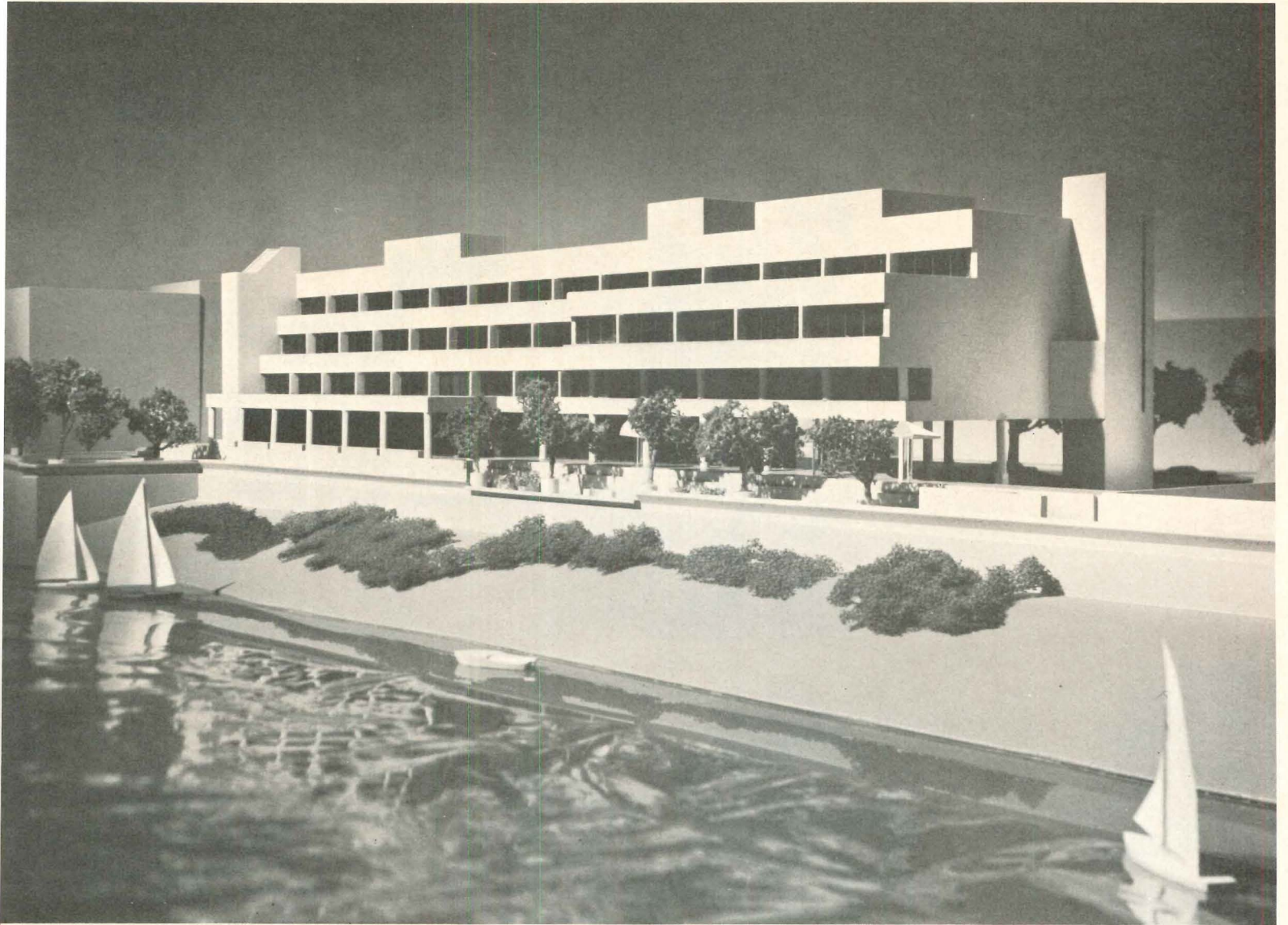
## FIRST CITY NATIONAL BANK OF BINGHAMTON, NEW YORK

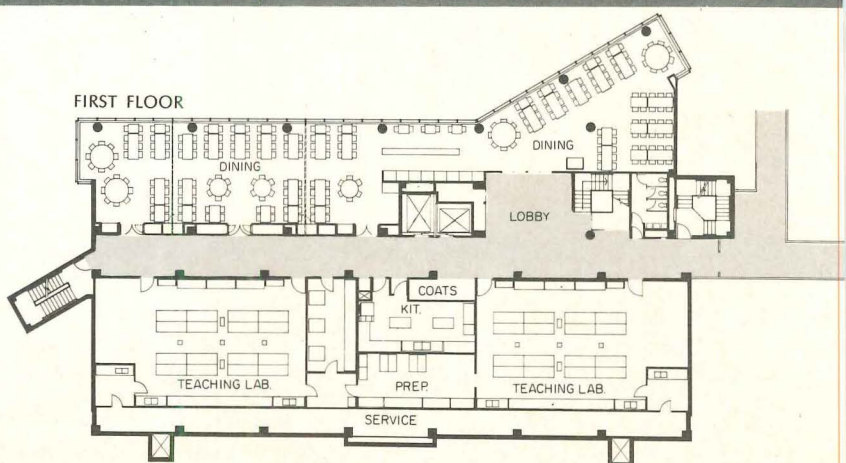
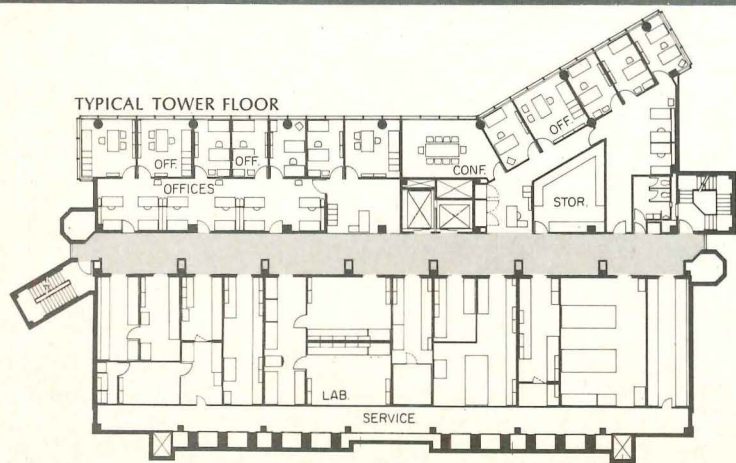
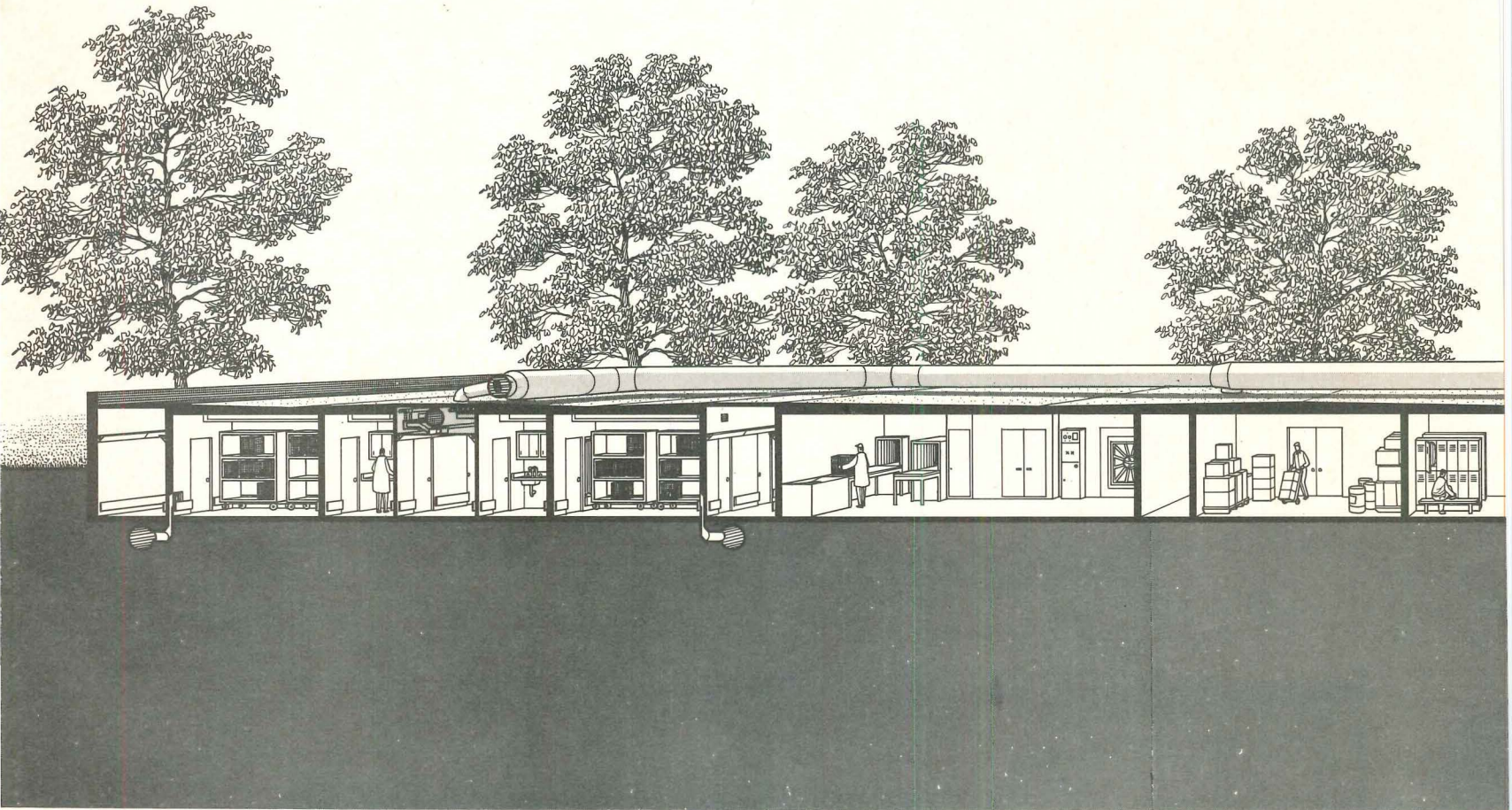
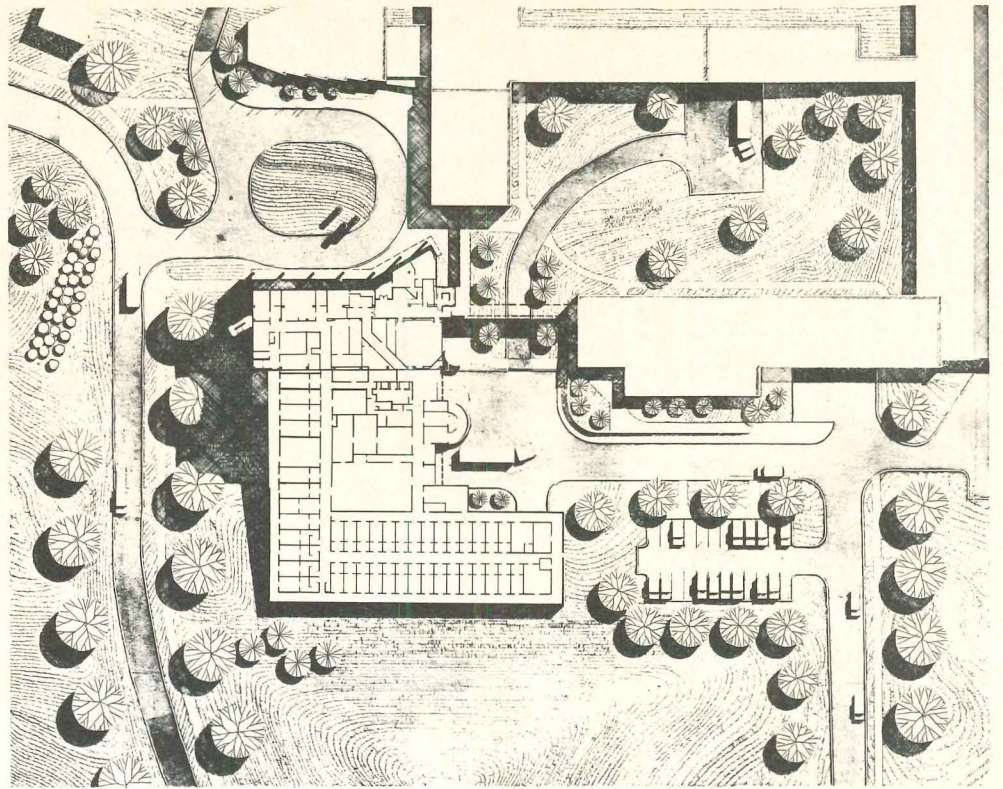
Circulation is an important key in the intelligent development of this handsome riverfront site for a small city in the western part of New York State. Franzen has concentrated much of his attention on creating an inviting pedestrian scale and environment. Parking and drive-in banking services are provided below plaza level with access confined to one end of the site. Pedestrian approaches from all directions form part of the generous plaza ambulatory. The main banking room is located in a double-height space overlooked by an executive mezzanine that

provides the scheme's only vertical spatial tie (see perspective-section). The two upper floors are rental space. The design's strong horizontal emphasis is intended to bring it into sympathy with its low-rise surroundings. The visual alternation between window wall and parapet forcefully stripes the long elevations. End walls, solid and buttressed by enclosed stair-towers, close the composition decisively.

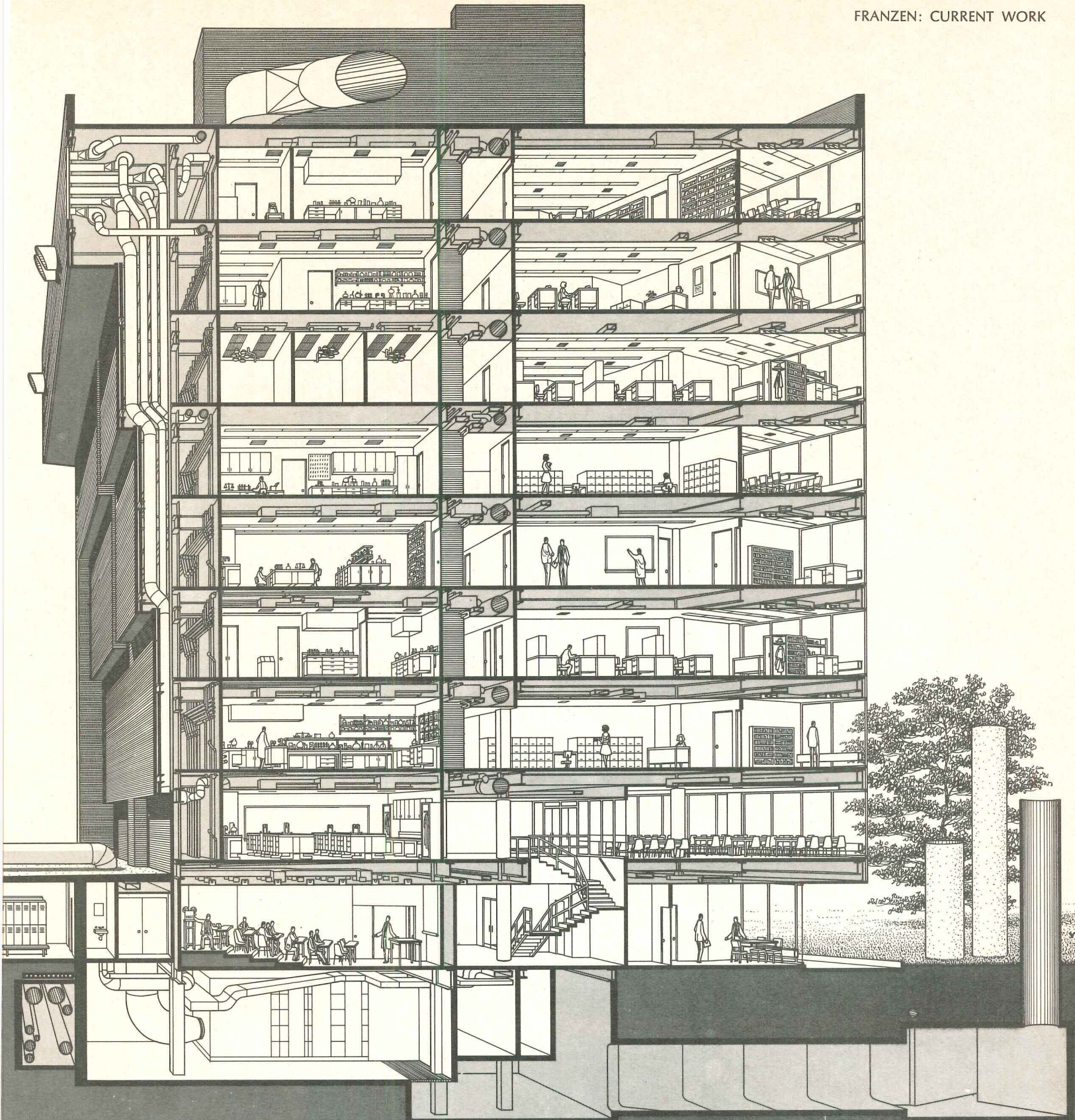
Architects: *Ulrich Franzen and Associates*—associate in charge: *Samuel Nylan*; structural engineers: *Aaron Garfinkel & Associates*; mechanical engineers: *Benjamin & Zicherman*.











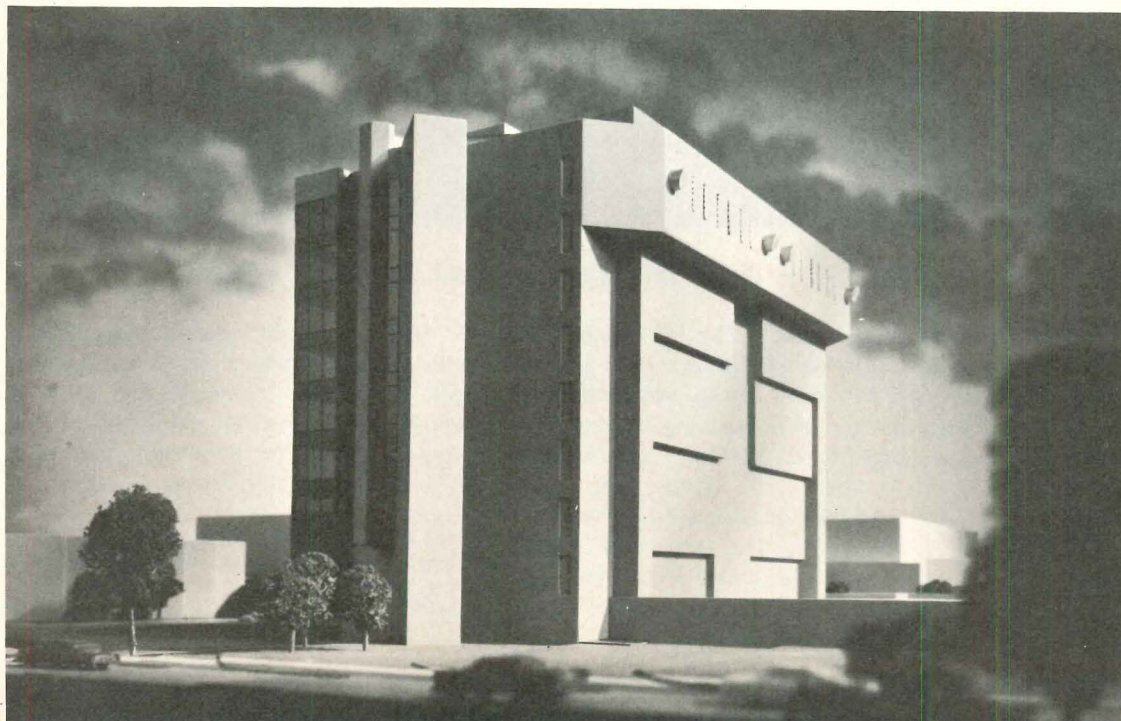
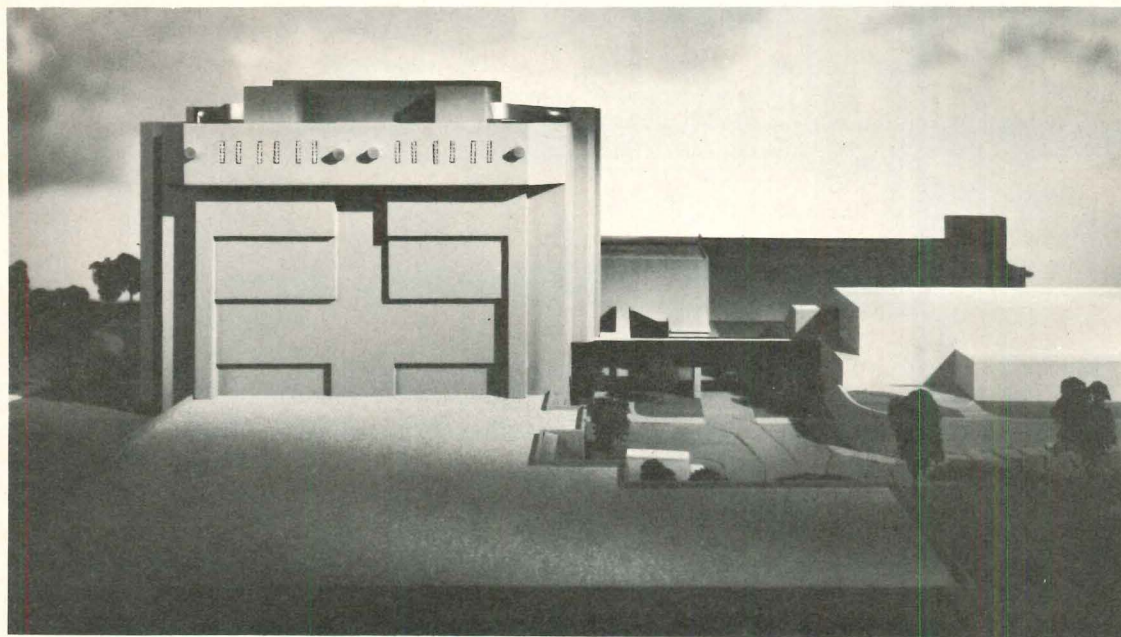
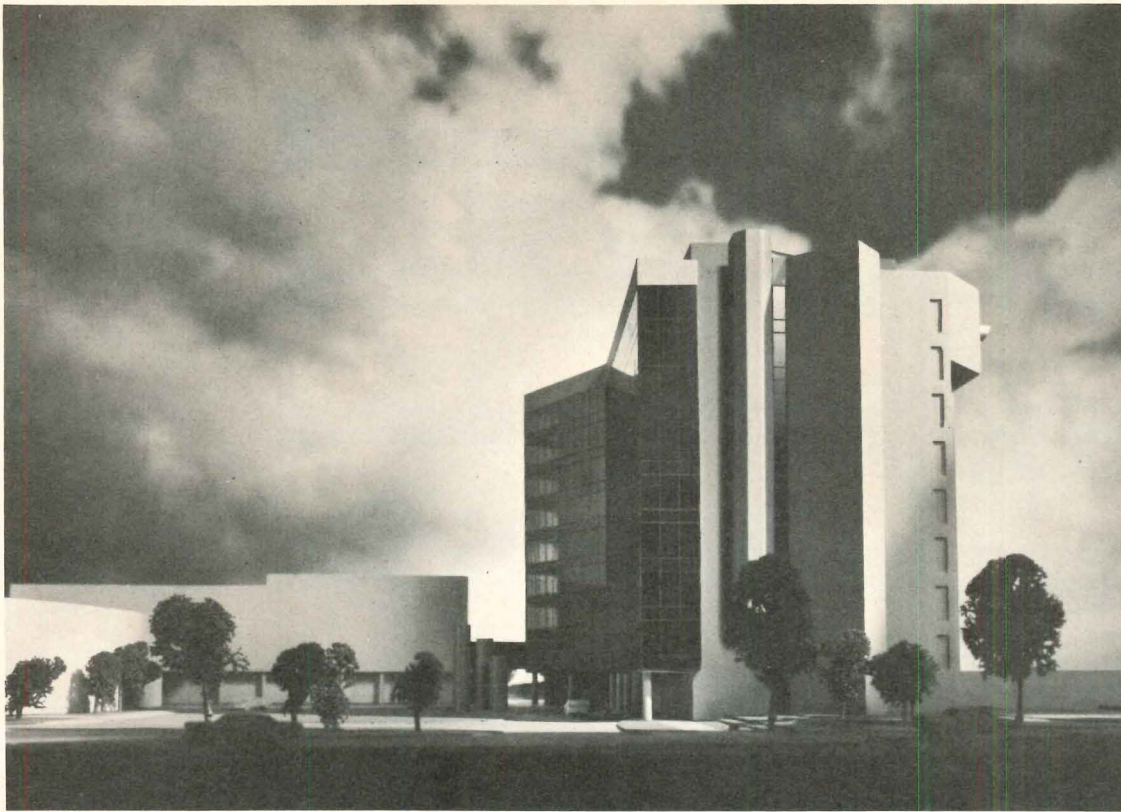
## MULTICATEGORICAL AND ANIMAL RESEARCH LABORATORY, ITHACA, NEW YORK

The extraordinary drawings above and on page 107 reveal a building that will be shaped to an unusual extent by a multiplicity of competing functions and a heavy requirement for mechanical equipment. Carefully fitted to an existing science complex, this laboratory and research building consists of an eleven-story tower attached to a single-story base. The organization, by function, is quite clear. The base, partially below grade, contains water chillers, lab-

oratory animals, and those lab spaces that require radiation shielding. The ground floor and first floor house administration, dining, kitchen and teaching spaces. The tower above is divided into glass-walled offices to the north overlooking Lake Cayuga, and laboratories along the blind wall to the south. The laboratory spaces are linked by a mechanical service corridor with vertical distribution of utilities along the south wall.

Franzen clearly welcomes the opportunity these mechanical exigencies present. From air intakes outside the building through all its internal capillaries, to air exhaust ducts on the penthouse, the building is lovingly sculptured to its task.

Architects: Ulrich Franzen & Associates—Edward Rosen, associate in charge; structural engineers: Aaron Garfinkel & Associates; mechanical engineer: Benjamin Zicherman; laboratory consultant: Earl L. Walls.



Three elevations reveal the building's complex functions. Seen from the west, along Ithaca's Tower Road, the building will appear as a tower with a solid masonry side at right enclosing the labs and a glass-walled side at left housing the offices (top photo). From the south (middle photo), mechanical equipment shafts animate a solid facade. From the southwest (bottom photo), skewed stair tower and air supply shaft lend a powerful, expressive vertical accent.

# CIDOC: Alternatives in Design and Education

by ROBERT M. GOLDER

*A controversial experiment in education has been underway in Cuernavaca, Mexico, for eight years, and this year the subject is architecture. Ivan Illich, who leads the school, is being much discussed for his advocacy of radical alternatives in education, with articles in several recent journals, a television seminar about his work, and the inevitable notice in Time. Architect Robert Golder was at the school in March to witness its first investigations into design, and participate too, analyzing a new film project of his own. For those who are curious, as we were, about CIDOC, here is Golder's first-hand report and his conclusions about the school.*

CIDOC stands for Centro Intercultural de Documentacion. That rather curious Spanish title, more familiarly known by its acrologic, is the name of an experiment in education which has been held for more than seven years in Cuernavaca, Mexico. This focus of experimental educators, architect-planners, and writers, has as its epicenter, the controversial Ivan Illich, about whom so much has recently been written. Illich is the former Monsignor Ivan Illich of the New York Archdiocese, now retired from the Church. A somewhat mystifying combination of conservative and radical, he speaks eleven languages fluently and his agile mind quotes the most recent investigations in the use of computers in education, as comfortably as he draws a metaphor from classical mythology. He was still in the church when he founded CIDOC in 1963, as a study and training center in Latin American affairs for clergy and missionaries, with the avowed purpose of "de-Yankee-fication." It has changed from an institution for clerics only, to a lay institution.

The Center has a simple structure, or set of rules that governs its use. Teachers, writers, architects, philosophers, etc., are invited to CIDOC where they propose a "puzzlement." This is a talk given at "El Ciclo," an open seminar held daily from 11 A.M. till noon. During this hour one presents the theme or dialogue of one's interest and invites whomever is interested to attend. CIDOC is considered an opportunity for qualified people to invite others to learn with them. Those who lead the dialogue (teachers) can define the matter and the method. As the catalogue states "dialogue is preferred to lecture and all proselytism or indoctrination is out of place." Illich describes it as a hotel, a facility. "It's an exchange, a teaching exchange of an international kind. It's run as a non-profit 'hotel,' that is, any time income exceeds expenditures, it's ploughed back into more books or more flowers, but not into increasing the type of services it gives."

The courses fall into three areas. There are continuing classes on a five hour per day, five days per week basis, in Spanish (the language school is reckoned to be one of the best in our hemisphere) and the language instructors feel that if a student is seriously motivated, they can make him fluent in two to three months. Secondly, the Center also houses ICLAS, the Institute

for Contemporary Latin American Studies. Both ICLAS and the Language School function on a year-round basis, but the third area of CIDOC is devoted to a theme for international participation. The theme since 1968 has been *Alternatives in Education* and a new theme that began this winter for February and March is *Alternatives in Design of Physical Environments*.

These encounters in architecture and planning ranged from two weeks to two months through February and March of 1971, and the topics and discussion leaders included the following: "Housing by People," John F. C. Turner; "Space and the Human-Architecture and Man," Varenca & Oliver Marc; "Auto-Generated Urban Housing," Roberto Chavez; "Objects, Values and Space," James Morton; "The Design Process," Sascha Illich; "Design," George Nelson; "Film as a Tool for Visual Education," Robert M. Golder.

