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BUILDING TYPES STUDY: AIRPORTS

FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

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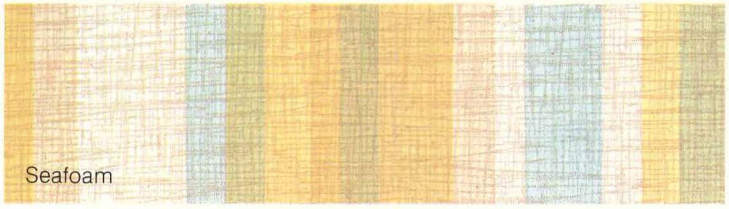

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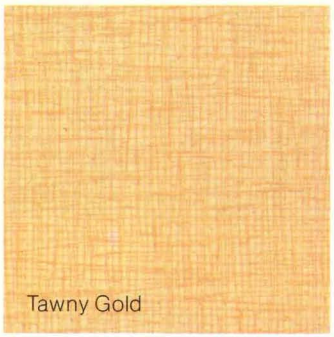

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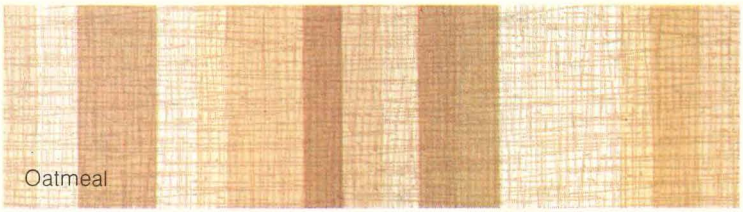

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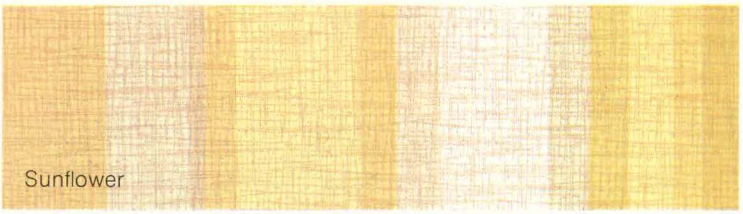

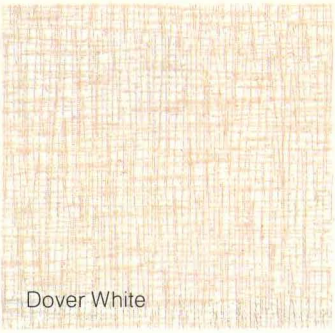

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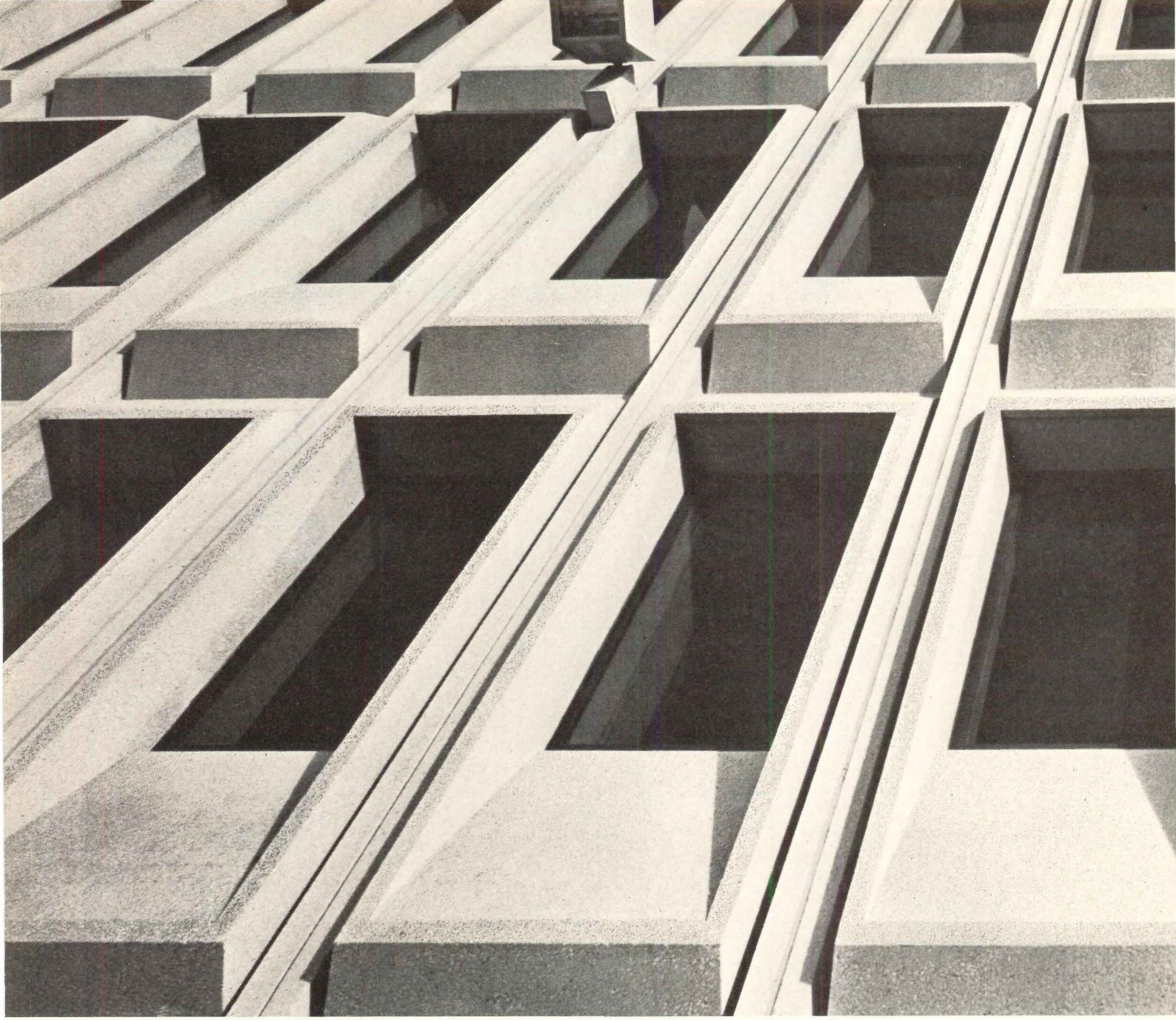

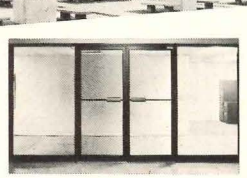

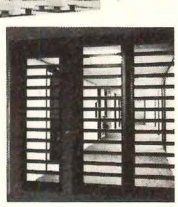

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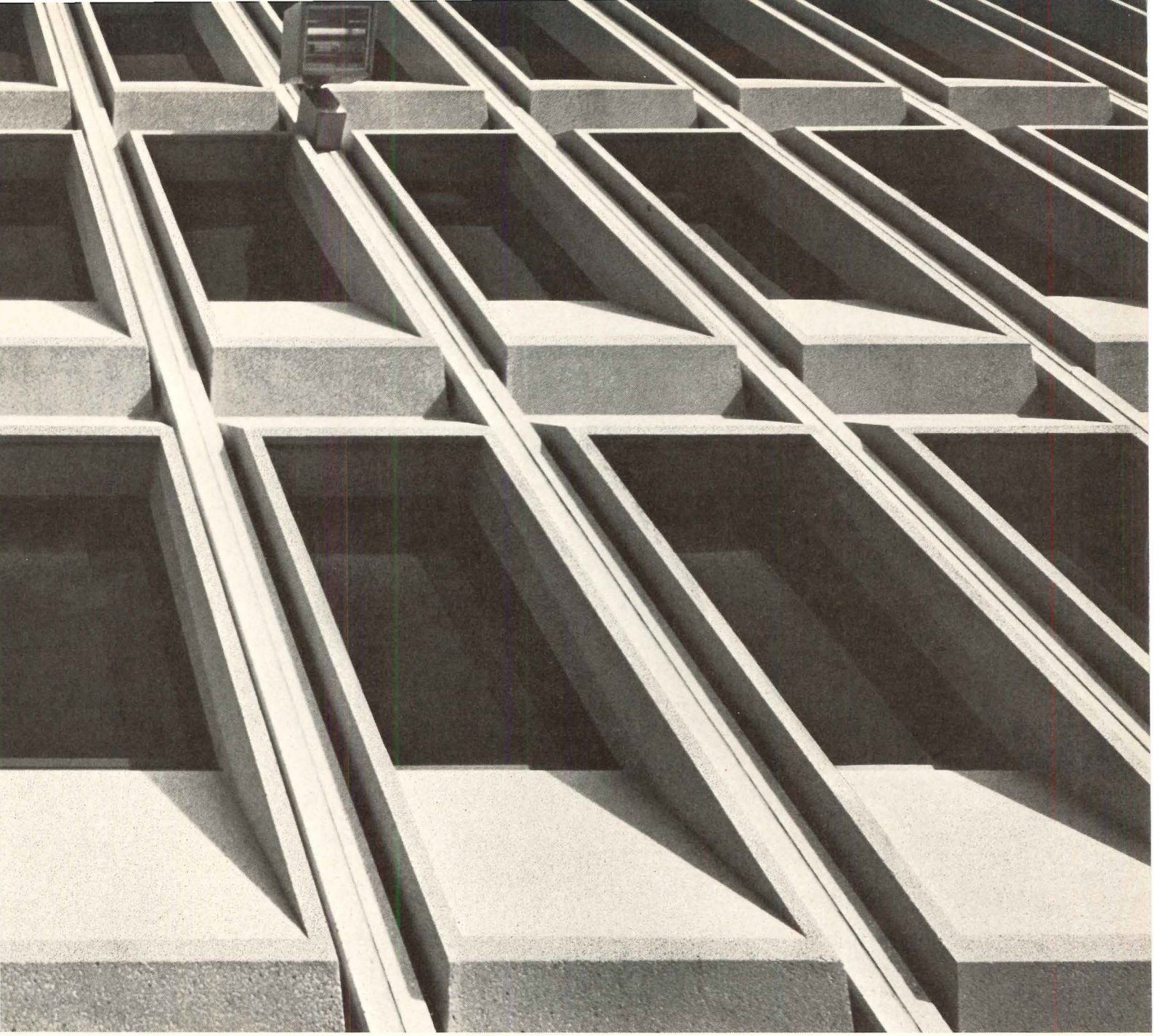

Essex County Technical Careers Center, Newark, N.J. Robert Moran, Architect

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Letters to the editor

I have been ruminating off and on for several months about the June issue of ARCHITECTURAL RECORD and its treatment of the Venturi and Rauch New Haven fire station.

Venturi is really a theoretician, not an architect. His buildings and designs can barely exist as architecture without an elaborate defense and discussion of their allusions. This is not to slander understanding architectural allusions and connotations, but an accumulation of details does not constitute architecture. Venturi's buildings don't work as spaces or masses, merely as witty details that reward the initiated with a glow of recognition. Venturi doesn't respect the other buildings in the neighborhood; he camps them—a nasty put-down that begs every question it raises. (As a contrast, the June issue provides a sensitive example of a contemporary response respecting its context in an old structure—Kajima International's Bank of Tokyo.) The New Haven Fire Station, along with many of Venturi's other works, mimics what's around it. Where is the imagination to create a building of its own time that shows sensitivity to the already built environment? The vitality that Venturi espouses ("Main Street was almost right") would never be furthered by his own work. Such diversity and complexity are dependent on the continual and gradual evolution of more storefronts, institutions and residences that speak from their own age, not the derivative high-camp rehashing of 1930s Art Deco and 1950s blandism. (You can't go home again, you know.)

I think Venturi often gets himself off this and other hooks in a clever but useless way. He makes use of a red herring (the same one Frank Gehry raises) by setting up a false problem—is it pretty or is it ugly? (Venturi never directly expresses this question, but he and the criticism about him certainly suggest it.) What serious architect could favor mere pretty—that's for teeny-boppers who want Bonnie Bell complexions. Ugly, some critics suggest, is at least strong and uncompromising. This ridiculous question takes our attention away from the real issues, such as: what kind of environment is Venturi creating for people to live in? And if '50s institutionalism bored, depressed, and alienated us then, how can it do anything more for us now? Architectural critics seem absolutely demolished when Venturi meets their potential criticisms head-on by declaring that he meant the building to be ordinary (the Yale mathematics building competition, for instance). Richard L. Miller uses this non-idea when he says the fire house avoids dullness by celebrating it; but how can the scale of dullness alleviate it? Do we need more ordinary buildings? When general contractors produce buildings like Venturi's, they're rightly and roundly criticized; the fact that such work has been produced by a well-known architect and produced deliberately doesn't make it any better. The question of infill in an existing contract is a difficult one, but Venturi's response can only be interpreted as a slap in the face of his neighbors. Looking at his work is a lot like sitting in a '30s movie while people laugh at the wrong places because it's so quaint. A building can respect its neighbors without being ordinary or dull, and without mimicking them—if its designer has some imagination. We really can't let the argument that it's supposed to be ugly, ordinary, or alienating prohibit us from criticizing it.

I was particularly bothered by the false dichotomies created by Robert L. Miller in his article on Venturi and Rauch. Much of his discussion on urban renewal's failings is sound, but to pit the inclusivists and preservationists against the Miesians and urban renewalists is to establish connections that were never there. Miller seems to confuse the Miesians' drive for cleanness of line and austerity of detail *within the building* with the redevelopment agency's satisfaction at acres of cleared rubble. Most of the rebuilt ghetto is definitely not Miesian—that style was reserved for wealthy corporate headquarters and residences of the rich. The Miesians certainly have their faults, but they're not guilty of urban renewal.

Miller is at his most accurate about Venturi when he discusses the strongly graphic and Pop images of Venturi's work. Venturi can control two-dimensional graphics in a flashy, right-now way, but he can't really create spaces. And what does it say of an architect that he's strongest in two dimensions? Even his graphics have severe limitations, since they're mostly Pop and photorealism and about as rich and subtle as Andy Warhol.

We need to get past the Milton Glaser cover to Venturi and think hard about what he's really designed and the spaces he's created—there's not much there.

Toby Reed
San Francisco

A recent article on Jack London Village, Oakland, California, listed Larry Carducci as the First Phase Landscape Architect. Mr. Carducci's office prepared plans but they were not used, and he was terminated on the project. This office was retained by the developer, Specialty Restaurant Corporation, to design and provide supervision from the ground up for the Jack London Village. I sincerely hope that this office will be given credit as the Landscape Architect in the form of a correction.

Robert E. Truskowski AILA
Landscape Architects Planners
Laguna Beach, California

Calendar

OCTOBER

13-30 Fourth International Conference of Women Architects, "Cultural Identity in Architecture," delivered by L'Union Internationale des Femmes Architectes, Iran. Contact: Mr. James Scheeler, FAIA, Deputy Executive Vice President, The American Institute of Architects, 1735 New York Ave., N.W., Washington, D.C. 20006.

17-20 Eastern Workshops and Exhibits, 1976 International Security Conference, New York Hilton Hotel, New York City. Contact: International Security Conference, 2639 S. LaCienega Blvd., Los Angeles, Calif. 90034.

27-31 Conference and trade show, Energysave '76, Currigan Exhibition Hall, Denver. Designed and conducted by the University of Denver Research Institute, (DRI), cosponsors Winterpark Tradeshow, Inc. Contact: DRI, University of Denver, Denver, Colo. 80210.

28-29 Energy Management in Store Lighting Conference, General Electric's Lighting Institute, Nela Park. Contact: Manager, Lighting Education, GE Company, Nela Park, Cleveland, Ohio 44112.

28-29 New York University's School of Continuing Education seminar "Energy Conservation in Plants," Houston. Contact: Ms. Heidi E. Kaplan, Dept. 14NR, New York Management Center, 360 Lexington Ave., New York, N.Y. 10017.

NOVEMBER

8-9 Conference, "Six Basic Ways to Finance Downtown Recycling," sponsored by the Downtown Research and Development Center, Hotel Warwick, New York City. Contact: Susan Eppley, Coordinator, Downtown Research and Development Center, 555 Madison Ave., New York, N.Y. 10022.

9-10 Construction Management Seminar, Chicago O'Hare/Kennedy Holiday Inn, sponsored by Construction Management World. Contact: W. Marvin Ferrell, Construction Management World, P.O. Box 1, Westerville, Ohio 43081.

ARCHITECTURAL RECORD (Comb
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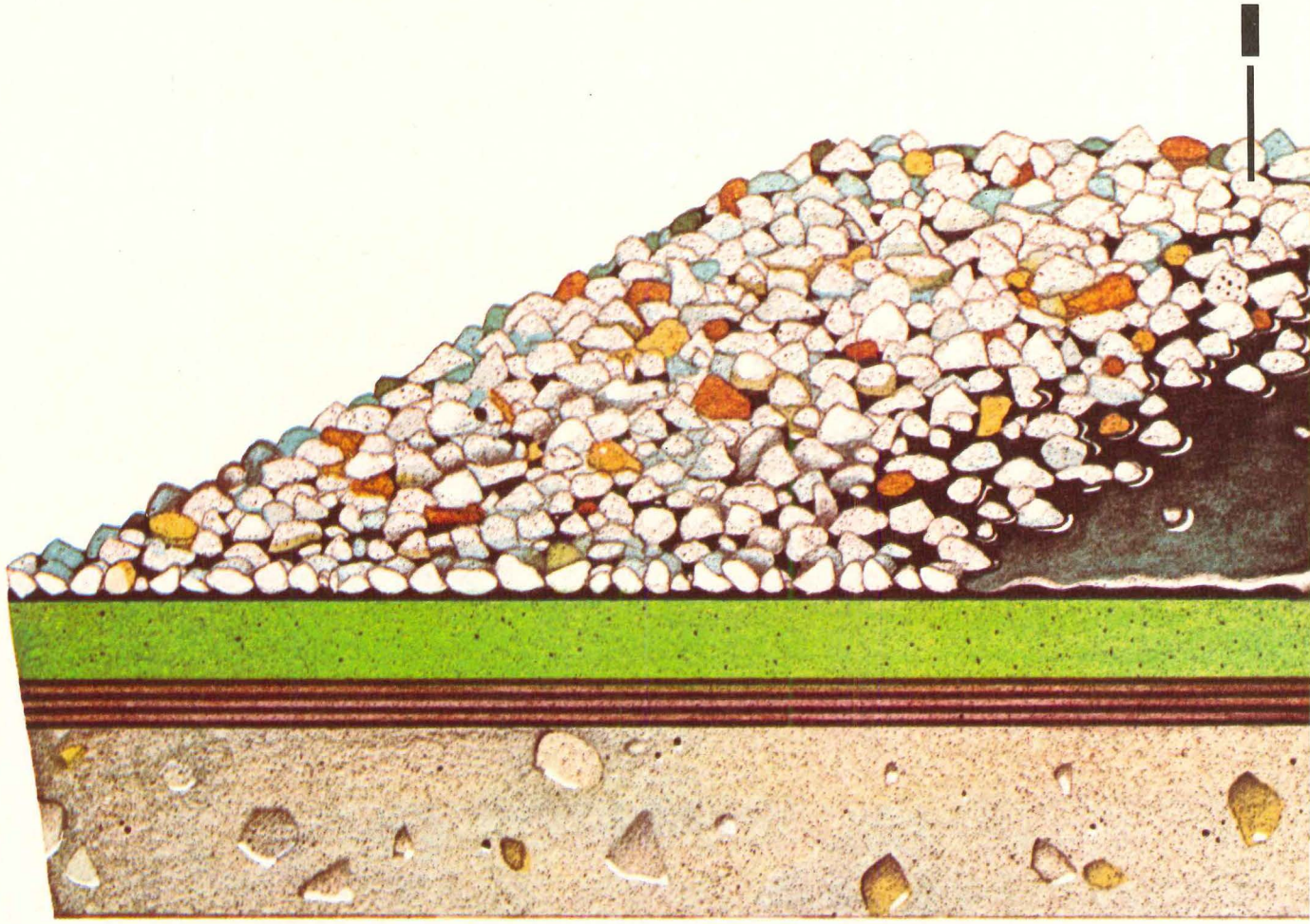

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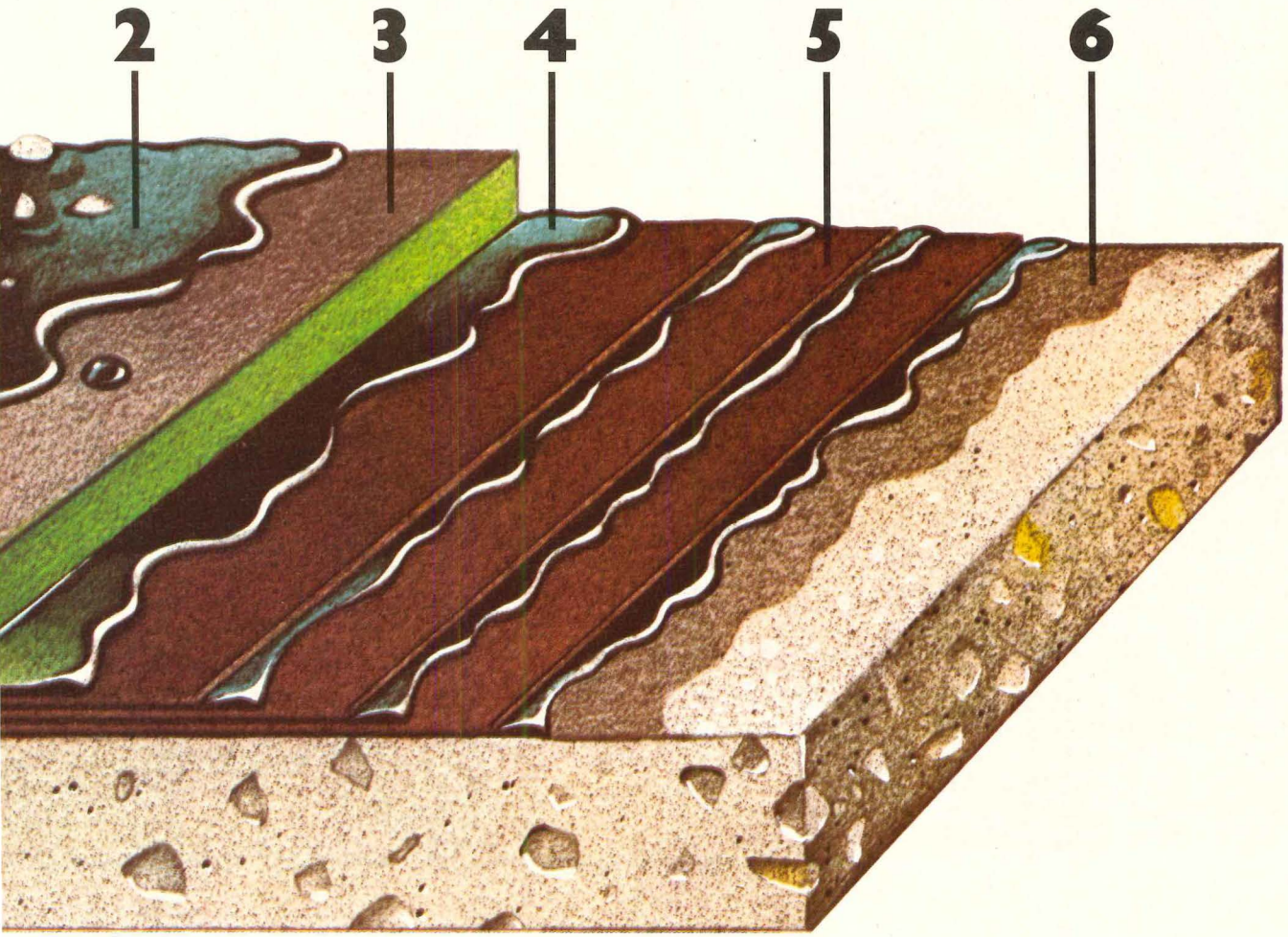

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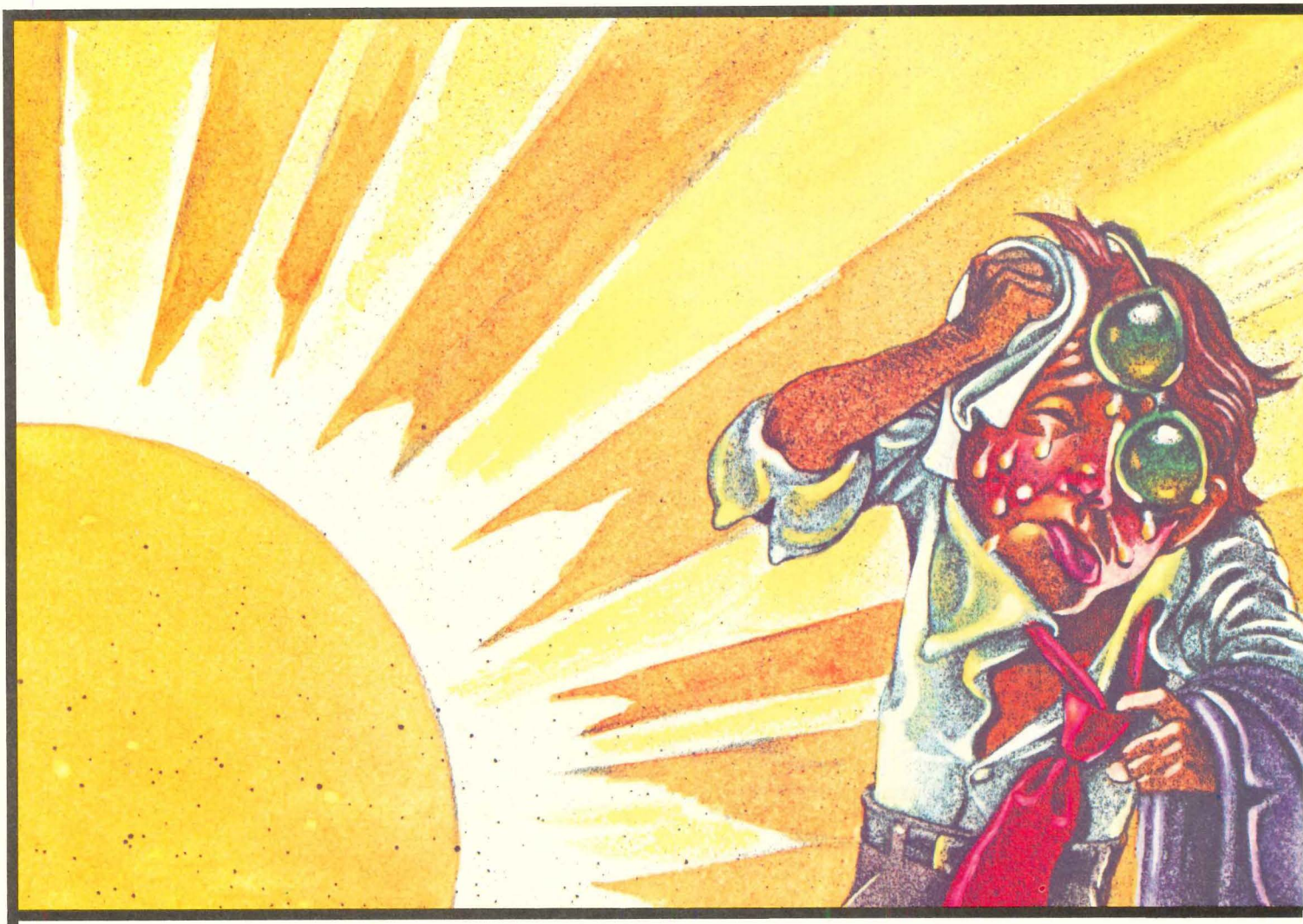

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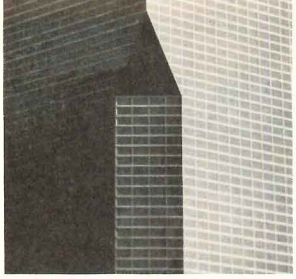

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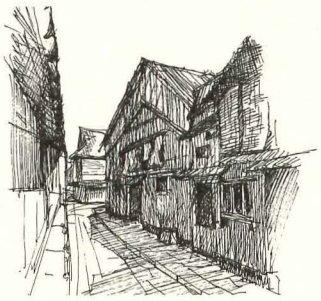

BUILDING TYPES STUDY 494

ARCHITECTURAL ENGINEERING

NEXT MONTH IN RECORD

Despite increased costs in all aspects of manufacturing, there have been billions of dollars allocated for new and expanded plant facilities. Projects in this study have been selected for their individualistic architectural and engineering approaches to problems that continually plague manufacturing companies, both in the United States and abroad.


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When you get a letter from NCARB next month, please fill in the coupon and send it back ...

Late in October or early November, the National Council of Architectural Registration Boards is going to send a small booklet to "every registered architect in the nation." The booklet is intended to inform architects of NCARB's role: "It is a humbling experience," says president Charles Blondheim, "to be asked by a registered architect 'What's that?'." The booklet is also intended to build support among architects for "what NCARB stands for." Says Blondheim: "Traditionally, we have been inclined to think of NCARB's niche in architecture as being rather narrowly confined to the registration of practitioners. The fact is, however, that our responsibilities, when considered in the context of society's growing needs and expectations, are of necessity quite broad. Indeed, what makes NCARB unique today is both its mandated and strongly implied concern for the architect at every step of his/her career. We are legitimately concerned with the architect's education, training, registration and, more and more, his/her professional well-being over the long term."

What are the services of NCARB? As outlined by Blondheim:

1. Certification. "By the end of this year, the number of architects who hold the "Blue Cover" is expected to top 15,000. . . . As a practical matter, the Blue Cover [officially, the Council Record, a detailed documentation of a person's "education, training, experience, examination, registration, and character"] facilitates an architect's request for reciprocity by a state in which he is not licensed.

2. "Development, writing and evaluation of the Professional Examination and the newly evolving Qualifying Test (for those who are not graduates of an accredited school of architecture) . . . [RECORD, August 1974] . . .

3. "The Intern-Architect Development Program, whose NCARB-administered pilot program is now being tested in three states in anticipation of its adoption nationwide [RECORD, September 1974] . . .

4. "Professional conduct, as it pertains to the NCARB Member Boards statutory concern for the health, safety and welfare of the public . . .

5. "International reciprocity, as a subject of study and as a long-term goal, and . . .

6. "Professional development, as a measure of enhancing competence and elevating standards"—an area where NCARB hopes to work increasingly closely not just with AIA, but with the NAAB, the ASCA, and ASC/AIA."

As an admirer of the strong and active role that NCARB is taking in the profession lately, I think it's great that this long-sort-of-silent organization is reaching out and taking some strong stands (indeed, as in the case of the new professional exam, some controversial stands) on the development as well as the certification of architects. It is also clear that this kind of activist thinking has done a great deal to build an absolutely critical consensus among the various state registration boards on the essential questions of "what makes a good architect."

And so I hope you will read the mailing from NCARB's Washington headquarters that is scheduled to reach you in the next month. And I hope (as you will be requested to do) you'll take the time to fill out the return coupon, which will ask you, in effect, where you're working, what kind of organization you're working in, and what kind of work you're doing. The goal is to establish a truly accurate national roster of registered architects. In compiling the mailing list, NCARB obtained up-to-date lists from its 55 Member Boards (the 50 states, the Canal Zone, the District of Columbia, Guam, Puerto Rico, and the Virgin Islands) and undertook to eliminate duplications (for example, an architect registered in 10 states would appear on 10 state rosters). By this process, NCARB now figures there are close to 60,000 registered architects—a number which seems much too high to a lot of experienced hands and researchers who have been around the industry for a long time. There are lots of possible reasons for possible duplications: something data processing experts call variations in match codes, architects registered as John C. Smith in one state and J. C. in another, complications caused by architects residing in one state but registered in another, and so on. But it would be nice to know for sure—an accurate roster (who'd have thought we didn't have one) would indeed be, as NCARB suggests, "a unique and profoundly promising resource." One way you can help is by returning your coupon promptly, filling it out with care, and letting NCARB know if you, for instance, get two mailings (or don't get any).—*Walter F. Wagner Jr.*

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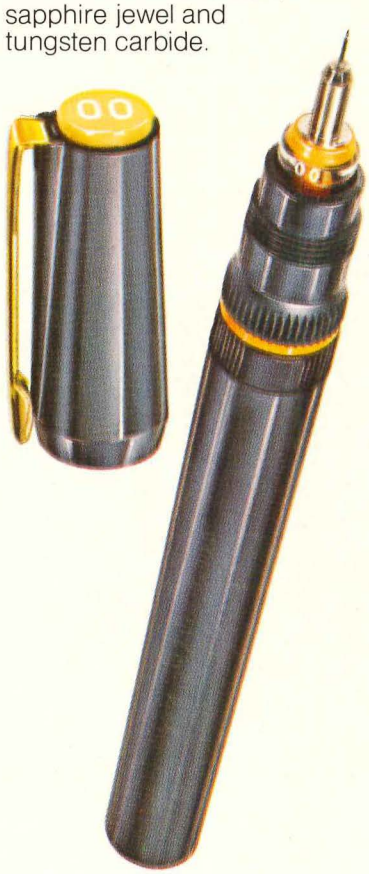

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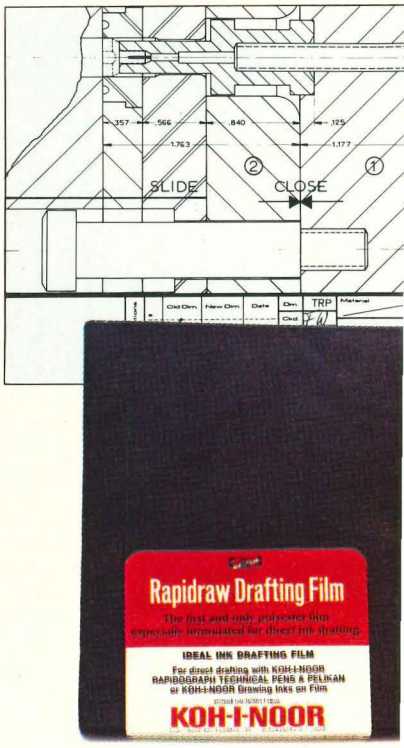

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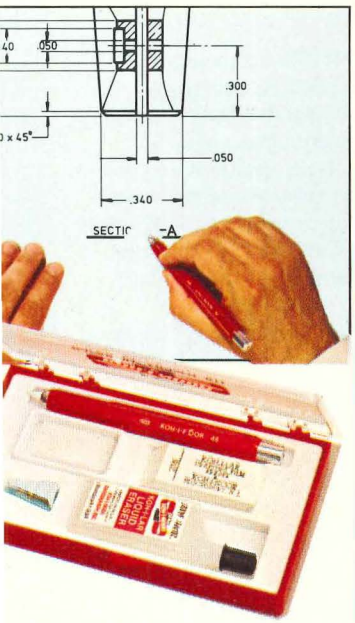
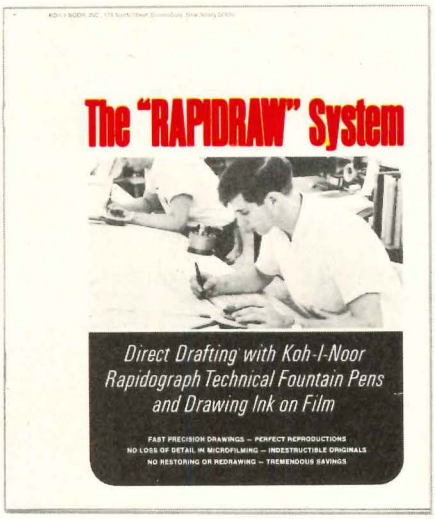


...System accessories

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

What makes us the authority?

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



YOU GET MORE FROM

KOH-I-NOOR®

The "Breakthrough" Company

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

For more data, circle 6 on inquiry card

Our latex and alkyd systems save hours for you, years for your customers.

Today's elegant suburban worlds revolve around cluster structures of warm, "natural" combinations of varied wood and masonry textures.

This trend brings you profitable new business — *if you keep your costs down.* You can. With Glidden. Three ways:

- Single source convenience. Natural textures present painter challenges — inside and outside. One source, Glidden, has every coating you need to do the whole job. Semi-transparent and opaque latex stains, latex and alkyd interior and exterior paints, masonry and metal coatings. You save your time, and workers' time, with the right coating (and right price) from nearby Glidden.
- Technical service backup. When you run into problems you haven't faced before, call on Glidden technicians who have faced and solved them.
- Free color styling and decorator help. From professionals of the Glidden Color Studio. Puts the "icing" on your bid to help sell the job.

Tell us about the job you're after. We'll tell you how we can help you get it.

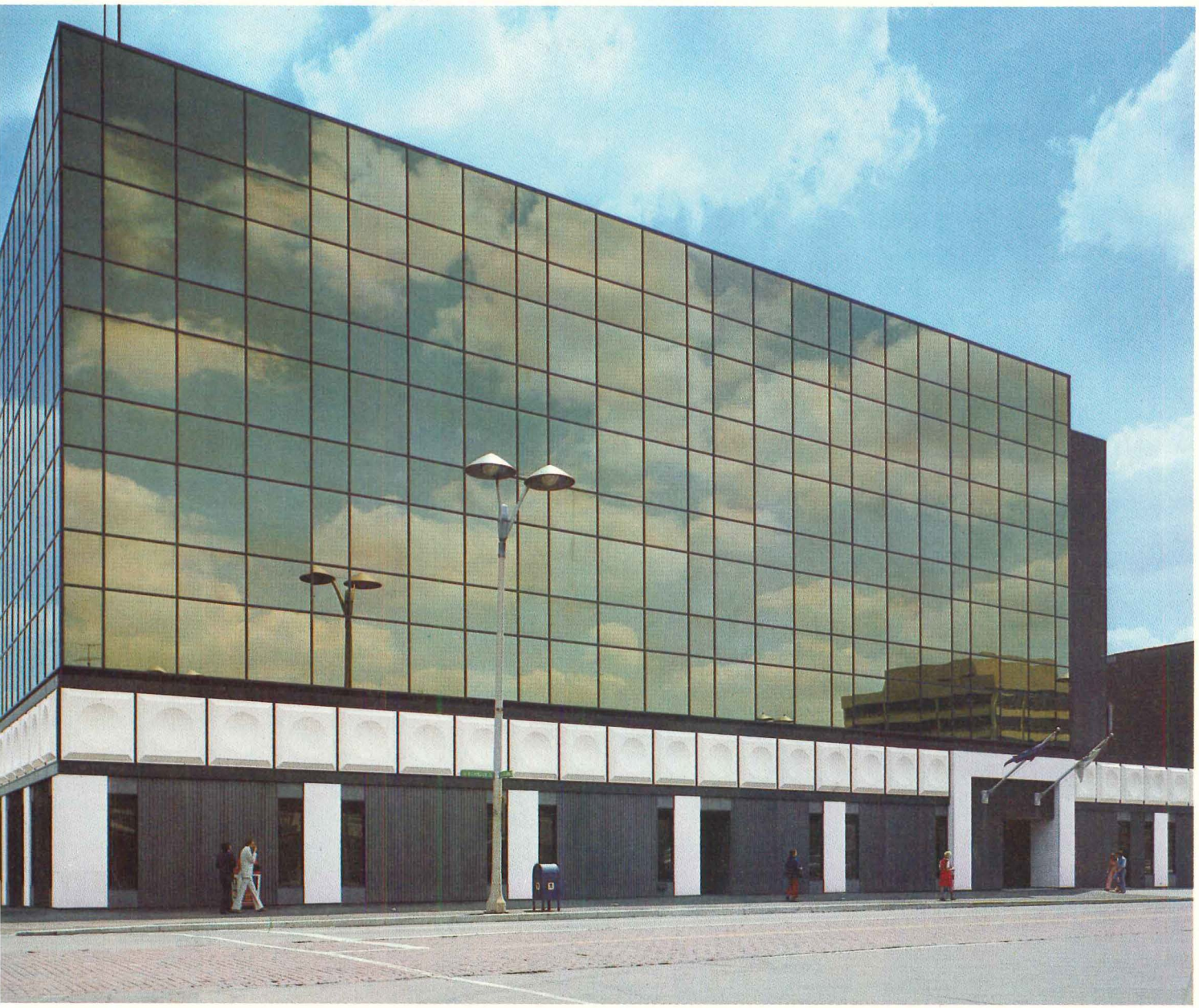
Glidden

SCM® GLIDDEN COATINGS & RESINS
ARCHITECTURAL & MAINTENANCE
SCM CORPORATION, CLEVELAND, OHIO 44115

For more data, circle 8 on inquiry card

Want to see a building come to life?

Put on our glasses.



Architect—Laitala, Freeman, Smith, Fowler
Lansing, Michigan

Reglazing with LOF's Vari-Tran® can make an old building feel young again.

When the location is right, but the building isn't, a face-lift just might be the answer.

It happened in Lansing, Michigan. An old department store became a "new" office building, and its owners couldn't be happier with the result. The Plaza I is already near full occupancy.

But there's another side to Vari-Tran coated glass you might find equally interesting. Besides raising your clients' property values, it can mean good public relations for your firm. Everyone takes notice when creative architecture comes to the rescue of older neighborhoods.

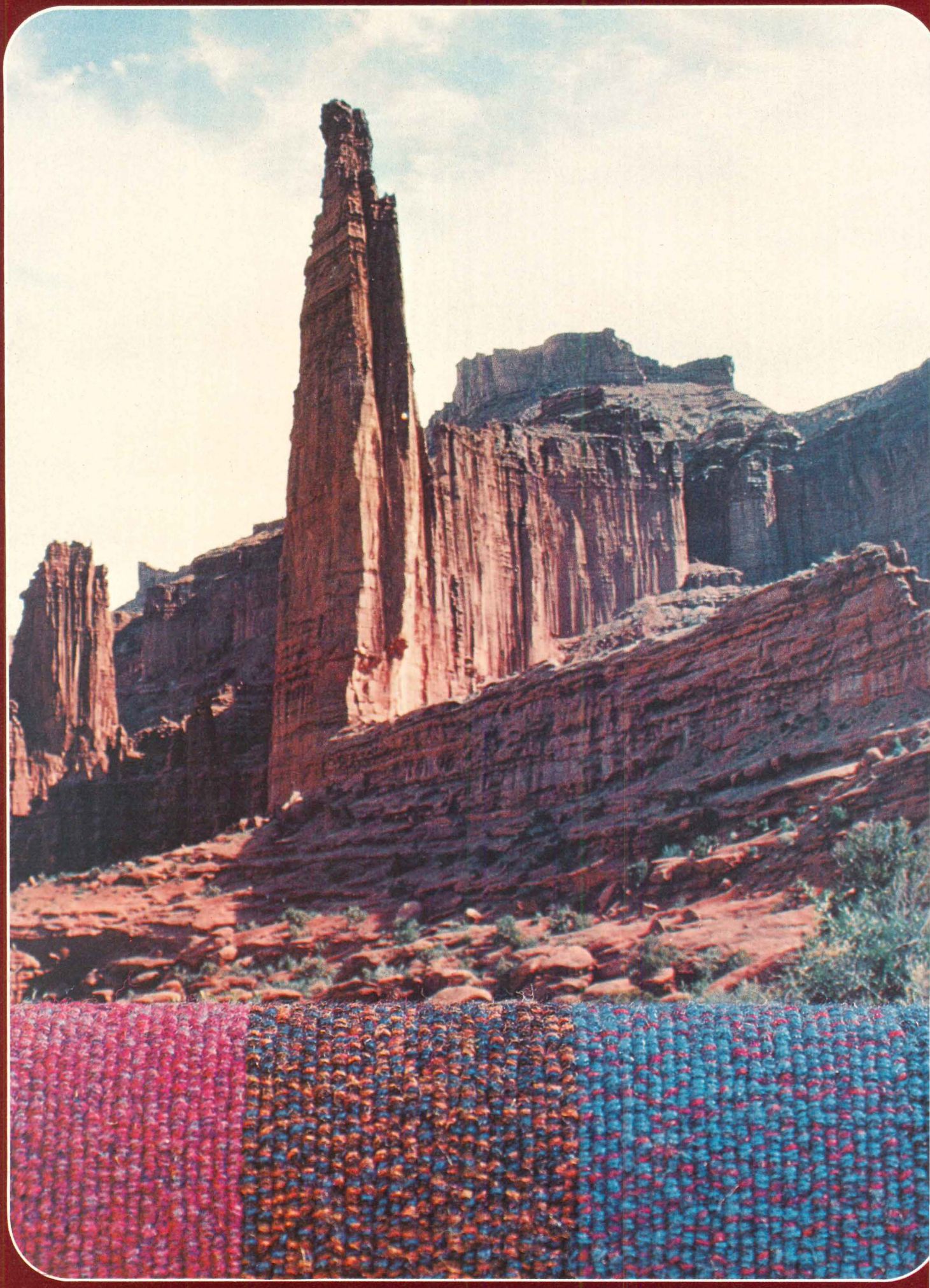
And, available in five attractive hues, glass with Vari-Tran coating can help add the kind of excitement that calls attention to a building and its occupants.

There's more to Vari-Tran than just an attractive appearance, however. With its wide variety of light transmissions and shading coefficients, it can also substantially cut heating and air conditioning costs.

Find out more about reglazing with Vari-Tran coated glass by writing Ralph Hayward at Libbey-Owens-Ford Company, 811 Madison Avenue, Toledo, Ohio 43695.

LOF

For more data, circle 9 on inquiry card



The Pillar

Our Performance Certification label on a carpet gives you durability standards that are a pillar of strength.

Here's why.

Dow Badische fibers and yarns that go into Performance Certified carpets have been specially developed for esthetic appeal and durability. Then, the construction of each carpet has been engineered to exact specifications for a specific end-use. And finally, the carpets have all had to pass many stiff lab tests at Dow Badische to make sure they live up to our exacting performance standards after installation.

Next time you specify contract carpet for a specific end-use, think carpets that carry the Dow Badische Performance Certification label. You'll find that label a trustworthy support.

If you would like personal help in solving particular specifying problems, contact our Contract Carpet Consultants Service and ask for our Performance Certification Booklet and Contract Carpet Selection and Specifications Guide.

Dow Badische Company, Create Center
Williamsburg, Virginia 23185
(804) 887-6573

PERFORMANCE CERTIFICATION

DOW BADISCHE

Dow Badische produces acrylic and nylon fibers and yarns especially engineered for carpets of beauty and performance.

For more data, circle 10 on inquiry card

We had the guts to make the best even better.

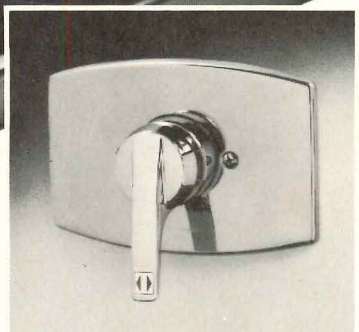
We gave new Aquarian II a better spout ring. A finely-honed bearing surface. A precision-machined manifold. Along with the finest disc cartridge on the market.

Hundreds of Aquarian II fittings were field-tested nationally. The installing contractors endorsed the product thoroughly. Aquarian II set a new standard of excellence for the industry. Excellence your customers will see every day.

Call your American-Standard distributor and judge for yourself.

AMERICAN STANDARD
Where quality is a beautiful thing.

New! Improved Aquarian II.



Reduced drag and wear. Finely-honed spout ring bearing surfaces for O-ring seal. Of corrosion-free brass.

Leakproof. Watersaving. 3.5 GPM. Sealed-in ceramic disc cartridge for years of trouble-free service.

Efficient water control. Polished gem-hard ceramic discs sealed inside the long-life cartridge.

Positive water shut-off. Washerless. Ceramic discs are unaffected by sand, silt, grease.

Closer tolerance. Positive seal. Precision-machined manifold of solid brass stock plus self-lubricating, extra rugged spout O-rings.

All product names are trademarks of American Standard Inc.

For more data, circle 11 on inquiry card

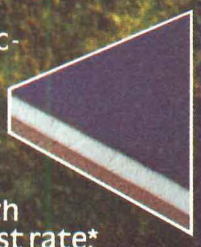
Fesco-Foam roof insulation will save the owners of the building on this site $21,800 the first year and $70,514 in 20 years.

Here's a perfect example of how spending a little more on the front end can lower building costs substantially in the long run.

Assume a 200,000 square foot, single-story office building in Denver, Colorado.

By simply upgrading the roof insulation to J-M C-10 Fesco-Foam, at a one-time added cost of $70,000, a savings of $90,000 can be made in heating/air-conditioning equipment alone.*

Fuel costs will also go down dramatically—with savings of $1,800 the first year and $50,514 over the 20-year life of the roof. This is based on an escalation of 10% in fuel costs for the next 5 years. Net savings will add up to $70,514 with a present worth value of $40,629 based on a 10% interest rate.*



Gone are the days when building design can be dictated by initial cost only.

Now—primarily because of the energy shortage—the smart building owner/designer must change design criteria...must look beyond the cost of erecting a building and consider everything that will affect the total cost over its projected life.

Which means the building will probably cost more to begin with. But it's an investment that will pay off in savings and comfort in the years that follow.

If you're in doubt, ask us for proof. Call your nearby J-M District Office or contact Peter McCracken, Johns-Manville, Box 5108, Denver, Colorado 80217, (303) 770-1000.

For single-source built-up roofing systems.

*Savings are based on optimum design criteria. Actual savings may vary depending on calculations.

JM Johns-Manville

JA 75-15RL2

For more data, circle 12 on inquiry card

Multi-use auditorium makes extra class space, serves community too

There's a revolution underway to make better use of space in schools.

This auditorium is a good example.