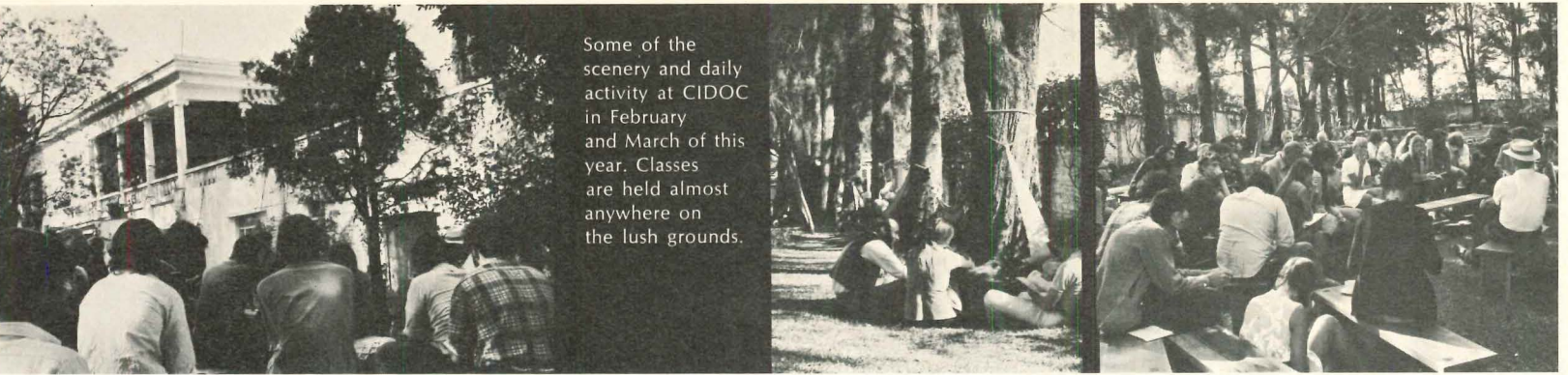
## **One of the best sessions focused on housing created by people, rather than for people**

The encounter that perhaps had the most relevance to Latin America was John Turner's "Housing by People." It presented alternative solutions to low-income housing, and was an examination of auto-generated housing or autonomous settlements. These are settlements that ring the boundaries and interstices of Mexico City, Lima, Caracas, Casablanca, Hong Kong, Lagos, etc. It is a phenomenon caused by squatters and illegal developers in rapidly urbanizing countries. Squatters' settlements have become a significant increment of the increasing urban population in the "Third World." Over one third of the population of Mexico City lives in the "colonias proletarias"; nearly half of Ankara's population of almost two million people lives in "gecekondu" districts—settlements whose names describe housing built overnight; the area of the "villes extracoutumiers" of Leopoldville is greater than that of the city itself. This housing or "uncontrolled urban settlement," to use a phrase of Turner's, has been viewed traditionally by planners, architects, and the socio-governmental agencies involved in housing, as a *problem*. Turner views it as a *solution*. He looks at the total spectrum of low-income housing in underdeveloped countries and begins to compare the conventional mass-produced,

low-cost housing as produced by various combinations of government money, and private capital to these autonomous settlements. He compares these housing "solutions" against a very pragmatic yardstick. In what way do these solutions meet the needs or desires of the users, how much do these solutions cost both to the institution supplying them and the occupant, how long do they take, and what is their effect on the total urban fabric?

In autonomous settlements, the owner-user, or owner-builder makes his own decisions about what he will build, the materials he will use, its design, and the range of priorities in terms of time. The institutions producing housing, however, must respond to very different demands. They think in terms of mass housing because of the economics of building in quantity. It is the bureaucracy of the building institution that makes all decisions. The enormous cost of both supporting the housing bureaucracy, and the construction and maintenance of large-scale housing in countries with very low per capita incomes, is forcing a fresh look at the systems and techniques employed in squatter housing.

The owner-user, typically is a young family with parents under 30 and between three and five children. Their greatest need is felt to be a healthier and more spacious environment where they pay no rent and fear no evictions in a house that contributes to their future security. "Young towns" (pueblos juvenes) are a common solution that has two common requirements: a fee (not for the land itself which is property of the state, but to defray overhead costs) and compliance with the requirements of the Association. If the family savings have not been depleted by illness or unemployment, they may have enough to begin construction. It is rare that they will have any sources of credit, although in some pueblos juvenes there are cooperative credit unions that will lend moderate amounts for up to two years. An employee may be able to get a direct loan to roof an area, and relatives may be a source of credit. Building materials are generally easy to come by in small quantities, and some materials are obtained second-hand. Construction laborers come from the pueblos juvenes, and the owners, the entire family including children, put in a substantial amount of their own labor. The weakest



Some of the scenery and daily activity at CIDOC in February and March of this year. Classes are held almost anywhere on the lush grounds.

parts of this system are the design, the legal services, the public utilities and local community facilities.

Except for the above mentioned deficiencies the end product that the user develops in the pueblo joven dwelling is not dissimilar to what the state builds for him in a low-income housing development. There are, however, some rather significant differences in the process. The pueblo joven dwelling costs one-third to one-half the price of its state equivalent, housing in the pueblo joven dwelling begins at once, the state-built project will take at least four to six years with countless forms to be filled in the interim. The joven dweller owns his house and may sublet as he pleases; the state-built dweller is carrying a mortgage, without the possibility of sub-leasing. The use of a publicly-built project carries restrictions, the joven dweller may make temporary or permanent conversions to small commercial or industrial use. Turner examines both social and economic considerations very carefully and presents the way in which the government of Peru is beginning to cooperate and participate with certain squatter developments. I found Turner's approach refreshing and constructive. He identifies a new energy source: the labor of the user and his family, or more importantly, illustrates how an existing system or *process of housing* can be aided with legal and design services, to form a really healthy and economic solution.

#### Another encounter investigated the ability of film to describe architectural form

I have been working on a series of films for young people, and I wanted to use CIDOC as a forum for this project. The ability to use one's eyes objectively is, of course, of concern to architects, painters and all those professionals within the visual arts. There is within the visual world a system of harmonics, just as there is within the world of music. Harmonics in sound is a system of abstractions which describe individual parts and their relations to one another. This same realm of abstractions in visual terms consists of: form, color, point, line, plane, texture, rhythm, polarity, value, etc. When we pull apart and identify these characteristics we begin to understand how they operate in the visual field.

Most visual education at present still depends on standard art appreciation courses. These are courses which are object oriented, which identify beauty as an "object." It's an "object" that a painter or a sculptor or a weaver or an architect makes. This attitude of object reverence seldom leads to visual understanding, and its not until one begins to see relationships or not until one begins to understand the components within our visual field that one can begin to use his eyes intelligently.

Film presents a natural technique for the description and exploration of these abstractions. Film allows one to dissect and piece together again an infinite range of visual segments. We can start by removing color for film and viewing it in tonal values from white to black. We can arrest its movement and see it as a still. We can alter the focus so that details become obscured and we begin to see a series of forms. We can explode the image till it becomes a shifting emphasis of light and shadow, or field and polarity. The image can be split, slowed, inversed, reversed, altered in numerous ways depending upon the didactic point. These techniques are in fact used consciously by gifted film makers. Antonioni, Resnais, and Bergman are always using the camera to seize the abstraction that works for a particular context. Their films, indeed, all good films, are an education in vision. One can construct exciting films using these techniques, to put in an ordered sequence the elements of these abstractions to give young people an understanding of the operative qualities within their visual experience. A series of such films each treating several of the major abstractions hopefully could lead to some ability to use the eyes objectively, to better analyze the world we see.

Regarding this "puzzlement" of mine about film and the visual arts, I found the exchange with other members of my group, particularly several young Mexican architects, helped to define and form my project still further. This, ideally, is a chemistry that happens naturally when the engagement between leader and students is vital.

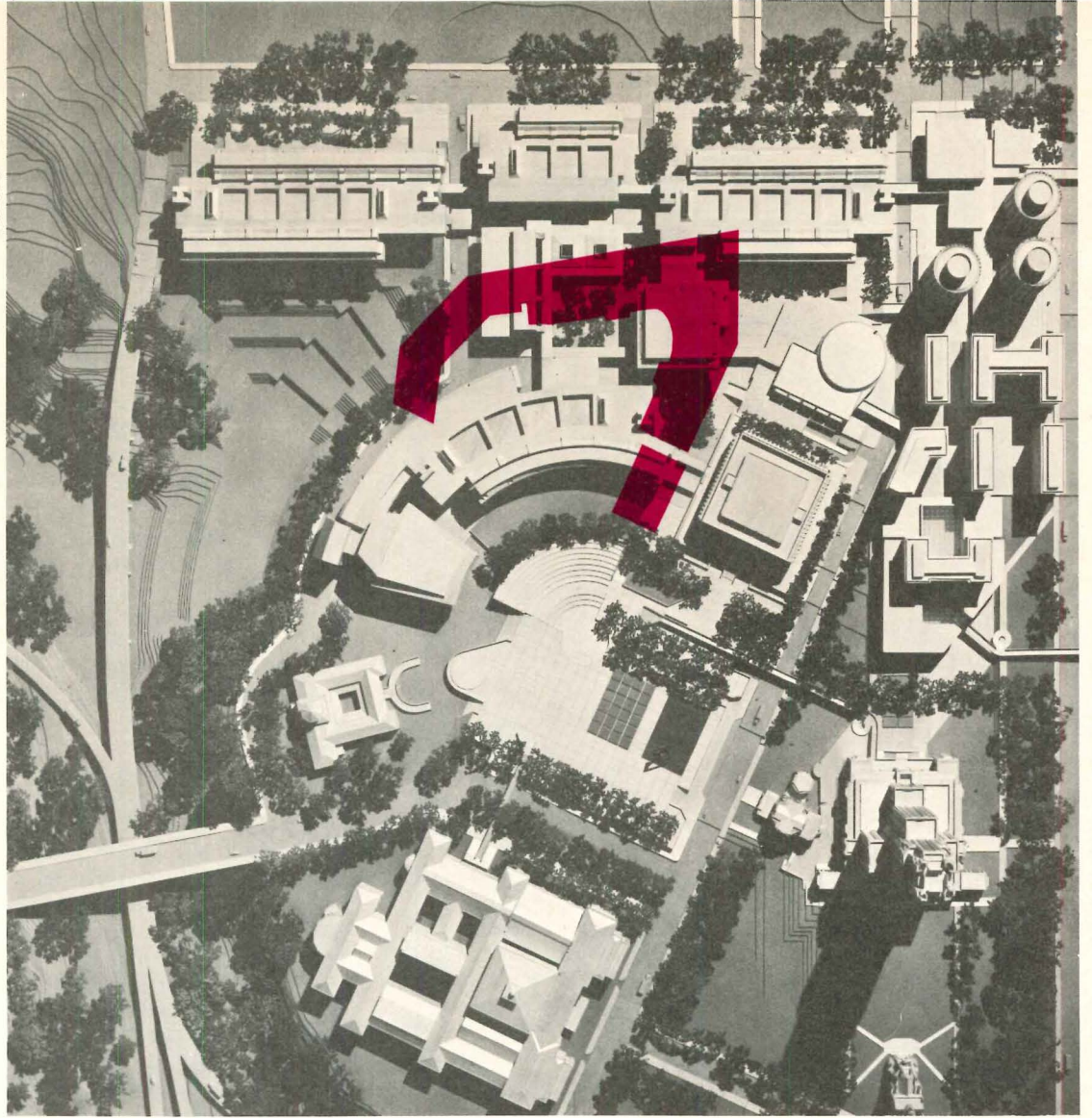
**CIDOC represents a genuine educational alternative, but it continues to demand maturity and discipline in its participants**  
Last year most of the excitement generated

about Edgar Friedenber, an educator and writer presently teaching in Canada; Paul Goodman, philosopher, writer, and poet from New York; Van Hentig, an educator from Germany; Carmen Molina, a revolutionary just returned from six years in Cuba; Varenca and Iliver Marc, architects from France; John Turner, George Nelson, and of course Illich himself.

There are serious students from Mexico, a number from the United States, and a few from Canada, and many of the students are drop-outs. They are drop-outs from college, from graduate school, and some are simply drop-outs from life (responsibility). Some of them are in search of soul, some would like to find the package Answer, and many simply like to play. Many students who would like to participate in the learning process—are disappointed. Their disappointment often stems from the fact that they are not finding the kind of discussion they feel as relevant, or they are having trouble relating to the current discussions because their background is too flimsy.

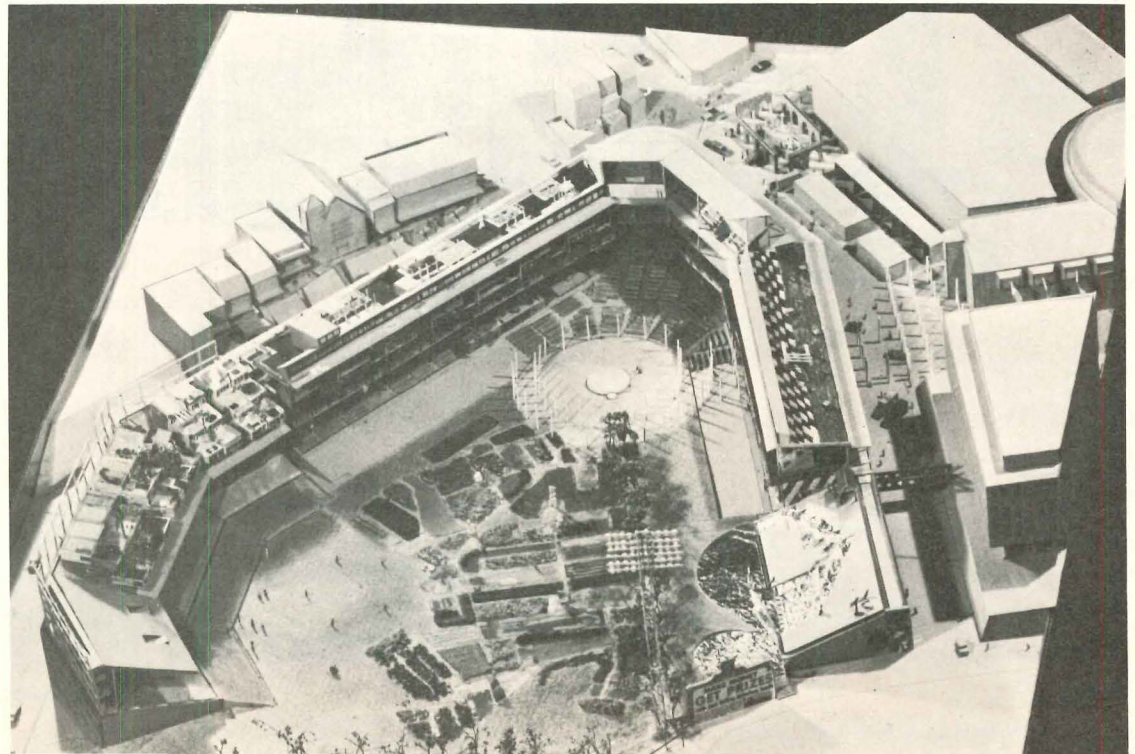
CIDOC is rather like a graduate school that has, in addition to a constantly changing student body, a constantly changing group of teachers, and a changing curriculum. It is an institution that gives no credits, no degrees, and asks for none. Like other graduate schools it assumes a certain level of maturity, a certain level of one's own discipline, and a desire to learn. It charges very nominally for its services, and most amazingly, it has been operating in the black for the past few years. Beginning in June and continuing for three months this summer (1971) there are six "areas of interest" being investigated, and not surprisingly, four of them will continue to deal with architectural issues: one interesting title is "Architecture, Planning and Liberation," and John Turner is continuing his puzzlements regarding housing.

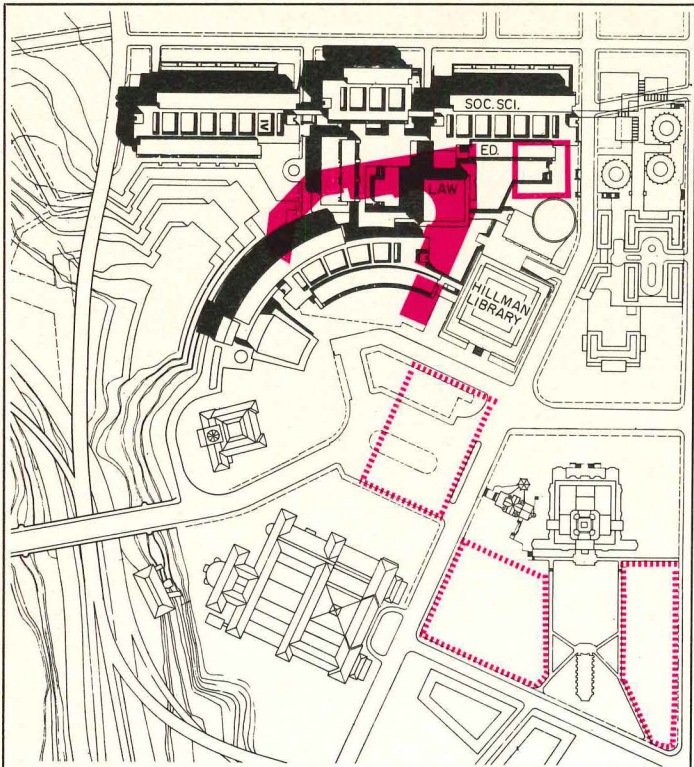
CIDOC's distinction from other graduate environments is that it offers to someone who wants to explore an idea—the possibility that a group of people will take that adventure with him. Adventure is indeed part of the atmosphere—and as in all speculation there can be gold at the end of the rainbow . . . , or an empty pot. It is of no concern to Illich which resultant occurs—its importance lies in the continuing facility for intellectual adventure.



## SHOULD PITTSBURGH SAVE FORBES FIELD?

*Seldom is it possible in the super-scale world of university planning and architecture to examine two alternative professional proposals for the same site. Seldom are the two schemes as bold and innovative as these; seldom do they spring from social premises so far apart. In effect the problems the University of Pittsburgh faces are problems faced by institutions all over the country which are trying to expand into communities that suddenly refuse to give way. Such conflicts can be resolved through reasoned public discussion, as in Pittsburgh; especially when architects are ready to explore and present viable alternatives.*





The complete expansion program for the Forbes Complex is shown in Deeter Ritchey Sippel's plan above. The rendering, below, of the Law School and the section through the Social Science-Education building, bottom, show the extent of the DRS study. Community Design Associates has made alternative land use proposals, shown dotted, pointing out that the architect of Pitt's Cathedral of Learning made studies for buildings at its base. They also propose decentralization of teaching facilities into the community, Forbes Field itself becoming the Law School.

Deeter Ritchey Sippel, architects and planners, of Pittsburgh, were asked in 1967 by the Commonwealth of Pennsylvania, Department of Properties and Supplies, to prepare a master plan for the expansion of the University of Pittsburgh, which had become a state university in 1966. No new construction was to begin during the period in which DRS prepared its report. Upon completion, the fourteen-volume report called for construction of three times as much net university building area by 1975-6 as existed in 1967 to accommodate a doubled student population: from 20,000 in 1967 to a projected 40,000 by 1975. All new construction was to take place within boundaries agreed upon by the City of Pittsburgh Planning Department. In the Forbes Field area of expansion (site plan, left) which was to contain about one-quarter of the total new construction, a certain encroachment upon existing residential and commercial neighborhoods was agreed upon, but most of the new buildings would be on the site of Forbes Field itself, once the Pirates had left it for their new stadium near downtown Pittsburgh.

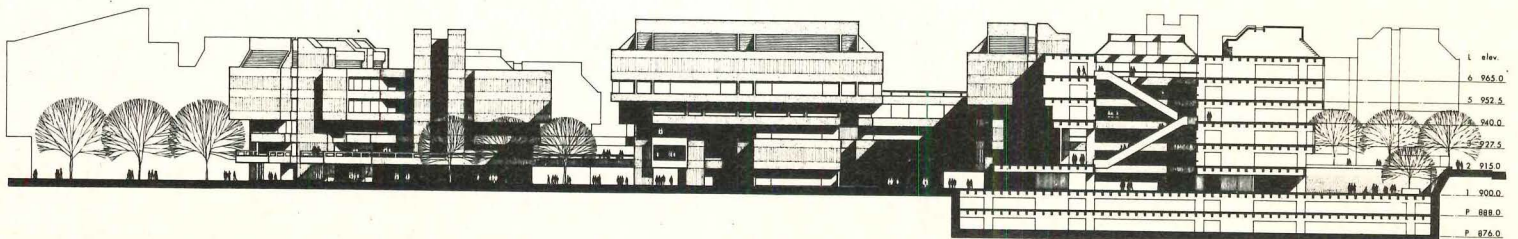
The results of the study are thorough and professional by the highest standard. Even though it was understood that Deeter Ritchey Sippel would probably not be the architects for the new build-

ings in the Forbes Field area, the firm went deeply into a study of the interrelated circulation, space organization and coordinated engineering systems. They hoped in this way to discourage the "monument" approach to university building. Said their reports, "The past practice of building piece-meal individual structures should be replaced with the development of a continuous interrelated learning facility."

In the DRS study, a student and faculty questionnaire was carefully evaluated; engineer Richard Gensert's studies of integration between structure and mechanical equipment were impressively flexible; great effort was made to keep buildings as low and as much in human scale as possible; and finally the planners dealt in effect with three clients—the University, the Pittsburgh City Planning Department and the Pennsylvania Department of Properties and Supplies to be certain that they satisfied all the demands in what was even then a very controversial project.

But, since the now-well-understood need for community response was by no means standard practice in 1967, they did not consult the community of Oakland, that district of Pittsburgh which had silently borne much of the pressures of Pittsburgh's previous expansions. The people who lived in the houses destined to be destroyed by the third and fourth stages of the Forbes Field development had trouble visualizing that the models were not accomplished plans, but simply proposals for study. To them it seemed terrifyingly real and immediate. Furthermore, in other parts of Oakland, other facets of the plan to triple Pitt's buildings (but all within the agreed-upon boundaries) were frightening residents of established neighborhoods. Out of these fears grew a community group called Peoples Oakland. A true coalition of people who in the past had little trust in each other—blacks, Italians, small merchants and others—was pulled together by the University's presentation to them, as a *fait accompli*, of Deeter Ritchey Sippel's expansion plan.

The irony is that perhaps DRS had done its job too well. What were to the planners just suggestions seemed to the community (and to Pitt administrators unfor-



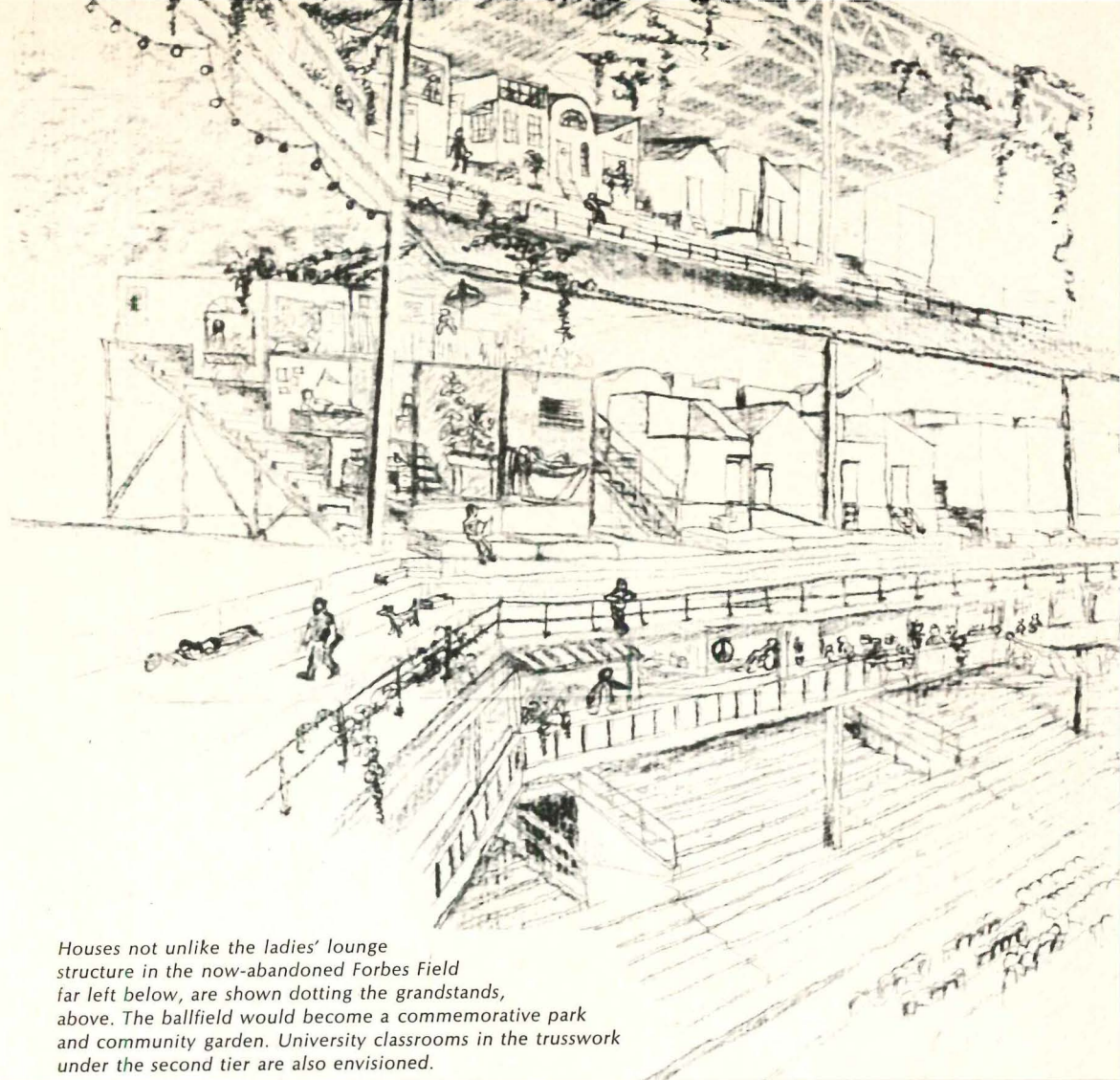
unately) hard-edged realities—imponderable, inevitable, intolerable. As Michael Adams, a spokesman for Peoples Oakland, put it, "Once again the University unfurled its final drawings for our perfunctory approval; but this time we said no." When Pitt countered by asking for viable alternatives to its plan, Peoples Oakland called Community Design Associates for help. This architectural firm consists of Troy West, well-known Pittsburgh advocate architect and two colleagues from Carnegie-Mellon's School of Architecture, Walter Boykowycz and Richard Britain.

About the same time, newly-appointed City Planning Director, Robert Paternoster, got involved by insisting that further planning decisions be discussed not only by the University and his department, but for the first time with the community as well, in this case represented by Peoples Oakland. The first project on which the community's architects went to work was a proposal for redesign of a dormitory group in another part of the campus which that neighborhood saw as an intrusion on its privacy. As of now, the University has agreed to ask DRS, in this case architect as well, to redesign the building.

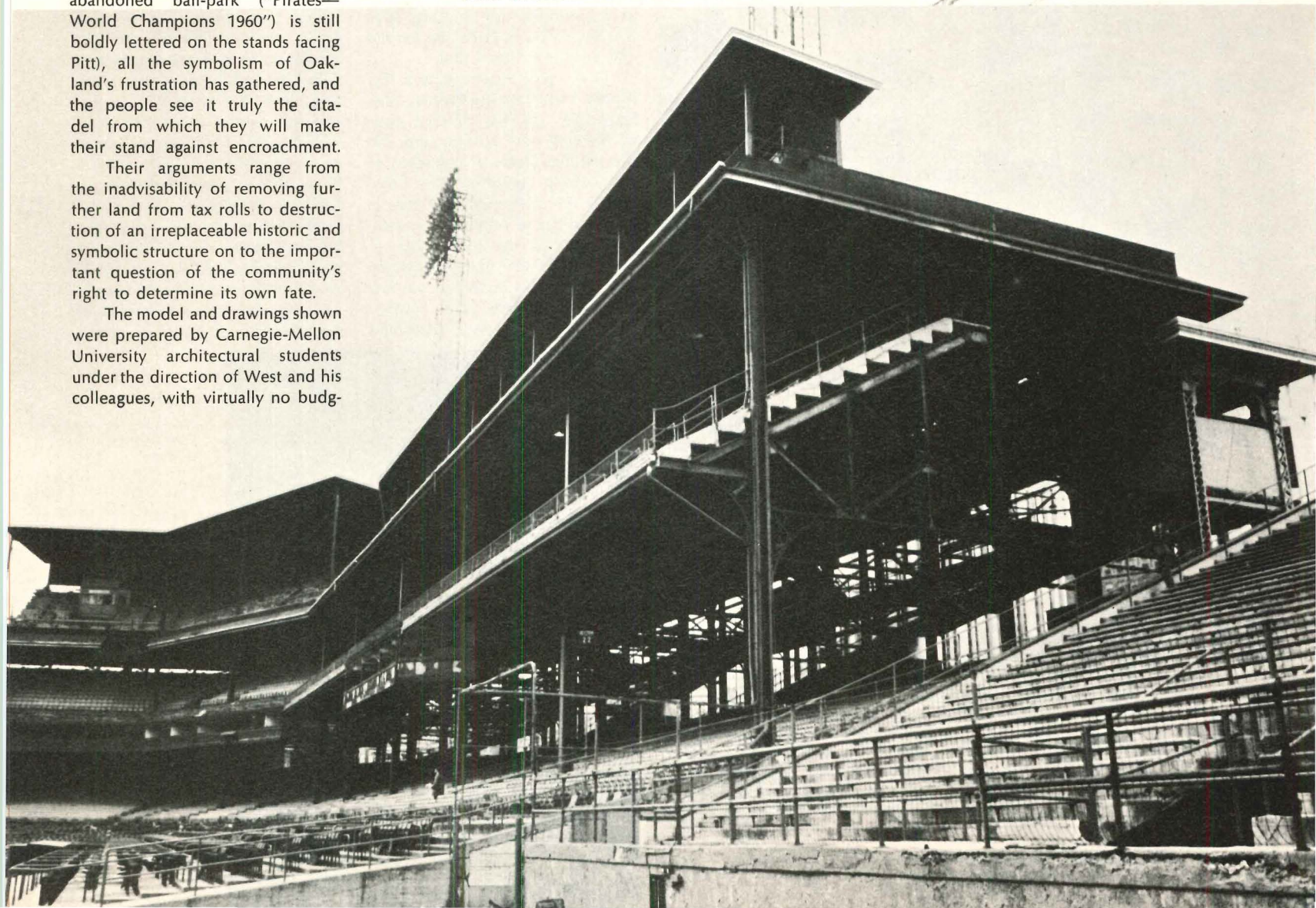
The second project is the proposal to save and reuse Forbes Field. Here, around the now-abandoned ball-park ("Pirates—World Champions 1960") is still boldly lettered on the stands facing Pitt), all the symbolism of Oakland's frustration has gathered, and the people see it truly the citadel from which they will make their stand against encroachment.

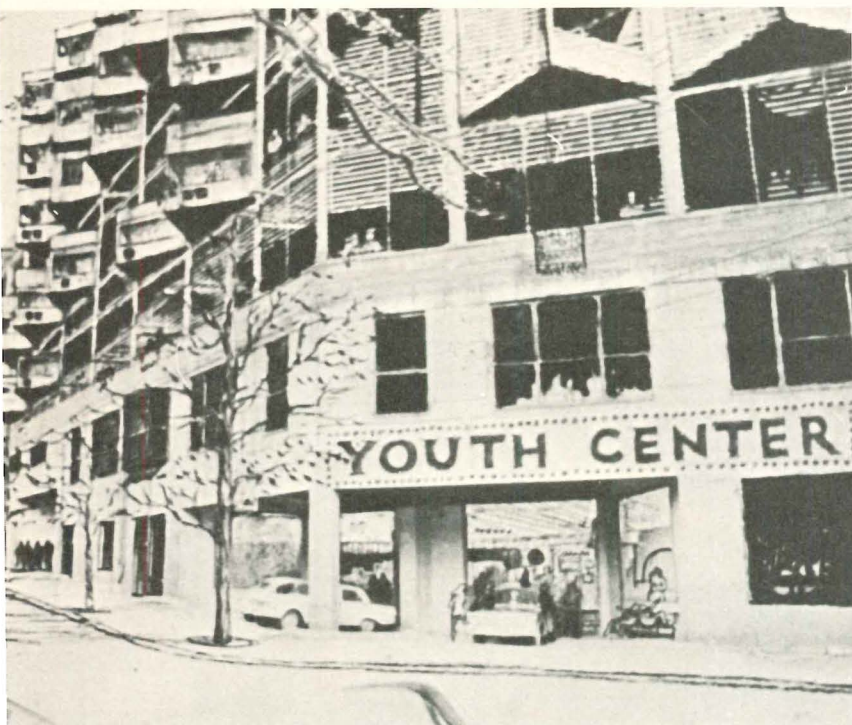
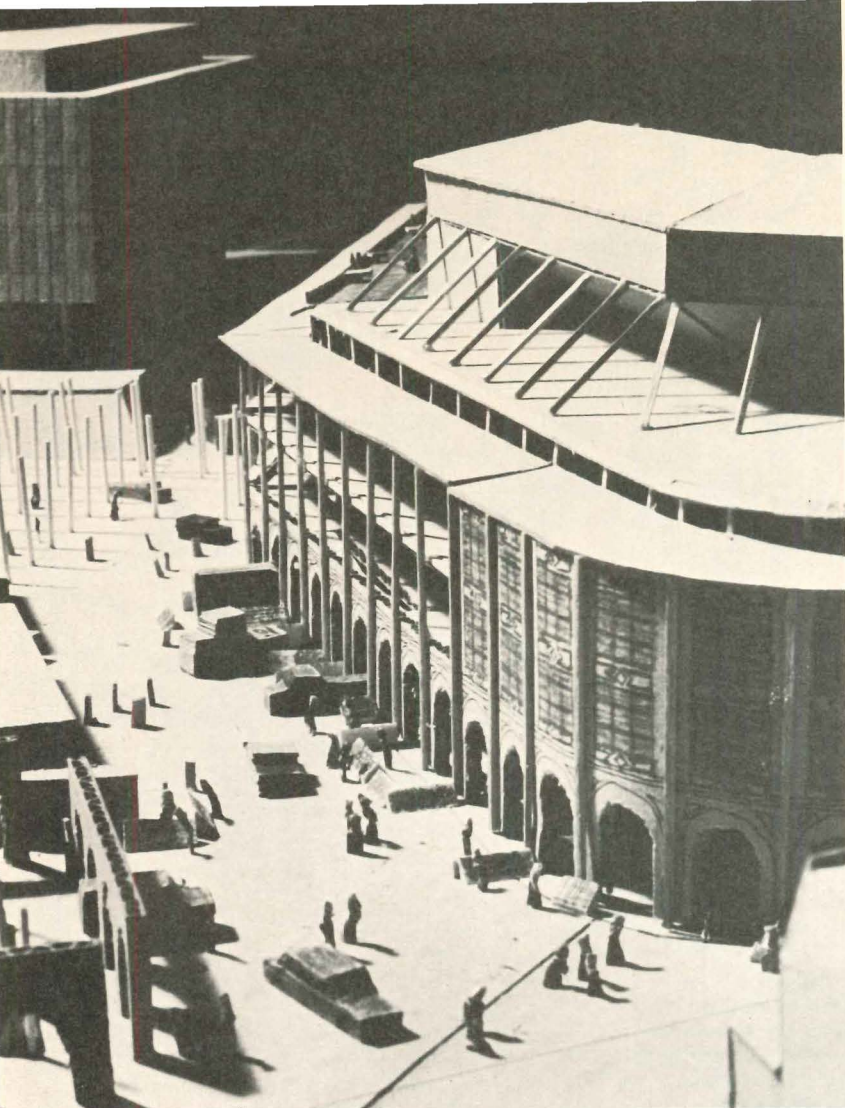
Their arguments range from the inadvisability of removing further land from tax rolls to destruction of an irreplaceable historic and symbolic structure on to the important question of the community's right to determine its own fate.

The model and drawings shown were prepared by Carnegie-Mellon University architectural students under the direction of West and his colleagues, with virtually no budg-



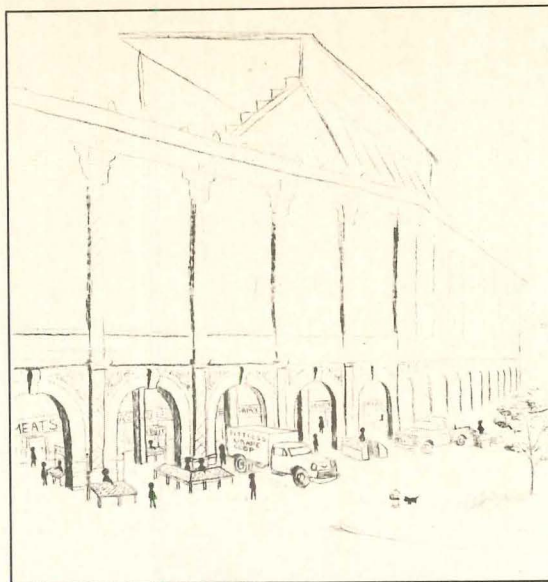
*Houses not unlike the ladies' lounge structure in the now-abandoned Forbes Field far left below, are shown dotting the grandstands, above. The ballfield would become a commemorative park and community garden. University classrooms in the trusswork under the second tier are also envisioned.*





PLANNING FOR FUTURE CAPITAL REQUIREMENTS, University of Pittsburgh, Pittsburgh, Pennsylvania. Planners: Deeter Ritchey Sippel—Aristides J. Millas, director of urban planning and design; Structural engineer: Richard M. Gensert; Data collection: Pittsburgh Regional Planning Association.

FORBES FIELD ALTERNATIVE, Owner: Commonwealth of Pennsylvania; Client: Peoples Oakland; Architects: Troy West, Walter Boykowycz and Richard Britain of Community Design Associates; collaborating Carnegie-Mellon University students: William Dede, Allan Dunn, Ronald Faccenda, Anthony Gazis, Joseph Gonzales, Steven Hawkins, David Hill, Craig Melichar, Douglas Schlauch, John Shumate, Robert Simkins, and David Tegeler.



et for presentation. The colorful model, page 119, which forms the core of the alternative proposal, was constructed from measured drawings made by the students themselves. Another view of the model, left, shows the relationship of the renovated stadium to the existing Hillman Library. A farmer's market, above, is planned for the first floor arcade, presently bricked-in. Openings directed onto the former ballfield would also be made at the southwest corner of the stadium, below left. The existing three-story ladies' lounge and refreshment counter, below, is seen as a prototype for housing units that would be built on the second and third grandstand tiers.

Two quite recent factors that further strengthen the Peoples Oakland case are the present costs of building new construction and the perilous financial condition of most public agencies. The Commonwealth of Pennsylvania has declined, so far, to provide the necessary funds for the construction of the new Social Science-Education and Law School buildings, the first phase of the DRS plan. Furthermore, although Vice-Chancellor

Edison Montgomery denies that Pitt has any such problems, current softening of enrollment pressures and questions about the future of universities in general make the 1969 master plan seem already a bit out-of-date.

Architect Max Abramovitz, who has been Pitt's advisor on architectural matters for many years, has been asked to help Pitt determine the potential of the Forbes Field proposal and to evaluate the several alternatives for land use and circulation on the campus that Community Design Associates has prepared in the weeks since the Forbes Field model was unveiled. He in turn must look to experts on circulation, parking and structures to help him prepare his report. Everyone involved, no matter how passionately, seems aware that renovating Forbes Field may not prove an economically feasible project. Yet if, before it is pulled down (as had been threatened), such facts are established by disinterested parties, the community will at least feel it has been heard and the process by which institutions and communities can grow together will have been strengthened. —James D. Morgan





## The planning disciplines for audio-visual facilities

by the staff of Hubert Wilke, Inc.,  
communications facilities consultants

Far-reaching changes are taking place in the realm of audio-visual systems that affect the architect. First, considerable improvements are being made in the wide range of equipment being used, enhancing the performance, and enlarging the role of audio-visual systems. Beyond these lie new developments in the automation of a-v facilities for more sophisticated, error-free, labor-saving presentations, and new concepts in the electronic distribution of audio-visual media throughout buildings, and even from city to city.

If audio-visual facilities are to work as the client envisions they will work, they must be considered in the early planning stages of a building. Furthermore, the architect needs to be aware of the role of the a-v system designer, and the allocation of responsibilities for installation of the a-v equipment and associated built-in components.

Part 1 showed that the visual element of these systems has its own set of planning disciplines—demonstrating the limiting influence of ceiling heights, and the effect of plan shape on space utilization.

Part 2 covers design criteria and planning considerations for sound reinforcement systems, and touches on some of the sophisticated techniques that make possible good sound in difficult situations.

Next, this part sets down some of the guidelines for installation of electronic distribution, stressing the importance of providing sufficient shaft space for cables so that present needs as well as expansion can take place. Also discussed is the electronic isolation of cables to avoid interference.

Concluding this article are suggestions for determining user requirements, and then for achieving the desired physical installation.

### 1. GUIDELINES FOR GOOD SOUND 2. A-V SYSTEM AUTOMATION

by Irving W. Wood,  
sound systems engineer,  
Hubert Wilke, Inc.

Today nearly everyone realizes that audio-visual media are playing a very significant role in the communications process in business and education. The ever-increasing need to assimilate information, to evaluate information, and to react with valid decision-making, depends upon the quality and effectiveness of the communications process—especially that part that relates to seeing, hearing, and being heard.

#### Why are speech reinforcement systems necessary in the first place?

The large room, hall or auditorium requires electronic voice support to cover the often considerable distances involved, and to provide an adequate sound pressure level at the ears of the listener to ensure good hearing.

Properly designed reinforcement systems can provide good speech intelligibility in most acoustically difficult spaces, even those with long reverberation times, such as concert halls and churches, where the architectural acoustics are optimized to support the musical requirements rather than speech.

It would seem that in most small-to medium-sized rooms, the unaided voice should be sufficient for oral communication. This is generally true, especially where the architect has established and maintained suitable acoustic guidelines, or even more wisely, retained the services of an acoustics consultant. However, the converse is often true, and the reasons are:

1. even with the best-laid plans, acoustics perfection is an elusive quality because most spaces reflect a number of compromises between functional requirements, esthetics, space allocations, and budget,
2. some people have difficulty projecting their voices, or they tire easily and cannot maintain adequate loudness,
3. although they are often unaware of the fact, many people have varying degrees of hearing impairment, and it does not improve with age,
4. ambient noise, non-uniform acoustic absorption, and inadequate reflective surfaces within a room can degrade speech intelligibility.

It is not uncommon to experience

hearing difficulty even in very small conference rooms where the energy distribution of HVAC noise masks the upper speech frequencies. A voice reinforcement system is not a panacea for room acoustic design oversights. But it can prove helpful when direct remedial action in room design is not esthetically or economically feasible, and it can greatly benefit those whose speaking or hearing ability is a little less than "average."

Speech reinforcement should be seriously considered for any space where effective, effortless aural communication is mandatory. An increasingly important benefit of such a design is its easy adaptability to telephone tie-line conference use, interconnecting two or more conference rooms in the same building or city to city.

A major objective in the design of reinforcement systems should be to make them aurally "invisible." That is, the reinforced speech should be so natural, unobtrusive and effective that the listener will not be particularly aware of its contribution (unless it is inadvertently turned off). Ideally, every listener in a room should hear the person speaking with the same intelligibility and loudness that would occur if the two were conversing face to face. This degree of speech clarity and loudness should be maintained regardless of the actual separation between the person speaking and the listener.

Too often, the typical sound system in use today amplifies the entire sound spectrum rather than just those selective frequencies required to enhance naturalness and clarity. This results in the usual "public-address-system" quality sound: a booming, frequently loud, but indistinct sound usually riding on the very edge of acoustic feedback.

Unfortunately this is the sound quality that most frequently comes to mind when one considers use of electronic amplification, and it is understandably the reason why many facilities, which could have benefited from the use of a properly engineered system, have done without it.

One of the most effective new techniques available to the system designer is the 24-section,  $1/3$ -octave-band equalizer, which permits critical tuning of the entire electro-acoustic system for optimum sound quality and freedom from acoustic feedback.

For optimum directional effectiveness, the reinforcement sound should appear to originate from the person talking. This is

best achieved by means of a single cluster of overhead horn loudspeakers oriented for a 50 per cent dispersion pattern overlap to ensure uniform sound pressure level throughout the seated listener areas. The cluster must be carefully located to reduce acoustic coupling to open microphones, and the inherent loss of gain before feedback. A cluster is suitable for use only in the large room, hall or auditorium, where there is adequate floor-to-ceiling height to permit complete coverage of the audience.

With very long or wide, low-ceiling rooms the designer has to turn to a pattern of ceiling loudspeakers, called a low-level or distributed speaker system. More speakers are required than the architect may realize. The lower the ceiling height, the greater the number of speakers required to provide uniform sound coverage. The reason is that ceiling speakers, like downlights, have a specific included angle of coverage, and, as with downlights, if the mounting centers are too far apart, the resulting pattern will be irregular and the variation in sound level will be excessive.

For critical applications where only a minimum sound pressure variation can be tolerated, a speaker sound dispersion angle of 60 to 75 degrees (depending on the type of speaker selected) is projected for a 50 per cent overlap at ear level (4 ft for seated listeners). An alternate row offset pattern is preferable if the reflected ceiling plan permits. This trends to fill the diagonal holes in the projected sound-cone pattern.

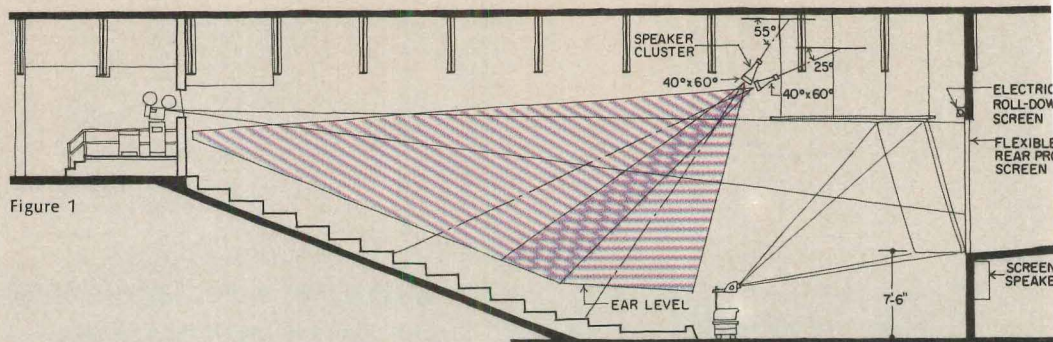


Figure 1

Preferably, amplified speech should appear to originate from the person talking. This is possible where the ceiling is high enough to permit complete coverage of the audience with a cluster of overhead loudspeakers (Figure 1). In low-ceiling rooms this arrangement will not work; instead a series of low-level loudspeakers is used, with sufficient overlap to give uniform sound for the listeners (Figure 2).

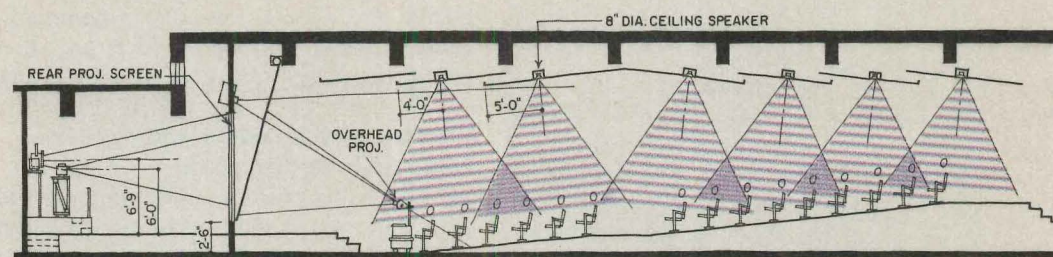


Figure 2

### Reproduction of movie sound track and audio tape is different from live speech

When the facility is designed for preset-automatic or remote-control operation, it is often advisable to provide two partially or completely separate systems: one specially equalized for speech reinforcement, and often incorporating separate speakers; the other for wide band program reproduction, possibly including two-channel stereo playback ability.

The main difference between live speech reinforcement and prerecorded music-program reproduction is that the latter, which has no open microphones, is free from acoustic feedback, and therefore is capable of any desired playback level.

It is particularly desirable to maintain a directional effect for motion picture sound. The loudspeaker should be located on-center, as close to the projection screen as possible. Ideally it is located directly behind a stretched perforated screen. Because of space or other considerations, it is sometimes located directly above or below the screen. In any event, it is important that everyone be able to "see" the speaker location in order to hear the higher frequencies effectively.

### Sound for board and conference rooms calls for specially-tailored design

Speech reinforcement requirements for

board rooms and conference rooms differ from other communication facilities in that everyone participates and has to hear and be heard. Board and conference table speech reinforcement systems are designed to provide articulate, natural speech. Intelligibility and "acoustic invisibility," rather than loudness, are the objectives.

Board room tables are designed in a variety of configurations: rectangular, elliptical, round, square, U-shaped, T-shaped; and some even open center areas. This variety is usually based on the desire for optimum person-to-person visual contact while also maintaining good sight lines for viewing projected charts and graphs.

Both for reasons of security and ease of operation (instant rebuttal, etc.), a fully automated system is desirable, dispensing with the need for a sound control operator and any type of push-to-talk microphone switches.

Because a number of speakers and microphones are required for uniform pickup and coverage, there is a tendency for such a system to break into acoustic feedback howl before any usable speech reinforcement is realized, unless all the electro-acoustic variables are meticulously analyzed and controlled.

Several approaches are possible with regard to physical location of components, depending upon the particular design of

the table. For example, if the table has an open center it is possible to cover the participants seated around the table by means of an inclined cluster of floor-mounted "sound columns." Since the table microphones utilized are very directional and also face the participants, excellent gain before feedback is achieved.

Another effective location for reinforcement speakers is in the table edge. This requires an internal acoustic vane to deflect the sound more directly to the ears of the participant. With a speaker located in line with each chair arm, each participant has the use of two speakers, each of which he shares with his neighbors.

The most sophisticated systems utilize a technique called differential amplification, wherein the table is divided into zones, each with its own amplifier for its microphones and its own speakers. The zone amplifiers are interconnected via a mixing matrix which provides little or no amplification into its own speaker zone, but increasingly higher levels of reinforcement for more physically remote zones. One-third-octave-band equalizers are incorporated into each amplification channel to permit a high degree of system sound quality and stability.

People noise—paper shuffling, etc.—can be annoying in a board room with a considerable number of open microphones.

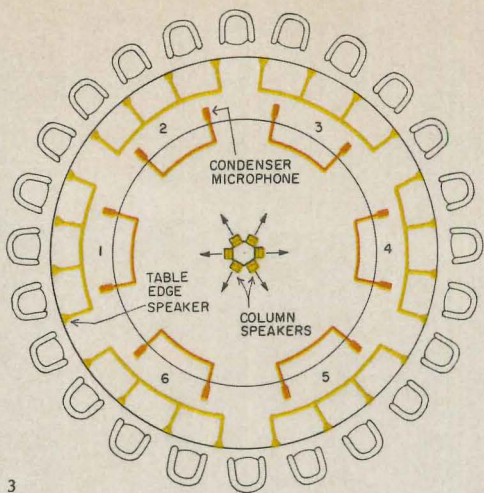


Figure 3

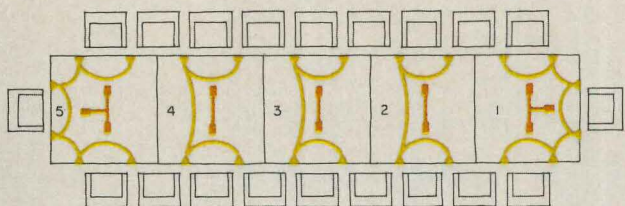
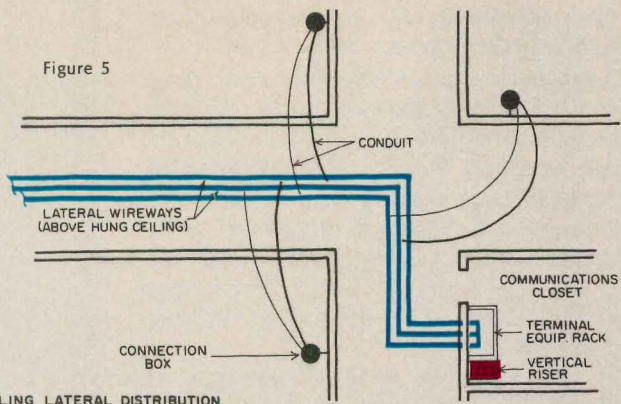


Figure 4 Special speech reinforcement systems have been developed for use in board rooms. The problem is to get sufficient amplification without developing feedback (manifested by a howling noise). Figures 3 and 4 show tables divided into zones for "differential" amplification. Each zone has its own amplifier, microphones and speakers (located in a fascia at the edge of the table, or, as in Figure 3, either in the fascia or in the open center). Sound gets louder the farther the listener is from the talker.

## Electronic distribution systems should be planned early



OVER CEILING LATERAL DISTRIBUTION

Large buildings with numerous audio-visual facilities require a shaft for cables carrying electronic signals. Horizontal distribution (preferably located above the ceiling) originates at a communications closet on each floor. Adequate cable-supporting devices should be provided in the shaft to avoid possible damage to delicate cables. Figure 7 indicates this support and typical shaft space in large buildings.

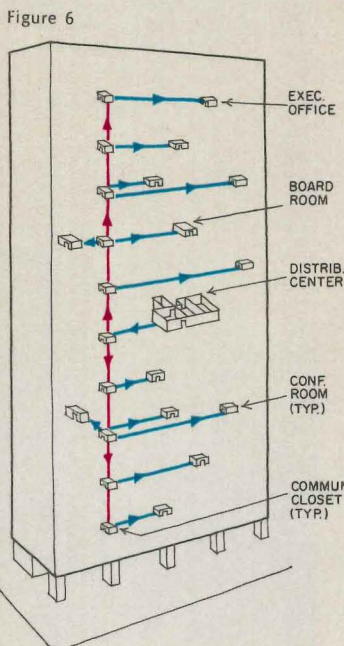


Figure 6

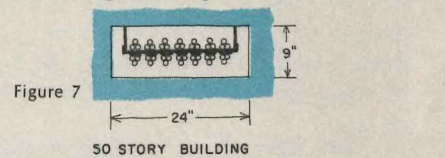
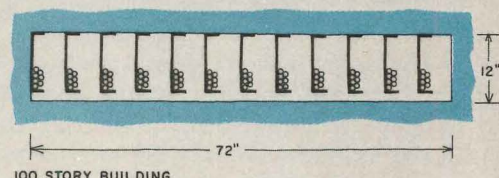


Figure 7

50 STORY BUILDING



100 STORY BUILDING

This problem is eliminated by using gating amplifiers which require that a certain level of sound be exceeded before the signal will be amplified and distributed to the loudspeakers. The microphones are "live" but not connected through until someone actually talks.

### Advent of automation calls for fewer, better qualified technicians

There is a growing trend toward automation designed so that technical personnel can service a number of audio-visual spaces from a central core. The emphasis is on utilizing permanent, highly trained para-professionals in place of the "office-boy-trainee" projectionists once used.

The shift away from operator-run equipment is made possible by providing simple-to-operate remote controls so that the person conducting the meetings runs his own show, at his own pace. An operator is available if trouble develops.

All equipment in the automated system is designed for pre-set operation and the entire presentation sequence of film, slides, tape, graphic displays, lighting, etc., is set up, adjusted and focused in advance. The meeting leader then activates the system and runs the show.

Most modern facilities have provisions for the inclusion of an a-v program machine which permits the presentation of

rather intricate, multi-media material with no more than a single control button that starts individual sequences.

Even a well designed remote control panel can end up with a surprising number of controls for the larger facility. These often involve lighting, drapes, motorized screens and panels, in addition to a full-range, multi-media a-v system. These functions can be turned over to a logic control system that integrates the various functions required for a given mode of operation.

For example, activating a single control designated "rear projection" might simultaneously open a wall panel, close the drapes, and dim ceiling lighting, wall washers and downlights to pre-set levels favoring rear projection viewing. Activating a second environmental control designated "overhead projection," might raise a projection screen within the wall panel opening and tilt it forward (to reduce image keystone) and readjust all light dimmers to favor this mode of projection. A single "close panel" control returns the screen panels and drapes and lighting back to "normal."

In short, a single control adjusts all the environmental variables, thus simplifying the remote control panel display and freeing a person from a number of control steps and value judgments, as to lighting level, etc.

### 3. PROVIDING FOR ELECTRONIC SIGNAL DISTRIBUTION

by Robert J. Nissen,  
television systems engineer

Space requirements for electrical distribution have grown tremendously in recent years, and, now, a similar situation is occurring with electronic signal distribution. Services requiring such distribution grow almost daily. They include not only the more usual intercom, paging and public address systems, background music, and fire and security warning systems, but also the more complex systems for computers, cathode-ray-tube (CRT) display, open- and closed-circuit television, facsimile, picture phones, and information retrieval.

While a number of these systems may not be installed initially, their use in the future will be precluded if provisions are not made in the base building design for shafts, for horizontal distribution, and for the origination and distribution of signals that are to be sent throughout a building or to remote buildings. The following discussion is an overview of the various approaches being taken for electronic distribution in large, high-rise buildings. Nonetheless, the basic considerations covered apply to buildings of all sizes and shapes.

## For expandability, the communications network first requires a vertical shaft

Fundamental to an efficient and expandable communications network is an adequate vertical communications shaft running the full height of the building. Communications closets on each floor provide, first of all, space for terminal equipment as required by the various systems, and, secondly, the means by which the vertical cable runs enter the horizontal distribution network.

For efficiency of space utilization, all electronic systems should use this communications shaft for vertical cable distribution. If proper attention is paid to electrical isolation between the different services, and to adequate space allocation in the closets for terminal equipment, there should be few objections to a "shared-facility" approach. While telephone companies have been reluctant in the past to accept shared facilities, it would appear that this reserve is changing. These companies' prime concern—security of equipment and cables—often can be handled by using locked terminal equipment in the closets.

The size of the vertical communications shaft is determined by several factors: Is the building occupied by one, a few, or many tenants? What is the present and projected use of computer and CRT facilities? Will the telephone company use shared facilities? What is the ratio of private to non-private closed-circuit television use? Typical shaft sizes for large buildings are shown in Figure 7 (these particular shafts do not include telephone company cables).

The optimum location for the communications shaft is in the center of the core, but sufficiently separated from electrical power distribution. Careful consideration must be given to the means of access to the horizontal distribution system from the closets.

The shaft should run straight up through the building. Horizontal offsets or jogs become particularly troublesome as the number of cables increases. The number of cables in a communications shaft can, for instance, exceed one thousand in a large building.

Adequate cable-supporting devices must be provided in the vertical shaft. Requirements for this support are far more stringent for communications cables than for power cables. The problem is a serious one for two reasons. First, communication cables are delicate, physically. For example, the inner insulation of coaxial cables may cold-flow when the cables are tightly strapped, or put under continuous longitudinal stress. This cold flow will modify the electrical characteristics of the cable, making it unfit for use. For this reason, special cable-supporting devices should be installed on at least every floor level.