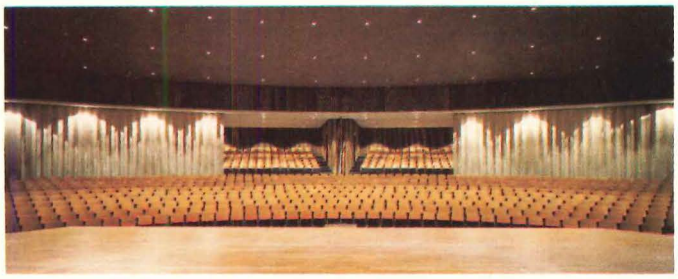
"We've been using our auditorium for over four years and the multi-use concept has been a real success," Mr. Alfred Hinton, principal of Forest Brook High School tells us.

"We use the four rear rooms for health classes. There is no interference. At the same time, another group can be meeting in the front section.

"It is easy to make various size rooms available to the public for evening meetings," he reports. "To separate the front from the rear, we just turn a key and the wall moves into position automatically.

"The best part," he says, "is that any combination of rooms can be used at any time successfully, and each group gets the privacy they deserve."

For more information, write Modernfold, P.O. Box 310, New Castle, Ind. 47362. Ask for "School Space Multipliers."



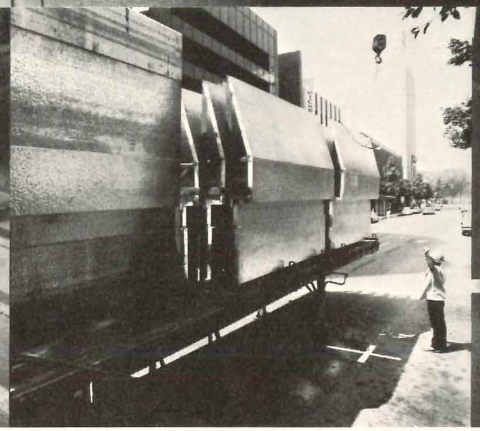
Hallway giving access to rear rooms is located in permanent divider wall.

Capacity of auditorium at Forest Brook High School, Houston, Texas, is 999. Front section seats 519. Each of four rear rooms seats 120. Modernfold operable walls make changes easily and quickly.

Modernfold

An **American-Standard** Company

For more data, circle 13 on inquiry card



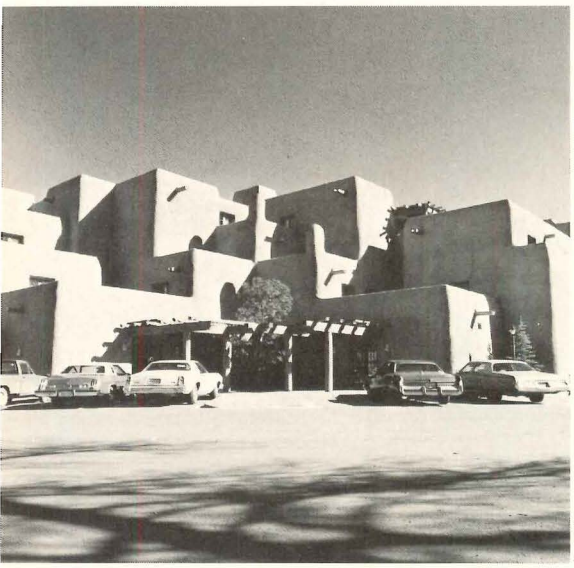
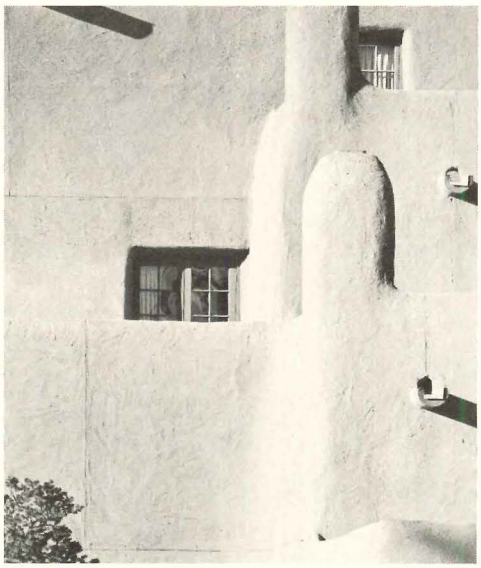
New Facades for Old Buildings

Forms & Surfaces develops imaginative new facades for old buildings with Warnel Metal panels, offering design flexibility and custom details to meet individual project requirements.
The City National Bank Building in Beverly Hills achieved its handsome new look with hydroformed Warnel Metal panels within a limited budget and a very rigid installation schedule.
Large prefabricated wall units allowed simple, fast erection.
Hydroformed textured metal was light in weight, required no added structural reinforcement, and assured a flat appearance without requiring heavier gauge metal.
Forms & Surfaces/Metals 2112 North Chico South El Monte, California 91733 (213) 283-7234

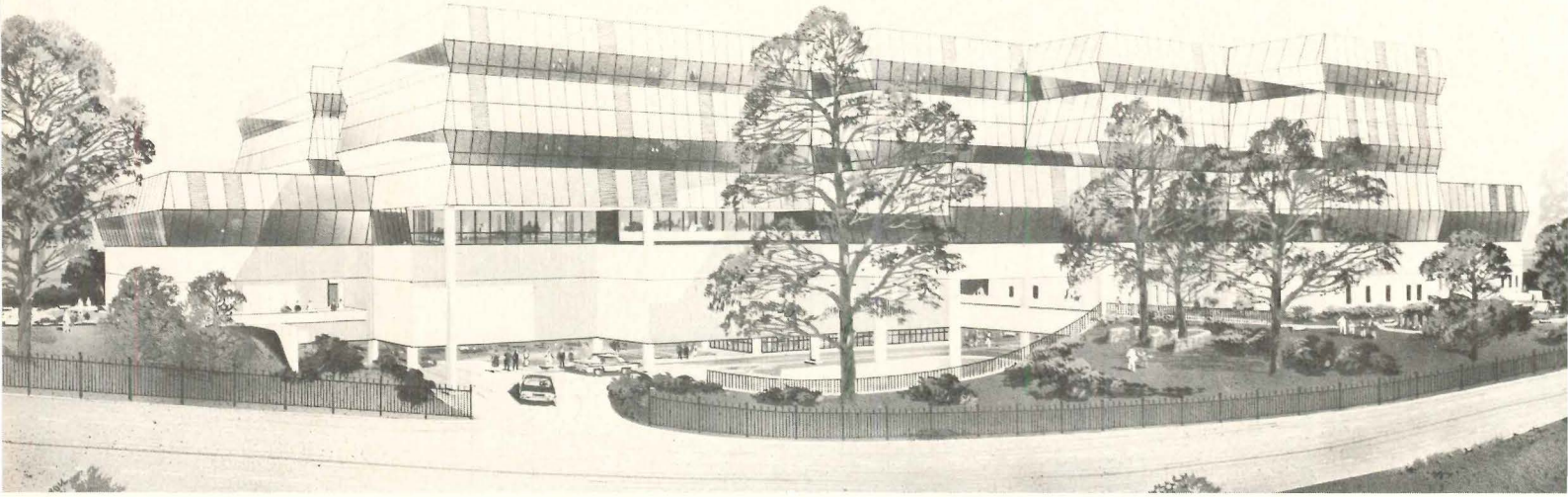
Architects Maxwell Starkman AIA & Associates

FORMS + SURFACES

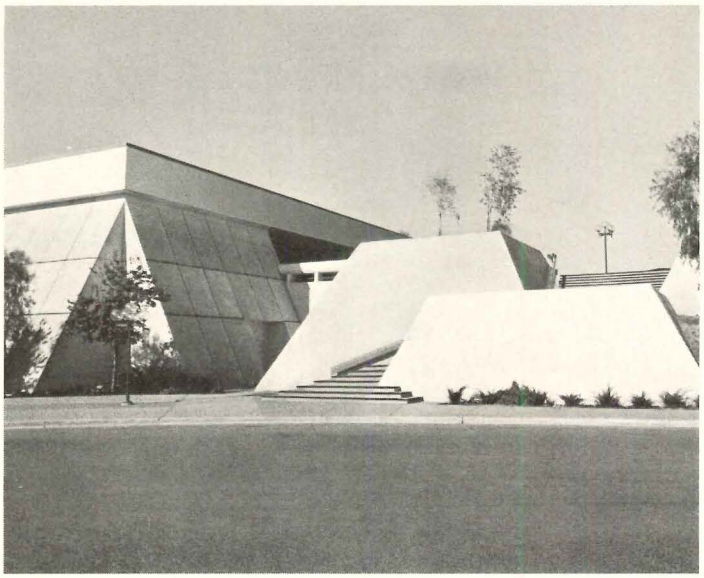
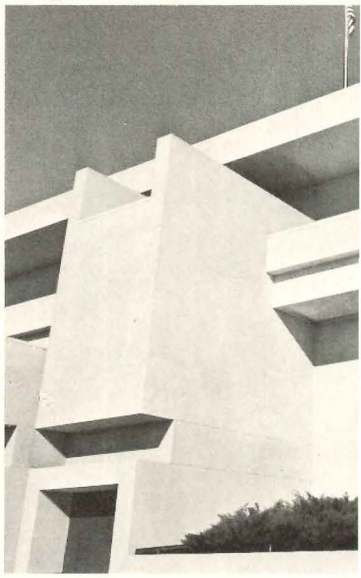
How Bell's Building Industr architectural integrit


The Inn at Loretto, Santa Fe, New Mexico. A new Best Western hotel.



The new Children's Hospital National Medical Center, Washington, D.C.

The MetroCenter, Phoenix, Arizona. A new 312 acre Westcor shopping mall.

onsultants help you save nd the budget.

When a Bell Building Industry Consultant sits down with you at the sign concept stage, you may be saved redrawing, respecifying and en renovating a new structure.

At The Inn at Loretto, for instance, Roger Bybee, the hotel's nsulting electrical engineer had this to say: "In working with Bell's uilding Industry Consultants, we got away from the 'stock plan' approach construction, and designed a system specifically tailored to the archi- ctural concept of the project."

Noel E. Kroncke, administrator, Children's Hospital National Medical enter, and Leo A. Daly III, vice president of the architectural firm of Leo A. aly, agreed: "The Building Industry Consultant provided Children's ospital with a preplanned telecommunications capability that is as aptable as the building itself. The system will accommodate whatever ure needs hospital management can envision."

Alfred H. Fast, project architect for Westcor, assessing Bell's contri- tion to the MetroCenter shopping mall: "Because of the Building dustry Consultant, we're not going to face redundant situations— aring up concrete or knocking down walls because adequate provisions eren't made in the initial stages."

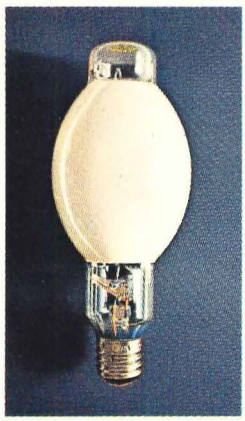
In every case, the Bell team took total responsibility for communi- tions design, installation, maintenance and repair. So before you begin ur next project, call 201-221-4000 collect. And we'll put you in touch th the Building Industry Consultant your area.

When you work with the Bell ystem, Bell is the only communications mpany you have to work with.

TOTAL RESPON- SIBILITY

Bell System

How Robinson's saves



Metalarc lamps help cut lighting energy use 41%—and make the merchandise look great.

Department store lighting: if it helps move the merchandise, it's good. If it doesn't, it isn't.

But today, it has to save energy, too.

This is how Sylvania Metalarc lamps helped give the best of both worlds to J. W. Robinson's 158,000-square-foot Westm ster, California store.

Robinson's didn't decide on t lighting for this store withou lot of planning and testing first

The tests took place in a 3,0 square-foot lighting lab in th main store. They tested ma kinds of lighting for color, ene use, dramatics. And, of cour customer reaction.

The winners? Sylvania 175-w

$45,000 a year on its light bill.

etalarc/C lamps for primary il-
nination. Clear Metalarc lamps
corner displays. Incandescent
d fluorescent lamps for accent
d supplemental lighting.
Metalarc lamps' excellent color
ndering, point-source illumina-
n and efficient energy use
ide an unbeatable combination.
All told, the Westminster store
quires only 2.98 watts per
uare foot for lighting. That's 41% less than the average 5.1 watts in the company's older stores.

70% more from every lighting watt...

$45,000 less per year to light this modern store.

To say nothing of the capital saving because of fewer fixtures.

Sylvania Metalarc lamps made a large portion of these savings possible.

How do you light a department store from scratch?

Start with Metalarc lamps...

For more details on these or any other Sylvania HID lamps, see your Independent Electrical Distributor. Or write Sylvania Lighting Center, Danvers, Massachusetts 01923.

GTE SYLVANIA

Park Ridge Hospital prevents epidemic of slapped-up signs with integrated signage system.

The interior of Park Ridge Hospital —a warm, harmonious blend of wall colors, textures and carpeting—is therapy in itself.

Located in Greece, New York, and serving the Greater Rochester area, the hospital was dedicated in September 1975. A two-building complex, it covers approximately 300,000 sq. ft. The medical building contains 194 patients' rooms—all private—in addition to offices, conference rooms, labs, therapy departments, etc. It is connected to the adjoining Supply, Processing and Distribution building via a glass-enclosed walkway.

Signage as a subsystem

A hodge-podge of signs, slapped up as an afterthought to construction, would have seriously marred the hospital's handsome interior. But the architects and hospital administrators, aware of the need for an efficient traffic moving system, wrote a complete signage program into their initial plans.

Matthews was called in a year before the building completion date to design and fabricate a total, integrated signage system for both interior and exterior traffic control.

Over 300 individual signs—interior and exterior—were installed. Most were fabricated of damage-resistant NOMAR fiber reinforced polyester. All of the signage is tastefully understated but highly functional, with complete continuity of color and letter style.

Matthews. Total responsibility for total signage systems. Write for further details to Jas. H. Matthews & Co., 1315 West Liberty Ave., Pittsburgh, PA 15226.

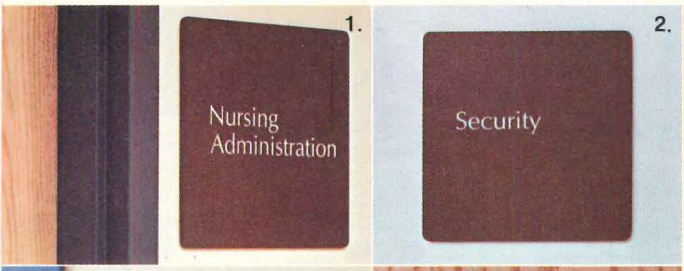
Architect: Stevens, Bertin & O'Connell, Rochester, NY
Construction Mgmt. Firm: John W. Cowper Buffalo, NY
Signage Contractor: Empire Sign Co., Inc. Rochester, NY

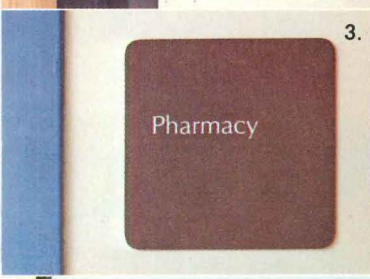
JHM MATTHEWS

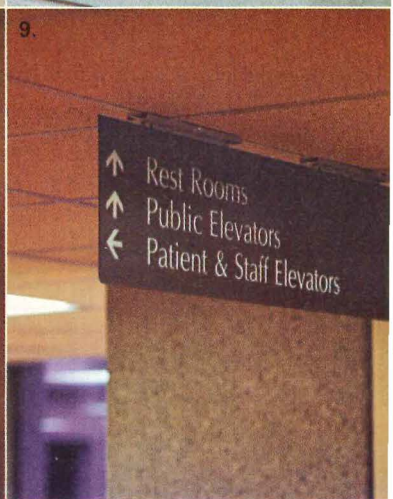
Architectural Division

For more data, circle 16 on inquiry card

1., **2.**, **3.**, **4.**, **5.** and **9.** NOMAR with screened graphics embedded. **6.** Cutout aluminum logo. **7.** NOMAR post and panel assemblies with surface applied reflective pressure-sensitive legends. **8.** Reverse screen process on acrylic identifies patients' rooms. Slide-in cards and strips for adaptability.







When you expose our new silicone foam to 2,000 F for 3 hours, something incredible happens. Nothing.

Only new Dow Corning® RTV silicone foam firestop can make that statement. And back it up.

Factory Mutual Research tested it.

In full-scale functional tests (ASTM-E119-73) conducted by Factory Mutual Research in October and December 1975, Dow Corning silicone foam withstood temperatures of over 2,000 F during a 3-hour test in both wall and floor configurations. The foam showed slight charring, but it did not melt, burn, pass fire or emit smoke.

No toxic fumes.

A major problem with traditional firestop sealants is that even if they don't burn in a fire, they release quantities of toxic fumes. Stable Dow Corning RTV silicone foam greatly reduces this toxicity, and reduces the total amount of smoke combustion products released.

Fast, easy installation.

To seal cable gaps, simply inject the easy-to-mix liquid components into the dammed penetration. The material expands to three or four times the volume of its liquid constituents and sets up in 3 to 4 minutes. Excess can be trimmed off with a knife. That's all there is to creating an airtight fire penetration seal.

The safety factor.

Many cases of fire spreading through cable penetrations have resulted in loss of life and millions of dollars of equipment, property, and revenue.

Dow Corning RTV silicone foam is an effective, economical firestop. And if you're not sure how important that is, ask your insurance man. He'll tell you how you can save in case of an actual fire.

Dow Corning RTV silicone foam. More than 2,000 F for over 3 hours. Incredible.

For more information and specifications, write Dow Corning Corporation, Dept. A-6403, Midland, Michigan 48640.

DOW CORNING

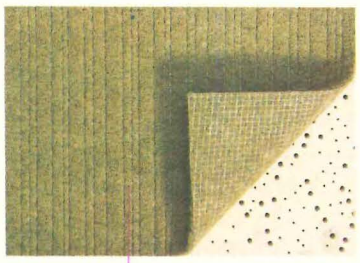
DOW CORNING

For more data, circle 17 on inquiry card

Soundsoak™ Wall Panels from Armstrong. Their quiet good looks are almost as pleasing as their acoustical efficiency.

The wall that contributes to beauty doesn't always contribute to silence. Carpeting or other fabrics, for instance, may look terrific, but their effect on interior noise leaves a lot to be desired.

Soundsoak Wall Panels are another story. Because only after we made them absorb noise did we make them radiate beauty. And we made them do both by taking perforated mineral-fiber board and covering it with a soft modacrylic fabric. What results is a ¾-inch panel that absorbs 60% of the sound that strikes its surface—a fabric surface blending fibers of various colorations with vertical embossing in an attractive visual. Available in twelve updated natural and accent col



Soundsoak Wall Panels are 30 inches wide and 9 f high. They can be easily installed on interior plaster, dryv surfaces, brick or block walls by simply attaching alumin splines and locking the panel edges around the splines total concealment.

And whether you're concerned with n construction or renovation, you'll be hard pu find anything else that provides such a strik effect on the eye and such a quieting effect the ear.

To learn more, write Armstrong, 4206 Rock Street, Lancaster, Pa. 17604.

For more data, circle 1 on inquiry card

FROM THE ® INDOOR WORLD® OF Armstrong

The next two years will see "continued recovery" in construction, followed by three years of "sluggish growth," according to a forecast published by the F. W. Dodge Division of the McGraw-Hill Information Systems Company. Much of this activity will occur in the area of nonbuilding construction, which is expected to increase its share of total construction from an historical 22-24 per cent to 30 per cent. Over the next two years nonresidential building is expected to follow the recovery of residential building, but Dodge predicts that the cycle will flatten out in 1978. Dodge also predicts that the South will be the nation's most active growth region, by 1981 representing as much as 33 per cent of total construction demand.

Congress has finally passed an energy bill to force energy conservation in new buildings, and to encourage retrofit in existing ones. The Department of Housing and Urban Development will develop performance standards which will be mandatory in all code jurisdictions. Details on page 34.

July contracts for new construction totaled $9,774,133,000, a nine per cent increase over the July 1975 figure, according to the F. W. Dodge Division of the McGraw-Hill Information Systems Company. Housing contracts totaled $4,148,869,000 for a 35 per cent increase over last year's figure. Reporting that starts for one-family houses have leveled off at about 1 million, Dodge's chief economist George A. Christie adds that Dodge figures indicate "the incipient recovery of apartment building," reflected in the sizable gain in apartment starts shown in July. Nonresidential building, at $3,031,362,000, was off one per cent from last year's figure, and nonbuilding construction fell eight per cent to $2,593,902,000.

Congress has sent to the President a tax revision bill eliminating real estate tax shelters and fostering the preservation of historic buildings. Details on page 35.

A World Trade Center, American style, is planned for the banks of the Moscow River. Welton Becket Associates designed the $190-million complex. Details on page 35.

Michael Tenenbaum, Elliott L. Richardson and Richard S. Cornwall will be keynote speakers at the Building & Construction Exposition & Conference, a three-day meeting sponsored by the Producers' Council to be held in Chicago next month. Details on page 35.

Richard Bender has been named dean of the College of Environmental Design at the University of California in Berkeley. Mr. Bender, who has been chairman of the school's department of architecture, succeeds William L. C. Wheaton, who continues as professor of city and regional planning.

The Museum of Modern Art has appointed J. Stewart Johnson Curator of Design. Mr. Johnson was most recently Curator of Decorative Arts at the Cooper-Hewitt Museum of Design in New York City.

Architect Joel Rudick has been designated chief of the Interior Planning and Design Branch of the GSA's Public Buildings Service. Details on page 35.

The Milwaukee Art Center has established the Prairie Archives, a center for the collection and study of Midwestern architecture of the Prairie School. The archives will not only provide materials for scholars but will also undertake the study of archival techniques for architectural collections.

The American Institute of Architects, vocal supporter of energy conservation, will put its own house in order. A special task force will analyze opportunities for saving energy in the Institute's Washington headquarters, and in the Octagon, with the stated goal of reducing energy consumption by 60 per cent. Herbert E. Duncan, Jr., FAIA, heads the task force, whose other members are Robert A. Burley, AIA, and David L. Perkins, FAIA. They will submit their report by the end of the year.

The Advisory Council on Historic Preservation has published "Adaptive Use: A Survey of Construction Costs," a comparative study of 36 completed samples of recycled buildings. The costs of each of these are compared with the others and with the average cost of new construction of similar building types. The report is available free from the Advisory Council on Historic Preservation, 1522 K Street, NW, Washington, D.C. 20005.

The AIA and Sweet's are together conducting a test for a new source of building product information for architects, engineers and contractors. A trial volume of generic product information, obtained from trade associations, will be circulated to design and contracting firms for evaluation. The test will involve information only from associations representing manufacturers of concrete, cement, stone, masonry and wood products.

on Capitol Hill for
rs, legislation requir-
vation in new build-
aging modifications
ncy in existing ones
has finally cleared Congress and won approval from the White House.

Acceptance of the far-reaching proposals was a major victory for the American Institute of Architects, which has been the most active booster of energy savings in the built environment. AIA and other proponents of the energy legislation believe the nation's energy consumption will be reduced by the equivalent of millions of barrels of petroleum as a result of the new laws.

Architects should also see a new spurt of business from owners seeking more sophisticated designs and retrofit.

The most significant feature of the new legislation package orders the Department of Housing and Urban Development to formulate performance standards for energy conservation in new buildings. Once written, these standards must be adopted by code authorities in all jurisdictions and thus will become the nation's first Federalized and nationwide building code (unless standards for mobile homes are counted).

The standards will apply to houses and to larger buildings equally—and jurisdictions failing to go along may find all construction halted: the law specifies that borrowers for buildings in non-complying jurisdictions cannot be served by Federally guaranted or Federally chartered lending institutions.

Strong sanctions were favored by the AIA, but opposed by most groups representing construction, financial and real estate interests. As a result, the final language softens the impact of sanctions. The sanctions can only be activated if Congress expressly permits them with a special resolution. And a borrower in a noncomplying jurisdiction can independently seek certification that his design meets or exceeds the standards and thereby regain his borrowing rights.

HUD is already preparing to develop the standards and is asking Congress for a special appropriation to cover its costs, plus the related expenses of the Energy Research and Development Administration, National Bureau of Standards and the soon-to-be-created National Institute of Building Sciences—all of whom will assist in the work.

The standards, under the law, must be prepared within three years. Jurisdictions will have another six months to study and adopt them before sanctions could be imposed.

Other provisions in the law will have more immediate, though less significant, impact than the standards clause. These include:

- $200 million in grants to pay for the distribution and installation of insulation materials for existing dwellings occupied by low-income families;
- another $200 million for a research program designed to determine which method of financial assistance would be most effective in encouraging homeowners to retrofit their houses for greater energy efficiency—the options are loan guarantees, tax credits and grants;
- a $2 billion program of Federal loan guarantees for large energy users such as local governments, nonprofit hospitals and educational institutions for making energy efficiency improvements to existing facilities;
- a Federal Energy Administration program to demonstrate ways of improving electric utility load management and other rate-making changes to encourage efficient use of electricity in buildings;
- $37 million for FEA to use in helping to commercialize solar energy equipment and for a grant program for HUD to support the retrofit of houses with solar systems;
- $7.5 million for FEA to create an "extension service" of agents to counsel home and building owners on efficient energy consumption.

Sen. Edward M. Kennedy (D-Mass.) was the Congressional mastermind for lumping all the provisions together. He had originally proposed that the government guarantee up to $10 billion in loans for all owners willing to undertake energy conservation improvements in existing structures.

Despite its importance, the energy conservation legislation was not widely reported when it was enacted. The reason: the energy conservation efforts were tied to controversial legislation extending the life of the Federal Energy Administration for 18 months and removing price controls on petroleum from certain oil wells.

Without Kennedy's high-risk strategy of lumping all the energy conservation measures with the FEA pro
als, it is unlikely the legislation w
have won approval this year at all.
standards portion of the measure
instance, had its beginning two y
ago as Title X of the Administrati
proposed Housing Act of 1974.

The proposal first passed the
ate last summer and included
tough borrowing sanctions. A H
version, without the sanctions cla
followed, but conferees were un
to come to an agreement. More
the retrofit provisions had only cle
the Senate, but House committees
been slow to take them up.

Success in getting the propo
through is attributed to two th
First, the Congress was in a hurr
finish with the FEA extension bill
could adjourn for the Republ
nominating convention. And sec
the last-minute compromises—suc
the weakening of the sanctions cl
—allowed many one-time foes o
legislation to accept the measure.

The opposition was led by
U.S. Chamber of Commerce's
struction Action Council, a g
close to material suppliers and
tractor associations. Council Dire
Harvey G. Hallenbeck, Jr., repo
however, that his group found itse
agreement when the bill finally
through Congress.

This probably means that the
force of the legislation will go int
fect without hindrance by for
foes—an important factor if the la
to have its intended purpos
*William Hickman, World N
Washington.*

New York gallery devoted to architectural drawing

New York's Spaced gallery, the brainchild of architect Judith York Newman, is dedicated exclusively to the exhibition and sale of architectural drawings, prints, photographs and models.

Though the gallery offers samples of conventional architectural drawing, its major exhibits are more likely to revolve around the nonprofessional art of architects—though not simply the architect as weekend painter. The current Spaced show of the drawings and watercolors of Victor Lazzaro is a case in point—curious, not to say mysterious, fusions of natural and built environments that could spring only from the imagination of an architect. (Mr. Lazzaro, who formerly practiced architecture in Connecticut, now teaches architectural drawing at Pratt Institute. A detail of his ink drawing *Walled City* is shown here.)

The exhibit remains in place through October 21 at 165 West 72nd Street, New York City (also Mrs. Newman's architectural offices). It will be followed by an exhibition, through November, of mazes and toys designed by architect Rolf Myller.

Georgia AIA chapter takes county to court

The Georgia chapter of the AI
cently filed for a permanent injun
against Gwinnett County in Gwi
County Superior Court for violati
state registration laws that require
architects and engineers be certifi
is still under consideration by
court.

Earlier, a temporary injun
was denied by the court. If the pe
nent injunction is also denied, th
will appeal to the Georgia Sup
Court.

The action resulted after Gwi
County, which is north of At
awarded a contract for an 11,000
fire station, but, according to a
source, did not have a certified
tect or engineer. Furthermore, he
that the submitted specifications
limited and incomplete.

The source said that the
tration laws have been in effe
Georgia since the 1930s. Expl
the judge's denial of a tempora
junction, he said, "In smaller co
nities, the judge can see the
viewpoint easier than he can i
lanta."—*Brenda Lloyd, World N
Atlanta.*

ɔducers' Council names nference keynoters

chael Tenenbaum, president of In- d Steel Company, Elliot L. Richard- , Secretary of Commerce, and hard S. Cornwall, president of na Business Credit, Inc., will open three-day Building & Construction osition & Conference, sponsored the Producers' Council. They will ak at a special Keynoter Session vember 17 at McCormick Place in cago.

On the morning of November 19, special Energy Keynote session, erspectives on Energy," will be ad- ssed by Dr. Robert C. Seamans, Jr., . Energy Research and Develop- nt Administrator.

Technical issues, in addition to technical material discussed at ular sessions, will be covered in a cial program, "Energy-Rama." This gram will offer a continuous series alf-hour papers and presentations four sessions, extending over the ee days of the conference.

The BCEC, held this year for the time, will revolve around the me "Promotion & Performance our Blueprint for Profit!" and is in- ded to bring together all elements the building industry—the design fessions, manufacturers of building terials and equipment, owners, de- opers and financiers, the law, labor d the government.

Regular conference sessions will er such matters as the design, mar- ing and financing of commercial residential buildings, as well as modernization and recycling of er buildings, energy conservation, erseas and government con- ıction, and the marketing of profes- nal services.

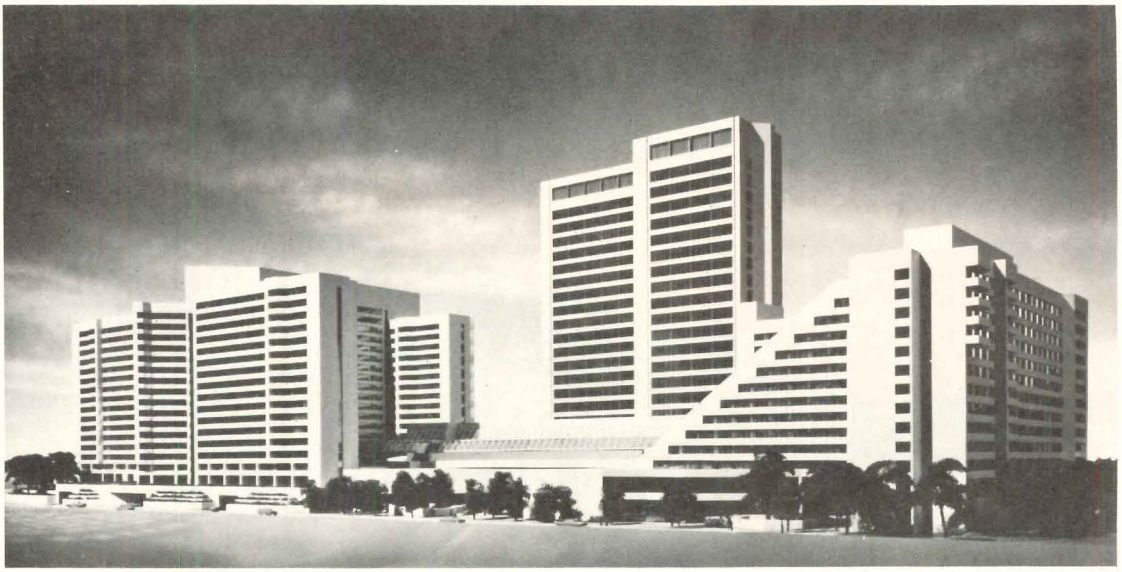
Exhibit and attendance informa- n can be obtained from the Charles tow Organization, 331 Madison enue, New York, New York 10017. G. Robinson, Producers' Council, 7 Massachusetts Avenue N.W., shington, D.C. 20036 can supply rmation on the conference.

chitect Joel Rudick ɔointed to PBS post

General Services Administration named architect Joel Rudick chief he Interior Planning and Design nch of the Public Buildings Service.

Rudick was formerly vice pres- nt and operating manager of the Francisco office of SLS Environe-

The PBS's Interior Planning and ign Branch was created last year to rove the interior environments of ernment buildings and to coordi- professional services for interior gn for new construction, renova- s and leased space. Among the grams presently underway, the ich is preparing a demonstration ect for task-lit systems furniture to olish performance specifications government use.



Americans will build a World Trade Center, complete with atrium, in Moscow

An American-style World Trade Center, to accommodate international businessmen, will rise on the bank of the Moscow River. Designed by Welton Becket Associates, the $190-million center is being developed by Occidental Petroleum Corp., under a contract from V/O Prommashimport, a Soviet foreign trade organization representing the U.S,S.R. Chamber of Commerce and Industry. The American architects will be assisted by a Soviet architectural-engineering design team, Mosproskt-2, for local design and construction requirements.

The complex will comprise a 20-story office tower, a 600-room hotel (at right in photograph) and a 625-unit residential hotel, all having access to a three-level skylighted mall. The guest hotel will have a nine-story atrium with four glass elevators; on its lower level, a convention center will include a 2,000-seat Congress Hall. The mall will house, among other things, restaurants, a theater, a health center and, near the residential hotel, a supermarket. The complex will also contain an underground garage for 600 cars.

The center will be built of precast concrete and bronze-colored solar glass. Completion of construction is scheduled for 1979.

Tax bill fosters historic preservation, reduces real estate tax shelters

On the eve of adjournment, Congress approved a massive omnibus tax revision bill that has been in the works for three years and that ranges over a wide variety of issues affecting corporations, investors and individuals. The President is expected to sign it.

Some of the provisions covered in the bill may have implications for the construction industry.

- In an effort to preserve historic structures, Congress has banned the use of fast tax write-offs for the construction of new buildings on sites where certified historic buildings have been demolished. The move also ends deductions for the cost of demolition. Specifically, Congress voted to end the use of accelerated depreciation benefits for new buildings constructed on historic sites. The costs of acquiring and rehabilitating historic buildings, however, will now be eligible for a faster write-off.
- Under the new legislation, real estate and other tax shelters will be limited. Real estate investors will no longer be able to take as many fast write-offs, particularly in the commercial real estate area. Beginning January 1, investors in commercial real estate projects will be allowed to deduct only half the construction-period interest and tax costs. The other half of these costs must then be capitalized and amortized over a four-year period; the amortization period will increase to 10 years by 1982. (These rules are not intended to affect institutional lenders but are, rather, aimed at the independent investors.)

Somewhat tougher changes have been approved for residential housing construction costs, where 100 per cent of construction-period interest and tax costs will have to be amortized over a 10-year period by 1984. As with the new rules for commercial construction, the amortization requirements will be phased in over a period of time.

Congress did, however, reinstate the special five-year depreciation rule for the construction of low-income housing. The rule, which expired last December 31, has been extended for six years, and the expenditure limit has been increased from $15,000 to $20,000.

- Owners of vacation houses who both use and rent their houses will have new restrictions placed on allowable deductions for the maintenance and depreciation of these properties.
- The bill encourages barrier-free building by allowing a new deduction up to $25,000 for any business incurring expenses for "the removal of architectural and transportation barriers" to the handicapped and the elderly.—*Frank Swoboda, World News, Washington.*

FTC issues advisory on the operation of new product warranty regulations

New product warranty regulations coming out of the Federal Trade Commission will likely apply to such building materials as roof shingles, insulation, exterior siding and underground pipe when they are purchased over the counter, or contracted for in a specific building improvement project. FTC commissioners say, however, that such products would fall outside warranty regulations when they are integrated into a structure at the time of sale. Then, they are considered real property.

These commission views were handed down in an advisory to the Johns-Manville Corp., which was concerned how the Magnuson-Moss Warranty Act might apply to various building products. Interpretations of the act are being given by the commission to assist various manufacturers in assessing its impact. While the interpretations are advisory in nature, they must be complied with, the FTC says. Thus if building supply manufacturers wish to cover their products with warranties, they must follow the various warranty regulations that are coming out of the FTC if the products are to be sold directly to consumers through such retail outlets as hardware stores, or if they are sold for a specific building improvement project.

Warranty rules being considered by the FTC under authorization of the Magnuson-Moss Act will apply to a long list of warranty procedures, including the settlement of disputes, product repairs and the replacement of warranted products.—*Michael Mealey, World News, Washington.*

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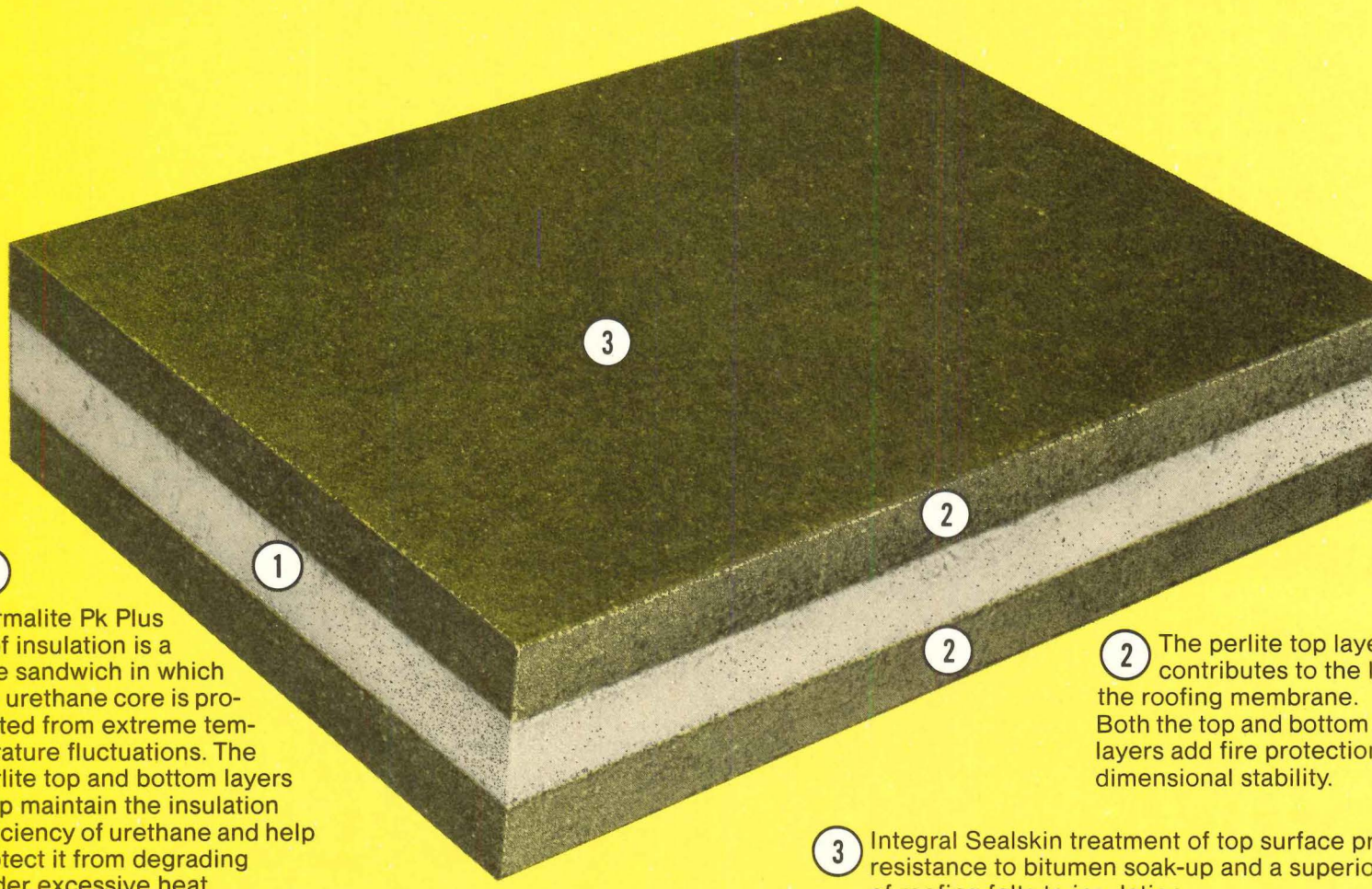

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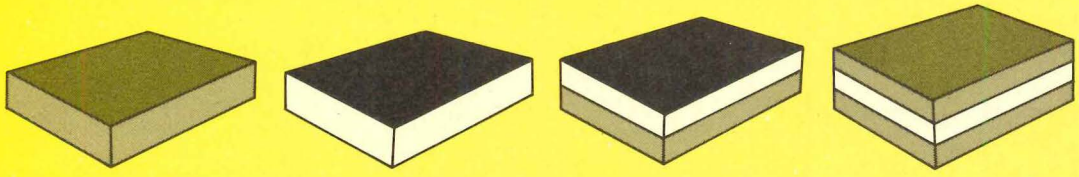

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IC defines its ideas Office of Construction

r two years of debate, con-ction's single-voice group has set-on a specific recommendation for creation of a scaled-down Office onstruction in the Department of merce. At a recent meeting, the onal Construction Industry Coun-pproved a report recommending creation of the office as a division ommerce's Domestic and Interna-l Business Administration.

NCIC leaders want the proposed office to gather industry statistics perform economic analyses, serve liason office with regulatory ps and Congress, coordinate con-ction research information, and see Commerce's construction-ed activities.

Only the American Institute of Ar-ects' representative refused to vote the recommendation, on the nd that it must be approved by the tute's board. NCIC now has 30 as-ation members, representing con-ction trade groups and professional eties.

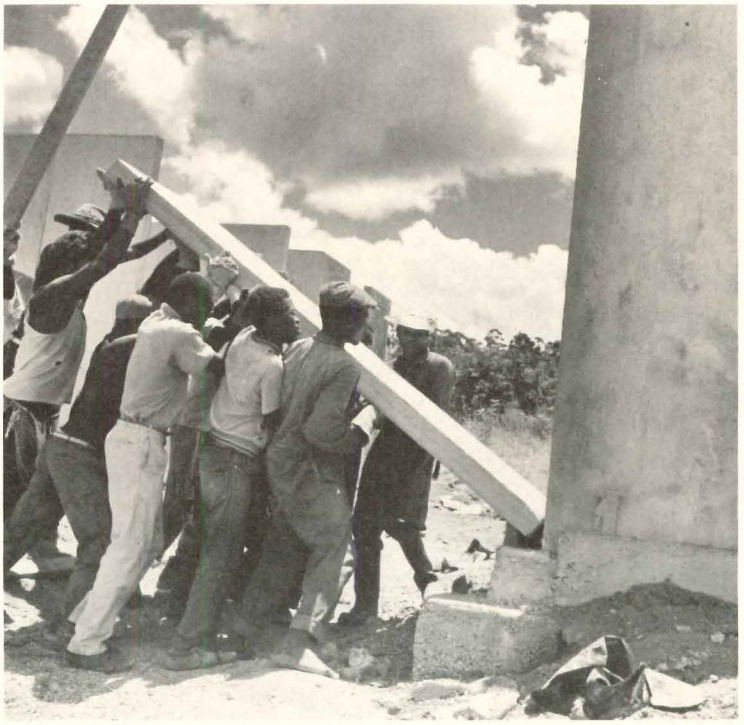
Legislation would not be required reate the office as proposed: the etary of Commerce (currently El-L. Richardson) could use his exec-e powers to do so. The NCIC pro-l suggests the office be staffed ely with existing Federal person-

NCIC associations have had the ce of Construction as the focal t of their campaign since it was ted in the summer of 1974. There an early clamor to establish the agency as a cabinet-level office or n arm of the Office of Management Budget.—*William Hickman, ld News, Washington.*

lti-use Federal offices died by Congress

gress is working on legislation that require the General Services Ad-stration to design Federal build-to include commercial stores, s and apartments along with regu-ffice space so the structures will around-the-clock utilization. etofore, the law has limited ipurpose Federal building by a re-ement that leasing to nongovern-t users must be awarded to desig-d small business, minority or licapped renters. The legislation g considered encourages GSA to ely solicit commercial space rs who might complement com-cial, cultural, educational and rec-onal resources in the neighbor-l of public buildings. The legisla-also encourages GSA to preserve lings of historic or architectural ficance through their use as Fed-office buildings. Additionally, gress might approve a provision ng on all government agencies to e that buildings are designed and tructed so as to be accessible to hysically handicapped.—*William man, World News, Washington.*

In Swaziland, housing Prototypes offer an answer to squatter settlements



Eric C. Fisher, an architect who has returned to practice in Schenectady, New York, spent three years (1971-74) as chief architect to the Government of Swaziland. Under the aegis of the United Nations, he studied the problems of housing the poor and developed a group of designs for low-cost housing. Some of Mr. Fisher's observations and his description of the housing designs are published here.

The usual design for relatively cheap housing in Swaziland consists of small concrete-block houses with metal roofs in the urban areas, traditional construction such as mud-and-wattle and beehive grass houses in the rural areas, and a combination of traditional construction with metal roofs in squatter areas. For the experimental project described here, it was decided to use an innovative approach, both in planning and in construction method.

An area was selected of about six hectares in the Zakhele township of Manzini, which forms part of a site-and-service scheme completed several years ago. Roads, sewers and water mains had been installed which imposed limitations on the site planning.

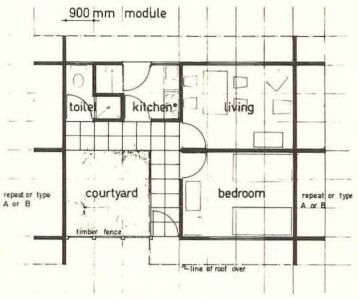
It is an accepted fact that housing for low-income groups often becomes very densely occupied; in many instances, a whole family shares one room, whether adequate sanitary provisions have been made or not. The letting of rooms by the owner of the house is also very common. Attempts at controlling density are usually inefficient. With this in mind, most of the pilot models were designed to provide direct outside access to all rooms.

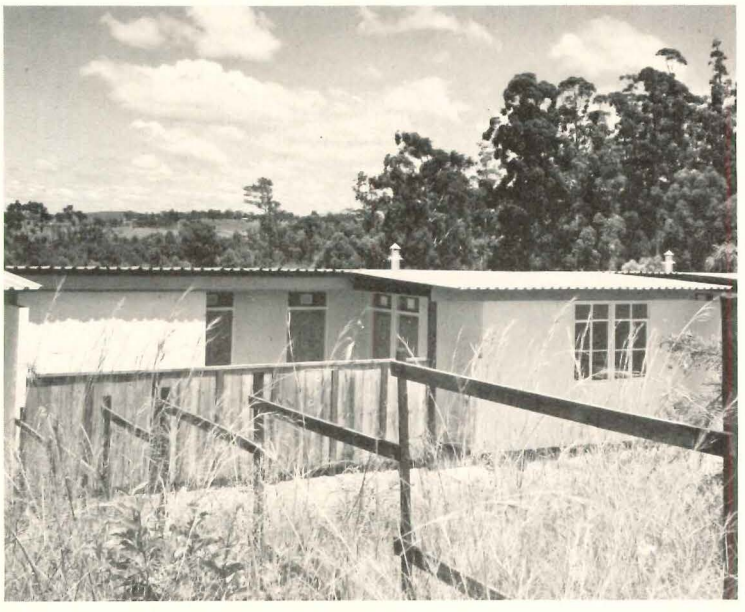
The courtyard designs (one of which is shown here) consist of two, three or four rooms, plus bathroom and kitchen, grouped around a fenced-in courtyard—an area which can be used for social purposes as well as for outdoor cooking during the dry season. These designs can be used in terraces with party walls, allowing higher land use and savings in utility and construction costs. Other designs revolve around patios, which also provide access to all rooms; the back of adjoining units forms the patio enclosure. These units can be arranged in groups of six to 10, requiring even less road frontage than the courtyard designs. In addition to these models, standard compact detached houses and a minimum-size semi-detached house were included in the pilot scheme.

To arrive at a valid alternative to the standard concrete block construction, various other methods were explored, including the use of timber prefabs, asbestos board and steel frame prefabs, soil-cement blocks, etc. It was finally decided to use a system of precast lightweight concrete panels supported on concrete ground beams. This proved to be both economical and speedy. Resulting construction costs were about 33 per cent below equivalent standard methods.

Concrete piles were cast at 2.75-meter intervals directly into the ground; these supported the precast ground beams. Wall panels 0.9 by 2.7 by 0.1 meter were cast on concrete beds with hollow cores formed by steel pipes; these were removed before the concrete set. The panels weighed about 350 kilograms, and could be lifted by ten men (see photo at top). Panels were stacked vertically after a few days and allowed to cure. They were then set into slots in the ground beams and levelled with wooden wedges. Vertical joints between panels were reinforced and grouted. Door and window units were designed to fit into the module. Roof construction was timber framing with corrugated metal roofing and asbestos board ceilings. Panels did not require plastering but were painted directly on the exterior and interior. The resulting construction was equivalent or superior to the conventional concrete block buildings, both in life expectancy and maintenance.

At the completion of the pilot scheme it was decided to continue with a major project of 115 additional units. A small community center and market was also included. The designs provide a cost range of between 1,300 and 2,300 *emalangeni* ($1,500-2,-650), putting these houses within the economic reach of all but the poorest. The initial 125 houses will be owned by the government and leased to tenants. In the remainder of the area, some houses may be built for sale.





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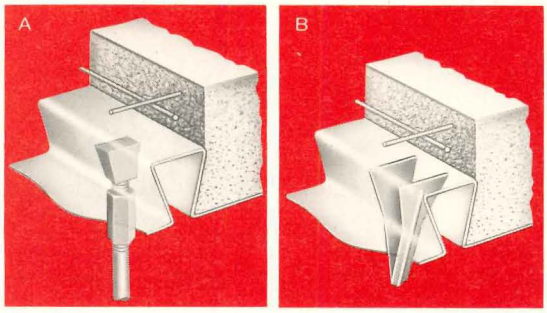
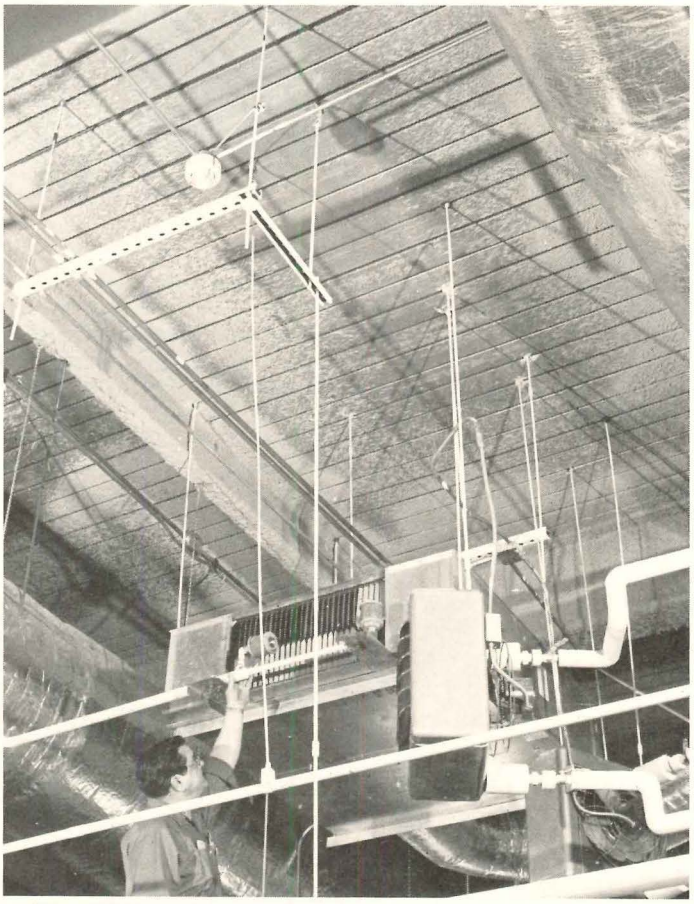


Central Medical Pavilion, Pittsburgh, Pennsylvania
Architect: Rea, Hayes, Large & Suckling
Contractor: Dick Corporation



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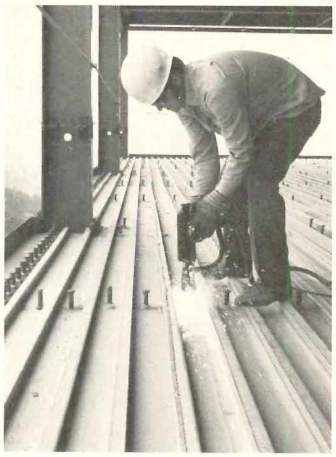
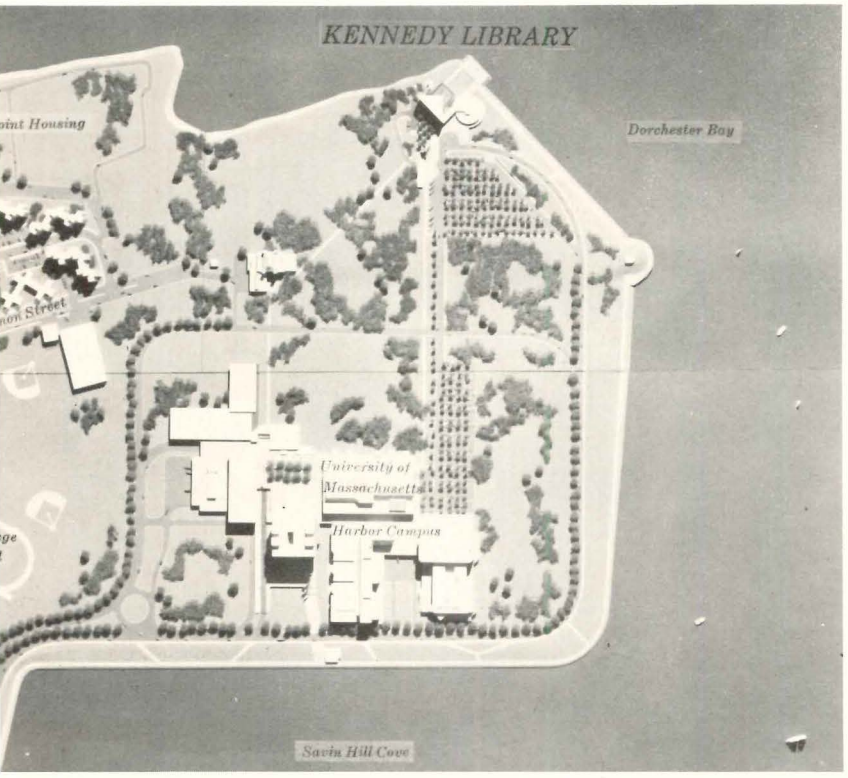


Private Hospital, Cincinnati, Ohio
Architect: Harry Hake & Partners
Structural Engineer: Donald Oakley
Construction Manager:
Charles V. Maescher & Co., Inc.

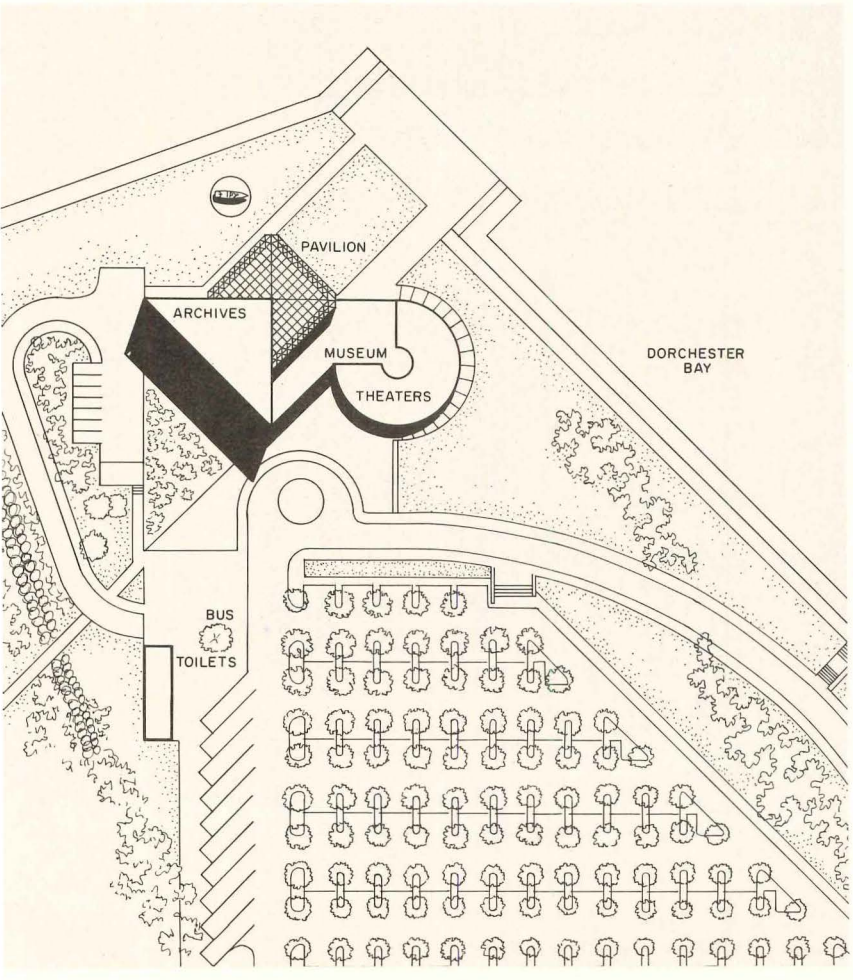
Children's Hospital of Philadelphia
Architect: Harbeson Hough Livingston & Larson
William A. Amenta
Associated Architects
Structural Engineer: A.W. Lookup Company
Contractor: Baltimore Contractors, Inc.

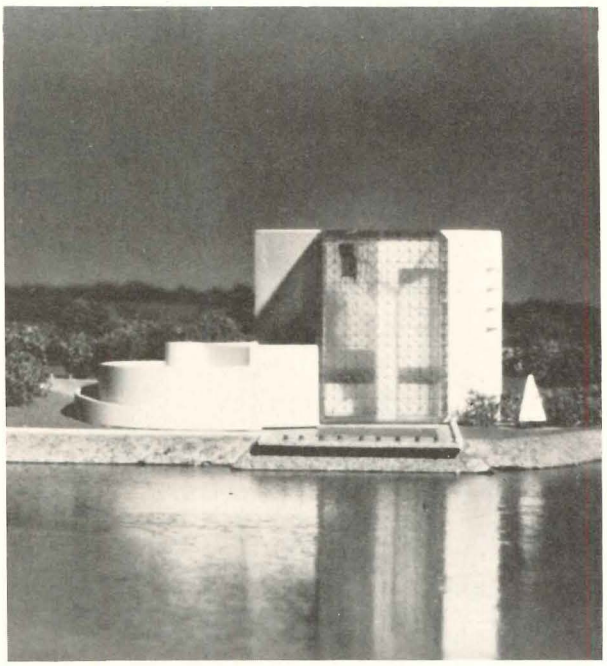
For more data, circle 25 on inquiry card

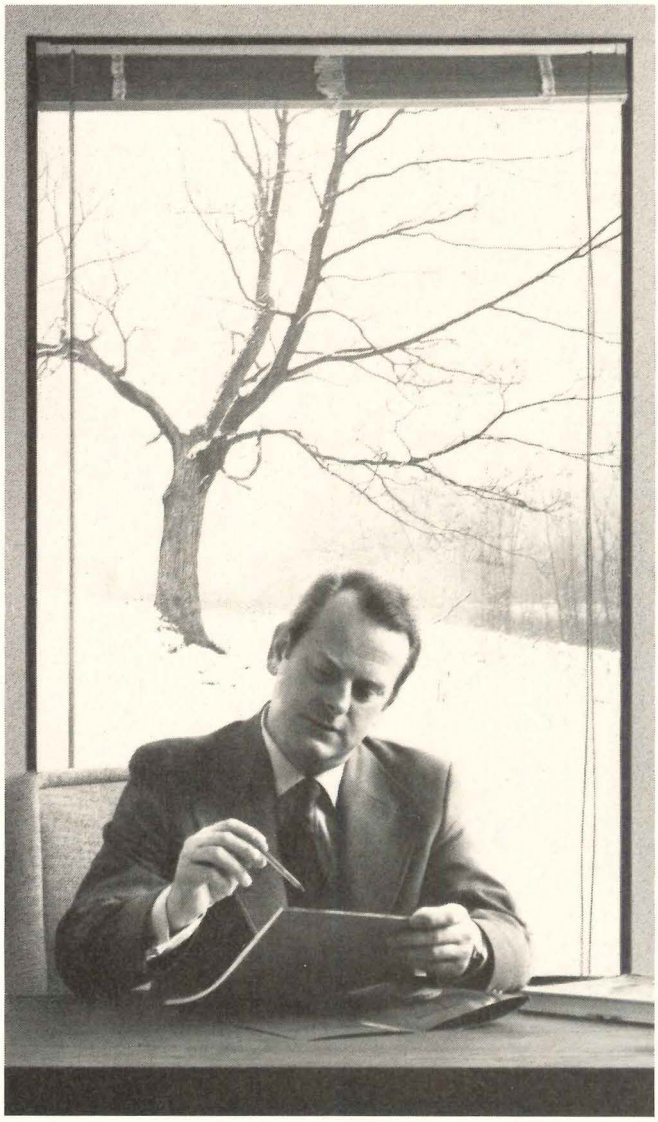


Pei unveils new design for Kennedy library

The housing of Presidential archives has become, at least since the establishment of Franklin Delano Roosevelt's library at Hyde Park, an increasingly formalized matter. The library for the archives and memorabilia of John F. Kennedy's administration evoked perhaps more than its share of emotional, philosophical and esthetic contention. After a prolonged effort to place a building on the campus of Harvard University (the late President's alma mater), the Kennedy family and the library corporation finally elected, late last year, to site the building at Columbia Point in Dorchester, on the campus of the University of Massachusetts. I. M. Pei & Associates, who had designed two buildings for the Harvard site, have now unveiled their third design for a Kennedy library. The precast concrete building will accommodate two orders of visitors: scholars who come to use the research facilities in the eight-story archives building, and the general public who comes to tour the museum and to attend the museum's film showings in two 300-seat theatres. Remembering President Kennedy's fondness for the sea—he was a Navy man and an enthusiastic sailor of small boats—the architects have established an intimate relation between the building and the waters of Dorchester Bay. An eight-story glass pavilion, supported by a metal space frame, commands an expansive view of sea and sky, and a broad quay extends a promenade over the water. The President's sloop *Victura* will be on permanent exhibit outdoors.







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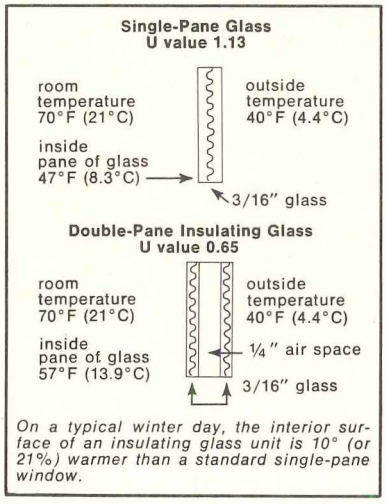

On a typical winter day, the interior surface of an insulating glass unit is 10° (or 21%) warmer than a standard single-pane window.

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Based on calculations from the ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers, Inc.) Guide and Data Book.

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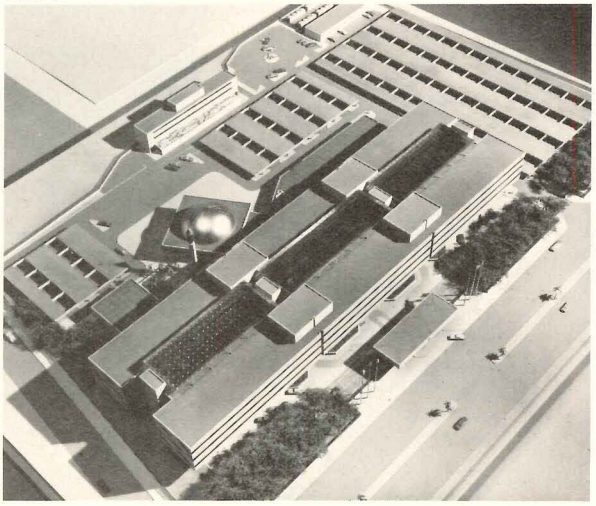
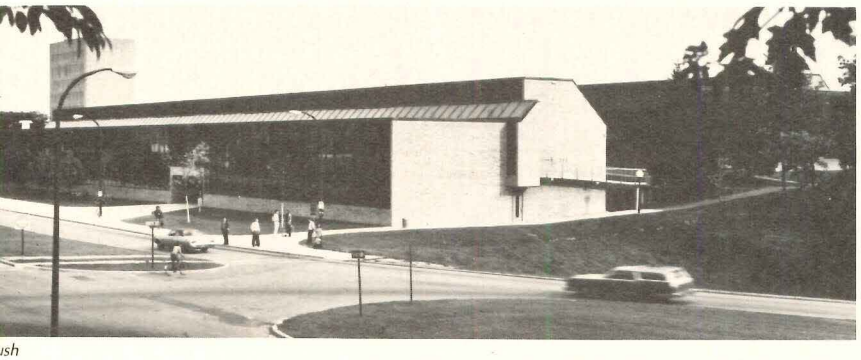
Balthazar Korab

SH&G designs Saudi Air Force HQ for Riyadh

The Royal Saudi Air Force will build a $50-million headquarters complex, designed by Smith, Hinchman & Grylls, at Riyadh. The 650-ft-long four-story office building will front on a major thoroughfare half a mile from Riyadh airport. The building, divided into two parallel sections, will be bisected by a long skylighted garden. A mosque integrated with the office structure can accommodate 1,200 people. On the ground floor, the building will provide a 500-seat auditorium, cafeteria and dining facilities for 1,200, and a special dignitaries' entrance. Guards will be housed in single-story barracks on the site, which also contains a utility building and parking for 600 cars. The contract will be administered by the Mediterranean Division of the U.S. Army Corps of Engineers.





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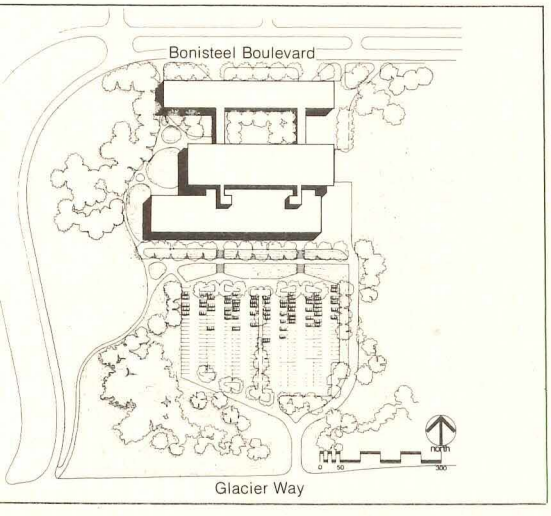
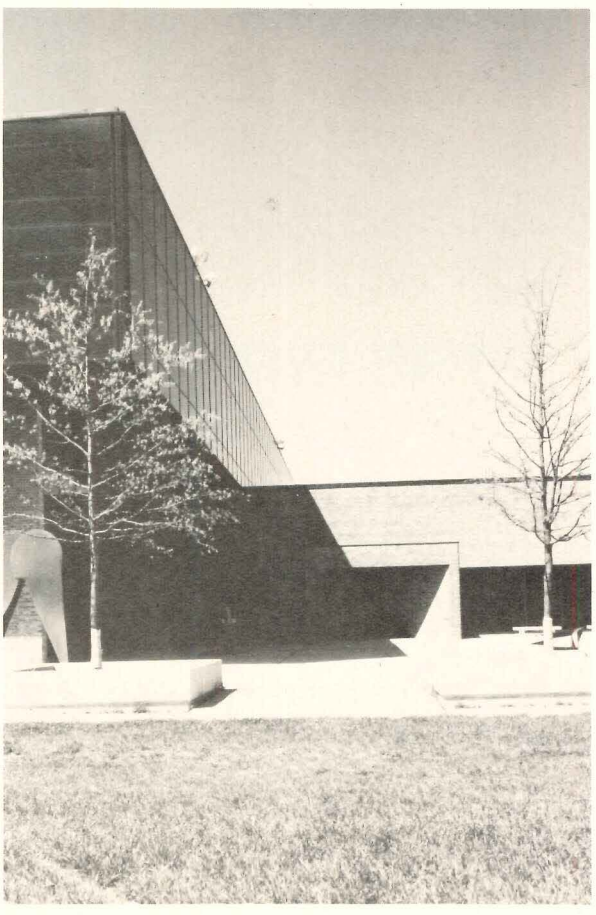
Architects and artists share school studios



At the University of Michigan, the College of Architecture and Urban Planning and the School of Art jointly occupy a building designed by Swanson Associates. Art studios are situated at the front of the building, where monitors take advantage of the northern exposure. Architecture students occupy a virtually unobstructed studio at the top of the center building, where a long glass wall, overlooking the lower art building, also gives north light. The third building houses shops for building technology, ceramics and sculpture. The schools share a courtyard for exhibits.



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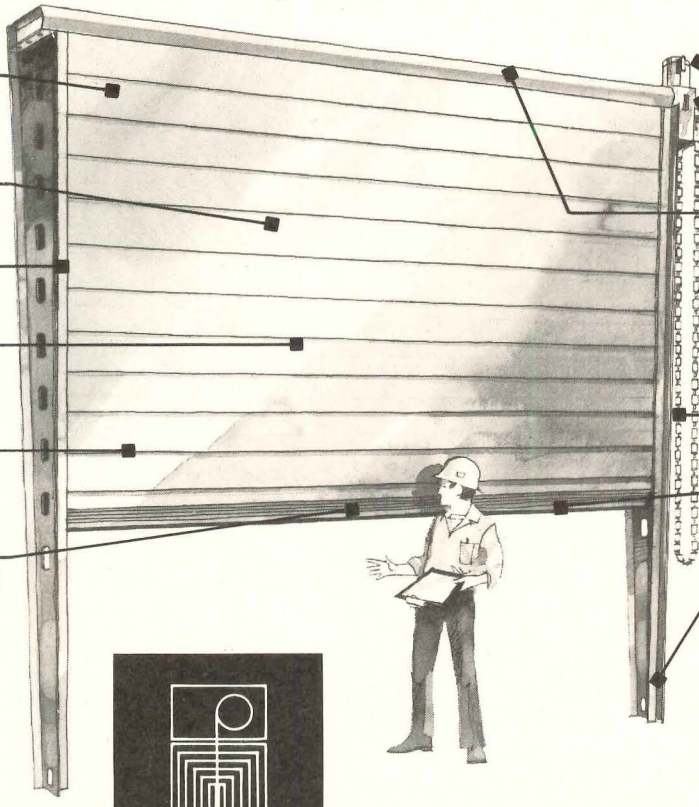

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For further information, see Sweet's Arch. or Ind. Constr. Files, section 8.9/In. Or write to Special Products Group—Milcor Division; INRYCO, Inc.; Dept. K, 4033 W. Burnham St.; Box 393; Milwaukee, WI 53201.

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mple truths

NDSCAPING THE SAUDI ARABIAN DESERT, *by thleen Kelly and R. T. Schnadelbach; The Delan- Press, 1976, 182 pages, illustrations, $22.50.*

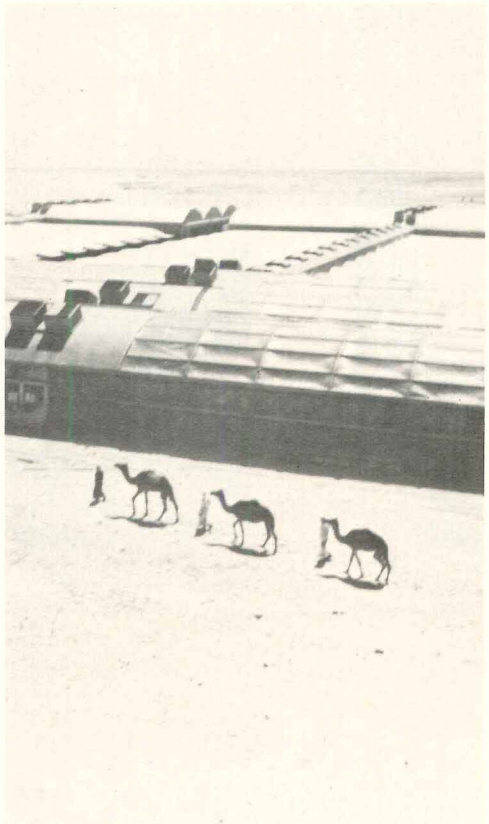
many ways, *Landscaping the Saudi Arabian esert,* is a simple book; devoid of jargon, it ts for simplicity in its solutions to environ- ental problems. At once a handbook for de- ners (which, according to the authors, is the rst book to present and interpret the hot sert environment as it relates to building and velopment there"), it is also a treatise—tak- issue with those who have looked to tech- logy as the ultimate solution, in this case as sole way to enable an arid environment to pport life.

With the rapid pace of building in the ddle East, entrepreneurs and engineers and rhaps even architects are eager to use ad- nced technology to construct what the au- rs would call "over-designs." Buckminster ller's panacea, though, in the form of ificially-created domed cities is effectively ected as well, as the authors turn to more ystemic" methods—methods that operate thin the desert environment to restore an ological balance and thus assure human sur- al. These methods include interspersing ep-rooted plants and plants with lateral roots maximize moisture by tapping much of the l), and planting trees on berms at a commu- y's borders (to lift the wind, trap sediments, ch rain, and even eventually become a urce of fodder, fruit, and medicine).

The authors maintain a high respect for abian culture and seek to preserve Middle st modes of life. "Large open spaces may be quired for equestrian sports," they write. hese activities raise a great deal of dust and require sequestering from housing and other ivities where the dust would be a problem. screen of hardy shrubs, and trees with lacy lage such as Albizzia, or tomentose leaves ch as Ficus and Fraxinus velutina, especially the lee side of horse riding areas will filter st of this dust out."

This concern for preserving Arabian tradi- ns, for avoiding the cultural convulsions in- ced when spellbinding Western technology ls for changing a familiar way of life, is evi- nt in other ways: Abstracting from specific ddle East customs and reasons therefore, the thors draw analogies between human and vironmental designs.

Throughout, the book constantly empha- es the need for more research in all aspects deserts and their designs. A salient point, , but the belaboring of the issue best exem- fies the book's major flaw: careless writing,



The Agricultural Experimental Farm at Abu Dhabi (Courtesy of The Arid Lands Research Center, Abu Dhabi and Environmental Research Laboratories in Tucson, Arizona.

useless words. Indeed, the authors have an important message—so important to them that they started their own publishing company to bypass the months or even years of hassles it can take to get a book out. But had they endured the traditional publishing cycle, their phraseology could perhaps have boasted the same simple qualities that their philosophy so eloquently propounds. —*Harriet Sugar.*

Also received

SWEET'S 1906 INDEXED CATALOGUE OF BUILDING CONSTRUCTION; *Architectural Record Co., New York, 1906—reprinted by Sweet's Division, McGraw-Hill Information Systems Company, New York, 1976—830 pages, illustrations, $28.70.*

To celebrate its 70th anniversary, Sweet's Division of McGraw-Hill Information Systems Company is offering for sale reproductions of its first Sweet's Catalogue File, *Sweet's Indexed Catalogue of Building Construction.* First published in 1906 by the Architural Record Company, the index contains 435 manufacturers' catalogues of building products, most of them illustrated with photographs. The products and photos range from architects' supplies to window guards with everything from bells to ornamental metal works in between. Descriptions of the products are often colorful and reflect the language and flavor of an earlier era.

The book contains an endorsement by leading architects of the time, and an introduction by an architectural professor of note in 1906, Thomas Nolan, FAIA, explaining the purpose, intent, and background of the catalogue. Of the original manufacturers included in the original book, many are still in existence today, and are still distributing their catalogues via Sweet's.

PRESERVATION AND BUILDING CODES: *Papers from the Preservation and Building Codes Conference sponsored by the National Trust for Historic Preservation in May, 1974; The Preservation Press, Washington, D. C., 1976, 96 pages, illustration, paperback, $4.00.*

This book contains 25 papers given by architects, building code officials, and preservationists at the first national conference held on the subject. Sponsor of the conference was the National Trust for Historic Preservation. Papers in the book first explore current issues and solutions, dealing with historic preservation work in New Orleans, Seattle, New York, Richmond, and Alexandria, Va., and other communities. These are followed by a section on national code organizations, and topics of discussion include the following: historic buildings and the Basic, Uniform, Standard, and National building codes; application of the Life Safety Code to historic preservation work; and Occupational Safety and Health Administration (OSHA) interests in building requirements.

CYCLICAL MAINTENANCE FOR HISTORIC BUILDINGS, by J. Henry Chambers; Office of Archeology and Historic Preservation, National Park Service, U.S. Department of the Interior, Washington, 1976, illustrations, paperback, $2.00.

This is a new publication prepared for the preservation handbook series of the Office of Archeology and Historic Preservation of the National Park Service. This preliminary report, along with others still in preparation, is intended to be used by administrators, architects, and others involved in the preservation and the maintenance of historic properties owned by Federal Agencies and by State and local governments. Copies may be obtained by writing to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 and asking for publication number 024-005-00637-1.

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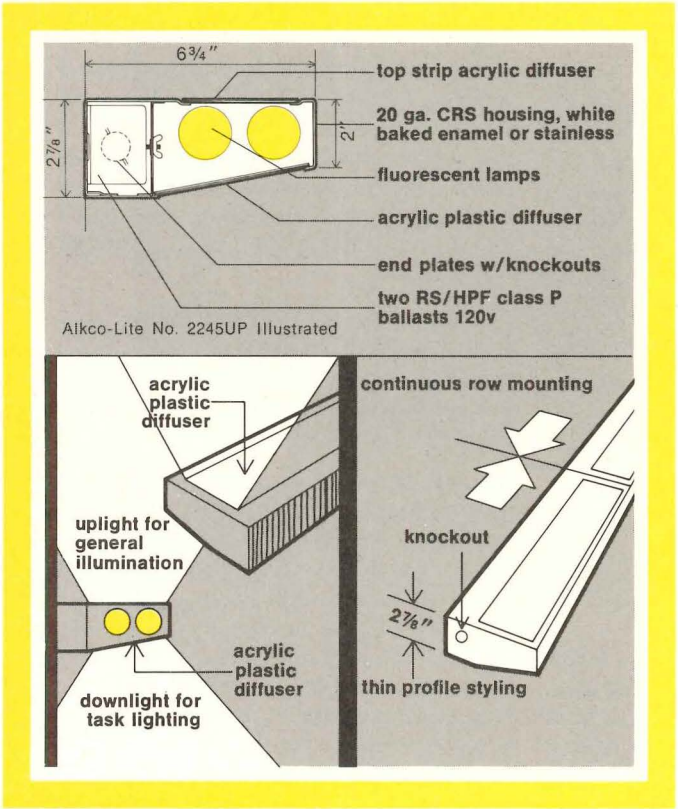

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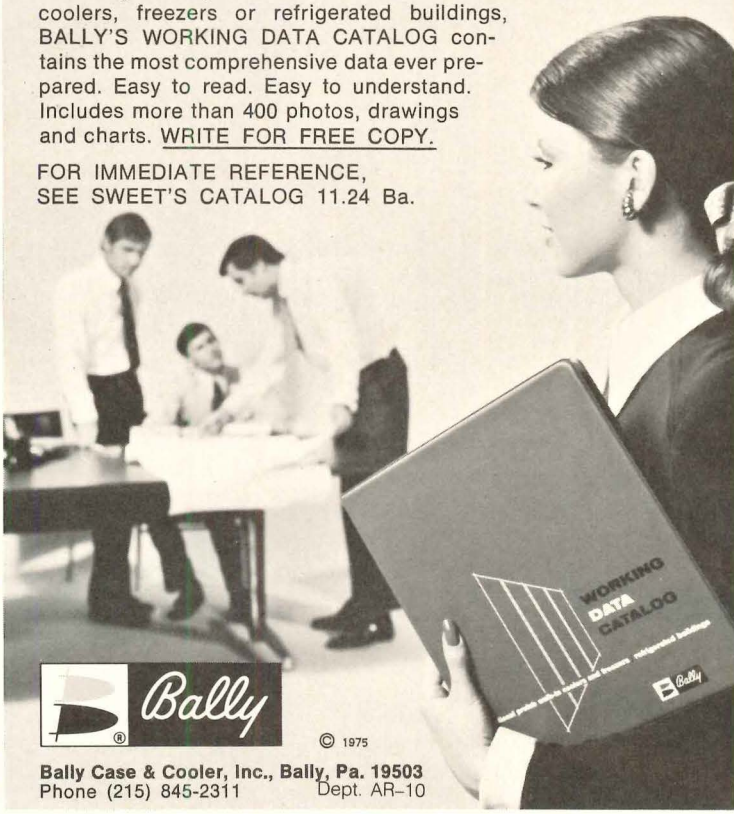

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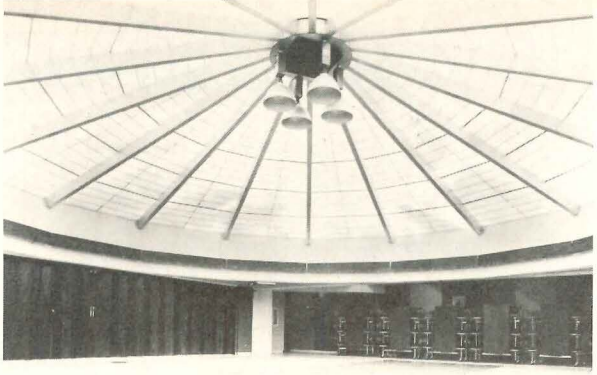

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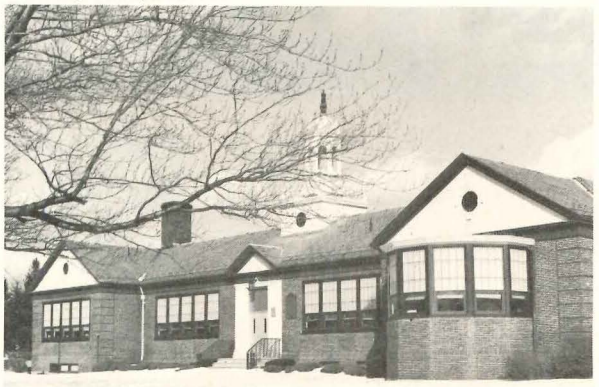

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Computer downtime due to electrostatic build-up or magnetic dust may result from one of these wood or steel stringer-supported floors. Costly delays are often caused by the inconvenience of working under stringers, or disassembling and re-assembling them.

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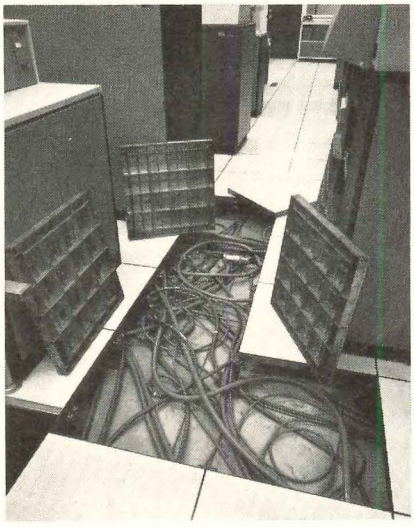

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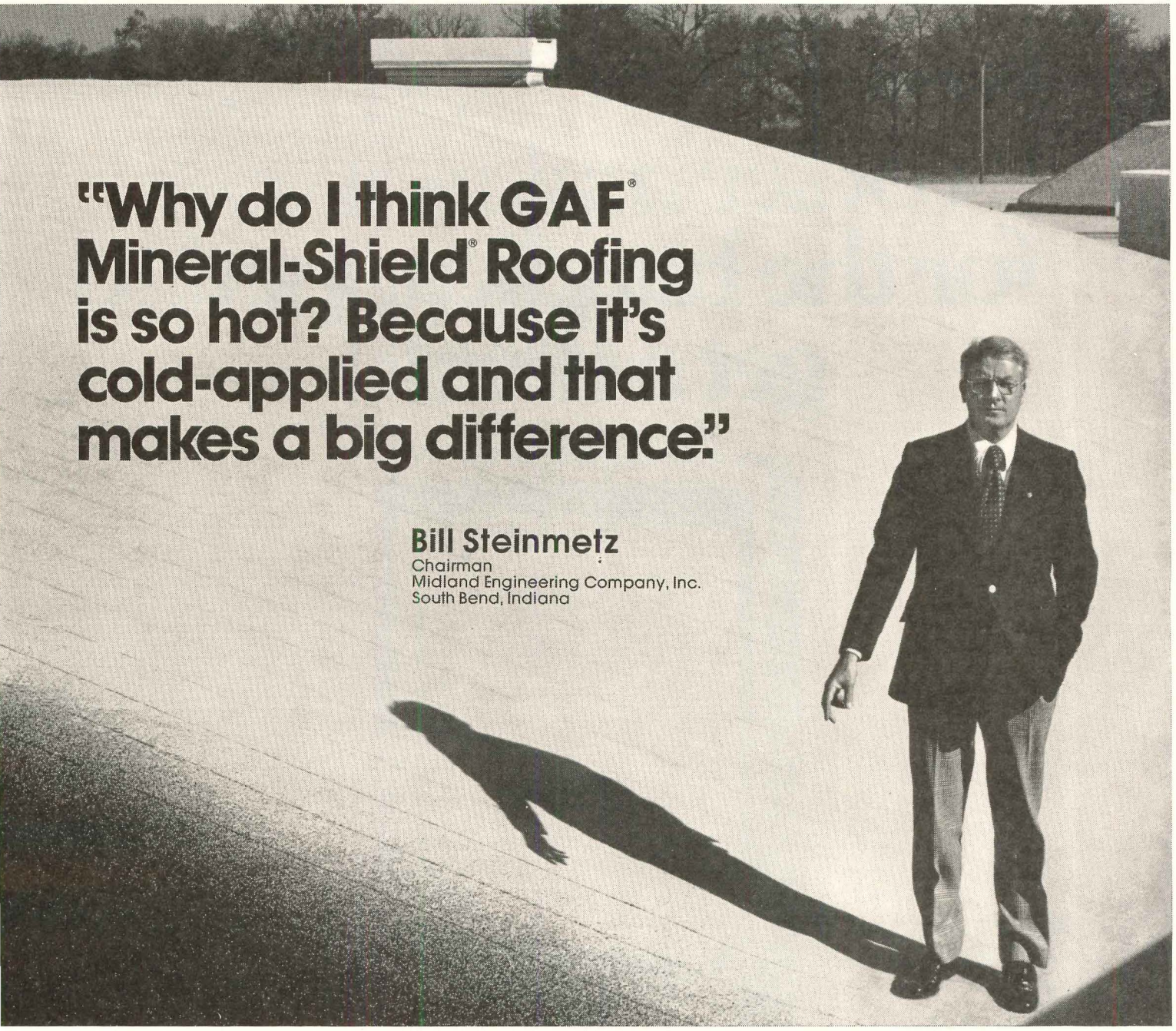

"Why do I think GAF® Mineral-Shield® Roofing is so hot? Because it's cold-applied and that makes a big difference."

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Chairman
Midland Engineering Company, Inc.
South Bend, Indiana

"A play on words, hardly," Mr. Steinmetz continues. "We've been thinking cold around our company for over six years now. With some 400 cold process roofing jobs under our belt, we know that Mineral-Shield roofing performs. Not only can we recommend it with complete confidence to our customers, but we have also found through our extensive job experience that there are many advantages and benefits to the roofing contractor.

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"What really sold us on GAF Mineral-Shield Roofing system is that it works! And after all, that's the name of the game whether you're looking at it from the point of view of the owner, roofing contractor, or architect."

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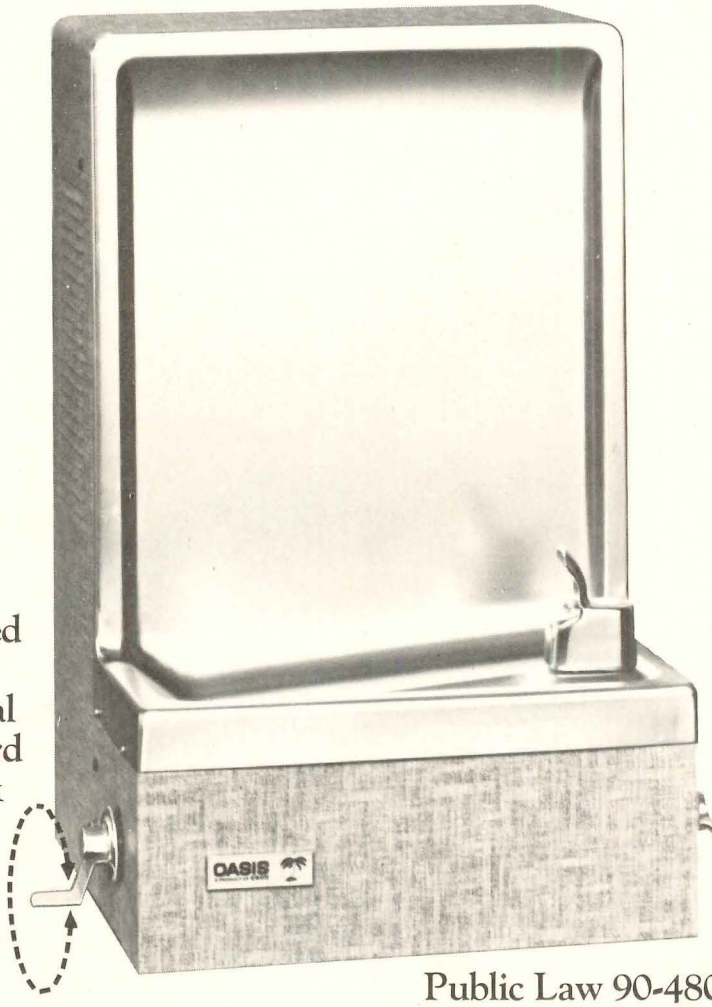
New Oasis "Soft Touch" cooler makes it easy for the handicapped to get a drink.



This new wall-mounted cooler is designed for people whose physical handicaps make it hard for them to get a drink from conventional water coolers. Wheelchair users, for example, will find it much handier.

Two "Soft Touch" levers—one on each side of the cooler—operate up or down at the slightest pressure. Either one of them will activate the bubbler, and there are no hard-to-use knobs or buttons. The levers can be positioned or re-positioned any place in a 360° circle, and their unique no-linkage mechanism needs no adjustment.

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The beauty of Alcoa Coilzak in parabolic luminaires is the beautiful way it controls light.

abolic luminaires are esthetically pleasing, he design of the fixture and in the type of t they dispel. This is particularly important ere people work, read or shop, where low ual brightness contributes to a comfortable nosphere. The secret is precise light control, de possible because the reflective material quality parabolic systems is Alcoa* Coilzak ting sheet. Note that we said *lighting sheet.* a properly designed luminaire, reflectivity is y part of the story. Controlled image clarity d reflective diffusion are just as important. oa Coilzak sheet is an Alzak®-finished ector material that meets precise reflectivity d gloss standards.

Operating costs of a parabolic lighting tem can be low. Because of its efficient light distribution, a properly planned system may require fewer luminaires, resulting in low electrical loadings. Savings in cleaning maintenance are possible also. Parabolic luminaires do not require a lens and the unique design, plus the static-free Coilzak louvers, resists soil and dust accumulation.

For more information on the many beautiful advantages of Coilzak lighting sheet in parabolic luminaires, write Aluminum Company of America, 551-K Alcoa Building, Pittsburgh, PA 15219.

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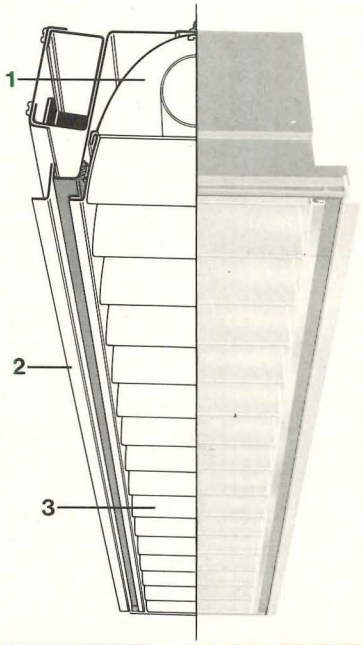

1. One-piece constructed Coilzak reflector with accurately controlled parabolic shape.
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oto courtesy of Columbia Lighting, Inc.

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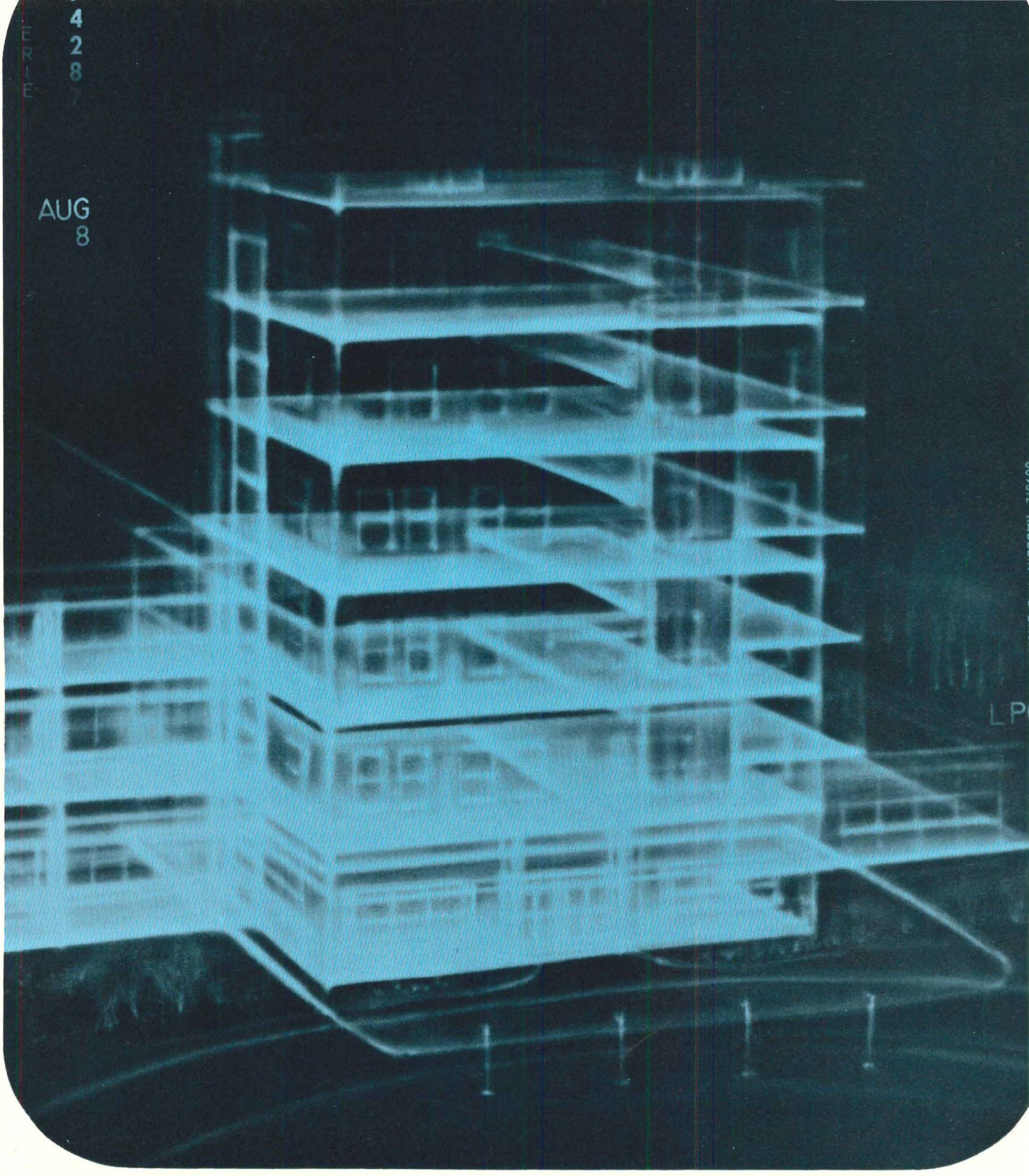

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warehouse for 20 years with only 15/16-inch Fiberg
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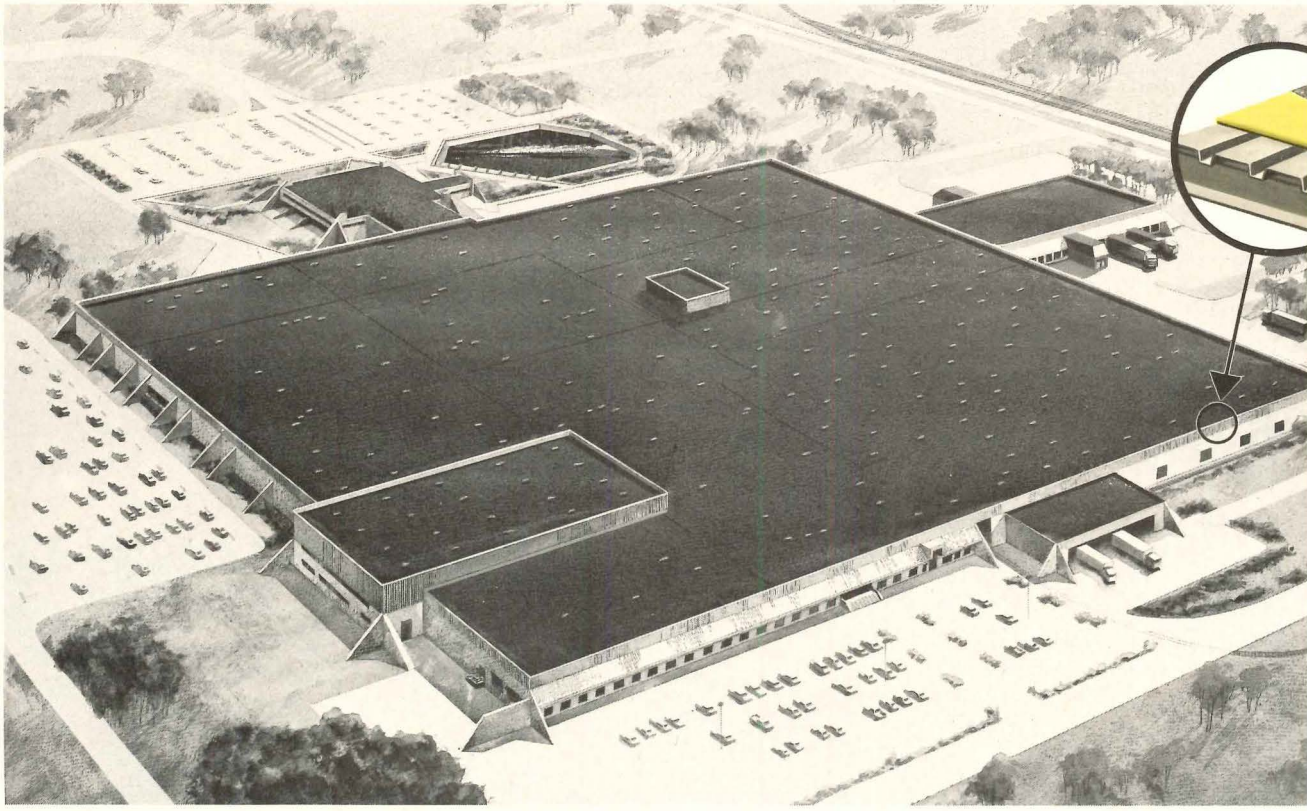

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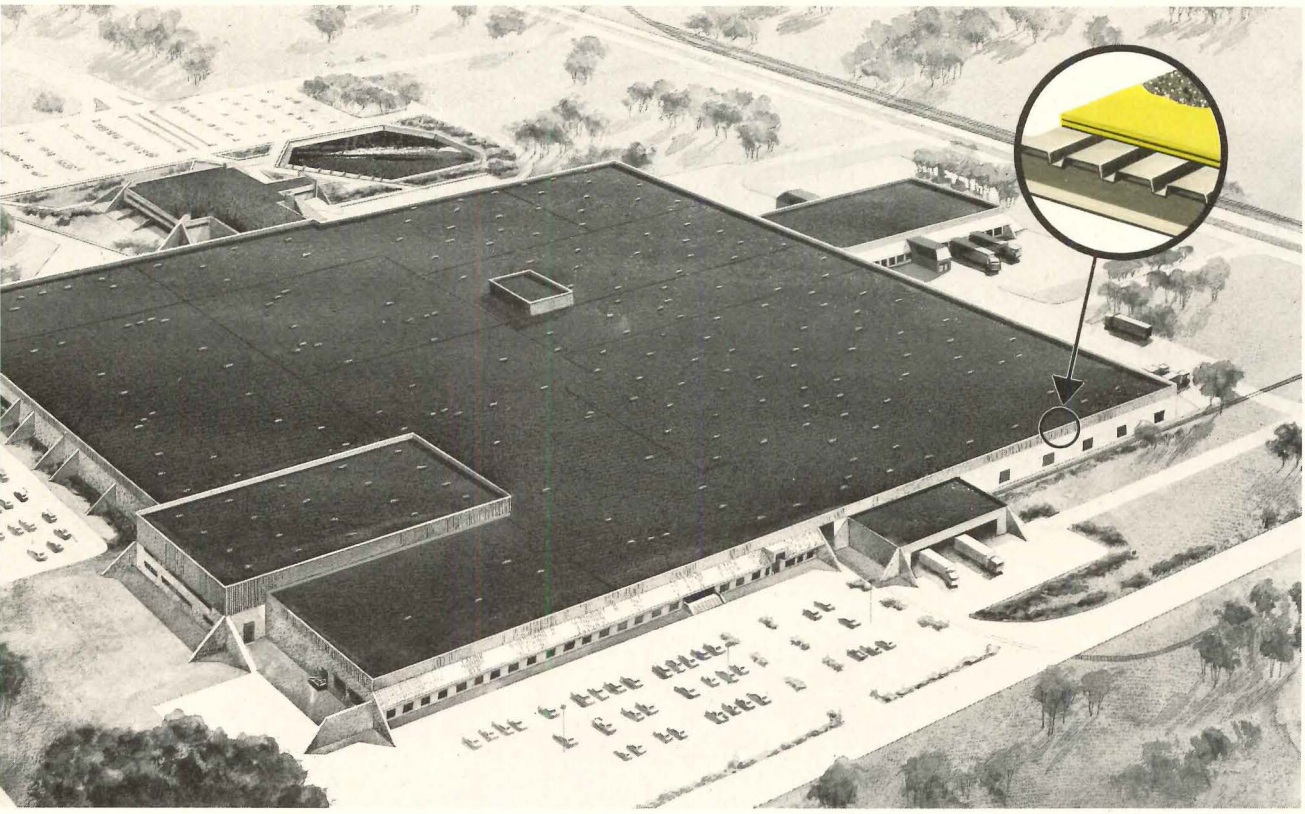
877,972 Projected cost to heat and cool the 46-acre J.C. Penney warehouse for 20 years with thicker 2¼-inch Fiberglas roof insulation. (After allowing for the added cost of thicker insulation!)



markable savings of $972,024! ith it, architect Paul Slusarev, t Manager of the massive new enney warehouse/office in a, Kansas, is helping to point ay for designers of schools, , stores, and other commer- ildings everywhere.