Secondly, the various types of signal systems carried in the common shaft must

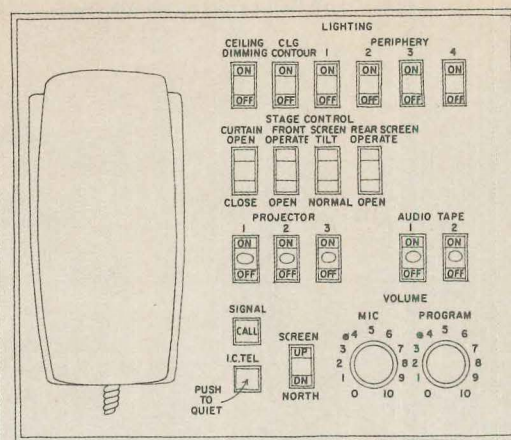


Figure 9  
TYPICAL REMOTE CONTROL PANEL

Figure 8

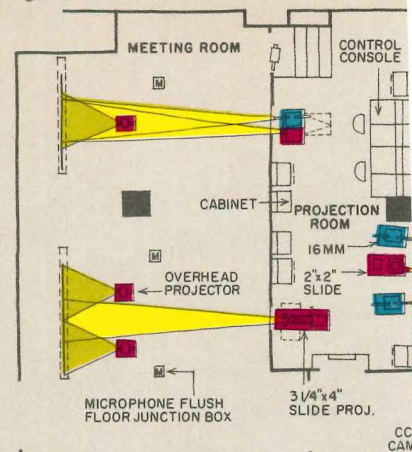
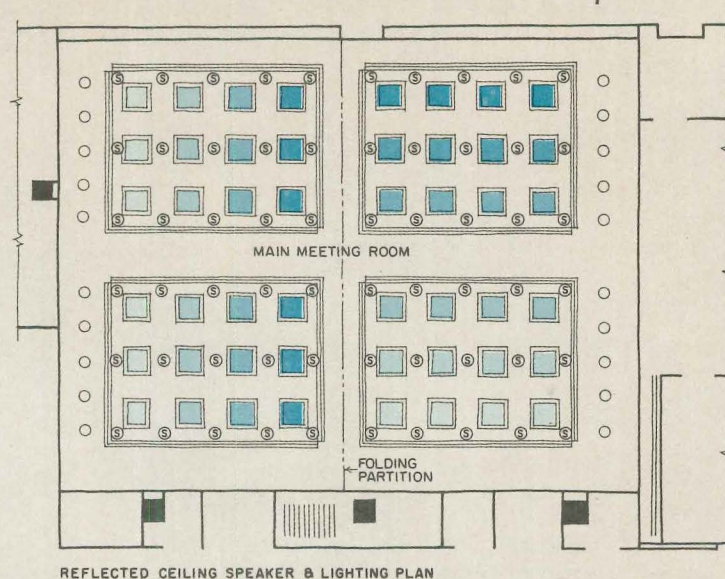


Figure 10



REFLECTED CEILING SPEAKER & LIGHTING PLAN

be physically isolated and electrically shielded from each other to maintain signal integrity between systems. Otherwise, signal contamination or cross-talk may occur. Results: computers may mis-register; privacy may be violated with audio systems; and television signals may interfere with one another.

Conduits or raceways in the vertical shaft can provide protection from signal contamination, but they do not provide adequate vertical cable support. Continuous steel cable ladders, on the other hand, provide not only a good degree of electrical isolation between the various cable groups, but also afford excellent physical support for the cables.

### Requirements for horizontal distribution: electrical isolation, and easy access

There are two possible locations for horizontal distribution: in underfloor duct or above the hung ceiling. Because of the sensitivity of the electronic signals, it is not advisable to run the wiring for these signals in the same series of underfloor-duct cells that carry power and telephone wiring, unless the electronic signal wires are run separately in conduit within the cells. If separate cells are provided for electronic distribution, enough runs must be provided to allow sufficient flexibility in location of outlet boxes in a room. It

is quite common to have four or five different types of signals terminating in one location in a room.

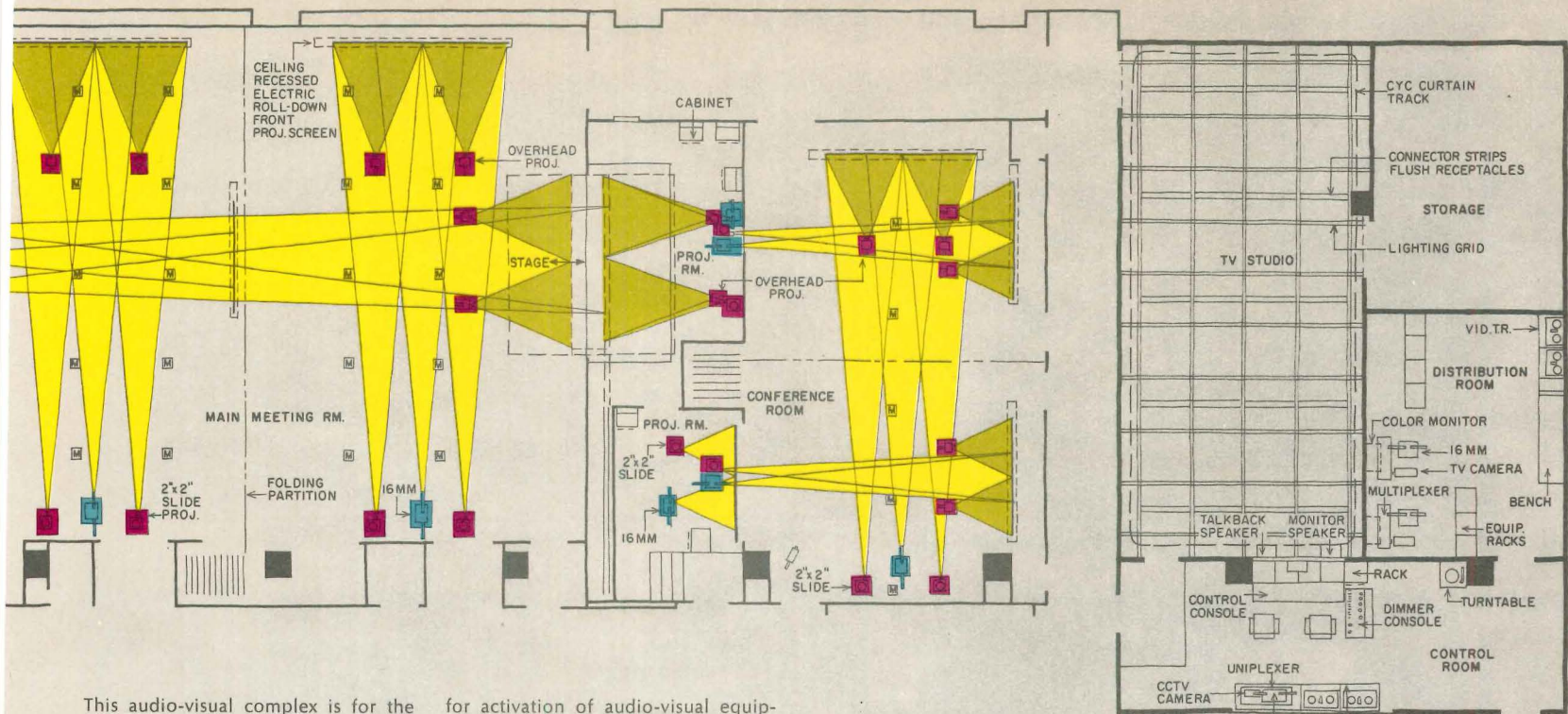
Horizontal distribution of electronic signals via space above hung ceilings permits virtually unrestricted flexibility in location of outlet connection boxes. Further, this method permits signal integrity, either by physical separation of the various cable groups that are run openly, or, better, by separate conduit or wireway systems for each of the groups.

The conduit method provides for designed-in signal integrity that cannot be degraded by inadequate workmanship. And conduit may be required soon, in any case, as code authorities become more concerned about the fuel contribution of cable insulation. All wiring, including low-voltage signal circuits will be required by many code jurisdictions to be in conduit, raceways or duct cells.

A combination of underfloor duct for power and telephone and above-ceiling conduit for electronic systems provides the ultimate in flexibility and signal integrity for all systems.

### Distribution centers for communications should be located centrally

With electronic communications, there will be one or more distribution centers for originating and distributing signals to



Careful planning and attention to detail yield a highly flexible audio-visual complex

This audio-visual complex is for the corporate headquarters building for Standard Oil Company (New Jersey). It has been planned for a high degree of spatial flexibility, with audio-visual capability following the flexibility of space arrangements. (Figure 8). Ceiling lighting in the large meeting room(s) can be controlled automatically to give a variety of lighting "contours" to suit different types of presentations (Figure 10). Plans have been made for automated operation of screens and panels, and

for activation of audio-visual equipment from a remote control panel (Figure 9). Microphone cables can be plugged into any of the junction boxes shown in Figure 8.

The control room serves the TV studio, and, furthermore, permits operation of TV cameras in the main meeting room(s). All kinds of media can be transmitted throughout the building from the distribution center: film, TV, video tape, audio.

Architects for interiors: Welton Becket & Associates.

various locations within a building, or to remote buildings.

In the case of television systems, this center may include television studios, video-tape and film equipment, and a switching center for the closed-circuit television system. In the case of computer systems, the center may include the main computer facilities plus ancillary equipment for tie-in services.

In order to keep the size of the vertical shaft as small as possible, the distribution center should be located—all other considerations aside—on a floor that is vertically in the center of the floors having communications facilities. This way, the number of cables up and down will be more nearly equalized. A distribution center at the top or the bottom of a building may result in there being nearly twice as many cables in the shaft as there would be if it had been located in the center of the building.

**4. PRODUCING AN A-V FACILITY THAT SUITS THE CLIENT**

by Edwin Hodder, audio-visual systems engineer

The planning of an audio-visual facility is far from a stereotyped procedure. The de-

signer of such a facility will disappoint the client if he either overestimates or underestimates the client's requirements—on the one hand, giving the client more than he has capacity for using, or, on the other hand, limiting his capabilities. Thus, the designer should be sure to interview those people ("audio-visual coordinator," "training director," etc.) who will accurately reflect the client's real needs.

Presentation of budget also can lead to difficulty, particularly if the client does not understand exactly how the money is to be spent. Many audio-visual systems never get beyond the talk stage because clients assume that projected costs are too high. Separate itemized lists of audio-visual equipment and of related, built-in equipment will make clear how the money is to be spent. Assuming that the client's needs have been properly analyzed, then the designer must hold fast in budget discussions for the built-in equipment, and let the client be guided by his over-all budget as to how much of the audio-visual hardware he wants to buy initially.

**Which contractor is responsible for what in installing the audio-visual facility?**

After the plans are finished, the designer will need to designate what is to be installed by the general contractor and what by the audio-visual sub-contractor. There

are certain advantages in having the general contractor responsible for installation of built-in audio-visual equipment. By the same token, there are advantages in having the audio-visual sub-contractor responsible for packaging the non-built-in pieces.

Some items of equipment must be installed long before the audio-visual sub-contractor is involved in the project. One example is projection screens, whether they be glass, in-wall screens for rear projection, or electrically-operated or manually-operated roll-down, front projection screens that must be recessed in the ceiling.

The audio-visual system sub-contractor installs the audio-visual system package which includes the projection equipment, the custom control systems, projector supports, mirrors, etc. Because of the nature of his work, he is usually one of the last sub-contractors on the job—he cannot set up delicate projection equipment in the midst of carpenters, plasterers and painters. Further, he sometimes requires total darkness to align the projected images.

Because the audio-visual sub-contractor may not be awarded his contract until very late in the course of the job, and because his own work takes place at this time, the screens should not be in his contract. Even if he had the contract in time, his manpower is better utilized, from his

## Applications grow in number, variety and sophistication



Figure 11



Figure 12

A sampling of recent installations illustrates the type of work currently being done. *Figure 11*: seminar room at Eastman Kodak's new Marketing Education Center in Rochester, N. Y. Architects: Skidmore, Owings & Merrill. *Figure 12*: auditorium for Texas Bank and Trust Company, Dallas. Up to six images can be shown side-by-side on the wide screen. Architects: Skidmore, Owings & Merrill. *Figure 13*: instructional laboratory at the Mount Sinai School of Medicine, New York City, has closed-circuit TV for students to view medical operations, for videotaped lectures, and for medical slides. Architect: Skidmore, Owings & Merrill. *Figures 14 and 15*: multipurpose room at Time, Inc., features rear screen at one end of the room, front screen at the other. Same projection room serves both. Interior design: Montgomery/Winecoff.

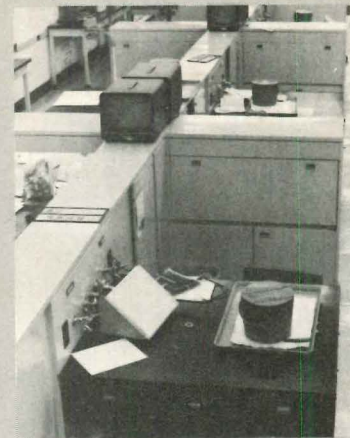


Figure 13



Figure 14

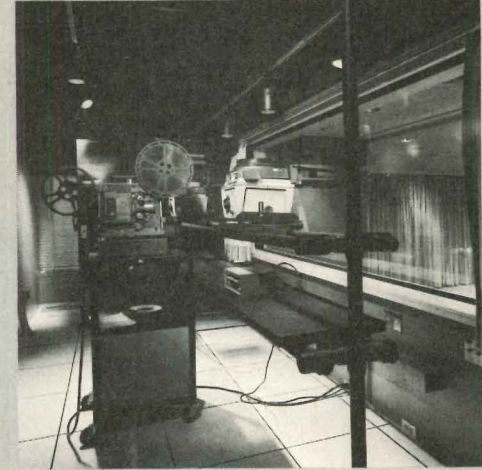


Figure 15

Gil Amiaga photos

own standpoint, in assembling the equipment package, and in occasionally visiting the site to take vital measurements. Installation of screens and other built-in equipment is better left to the general contractor. Should the audio-visual contractor be obligated to install this built-in equipment, he will be apt to charge a premium for his manpower.

Just as with built-in screens, there are other items best suited for inclusion in the general contract. These include: plaster rings required for ceiling-mounted speakers, ceiling mounts for television monitors, optical glass for projection ports, studio lighting grids, chalkboards, and display panels.

All conduit, outlet boxes, power and lighting panels should be installed by the electrical contractor. But the conduit necessary for the audio-visual system for audio and control wiring should be installed empty. The audio-visual sub-contractor is better able, in most cases, to provide the various multi-wire and shielded cables. The audio-visual sub-contractor also should provide all required multi-pin connectors and receptacles.

The audio-visual sub-contractor should provide projector support tables, especially for rear-projection systems where the height dimension is critical. Further, he

should be responsible for the installation and alignment of the mirrors often used in rear projection systems.

To help ensure successful completion of the project, the designer should be certain that his plans clearly indicate which contractors are responsible for providing the major audio-visual items.

Timing is an important factor in the design of the audio-visual facility. The result of any contract let too late is all too obvious: confusion, ill will, unhappy compromises. The a-v contract let too early may have certain disadvantages as well, the main one being the inability to use the latest technical and design advances in the state of the art.

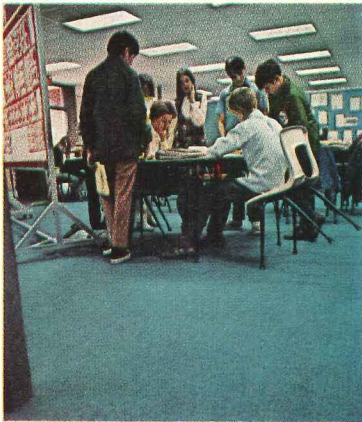
Within the past few years there have been many improvements in available projection equipment and solid-state circuitry; more are on the way. Projectors are now available with improved light sources, better lenses and automatic focusing. In order for the client to take advantage of improvements, the designer should make sure the project is not bid too early.

The audio-visual contract awarded late poses problems as well. As already mentioned, the a-v supplier/installer, by the nature of his work, must be one of the last trades involved in the project. Many times the audio-visual contract stipulates

a schedule for completion of the facility. While the client was aware of this date in the beginning, he may forget it and insist that the a-v facility be ready on a certain date, in time for an annual meeting or other important presentation. He refuses to take no for an answer. This problem may occur because the designer waited too long to have the a-v contract awarded, and also perhaps neglected to establish priorities for the various a-v facilities with the client and the a-v supplier/installer. The a-v contractor must be made familiar with the completion timetable and know that conference room "B" must be ready for use "X" months ahead of conference room "A." The a-v contractor should be given a thorough briefing of the project schedule with the client's representatives on hand to confirm dates. The a-v contractor left to his own resources may begin fabrication of systems intended for areas which are of lowest priority.

During the course of the project, the a-v contractor should be kept informed of any changes that may affect his portion of the work. Very often, screen sizes are changed at the last minute, or projection rooms are reduced in size. The a-v contractor should not be surprised by these revisions when he arrives at the site to install his equipment.

King Springs Elementary School, where Antron<sup>®</sup> passes every test with flying colors.



When Cobb County, Ga., installed carpet in eighteen schools, they chose carpet with pile of Antron\* nylon because of its unmatched soil-hiding ability.

Modern schools are extra rough on carpets. Flexible classrooms, heavy traffic, movable partitions, new teaching methods: "Antron" stands up to them all without leaving telltale traces.



"Antron", because it's nylon, has excellent toughness and durability. It resists scuffs and stains, controls noise, and creates a warm, relaxed atmosphere.

Best of all, Du Pont studies indicate that carpet of soil-hiding "Antron", when properly taken care of, can mean maintenance savings of up to 50% over hard-surface floors.



When you have a tough carpeting job, specify "Antron".

Hasn't it been tested by the most efficient little dirtmakers you know?

For more information about "Antron", contact your mill resources, or write to Contract Carpet Specialist, Du Pont, Centre Road Building, Wilmington, Del. 19898.



\*Du Pont registered trademark. Du Pont makes fibers, not carpets.



**WHEN CARPET DOES IT,  
CARPET OF ANTRON<sup>®</sup> DOES IT BEST.**

For more data, circle 50 on inquiry card

If you've  
always felt that  
high-performance ceilings  
are an infringement  
on good design...  
take heart.





# Now there is **COMPAC** the ceiling of the 70's.



Compac is the *complete* ceiling that comes in a carton!

It signals the end of piece-by-piece ceilings. Compac is a wall-to-wall system of unified modules, each a pre-engineered "package" of homogeneous components that eliminates any need to combine a diversity of separate products and materials.

Compac embraces the ceiling plane in its entirety. Every Compac module provides the functions of air supply and return, heat transfer, sound absorption/attenuation, and audio communication... as well as high-quality lighting. The modules are factory-assembled and delivered

to the job site ready to install.

Compac's 3'-square center luminaire can be supplemented by incandescent spots, downlights, or left blank to form an infinite variety of ceiling patterns.

Compac accepts columns at module centers or intersections. A partition track on all sides assures complete freedom in placing movable walls, or supplying air to the space.

Simple, fast, functional and handsome... truly, Compac is *your* kind of ceiling. The earlier you write for the complete story, the sooner you and your clients can start realizing its benefits.



DANIEL BUILDING (main floor), Birmingham, Alabama  
ARCHITECT: Lawrence S. Whitten & Son

*These 3 alternate "faces" further expand Compac's design capabilities*



Flat-Regressed

Architectural  
Downlighting

Decorative

# COMPAC

...the ceiling of the 70's.



**EMERSON**  
DAY-BRITE LIGHTING DIVISION  
EMERSON ELECTRIC CO.  
5411 BULWER  
ST. LOUIS, MO. 63147

For more data, circle 51 on inquiry card

\*The unique properties of ChemComp cement resolved moisture problems confronting designers of the impressive new First National Bank building in Chicago. The bank is near Lake Michigan and its underground vault is below lake level. To prevent water seepage into the vault, Chief Engineer Sherwin Asrow called for walls, floor and ceiling of 30" ChemComp cement concrete. ChemComp cement was specified for its low permeability and crack-resistant characteristics. ChemComp cement is produced by leading manufacturers of superior quality portland cements and is available nationwide.

- REDUCES size and incidence of drying shrinkage CRACKS
- DIMENSIONALLY STABLE ■ LOW PERMEABILITY ■ INCREASES BOND STRENGTH TO REINFORCING STEEL ■ INCREASED LIVE LOAD CAPACITY ■ SUBSTANTIAL REDUCTION IN NECESSARY CONTROL JOINTS ■ NO SPECIAL PLACING PROCEDURES ■ LESS SEALING AND CAULKING OF JOINTS
- MUCH LESS LONG-TERM MAINTENANCE

One First National Plaza

- ARCHITECTS & ENGINEERS: C. F. Murphy & Associates and The Perkins & Will Partnership
- CONTRACTOR: Gust K. Newberg Construction Company, all of Chicago.



Specify, profit by using

# \* ChemComp® Cement

*the shrinkage-compensating cement*

AVAILABLE NATIONWIDE FROM THESE MANUFACTURERS

## KAISER

Cement & Gypsum Corp.  
Kaiser Center, 300 Lakeside Drive  
Oakland, California 94604

## MEDUSA

Portland Cement Co.  
P. O. Box 5668  
Cleveland, Ohio 44101

## PENN-DIXIE

Cement Corp.  
1345 Avenue of the Americas  
New York, New York 10019

## SOUTHWESTERN

Portland Cement Company  
1034 Wilshire Boulevard  
Los Angeles, California 90017

## TXI

Texas Industries, Inc.  
P. O. Box 400  
Arlington, Texas 76010

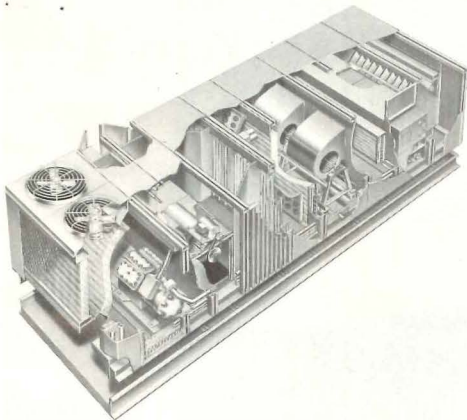
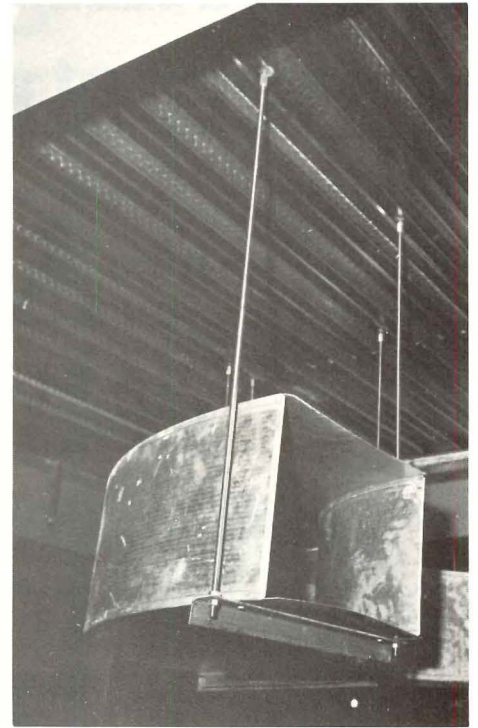
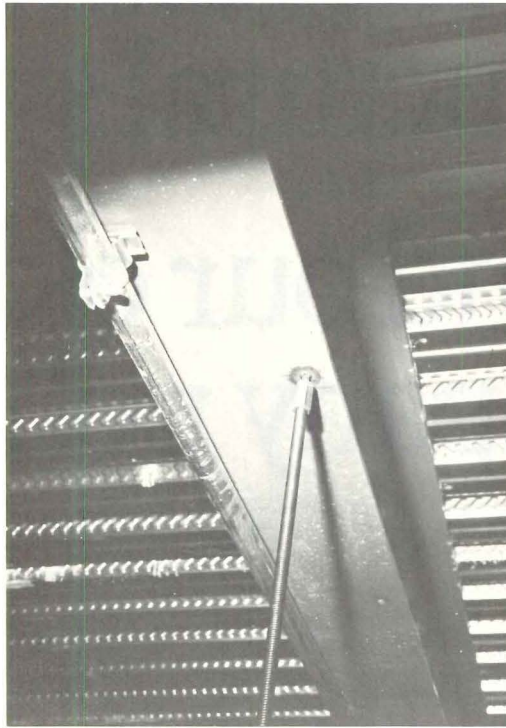
For further information contact: **Chemically Prestressed Concrete Corp. 14656 Oxnard Street, Van Nuys, California 91401** or the sales office nearest you

For more data, circle 52 on inquiry card

**A SELF-CONTAINED STUD WELDING SYSTEM** which operates without a special power source is reported to fasten pins and studs up to  $\frac{3}{8}$ -in. in diameter to both relatively thin metals and heavy metals such as structural steel.

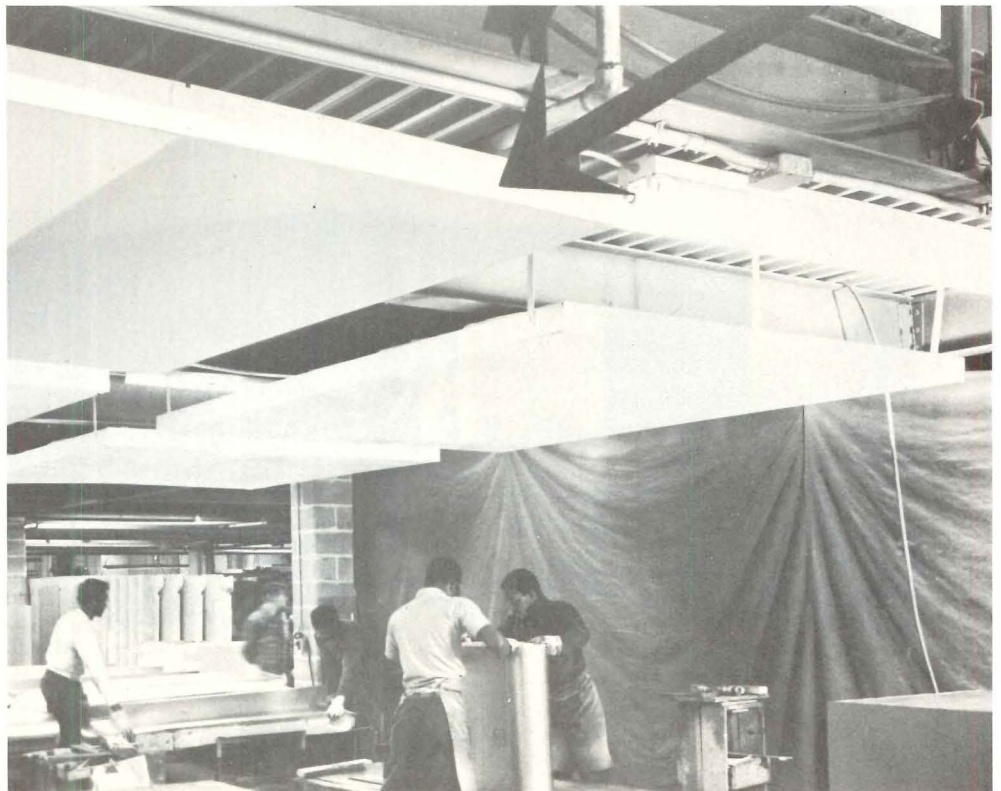
Photos (right) show a heating and air conditioning ductwork installation that uses this system. First, threaded rods were connected with tapped couplings to  $\frac{1}{4}$ -in. studs welded to I-beams (near right) and a steel deck (far right). Ductwork was supported by brackets fastened to the rods with locking nuts. Considerable cost savings can be realized with this system, the manufacturer reports. ■ Nelson Stud Welding Co., Lorain, Ohio.

Circle 300 on inquiry card



**MULTI-ZONE COOLING-HEATING UNITS /** Cooling capacities range from 15 to 40 nominal tons with gas furnace heating capacities from 400 to 600 MBH input. All units are shipped factory-assembled, completely piped and wired. Outer panels are made of galvanized sheet metal, bonderized and painted with enamel. The units can be mounted on existing buildings without extensive remodeling. Optional features include an economizer cycle, hot-gas reheat coils for heating requirements when the refrigerant cycle is operative and remote control panel. ■ McQuay, Inc., Minneapolis.

Circle 301 on inquiry card



**ACOUSTICAL PANEL SYSTEM /** Designed for installation in existing or new structures, panels can be hung, furred, or mounted flush against ceilings or walls. Acoustic fill is protected by perforated galvanized sheets. Panels are framed with steel channels and are fully assembled. The system is reported to reduce both near-

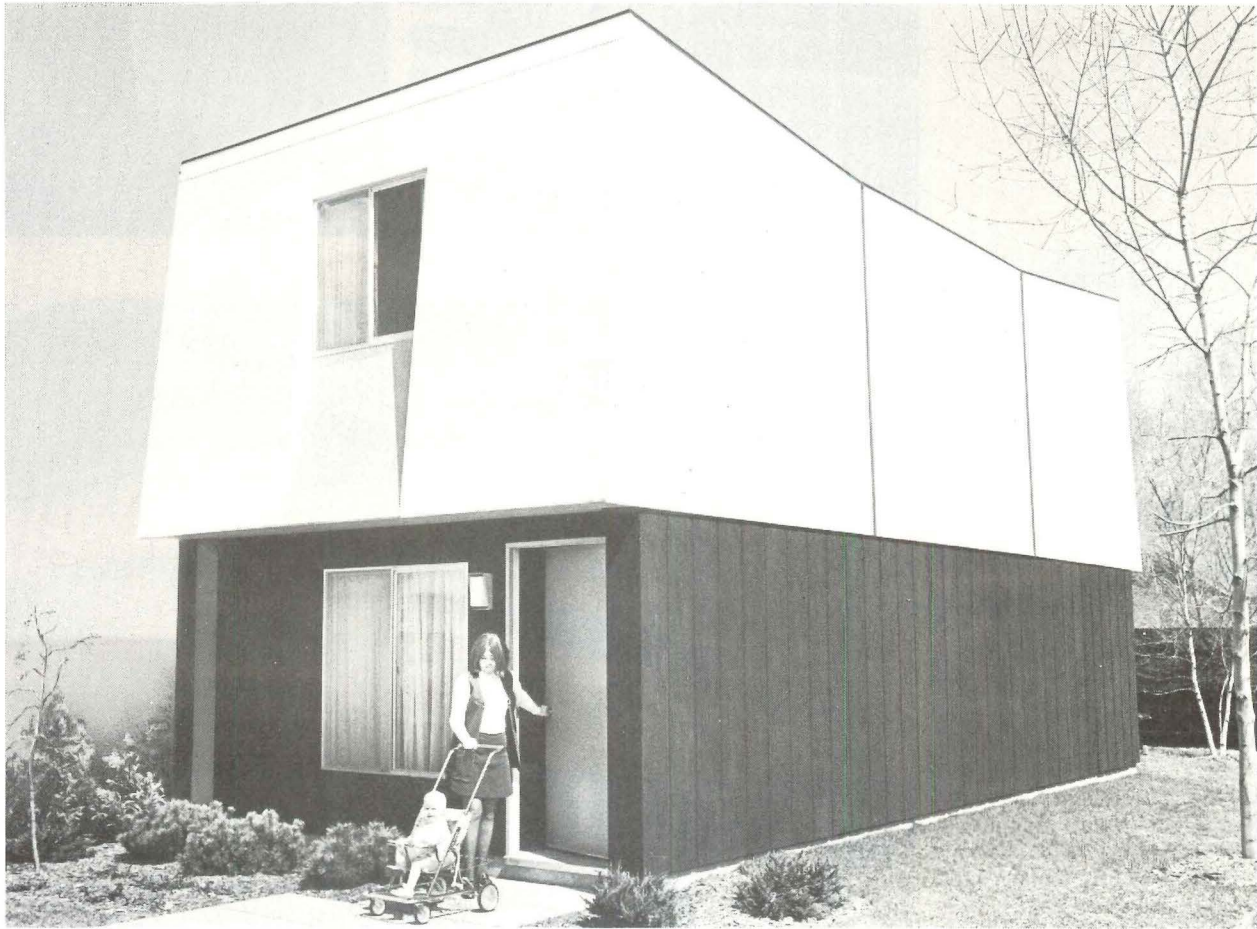
and far-field noise levels. Additional acoustical equipment may be required in situations where very high noise levels exist to bring hazardous sounds below hearing-risk criteria. ■ Industrial Acoustics Co., Inc., Bronx, N.Y.