Saves money two ways

2¼ inches of Fiberglas* roof ion vs. a conventional thinner saves money two ways:

t saves on energy costs. Esti- savings per year, based on eating and electric cooling in s City, Kansas, with a projected increase in energy costs at 7% per year and future savings discounted at 10% per year: $64,160—or $972,024 every 20 years.

(Due to present availability of natural gas, propane and fuel oil are used as additional fuels for heating, and as a result of using these higher-priced fuels, actual savings may vary.)

2. It saves on construction costs. The first cost of this energy-tight warehouse is actually lower than if a less efficient version had been built! Reason: the improved thermal performance of the roof permits use of less costly heating and cooling equipment. The savings are large enough to cover the added cost of the thicker roof insulation *twice* over.

Smart for re-roofing, too

Thicker Fiberglas roof insulation also makes sense when it's time to re-roof *existing* buildings. It should pay for itself within a few years, then go on saving thousands in fuel bills for years to come.

Find out the recommended amount of Fiberglas roof insulation to use to save *your* clients money. Call your Owens-Corning representative, or write F.K. Meeks, Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659.

Owens-Corning is Fiberglas

OWENS/CORNING FIBERGLAS TRADEMARK ®

For more data, circle 41 on inquiry card

Here's how you can specify an extra-tough decorative surface for both horizontal and vertical applications of high-pressure laminates.

NEW

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TUF-SURF™

extra-abrasion-resistant laminated plastic

New Wilson Art brand TUF-SURF has eight-to-ten times the abrasion resistance of general-purpose laminates. You get assured durability for such high-traffic, high-use surfaces as supermarket checkout stands, bank service counters, and on most surfaces found in the fast-food industry. The 35 solid colors, patterns, and woodgrains provide you exceptional design latitude. • Protect against wear on high-traffic surfaces with Wilson Art brand TUF-SURF—another unique product from Wilson Art to help you specify the right product for each application. • Write for specifications information to Wilson Art, Ralph Wilson Plastics Co., 600 General Bruce Dr., Temple TX 76501.

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To Save Your Clients' Money

VIEW ONE. With today's high labor and material handling costs, more and more owners are realizing they can't afford inefficient plain concrete docks. Many are adding permanent docklevelers to their present docks . . . and insisting they be included in new docks. Why? Because a permanent dockleveler will pay for itself in less than a year. Some figures show a permanent dockleveler can save $4000.00 per truck position per year . . . and often give 12 to 15 years service. **VIEW TWO.** Take an inside look at a Kelley Permanent Dockleveler. Compare it with any other dockleveler. The patented Kelley safety and operating features — cross traffic legs, single enclosed power pack, lip hinge supports, single adjustment point, plus optional emergency "Panic Stops" — are not available on any other dockleveler. These features are what make Kelley the world's most preferred dockleveler . . . because they help attendants and equipment operate more efficiently . . . with far greater safety. So why let your clients settle for substitute docklevelers? Recommend Kelley. Then contact your Kelley Representative. He's well qualified to help you choose the best size and capacity dockleveler for your client's needs.

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55-761A

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PPG GLASS GAVE THIS AGING HOTEL A BEAUTIFUL FACE-LIFT.

Skirvin Tower in Oklahoma City
n't a hotel anymore (it isn't even
kirvin Tower anymore), but it is,
nce again, a useful, profitable
uilding.

It was completely remodeled
om the ground up and from the
side out.

Now, it's the 101 Park Avenue
uilding, home of some of the poshest offices in the city, and headquarters of Continental Federal Savings & Loan.

It's a beautiful, modern office building. And PPG Solarban® 480 Twindow® reflective insulating glass played an important part in the transformation.

First of all, it looks sensational. Seeing the blue Oklahoma sky and dazzling sunsets reflected in this building, it's hard to remember the dowdy, old bricks.

But, perhaps more important, the glass is incredibly practical. Its reflective coating reduces glare and solar heat gain. And during the burning summers on the Great Plains, this is a welcome relief to the air-conditioning system.

The glass is also double glazed for insulation. So when those bitter cold snaps blow down from the north, everybody stays warm and cozy.

Not all old buildings can or should be remodeled. They shouldn't all be destroyed either. Some, like the Skirvin Tower Hotel, present a genuine architectural opportunity. Not to mention a challenge.

We think there's no better way to meet the challenge and take advantage of the opportunity remodeling offers than with PPG reflective glass.

Write to us. We'll send you a Sweet's Catalog telling you more about it. PPG Industries, Inc., One Gateway Center, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future

Owner: Continental Federal Savings & Loan.
Architect: Noftsger, Lawrence, Lawrence and Flesher, Oklahoma City, Okla.

PPG INDUSTRIES

For more data, circle 45 on inquiry card

Owens-Corning tells why you this unusual picture next tim

The concept of open offices is gaining acceptance *quickly.* No wonder.

Both owners and architects are drawn to their airy, sweeping good looks. To the improved communications and increased efficiency they promote for workers. And to their astonishing economy of 50 cents vs. roughly 15 *dollars* per square foot for inevitable alterations to meet shifting work patterns.

But here's a word of caution. Plant our outlandish basketball "office" firmly in your mind. Because unless you base your design on *acoustics,* as well as aesthetics, you may never hear the end of it.

More than one open office has had to be modified—embarrassingly and *expensively* torn apart, baffled, receilinged, or refurnished—in order achieve *workable* sound levels.

Owens-Corning has helped pioneer the velopment, testing, and matching of open-offi components. Look over these highlights of what experts have learned. Then call on us for *all* the tails and *all* the components of a *successful* op office system.

The ceiling. Handsome is as handsome does.

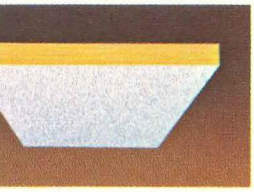
The ceiling is the single most important acoustic component in an open office. It should absorb, r reflect, sound. A perfect ceiling would have the sa

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

hould remember
ou design an open office

d attenuation as the open sky—a Noise Isolation s (NIC) rating of 23.

An independent acoustical testing laboratory hined eight ceilings, including costly coffered



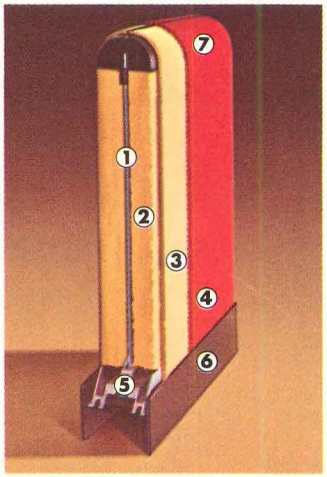
and baffled systems. Their verdict: Owens-Corning's Nubby II Fiberglas* Ceiling Board, in any standard exposed grid suspension system, is *best* for achieving ech privacy at economical installed cost. In these , Nubby II was the *only* ceiling board with an as high as 20 in a flat configuration.

Some architects prefer the look of ceilings with *cealed* grids. Caution: As yet, *no* such ceiling ides the minimum NIC performance necessary chieve satisfactory acoustical privacy in an n office.

n this league, handsome is as handsome *does*.

Acoustical screens. Don't just stand there. Do something."

sound screen, visual symbol of the open office, s flexibility, economy, personal privacy, and stical control. It has acoustical *functions*. to block direct sound smission from one zone to another. nd, to absorb sound, cing flanking reflec- into adjacent zones. ns-Corning's sound en is the *most* effec- screen available. Its neering features de:



. A metal septum—to sound transmission.
. One-inch Fiberglas core on each side of sep--to absorb sound.
. Sturdy special Fiberglas sound diffuser strate)—for abuse resistance.
. Stain-resistant Dacron® Polyester fabrics. e fabrics are washable, colorfast, and fire- dant (Class 25).

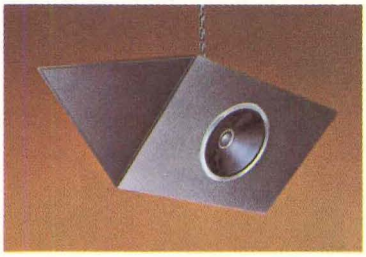
5. Extruded aluminum frame, fastened to septum—for strength and stability.

6. Painted anodized aluminum kickplates—for additional abuse resistance.

7. Top and side radii designed to minimize sound defraction over edges.

Masking sounds. The sounds of silence.

Even the finest acoustical ceilings and screens cannot do the whole job of providing speech privacy. An electronic sound masking system of speakers,



installed in the plenum, is necessary.

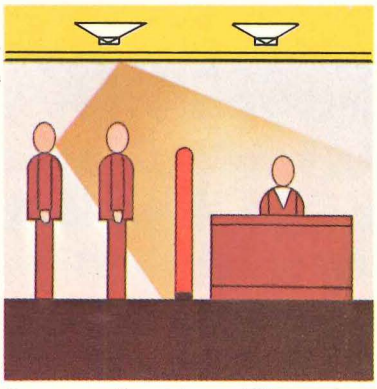
This sound must be unobtrusive—and *uniform*. Even at a few decibels above the desired $NC_{40} = 40$ rating, the masking sound causes people who are working in the office to begin raising their voices, defeating the whole purpose of the masking.

Owens-Corning's experts can recommend a background masking system that meets these requirements.

Owens-Corning system gets it all together.

For the open-office concept to be successful, the ceilings and screens must be tuned carefully to work *together,* and *with* the masking system.

Owens-Corning will be happy to provide you with all necessary information on achieving acoustical control in your open office. Or to guide the development of the whole acoustical system for you.



Write D. J. Meeks, Building Products Operating Division, Owens-Corning Fiberglas Corporation, Fiberglas Tower, Toledo, Ohio 43659.

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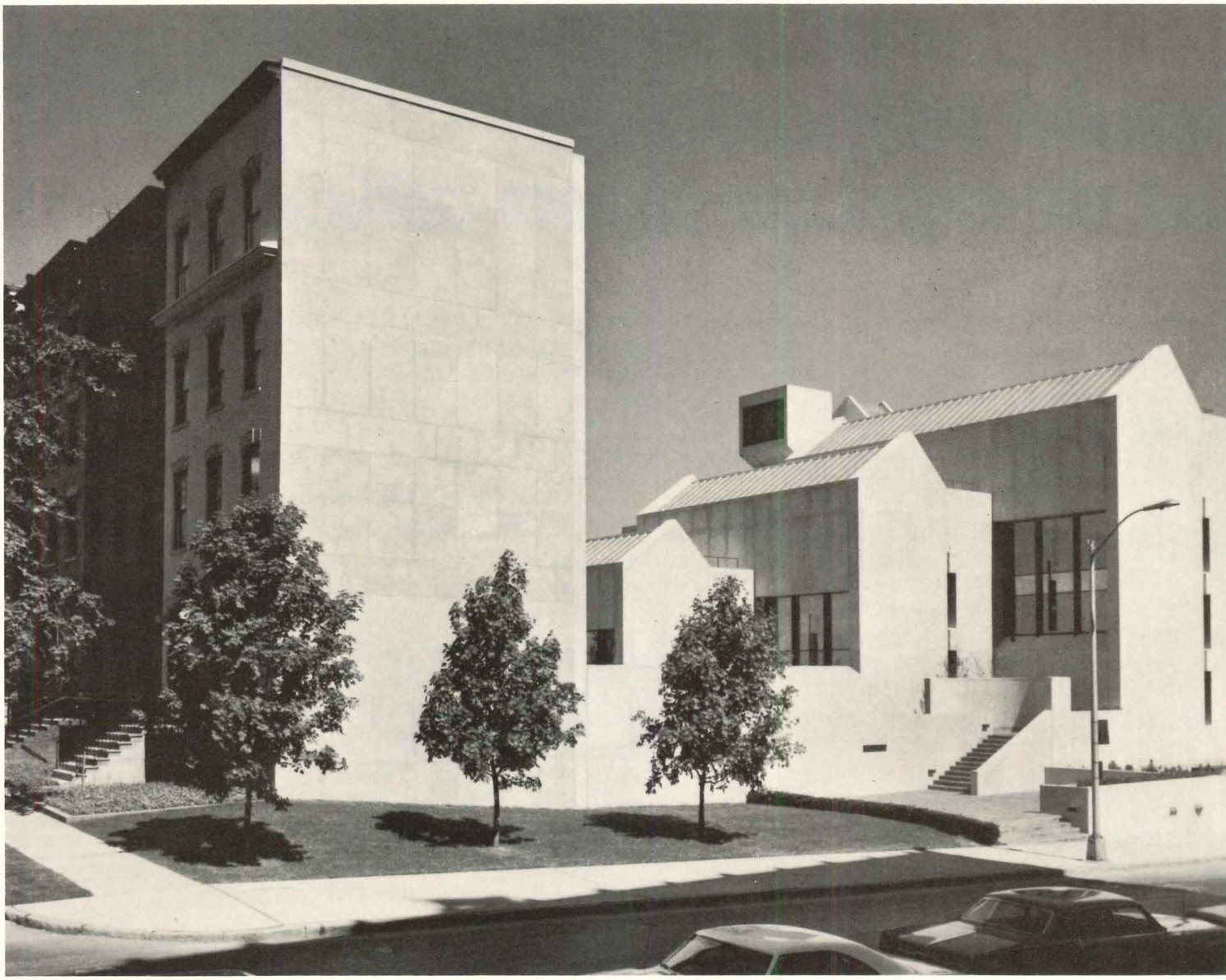

Headquarters, New York State Bar Association, Albany, N.Y. **Architects: James Stewart Polshek and Associates, New York, N.Y.** Photographer: George

TCS . . . and a "lesson in civilized architecture"

"The headquarters of the New York State Bar Association," as a most distinguished critic recently wrote, "is an object lesson in how to build intelligently, sensitively and well . . . In a happy alliance, the lawyers and the architects, James Stewart Polshek and Associates, have preserved a row of handsome 19th-century town houses and incorporated them, not as a false front, but as a working part of a completely and strikingly handsome contemporary complex built behind them. The words that come to mind are skill, imagination and taste qualities not encountered too often on the urban scene."

We at Follansbee Steel are particularly gratified that Mr. Polshek specified TCS (Terne-Coated Stainless Steel) for all pitched-roof areas on this outstanding building in which originality of design and integrity of site are so felicitously coupled.

FOLLANSBEE STEEL CORPORATION
Follansbee, West Virginia

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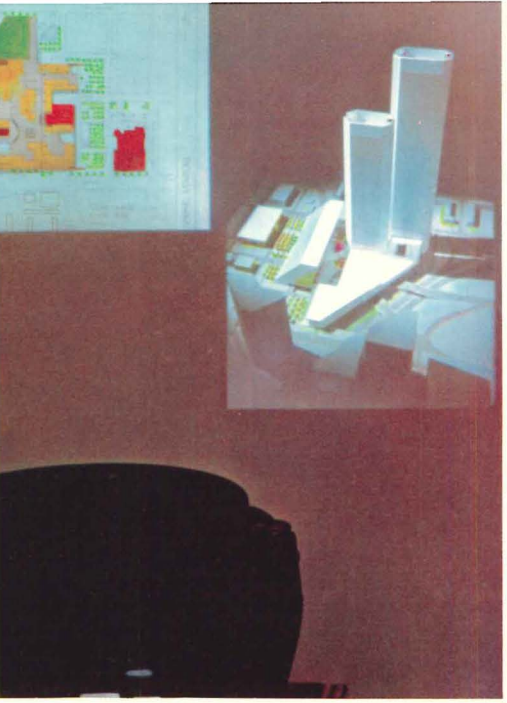
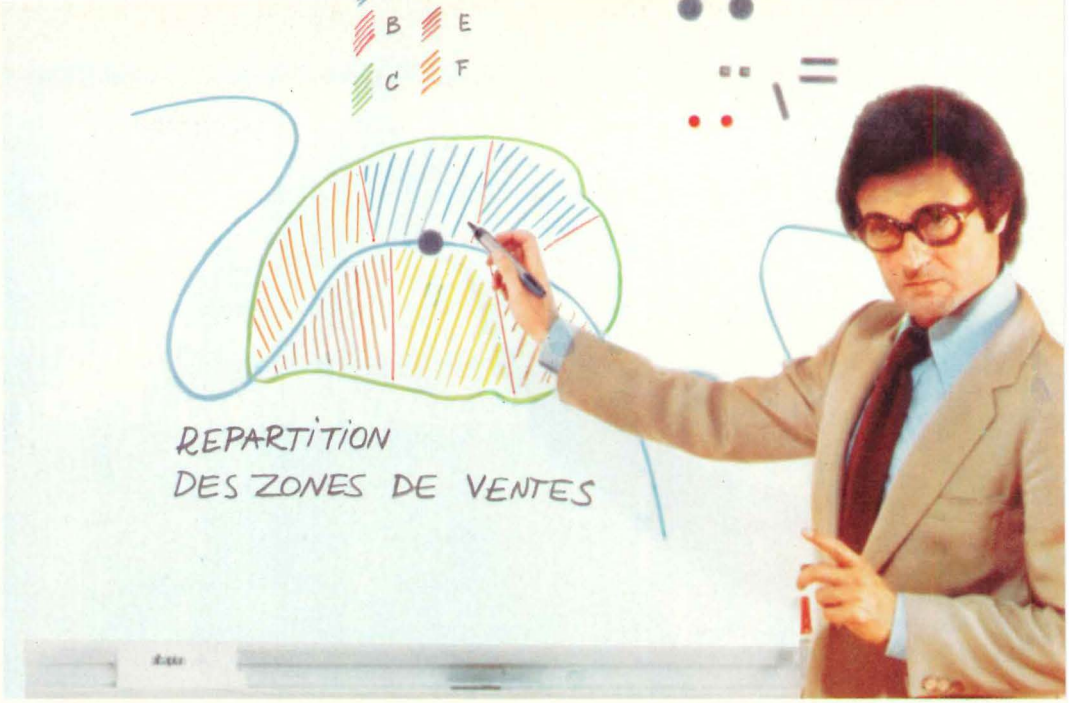
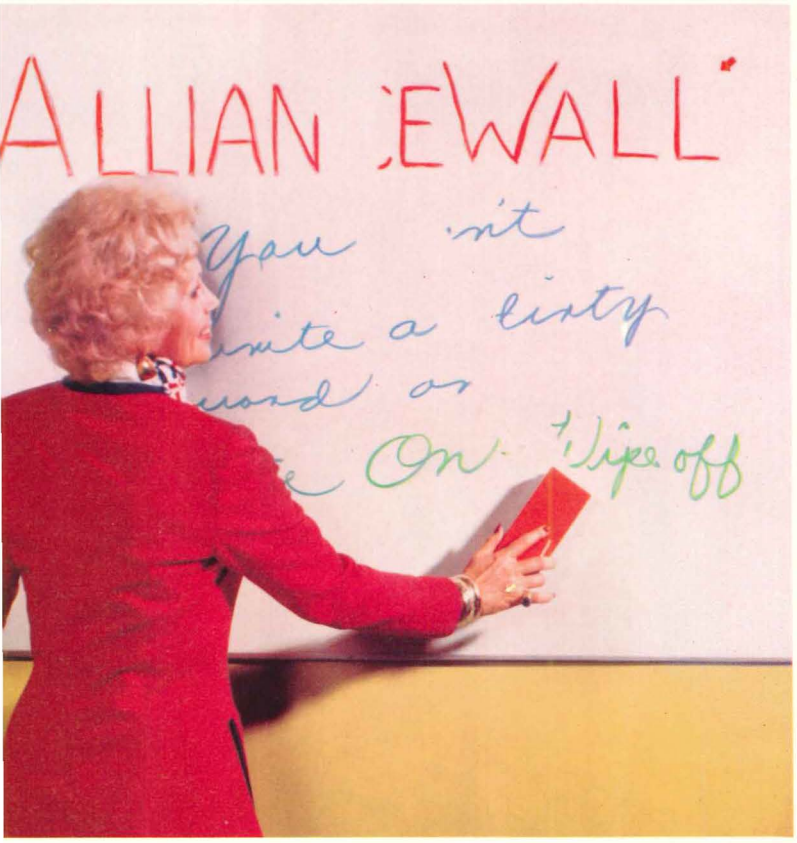




You Can't Write A Dirty Word With AllianceWall Rite-On, Wipe-Off Panels.

They're Absolutely Dustless.



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

For complete information write:

AllianceWall® Corporation
Box 247, Alliance, Ohio 44601

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

These skycap's shoes have lumbered across The New Orleans International Airport for over a year.

Good thing the floors are carpeted with Anso® nylon. It's guaranteed for 5 years.

Thousands of people – with thousands of valises – keep this large airport pretty jammed, and the skycaps pretty busy.

That's why the New Orleans International Airport and their architects specified this tightly woven level-loop of Anso nylon. It can take the abuse that trampling feet – and laden luggage carts – can give.

Anso nylon is the second-generation, anti-soil nylon that comes with the toughest fiber wear guarantee in the industry. The Guaranteeth®: the guarantee with teeth. It promises that if *any* portion of the carpet wears more than 10% over five years, Allied Chemical will replace it free.

Anso nylon was the right choice for the New Orleans International Airport and it could be the right choice for you. Discover why it's the fastest growing contract carpet nylon in America. For information phone or write: Allied Chemical Corporation, Fibers Division, Contract Department, 1411 Broadway, New York, New York 10018. (212) 391-5069.

For more data, circle 49 on inquiry card

New A21 Maytag Washer uses less hot water, less total water than other leading brands of top-loading commercial washers.

It can save you 25 to 53% on gas used to heat water.

THE MAYTAG COMPANY, NEWTON, IOWA 50208

Look what the dependability people have just come up with, to help you cut costs in the laundry room.

The energy-saving new A21 Maytag Dial-A-Fabric™ Washer can save you from 25 to 53% on gas for heating water over other leading brands of comparably sized top-loading commercial washers, because it uses less hot water.

It can also save you 2 to 15% on total water usage which, of course, could mean a saving on sewer tax (if applicable in your area) due to smaller discharge.

Naturally, your actual savings will depend upon present equipment and cycle usage. The figures above are based on cycle usage of approximately 3½ hot, 5 warm, and 1½ cold water washes out of every ten washloads.

Many Other New Features

You and your tenants will also like the additional features we've built into the A21 Maytag, including: Liquid bleach dispenser for extra convenience and better fabric care, plus handsomely styled new control panel with easier-to-read markings.

Easy Care for All Washables

Your tenants will love the convenience of the new A21 Maytag Dial-A-Fabric™ Washer. It lets them dial a scientifically programmed cycle for any washable fabric—even knits and wool. One dial setting does it!

Money-Saving Maytag Dependability

Of course you'll appreciate the dependability built into every rugged inch, plus easy maintenance made possible by complete up-front service access. Get the free facts on how the new A21 Maytag Washer can help you cut costs and increase profits. Mail the coupon now.

MAYTAG
THE DEPENDABILITY PEOPLE

Breakthrough! Maytag-equipped HOME STYLE LAUNDRY can give you more profit per square foot.

This revolutionary concept can cut your costs, while giving you a unique kind of laundry that lets tenants enjoy homelike atmosphere and convenience. Everything's grouped in a functional cluster, like in a home laundry room. It's all made possible by the new A21 Maytag Washer and the exclusive D21 Maytag Dryer, *two separate dryers in half the space of one large dryer.* Look at the many potential advantages compared to the usual self-service laundry: Smaller space needed, smaller initial cost, lower operating cost, better return on your investment. Get the full story of the Maytag-equipped Home Style Laundry now!

The Maytag Company
Advertising Dept. AR-10-76, Newton, Iowa 50208

- ☐ Send the free facts about the new A21 Maytag Dial-A-Fabric™ Washer that can help me save from 25 to 53% on gas used to heat water, and from 2 to 15% on total water usage.
- ☐ Also send full details on the revolutionary Maytag-equipped Home Style Laundry.
- ☐ Have a Maytag Distributor phone for an appointment to show me how much I can save on basic utilities with the A21 Washer.

Name_____

Business Address_____

City_____ County_____

State_____ Zip_____

Business Phone_____

For more data, circle 51 on inquiry card

TURN A SHOPPING MALL INTO A CATHEDRAL.

Moduspan® space-frame system lets your buildings soar almost as far as your imagination.

Because Moduspan eliminates the need for welded steel trusses that restrict building design.

Instead, Moduspan employs lightweight, standardized modules. A simple nut and bolt construction. And random supports and overhangs in two directions.

As a result, there's almost no limit to the variety of modular configurations you can use on roofs, walls and specialty designs.

But Moduspan isn't just beautiful. It's also practical.

Moduspan virtually eliminates on-the-job delays caused by waiting for custom designed fabrications.

It also makes the attachment of such auxiliary items as light fixtures, sprinklers and glass simple because the entire structure is made up of Unistrut channels.

And Moduspan components are available in both 4′ and 5′ systems and six durable colors.

Moduspan. The space-frame system that can make some of your wildest dreams come true.

For more information write to Unistrut Corporation, Wayne, Michigan 48184

UNISTRUT CORPORATION

MODUSPAN

The Mall at Columbia, Maryland. *Owners:* The Rouse Co., Columbia, Maryland. *Architects:* Cope, Linder and Walmsley, Philadelphia, Pa. *General Contractors:* The Whiting-Turner Contracting Co., Towson, Baltimore, Maryland.

suggested method for documenting value management

ue management as it applies to architectural projects is an ap-ach to obtaining optimum value for every dollar spent on a con-ction project. It takes into account construction materials, con-ction systems, and architectural designs as well as functional analysis, worth, life cycle costs and other constraints. The concept is neither new nor unique; however, a formalized system to approach and document the analysis so that its credibility can be transmitted and understood by others not involved directly is relatively new.

H. Maynard Blumer, AIA-FCSI

sented here is a method utilizing 12 work-ets for making a value management analy- of a proposed building when the con-ction documents are complete. By under-nding this analysis system with its built-in cumentation and presentation methods, the lyst may devise ways of adapting this thod to proposed construction projects at ir earlier stages of development.

To the owner of the proposed project, the thod offers an opportunity to review the ef-s of material selection on operating costs, maintenance costs, and replacement costs, and how this decision affects the cash flow and feasibility of the project through life cycle cost analysis, which is an integral part of value management analysis.

The analysis system presented here is currently being promoted by the Public Buildings Service of the General Services Administration, and the system is being taught to architects and engineers in workshops sponsored by the American Consulting Engineers Council and The American Institute of Architects. Upon completion those who are prequalified to take these 40-hour seminars are certified by the GSA as Value Management analysts and are qualified to enter into Value Management Service contracts with government agencies such as the Corps of Engineers, Environmental Protection Agency, General Services Administration, and other Federal agencies.

The following discussion and instruction under the headings of Worksheet Numbers 1 through 12 assumes a value management team of three or more per team. Following is a representative example, a VM team of three architects and four structural engineers assigned to make a value analysis of the structural system for a military headquarters building, using a completed set of construction drawings.

Note: The terms value analysis, value management, and value engineering as currently used are interchangeable.

Blumer is an Associate Principal and Director of Specifi-ons and Research with the Phoenix firm of Guirey, a, Arnold & Sprinkle, Architects Planners.

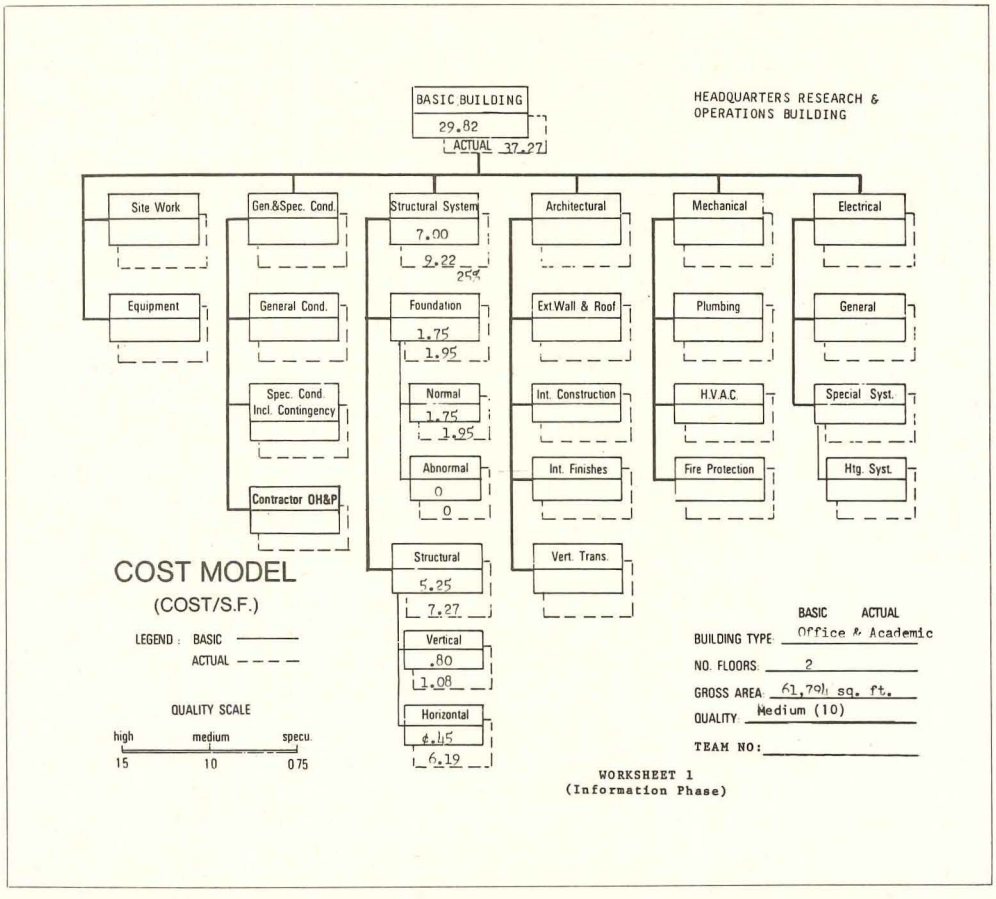
rk sheet 1: cost model

e cost model helps locate the costs, defines at the VM team thinks those costs ought to and determines where to target cost efforts maximum effect. "Basic" figures are what VM team believes from experience the fig-s should be, while "Actual" figures are at costs have been found to be in terms of present status of the project (from estimates ids).

The cost model is formed by breaking the ject into major systems and cost elements, breaking them into their subsystems and elements. The suggested breakdown for a cal building has been written in as a guide.

After "Basic" and "Actual" per square t costs have been computed or estimated each element of the model, an analysis of figures can be made. One possible com-ison converts the major systems (sitework, , in the top horizontal line) to percentages he total for the project. Another suggested parison is to compute the percentages of erence between the Basic and Actual fig-s for each set of figures.

Whatever method of analysis of Work et 1 data is used, the VM team's objective o study those subelements that offer the atest potential savings: those areas where greatest gap exists between what some-g should cost and what it actually will cost.



FUNCTIONAL ANALYSIS

PROJECT Headquarters Research & Operations Building

ITEM Structural System (including exterior walls)

BASIC FUNCTION Support Building Loads

DATE

Structural System = 30.7%

QUANTITY	UNIT	COMPONENT	FUNCTION VERB	FUNCTION NOUN	BASIC/SECONDARY	EXPLANATION	ORIGINAL COST	BASIC WORTH
2,807	CY	Earthwork	Prepare	Bearing	B		29,270	$15,000
30,500	SF		Controls	Drainage	S		-	
9,049	SF	Foundations: Formwork	Contains	Concrete	B		22,654	11,300
385	CY	Concrete	Transmits	Loads	B	61,437	17,807	14,000
45,600	LBS	Reinf.	Strengthens	Concrete	B		20,976	14,000
		Slab-on-grade					-	
390	CY	Concrete	Transmits	Loads	S	28,275	19,695	
39,000	SF	Reinf. Mesh	Strengthens	Concrete	S		8,580	
33,996	SF	Supported Slabs: Formwork	Contains	Concrete	B		74,621	37,000
			Strengthens	Concrete	S	93,029	-	
339	CY	Concrete	Transmits	Loads	B		18,408	18,408
1	LS	Screeds, Joints, Finish	Controls	Appearance	S		21,917	
22,802	SF	Exterior Masonry Walls	Resists	Lateral Loads	B		136,812	20,000
			Enclose	Interior	B		-	34,200
45	T	Structural Steel: Columns	Transmits	Loads	B		61,425	50,000
147.3	T	Beams	Supports	Floor	B		132,118	106,000
30	T	Roof Trusses	Supports	Roof	B		39,720	24,000
30,772	SF	Roof Decking	Enclose	Interior	B		46,158	38,500
1	LS	Misc. Steel	Completes	System	S		56,162	

Cost/Worth Ratio = $706,323 / $382,408 = 1.84

Worksheet 3 (Information Phase) $706,323 $382,408

(Secondary function is always 0)

VALUE ENGINEERING TEAM STUDY (Worksheet 2 / Information Phase)

INFORMATION

PROJECT Headquarters, Research & Operations Building

ITEM Structural Systems (including exterior walls) TEAM NO.

BASIC FUNCTION Support Building Loads DATE

DESIGN CRITERIA:

Lateral Loads - 22 psf wind
zone 2 earthquake

Vertical - 20 psf live (roof)
100 psf live (floor)

Fire Rating - Unprotected noncombustible

Soil Bearing Pressure - 3000 psf

DESIGN HISTORY & BACKGROUND:

Project located in remote south central Arizona.

Project consists of a series of buildings & functions.

Project to reflect a regional territorial architectural style.

Team Members:

Work sheet 2: VM team study information

The purpose of Work Sheet 2 is simply to list basic facts that will assist the VM team in making their decisions. A separate sheet may be prepared for each target selected from Work Sheet 1 if the list is too large to be easily managed.

Work sheet 3: functional analysis

The functional analysis work sheet is a quantitative analysis that introduces worth into the VM team's line of thought. The following steps are used to complete the form:

1) Select an item (in this case, the structural system) from the cost model Work Sheet 1 to analyze.

2) Describe the selected item's function and enter it in the blank for "Basic Function." Note all functions to be listed on this form are to be stated with a simple verb and noun, such as the function of a pencil is to "make marks" while an eraser's function is to "remove marks."

3) Break the item into its major components, giving the quantity, the unit of measure, and the component name.

4) Describe the function of the component by the "verb-noun" method described in step 2; more than one function may be assigned to the component. If this is the case list each fu tion on a separate line, then note whether function is the basic function or a secon function of the component.

5) Enter the "actual" cost that was signed in the cost model Work Sheet 1.

6) Then enter what the VM team by cussion or quick calculation and brainstorm feels that the performance of the listed func should be. Assign a worth for each func whether basic or secondary. (Worth is an trary figure, based on the considered opi of the VM team.)

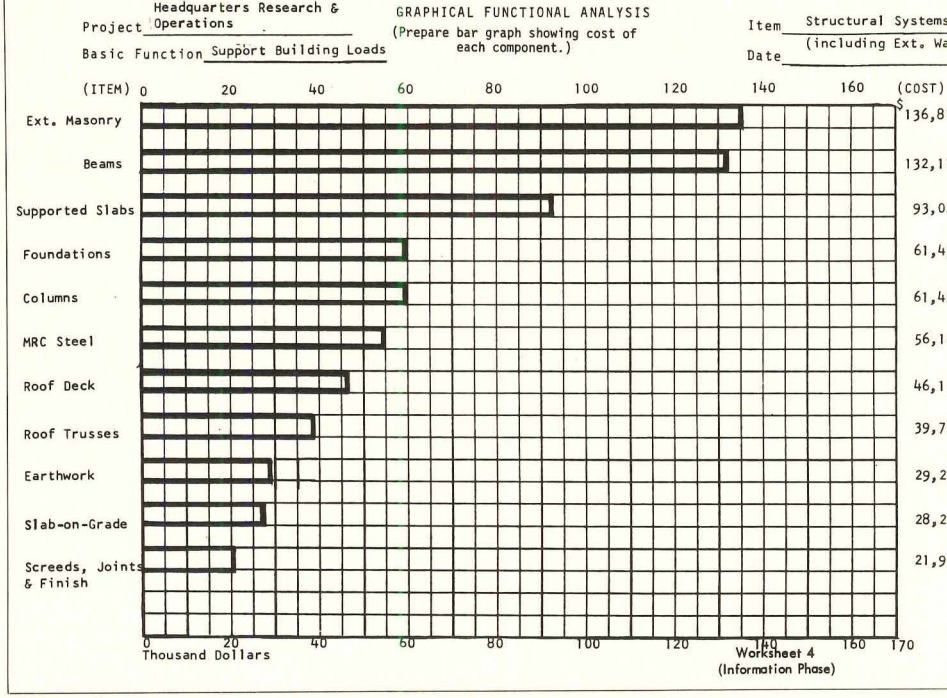
7) By totaling the original cost column the worth column, then expressing their tion in percentage, a comparative figure ca developed to assist the VM team in direc their efforts. In this case, the original cost o structural system is nearly twice its worth further examination of structure is in order

Work sheet 4: graphical functional analysis

This work sheet converts the "Original Costs" from Work Sheet 3 into a graphic presentation for visual relationship. The most costly structural system component from Work Sheet 3 (the exterior masonry) is listed and charted first, and then the second most costly, etc., until all components are listed.

The purpose of this work sheet is to assist the VM team in targeting components most worthy of further investigation. A secondary value of the work sheet—and actually a value of all work sheets—is to convey to a reviewing party the process through which the VM team went, to establish the credibility of their results, and to document facts should it be desirable to look for additional cost targets not pursued during the initial value management analysis.

The worth figures may also be applied to this work sheet if the team desires. If done, however, they should be color- or graphically-coded at a subordinate level of visual identification.



rk sheet 5: creative idea listing

s is the fun work sheet; on this sheet any-ng goes.

Considering each component and its ction, the team enters all suggestions for ac-mplishing any portion or all of the function. se must be totally uninhibited creative ughts with no consideration of evaluation. A ding principle is that a ridiculous thought or n a joke may trigger a creative thought.

The ideas of Work Sheet 5 are evaluated this: A quick pass at the ideas will create ee or possibly only two categories. Place an beside what looks like a good idea. Place ne through the number of the ideas which obviously lighthearted, or deserve no fur-consideration. Take a second look at the narked ideas to see if they should be left narked for consideration at some future e or acted upon.

Worksheet 5
VALUE ENGINEERING TEAM STUDY (Creative Phase)
CREATIVE IDEA LISTING

OJECT Headquarters Research & Operations
EM Structural Systems (including ext. wall) TEAM NO.
SIC FUNCTION Support Building Load
inhibited Creativity Date

Don't Evaluate Idea --------- Idea Refinement is Later

Foundations & Earthwork		Exterior Wall	
Bear Footings on Compacted Fill	x	21.	Reduce Wall Thickness
Drilled Cassons	x	22.	Reduce Story Height
Grade Beams	x	23.	Load Bearing (masonry or studs)
Combine w/Tilt-Up Wall Panels	x	24.	Precast or Tilt-Up Panels
Masonry Foundation Wall		~~25.~~	Cast-in-Place Walls
Prefabricated Conc. Blk Panels		~~26.~~	Face Brick & Studs
Precast Conc. Grade Beams		~~27.~~	Stucco on Studs
Structural Precast Floor & Roof System		~~28.~~	Curtain Wall
Clear Span Roof System	x	29.	CMU's on Stud (slump Block)
32' Bays in Lieu of 24'		~~30.~~	Metal Panels
Prestressed Precast Cored Floor Slabs		~~31.~~	Wood Siding on Studs
Wood Framing		~~32.~~	"Polycast" panels & Studs
Truss-Joist & Wood Deck	x	33.	Prefabricated Conc. Blk Panels
Cast-in-Place Systems		~~34.~~	Adobe Brick
Long-Span Metal Deck		~~35.~~	Asbestos Panels ("Corspan")
Roof Space Frame		~~36.~~	Porcelain Panels
Composite Floor System		37.	
"Hambro" Joist Floor & Roof System		38.	
Reduce Roof Slope		39.	
Reduce Story Heights Bar Joist Framing w/"Corruform"		40.	

x Items to consider in depth
~ Items deleted from further study.

rk sheet 6: evaluation chart

w going to Work Sheet 6, column 1, enter as selected from Work Sheet 5. In columns nd 3, enter the advantages and disadvan-es using the "verb-noun" method used in ction description where possible. In col-n 4, by discussion among the team mem-s, arrive at generalized ratings.

Worksheet 6
EVALUATION CHART (Judgment Phase)

PROJECT Headquarters Research & Operations DATE
ITEM Structural Systems (including Ext. Walls) TEAM NO.
BASIC FUNCTION Support Building Loads

Ideas Selected from Worksheet 5	Potential Advantages	Potential Disadvantages	Idea Rating
footings on compact-fill.	Reduce stem height reduce cost	Differential settle-ment controlled compaction	Excellent
de beams supported on sons or spread foot-s.	Eliminates cont. footing reduce materials	Increases reinf.	Fair
t-up concrete combined de beams & wall panels.	Reduces job site labor. Eliminates grade beams	Component connections	Good
Fabricated conc. blk els for foundation & lding walls.	Reduce jobsite labor reduce const. time	Control factory joints module	Fair
cast concrete floor & f systems. (Prestressed)	Reduce floor-ceiling depth; reduce job-site labor	Increased weight	Excellent
rease bay from 24' to	Reduce material Reduce no. of columns	Increased depth	Fair
uce story height	Reduce materials & cubage.	Effect mech. & elect.	Excellent
d bearing masonry wall g reduced thickness	Reduce materials & weight.	Construction sequence coordination.	Excellent

REMARKS:

Weighted Constraints Chart — Worksheet 7 (Judgment Phase)

IDEAS \ Constraints	WEIGHT	10 INITIAL COST	7 ESTHETIC	4 SYSTEM SIZE/WEIGHT	6 CONST. SEQUENCE & COORDINATION	3 MAINTAINABILITY	2 FUNCTIONAL FLEXIBILITY	TOTAL	RANK	
1. Footings		10 / 100	0 / 0	9 / 36	8 / 48	10 / 30	10 / 20	234	A-1	Cost Review
2. Grade Beams		8 / 80	0 / 0	7 / 28	7 / 42	10 / 30	10 / 20	200	A-2	-
3. Tilt-Up Panels		10 / 100	5 / 35	9 / 36	9 / 54	9 / 27	7 / 14	266	B-2	Cost Review
4. Pre-fab Conc. Blk.		(etc)	(etc)	(etc)	(etc)	(etc)	(etc)	228	B-5	-
5. Precast Concrete								221	C-3	Cost Review
6. Bay Size								197	C-6	-
7. Story Height								246	B-4	Cost Review
8. Load Bearing Masonry								266	B-1	Cost Review
9. Bar Joist Framing								241	C-1	Cost Review
10. "Hambro" System								219	C-4	Cost Review
11. CMU Non-L.B. Walls								264	B-3	-
12. Restudy Existing								233	C-2	Cost Review
ORIGINAL SYSTEMS										
A. Footings		7 / 70	10 / 0	5 / 20	4 / 24	10 / 30	10 / 20	164	A-3	-
B. Exterior Walls		5 / 50	10 / 70	5 / 20	8 / 48	8 / 24	6 / 12	224	B-6	-
c. Structure		6 / 60	3 / 21	8 / 32	10 / 60	10 / 30	8 / 16	219	C-4	-

8-10---Excellent 4-5---Fair Project Headquarters Research & Operations
6-7---Good 1-3---Poor Date

Work sheet 7: weighted constraints chart

This is where considerations other than initial costs (such as esthetics, maintenance, ease of use, construction ease, construction time, life flexibility, convertibility, reliability, operation costs, ecology, noise, odor, etc.) are systematically applied as constraints on the initial cost and general team feelings of the ideas from Work Sheet 6:

1) Enter ideas to be considered from Work Sheet 6 in column 1. Also enter the original project systems as designed (bottom of the chart).

2) By brainstorming and discussion enter the most valid constraints across the horizontal headings of the chart.

3) By discussion establish *weighted values* for the constraints. Normally numbers between 0 and 10 will be adequate. Some numbers may be the same and some values may not occur.

4) In the upper left half of the chart squares write in a value for the degree to which the constraint is satisfied by the idea, again, on a scale of 0 to 10. For example, if the constraint is fully satisfied, assign 10; if the constraint is partially satisfied, a lesser number should be entered.

5) In the lower right hand half of the chart squares write the contributing value of the constraint satisfaction which is the product of the *weighted value* of the constraint from the top of the chart times the proportionate degree of constraint satisfied entered in step 4. It is suggested that both step 4 and step 5 be entered by working a single constraint from each idea down the chart before proceeding to the next constraint.

6) Add the totals of step 5 for each idea and enter in column headed "total." Rank the totals, the largest being "1," the second largest "2," etc., keeping like-systems together (footings; exterior walls; structure).

7) In the right hand column note those ideas that by virtue of their rank are worthy of cost review.

Work sheet 8: cost work sheet

On this work sheet, quantity take-off of each material or unit of work within a particular subsystem from Work Sheet 7 is computed and extended on a unit cost basis to arrive at a total cost. If quantities cannot be determined, the most accurate estimate possible may be used. If the estimator has reservations on the reliability of this estimate or other remarks that might influence future judgment, they should be noted.

The product of this work sheet should be valid, substitute subsystem costs. If combinations of certain subsystems are necessary to equate with other systems or subsystem combinations they should be compiled for ease of evaluation.

COST WORKSHEET — Worksheet 8 (Development Phase)

SYSTEM: STRUCTURAL SYSTEMS (INCLUDING EXT. WALLS)
SUBSYSTEM: SUBGRADE STRUCTURAL
UNIT: -

	UNIT QUANTITY	UNIT COST	TOTAL COST
Original Earthwork & Foundations:			
Earthwork	2,807 CY		29,270
Foundation Formwork	9,049 SF		22,664
Foundation Concrete	385 CY		17,807
Foundation Reinf.	45,600 LB		20,976
			$ 90,707
ALTERNATE: A-1 - Bear Footings on Compacted Fill. Footing revised to 2'0" wide with 1'0" x 8" stem walls.			
Concrete ftg.	172 yds	$ 45/yd	$ 7,740
walls	96 yds	$ 50/yd	4,800
Formwork	7,560 SF	1.50/SF	11,340
Reinforcing	31,200 LB.	.35/LB.	10,920
Earthwork	-	-	18,000
			$52,800

Work sheet 9: life cycle cost analysis

This work sheet explores decisions which architects normally make intuitively or by experience. Formalizing this process in financial terms with projectable dollar values of present worth reflecting life-cycle expenditures and costs of finance, lends credibility to the task and reduces risk of judgment. This form, al-

Life Cycle Cost Analysis — Worksheet 9 (Development Phase)
Project Headquarters Research & Operations Bldg. Date
System or Item Structural Systems (includ. Ext. Walls) TEAM NO. 3

	A. EARTHWORK & FOUNDATIONS	ORIGINAL	ALT. #1	ALT. #2
INITIAL COSTS — INSTANT CONTRACT	1. Base Cost	90,707	52,800	
	2. Interface Costs	N.A.	N.A.	
	(a)			
	(b)			
	(c)			
INITIAL COSTS — COLLATERAL COSTS	3. Other Initial Costs			
	(a) Re-design @ 4%	N.A.	2,110	
	(b)			
	(c)			
	4. TOTAL INITIAL COST	90,707	54,910	
REPLACEMENT COSTS	LIFE-CYCLE EXPENDITURES	N.A.	N.A.	
	5. Year @ % Amount — Present Worth of Future Replacement Cost			
	6. Year @ % Amount — Present Worth of Future Replacement Cost			
	7. Year @ % Amount — Present Worth of Future Replacement Cost			
	8. Year @ % Amount — Present Worth of Future Replacement Cost			
LIFE-CYCLE COSTS	ANNUAL OWNING & OPERATING COSTS			
	CAPITAL RECOVERY OF THE TOTAL INITIAL COST			
	9. Amortized Initial Cost @ 8 % 40 Year Initial Factor (.08386)	7,606.69	4,604.75	
	10. Capital Recovery of the Present Worth of the Replacement Cost	N.A.	N.A.	
	(a) Year			
	(b) Year			
	(c) Year			
	(d) Year			
	11. Annual Costs			
	(a) Maintenance	N.A.	N.A.	
	(b) Operations	N.A.	N.A.	
	(c)			
	12. TOTAL ANNUAL OWNING & OPERATING COST	7,606.69	4,604.75	
	13. Annual Difference		3,001.94	
	14. PRESENT WORTH OF ANNUAL DIFFERENCE		35,798.13	

though it may be considered very brief, contributes greatly to the credibility of the value analysis when transmitted to a reviewing party. Therefore, the attention given to the input in this work sheet should not be minimized.

In completing the form, note that a column is developed for the original project data and for each of the alternates under consideration. Work sheet headings, alternates and their base costs are taken from Work Sheet 8:

1) *Initial Costs (lines 1, 2, 3, and 4).* Enter the base cost from Work Sheet 8. By team discussion evolve other costs noted as "Interface Costs," that is, costs to other work that would not be incurred if this alternate were not used and "Other Initial Costs" such as redesign cost, increased construction time costs, etc. These adjustments in costs will then yield a total initial cost which may be compared.

2) *Life-cycle Expenditures (lines 5, 6, 7, and 8).* In this area of the form develop the replacement costs and the year that cost will be incurred. For example, the replacement cost of a $10,000-product in ten years (assuming a 10 per cent interest rate) can be computed by multiplying the replacement price by 0.3855, the factor found on a "10 per cent compound interest table." These tables are maintained by accountants. The replacement cost is $10,000 x 0.3855 or $3,855 more in terms of present worth. On the form for line 5 the entries would be' year *10 @ 10* per cent *Amount $10,000.* Present worth of replacement cost *$3,855.*" The amount required to be reserved today for future replacement costs is $13,855.

3) *Annual Owning and Operating Costs (lines 9, 10, 11 and 12).* After all impact-type costs have been reconciled to present worth values, they can be converted to a constant annual cost, or the amount that would be required to be reserved each year for future replacement costs when they occur (line 10). The total initial cost can also be amortized over the total life (line 9). Other estimated annual costs such as maintenance, operations, etc., should also be listed (line 11). The sum of the annual costs can be entered in line 12 as Total Annual Owning and Operating Costs.

The entries for lines 9 and 10 are computed by multiplying the respective values for lines 4 through 8 by their "Capital Recovery Factor" found in the "Capital Recovery Factor Uniform Series" column of the "10 per cent Compound Interest Factor Table," which is 0.11746. The factor may also be found in an accountant's table for "Annual payment necessary for amortizing a loan."

4) *"Present Worth of Annual Differences"* is the sum that is saved during the life cycle of the project if the particular alternate is used and if the total costs (initial, replacement, and annual operating) are amortized equally on an annual basis for the life of the project. It is computed by multiplying the differences of the alternate cost and the original proposed project cost by the present worth factor. In our example of 10 per cent compound interest for 10 years, it may be found on the 10 per cent compound interest table. It may also be found on a "Present Value of Future Return" table.

RANKING BY LIFE-CYCLE RESULTS
ANNUAL COST OF SYSTEM — Weighted Constraints Chart — Worksheet 10 (Development Phase)

	IDEAS	WEIGHT / Constraints	TOTAL	RANK	ANNUAL COST
A.	Earthwork & Foundations				
	A-1-Footings-Compacted Fil			1	$4,604.75
	Original Design			2	7,606.69
B.	Exterior Perimeter Walls				
	B-2 Tilt-Up Panels			1	$ 3,764.86
	B-1 8" L.B. Masonry			2	4,893.62
	Original Design			3	12,473.05
C.	Structural Systems				
	C-1. Bar Joist Framing			1	$21,808.00
	C-4. "Hambro" Framing			2	23,622.00
	C-3. Precast P.S. Conc.			3	24,520.00
	Original Design			4	32,156.00
	C-2. Restudy Original			5	32,265.00

8-10---Excellent 4-5 ---Fair Project Headquarters Research & Operations
6-7 ---Good 1-3 ---Poor Date

Work sheet 10: weighted constraints chart
The various alternates analyzed may be evaluated with constraints developed and weighted similar to the methods described under Work Sheet 7 and then ranked. Types of constraints may be the same as were used in Work Sheet 7; however, they most certainly should contain life-cycle costs, cash flow considerations, and other factors that have been developed or may now be suggested to be developed as constraints. Various combinations should be analyzed at this stage as a constraining factor if applicable.

Worksheet 11
(Presentation Phase)

VALUE ENGINEERING PROPOSAL

PROJECT Headquarters Research & Operations DATE
ITEM Structural Systems (includ. ext. walls) TEAM NO.

Summary of Change (Brief Description of "before" and "after".)

A. EARTHWORK AND FOUNDATIONS

ORIGINAL: Footing to 2' below existing grade with foundations being 3' to 8' high. Site slopes approx. 6' across building.

ALT-A-1 : Provide compacted backfill prior to placing footing. Bear footings on compacted fill. Reduce foundation wall width to 8" x 3' high.

ESTIMATED COST SUMMARY (ATTACH COST ESTIMATES IF NECESSARY.)

(line numbers refer to Worksheet 9)	No. of Units	Unit Cost $	Total $
A. Original...(Total Initial Line 4)	1	90,707	90,707
B. Proposed...(Total Initial Line 4)	1	54,910	54,910
C. Implementation Costs.....	-	-	-
D. Other Costs.....	-	-	-
E. Initial Savings...A-(B+C+D)....	-	35,797	35,797.00
F. Life-Cycle Costs Annual Savings Line 13.....	1	3,001.94	3,001.94
G. Life-Cycle Costs Gross Savings (F x Design Life in Years)...	40	3,001.94	120,077.60
H. Present Worth of LCC Annual Savings(Line 14)			35,798.13
Percent Savings Instant (E ÷ A)			39%
Percent Savings Life-Cycle (F ÷ Line 12)			39%

Work sheet 11: value engineering proposa
This work sheet is basically for presentat and summary purposes. Those alternates should be given consideration for improv the value of the project are individually scribed, with a cost summary.

VALUE ENGINEERING REVIEW

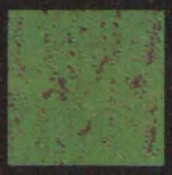
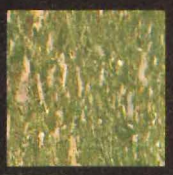
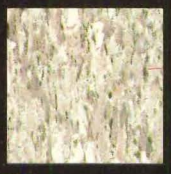
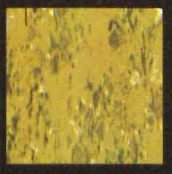
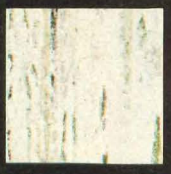
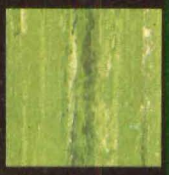
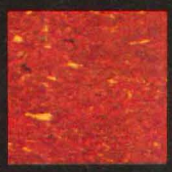
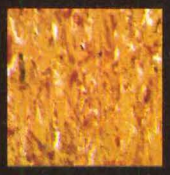
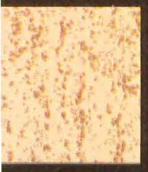
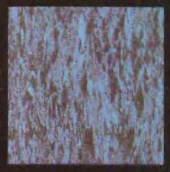
Worksheet 12

Idea Listing

(Use this worksheet to list ideas which have potential but which you do not have time to pursue during this workshop.)

Description	Est. Potential Saving: Initial	Est. Potential Saving: Life Cycle	Remarks
1. Combination of: 6" pre-cast plank 2nd floor structural system; light-weight long span steel truss roof framing system carrying 12" wide wall to 2nd floor slab bearing elevation and extending 8" masonry wall to roof truss bearing elevation through parapet.	123,450	416,000	
2. Combination of: "Hambro" composite bar joist 2nd floor structural system; light-weight long span steel truss roof framing system; 8" concrete masonry unit bearing walls or tilt-up pre-cast concrete wall panels.	153,000	517,000	

Work sheet 12: idea listing
On this work sheet list and describe any ideas that should be saved for future analysis should the review of the presentation indicate such is needed.

Finally, GAF® introduces the first truly color coordinated Architectural Floor Tiles. So now, when you decide on  or  you can match with   and  or blend with   or highlight with   or  or decide on   or  and match with   or contrast with   or even  . Whatever. You can create it with the first Architectural Floor Tile Line made to go beautifully with itself. In 45 colors, 26 of them new for 1976. Beautiful. GAF® Architectural Floor Tiles

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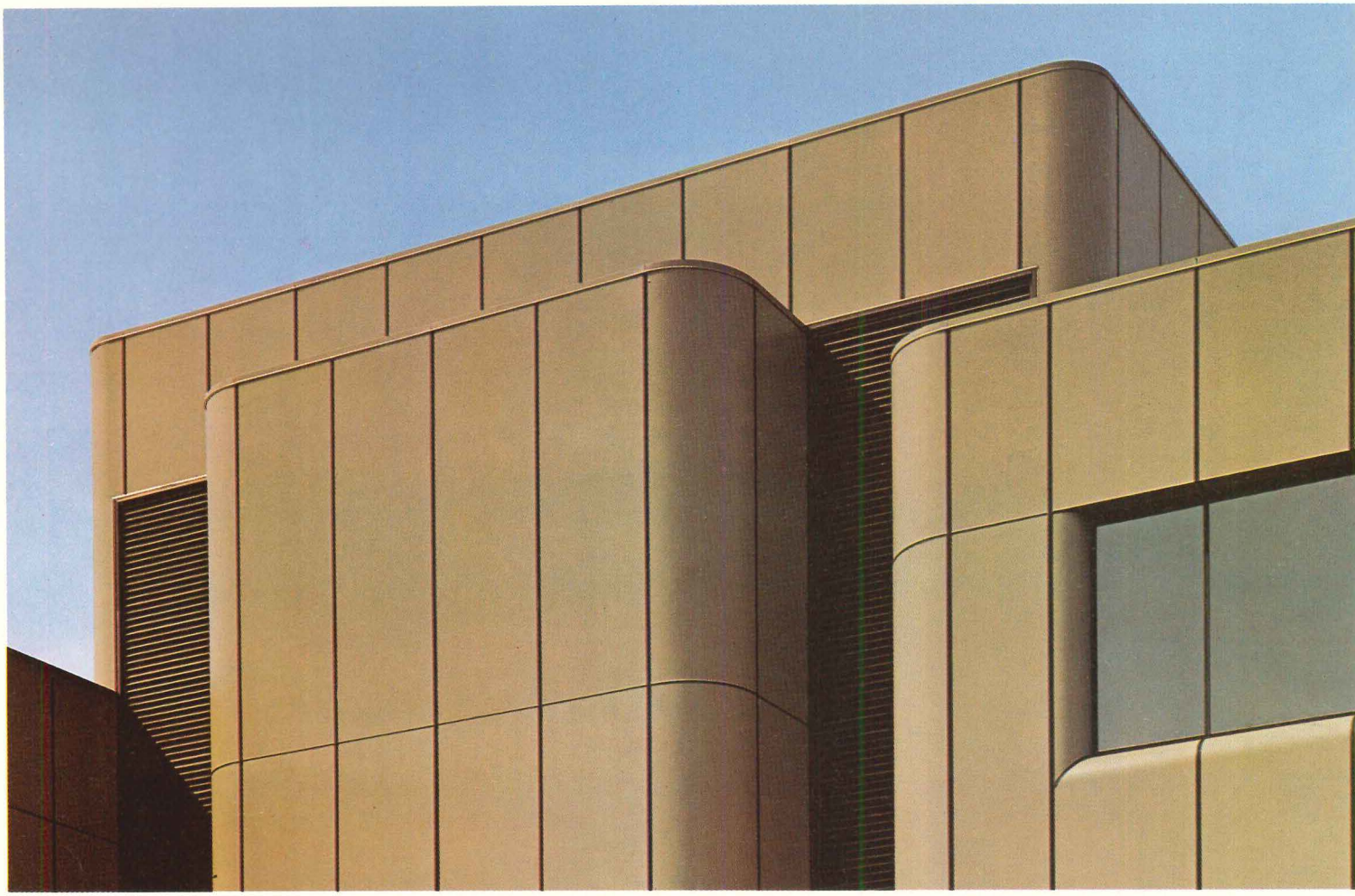

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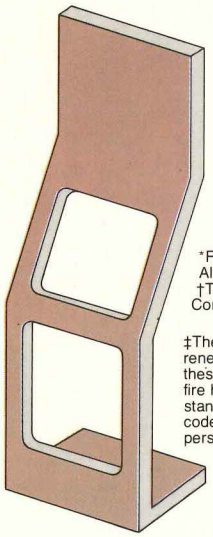

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INDEXES: October 1976 — 1941=100.00 (except as noted)

Metropolitan area	Cost differential	Current Indexes non-res.	residential	masonry	steel	% change last 12 months
U.S. Average	8.5	561.2	526.8	553.6	539.8	+ 8.4
Atlanta	7.5	664.1	626.0	654.0	640.8	+ 9.8
Baltimore	8.5	594.0	558.4	577.9	566.2	+ .7
Birmingham	7.3	558.1	519.0	548.3	536.8	+23.0
Boston	9.0	562.1	531.1	564.0	546.8	+ 8.3
Buffalo	9.1	593.4	557.1	584.0	567.3	+ 2.8
Chicago	8.3	643.2	605.2	634.6	618.5	+13.4
Cincinnati	8.8	616.8	580.3	602.2	589.2	+10.8
Cleveland	9.0	640.9	603.0	629.6	614.5	+19.2
Columbus, Ohio	8.2	564.2	529.8	561.5	544.7	+ 6.6
Dallas	7.9	542.4	525.2	538.9	524.5	+ 7.8
Denver	8.4	621.9	585.0	615.7	602.5	+11.3
Detroit	9.8	623.1	593.5	620.5	604.0	+ 3.3
Houston	7.4	520.8	489.0	509.4	500.4	+ 6.6
Indianapolis	7.8	522.0	490.1	513.8	503.0	+13.3
Kansas City	8.7	553.4	522.9	544.4	532.2	+ 7.5
Los Angeles	8.5	687.0	627.9	670.1	652.2	+13.3
Louisville	7.6	557.2	523.2	548.7	536.0	+11.1
Memphis	8.4	539.9	506.9	525.0	512.3	− .7
Miami	7.9	598.7	570.3	594.9	582.0	+ 6.0
Milwaukee	8.7	683.8	642.0	679.4	656.4	+12.7
Minneapolis	8.9	569.4	535.6	564.4	548.6	+ 4.9
Newark	9.0	515.1	483.6	512.5	499.4	+ 4.2
New Orleans	7.5	540.8	510.4	531.3	522.3	+ 8.1
New York	10.0	593.2	551.5	580.0	569.9	+ 8.9
Philadelphia	9.1	584.6	556.9	577.7	565.7	+ 2.1
Phoenix (1947 = 100)	8.2	318.0	298.6	314.4	306.1	+ 5.7
Pittsburgh	8.9	531.1	499.6	521.1	510.1	+ 3.3
St. Louis	8.7	543.1	512.6	538.8	527.0	+ 1.6
San Antonio (1960 = 100)	7.6	220.6	207.1	215.7	211.6	+10.2
San Diego (1960 = 100)	8.7	254.5	238.9	251.3	245.0	+15.6
San Francisco	9.6	838.1	766.0	832.2	802.4	+ 9.0
Seattle	8.6	584.4	522.9	569.8	550.9	+10.8
Washington, D.C.	8.4	547.9	514.4	541.1	525.5	+ 4.8

Cost differentials compare current local costs, not indexes, on a scale of 10 based on New York

Tables compiled by Dodge Building Cost Services, McGraw-Hill Information Systems Company

ISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL NON-RESIDENTIAL BUILDING TYPES, 21 CITIES — 1941 average for each city = 100.00

etropolitan ea	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975 (Quarterly) 1st	2nd	3rd	4th	1976 (Quarterly) 1st	2nd	3rd	4th
lanta	329.8	335.7	353.1	384.0	422.4	459.2	497.7	544.8	575.0	583.8	585.3	597.2	598.7	602.6	604.1	655.6	
ltimore	280.9	295.8	308.7	322.8	348.8	381.7	420.4	475.5	534.3	538.7	540.2	579.6	581.1	609.7	611.2	583.5	
rmingham	270.7	274.7	284.3	303.4	309.3	331.6	358.3	402.1	421.2	438.6	440.1	447.4	448.9	469.0	469.5	550.4	
ston	262.0	265.7	277.1	295.0	328.6	362.0	394.4	437.8	462.5	484.1	485.6	511.7	513.2	535.7	537.2	554.4	
icago	320.4	328.4	339.5	356.1	386.1	418.8	444.3	508.6	529.6	539.2	540.7	558.6	560.1	560.3	561.8	633.7	
ncinnati	278.3	288.2	302.6	325.8	348.5	386.1	410.7	462.4	500.1	518.0	519.5	549.1	550.6	602.9	604.4	608.3	
eveland	300.7	303.7	331.5	358.3	380.1	415.6	429.3	462.2	509.5	516.6	518.1	529.5	531.0	578.7	580.2	631.4	
allas	266.9	270.4	281.7	308.6	327.1	357.9	386.6	436.4	477.9	488.3	489.8	498.1	499.6	506.1	507.6	537.0	
enver	297.5	305.1	312.5	339.0	368.1	392.9	415.4	461.0	510.0	530.4	531.9	552.1	553.6	580.3	581.8	614.5	
etroit	296.9	301.2	316.4	352.9	377.4	409.7	433.1	501.0	538.7	554.4	555.9	596.0	597.5	615.1	616.6	615.7	
nsas City	261.0	264.3	278.0	295.5	315.3	344.7	367.0	405.8	444.9	481.1	482.5	507.6	509.1	523.8	525.3	545.8	
s Angeles	302.7	310.1	320.1	344.1	361.9	400.9	424.5	504.2	531.8	546.7	548.2	592.6	594.1	599.1	600.6	671.6	
iami	284.0	286.1	305.3	392.3	353.2	384.7	406.4	447.2	485.5	499.5	501.0	557.4	558.9	588.1	589.6	591.0	
inneapolis	289.4	300.2	309.4	331.2	361.1	417.1	412.9	456.1	488.6	513.9	515.4	536.5	538.0	548.3	549.8	562.6	
ew Orleans	259.8	267.6	274.2	297.5	318.9	341.8	369.7	420.5	442.1	463.5	465.0	493.2	494.7	522.8	524.3	533.3	
ew York	304.0	313.6	321.4	344.5	366.0	395.6	423.1	485.3	515.3	524.1	525.5	532.0	533.5	539.4	540.9	579.3	
iladelphia	286.6	293.7	301.7	321.0	346.5	374.9	419.5	485.1	518.5	531.5	533.0	566.0	567.5	581.8	583.3	577.7	
ttsburgh	271.1	275.0	293.8	311.0	327.2	362.1	380.3	424.4	465.6	475.2	476.7	508.0	509.5	508.5	510.0	524.8	
. Louis	288.3	293.2	304.4	324.7	344.4	375.5	402.5	444.2	476.7	497.5	499.0	527.4	528.9	542.7	544.2	535.6	
n Francisco	386.0	390.8	402.9	441.1	465.1	512.3	561.0	632.3	672.5	716.0	717.5	751.8	753.3	790.1	791.6	819.3	
attle	275.0	283.5	292.2	317.8	341.8	358.4	371.5	424.4	450.2	472.5	474.0	513.6	515.1	525.9	527.4	569.0	

osts 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 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 st period (150.0 ÷ 200.0 = 75%) or they are 25% lower in the second period.

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Making plans for 1977?

Autumn is a time of year when architects, like other businessmen, stoke themselves up for another go at the annual ritual of making plans—and watching them either succeed or go down the tube. So as we bravely face the prospect of yet another round of plan-making, it's only fair to ask: What kind of environment are these plans being hatched into? Can we have the confidence that they stand a decent chance of survival this time?

Compared with the past two years, the odds have improved greatly, but three considerations stand way out in front of all others:

1) What is the state of the general business cycle? Has the much-lauded recovery fizzled already?

2) What about the election? How much difference would a change of administration make . . . and when?

3) How are these economic and political events likely to bear on the construction industry during the next 12 or 18 months?

The business cycle

The recent flurry of concern about the mid-year "pause" in the recovery's progress deserves a rejoinder in the style of Mark Twain's famous cable to the Associated Press ("The reports of my death are greatly exaggerated"). It's true, of course, that the quarter-by-quarter improvement in GNP slowed markedly—from 7.2 per cent in the first quarter to 4.3 per cent in the second. And as that happened, the unemployment rate, which had been slowly but steadily retreating, turned up again and just about eliminated the likelihood that it would be brought below 7 per cent by the end of the year.

The hitch that set in during 1976's second quarter was not entirely unexpected, nor all that unusual. All during 1975 business had been liquidating inventories to bring stocks into line with soft demand. Then, as recovery took hold, business began rebuilding inventories. The switch from liquidation to accumulation happened in the opening quarter of 1976, leading to a surge of production. But because business simply continued to add to inventories at roughly the same rate in the second quarter as in the first, there was no additional surge in production from this source.

That's a rather technical (and oversimplified) explanation of a phenomenon—the inventory cycle—that takes place each and every time around, greatly intensifying recessions and their subsequent recoveries. But as long as final demand continues to hold up, *as it has so far,* occasional inventory fluctuations are inconvenient but rarely fatal.

Capital spending revival

What is going to sustain final demand—which means the combined purchases of consumers, government, and business—in the quarters ahead? The recent rise in unemployment is bound to sap some of the strength of consumer buying for a while. But wait. There's another category of spending that has scarcely been tapped yet: business outlays for capital spending. Most of whatever optimism is going around these days rests on the belief that the business community is finally ready for a modest wave of capital expansion.

Industry's plans and appropriations for future capital spending now indicate that 1977 will bring some hoped-for support from this critical area, giving the recovery a new lease on life.

The election

If we can count on the underlying economic forces of the business cycle to support continuing—albeit lackluster—recovery through 1977, then what about the election? Is the prospect of a change in administration likely to strengthen or weaken the outlook?

The Ford position is well enough known from actual experience. Inflation is the number one problem, and its remedy is austerity—tight money and tighter budgets (the veto score now being above fifty). The implications of this approach to economic policy are obvious: halting, stretched-out recovery, high unemployment with excess industrial capacity, and a freeze on most social programs (like housing subsidies and urban redevelopment) for as long as inflation remains a problem.

The Carter position seems to be more flexible. Back in June, when he was still seeking his party's nomination, Mr. Carter was making noises like an old-fashioned, New Deal Democrat. Jobs, not inflation were his number one concern, and his goal was full speed toward full employment. If inflation remained a problem, there was the hint that some form of price/wage restraint could be brought to bear. He urged housing subsidies to build two-and-a-half million units annually, as well as a strong commitment to mass transit, energy, and environmental problems.

Now that he's running against Republicans, Mr. Carter sounds like a born-again politician. By early September his economics had taken a decidedly conservative tilt as inflation displaced jobs on his priority list, and he stressed that to curb inflation might mean the delay of new programs.

Meanwhile, the rising unemployment rate has Mr. Ford backing off his earlier "tough-it-out" posture and it begins to look as though both candidates are ready to promise the impossible: a simultaneous assault on unemployment and inflation (without price controls, of course). This is nothing more than election talk, and should be paid scant attention.

But there *is* a basic difference in the economic philosophies of Ford and Carter, and it is a difference that ultimately comes down to policies of containment as opposed to policies of growth. But even if Mr. Carter wins in November, chances are he will not have much influence over our economic affairs until quite late in 1977. It takes almost a year for a new administration's policies (and personnel) to have their impact. The real difference is more likely to be felt in 1978 and 1979.

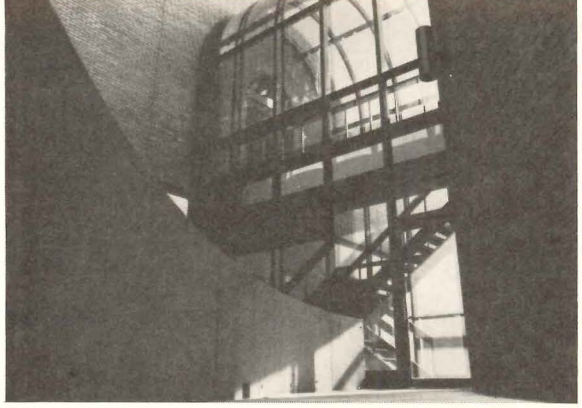
The construction outlook

The short-range prospect for construction will be the subject of next month's column when we issue the *Dodge/Sweet's Construction Outlook for 1977.* In the meantime, consider this a kind of preview.

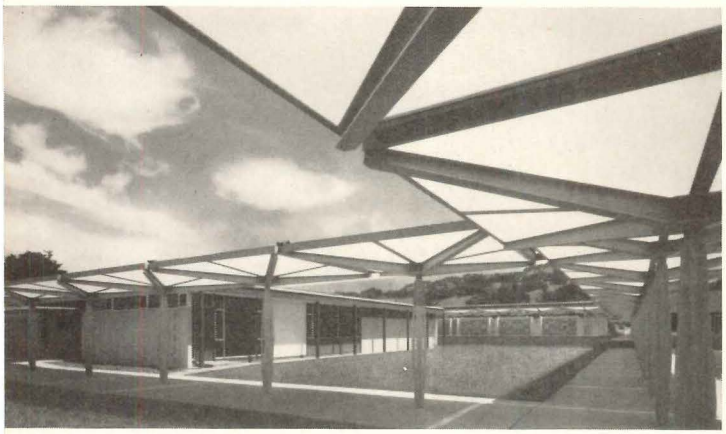
In its own way, the construction market in the autumn of 1976 fits the general pattern of a temporarily stalled recovery as shown by so many other key economic indicators. The construction industry's recovery is presently hung up because one-family housing, which provided so much of the early thrust, has begun to level off while nonresidential building, which is still in the early stage of its recovery, hasn't yet developed enough momentum to sustain the advance.

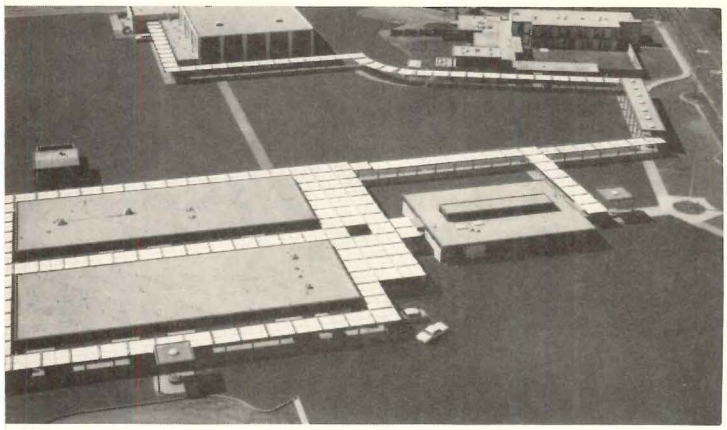
That's just another way of saying that the best—at least as far as the design professions are concerned—is yet to come. As the economy's recovery regains its lost momentum by means of a belated rise in business capital spending next year, the construction industry's recovery will mutate from what has been essentially a housing upswing to a balanced expansion of residential and nonresidential building. This sounds like an environment in which to make plans with some confidence.

George A. Christie, vice president and chief economist
McGraw-Hill Information Systems Company

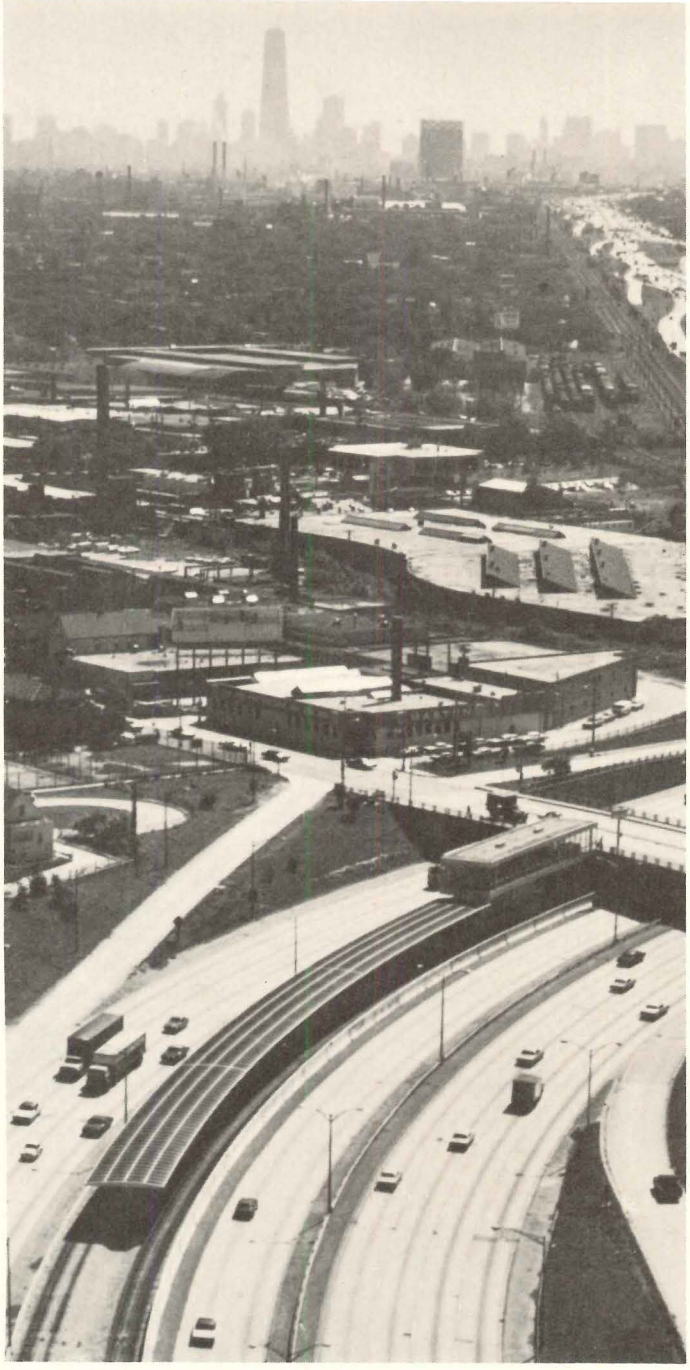


ST. CLOUD STATE COLLEGE, St. Cloud, Minnesota





CARDINAL NEWMAN HIGH SCHOOL
Santa Rosa, California



CTA RAPID TRANSIT AUTHORITY, Chicago, Illinois

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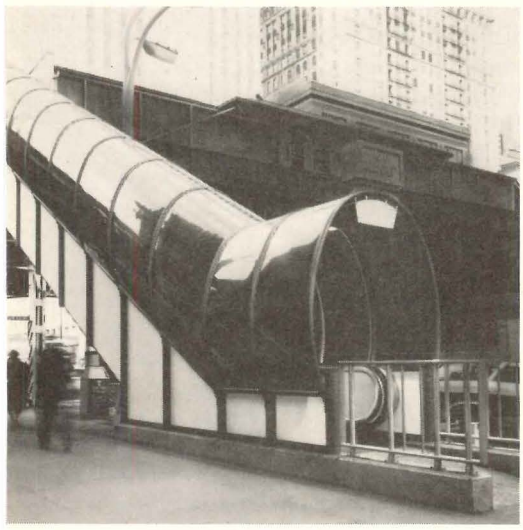

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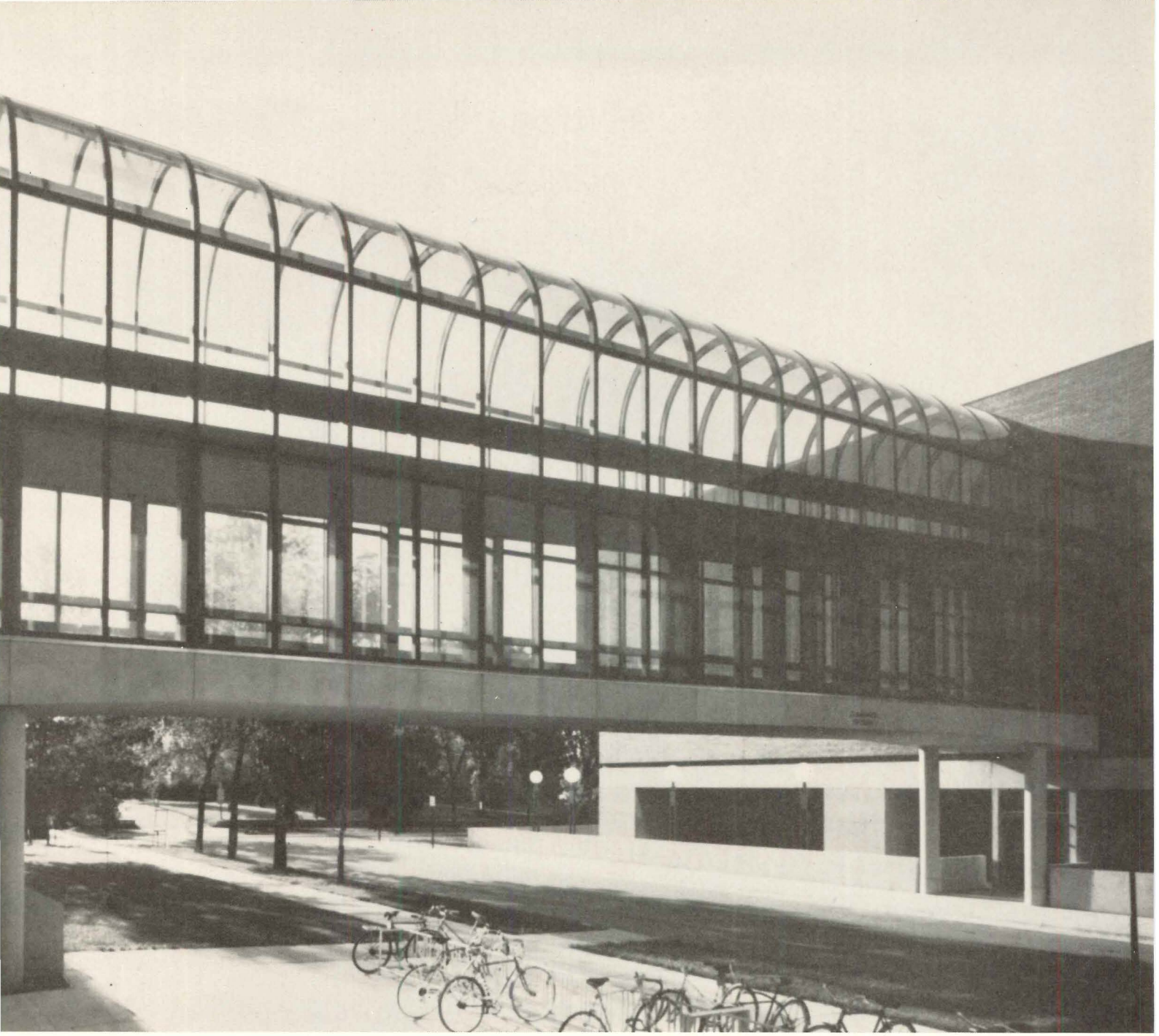

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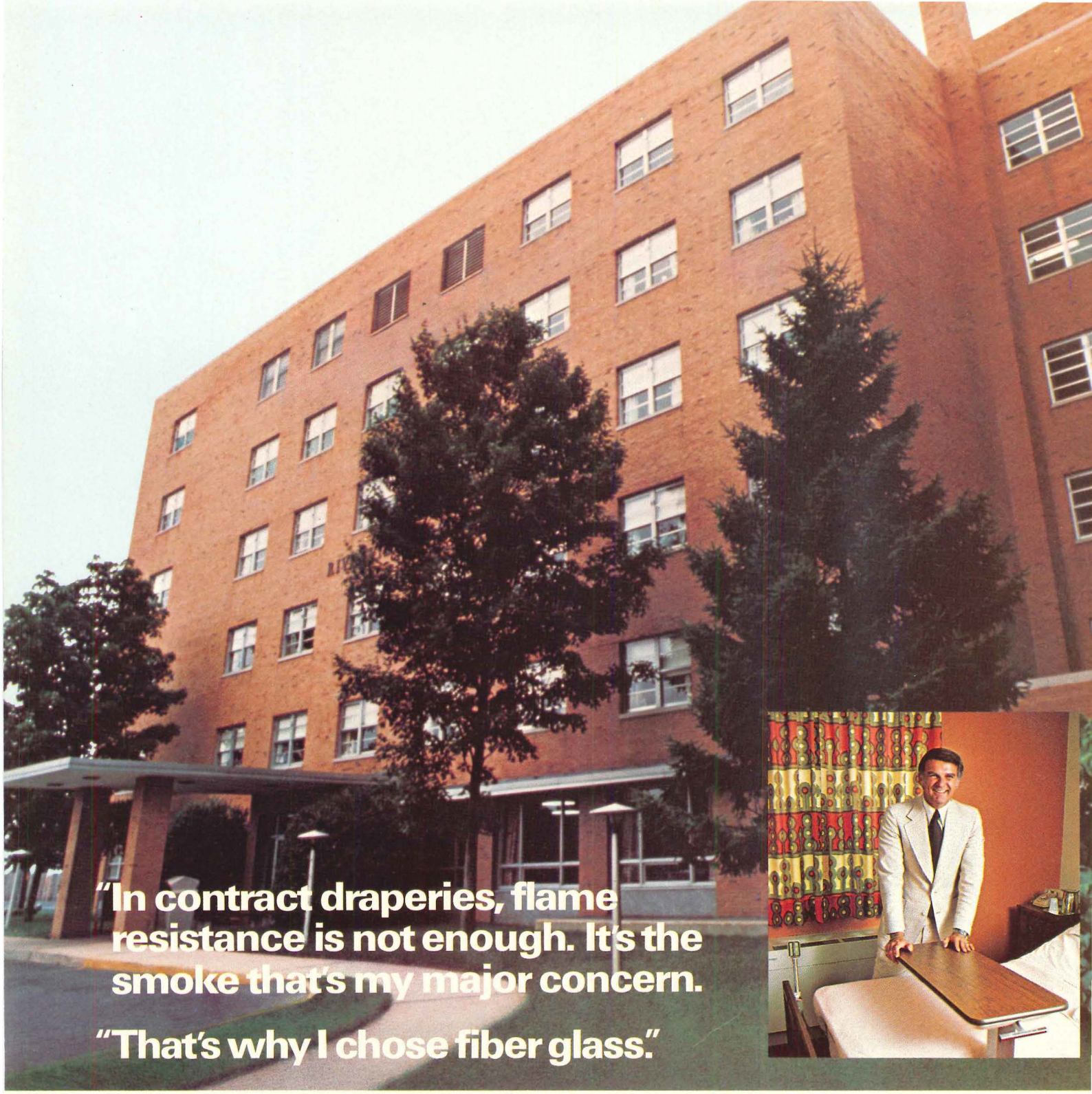

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For a sample of the Riverview Hospital fabric and for information on other fire- and smoke-rated drapery fabrics, write PPG Industries, Inc., Fiber Glass Division, One Gateway Center, Pittsburgh, Pa. 15222.

PPG: a Concern for the Future

John K. Pawlowski, Administrator
Riverview Hospital
Red Bank, N.J.

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Pattern: Keyhole, on basic fabric Exeter
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Fiber Glass PPG INDUSTRIES

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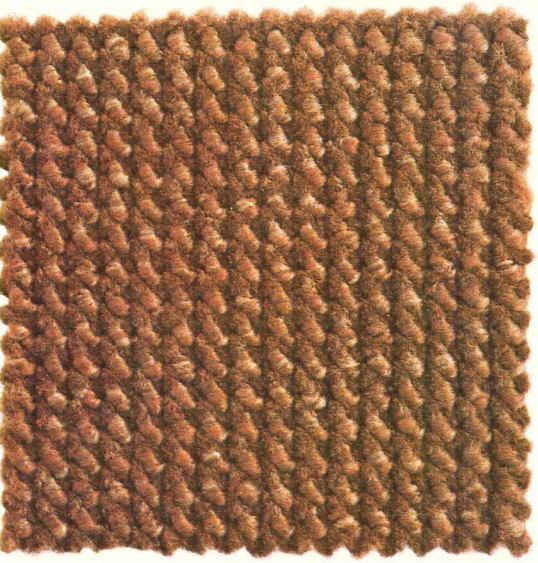

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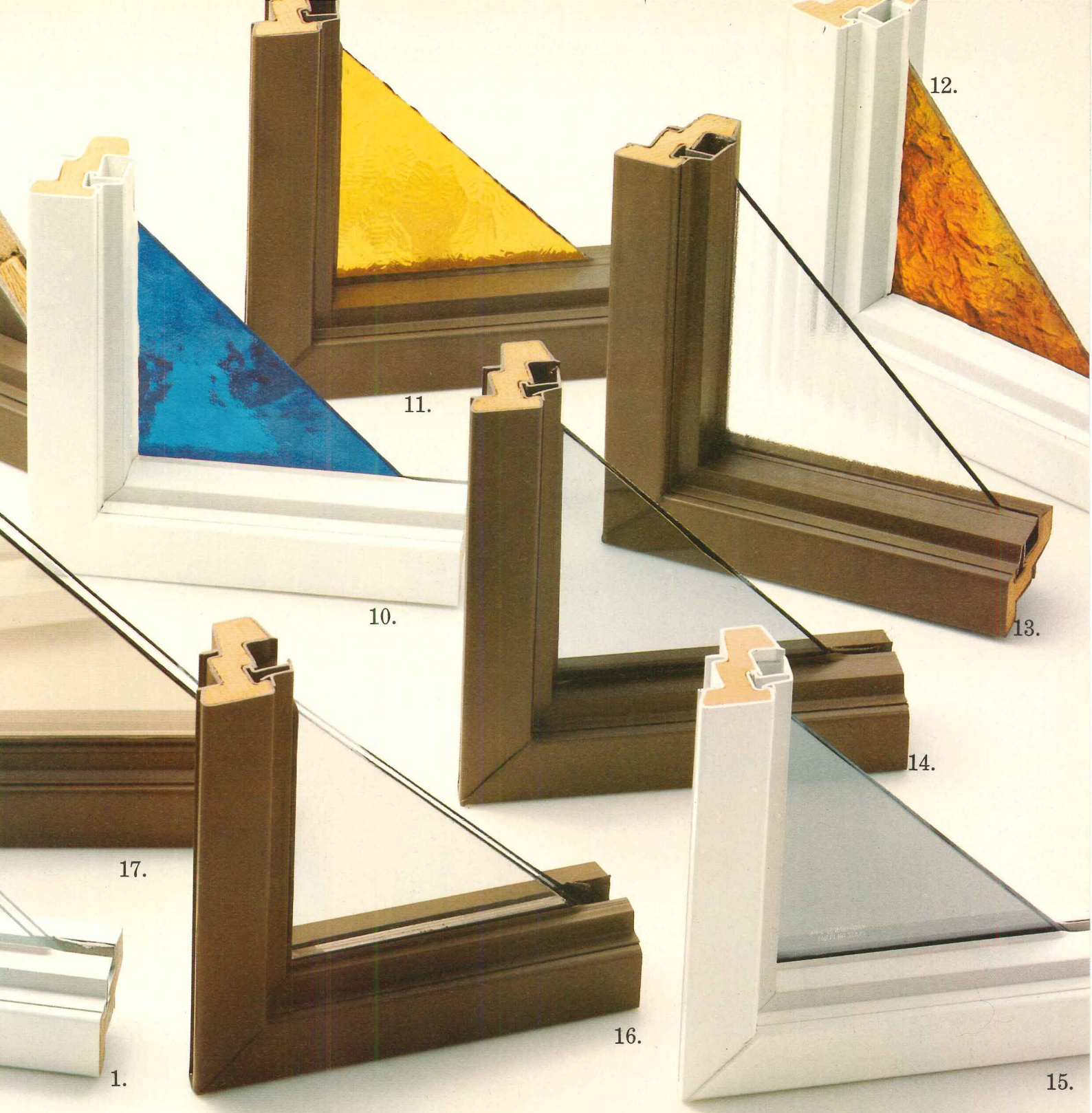
11. Amberlite Pattern Glas Combustion Engineering. Decorative effect in hamme amber patterns. Tempered untempered.