Circle 302 on inquiry card

More products on page 148

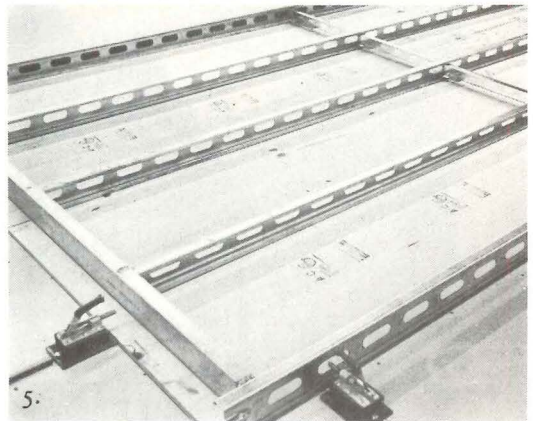
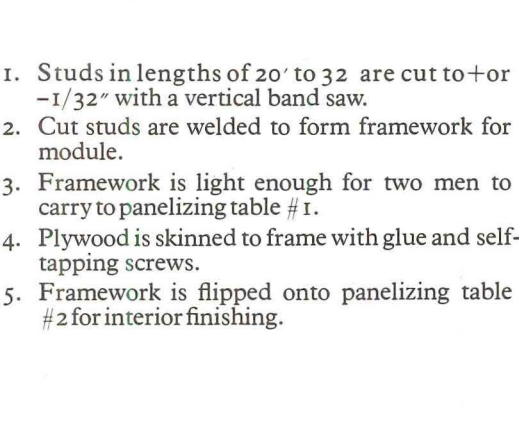
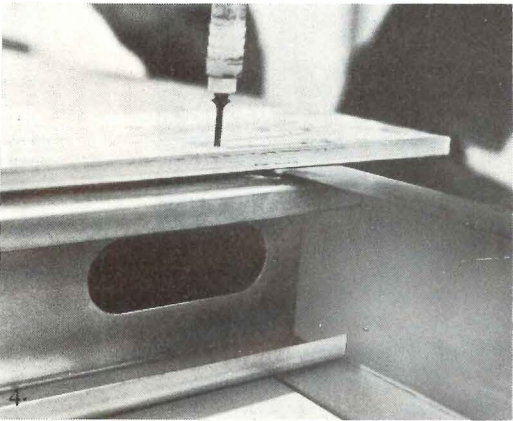
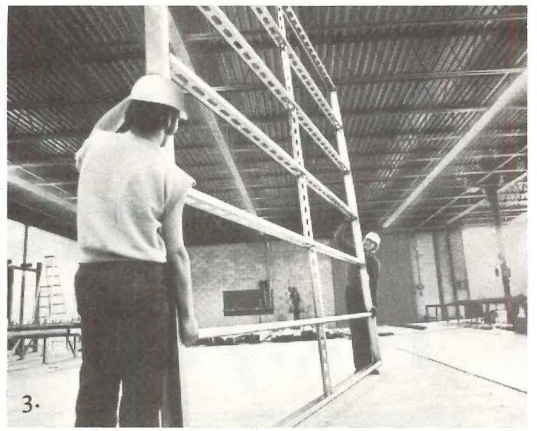
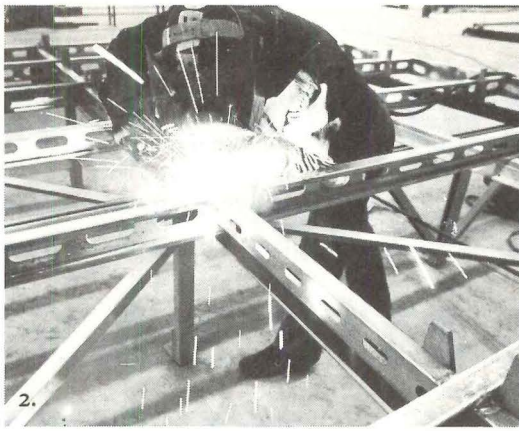
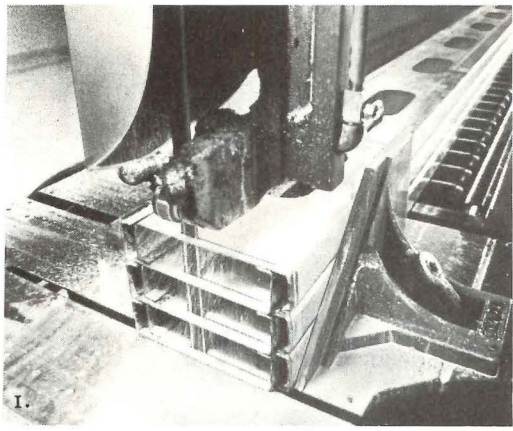
The architect  
who designed this townhouse  
is staking his future on our  
new structural system.

And our old  
company policy.



Architects: Roger Allen Associates, Inc.  
Grand Rapids, Michigan

Manufactured by: Modular Methods, Inc.  
Ernie King, A.I.A., Pres.



1. Studs in lengths of 20' to 32' are cut to  $\pm 0.015$ " with a vertical band saw.
2. Cut studs are welded to form framework for module.
3. Framework is light enough for two men to carry to panelizing table #1.
4. Plywood is skinned to frame with glue and self-tapping screws.
5. Framework is flipped onto panelizing table #2 for interior finishing.

The architect is also the President of the company (Modular Methods, Inc.) that's erecting the townhouses.

So you know he did a lot of careful combing for the best framing system he could find.

After all, it's his reputation, money and company that's on the line.

With all that at stake, he went with our steel framing system.

He knew from talking to our people that we made a great system. And that we'd back it all the way.

You see, our system is the most complete lightweight steel framing system available today.

It's made up of a full line of load-bearing steel studs (including 4 styles, in a variety of widths, in every gage you'll ever need to specify), track, bridging and joists.

But perhaps the most unique feature is it allows you complete design freedom.

Because it takes any exterior or interior surface material—gypsum masonry, wood, steel, etc.

There are also many other impressive features you should know about our system.

Namely, since it's half the weight of wood, you can specify a lighter foundation.

As for weight and bulk as a design requirement, you can add strength in gage without adding bulk.

You can hide all the mechanical and electrical

equipment because the studs form a hollow wall.

It can be fabricated off the site as well as on. That saves on labor costs and financing.

If you're designing for volumetric construction, the system is perfect.

In fact, the entire second floor of the townhouse on the left was volumized in plant. (The first floor was panelized in plant.) And everything stayed tight and plumb in transit.

Now. Everything we've just told you is what sold the above architect on our framing system.

And today, we're happy to report that his townhouses, his company, his reputation and his future are doing extremely well.

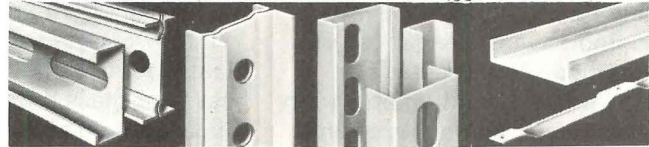
But in talking with him further, we found out something that impressed him even more than our system.

Us.

To quote, "the Wheeling people stayed with it...worked out some of our problems...adapted some new methods...got involved."

And, frankly, he wasn't too surprised when we told him we work with all our customers the same way we worked with him.

For more information write for brochure WC 455.



Cee & Nailable Joists    Nailable Studs    Channel & Cee Studs    Track & Bridging



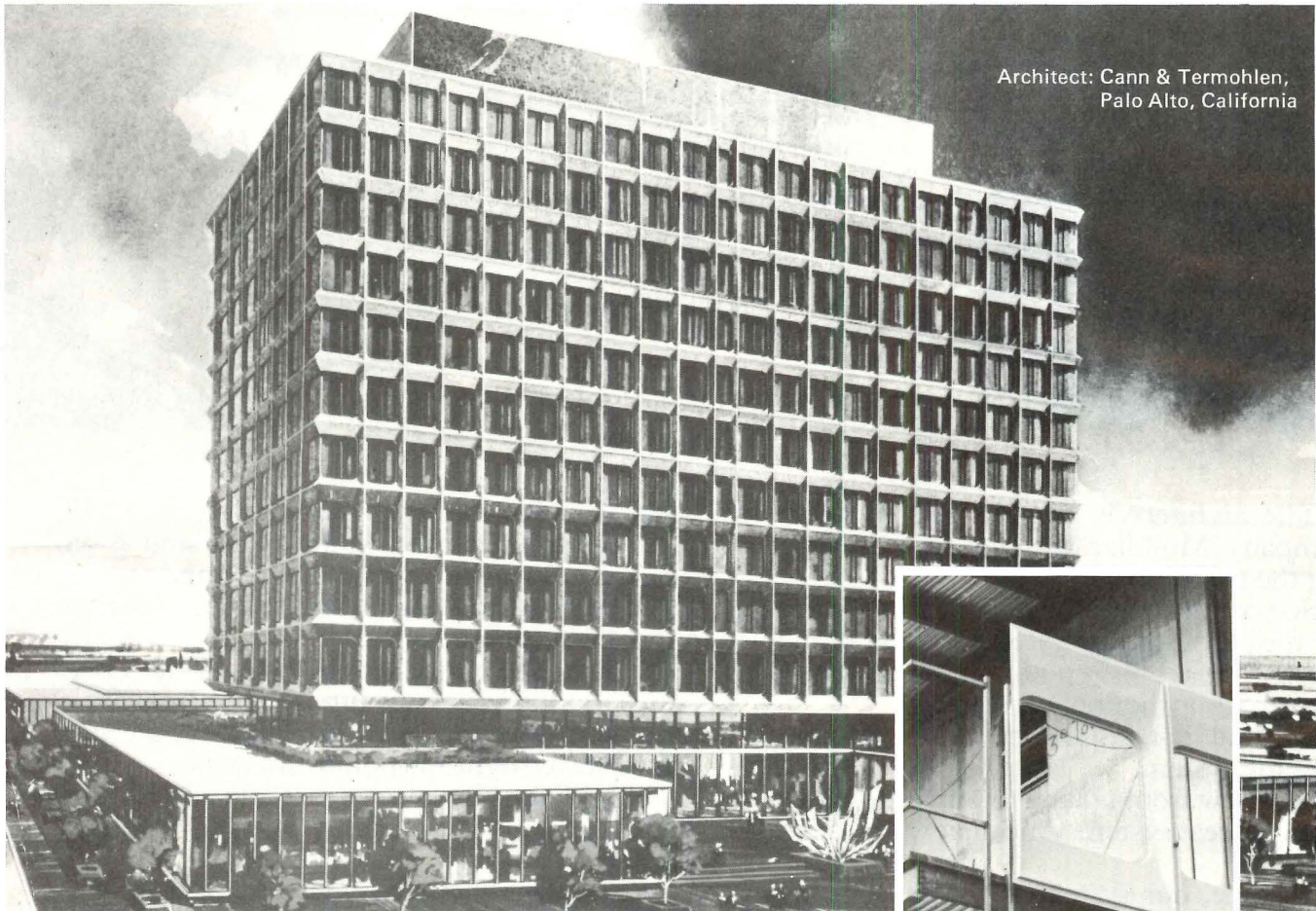
**Wheeling Corrugating Company**

Wheeling Corrugating Co., Div., Wheeling-Pittsburgh Steel Corp., Wheeling, W.Va.

96% of what we make builds highways, buildings and reputations.

For more data, circle 53 on inquiry card

# Announcing fiber glass walls for high rise buildings. They snap in to save money.



Architect: Cann & Termohlen,  
Palo Alto, California

## Technical Plastics Corp. makes them. PPG makes it possible.

The twelve-story IED Building in Mountain View, California, is the first high rise in the United States to use fiber glass reinforced polyester panels for its exterior curtainwalls. The panels, molded by Technical Plastics Corp., were clipped to window frames made of steel tubing, and snapped into place on steel floors at ground level. Entire floors were then jacked up into position. This spectacular "top to bottom" building operation saved significant amounts of time and labor costs, and was possible, in part, because of the panels' light weight, only 85 pounds each.

But the building's architects found a lot of other advantages in using the paneled walls. The panels offer design flexibility, esthetic appeal, relative freedom from maintenance and lower cost than other curtainwall materials. In fact, similar panels were used on the interior of the building. They, too, were snapped into place.

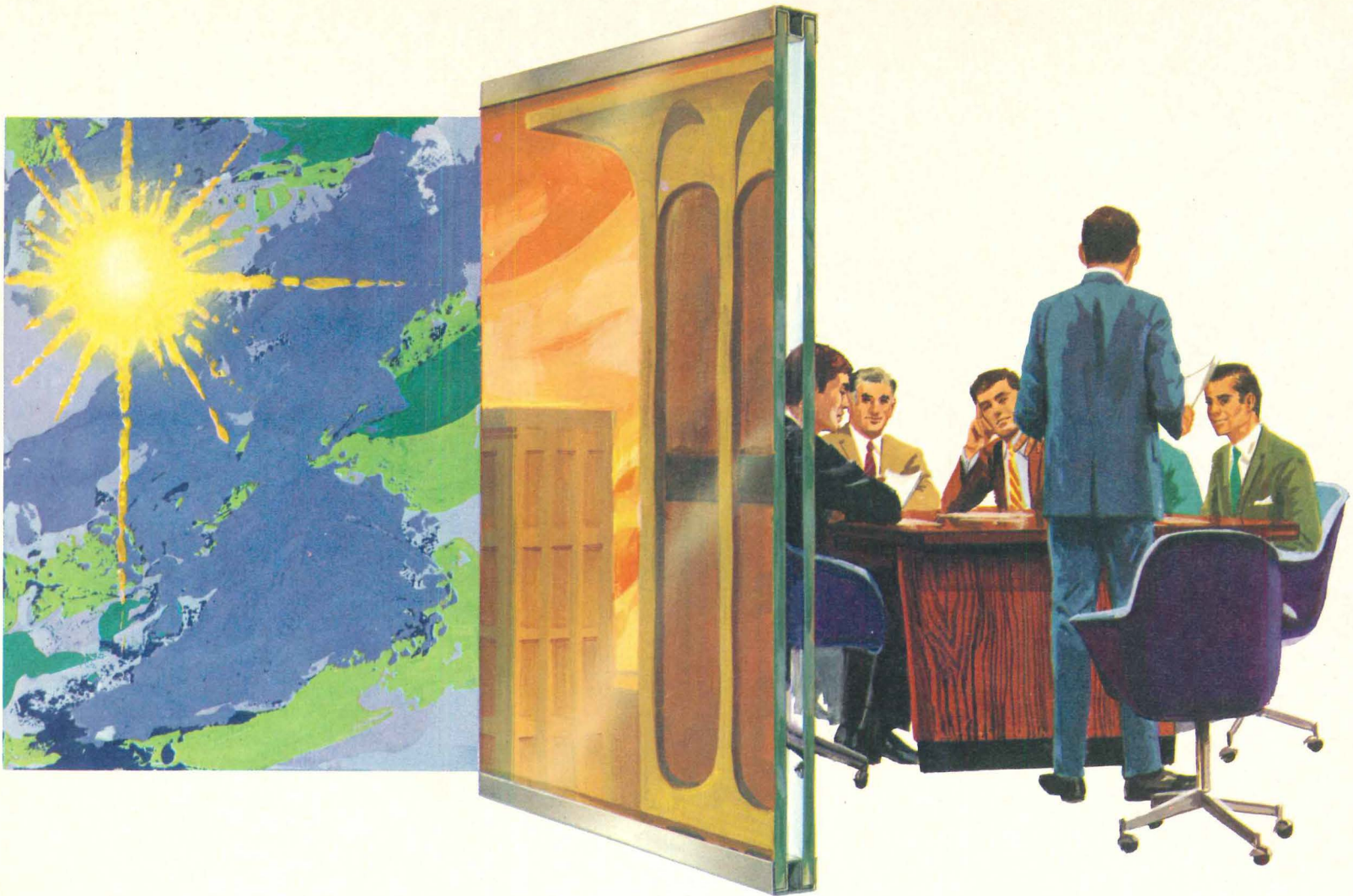
PPG worked closely with Technical Plastics to help select the best fiber glass product for use in this exciting new building-material idea. Can we help you with your ideas? Contact Technical Plastics Corp., 19 Janis Way, Santa Cruz,

Fiber glass panels clipped to steel frame on third floor of IED Building.

California 95060. Or write PPG Industries, Inc., Department 906-B, Fiber Glass Division, One Gateway Center, Pittsburgh, Pa. 15222.

**PPG: a Concern for the Future**

Fiber Glass   
INDUSTRIES



The golden beauty is a bonus

polarpane® "20" **STOPRAY** solar insulating units

*Let light in . . . keep heat out . . . yet give the privacy of a solid wall*

This new reflective solar glass, manufactured by C-E Glass under license from Glaverbel, Inc., Brussels, Belgium, adds color and individuality to facades. But the unit's prime function is heat control. Stopray 3828 shuts out 72% of the solar energy and has a U value of .39; Stopray 2018 shuts out 82% of the solar energy and has a U value of .32.

The light transmitted—38% and 20% respectively—greatly reduces visual fatigue and softens daylight glare for interiors that inspire.

Stopray is a double-glazed insulating unit of plate or float, with the inner or sealed surface of the exterior lite permanently coated with thin, reflective metallic gold. This is separated from the companion clear plate by a cushion of filtered and dehydrated air. A treated steel air space separator, double butyl seal, and stainless steel edge channels hermetically seal the unit, assuring complete protection against condensation. Stopray units carry a 20-year warranty.

Send for our Stopray Solar Glass Brochure or consult C-E Glass specialists for advanced glazing methods and materials. C-E Glass, 825 Hylton Road, Pennsauken, N. J. 08110.

**CEGLASS**  
A SUBSIDIARY OF COMBUSTION ENGINEERING, INC.

For more data, circle 60 on inquiry card

# When you specify water hammer arrestors, go by the book.

The book is our Wade Specification Manual. And it's your complete source for DWV system specification products.

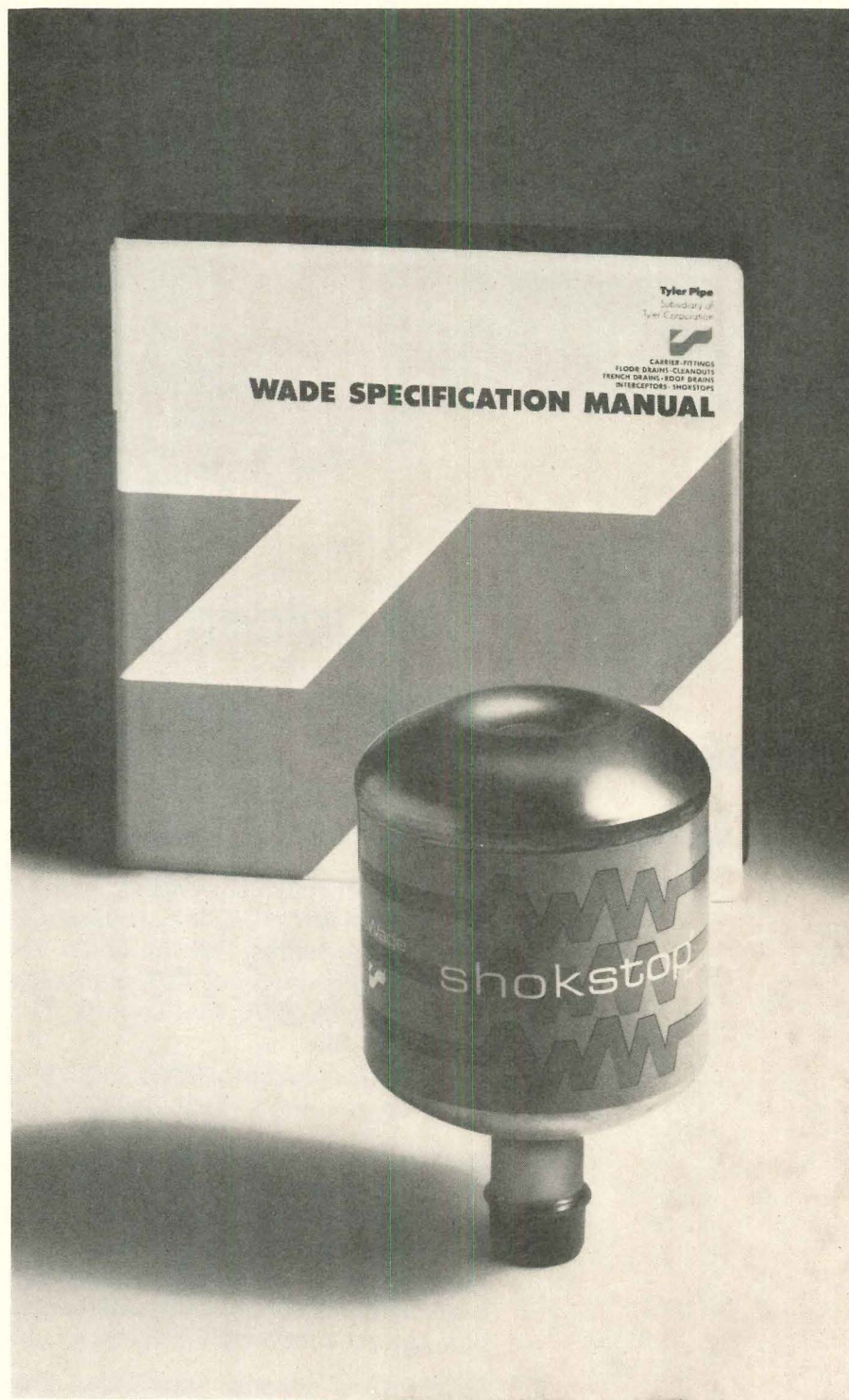
Under the heading "Shokstops" you'll find a new catalog with everything you need to know about water hammer arrestors.


You'll find complete specs and detailed information on six new commercial Shokstops.

You'll find out how the Wade Shokstops work. What they do. How to find out which one is best suited for a particular application.

When you need water hammer arrestors, specify by the book, Wade's Specification Manual. To get your free, registered copy, simply write us on your letterhead to P. O. Box 2027, Tyler, Texas 75701.

If it goes into a DWV system, Tyler makes it.



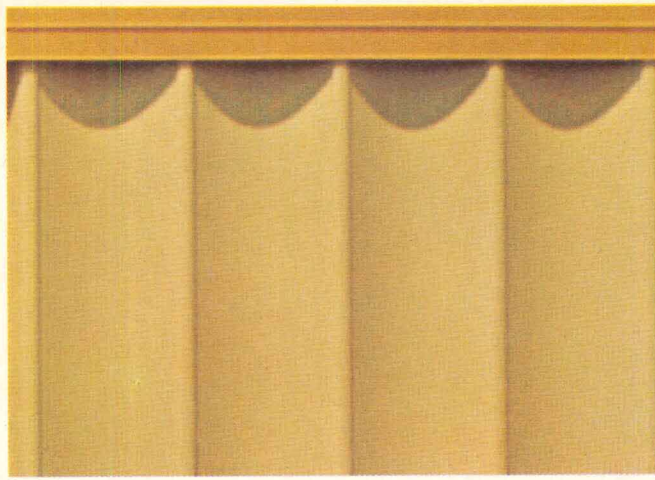
 **Tyler Pipe**  
Subsidiary of  
Tyler Corporation

Member, Plumbing and Drainage Institute

Copyright Tyler Pipe 1971

For more data, circle 61 on inquiry card





## **SMITH CURVEWALL...** *a bold new profile*

Dramatize your new building in an unusual way! Design it around Smith CURVEWALL. The scope of possibilities is limitless.

CURVEWALL insulated metal panels afford a new dimension in building design. The deep flutes of the individual panels, 18 or 24" wide, give a bold, vertical columnar look to your walls. Smith CURVEWALL panels are available in aluminum, galvanized steel or alumi-

nized steel. They can be color-coated with one of Smith's durable finishes and coatings in a wide selection of architecturally-pleasing colors. And CURVEWALL is compatible with other building components of masonry or glass, or even with other metal panel profiles.

For full details and specifications on new Smith CURVEWALL panels, consult your Sweet's Architectural File. Or write direct.

*Birmingham & Prosser Co.,  
Hillside, Illinois*

*Designers: The Mead  
Corporation, Corporate  
Engineering Department,  
Chillicothe, Ohio*

*General Contractor:  
Miller-Davis Company,  
Melrose Park, Illinois*

**ELWIN G. SMITH & COMPANY, INC.** Pittsburgh, Pa. 15201

*Sales Offices in Principal Cities*



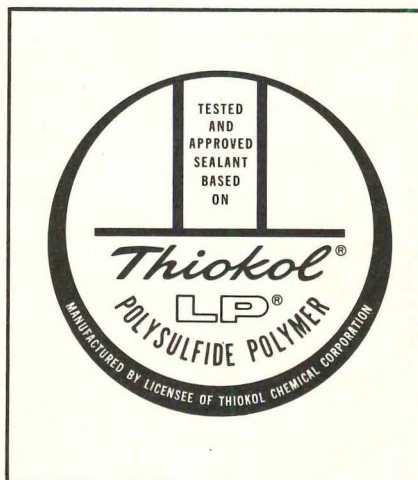
**Behold,  
\$1,000,000 worth  
of confidence.**

Thiokol's Seal of Security program was introduced on May 14, 1965. Since then, we've spent more than \$1,000,000 on the continuous testing and development of building sealants.

It's a big, expensive job. But well worth it. For you. And for us. Because when a sealant bears our seal, you know it's a sealant that won't fail.

Won't fail because our performance standards are high. And our continuing tests tortuous.

For example, we demand that a sealant remain flexible, with great adhesion capability, after being heat-aged, soaked in water, and exposed to cycles of extension and compression. All while the temperature varies from  $-15^{\circ}$  F. to  $158^{\circ}$  F. This simulates



annual seasonal temperature changes and accompanying joint movement.

Also, we demand that adhesion to glass, aluminum and concrete remain intact with the sealant extended after an aging cycle of one week at room temperature, one week at  $158^{\circ}$ F and four days immersed in water.

If the sealant comes through with flying colors, then—and only then—can it carry our Seal of Security.

When you select a sealant, demand one with Thiokol's Seal of Security. Put \$1,000,000 worth of confidence to work for you. Thiokol Chemical Corporation, P.O. Box 1296, Trenton, N.J. 08607.

*Thiokol*

For more data, circle 63 on inquiry card

# Risk-free automation.

When Honeywell hands you the keys to Delta 2000... you know your client's building automation system will work. Perfectly.

We stake our reputation on it.

Because, system after system, every Delta 2000 being delivered is duplicated from a computerized perfect model!

With *identical* quality of every component, every module. And with functional tests every step of the way to make *sure* Delta delivers the results specified.

Delta dependability starts with a 100% test and sort of every solid-state component. And each assembled circuit board goes through a battery of computerized tests to make sure it measures up to original standards.

Computer programmed wire-wrap machines make all connections in the central processor backplate. Again, a computer checks them out... *individually*.

Once the circuit boards and backplate are mated, we make a complete systems checkout... against the operator's manual.

Good enough? Not yet. Next, a grueling

heat test. Screening out any possible infantile failures in electronic components.

All this factory testing still doesn't satisfy Honeywell's installation technician.

At the job site, he isolates each remote panel. Runs individual tests, using a miniature "Delta-in-a-suitcase" monitor. Makes sure panel electronics and remote equipment work perfectly, as *installed*.

Then, he tests the transmission line by reconnecting the panels, one at a time, to the central processor. Checks out each addition. And proves out the total system again, against the operator's manual.

Only then does he hand you the keys to the Delta 2000 console. And says... "*It's ready*".

Overtested? No. We think that's the way you and your client want it. Reliable. And *exactly* right, as specified.

Honeywell, Commercial Div., G2118, Minneapolis, Minn. 55408

## Honeywell

The Automation Company

For more data, circle 64 on inquiry card

Here's all that's needed for a smooth start-up, smooth performance: The keys. And the standard operator's manual.



# Think People



**Your new hospital...  
a monument to the needs of society.  
Think of the people who use it.**

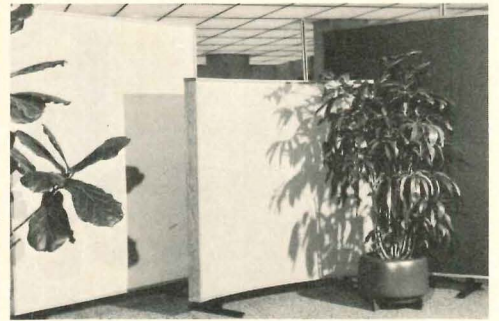
Consider the stainless steel sink: It should be custom-built to their needs . . . any shape . . . with the bowl located where they need it. No paper thin bends or corners. It must be ground smooth; hand polished; handsome; and perform superbly for a lifetime.

Think people. Specify AVM Jamestown for your new hospital. It is what they expect.