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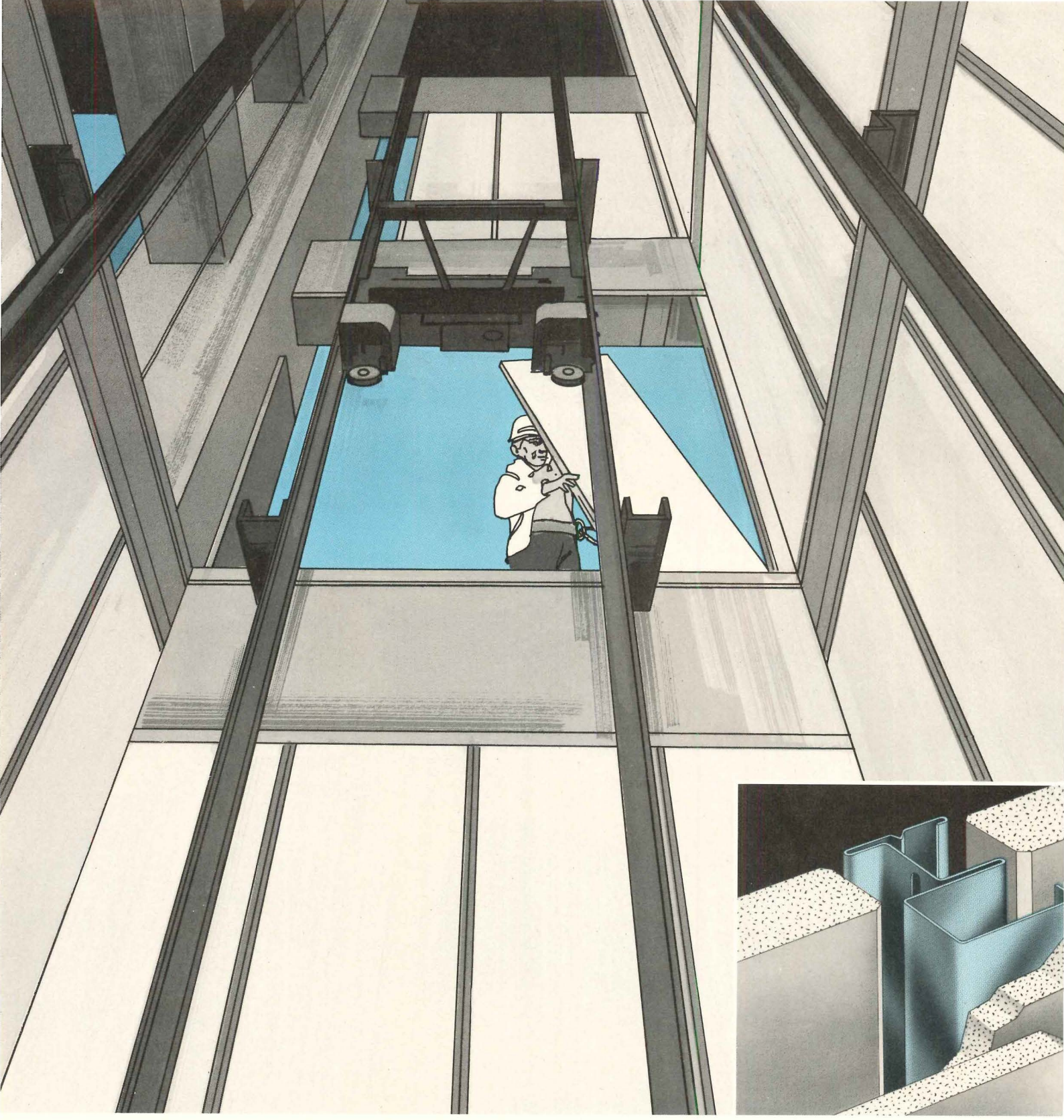

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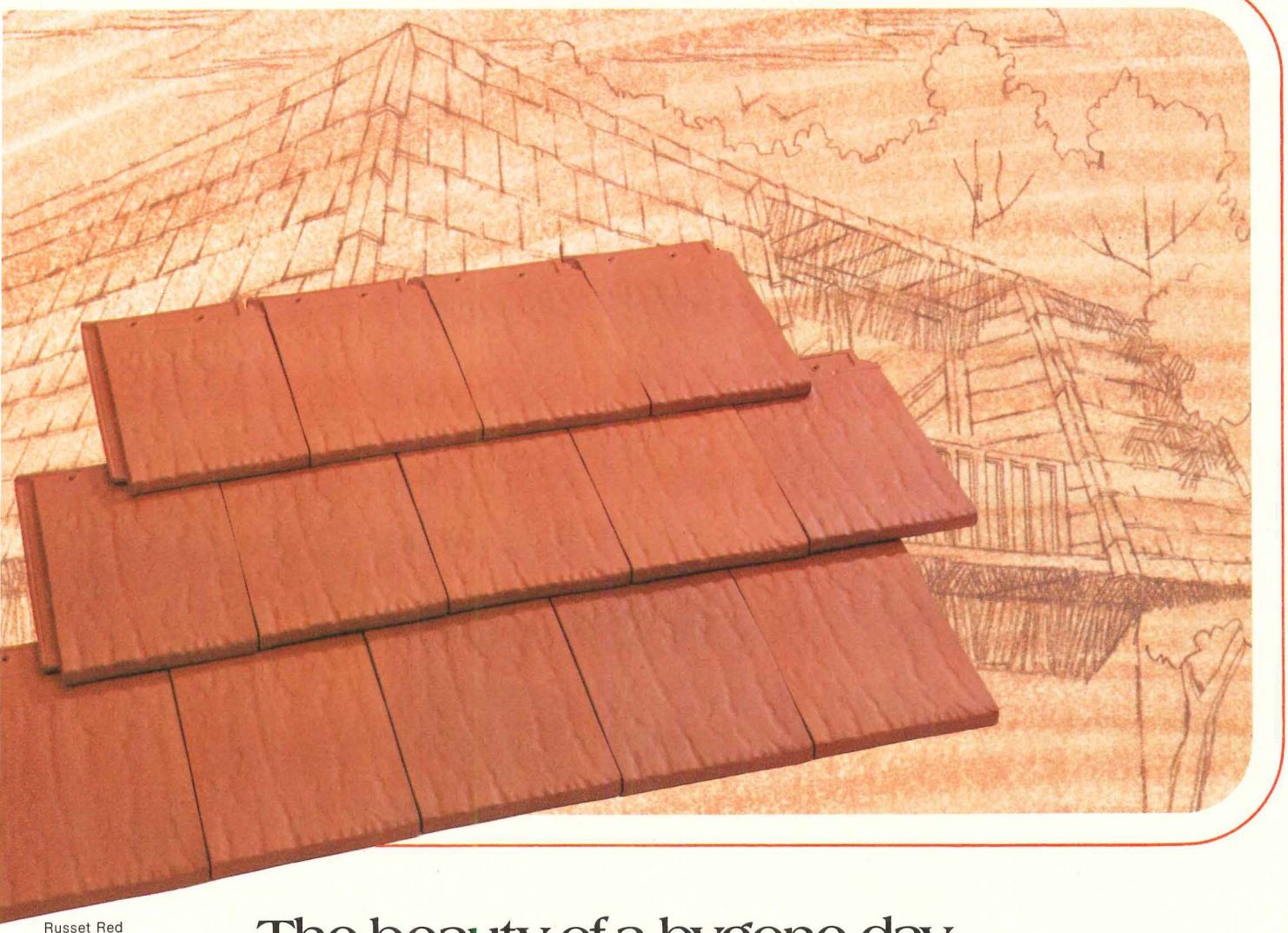

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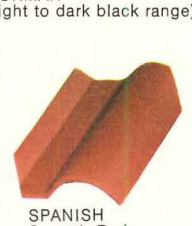

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Interior of Borg-Warner Building, Chicago, Illinois
Architect: A. Epstein & Sons

Champlain Black

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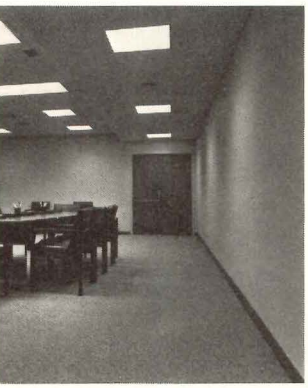

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RUSSWIN

Technical service and practical design aids ease design of this Weathering Steel parking structure.

Client: Virginia Department of Highways & Transportation; *Owner:* Town of Grundy, Va.; *Designers:* Higgs & Higgs, Inc., Vienna, Va.; *Consultant Architect:* James W. Ritter, Springfield, Va.; *Contractor:* Wiley N. Jackson Company, Roanoke, Va.; *Fabricator:* Structural Steel Company, Inc., Roanoke, Va.; Structural steel furnished by Bethlehem Steel Corporation.

The depth of the mountainside excavation, which greatly influenced the cost of the project, dictated the need for a long (240 ft), narrow (63 ft) structure.

depend on Bethlehem

ate road-widening project through Grundy, Va., eliminated many of the 's Main Street parking spaces. And because of the area's steep terrain, ternative off-street parking sites were available.

tion: build a three-level, 144-car parking structure into the side of a ntain to replace the spaces eliminated by the construction.

difficult nature of the site immediately suggested the use of structural steel ng. It could provide the required column-free long spans. And it could be ed rapidly.

s Engineering service valuable. "Bethlehem Sales Engineering personnel very helpful in furnishing us with technical publications and advice," rts Mr. Gerry E. Higgs, president, Higgs & Higgs, Inc., designers of the ture. "Two slide presentations, featuring steel-framed parking structures the use of Weathering Steel in construction, were given to our engineer- staff. It was also on the advice of Bethlehem's Sales Engineer that we idered Weathering Steel for the interior, as well as the exterior framing e structure."

Weathering Steel? The designers decided on ASTM A588 Weathering for both the exterior and interior framing for two reasons: (1) it provides y rustic appearance which, when fully matured, will blend well with the undings of this rural coal mining community; and (2) its low maintenance will minimize future financial burdens on the town.

ral special design details are employed to minimize staining during the hering process. Open slots are placed in the concrete slabs around all mns to avoid runoff from the columns onto the slabs. At grade level, gravel ets surround all the column bases.

itectural considerations. A low-profile parking structure was desired in r to avoid overpowering the neighboring one- and two-story buildings. design features an open structure with exposed steel framing, partially d with sand-blasted precast panels.

t of ramps at the south end provides entrance and exit to the parking s. One of the ramps also serves as the entrance and exit right-of-way for roperty on the mountainside above the parking garage. The system of lar and straight ramps allows one-way traffic to be maintained on all ng levels. Stair towers, located at each end of the structure, control strian flow.

nical and advisory services available. Bethlehem's Sales Engineering ion offers a wide variety of services to help make it easier for you to gn in steel. Our Preliminary Framing Analysis can provide you with budget information for the total "systems package" of a structure under study . . . our advanced engineering group can assist you with technical evaluations.

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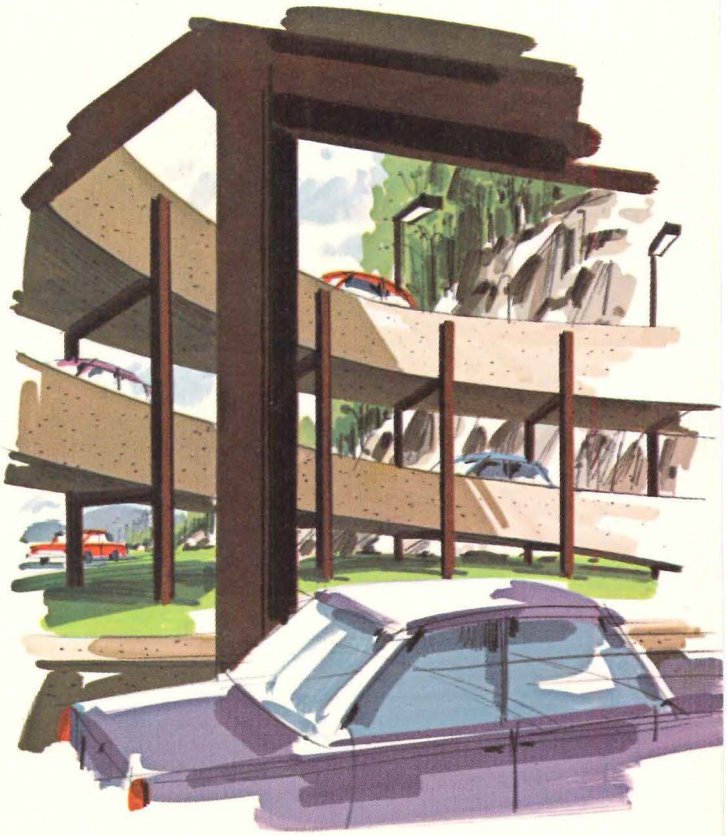

A circular ramp at the north end permits traffic flow from the level below to the one above.

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Ask for Sales Engineer

Slide presentations, as well as numerous Bethlehem publications and design aids, provided valuable assistance to Higgs & Higgs, the project's designer.

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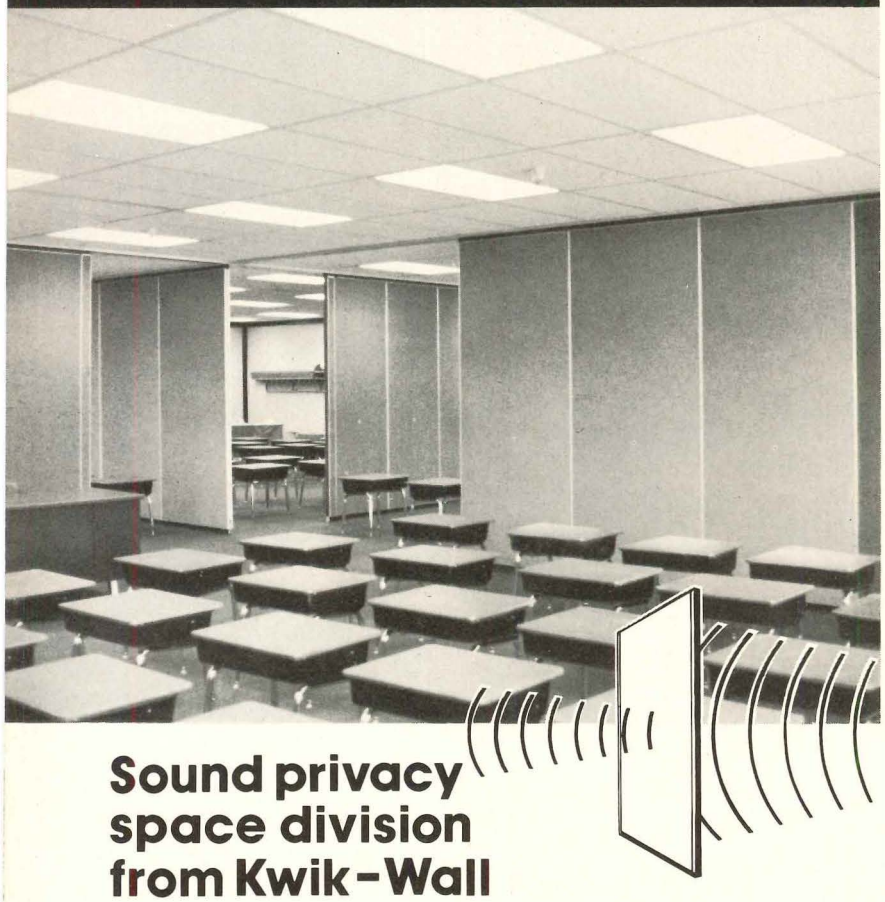

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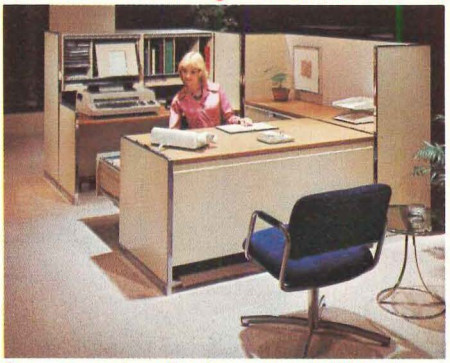

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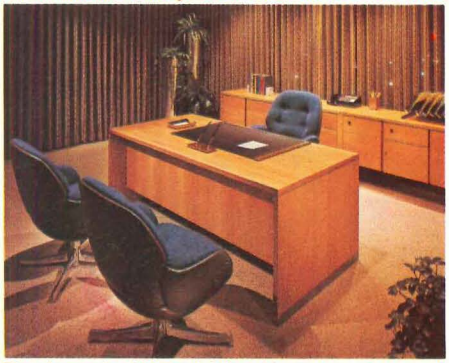

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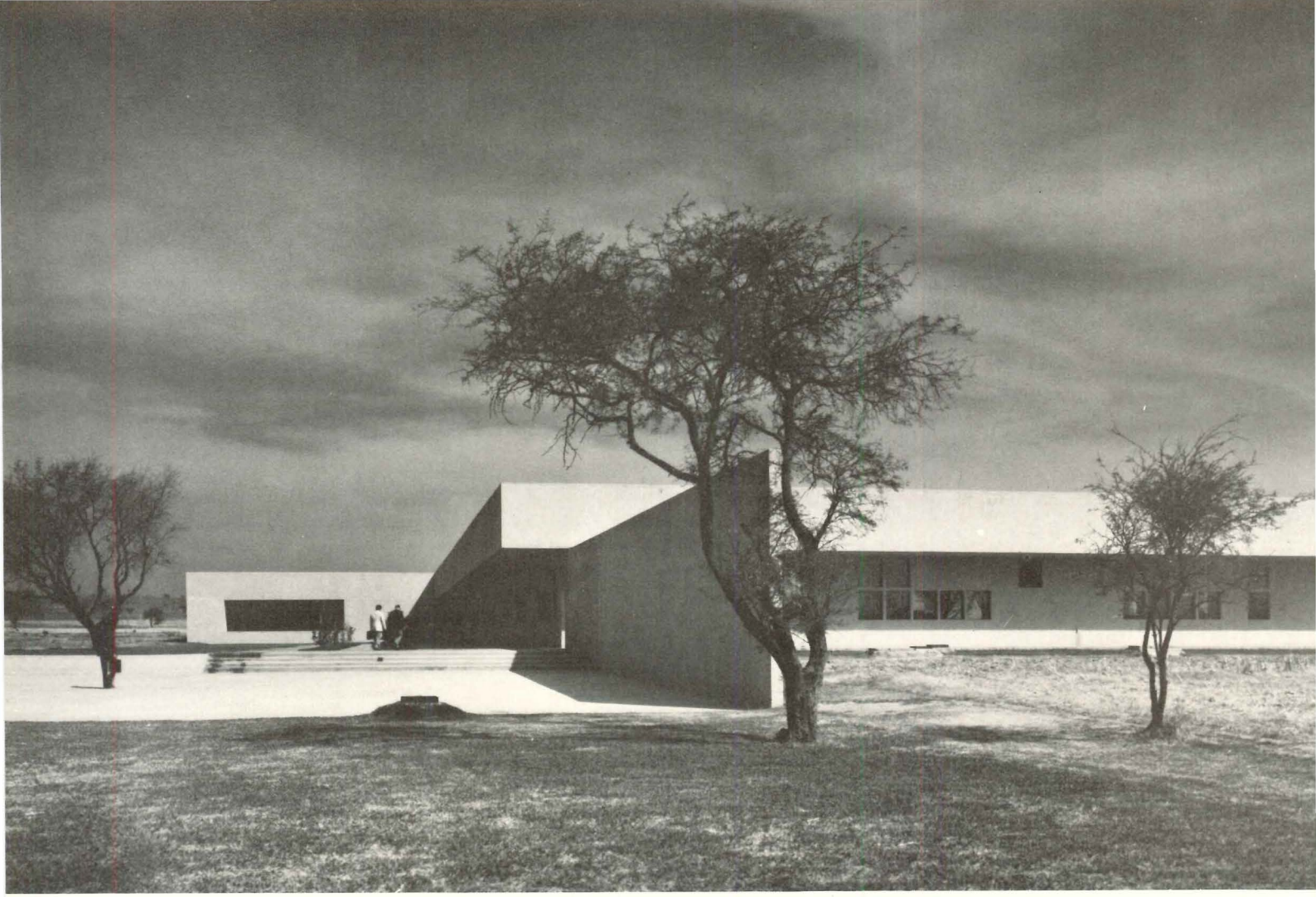
THE MEXICAN MINIMALISM OF RICARDO LEGORRETA

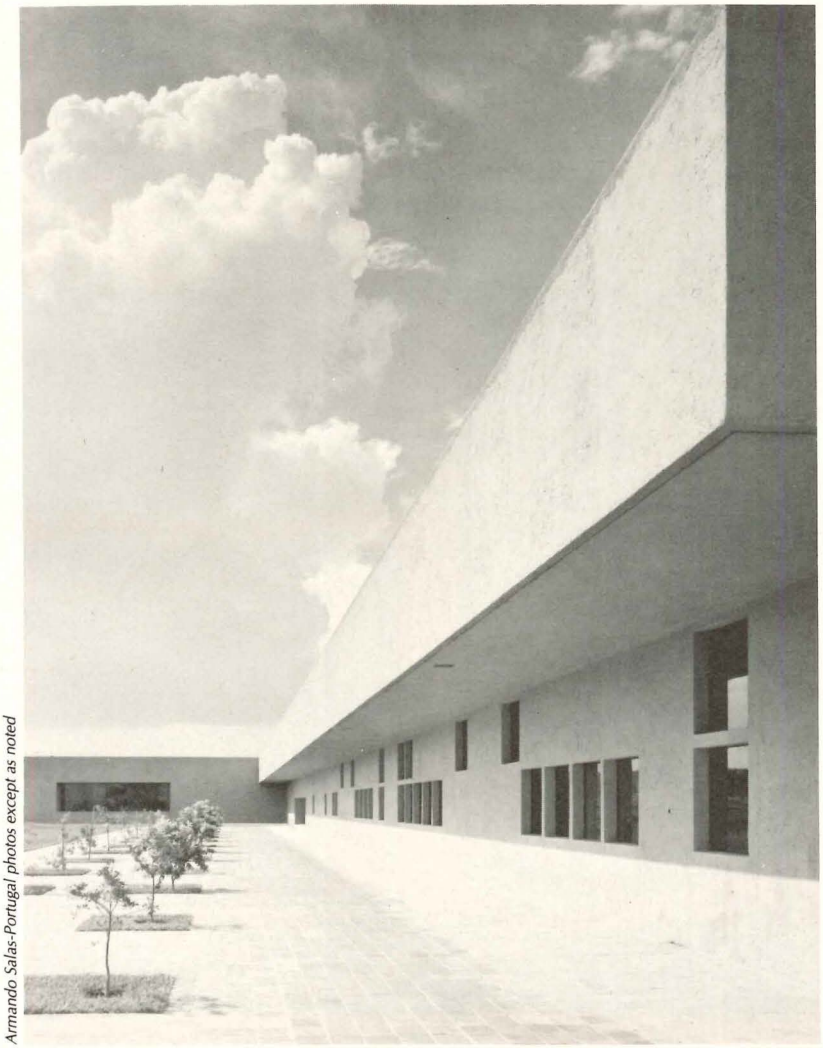
by C. Ray Smith

Of all the Mexican Minimalists influenced by Luis Barragán, Ricardo Legorreta is the best known architect and the most prolific. His firm Legorreta Arquitectos became internationally known with the design of Mexico City's Camino Real Hotel, which was finished at the end of 1968. In the ensuing years, the firm has completed two more hotels, several office buildings, a number of houses, and the planning and supervision of a large low-income government-sponsored subdivision outside Mexico City.

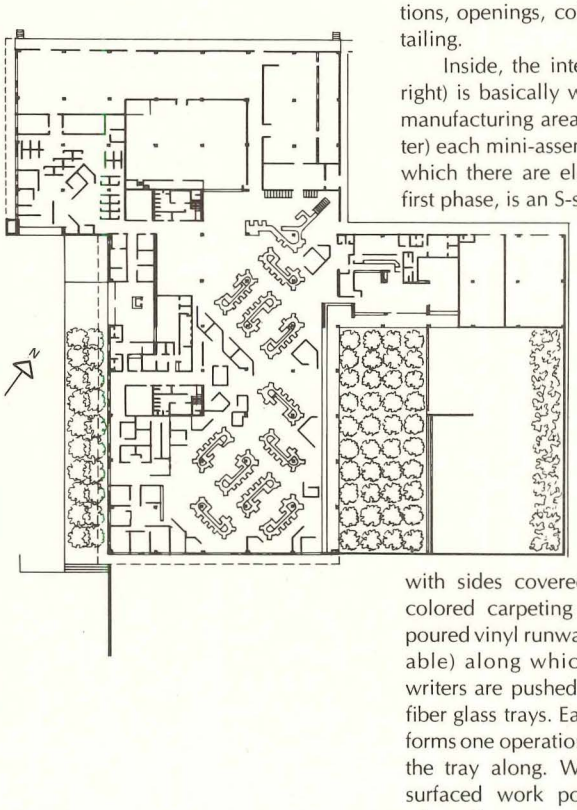
The newly opened Hotel Camino Real at Cancún, which is

C. Ray Smith, A.I.A. is an architecture and design critic based in New York





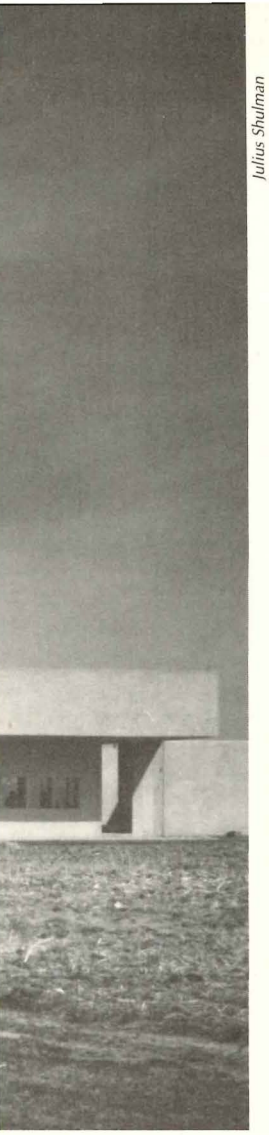
Armando Salas-Portugal photos except as noted



Rust-orange paint—like M
can clay—colors Legorre
IBM plant exterior elevati
The gatehouse (right) ep
mizes the Mexican Minim
approach to massing, pro
tions, openings, color, and
tailing.

Inside, the interior (be
right) is basically white. In
manufacturing area (right,
ter) each mini-assembly lin
which there are eleven in
first phase, is an S-shaped t

with sides covered in ca
colored carpeting and wi
poured vinyl runway (non-r
able) along which the t
writers are pushed on cast
fiber glass trays. Each man
forms one operation, then s
the tray along. White pla
surfaced work positions
edges of parota wood hav
volves with pedal releases
undercounter tool space.



Julius Shulman

on the sand bar off the Yucatán peninsula north of the island of Cuzumel, and the IBM plant in Guadalajara are the most recent demonstrations of Legorreta Arquitectos' completed works, and they maintain a Mexican Minimalist essence.

IBM, Guadalajara

Outside Guadalajara, a high-altitude city northwest of Mexico City, a bold rust-colored stripe of a building stands out against the distant mountains amid corn and alfalfa fields. Designed by Legorreta Arquitectos, it is the first of a five-phase IBM factory where electric typewriters are built and reconditioned. The assembly area is innovative for Mexico and for IBM, in being their first open plan arrangement of "mini-assembly lines." That is, each assembly consists of an 11-person team that reconditions a machine from start to finish, rather than being a single longer assembly line that includes many and more fragmented operations. It is "factory landscape"—minimizing hierarchy in the manufacturing area and integrating workers with office personnel as much as possible.

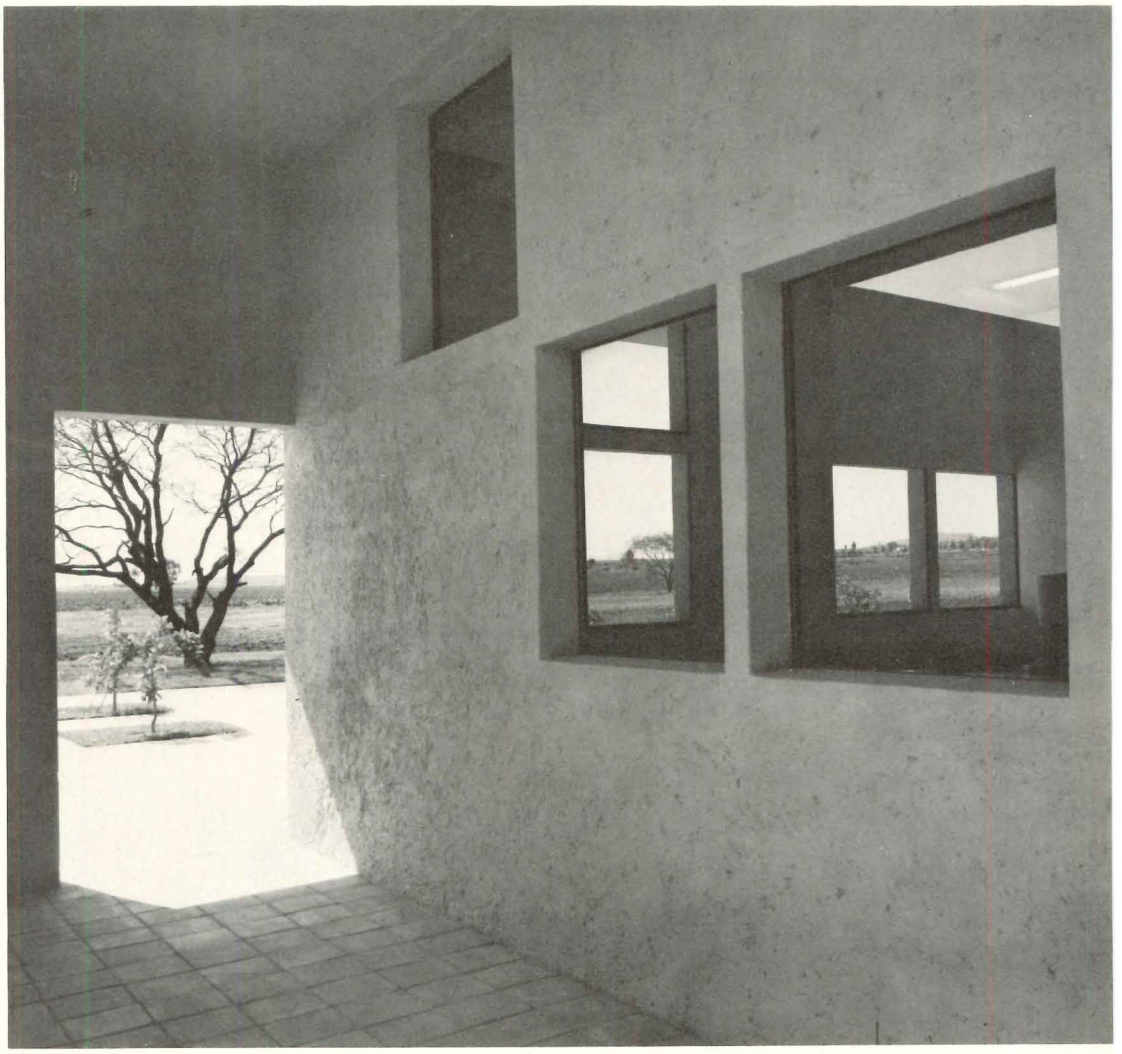
On the exterior, the building strongly proclaims the elemental motifs of Mexican Minimalism. It has broad expanses of plain surfaces, deep parapets (which provide both sheltered walkways and solar protection) and precise proportioning. Crisp openings—flush, frameless, and trimless—are punched austerely through the planes in contrast with the vibrant, flying colors on the exterior.

As an example of the Minimal detailing, windows are typical: aluminum frames are set into the infill wall, and the exterior plaster covers the frame with only a small reveal for maintenance. The Minimal technique conceals the function and design effort for the sake of the clean line, the pure plane, and the hard edge. Simplification of the visual effect is the goal. But in terms of design effort, patient detailing goes into achieving such bold strokes.

The master plan proposes modular expansion. Each phase consists of 107,600 square feet, and is designed so that every nonbearing perimeter wall can be moved to expand the open-ended project. The structure is a reinforced concrete frame (12- by 12-inch columns on 36-foot centers) with brick infill walls and a plaster surface finish. The floor slab is poured on grade and reinforced to support heavy machinery; the waffle roof slab has a fiber glass insulated finish. The parapet is of removable concrete panels that can be reused as new phases of the building are added.

Inside are reception, office, and cafeteria spaces. Because most of the industrial products used in the building are based on machinery built to the English system of measurement, the column grid is laid out in feet also. The offices are open planned, except for 60- to 80-inch high partitions with carpet finish. The ceiling system in the manufacturing area incorporates sprinklers, loudspeakers, and fluorescent light troffers with alternate strips for air conditioning supply and return. Open space for return to the plenum is left around each column. Lines for

Julius Shulman



electricity and compressed air are brought down from the ceiling along the columns, around which each of the mini-assembly lines is placed. Services are collected into what the architects call a nucleus—including toilets, showers, and dressing rooms, with air-conditioning equipment on the roof.

The Camino Real Hotel at Cancún

Categorically, the Camino Real Hotel at Cancún is as perfect as a hotel need be. It joins the half dozen other great modern hotels—Arne Jacobsen's SAS Hotel in Copenhagen (reportedly no longer kept up), SOM's Mona Kuai in Hawaii, Philip Johnson's Marquette Inn in Minneapolis, Harry Weese's Crown Center in Kansas City, ARCOP and Tabler's Hotel Bonaventure in Montreal, and your choice of Portman's atria—the Embarcadero in San Francisco, the Hyatt Regency Atlanta or at O'Hare, or the Peachtree Center Plaza—and, of course, Legorreta's Camino Real in Mexico City. The Camino Real in Cancún now takes its place among these few.

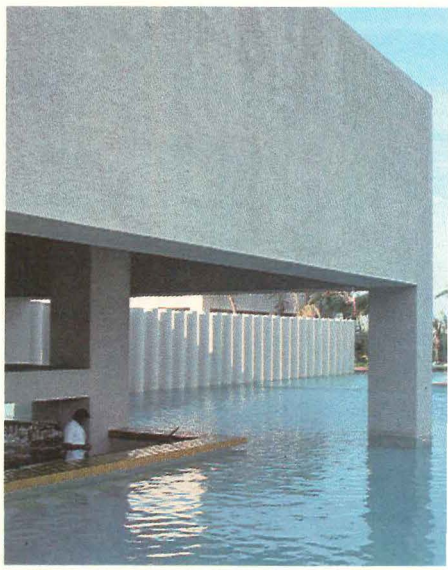
It is a visual synthesis of Mexican architectural imagery, omitting only the baroque: Mayan pyramids are recalled in the diagonal, pyramidal massing of its guest room wing; the adobe-like finish on the walls recalls anonymous Mexican village architecture; and traditional Mexican materials such as raffia, hemp, rattan, natural woods, textiles, and ceramics are used.

Located at the northern tip of the rapidly developing resort island on a ten-acre site, the 256-room Western International hotel preserves, in its own enclave, the elements of the sand bar terrain that are being swept away by other hotels along the beach. The siting is the most imaginative and innovative stroke of all. Guest rooms are located in a wing on the rocks at the edge of the ocean; public areas—with block-like masses and heavy overhangs sited around patios, gardens, and pools integrating the outdoors and indoors—surround a turquoise-blue salt-water lagoon that brings the Caribbean itself within the compound of the hotel. Divided into a naturalized lagoon, an adults' swimming pool, and a children's pool, the one-acre lagoon is enclosed from the sea by only a narrow white sand beach and palm trees. It looks as if it might always have been there as part of the natural terrain.

Shrewdness in planning was required to make this body of water happen, however, since Mexico has a federal regulation that no building may be within 20 meters of mean high water; otherwise it becomes government property. As architect Legorreta explains, "The moment we opened that lagoon to the sea, we would create a federal zone and would have to keep setting the building back 20 meters. And soon we would not have any property at all." So the architects left the small sand bar between the sea and the lagoon as an official separation. Legorreta sees only the El Conquistador in Puerto Rico as a predecessor in bringing the sea so close to a resort hotel. No other has an inhouse ocean.

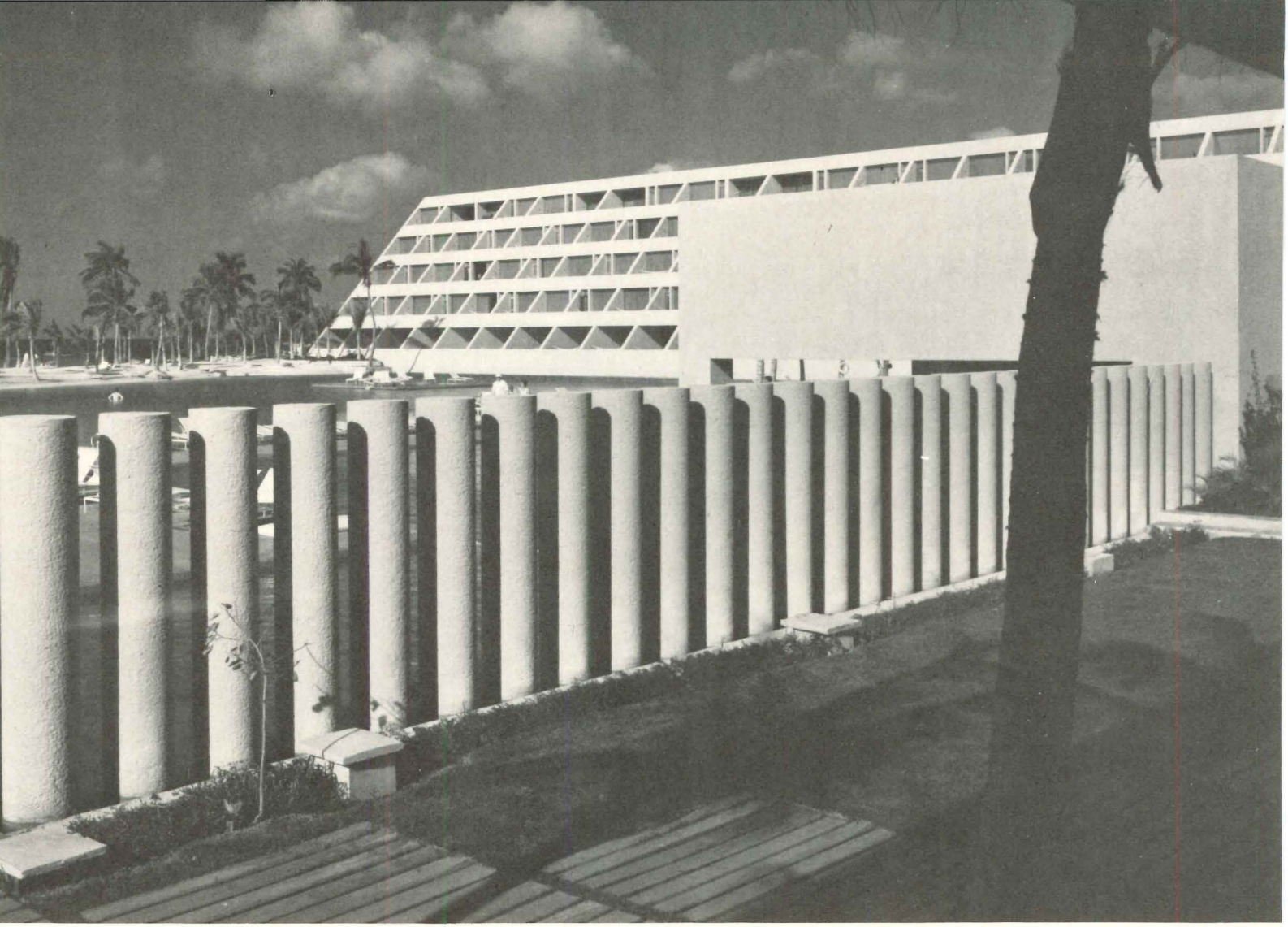
The second most significant achievement of the Cancún Camino Real is the planning of the guest room wing. Composed in plan of a

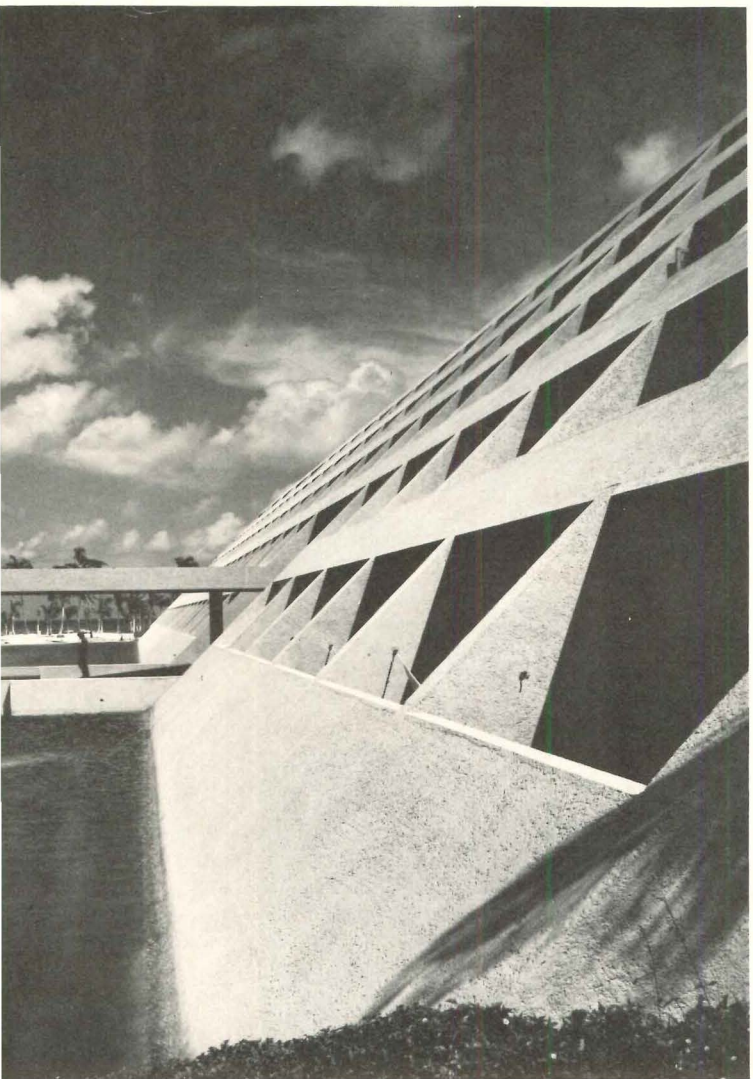
Julius Shulman photos

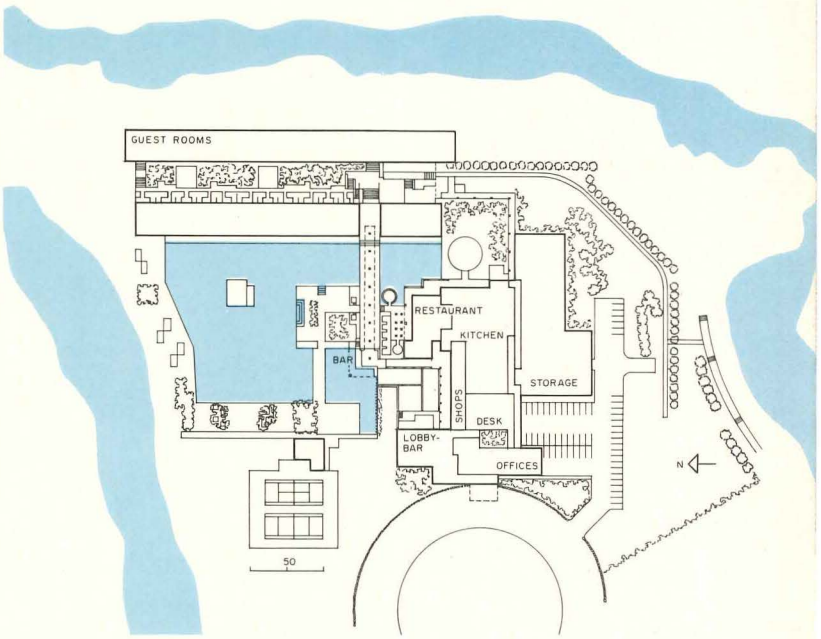


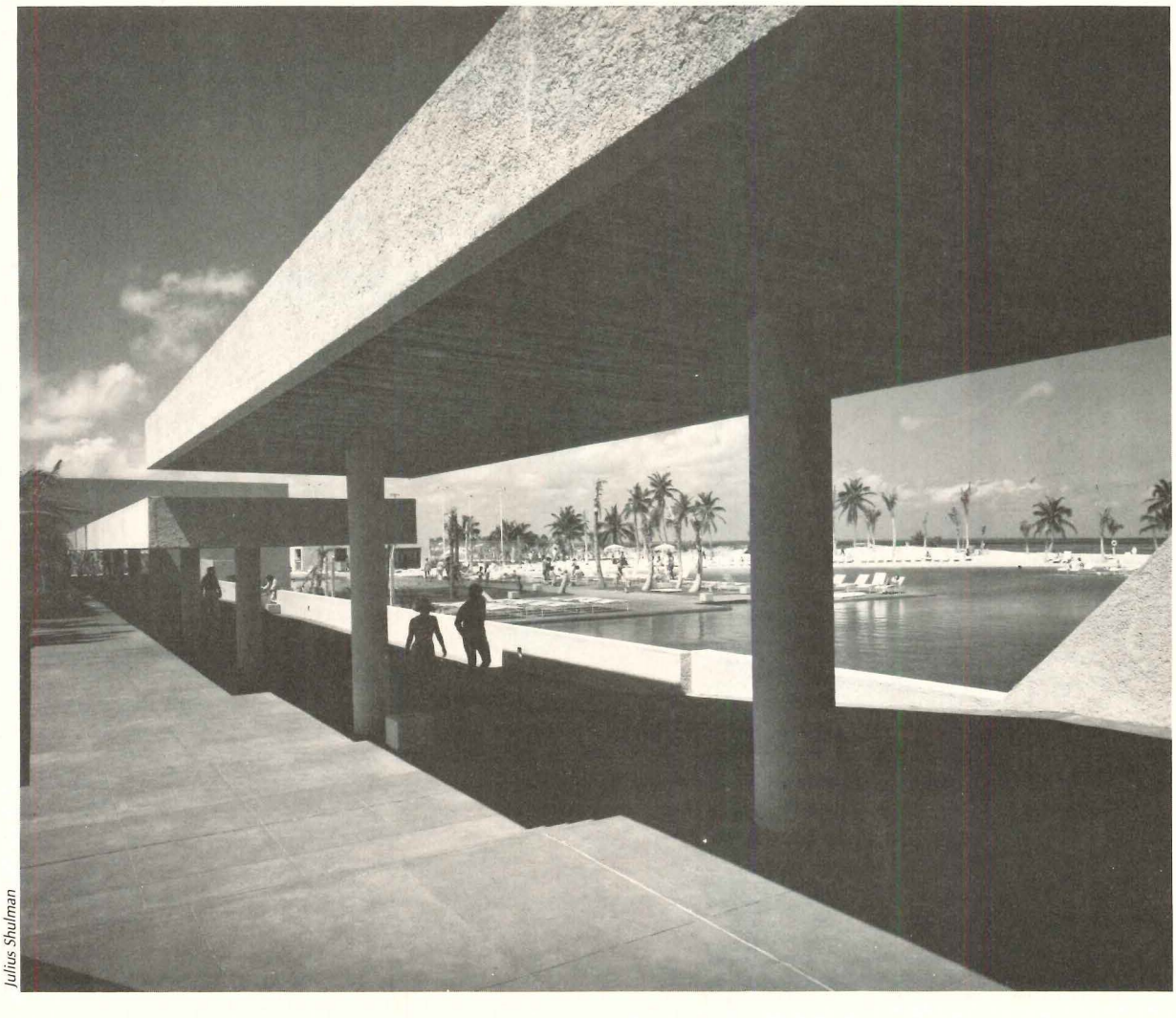
In the public area of Lego Arquitectos' Cancún Car Real Hotel, a row of cylind columns (top right) sepa the activities at the lagoon the pool (with its bar, ab from the open-air lobby (left). There, a deep parape square columns houses bays, each of which has a ticed pyramidal ceiling lit behind. The joint at colu beam and pyramid corne precise, Minimal detailing.

Covered walkways br the lagoon and connect with guest room wing (right).






GUEST ROOMS
RESTAURANT
KITCHEN
BAR
STORAGE
SHOPS
DESK
LOBBY-BAR
OFFICES
N
50



Julius Shulman

Color in the turquoise lag
(above) and in purple-lea
gardens is symbolized in
"Azulejos" restaurant b
multicolor wrapped heneq
fiber rope hanging (bott
right) by Sheila Hicks). It is
pended in a magenta skylig

In one area of the res
rant, a magenta-painted
flanks a wall of skylighted
low tiles, against which
orange-and-magenta plaid
holstered banquette prov
vibrant-looking seating.

Just outside the restaur
covered walkways (left)
shelter to a bridge over the
goon that leads to the bedro
wing (far right). The guest ro
wing is in two blocks (see
tion) with an open-ended
less atrium (right, middle) in
tween. The four-story oce
side block is built on rock;
five-story lagoon-side bloc
built half on rock and half
pilings in the lagoon. The st
tural system consists of conc
columns, beams, and sla
with brick and plaster i
walls. Open corridors (far ri
overlook the planted atrium
conditioning is through
nums over the closet-vestib
areas and over the bathro
(tone on section). Air condit
ing supply is through the
troffer grilles.

Courtesy Braniff International

pair of rectangular blocks set parallel, the wing has an atrium running the length of the middle. All guest rooms open off this planted atrium, which is open to the sky and at each end (photos below). The rooms run through the floors so that each has a view of either the ocean or the lagoon from a terrace.

The five-story, 144-room western block presents a sloping, pyramid-like facade to the lagoon and to the public areas of the hotel. On the atrium side it is staggered with open corridors overhanging each other (see section below). A diagonal bent braces the western wing against the four-story, 112-room ocean-side wing, which has perpendicular facades but similar open corridors and terraces on the perimeters.

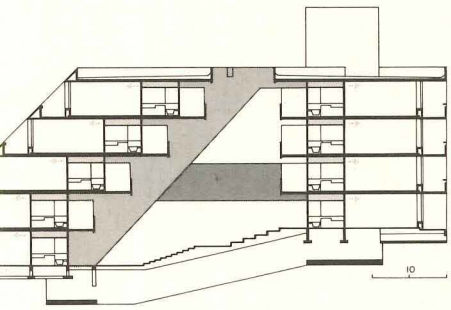
Circulation from the public areas to the guest rooms gradually reveals the web of compositional elements that the architects have spun throughout. A formal motif of squares and circles is interwoven and extended into rectangular slabs, into cubes, and into cylinders of different sizes and materials. The motif is developed through the interior furnishings as well as on the exterior.

The cubes and slabs are prominent in the massing, in the proportions of archway like openings, the covered walkways, and the fenestration of the guestroom wing. A row of concrete cylinders screens the children's pool from the main patio and the lobby bar. Cylindrical columns support the walkway shelters, which have smaller rods of nacash wood as soffits. Adjacent to the children's pool, the adult pool has a bar with cylindrical barstools' underwater. On arrival, the entry is modest, simple, and non axial. Vehicles swing around a large circular planted area in which a fountain is planned, and arrive in front of a rough-plastered, adobe-like, sand-colored, flat wall with a massive overhang. To enter, one turns left along the blank, windowless facade and through an open, rectangular archway.

Like the over-all hotel, the guest rooms are composed of traditional Mexican materials that give them a simple, unpretentious, and relaxed air. Here again, the cylindrical motif is seen on the door finish of elm dowels, in the headboards which have elm posts and raffia infill, in the bedside tables, and in the handles to the closet doors. The cube motif is used for bureau handles, main door handles, and in the table lamps. Yet the simplicity and the execution make the hotel elegant far beyond the "architecture for the poor" that is one of the inspirations of the Mexican Minimalists. That is the persistent paradox—that such simplicity can create such opulence in the hands of deft and visually sensitive architects. And that is what the Minimalism of Mexican art is all about.