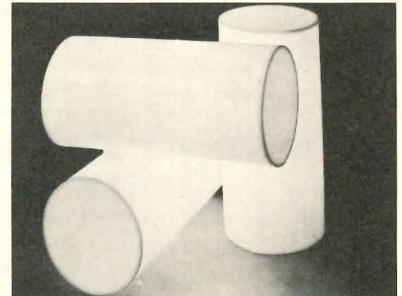
**JAMESTOWN PRODUCTS DIVISION**

JAMESTOWN, NEW YORK 14701



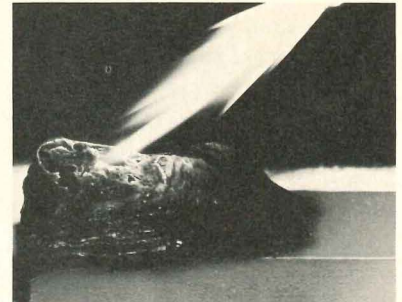
**ACOUSTICAL SCREENS** / Developed specifically for the "open" concept of office design, these mobile, fabric-covered units consist of a foil septum with glass-fiber material on each side over a metal screen. ■ Techniques in Wood Inc., Rochester, N.Y.

Circle 303 on inquiry card



**TABLE LAMP** / Each of the intersecting Plexiglas cylinders is attached to one of its neighbors and holds a 60-watt bulb. ■ George Kovacs Lighting, Inc., New York City.

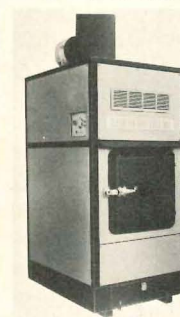
Circle 304 on inquiry card



**FIRE-RESISTANT PAINT** / Metal, wood and plastic can be treated with this coating. The paint is said to react to flame by producing a thick layer of insulating foam which keeps damaging heat and flames away from the base material. ■ Flamarest, Avco Systems Div., Lowell, Mass.

Circle 305 on inquiry card

**INCINERATOR** / An "after-burner" chamber



situated on top of the main incinerator is reported to dispose of up to 300 lbs of four types of refuse per hour without smoke, odor or pollutants. This modular unit operates on fuel oil or gas, natural or propane. ■ Clean Air Controls, Inc., Farmingdale, N.Y.

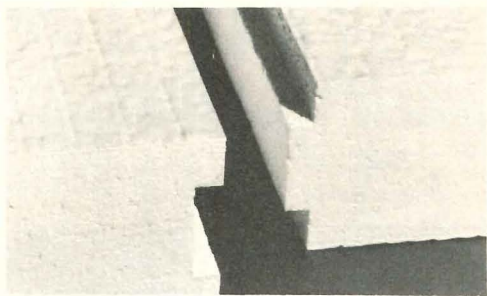
Circle 306 on inquiry card

more products on page 153

◆ For more data, circle 65 on inquiry card

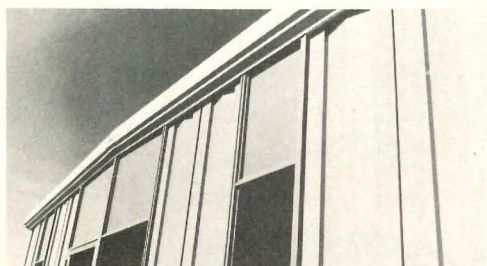
For more data, circle 66 on inquiry card ◆

continued from page 148



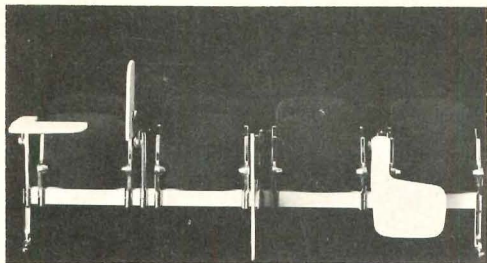
**INSULATION BOARD** / Designed to provide a sealed envelope wall-and-ceiling system, this rigid board has a polystyrene foam facing and may be installed in cooling and freezing units and other commercial and industrial structures.

■ W.R. Grace & Co., Cambridge, Mass.  
Circle 307 on inquiry card



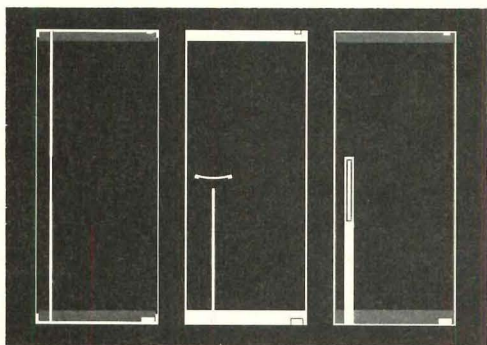
**WALL PANELS** / Consisting of urethane foam sandwiched between steel, these factory-finished panels interlock and have no wall fasteners.

■ Armco Steel Corp., Kansas City, Mo.  
Circle 308 on inquiry card



**SEATING UNITS** / Base sections are made of cast aluminum. As many as six seats and/or plastic-surfaced tables can be used per horizontal beam. Applications include lecture room and auditorium seating.

■ Krueger Metal Products Co., Green Bay, Wis.  
Circle 309 on inquiry card



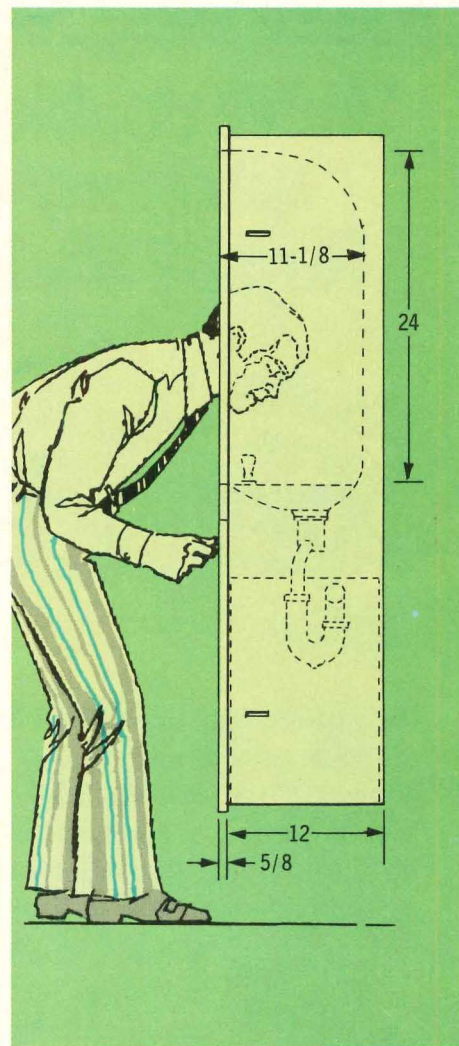
**TEMPERED GLASS DOORS** / Three models are offered. Clearance between door and frame can be adjusted without removing the door from the opening. The manufacturer guarantees a trouble-free product.

■ Blumcraft of Pittsburgh, Pittsburgh.  
Circle 310 on inquiry card

# FULLY RECESSED WITH PLENTY OF HEAD ROOM



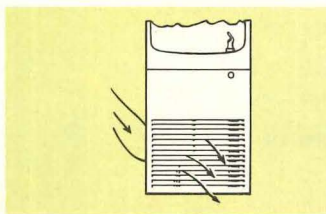
Model RC-8-A



No awkward head twisting or bumping against sides or back of fountain just to get a drink of water. The Halsey Taylor RC-8-A is a fully recessed fountain with plenty of head room and a conveniently placed projector. And this trim, stainless steel beauty not only looks good, it is a convenient, comfortable place to get a satisfying drink of cold water.

THE HALSEY W. TAYLOR COMPANY • 1560 Thomas Road, Warren, Ohio 44481

SUBSIDIARY • KING-SEELEY **KST** THERMOS CO.



**VANE-TYPE LOUVERS** provide 73% more free air flow and allow reduction in louvered area. Air flow is directed away from user.



**AUTOMATIC STREAM-HEIGHT CONTROL** insures constant stream-height under varying water pressures. User can drink without sucking water out of projector.



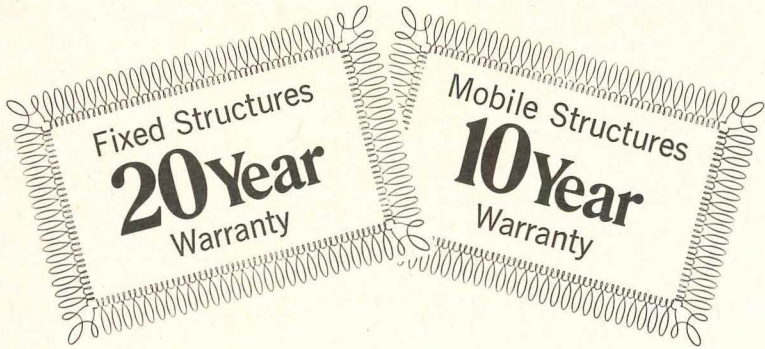
**CONTOUR DESIGN** with rounded inside corners is aesthetically pleasing and easy to keep clean.



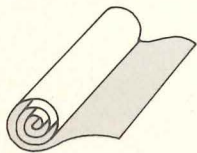
For more data, circle 67 on inquiry card

# Important Announcement.

We've doubled the warranty on Royalty® Roofing.



We just recently introduced Royalty Roofing\*, so we're doubly proud to be able to announce the extension of the warranty period on this amazing product. There are no other roofing materials which can measure up to the performance of Royalty Roofing.



Royalty Roofing is the new polyvinyl chloride rolled roofing product that is leak-proof, heat-reflecting and sound-deadening. In addition, it has self-extinguishing, mildewproof, self-sealing qualities. It is positive-weld seamed, conforms to pitches, valleys and structural shapes for true protection. And, it is virtually maintenance-free.

If you haven't done so, get complete information by filling in the coupon below.

\*Patents Pending © 1971



## Royalty Building & Industrial Products

Formerly Royalty Designs of Florida, Inc.  
A Division of Royalty Industries, Inc.  
601 West 27th Street  
Hialeah, Florida 33010

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

TYPE OF STRUCTURE: \_\_\_\_\_

For more data, circle 68 on inquiry card

# Lease a carpet system... and save.

Write: Showplace.

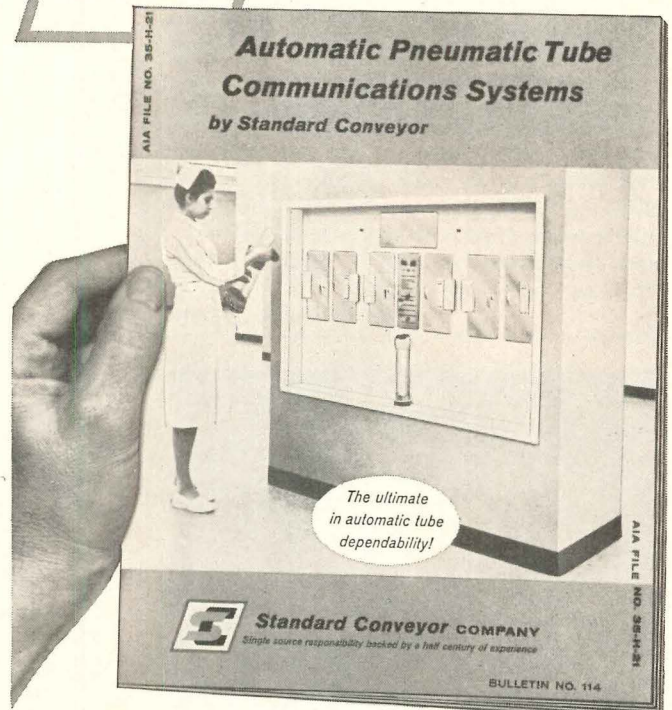


Commercial Carpet Corporation  
10 West 33rd Street  
New York, New York 10001

For more data, circle 69 on inquiry card

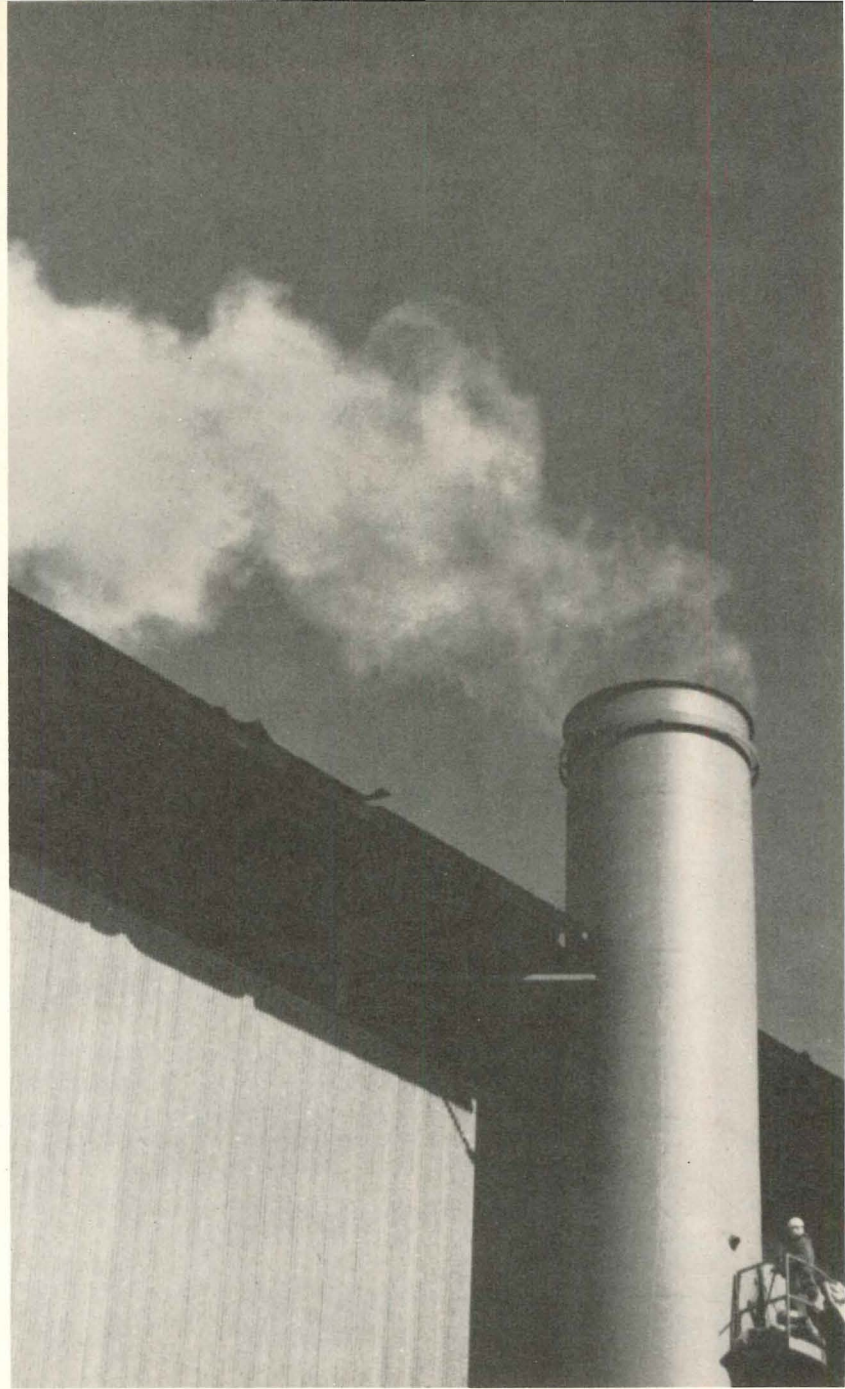
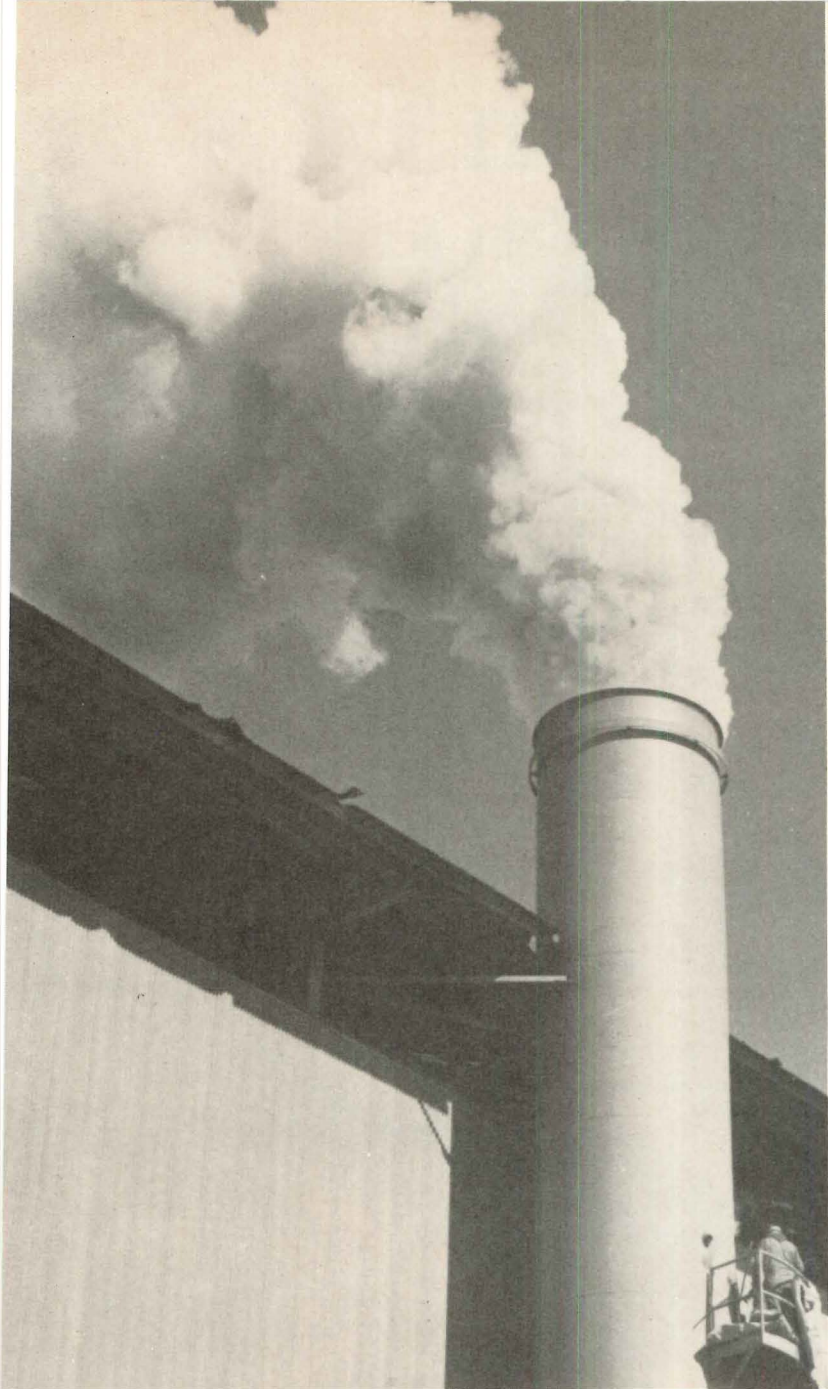
**NEW**

**All you need to know about**



**Get your free copy!** Describes, illustrates new type automatic tube systems featuring greater dependability, quieter operation. 12 pages. **Standard Conveyor Co., 312-G Second St., North St. Paul, Minn. 55109.**

For more data, circle 70 on inquiry card



## This air pollution problem...no problem for AAF

### Armco Steel solves scarfer fume problems with AAF Kinpactor scrubber

Fumes and dust created by Armco Steel Corporation's new, large-slab scarfing operation in Houston are stopped cold before they ever make trouble.

AAF's low-maintenance Kinpactor unit with its unique water-injection system eliminates any possibility of fumes by-passing the collector. The result is a gas-cleaning system efficient enough for any future requirements.

Tell us about your air pollution problem. AAF's *complete* line of air pollution control equipment assures

you the best solution to any problem. Never any danger of trying to fit your problem to a limited product line. Talk with your AAF representative or write Manager, Engineered Systems, AAF, Dept. 389, Box 1100, Louisville, Kentucky 40201.

**Better Air is our Business.**

**AAF** American Air Filter  
**AIR POLLUTION CONTROL**

For more data, circle 71 on inquiry card

# How Can Your Firm Increase Profitability, Creativity And Productivity All At The Same Time?

One way would be to cut your drafting time by, say, half. That would take care of the profitability and productivity. And it would free your people for more creative tasks.

Easier said than done? Of course. Unless you consider putting Itek's Positive Printmaker to work for you.

You can use the Positive Printmaker all the way through, from renderings to schematics to design drawings to working drawings.

With the Posi you can perform scissors "paste-up" drafting, size and scale your work, rearrange drawing elements, and add details which you might not normally include. It even gives you diazo intermediates up to 18" x 24".

So you never have to draw anything twice. That gives your staff more time to be creative. And that's *real* profitability.

Write today for more information, including rental and leasing plans.

A black and white photograph of a man in a striped shirt and tie, looking at a large architectural drawing on a table. The drawing is spread out, and there are several rolled-up drawings nearby. The background shows a wall with more drawings and a window with blinds.

Itek

Itek Business Products, Dept. PC  
1001 Jefferson Road, Rochester, New York 14603

For more data, circle 72 on inquiry card



# Bright idea



Beautiful way to brighten washrooms and cut costs: new, polyester fiberglass-reinforced Bradglas Washfountains. The smart-looking, colorful, new Washfountain materials add a touch of drama to any washroom. They weigh up to 80% less than precast stone, yet have a strength-to-weight ratio approaching that of steel. The smooth, non-porous bowls and panels are highly resistant to abrasion, acid, and corrosion. And will not chip, peel, or flake. Vandalproof Washfountains serve up to eight people with just one set of plumbing connections, reducing installation costs as much as 80%. Washfountains also save about 25% on both floor and wall space. And because they're foot-operated, they're more sanitary than ordinary washfixtures. Circular and semi-circular 54" diameter models are available in your choice of decorator colors. For details, see your Bradley washroom systems specialist. And write for literature. Bradley Washfountain Co., 9109 Fountain Boulevard, Menomonee Falls, Wisconsin 53051.

# from Bradley!

Leader in Washroom Fixtures and Accessories

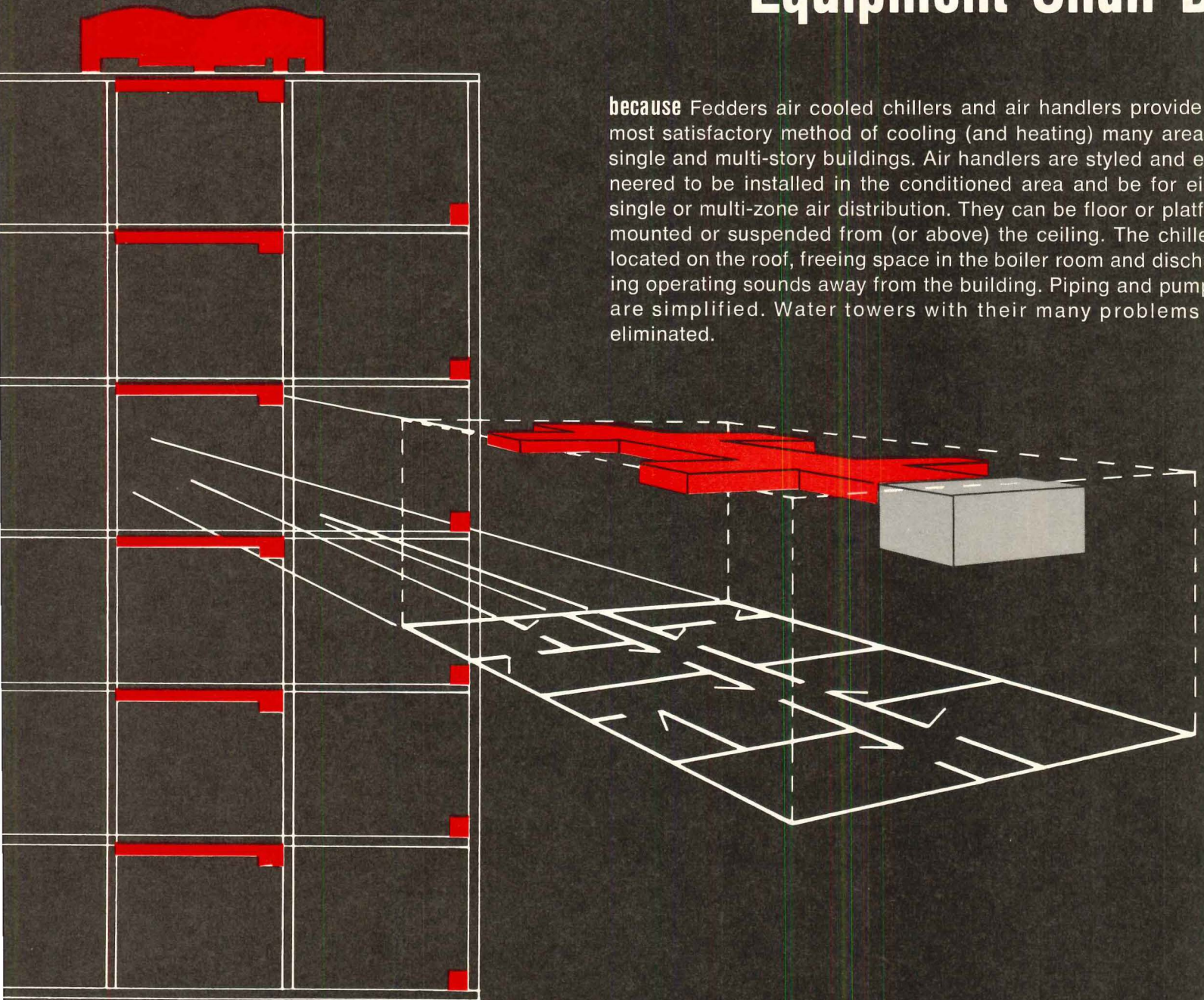
For more data, circle 73 on inquiry card



# FEDDERS

## Equipment Shall Be

**because** Fedders air cooled chillers and air handlers provide the most satisfactory method of cooling (and heating) many areas of single and multi-story buildings. Air handlers are styled and engineered to be installed in the conditioned area and be for either single or multi-zone air distribution. They can be floor or platform mounted or suspended from (or above) the ceiling. The chiller is located on the roof, freeing space in the boiler room and discharging operating sounds away from the building. Piping and pumping are simplified. Water towers with their many problems are eliminated.



# Submittal # 3

## Fedders Air Cooled Chillers and Air Handlers

Fedders Chillers with a complete range of air handlers are available in capacities up to 80 tons of cooling with hot water and steam coils to provide compatible heating. You can choose CFM's from 800 to 36,000 with the heavy duty air handlers operating against statics up to 5" and standard models up to 3". Each of the compressors is designed so capacity can be adjusted to satisfy varying comfort demands. Capacity control is maintained by a temperature sensor located in the leaving water. The factory mounted starter is predesigned for minimum in-rush conditions to provide savings in demand charges.

The Fedders system may be operated year round. A mild ambient (to 35° F.) control is supplied as standard equipment. Optional low ambient control permits operation at temperatures down to °F.

Maintenance and service have been reduced to a minimum because only heavy duty components are used and because both the chiller and the air handler are completely fabricated and run tested at the factory.

Shown in the elevation drawing is a typical Fedders system. Air cooled liquid chiller is located on roof supplying chilled water to air handlers located in the core areas on each floor. The perimeter offices and rooms are cooled and heated by Fedders Unizone terminal units (see Fedders submittal #2 this issue) to provide each of these high temperature fluctuation areas with individual comfort control. And for the one story areas (not shown) are Fedders rooftop units from two to fifty tons. (See Fedders submittal #1 this issue).

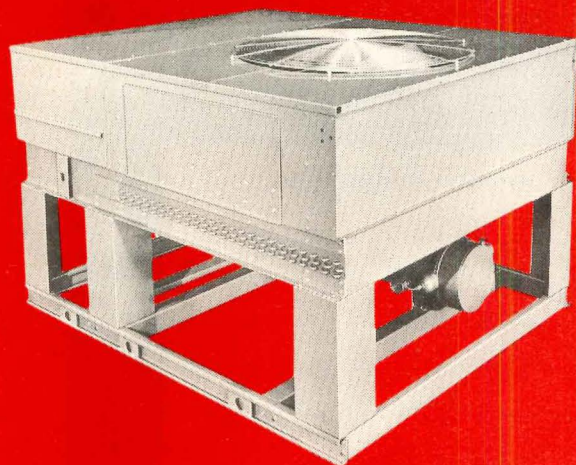
Fedders is the one brand you can rely on for all your air conditioning and heating needs.

For further information, write the Fedders Technical Information Department.

# FEDDERS

**CENTRAL AIR CONDITIONING & HEATING  
EDISON, NEW JERSEY 08817**

*For more data, circle 74 on inquiry card*



# The best part of Powerbond<sup>®</sup> is the part you never see.

Our vinyl backing is like nothing else. Like nobody else's.

The base material for Powerbond pile vinyl has closed-cell construction which means water—or anything else—can't penetrate the base material. Unlike sponge rubber, it can't deteriorate.

Matter of fact, it's the only material that flushes back water.