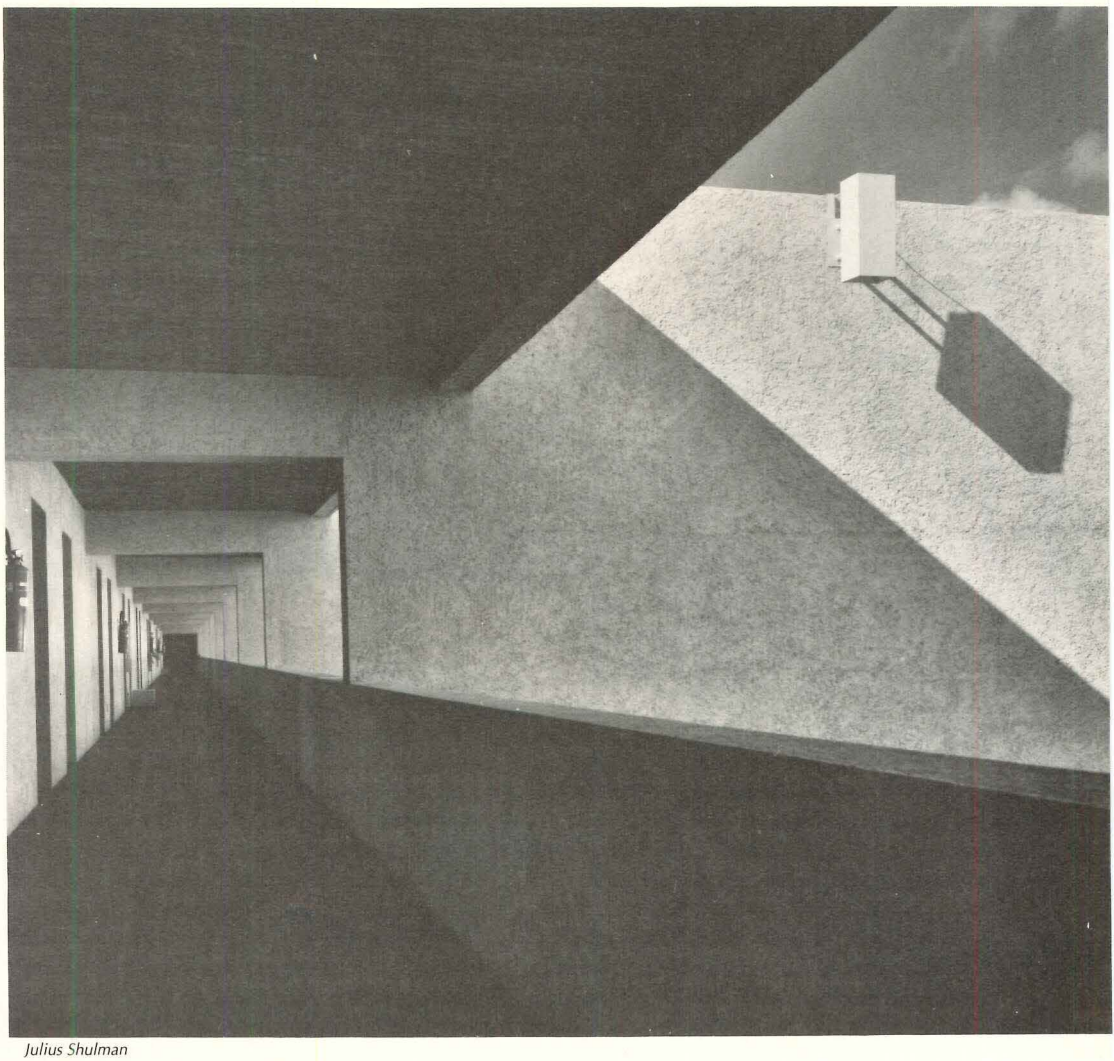
Legorreta and the Mexican Minimalists

Ricardo Legorreta is usually considered to be in the "second generation" of Mexican Minimalists—those sculptors, painters, and architects whose approach and work have affinities with the Minimalism of Luis Barragán. Barragán, however, always emphasizes the continuity and continuum of Mexican architecture, pointing out that he himself was in turn in-



Courtesy Braniff International

Julius Shulman



Julius Shulman

fluenced by an older generation—the sculptor and painter Jesus "Chuco" Reyes, now 92—and that his work has in turn also been influenced by younger Minimalists. "We are all close friends and discuss these things back and forth," he pointed out in an interview this past winter. Architect Legorreta agrees with this sense of continuity and stresses Mexico's uninterrupted dedication to the aims of the Modern Movement since the mid-twenties, when the teaching of Jose Villagrán began to make its mark.

In the history of Mexico's Minimalist movement—which is what Ricardo Legorreta calls it—the first generation was Jesus Reyes; the second generation is composed of, among others, Luis Barragán and sculptor Mathias Göritz, who collaborated with Barragán on the Satellite Towers outside Mexico City; and Ricardo Legorreta is in the third, not the second, generation. Now, an even younger group in their late 20's and 30's is working along the same lines. So there are, in fact, four generations of Minimalists in Mexico.

Each of these generations has shown a progressive development or shifting of goals in relation to Mexican architecture. The work of "Chucho" Reyes as sculptor, collector, arranger, and assemblagist has been in the realm of fine art—that is, generally without functional application except when it has been in the areas of interior design or the decoration of shrines and altars. The work of Luis Barragán has been more in the realm of architecture, although at times he has considered his work to be primarily landscape architecture.

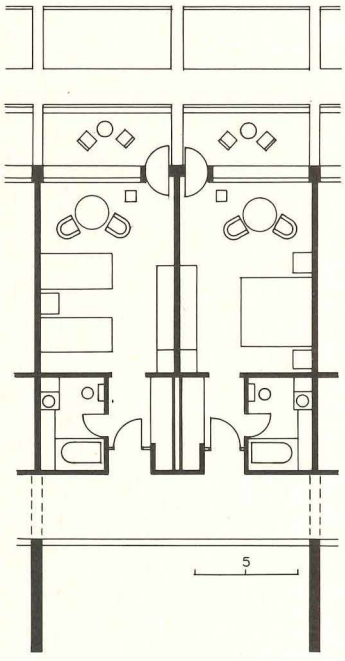
As architect Legorreta says, "Chucho developed a complete world around him in his way of living and of arranging things and in his colors. He lived with beauty in an authentic, natural, and naive way. Then Luis went further in getting that into order so as to be able to build certain things. But Luis remained out of the reality of life. First he built practically only for himself. He built for specific problems that are not the problems of life but are basically esthetic problems—like the Towers, the fountains, and that sort of thing."

As for the third generation, architect Legorreta feels that he and his colleagues have confronted the realities of architecture. "Then we came," he explains, "a number of people who were working on really getting into the live, tough problems of architecture—getting involved with business and costs, in hotels and subdivisions—but keeping in mind that we should maintain a Mexican architecture." The IBM plant and the Cancún Hotel tackle these architectural realities and strongly maintain a Mexican essence.

IBM FACTORY, Guadalajara, Mexico. Architects: *Legorreta Arquitectos—project architects: Ricardo Legorreta, Noe Castro, Carlos Vargas, Pedro Sanchez de Movellan.* Engineers: *DIRAC* (structural); *BIPSA* (mechanical/electrical); *DPSA* (Hvac design). General contractor: *CYP, S.A.*

CAMINO REAL HOTEL, Cancún, Mexico. Architects: *Legorreta Arquitectos—project architects: Ricardo Legorreta, Noe Castro, Carlos Vargas, Pedro Sanchez de Movellan, Emilio Guerrero.* Engineers: *DIRAC* (structural); *BIPSA* (mechanical/electrical). General contractor: *Constructora Ballesteros.*

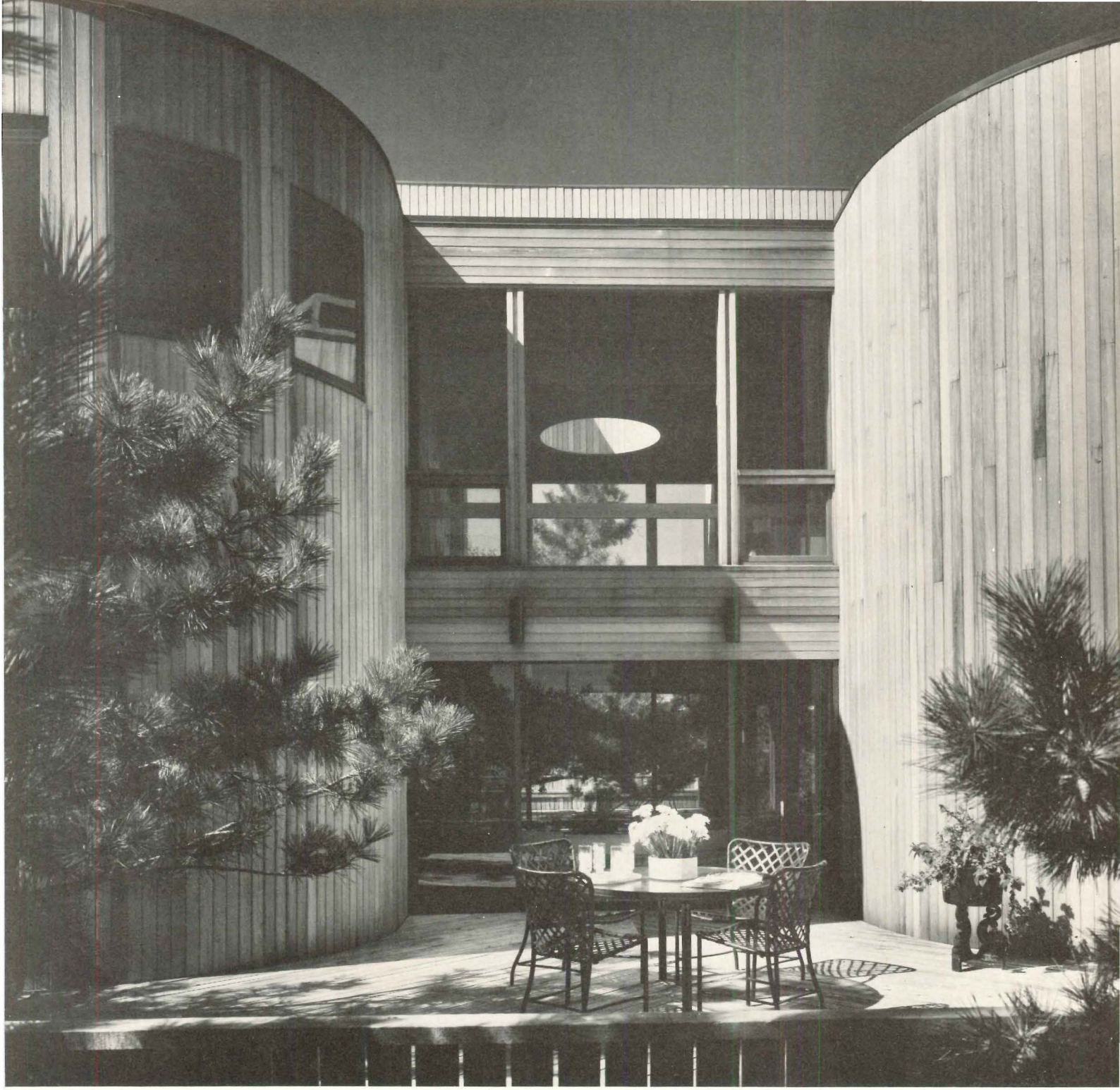
Julius Shulman



Each of the 256 guest rooms has a relaxingly elegant ambiance with a natural henequin wall hanging by Sheila Hicks and a terrace overlooking the water. Floors are of white marble terrazzo tiles; walls and ceilings are white plaster.

KOPLIK HOUSE: FORMAL IN PLAN BUT SOFTENED BY SENSITIVE SITING

Architect Earl Combs has designed an unusual vacation house for a young family in a resort community on Long Island's South Shore. The program is hardly extraordinary but Combs has used rounded forms and symmetrical planning in ways that generate exciting spaces without producing either the inflexibility or the tormented functions that special shapes often produce.



Joseph Molitor

The strong circular forms of the Koplik house anchor it firmly to its site, a flat, sandy 100- by 164-foot property on Long Island's south shore. Directly across the approach road stands a tall water tower. Combs sited the house on the diagonal to avoid opening its views squarely on the tower and, in laying out the plan, the architect also strove to preserve the mask of trees that gives the house a sense of seclusion.

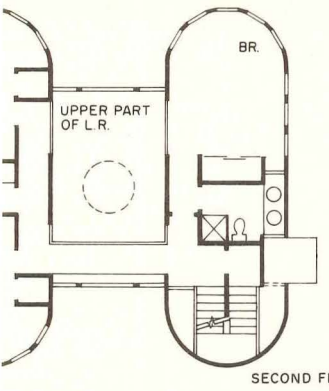
The paired, elongated drums (photo above), clad in vertical cedar siding, are the most conspicuous element in its massing, but the heart of the house is the double-height volume in between (see plan). Here, under a central skylight, is the space to which all the others are keyed, a living room with a built-in, circular seating element facing the deck and a view through a glass wall. Flanking this space on the lower level are kitchen, dining room, maid's room, den and stair. On the level above, overlooking the living room, are three bedrooms and two baths. A bridge links the two halves of the upper level.

The curved ends of the structure have 6 ft-4 in. radii and are built using sill plates cut from 2 x 12s and fitted together to form the arc. Plywood sheathing was then nailed to wood studs and finished in cedar.

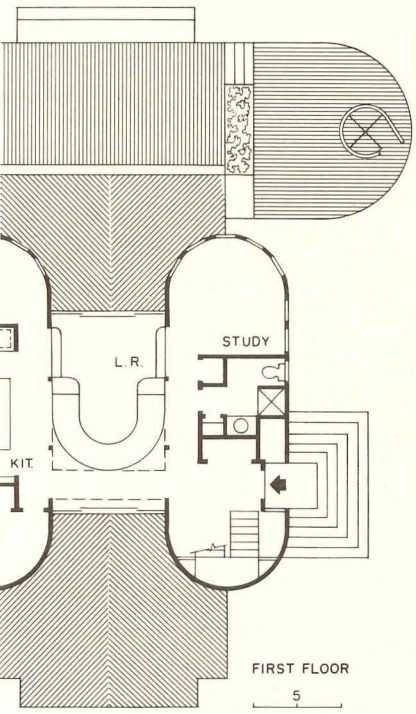
Cedar siding is also the primary finish material for walls and partitions. Floors are oak strip with polyurethane applied. The ceiling structure is exposed. Lighting is either flush-mounted or recessed incandescent throughout the house. The glazing is accomplished u stock window and door assemblies and, w these occur in rounded planes, the vari depth of the reveals seems to emphasize roundness of the forms.

The house has some 1900 square fe enclosed space and extends outward decks and walks in three directions. The t ment of these outside spaces, though stro geometric, seems unforced and graciou happy transition between the naturalnes the site and the vigorously ordered forms o house itself.

KOPLIK RESIDENCE, Long Island, New Y Owner: *Mr. and Mrs. Michael Koplik.* Architect *Burns Combs.* Contractor: *Steven Molzon.*



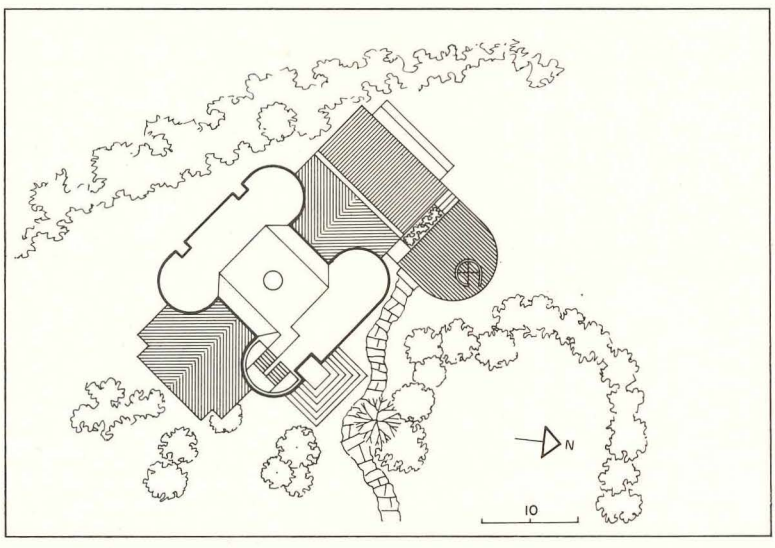
SECOND FLOOR



FIRST FLOOR

5

he solid-void-solid scheme
Combs has selected for his
ssing, the reader might antic-
te an entrance across the
k and into the central void
ng the axis of symmetry. In-
ad, Combs has created a
re direct and interesting side
ry (see plan above) that
ngs the visitor past the stair
into the central space from
back.

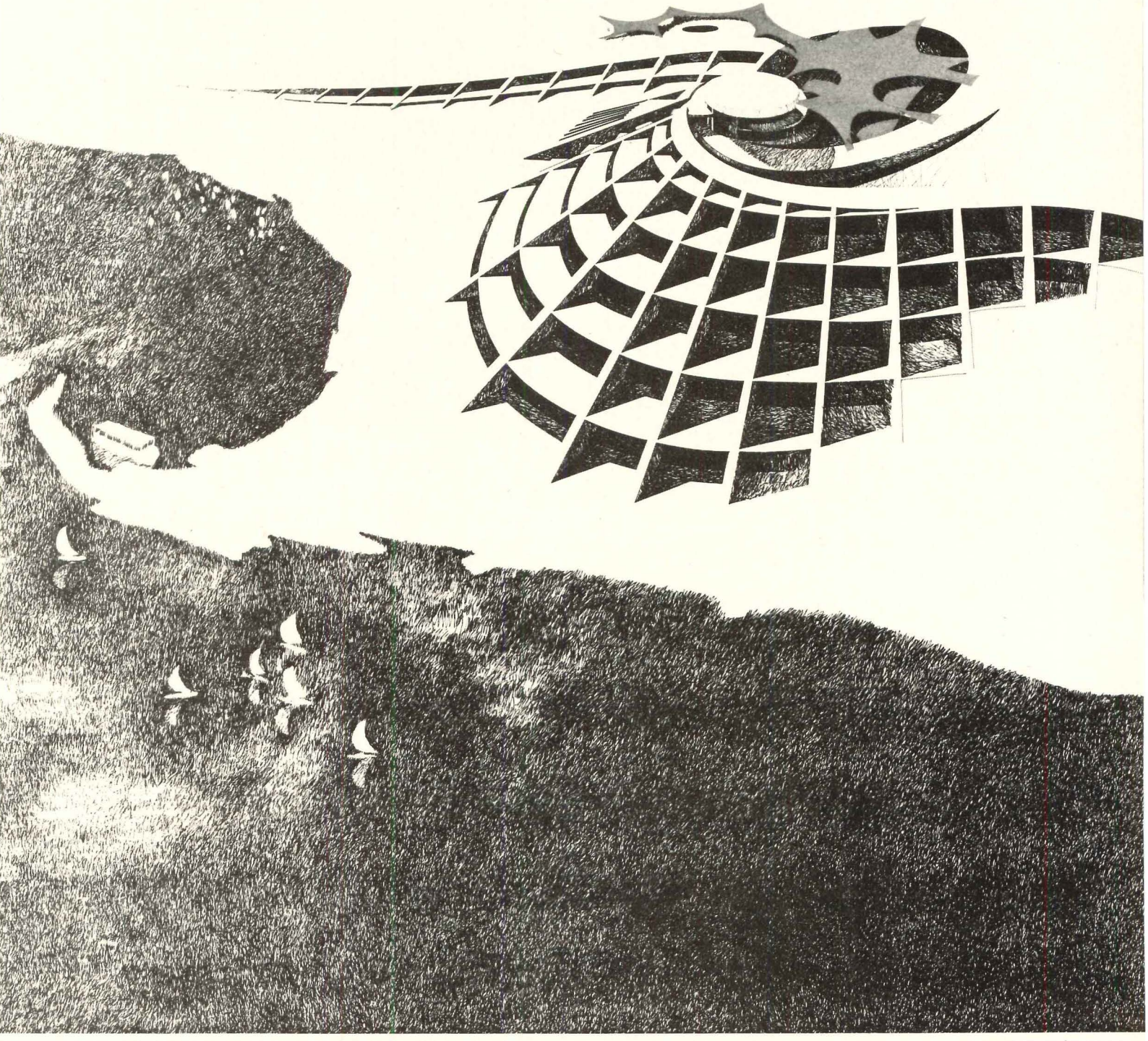


The den (above) and the entryway and stair (below) are both spaces developed in the building's circular ends. The kitchen is located along an outside wall, notched for side light at the end of the counter. Bar seating provides an alternative to a more formal dining space beyond.

NIAE DRAWINGS

)f the competitions that the National Institute of Architectural Education (NIAE) sponsors each year, ıe Paris Prize (Lloyd Warren Fellowship) is the best known and the one that has long drawn the widest esponse from students around the country. But it is only one of a number of competitions NIAE administers nd part of a much broader program in architectural education that extends to faculty grants and joint rojects with AIA, ACSA and similar professional groups. NIAE has fought along many an educational skirmish ne during its sixty-year history and in the text piece that follows, Tom Flagg, architect and NIAE oard member, details the Institute's programs past and present, and hints at its hopes for the future. The rawings that accompany Flagg's article offer an infrequent but welcome opportunity to show excellent tudent work and at the same time, give readers a chance to see the kinds of drawings that, quite simply, we ll love to look at.

ECREATIONAL RESORT 1968 HIRONS COMPETITION



When describing the NIAE to those unfamiliar with its work, the best place to start is not at its Beaux Arts origins—but at the present, for its current, hard-working programs influence architectural education in the United States and abroad in a variety of ways. The most conspicuous of these ways is through the number and variety of design competitions it administers every year. This 180-member, New York-based organization of architectural educators, practicing architects, students and others interested in architectural education, sponsors not less than five annual competitions, each shaped to a particular program objective or level of architectural training. These vary slightly from year to year but now include the following:

- Lloyd Warren Fellowship-Paris Prize ($7,500 in prizes). Open to graduates not more than 30 years of age of United States architectural schools and those in their final year of study at these institutions.
- William Van Alen Memorial Award ($7,500 in prizes). Open to any student under 35 years of age and attending a recognized architectural or engineering school.
- Emerson Memorial Award ($1,000 in prizes). Open to all architectural or engineering students under 30 years of age except those in their final year of study.
- Kenneth M. Murchison Prize ($1,900 in prizes). Eligibility the same as for Emerson Award above.
- National Building Granite Quarries Association ($2,700 in prizes). Open to any architectural student under 30 years of age and/or any graduate not yet licensed in architecture.
- Hirons Prize ($2,000). Open to persons in the architectural disciplines who are under 35 years of age but not enrolled in a full-time academic program.

Programs for these competitions are prepared by NIAE and competitions are usually judged at the organization's headquarters by a jury drawn on a rotating basis from its membership and often augmented by distinguished visiting critics. In drafting these programs, every effort is made to cover a wide range of building types, settings, emphases and presentation requirements. Subjects run the gamut from regional planning problems, through building complexes all the way to studies for the re-use of existing structures. Some recent programs are fairly typical: *A Diplomatic Enclave in Peking, Structures for Music Festivals, A Riverfront Park and Housing Complex in a Large City, A Permanent Complex for Olympic Games* and a *Hotel and Study Center* at the archaeological site at Machu Picchu, Peru. This last program, drafted for the 1975 Van Alen Competition, elicited 240 submissions from around the world and, over two long evenings, threatened to exhaust the stamina of a jury that included Paul Rudolph, James M. Fitch, and 19 others.

Not all programs are quite this demanding and, in several recent instances, experiments with programs that were not much more than carefully worded statements of intent have produced encouraging results. Occasional flig of fun and fantasy are encouraged throu short-term sketch problems such as the 19 Emerson Award program that required co petitors to design a stage set for an opera bas on the *Last Whole Earth Catalog.*

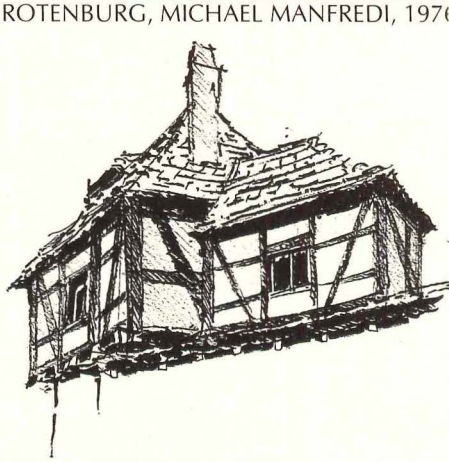
The Lloyd Warren Fellowship (Paris Pri and the William Van Alen Competition ca the stipulation that winners must use money for study abroad, and impressions fr this travel often show up in sketches such those shown here in the first column at rig In addition to the continuing program awards, NIAE also co-sponsors competitio with associated groups—most recently a jo project with ASC/AIA that emphasized barri free design. The program was developed, a ministered and judged by the students the selves.

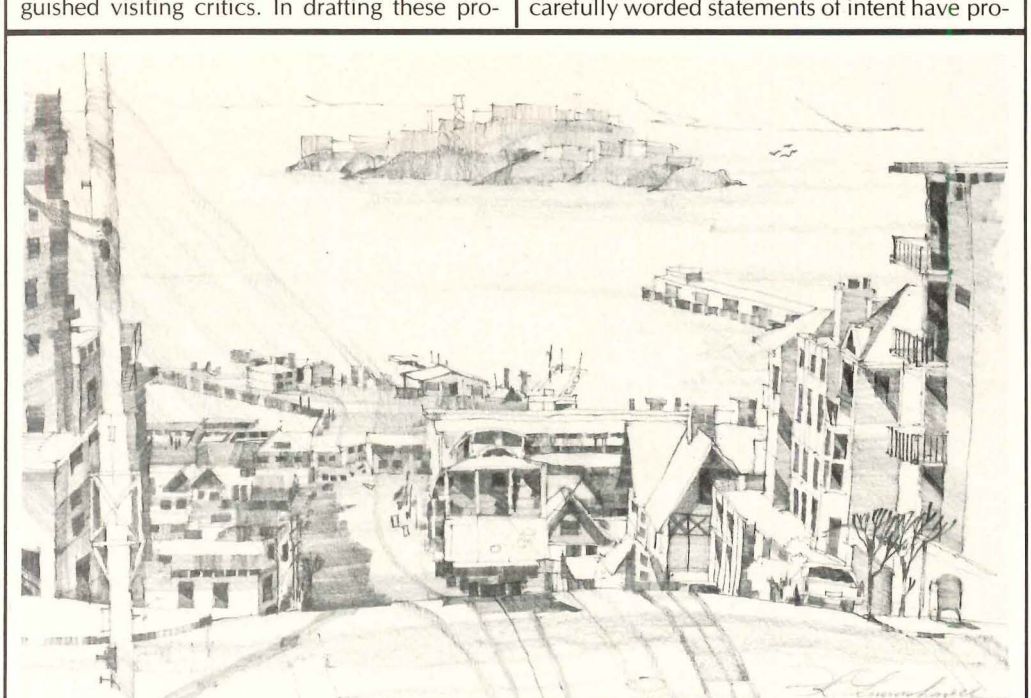
This year's Van Alen Competition p gram will call for both invention and restra of an unusual order. Competitors will be ask to replan and augment the support facilities the pyramid site at Gizeh in ways that enri the tourist experience without encroaching the ancient monuments or disturbing their nate dignity.

The concern with design competitio goes back to NIAE's roots. Chartered in 19

VENICE, MICHAEL MANFREDI, 1976

ROTENBURG, MICHAEL MANFREDI, 1976





SAN FRANCISCO, K. LUERNSHAVEE, 1975

der the name Beaux-Arts Institute of Design, group was the progeny of a handful of New rk architects who had studied in Paris at the ole des Beaux-Arts. These men, impressed the system of which they were products, ught to encourage the same educational val- here, and to an important extent suc- eded in this aim. The gradual eclipse of se values after World War II and the experi- nt with new teaching methods was fore- adowed in changes at the Institute itself. nsing these trends and desiring to express organization's diversified educational in- ests, the name National Institute for Archi- tural Education was selected and adopted in 56.

It was more than a symbolic effort at out- ch. NIAE began to broaden its programs to clude a variety of interdisciplinary activities. nas also endowed a faculty research grant, it last year between Haresh Lalvani of Pratt titute and Carmi Bee of CCNY. Each is pur- ng independent architectural research. Fu- e plans call for more attention to pre-archi- tural awareness training programs at the condary school level and programs aimed at e-professionals.

These newer undertakings, while increas- in importance, do not diminish the interest AE feels in its competition programs. Byron ll, NIAE board chairman, says simply: ompetitions seem the most effective way to ch a maximum number of students within limitations of our finances. . . . But we are ways interested in new ways to put our re- urces—time and funds—to use for the bene- of architectural education."

Deans, faculty members and students ve always been welcome at NIAE's New rk headquarters for the exchange of ideas ir visits encourage. At their new midtown ices at 139 East 52nd Street, (a brownstone

SAIGON, BYRON BELL, 1962

queathed to the Institute by Chrysler Build- designer William Van Alen) to be occupied xt month, NIAE anticipates even more inter- ange for, more and more, the future of archi- tural education seems to depend on it. hat shape that future will take, no one can with certainty. What is clear, however, is t NIAE wants to be a part of that future and ll continue to strive and to adjust its pro- ams as needs change and new urgencies ckon.

uiries about NIAE's programs should be ad- ssed to: *National Institute for Architectural Edu- ion,* 139 East 52nd Street, New York City 10020.

CENTER AT MACHU PICCHU
1975 VAN ALEN COMPETITION
JOSEPH R. STEVENS, JR., AUBURN UNIVERSITY

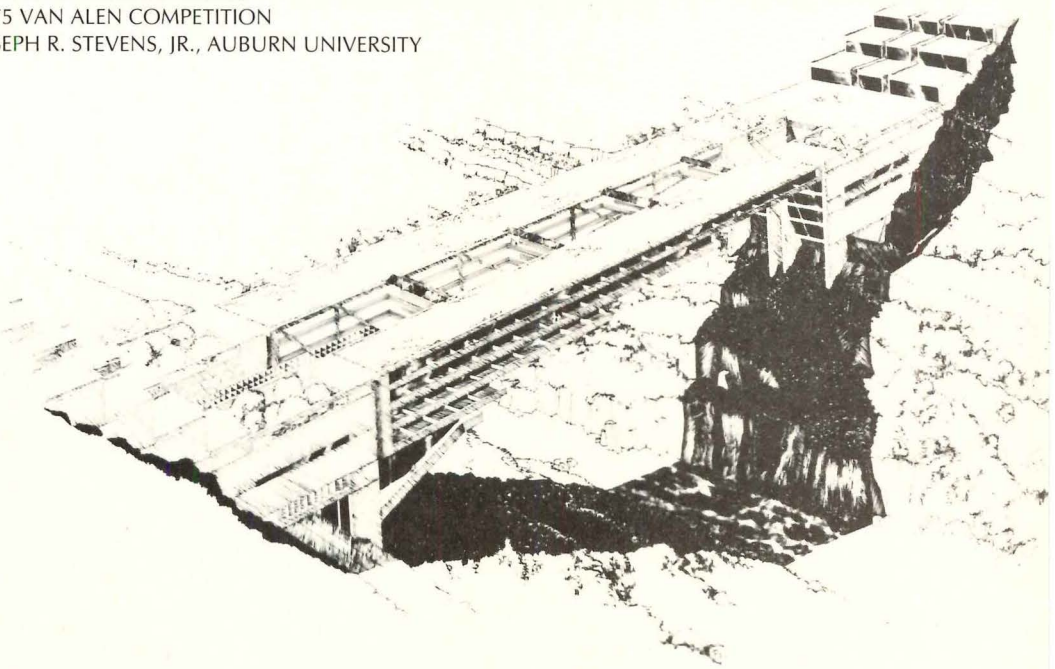
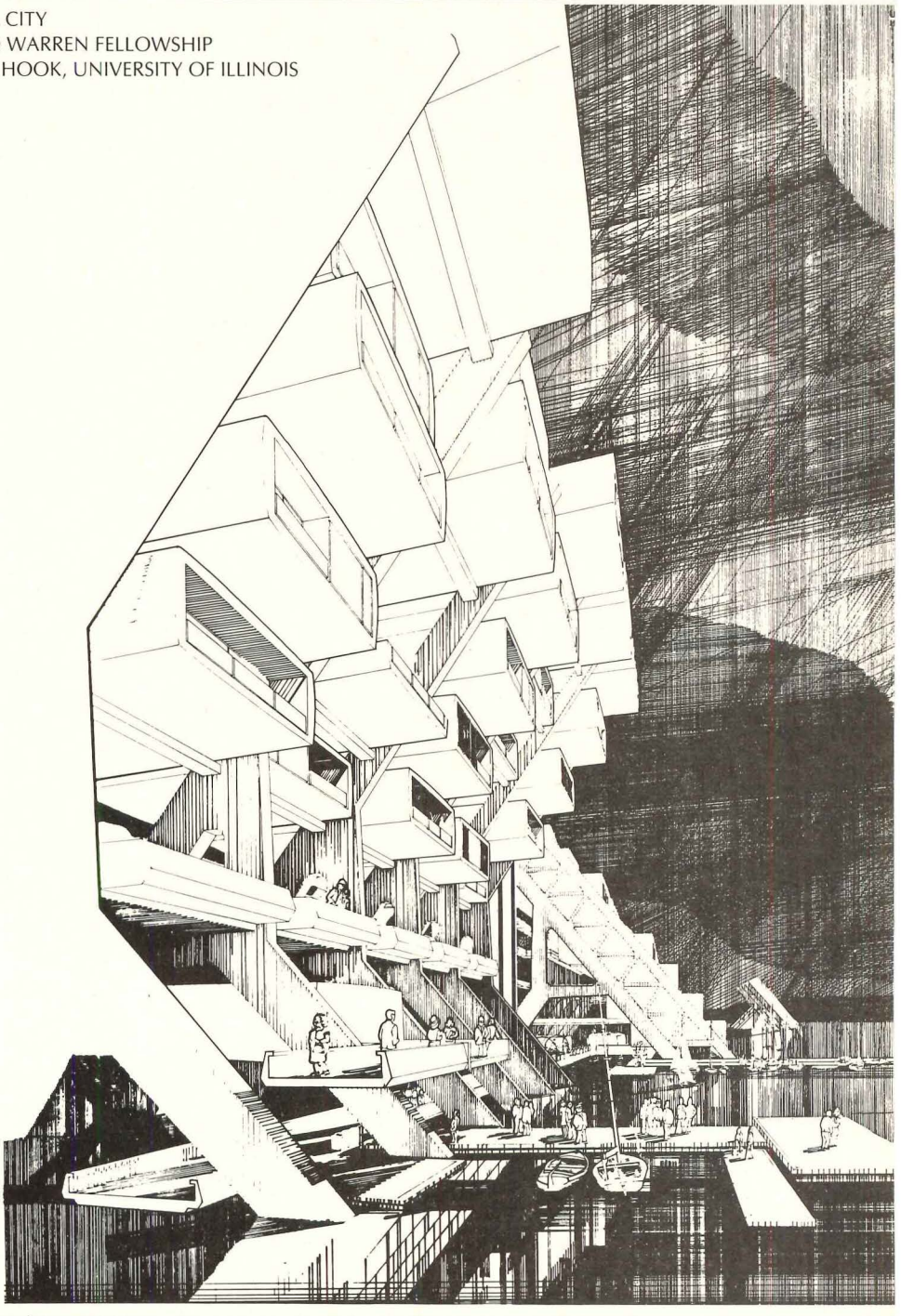


IMAGE OF A CITY
1969 LLOYD WARREN FELLOWSHIP
WILLIAM G. HOOK, UNIVERSITY OF ILLINOIS



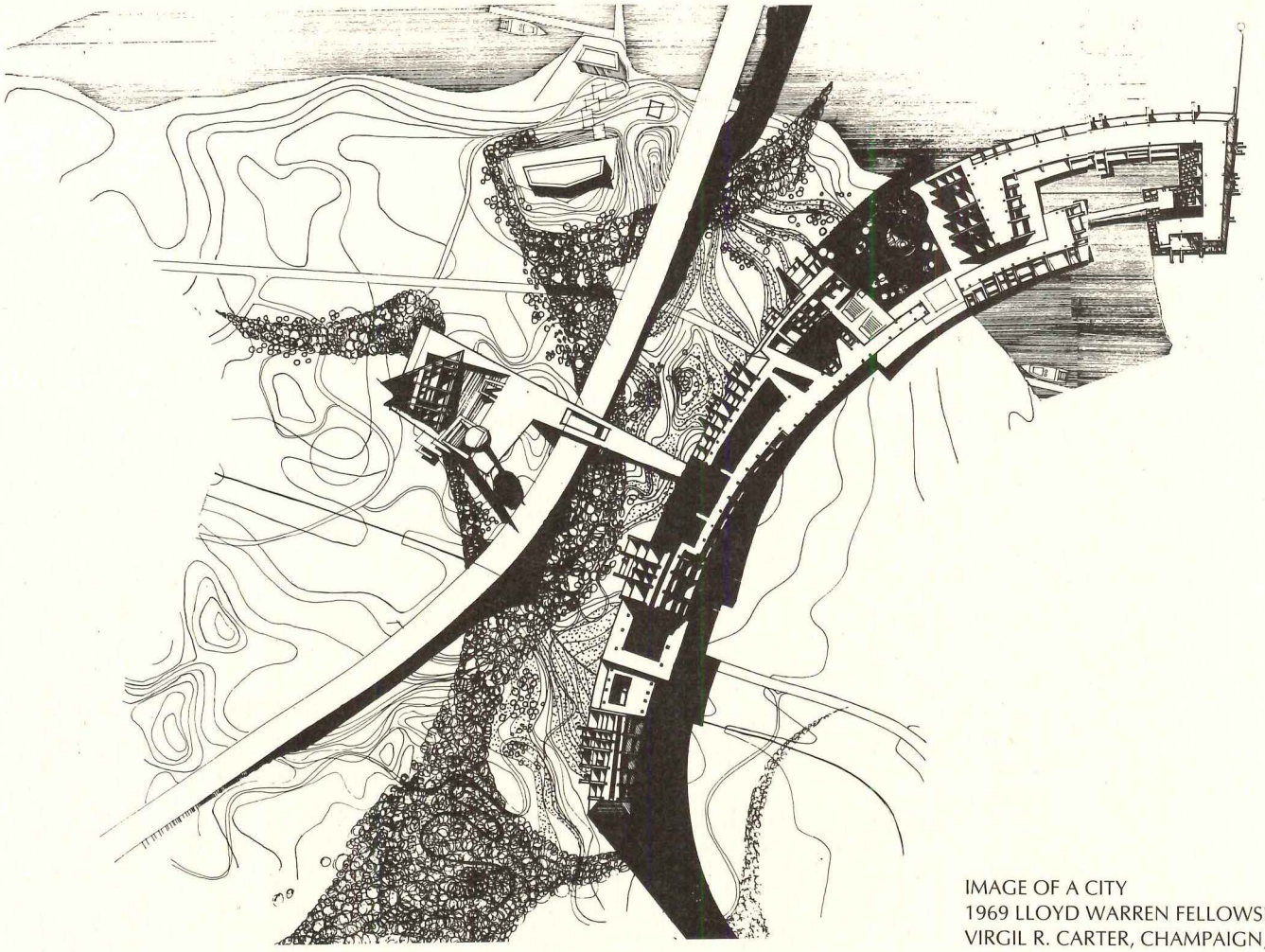
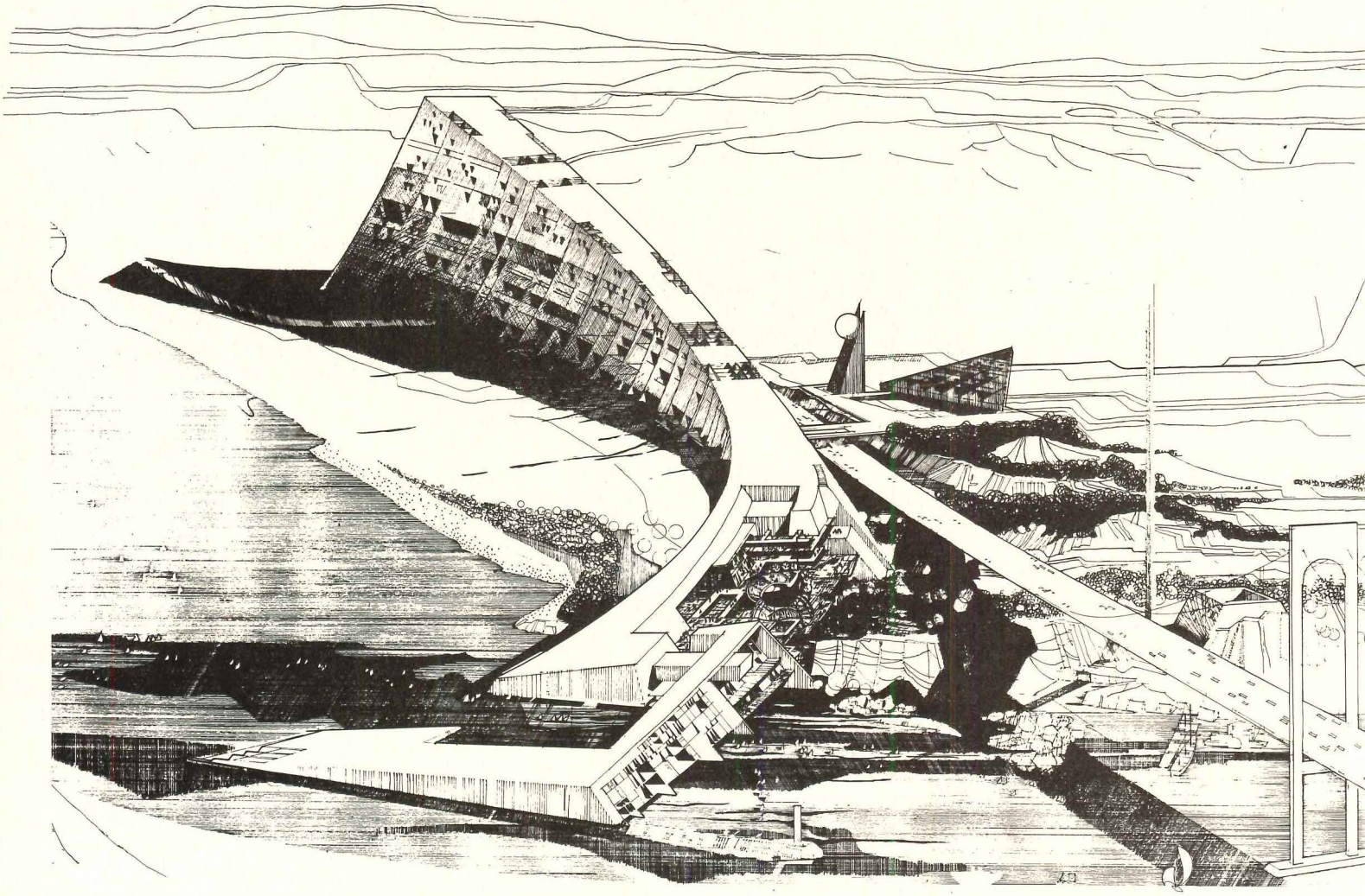
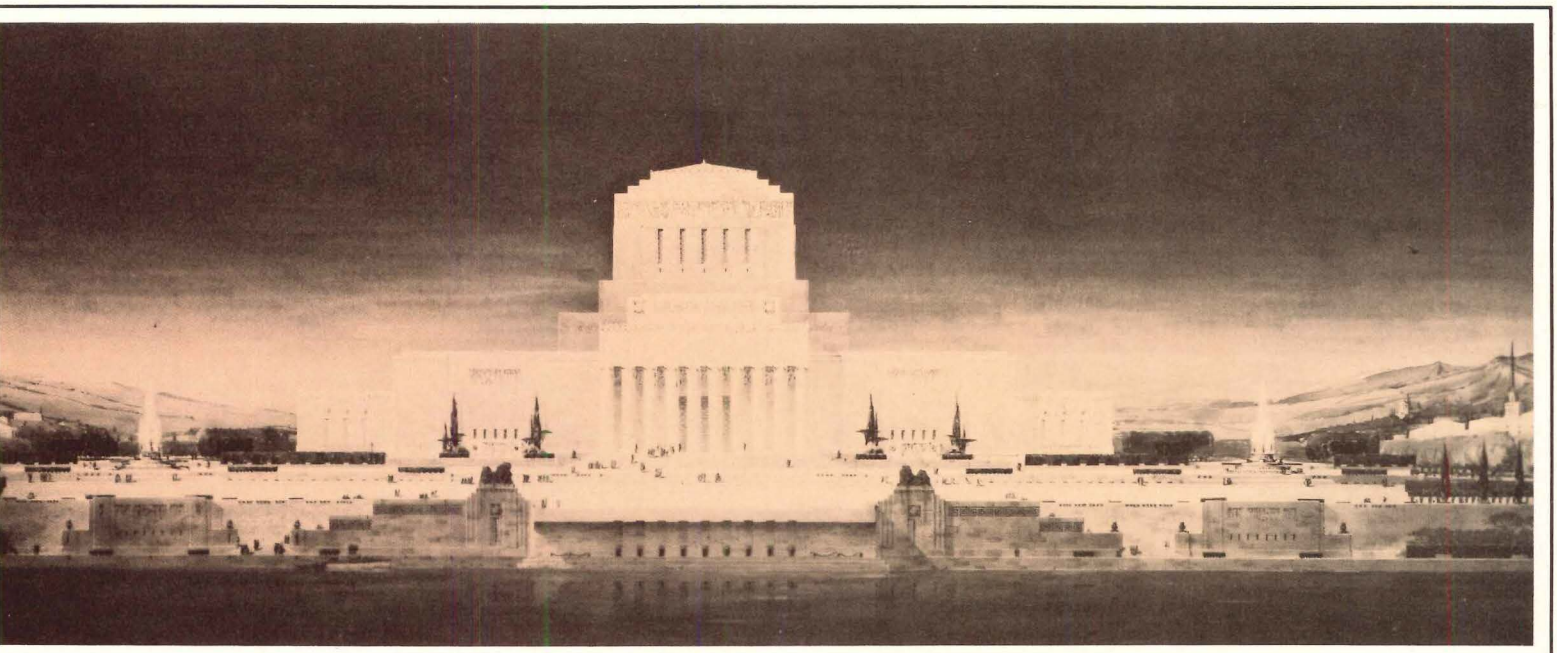


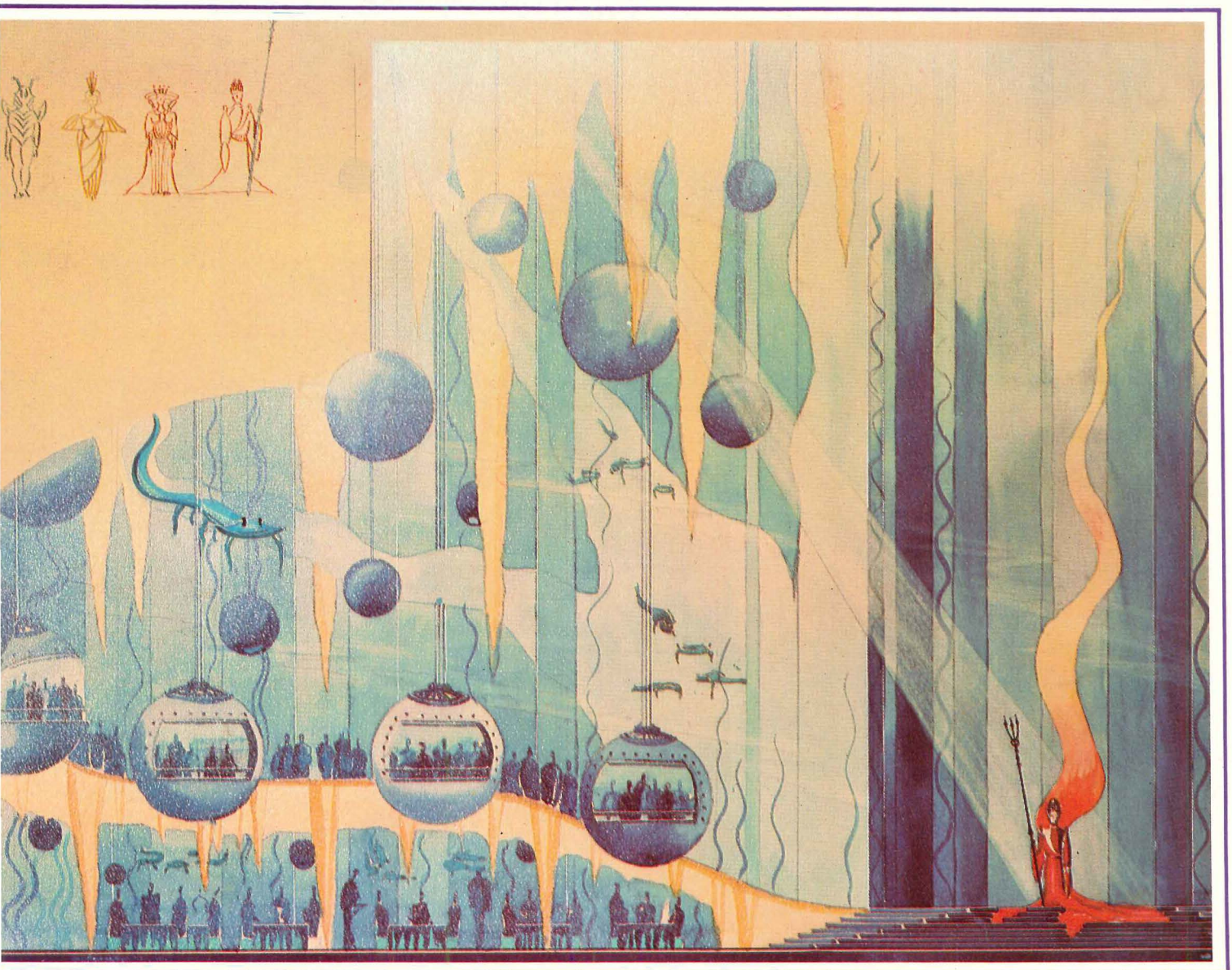
IMAGE OF A CITY
1969 LLOYD WARREN FELLOWSHIP
VIRGIL R. CARTER, CHAMPAIGN, ILLINOIS