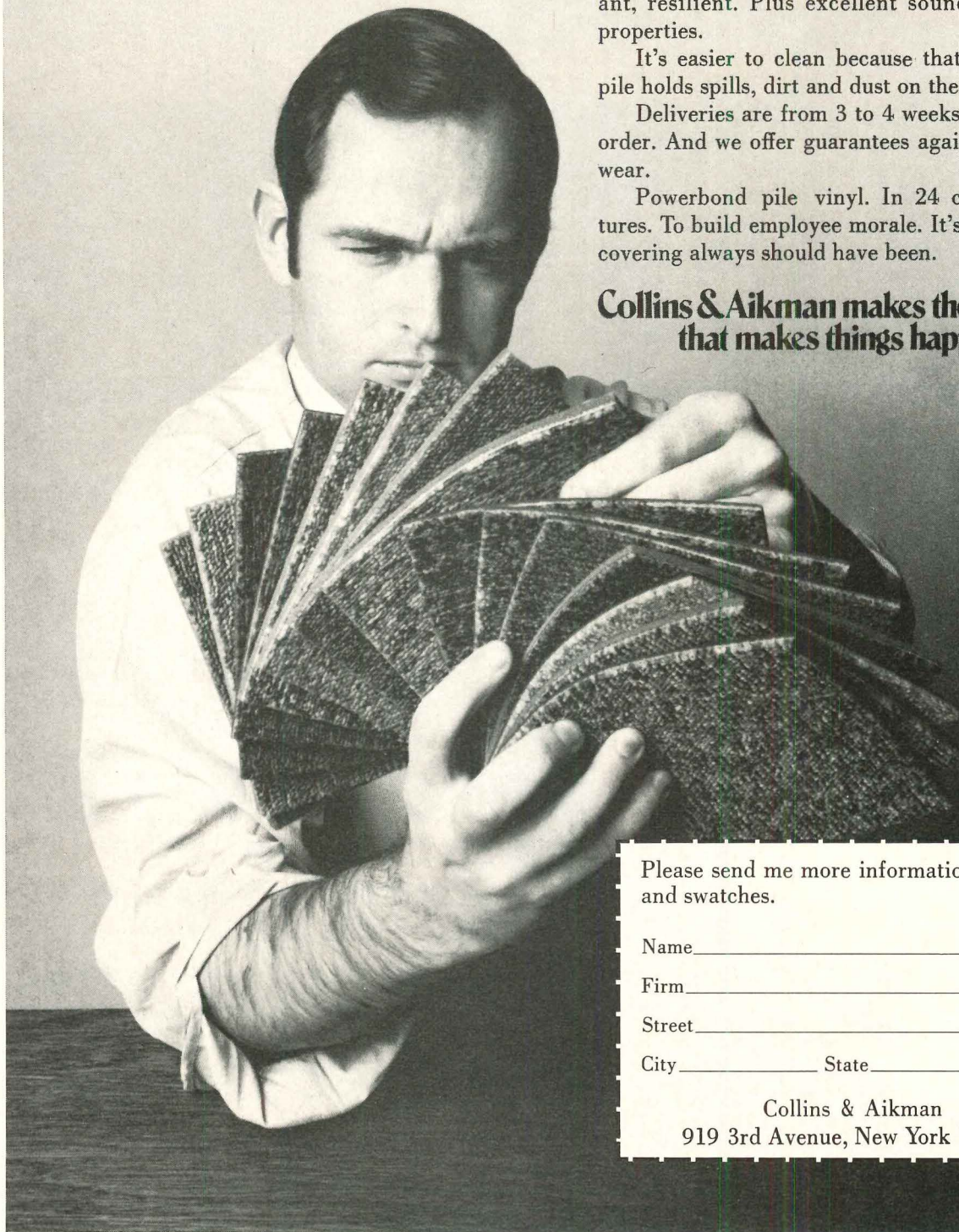
There are some pretty terrific other things going for Powerbond. Like a luxurious, super-dense pile of Anso<sup>™</sup> nylon by Allied Chemical that's extraordinarily rugged, abrasion resistant, resilient. Plus excellent sound deadening properties.

It's easier to clean because that super-dense pile holds spills, dirt and dust on the surface.

Deliveries are from 3 to 4 weeks from day of order. And we offer guarantees against excessive wear.

Powerbond pile vinyl. In 24 colors. 3 textures. To build employee morale. It's what a floor covering always should have been.

**Collins & Aikman makes the pile vinyl that makes things happen.<sup>®</sup>**



Please send me more information and swatches.

Name \_\_\_\_\_

Firm \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Collins & Aikman  
919 3rd Avenue, New York 10016

For more data, circle 75 on inquiry card

# Who keeps your building high and dry when it's six floors underground?

## Philip Carey.

With today's buildings going deeper and deeper underground, it's more important than ever to provide effective waterproofing and dampproofing protection.

And more difficult.

That's why Philip Carey has engineered waterproofing and dampproofing systems that assure you *maximum* protection against moisture penetration. And, only Philip Carey offers a combination of products—primers, adhesives, asbestos felts, glass and fabric membranes, and protection courses—that make the systems work.

Because conditions vary with job sites and structures, the problems are not always the same. So it's important to discuss your requirements with us—during the planning stage.

One of our Architectural Relations Managers is ready to assist you in determining the best system for your building, wherever you plan to put it. See our catalog in Sweet's Architectural File—7.9/Ca. Or return the coupon and it's yours. Philip Carey Company, Division of Panacorn Corporation, Cincinnati, Ohio 45215.

- Please send me your Waterproofing/Dampproofing catalog.
- Have an Architectural Relations Manager contact me.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

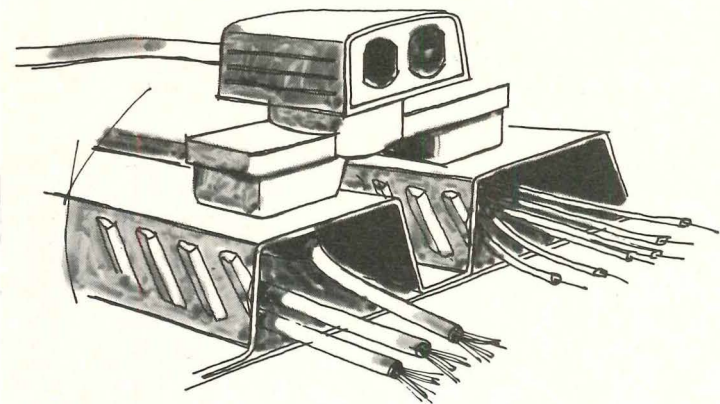
State \_\_\_\_\_ Zip \_\_\_\_\_



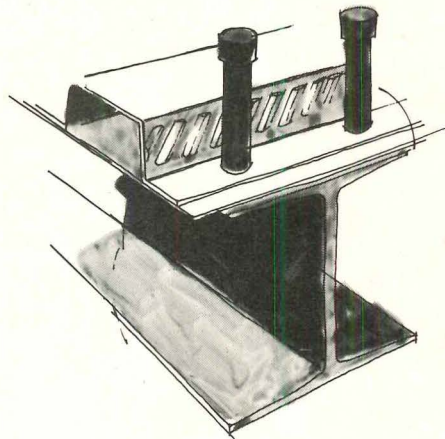
Dept. AR-771  
Philip Carey Company  
A Division of Panacorn  
Corporation  
Cincinnati, Ohio 45215

For more data, circle 77 on inquiry card

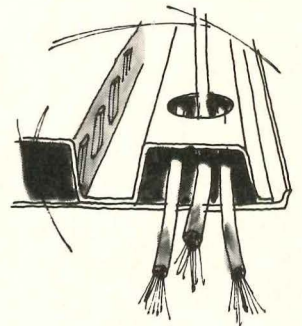




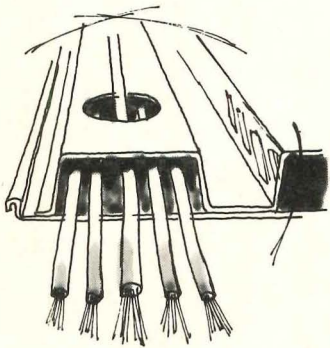
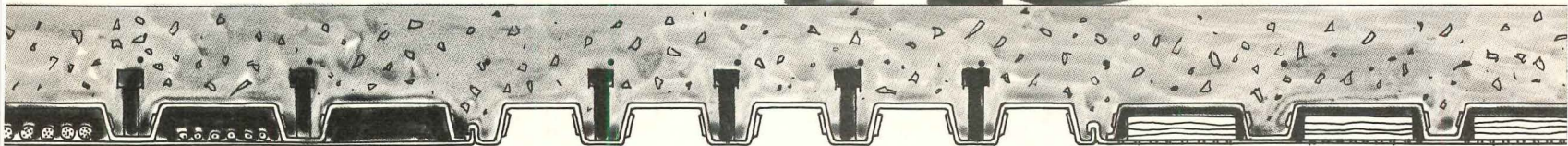
**PRE-SET INSERTS**  
 Eliminate costly drilling  
 and installation... one  
 fixture for both power  
 and telephone.



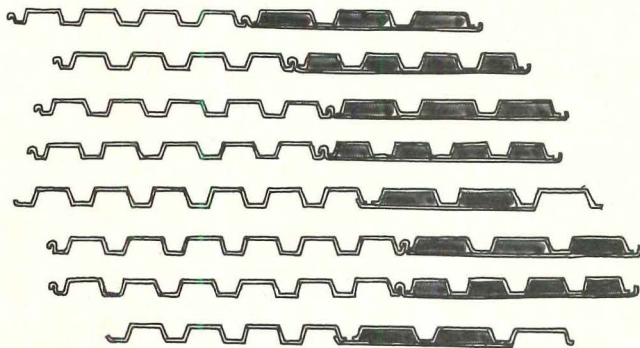
**COMPOSITE BEAM DESIGN**  
 Hi-Bond® lugs, special side  
 lock designs...comprehensive  
 design data and assistance.



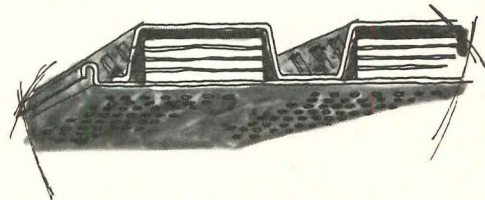
You'll find us in Sweet's  
 Architectural Catalog, Section 5.



**1-5/8" CELLUFLO**  
*Provides 66% more wiring space per cell... many more Celluflor profiles to choose from.*



**BLENDS MEET ANY MODULE**  
*Mix Celluflor® and non-cellular decks... provide economical electrification to meet any architectural module.*



**ACOUSTIFLOR™**  
*Doubles as structural floor and acoustical ceiling... eliminates separate suspended ceiling.*

*Whatever your floor system requirements, there's an Inland-Ryerson floor deck specialist to help you. He's backed by an engineering department known for its ingenuity and ready to provide assistance in testing and specialized design. To contact him, and for a copy of Catalog 21-1, write Inland-Ryerson Construction Products Company, Department G, 4033 W. Burnham St., Milwaukee, Wis. 53201.*



**INLAND** \*  
**RYERSON**

General Offices: Chicago, Illinois  
 A member of the **INLAND** steel family

For more data, circle 78 on inquiry card



## Introducing flame resistant carpet of NOMEX.®

Two reasons for carpet of NOMEX high-temperature-resistant nylon: fire and smoke. NOMEX\* fiber is permanently flame-resistant. Properly constructed carpet of NOMEX is rated Class A under the NFPA's Life Safety Code and exceeds all known and currently proposed flammability requirements. Carpet construction combining NOMEX

fiber with fire-resistant backings provides maximum protection against flame spread and smoke.

NOMEX has the lowest smoke generation of any carpet fiber on the market. And that protection is permanent. Both the flame and smoke resistance of NOMEX are inherent in the fiber. They'll last the life

of the carpet.

And that'll be a long life, because NOMEX is nylon-tough and long-wearing. It's highly resistant to stains and soiling — yet easy to clean. For more information, write: Du Pont Company, Room CRB 3156, Wilmington, Delaware 19898.

\*Du Pont registered trademark.



For more data, circle 79 on inquiry card



# UPDATE *A classified advertising section devoted to helping architects and engineers keep up to date on building product manufacturers.*



**TEE-M STORAGE SYSTEMS FOR APARTMENTS.** More economical than expensive trash hauling systems, Tee-M Containers are easy to operate. Standard Tee-M units are built for two to ten gallon cans or 55 gallon drums. The frame of the Tee-M container is constructed of heavy gauge

galvanized steel with the base supported by steel runners. This closure coils around a shaft containing a special mandrel-wound spring to assure fingertip opening and closing. See Sweet's J. G. Wilson Corp. Doors catalog for more information. Tee-M Systems are manufactured by the J. G. Wilson Corp., P.O. Box 599, Norfolk, Va. 23501

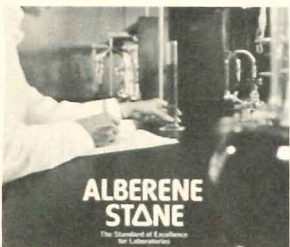
*For more data, circle 80 on inquiry card*



**OPEN OFFICES** at many famous companies are served by Tele-Power™ Poles which bring telephone and electrical services to deskside in far-from-wall locations. Tying into the overhead wiring system, poles require no underfloor work, are easy to move to new locations for area

rearrangement. Available in a variety of UL approved models, poles come in a choice of colors, wiring capacities, other features described in colorful brochure by The Wiremold Co.

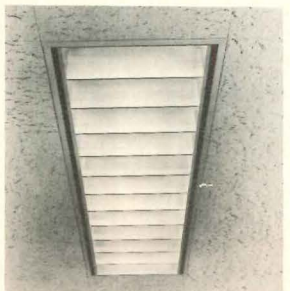
*For more data, circle 82 on inquiry card*



**ALBERENE STONE** Division of Georgia Marble Company has issued a new, full-color brochure on Alberene Stone for laboratory counter tops, sinks and fume hoods. The copiously illustrated brochure deals with the characteristics of the unique stone and its range of uses. There are many detail

drawings of both standard and special applications, including 12 sink designs that demonstrate the versatility of the material and its adaptability to unusual requirements. Architects involved in the highly specialized area of laboratory design will find the section of specifying particularly useful. Write Alberene Stone Div., Georgia Marble Company, Box 5000, Schuyler, Va. 22969.

*For more data, circle 84 on inquiry card*



New luminaire offers better visibility with less light. Lightolier has developed a new concept which departs from the trend to higher footcandles for achieving improved visibility. Titled HVP (High Visual Performance), the luminaire is designed to eliminate both glare and veiling reflections.

HVP provides better visibility and permits the use of fewer fixtures in some applications, with related savings in equipment, installation, and air conditioning costs. Write Lightolier, 346 Claremont Avenue, Jersey City, New Jersey 07305

*For more data, circle 85 on inquiry card*



**SURE KLEAN® WEATHER SEAL PRODUCT DATA:** Sure Klean® Weather Seal is a non-silicone, clear water-proofing and sealing product for masonry surfaces. Provides protection against atmospheric moisture and common environmental stains. For use on pre-cast and cast-in-place

concrete, block, clay brick, stone, etc. Sure Klean® Weather Seal lasts longer than silicone coatings, does not damage glass or interfere with adhesion of caulking materials. For complete literature contact your Sure Klean distributor or—The Process Solvent Company, Inc., P. O. Box 4437, Kansas City, Kansas 66104

*For more data, circle 81 on inquiry card*

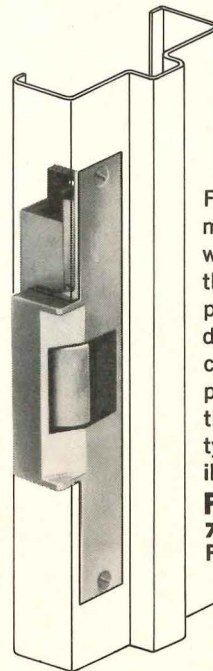
**H. H. ROBERTSON COMPANY** has introduced a new Q-Electrical fitting for use with cellular steel flooring. The Multi-Service Flush Outlet eliminates unsightly protruding electrical outlets. The units are installed at pre-determined modules beneath the floor surface before pouring of concrete fill. Activating and deactivating the Multi-Service Flush Outlets are clean, simple operations.

One Multi-Service Flush Outlet replaces three above-the-floor standard outlets. This labor-saving unit results in installation economies, while insuring adequate electrical capacity for all future requirements.

Additional information is available from H. H. Robertson Company, Two Gateway Center, Pittsburgh, Pa. 15222.

*For more data, circle 83 on inquiry card*

## the remote control DOOR RELEASE with a brain



Folger Adam electric strikes afford maximum security remote door control. Hidden within this sophisticated device are switches that send signals. One man at a central panel can monitor and control any number of doors and tell whether they are open or closed, locked or unlocked. Built with precision fits and heavy duty materials, there is a model for virtually every type of door lock. Write for illustrated application brochure.

**FOLGER ADAM CO.**  
700 Railroad St. • Joliet, Ill. 60434  
Phone: area 815/723-3438



UL LISTED  
BURGLARY PROTECTION DEVICE

*For more data, circle 86 on inquiry card*

# You probably know how easy it is to slope a roof with Tapered FOAMGLAS<sup>®</sup> insulation...

Tapered FOAMGLAS eliminates roof drainage problems by automatically putting a slope on a flat deck. The roofer simply places factory-tapered blocks in sequence and roofs over immediately. FOAMGLAS is an excellent base, because it's strong and dimensionally stable. It consists entirely of closed-cell glass, so it's waterproof, vapor-proof, and incombustible—and guaranteed to remain so for at least 20 years.



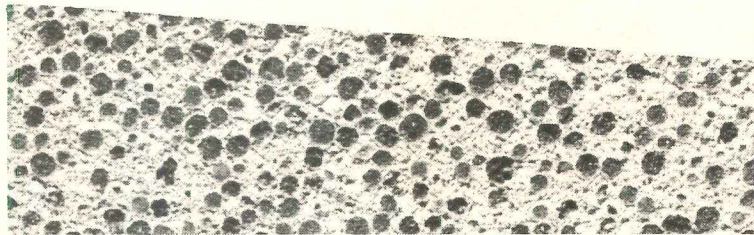
# It's just as easy with CIRF, our new insulating fill that acts like concrete.

New CELRAMIC® Insulating Roof Fill is another simple way to slope a roof. CIRF eliminates the traditional problems with insulating fills because its very low water-cement ratio of .62 (6-7 gallons of water per bag of cement) is about the same as for structural concrete.

CIRF gives you a strong, durable concrete base. Curing time is very fast—you can usually roof over in a couple of days. Shrinkage is less than 0.12%, and residual moisture is negligible.

CIRF's secret is in the aggregate—CELRAMIC Nodules made of closed-cell glass. They're nonabsorbent, inorganic and incombustible, which gives CIRF a two-hour rating.

FOAMGLAS or CIRF? We'll help you decide with men, samples and technical data. Write Pittsburgh Corning Corp., Dept. AR-71, One Gateway Center, Pittsburgh, Pa. 15222.



For more data, circle 87 on inquiry card

## RECORD IMPRESSIONS

A new service offering reprints, reports and back issues.

- ① THE DESIGN OF INTERIORS—June 1969  
16 pgs. 4-color .50 per copy
  - ② RECORD INTERIORS—January 1970  
24 pgs. 4-color .50 per copy
- ③ RECORD INTERIORS of 1971—January 1971  
20 pgs. 4-color .50 per copy
  - ④ MUSEUMS—BLDG. TYPES STUDY 398  
16 pgs. 4-color .50 per copy
- ⑤ CREATING CONSOLIDATED CLINICAL TECHNIQUES SPACES FOR AN EXPANDING ROLE IN HEALTH CARE  
8 pgs. 4-color .50 per copy
  - ⑥ DESIGN FOR MERCHANDISING  
16 pgs. 1.00 per copy
- ⑦ OPERATION BREAKTHROUGH—BLDG. TYPES STUDY  
Describing 22 industrialized building systems  
HUD picked as winners  
16 pgs. B&W .50 per copy
  - ⑧ AIRPORTS—BLDG. TYPES STUDY  
Master planning; Landside/airside traffic; terminal facilities; other design work  
16 pgs. B&W 1.00 per copy
- ⑨ AIR CONDITIONING: A NEW INTERPRETATION  
Updated reports from 1967, 1969, 1970  
64 pgs. 2-color softbound 4.95 per copy
  - ⑩ RECORD HOUSES 1968—2.00 per copy
- ⑪ RECORD HOUSES 1969—2.00 per copy
  - ⑫ RECORD HOUSES 1970—3.25 per copy
- ⑬ CAMPUS DESIGN FOR SUCF—AN ANALYSIS OF EXCELLENCE  
24 pgs. 2-color 1.00 per copy
  - ⑭ SEALING JOINTS: 1968 SPECIAL REPORT  
8 pgs. 2-color .50 per copy
- ⑮ BUILDINGS FOR A BROAD SPECTRUM OF HEALTH CARE  
16 pgs. B&W 1.00 per copy
  - ⑯ URBAN HOUSING:  
30 pgs. 2-color 1.00 per copy
- ⑰ ARCHITECTURE IN THE 1970's  
49 pgs. 2-color 1.00 per copy



Berven of California  
**Contract Carpet**  
begins but  
doesn't end  
in a tight loop!

see us in

**SWEET'S**  
ARCHITECTURAL  
OR INTERIOR  
DESIGN FILES



B E R V E N  
  
O F  
C A L I F O R N I A

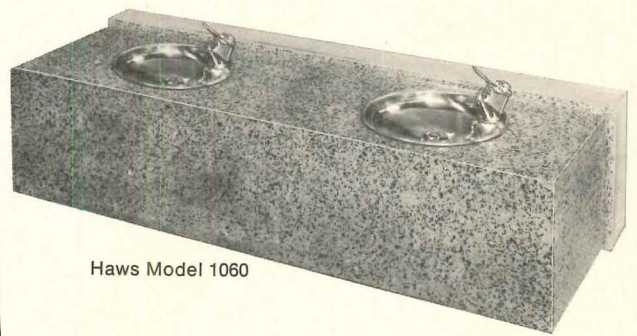
discover

*the  
beautiful way  
to be practical*

2600 Ventura Ave., Fresno, CA 93717  
SHOWROOMS PRINCIPAL CITIES OF U.S.

For more data, circle 89 on inquiry card

**Make yours a double...  
on the rocks.**



Haws Model 1060

Single receptor or double, our new fountain of precast stone has clean, simple lines, handy deck space, five colors in three distinctive finishes. For details and all the facts, write: **HAWS DRINKING FAUCET CO.**, 1441 Fourth St., Berkeley, Calif. 94710.



**DRINKING FOUNTAINS**

For more data, circle 90 on inquiry card

Record Impressions  
ARCHITECTURAL RECORD  
330 West 42nd Street  
New York, New York 10036  
Att. Joseph R. Wunk

No. of copies	No. of copies	No. of copies	No. of copies
① _____	④ _____	⑦ _____	⑩ _____
② _____	⑤ _____	⑧ _____	⑪ _____
③ _____	⑥ _____	⑨ _____	⑫ _____
			⑬ _____
			⑭ _____
			⑮ _____
			⑯ _____
			⑰ _____

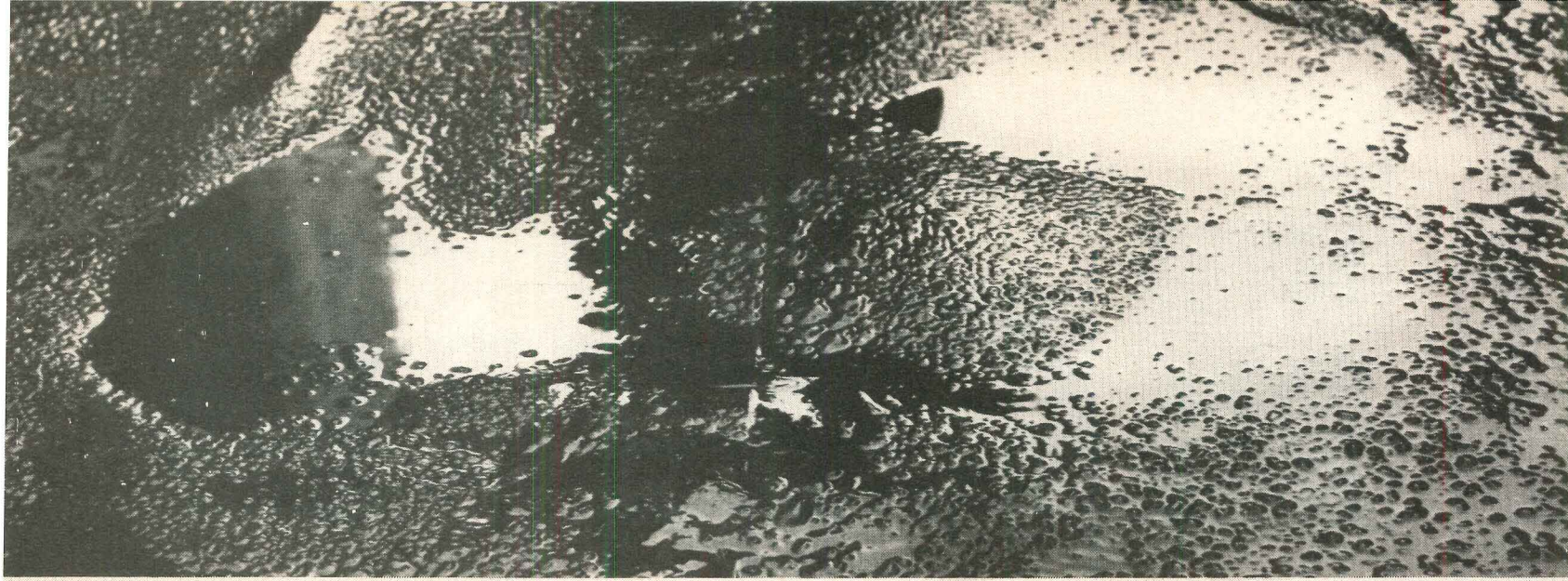
Enclosed is my check  Money order  for \$ \_\_\_\_\_

NAME \_\_\_\_\_

FIRM \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY/STATE \_\_\_\_\_ ZIP \_\_\_\_\_



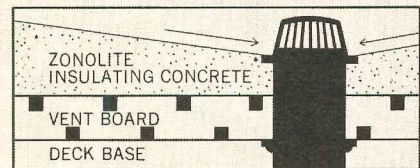
## **Ponding causes a whole deluge of problems. Zonolite roof deck systems turn them off.**

Zonolite® has roof decks for everything. For the slope-to-drains. For hurricanes. For protection against fire. And for insulation.

Roof deck systems certified by Grace-Zonolite. Available everywhere in the U.S. and Canada. Installed by approved applicators each and every month of the year.

Just talk to your local Zonolite representative. He'll be pleased to consult with you and come up with a recommendation that will satisfy all your design requirements.

Want to correct a roof deck problem. Or better yet, prevent one in the first place? Say the word!



# **ZONOLITE**

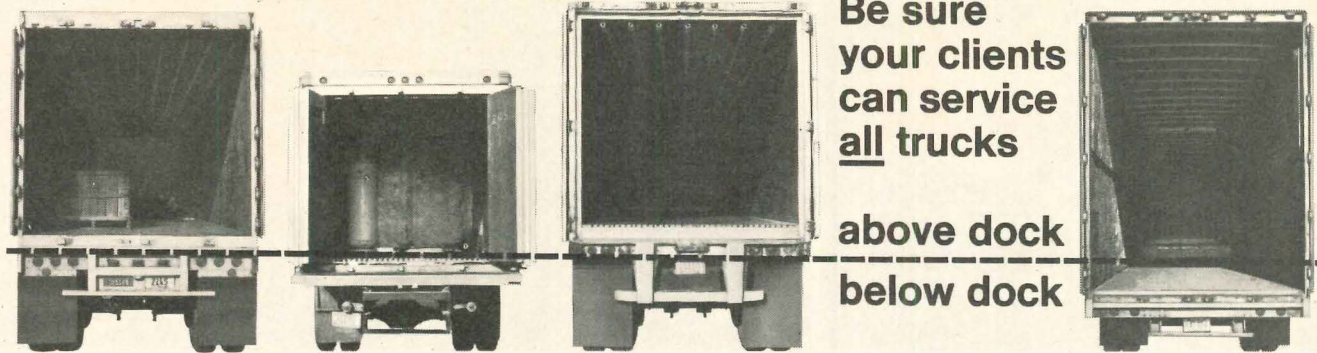
W. R. GRACE & CO.  
62 Whittemore Avenue  
Cambridge, Mass. 02140



*For more data, circle 92 on inquiry card*



# **Just say Grace.**



Be sure  
your clients  
can service  
all trucks

above dock  
below dock

## Specify Kelley permanent dockboards

Kelley Permanent Adjustable Dockboards easily accommodate trucks with bed heights from 36" to 60" above ground. Effectively link trucks and docks to provide smooth, efficient, safe loading and unloading under all conditions.

Kelley Dockboards give you access to the full width of trucks; have sufficient length for proper incline; won't slip or slide; han-

dle even the heaviest load; are always in place, ready to use.

Write or phone today for complete information. Ask for your copy of Modern Dock Design. It's the most authoritative source available on dock design. KELLEY COMPANY, INC., 6768 North Teutonia Avenue, Milwaukee, Wisconsin 53209, Phone: 414-352-1000.



55-363R

For more data, circle 93 on inquiry card

## Hetron® FRP resins are built-in fire fighters.

They are inherently fire retardant for fiberglass reinforced polyester building components.

Call Tony Fusco collect at 716-695-1600 today.

He'll tell you why Hetron FRP fire-retardant resins should be specified for safety in structural designs.

**or mail the coupon now**

Durez Division, Hooker Chemical Corporation,  
8071 Walck Road, North Tonawanda, N.Y. 14120.  
I want to know more about using Hetron in.....

- Please call. Tel. No. ....  
 Please send literature.

Name

Title


Company

Address

City

State

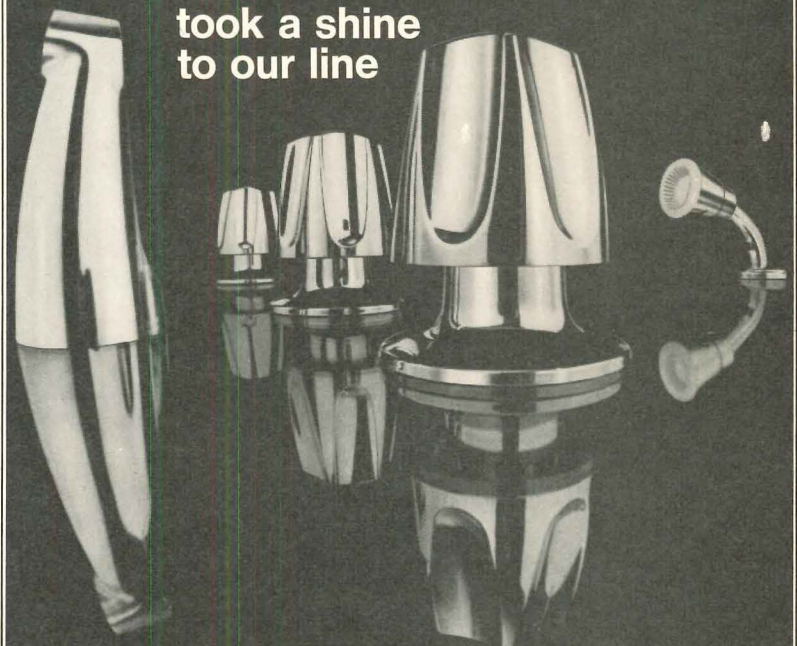
Zip

 **hooker**  
durez DIVISION  
Subsidiary of Occidental Petroleum Corporation

For more data, circle 94 on inquiry card

Verve by  PRICE PFISTER

the day  
Verve  
took a shine  
to our line

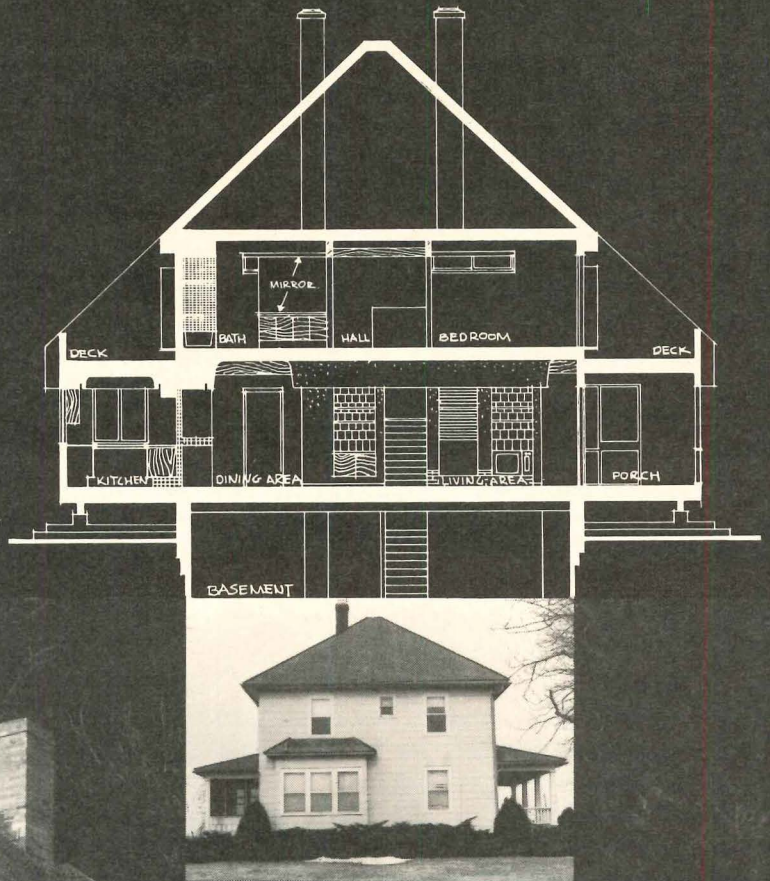


**PRICE PFISTER**

Manufacturers of Plumbing Brass • Pacoima, Calif. 91331  
• Subsidiary of Norris Industries •

For more data, circle 97 on inquiry card

Residence at Gardner, Kansas. Certigrade Shingles No. 1 Grade: roof, 24" Royals; walls, 16" Fivex.  
Architects: Seligson/Egger. Owner-contractor: Henry McGrew.



## Red cedar shingles restore some great planes to the Great Plains.

Owner Henry McGrew decided some rural renewal was in order after he bought this farmhouse near Kansas City. The building was structurally sound, so minimum cost turned the trick. Red cedar shingles for the expansive plane surfaces of the outside. New wall surfaces and a double-sided fireplace for the inside. New doors and windows for in-between.

Red cedar shingles were selected for

several reasons. Their natural beauty looks inviting from a distance — something that Kansas has lots of. Their rich texture complements a rustic environment. And their inherent warmth projects a sense of informality.

Red cedar is also practical. It is naturally insulative against the coldest Great Plains winter, the hottest summer. It withstands even hurricane

force winds. And it requires no maintenance for decades.

For your next remodeling project, specify the enduring beauty of red cedar Certigrade shingles or Certi-Split handsplit shakes. For details and money-saving application tips, write: 5510 White Building, Seattle, Wa. 98101. (In Canada: Suite 1500, 1055 West Hastings St., Vancouver 1, B.C.)


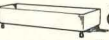






**Red Cedar Shingle & Handsplit Shake Bureau**

One of a series presented by members of the American Wood Council.

For more data, circle 95 on inquiry card

## Hey Nor-Lake:

"Doesn't anybody make refrigeration equipment with all-copper tubing  and an Automatic Defrost-Vaporizer  and heater wire strips and triple-seal gasketing   and 5 standard finishes  and self-supporting insulation  and adjustable legs?"

**We do.**

With 275 models, and orders shipped in 48 hours, we can get you whatever you want whenever you want it.



What else should I know about Nor-Lake Refrigeration equipment?

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

I need Refrigeration Equipment for \_\_\_\_\_



**NOR-LAKE INC.**

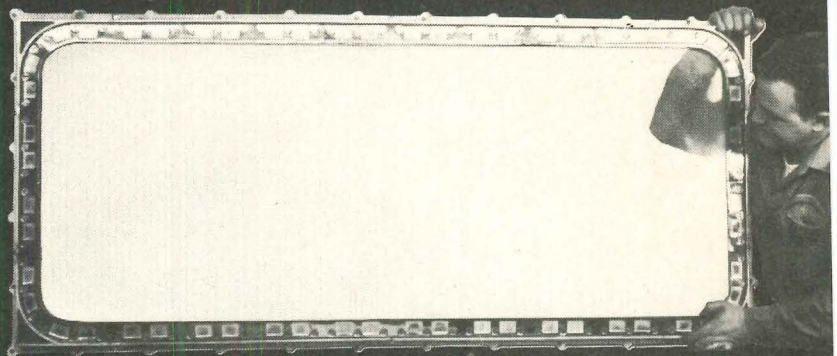
Second and Elm, Hudson, Wisconsin 54016

Phone: 715-386-2323 Dept. 3167

*The only thing we won't change is the quality.*

For more data, circle 96 on inquiry card

# Design your next pool with a KDI Paragon underwater window.



## You'll see the difference.

No other single piece of equipment multiplies the use of a pool like an underwater observation window. It is coveted by Coaches of swimming and diving; an invaluable aid for ballet and synchronized swimming instruction; a dramatic aid for photographers and a delight for audiences.

KDI Paragon underwater windows are precision-engineered of cast bronze with a polished chrome surface. Available with  $\frac{3}{4}$ " tempered polished plate glass or  $1\frac{1}{8}$ " safety glass. They fit flush in any plain or tiled concrete wall pool. Shipped fully assembled to the job site ready to install. Rectangular windows 2' x 2' to 3' x 5'. Also 18" round windows.

**Detailed Engineering Specification Sheet on Request**

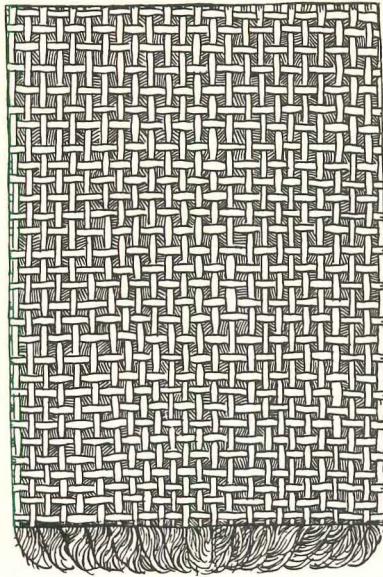
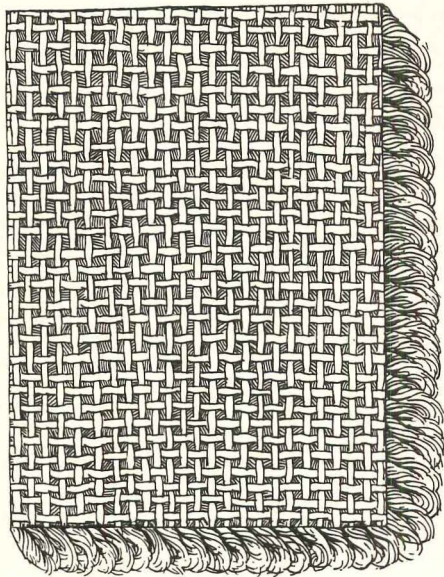
**KDI**

**KDI Paragon Inc.**  
**Mfrs. of Quality Deck & Underwater Equipment**  
**12 Paulding St.**  
**Pleasantville, N.Y. 10570**  
**914-769-6221**

**See Our Catalog in Sweets Architectural File**



# Only one anti-static carpet yarn is backed by a guarantee.



We guarantee that a carpet made with Zefstat® will reduce static below the level of human sensitivity for the useful life of the carpet or five years. Or else: we replace the entire carpet, free of all charges, including the cost of installation.

Dow Badische is the only carpet fiber producer to guarantee its product in end use. If anyone else could solve the problem of static as effectively as Dow Badische, how come they're not willing to put it into a written guarantee?

Maybe they're not as confident about theirs as we are of ours. And for good reason.

We originated and developed the concept of turning metal into soft textile yarns more than twenty years ago. And when the need for some form of anti-static control device for carpeting became evident, we applied our knowledge into making an anti-static fiber for carpets.

The result was Zefstat, a specially treated strip of aluminum we turned into a fine, soft textile yarn with the strength and other physical properties necessary for processing, wearability and cleaning.

It seems almost a shame that after we spent so much time and effort developing Zefstat, it should remain hidden. Because you can't see Zefstat in the finished product. Acrylic with modacrylic or nylon is blended with Zefstat anti-static metallic yarn during yarn production. Blended either by us or by you with our assistance. As little as two-percent of Zefstat, properly blended, can dissipate static electricity, almost as fast as it is generated, over an entire carpet.

Can we guarantee Zefstat for you?

Dow Badische Company, 350 Fifth Avenue, N.Y., N.Y. 10001.



Zefstat is a registered trademark of Dow Badische Company.

For more data, circle 98 on inquiry card

# ADVERTISING INDEX

Pre-filed catalogs of the manufacturers listed below are available in the 1971 Sweet's Catalog File as follows.

- A Architectural File (green)
- I Industrial Construction File (blue)
- L Light Construction File (yellow)
- D Interior Design File (black)

## A

- A-I Acme Highway Products Corp. .... 74
- A-I Aerofin Corp. .... 54
- Aiphone U.S.A. Inc. .... 32-6
- A-I Aluminum Co. of America .....16-17
- American Air Filter Co. .... 155
- A-I Anchor Post Products, Inc. .... 27
- A-L Andersen Corp. ....30-31
- A-I-L-D Armstrong Cork Co. ....2nd Cover—1
- A-I-L-D ASG Industries Inc. .... 77
- AVM Corporation Jamestown Products Division ..... 148

## B

- A Bally Case & Cooler, Inc. .... 75
- A-D Berven of California ..... 168
- A-I Bradley Washfountain Co. ....156A
- Burke Rubber ..... 32-3

## C

- Caradco Division of Scoville Mfg. Co. ....80-81
- Carter Day ..... 46
- Carey Mfg. Co., Philip ..... 161
- Cast Iron Soil Pipe Institute ..... 82
- A-I Celotex Corp. ....149 to 152
- ChemComp Cement ..... 132
- Collins & Aikman .....156D
- A-I COMBUSTION ENGINEERING—C-E Glass Division .....142-143
- Commercial Carpet Corporation ..... 154
- Copper Development Association, Inc. ....28-29
- A-I CPR Division The Upjohn Company .. 39

## D

- Day-Brite Lighting Div. of Emerson Electric .....130-131
- A-L-D Delta Faucet Company ..... 25
- A Dover Corp., Elevator Div. .... 2-3
- D Dow Badische Co. .... 175
- DuPont De Nemours & Co., Inc. E. I. .... 70
- A-I DuPont De Nemours & Co., Inc., E. I. Textile Fibers ..... 129
- DuPont Industrial Fibers ..... 164
- A DUREZ DIVISION—Hooker Chemical Corporation .....141, 172

## E

- Evans Products Company, Forest Products Division ..... 69

## F

- Fedders Corp. ....44-45, 60-61, 156B-156C
- Fife, Inc., Richard ..... 138
- Flintkote Co. .... 8
- Folger Adam Co. .... 165
- A Follansbee Steel Corp. .... 47

## G

- GAF Corp., Floor Products Division.. 79
- A-I-L General Electric Co. ....3rd Cover
- Georgia Marble Co. .... 165
- A-I-L-D Georgia-Pacific Corporation .....48-49
- Goodyear Tire & Rubber Co. ....52-53

## H

- A Houghton Elevator Company ..... 63
- A Haws Drinking Faucet Company ..... 168
- hc Products Co. ....169-170
- Hercules Incorporated ..... 83
- Honeywell ..... 147

## I

- A-I Inland-Ryerson Construction Products Co. ....162-163
- Itek Corp. .... 156
- A ITT Landmark Lighting Div. .... 24

## J

- Jamestown Products Division AVM Corporation ..... 148
- A-I-L-D Johns-Manville .....11, 40

## K

- A Kawneer Co. .... 6-7
- A KDI Paragon ..... 174
- A-I Kelley Co., Inc. .... 172
- Kemiko Inc. .... 137
- A-I Kinnear Corp. .... 37
- Knight Mfg. Co. .... 138
- Kohler Co.—Electric Plant Standby ... 50
- A-I-L Koppers Company .....65 to 68
- K-S-H, Inc. .... 78

## L

- A-I-L-D Libbey-Owens-Ford Co. ....157 to 160
- Lightolier, Inc. .... 165
- A Lyon Metal Products, Inc. .... 15

## M

- McQuay, Inc. .... 26

## N

- National Electrical Contractors Association ..... 14
- A Nor-Lake, Inc. .... 174

## O

- A Otis Elevator Co. .... 76
- A-I Overhead Door Corp. ....18-19

## P

- Pella Rolscreen Co. ....139-140
- A-I Pittsburgh Corning Corp. ....36, 166-167
- PPG INDUSTRIES INC.—Coatings & Resins ..... 32
- PPG INDUSTRIES INC. .... 136
- A-L-D PPG INDUSTRIES, INC., Commercial Glass ..... 12-13
- Price Pfister Div. .... 172
- Process Solvent Co., Inc. The ..... 165

## R

- Ralph Wilson Plastics .....20-21
- A-L Red Cedar Shingle & Handsplit Shake Bureau ..... 173
- A-I Robertson Co., H. H. ....22-23, 165
- Royalty Designs of Florida ..... 154
- Ruberoid—GAF Corp. .... 79
- RUSSWIN, Div. Emhart Corp. .... 71

## S

- St. Joe Minerals Corporation ..... 51
- A-I Silbrico Corp. .... 54
- Sloan Valve Company .....4th Cover
- Smith & Co., Inc., Elwin G ..... 145
- A Soss Mfg. Co. .... 138
- Square D Company ..... 59
- A Standard Conveyor Co. .... 154
- D Steelcase Inc. .... 84
- Sweet's Catalog Service ..... 177
- A-I-D Symons Mfg. Co. .... 74

## T

- A-I Taylor Co., The Halsey W. .... 153
- A-I Thiokol Chemical Corp. .... 146
- Tyler Pipe Industries ..... 144

## W

- Walker/Parkersburg Div. of Textron Inc. ....72-73
- Wells Fargo Bank .....32-1
- A-D Westinghouse Electric Corp. .... 38
- A-I Wheeling Corrugating Co. ....134-135
- Wilson Corp., J. G. .... 165
- Wiremold Co., The ..... 165

## Z

- Zonolite Division ..... 171

## ARCHITECTURAL RECORD

McGraw-Hill, Inc., 330 West 42nd Street, New York, New York 10036  
Advertising Sales Mgr.: Louis F. Kutscher (212) 971-2838  
Eastern Sales Mgr.: Donald T. Lock (212) 971-3583  
Central Sales Mgr.: Robert G. Kliesch (215) 568-6161  
Advertising Services Mgr.: Joseph R. Wunk (212) 971-2793  
Marketing Services Mgr.: Elizabeth Hayman (212) 971-2858  
Classified Advertising: (212) 971-2557

### District Offices:

**Atlanta** 30309  
Edward G. Graves, 1375 Peachtree St., N.E., (404) 892-2868

**Boston** 02116  
607 Boylston St., (617) 262-1160

**Chicago** 60611  
Robert T. Franden, Edward R. Novak, 645 N. Michigan Ave.  
(312) 664-5800

**Cleveland** 44113  
Willis W. Ingersoll, 55 Public Square, (216) 781-7000

**Dallas** 75201  
Angus A. Macaulay, 1340 Republic National Bank Building  
(214) 747-9721

**Denver** 80202  
Richard W. Powers, 1700 Broadway, (303) 266-3863

**Detroit** 48226  
Richard D. Thielmann, 2600 Penobscot Bldg., (313) 962-1793

**Houston** 77002  
Angus A. Macaulay, 2270 Humble Building, (713) 224-8381

**Los Angeles** 90017  
Robert L. Clark, 1125 W. Sixth St., (213) 482-5450

**New York** 10036  
Donald T. Lock  
Ted Rzempoluch, 330 W. 42nd St., (212) 971-3583

**Philadelphia** 19103  
Robert G. Kliesch, George T. Broskey, 6 Penn Center Plaza  
(215) 568-6161

**Pittsburgh** 15222  
Edward C. Weil, 4 Gateway Center, (412) 391-1314

**St. Louis** 63011  
Richard Grater, Manchester Rd., (314) 227-1600

**San Francisco** 94111  
Richard R. Butera, 425 Battery Street (415) 362-4600

### Overseas Offices:

**Brussels**  
Galerie Porte de Namur, 22-26, Chaussee de Wavre  
1050 Brussels, Belgium

**Frankfurt/Main**  
Elsa-Brandstroen Str. 2, Frankfurt/Main, Germany

**London**  
34 Dover Street, London W.1, England

**Milan**  
Via Baracchini No. 1, Milan, Italy

**Paris**  
17, rue Georges Bizet, 75 Paris 16°, France

**Tokyo**  
2-5, 3-chome, Kasumigaseki, Chiyoda-ku, Tokyo, Japan

# Your 1971 Sweet's File

... features three major innovations to speed  
and simplify your product search:

1. Organization within the Uniform System
2. Inclusion of a new Product Index carried  
in each volume of the File
3. Newly designed File graphics facilitating  
quick search of more product areas

*Result:* More usefulness, and more ease-of-use  
... of every catalog made available to you  
year-'round by the manufacturers represented  
in your new Sweet's File!

**Sweet's  
Architectural  
Catalog File**



McGraw-Hill Information Systems Company  
330 W. 42nd Street, New York, N.Y. 10036

# CLASSIFIED SECTION

## REMEMBER GOOD NEIGHBORS?

### BECKLEY STILL HAS THEM!



Yes, Beckley folks are friendly folks—folks who like to know their neighbors. You will receive a royal welcome if you decide to come to Beckley, where the population is increasing year by year. And, there are many other advantages of our Appalachian highland location—cool, clear air . . . pure water . . . nearby parks, woodlands, forests offering outdoor recreation only minutes away . . . picnicking, swimming, hiking, boating, fishing, campsites . . . and the East's newest and largest State park, 4,000 acre Pipestem, is only 45 minutes from us. Beckley will soon be on two interstates, East-West I-64 and North-South I-77; not to mention Appalachian Corridor "L" tapping I-79 to the north at Sutton.

Come Join Us! Leave the crowded canyons and plant your roots in Beckley.

Leslie C. Gates and Associates, a rapidly expanding firm, has immediate openings for registered and non-registered architects with a minimum of three years' experience. Pleasant working conditions, comparable salaries, generous fringe benefits.

Enjoy good neighbors again! Write us your interests and qualifications.

## LESLIE C. GATES AND ASSOCIATES

POST OFFICE DRAWER AF, BECKLEY, WEST VIRGINIA 25801 AN EQUAL OPPORTUNITY EMPLOYER

### ARCHITECT

Midwest electric utility seeks architect who enjoys design of industrial and office structures to work with variety of design problems in an expanding industrial system. Extensive experience not required but applicant must have degree in architecture. Send detailed resume of education, experience and salary requirements to:

P-4346, Architectural Record  
Class. Adv. Dept., P.O. Box 12, N.Y., N.Y.  
10036

### MANUFACTURER'S REPRESENTATIVES FOR ARCHITECTURAL GLASS MARKET

Top rated glass company is expanding its architectural products division full force. Only persons or companies with the highest qualifications will be considered. Must have proven track record selling compatible lines. Please send background information, area covered and an outline of your capabilities.

P-4384, Architectural Record  
Class. Adv. Dept., P.O. Box 12, N.Y., N.Y.  
10036

### POSITIONS VACANT

**Architects-Architectural/Engineering Firm** ranking in top ENR 500 with excellent future growth potential and individual advancement opportunities needs qualified candidates to fill challenging positions. Must be design oriented towards medical, educational, commercial and industrial facilities. Liberal benefits package. Within one hour of a variety of sports and cultural activities. Please send confidential resume including salary requirements to P-3514, Architectural Record.

**Project Representative**—A growing architectural firm seeks a project representative for a \$10 million hospital project in Wisconsin. 1½ months indoctrination in architect's office in Iowa starting about September 15, 1971, 30 to 36 months construction time at job site. Applicant to have minimum 10 years experience in building construction, architect's or engineer's registration, or both, to be in good physical condition and willing to locate to job site for period of construction. Must have decision making and administrative abilities to work with separate prime contractors. Furnish three personal references and three technical references together with other pertinent data when making application. Address application to Clifford N. Green, Architects. Hansen Lind Meyer, 116 South Linn Street, Iowa City, Iowa 52240, 319-338-7555.

**Sales Executive Wanted**—top marketing post, architectural division medium-size national company with leading product line. Sales, technical knowledge architectural field essential. Marketing background windows, curtain walls, window coverings, construction glass or allied products valuable. Send resume in confidence. P-4324, Architectural Record.

**Large Midwestern Architectural Firm** requesting applications for delineator to work with design team. Finished tempera presentations frequently required. High degree of skill in all mediums desirable. Strong architectural and graphics background desirable. P-4298, Architectural Record.

### EMPLOYMENT SERVICE

**Architects, Engineers, Designers, Urban Planning,** and related professionals. Our client companies have retained us for their continuing professional needs. All search fees and employment expenses paid by hiring companies. Please forward resume in confidence including salary information. We will respond within 72 hours. Everett Kelley Associates, Inc., Search Division, 20th Floor, 121 So. Broad Street, Phila. 19107

### SPECIAL SERVICES

**Public relations/marketing:** Is your architectural practice growing? Are you well known and highly regarded in your market? Is the best of your work published on a continuing basis? Excluding staff and clients, are at least 200 people currently familiar with your office and its work? Does your brochure represent you as well as your most successful project? If you answer "no" to any of these questions, professional public relations/marketing service may be of immense value to you. We would be pleased to discuss your growth plans. David S. Wachsman Associates, Inc., 51 East 42nd St., New York, N.Y. 10017 (212) 687-1196.

### PROFESSIONAL SERVICES

#### MOORE SURVEY & MAPPING CORP.

##### Engineers-Surveyors

Geodesy • Photogrammetry • Property Surveys  
Aerial Photography • Construction Layout  
29 Grafton Circle, Shrewsbury, Mass 01545  
617-844-4181

#### CONSTRUCTION COST CONTROL, INC.

##### Consulting Engineers

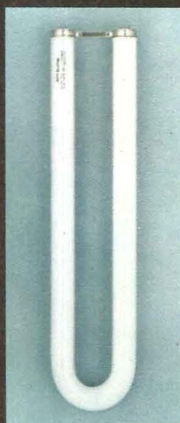
Construction Management • Preliminary Estimates  
Working Drawing Estimates • CPM Scheduling  
6355 N. Broadway Chicago, Ill. 60626  
312-338-6060

#### CONSTRUCTION ESTIMATES

Total Estimating services, anywhere USA  
Architectural—Mechanical—Electrical  
15 years National Experience—Quantity  
Surveys & Costing Preliminaries—Finals  
—Change Orders. JACK ROTE, inc., 1320  
N.W. 190 St., Miami, Fl. 33169, Phone:  
305-621-7409.



## The University of Virginia Architectural School practices what it teaches in lighting.



In the school's Lighting Demonstration Center, students study and experiment with lighting and light sources. In their classrooms, drafting rooms and design areas, students see effective lighting techniques in action. It's the practical application by the school of what it teaches about proper lighting and its effects.

At night, students see for themselves how General Electric Mod-U-Line\* fluorescents not only enhance interior decor, but add to the aesthetic qualities of the building itself. And night or day, they are surrounded by the advantages of Mod-U-Line applications throughout the school: Space-saving ability—either 2 or 3 will fit into a 2' x 2' fixture; compact leg spacing that gives architects, engineers and owners

design flexibility; extra strength from heavier glass and braced ends; extra brightness and better maintenance of brightness through life; greater ease in storing, handling, installing and maintaining.

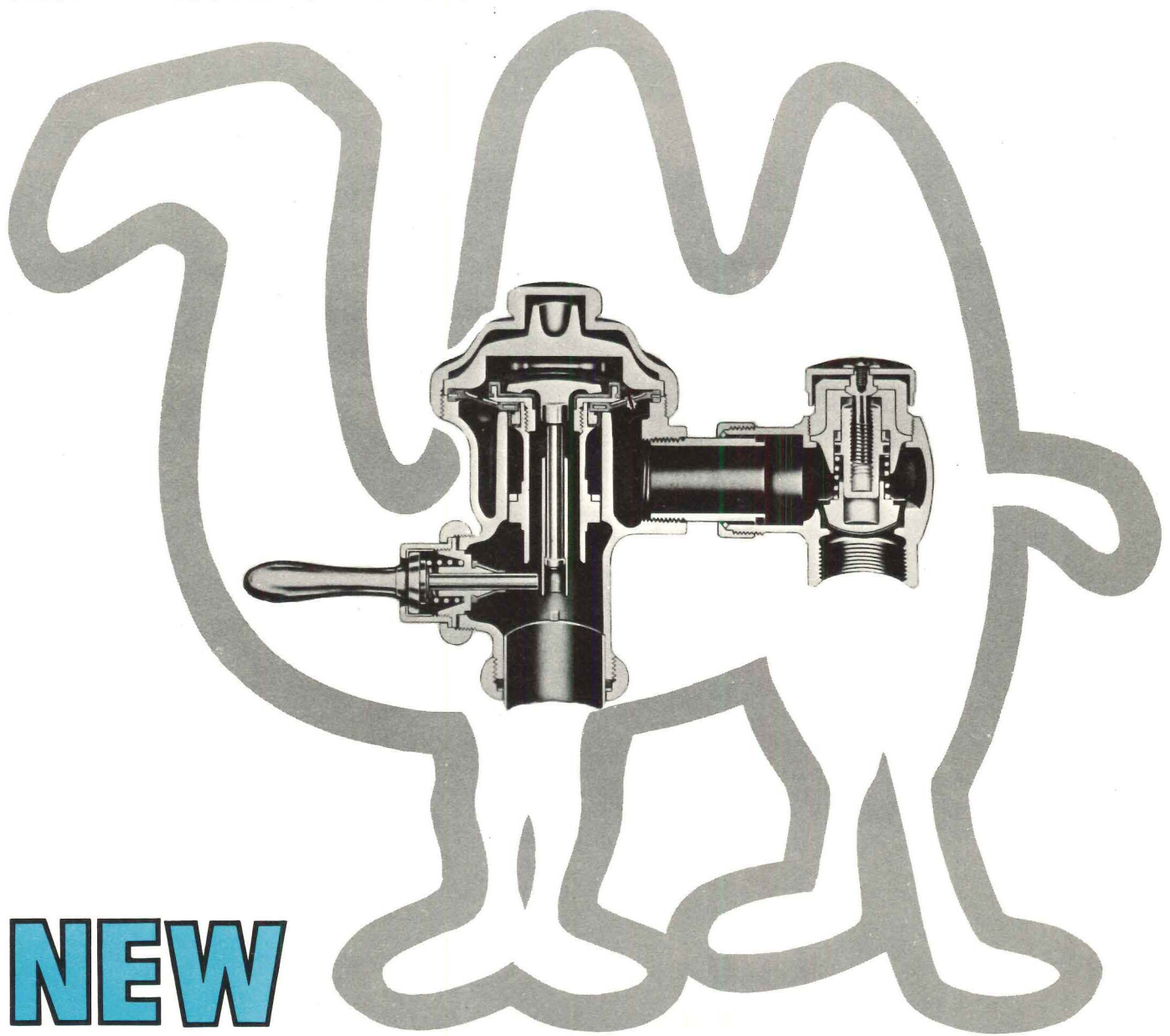
In short, the features of this compact, symmetrical lighting fixture make it ideal for today's modular design concepts. If you agree, you'll want to see your GE Agent about Mod-U-Line—and all GE lamps. Or write to us... General Electric Co., Large Lamp Dept., C-004, Nela Park, Cleveland, Ohio 44112.

\*Trademark of the General Electric Company (Mod-U-Line made in West Germany).

GENERAL  ELECTRIC

*For more data, circle 99 on inquiry card*

ANOTHER PLUS FEATURE OF SLOAN FLUSH VALVES...



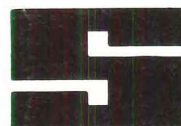
# NEW BAK-CHEK

**retains water at normal line pressure  
to protect against supply line pressure failures**

Our "camel" has a new way of storing water. By spring-loading the seat plug of the Sloan Control Stop, we now retain water at normal line pressure in the *control stop* and in the *flush valve* when not in use.

This new feature, which we call Bak-Chek, means simply that the retained water is *held at normal* line pressure regardless of a significant drop or loss of pressure in the supply line—even if a negative pressure develops. This prevents spontaneous flushing or continuous running flush valves when normal supply line pressure is again restored.

Bak-Chek is incorporated in all new Sloan Flush Valves as standard equipment—no extra charge. It is but one of seven flush valve features introduced by Sloan within the past eighteen months—seven more reasons for Sloan's continuing flush valve leadership. For the best in flush valves specify and insist on Sloan—most people do.



**SLOAN VALVE COMPANY**

4300 West Lake Street • Chicago, Illinois 60624

For more data, circle 100 on inquiry card