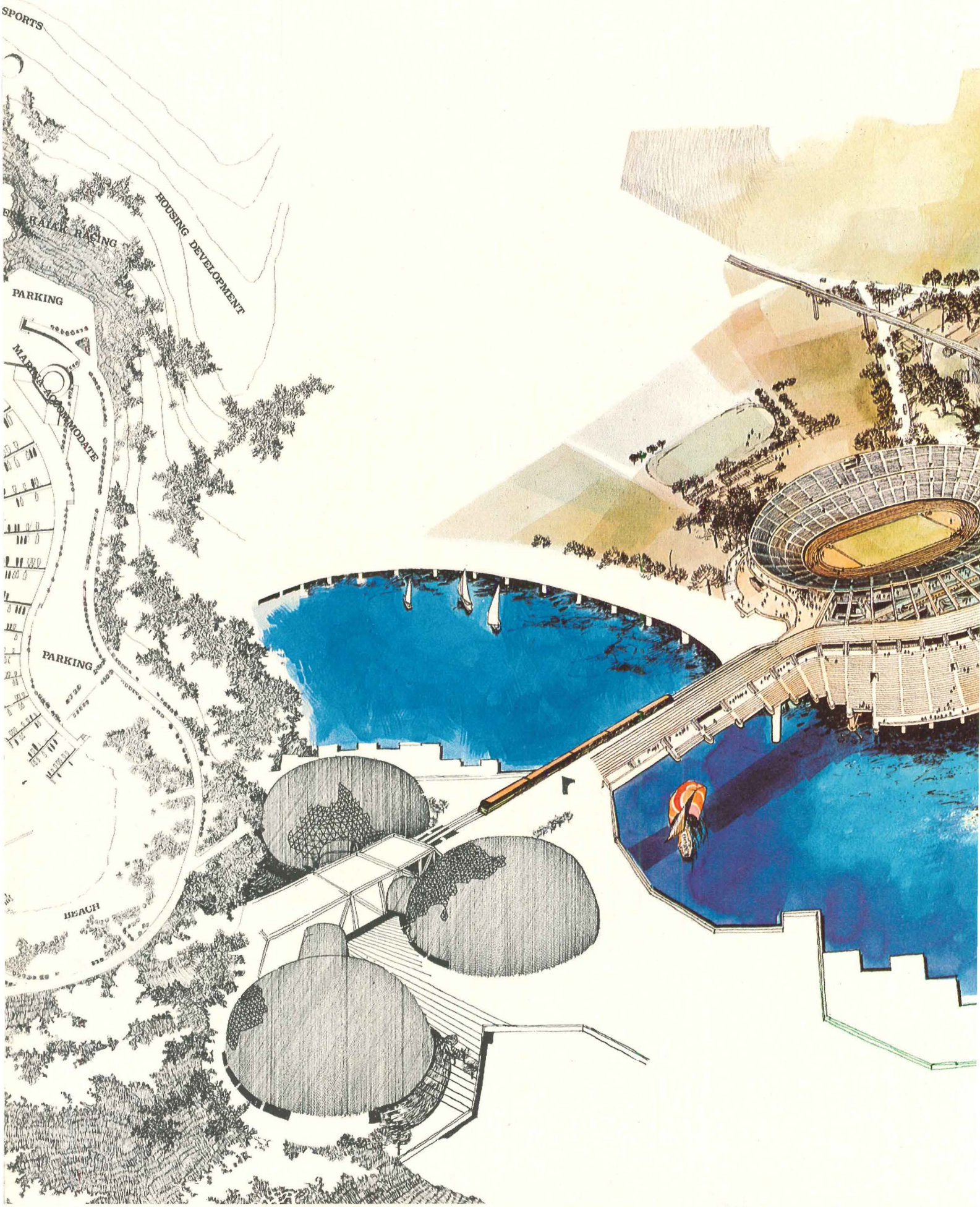


HALL OF JUSTICE
1927 PARIS PRIZE
D.F. NELSON, MASSACHUSETTS INSTITUTE OF TECHNOLOGY

BALLROOM FOR A BEAUX ARTS BALL
1939 PARIS PRIZE
GEORGE A. DOWNS, PRINCETON UNIVERSITY

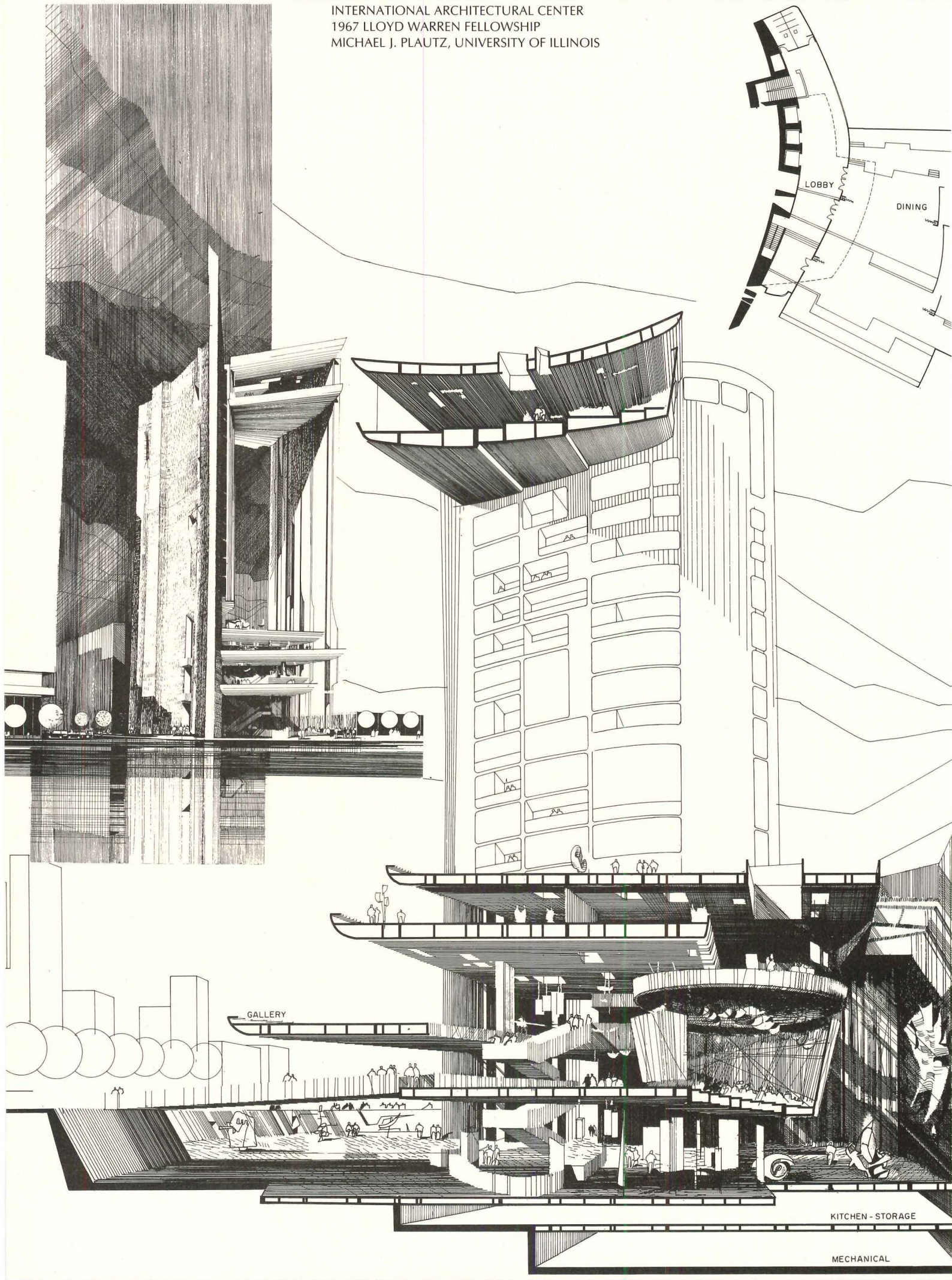


PERMANENT SITE FOR OLYMPIC GAMES
1974 VAN ALEN COMPETITION
SOMPONG PANICH, GEORGIA INSTITUTE OF TECHNOLOGY




game room
lounge
restaurant
dining room for participants
snack &w.c.
office
locker
dressing
POOL
storage
player waiting
snack&w.c.

INTERNATIONAL ARCHITECTURAL CENTER
1967 LLOYD WARREN FELLOWSHIP
MICHAEL J. PLAUTZ, UNIVERSITY OF ILLINOIS



Ronald Livieri photos except where noted

A FRIENDLY NEIGHBORHOOD SKYSCRAPER

During what is being called the "post-modernist" phase of 20th-century architecture, it may strike some as unseemly to extol another tall building, especially when so many of them, even the "best" ones, are being eulogized as icons of a defunct form-worshipping phase. Yet if the Skyscraper Age is over, and one suspects that those who say so for philosophical rather than economic reasons are being precipitate, there are some lyrical, resonant swan songs being composed. One such is One United Nations Plaza (above, overleaf). Not only does it add oomph to the *oeuvre* of Kevin Roche John Dinkeloo and Associates, but it also assumes a key spot in the tradition of the tall building, which, in New York, takes in "icons" like Lever House, the Seagram Building, Rockefeller Center's stony, crowded crags, old softies like the spired Chrysler, rambunctious codgers like Cass Gilbert's Woolworth, Daniel Burnham's Flatiron, and Louis Sullivan's Bayard. While it may well be (one would even hope) that the profession has moved beyond its fascination for solitary, stunning shapes that are all wrapped up in themselves but little else, One United Nations Plaza, being wrapped up in a lot else, is a needed reminder that tall buildings, designed to come down off of it and take cues from their environment, can still help architecture to turn its corners nicely—and will probably be doing so long after post-mortems on the "post-modernist" phase are complete.

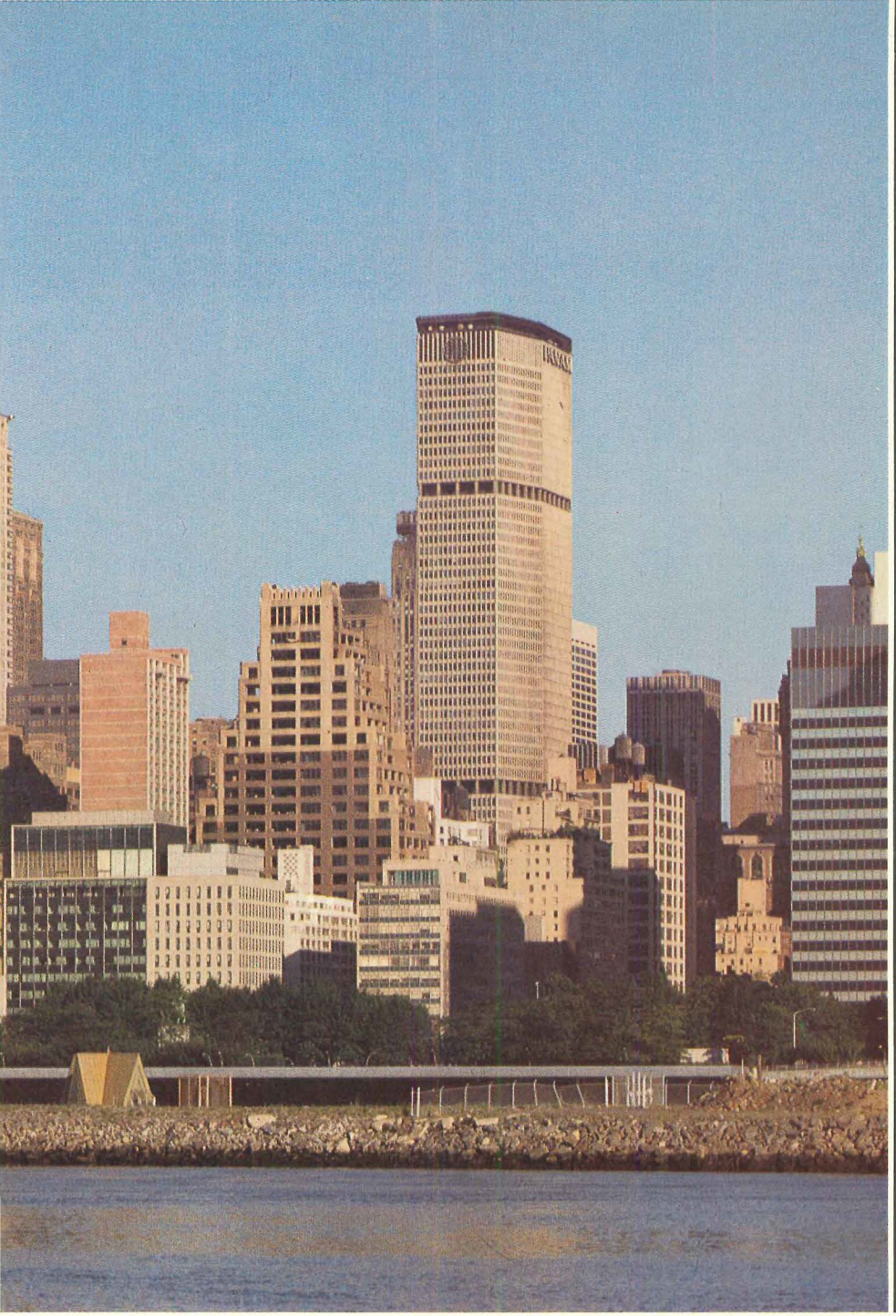
—William Marlin

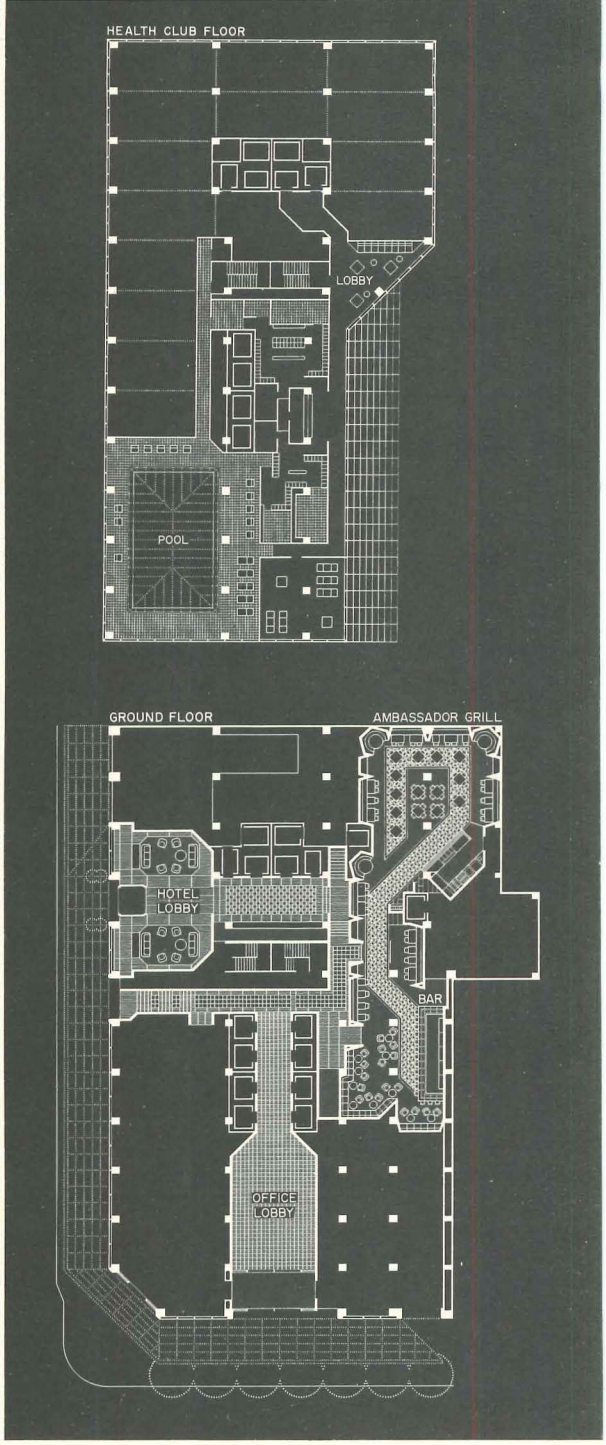
ONE UNITED NATIONS PLAZA NEW YORK CITY

Cliff dwelling, as big city life is called, has been given a big boost on the corner of First Avenue and 44th Street. Svelte of build and spiffily draped in a toga of reflective blue-green glass, the 39-story One United Nations Plaza, located across from the Secretariat and General Assembly, and next door to the U.S. Mission, is a friendly neighborhood skyscraper which, leaving a lot to the imagination, has a lot going on inside its 586,000-square-foot bulk. At 505 feet in height, the building is three feet shorter than the Secretariat, in line with zoning restrictions for the district, and is the first in New York to dovetail office and hotel functions.

Just in from each of the two bounding sidewalks is a lobby. The one off First Avenue (opposite, lower right) leads to the elevators for the office floors—which add up to 360,000 square feet, taking up the first 26 floors of the building. The one off 44th Street, around the corner, leads to the reception desk and elevators for the United Nations P Hotel, run by Hyatt International, which adds up to 288 rooms suites, occupying floors 28 through 38. The Turtle Bay Tennis and S Club, named after the old surrounding neighborhood, is on 27, way up on 39, are the 24-hour tennis facilities. Retail space, on ground level, is occupied by a branch of the Chemical Bank and nie's International News Corporation. The rest of the ground floo given over to the hotel-managed Ambassador Grill and Lounge, acce ble through both lobbies, and, on the second floor, there is a Europe style eating spot called the Coffee Mill, plus three divisible mee rooms that are named, aptly, for Trygve Lie, Dag Hammarskjold, U Thant.

Everything is very handsome, even elegant, and very safe. On the first new buildings to comply with New York's strict fire-safety sta ards, an elaborate detection and alarm system has been incorpora and a separate smoke-exhaust shaft to assure that the stairwells are m or less clear in the event of a fire. Everything is also very secure, w with so many dignitaries, diplomats, and heads of state expected. T

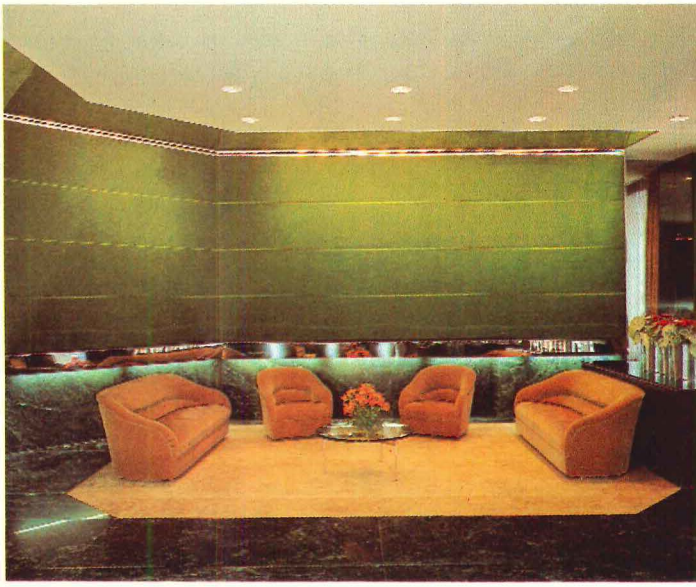


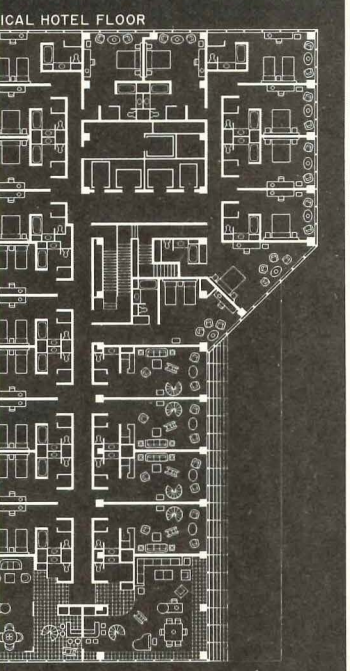


s zip into a special enclosed drive-in area, its heavy doors slam , and, without seeing so much as a soul, they can rush into a re- ed elevator.

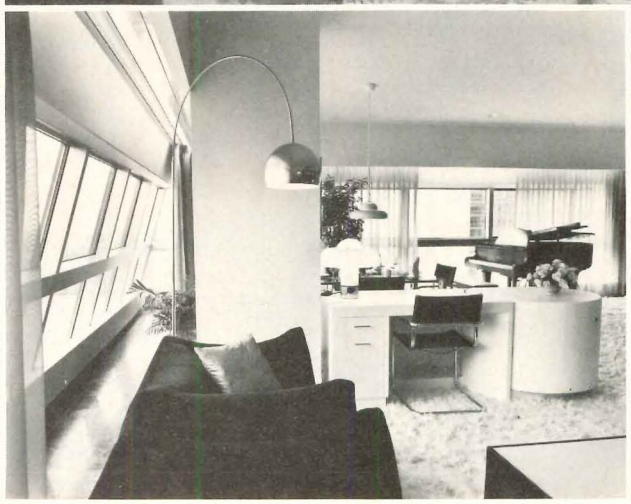
All of which is a lot to have going on inside a skyscraper, but, restingly enough, one has to sidle up close to find out. The signage inimal and, where there are words to make out, it takes a knowing nter to appreciate the subtlety. But one's interest is impelled in other s. The building's material mass, ashimmer with reflections of the sky the neighborhood, meets the street in a pleasant way, hovering over ers-by by way of a wrap-around shed-style canopy of glass that ts out as a continuation of the curtain-wall above.

What Roche Dinkeloo and Associates has done here, having had if any axioms to grind over the years, is to dispense with one of the t hackneyed—that a building, like a news report, should just "tell e it is," coolly delineating floor levels, the relationship of structure kin, or contrasts of internal function. Instead of another front-page- facade screaming "read all about it," they have gotten up a build- with a certain quizzical quality about its sheer surfaces, implying the





e Ambassador Grill (left), on the und floor of One United Nations za, is marked by an overhead glass lis that threads through, covered by arely perceptible, paralleling tunnel pentagonal mirrored surfaces that up a frenzy of reflections. The hotel by (opposite, lower right) and re- tion area (opposite, lower left) are nparatively small but very elegant, h marble floors, chrome fittings, l, in the lobby, felt wall covering hed with indirect light. The hotel es (right, top and bottom left) are plex affairs, magnificently fur- hed, while the typical room (bottom nt), though no larger than most nd in chain hotels, has been given pervasive, soothing warmth, solid l subdued colors, and practical, nfortable furnishings—all designed specified by the architects.



Evelyn Hofer photos

mation and mix of activity inside, but leaving the question open as ts exact nature. In a genre where the "form-follows-function" thesis s most cogently pioneered, this skyscraper negotiates a new variation *detente* between the two. It reads "true," all right, but because its mal character was as consciously conceived to evoke, or to point up, many dimensions of its external environment as it was to house an algam of internal needs. It is an especial obligation of the tall build- to take such pluralistic, contextual factors into account, and this one finitely does.

Take, for example, its atypical shed-style setbacks or, put more ac- rately, slant-backs. These 45-degree planes occur twice on the north- ing facade, angling up from the 12th floor and, again, from the 28th. e regulations specified that the north-facing one, were it to be all ndows as initially planned, had to be 30 feet from the U.S. Mission to the height of its facade. As it turned out, only 50 per cent had to nction as windows, so the required setback was proportionally re- ced to 15 feet. While one suspects that crucial design decisions are ver completely "logical," it is a worthy enough rationalization that the architects decided to denote this midstream change by placing the lower slant-back at that point where the 15-foot rule no longer obtained, pitching the resultant plane up to that point where the 30-foot rule would have. As for the 28th-floor slant-back, it is pitched to a point that denotes the over-all width of two typical hotel rooms and a corridor, or roughly 60 feet. On the southeast corner of the building, there is a slant-out, angling up to the 12th floor, below which the corner has been sliced off, almost as if—"logic"?—to deflect one's attention across 44th Street to the Church Center for the United Nations, which is the same height as this slice, or across First Avenue to the visual panoply of the UN. Down at streetside, this rift with the right angle provides a neat notch for the main banking entrance and opens up a little more elbow-room on what is, really, a pretty tight corner. This treatment works well, giving a light look, because the "toga" of glass is stretched over the surfaces with a taut, repetitive grid of aluminum framing that, in the curtain-wall fabric, reads like a delicate silver tracery. This tracery is also engineered for energy savings. The office walls are composed of four bands of glass per floor, two of which are clear, the others being

Evelyn Hofer photos

insulated. The hotel walls are composed of three bands per floor, one of which is clear. The reduced heating and cooling loads are significant.

While all of the hotel, its related facilities, and both lobbies were seen to by the Roche Dinkeloo team, the office floors, most of which are leased by the UN, are being seen to by its in-house staff with fairly uneventful results. Not so the Roche Dinkeloo digs. The club on 27 (photos above) with its own carpeted lobby and built-in seating, has a glassed-in esplanade, opposite which is a parallel interior wall of mirrors, leading to an airy glassed-in pool room that is covered with a billowy Kubla Khan-style tent. The hotel is similarly sensate, starting downstairs with the lobby which, though comparatively small, is this century's answer to the last one's Age of Elegance. Its floors of black and white marble, turned up onto the walls to wainscoat height, are carried on through to the reception area and to the restaurant beyond. A continuous chrome band, concealing indirect lighting, gives way to wall surfaces covered with a green felt that is so lush that people have been caught rubbing their cheeks against it. The green theme (Roche *is* Irish after all) is picked up again in the corridors upstairs, which are embellished with a curator's fantasy of framed antique fabrics, tapestries, ceremonial garments from faraway places with strange-sounc names.

With the exception of several duplex suites with spiral stairs immaculate contemporary fittings, the most expensive going for $ a day, the typical rooms are no bigger than what one would norm check into at any chain hotel. There is a pervasive, soothing war about them, the colors are subdued and solid, the furnishings—agai Roche Dinkeloo—are comfortable and practical, and the cost star $37 a day for a studio. The architects are said to be designing even soap dishes which, wags suggest, should be supplied with "Ex-Am sador Daniel Patrick Moynihan Commemorative Soap"—good washing out one's mouth.

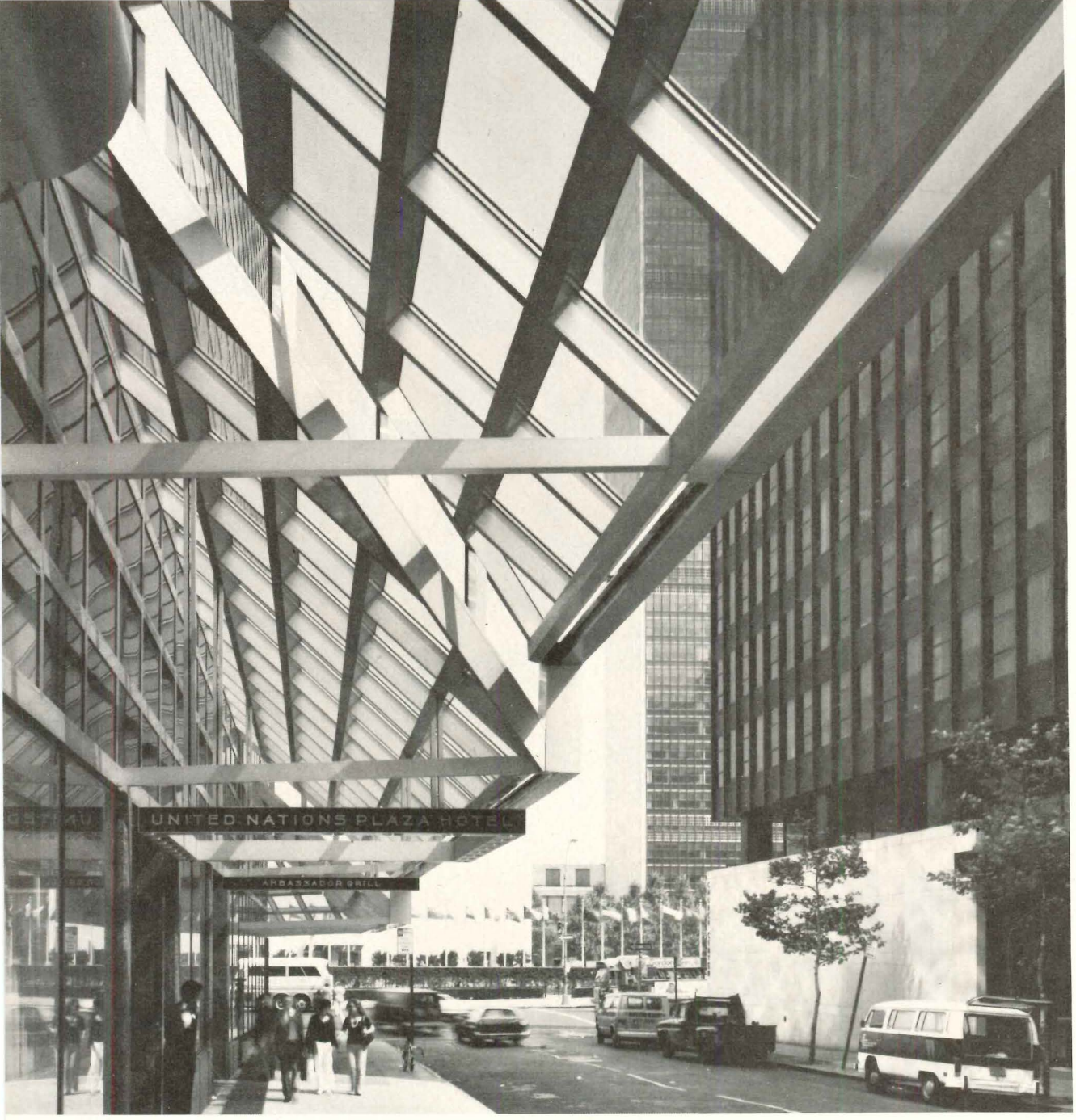
Given the stringent budget for these rooms, however, one can be heartened that such absorbing amenity was brought in at a price compares favorably with that of the hoked-up charm and corny ca tures of class that routinely pass for accommodation elsewhere. W handful of exceptions—for example, the Marquette Inn at the IDS

in Minneapolis by Philip Johnson/John Burgee—these are the only ntemporary hotel guest room interiors to have been designed by the tel architect. Which should give management in this field serious use to reconsider its ill-advised assumptions about what "quality" is, at quality "costs," and about what travelers would prefer to settle o.

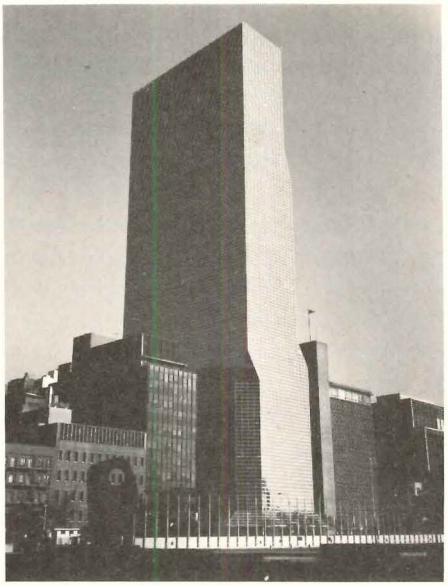
Many of them here are very definitely preferring to settle into the mbassador Grill and Lounge, along with a lot of locals, and in a city own for smashing restaurants, this one really takes the Sacher Torte. transparent glass trellis threads through the spaces overhead and, ove it, is a barely perceptible tunnel of pentagonal mirrored surfaces. th the columns and some of the walls also mirrored, the over-all ult is such a frenzy of reflections that one waiter has confided that couple of soused socialites have bumped into what they thought was n air. Despite such occasional travail, only Philip Johnson's Four Sea- ns over at the Seagram Building provides a comparably voluptuous lume of dining space in modern-day Gotham. All of the tableware, well as the uniforms of the waiters, were designed to the Roche Dinkeloo specification—right down to the chef's floppy hat.

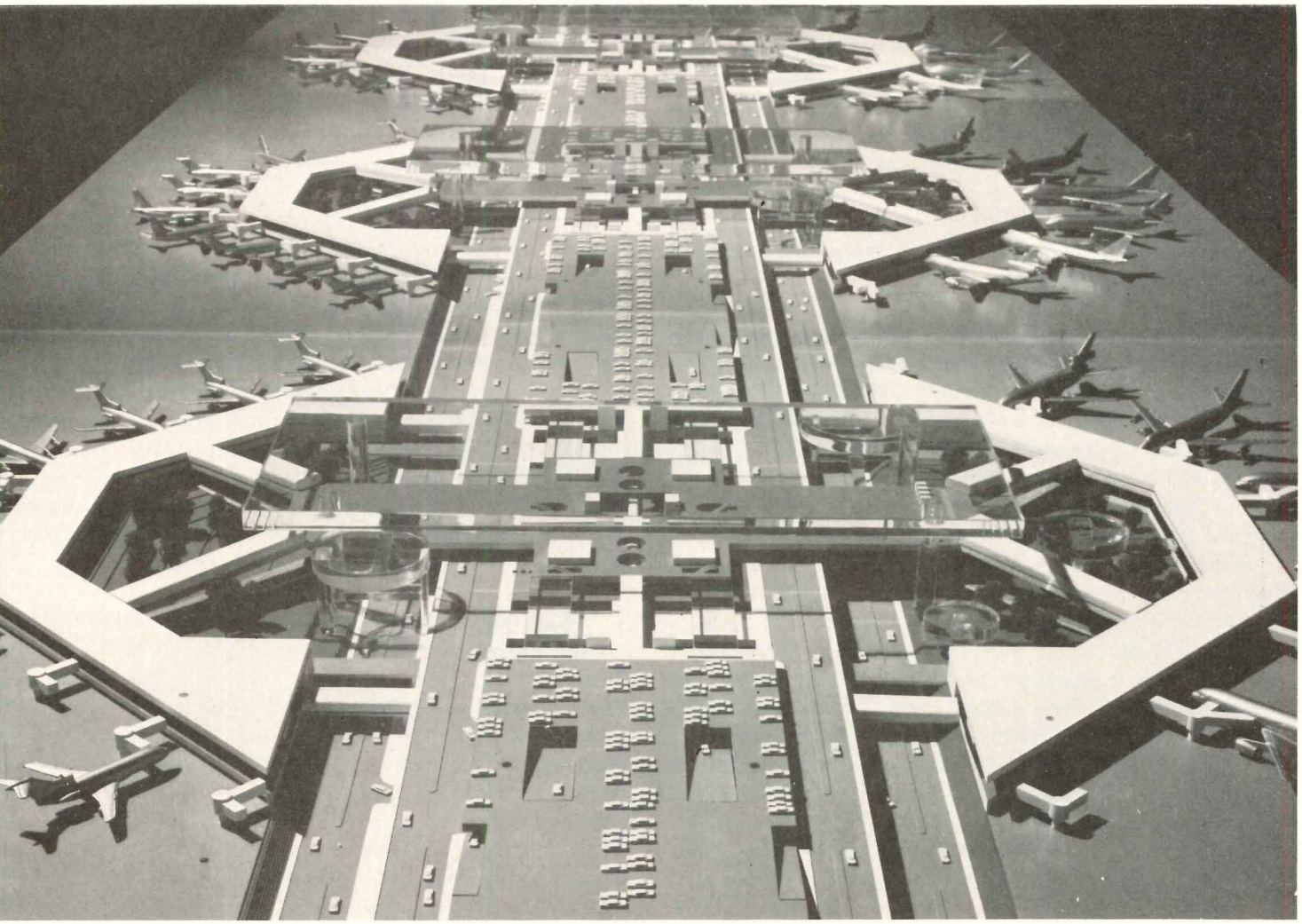
Perhaps it takes a client like the United Nations Development Corporation, or an executive like Thomas Appleby, its president until recently taking over as head of New York City's Housing and Development Administration, to drive through such a thorough job of design. But what it also took, besides funding with an unusually dependable "moral obligation" bond program, was the drama and diversity that cliff dwellers crave. Housing such qualities behind this deceptively demure exterior, One United Nations Plaza is a chip off the old block of New York. To be able to say so, to be able to say that it "stands in" as much as it stands out, is a measure of modernism's adjustment to an era of contextual emphasis. Let's hear it for the "form-givers."

ONE UNITED NATIONS PLAZA, New York City. Owner: *United Nations Development Corporation.* Architects: *Kevin Roche John Dinkeloo and Associates.* Engineers: *Weiskopf & Pickworth* (structural); *Cosentini Associates* (mechanical/electrical). Interiors (except office floors) *Kevin Roche John Dinkeloo and Associates.* Consultants: *Bolt Beranek and Newman, Inc.* (acoustics); *Rudolph deHarak, Inc.* (graphics). Contractor: *Turner Construction Company.*



One United Nations Plaza, at 39 stories, is conceived as a chip off the old block of its Manhattan environment, and, from every vantage point, it is either enhanced by the setting, as seen from the UN grounds for example (right), or enhances it, as when the grounds across First Avenue are glimpsed from the 44th Street sidewalk for example (above). The shimmering material mass of the building, picking up reflections from all around the sky and the environment, meets the street gently, nudging right out to it (left), and hovering over passers-by with a wrap-around glass canopy that is a continuation of the curtain-wall above. It steps up in sections to keep in alignment with the gradual slope of 44th Street, off which the hotel entrance and lobby are placed, pointed out by signage that is notable for its subtlety.

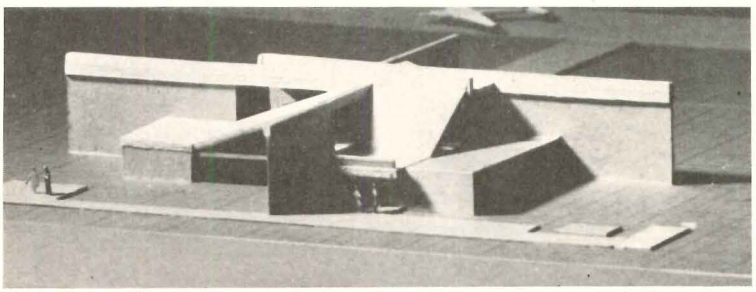




A study model for the current construction of the new Tehran Airport by associated architects Tippetts-Abbett-McCarthy-Stratton and Abdol Aziz Farmanfarmaian.

AIRPORTS

g scale, small scale, here or abroad—there is going to be a lot more work on the design of airports in the xt ten years than there was in the last. First, the "underdeveloped" countries are just getting started. (Above an ultimate in their expectations, a terminal for 35 million passengers per year.) And at home, almost $6 lion will be spent in the next five years by the Federal government alone, under the terms of a recently ssed amendment to the Aviation Act of 1970. There are going to be opportunities for the big established ms and for the fledglings as well, because the increased volume of the new domestic projects is going to split into many more usually-smaller units. From renovation to major expansion, a lot of this work will on the older airports that are now "coming of age." And a lot of this work will be on new airports for burgeoning smaller communities. The following is first an explanation of the reasons for the new directions verleaf), and second, descriptions of successful domestic projects that will become prototypical.—*C.K.H.*



A model for the completed Sullivan County Airport by architects Parsons, Brinckerhoff, Quale & Douglas.

At least through the early 1980s, there will be a vast amount of airport construction—much of it still to be initiated and designed. And the size and scope of these projects may well depend on whether they are domestic or foreign. Firms of varying capacities will want to consider this increasingly important division in their pursuit of the upcoming commissions. Contrary to tradition, it may well be that the smaller (even relatively inexperienced) firms will have greater opportunities at home, while larger firms established in the field, will gain work in foreign parts. Here is why:

The vast all-new terminal complexes will mostly be built abroad —and will probably be designed by the big firms. According to Ronald Pulling, of Tippetts-Abbett-McCarthy-Stratton, there will be few or no new airports built in the near future in the United States that approach the scale of the monumental Dallas-Fort Worth complex, which his firm engineered. (One of the possible exceptions is St. Louis, which is proposing a major new airport farther from the center of town). But, this does not signify the end of large new airports. At the present time, TAMS has in design or construction major airports in Tehran (see page 125) Caracas, Seoul, Turin and Amman. A complex for Riyadh, which is larger than London's Heathrow, is in design for Bechtel Construction by architects Hellmuth, Obata & Kassabaum. (For a brief guide to business in the Middle East, see RECORD, June 1976, pages 101-108.) Foreign airport construction is a vast, hardly-tapped field. Accordingly, Pulling sees a larger scale establishment of supersonic flight as inevitable: "The future for the United States lies in the exporting of talent to all of the far-flung places, and professionals will want to get there and back in the shortest possible time." But the foreign governments will generally demand high levels of proven expertise in airport design, and their commissions will normally go to large established firms in the field. Where does this leave the other professionals?

For the United States, there will be a plethora of smaller projects—and now, surprisingly, money to build them. Despite the well-known troubles that have beset all of the U.S. airlines today (including passenger resistance in the face of rising costs), a number of factors indicate an even higher volume of on-going domestic airport construction, although most projects will be on a smaller scale than much of the recent work—and on a scale that smaller firms are able to handle. Many of these projects will be renovations and additions. Airports, like organisms, continue to have changing demands made on them, and must adapt or be replaced. Even when the issue is not increased traffic volume, adaptation will be required for ever-changing sizes of planes, operations, types of services and—not unimportantly—the constant upgrading of both municipal and commercial images. In one city (the national capital) alterations are underway for the extremes of these reasons on *both* the "mature" National and relatively-new Dulles airports. The importance of additive construction is emphasized by the fact that large all-new facilities, which are supported by major cities, are probably not too practical in the foreseeable future, because of the rising costs of construction and land (and much more land is now necessary to overcome the objections of nuisance to adjacent communities). These problems are coupled with municipalities' increasing difficulty in financing major projects, with a host of new complicated governmental requirements and with fortunately higher civic expectations. However, the burgeoning smaller communities—especially in the country's South and Southwest—have revenues from new industry and large amounts of land, and they are all ready on line for new facilities scaled to their smaller size (see pages 141-144 for similar completed airports in Toledo, Ohio; Lubbock, Texas and Lincoln, Nebraska). The above are good reasons that major new airports will probably not be built, and that extensive alterations and expansions of existing facilities coupled with new smaller airports certainly will be built.

And possibly the biggest reason that smaller-scale domestic a port construction will be in a healthy state is the recent passage Federal Law 94-353, which allows previously undistributed funds (a cumulated from the sales tax on air line tickets) to be spent on up 50 per cent of the cost of terminal construction. The total annu amounts with which such buildings *can* be built (part of the mon goes to all other types of airport construction) are staggering: $5(million for fiscal 1976, increasing each year to over 600 million 1980. On top of these amounts, $15 million per year is allowed f planning. The total bill includes provision for a $5.6 billion expen ture over the next five years (vs. $1.3 billion over the life of the la five-year bill, which *excluded* terminal construction). But, large as t total dollar amount may be, it is almost certain that no single grant w be large enough to appreciably help in financing another Dallas-Fo Worth. Over 200 applications have already been received for 19 alone, and—if most are granted—the total amount to each airpo would average around $2.5 million. (And most of these amounts f 1976 will undoubtedly go to non-terminal construction.)

What will the new domestic facilities be like—and who will wa to work on their design? Perhaps the most important influence affe ing an architect's work on airports will remain the multiple-layer system of approvals and requirements of the many interested parti who constitute the "client." These parties will continue to range, f sometime to come, from local government to the airlines that pay t rents—and to the passengers, who can often be last considered b who are the most important users. The consequences of the confusion a often: "bleak and confusing terminals; exhausting hikes with hea luggage and a general subservience to the economics of machines. B here and there has been a victory by architects on behalf of people."

While these statements were made as recently as November 19 (RECORD, page 135), a number of factors may be working in favor better airports and more architectural victories. First, if airport work to be truly on a smaller scale, the chances for clean-cut solutions wi fewer layers of approvals would seem much better. Second—if mu of the future work is to be in the form of altering existing facilities, t previous faults of these facilities will have become obvious with tin and will be easier to remedy. Especially on alteration work, the ser ices of professionals experienced in graphics, interiors and small-sca construction—who might otherwise play a minor role in a projec design—will become much more important.

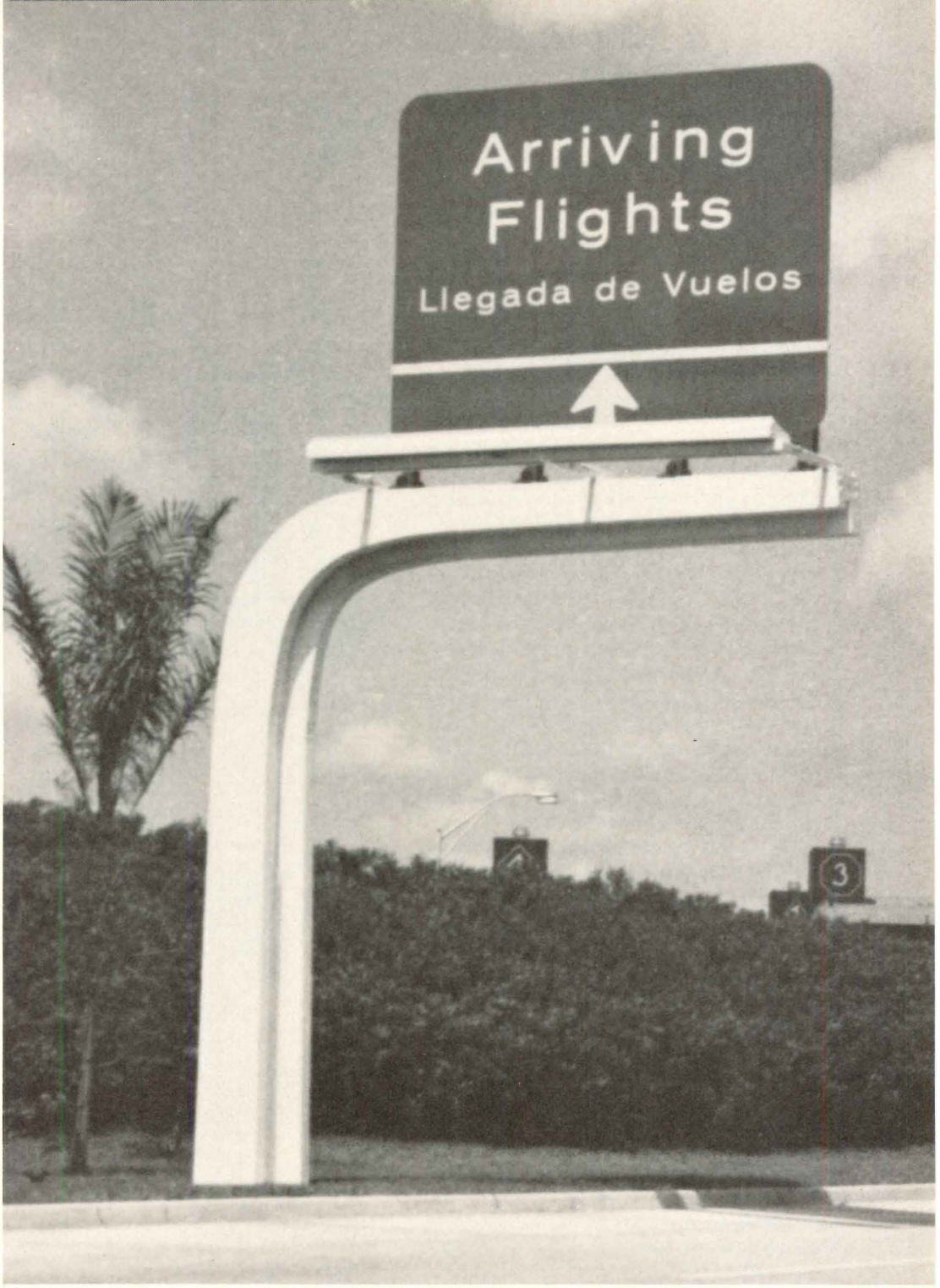
On the following pages are two categories of projects that illu trate new directions of work to come. The first includes solutions the problems of ongoing work on older airports (pages 127-140). Mo dominant in this sampling are such modifications that improve civ and commercial images and those that accommodate new or e panded international facilities. And the latter may become even mo important in the future, if a recent recommendation by the Civil Aer nautics Board is accepted. The recommendation would allow ne direct flights between European cities and Atlanta, Tampa, New O leans, Cleveland, Pittsburgh, St. Louis, Denver, Kansas City, Mi neapolis, Houston, and Dallas-Fort Worth—all facilities with few or current physical means for executing the extremely complicated a exacting requirements of the Federal government for internatio travel. The second category of projects (pages 142-144) includes tho which are all-new sources of pride to smaller but growing muni palities. (A cross between the two categories is shown on page 14 Here are outlined common aspects of planning the financial comm ments necessary for such efforts—and the reasonable provision for e pansion that must follow such commitments to make the efforts wor while to begin with.

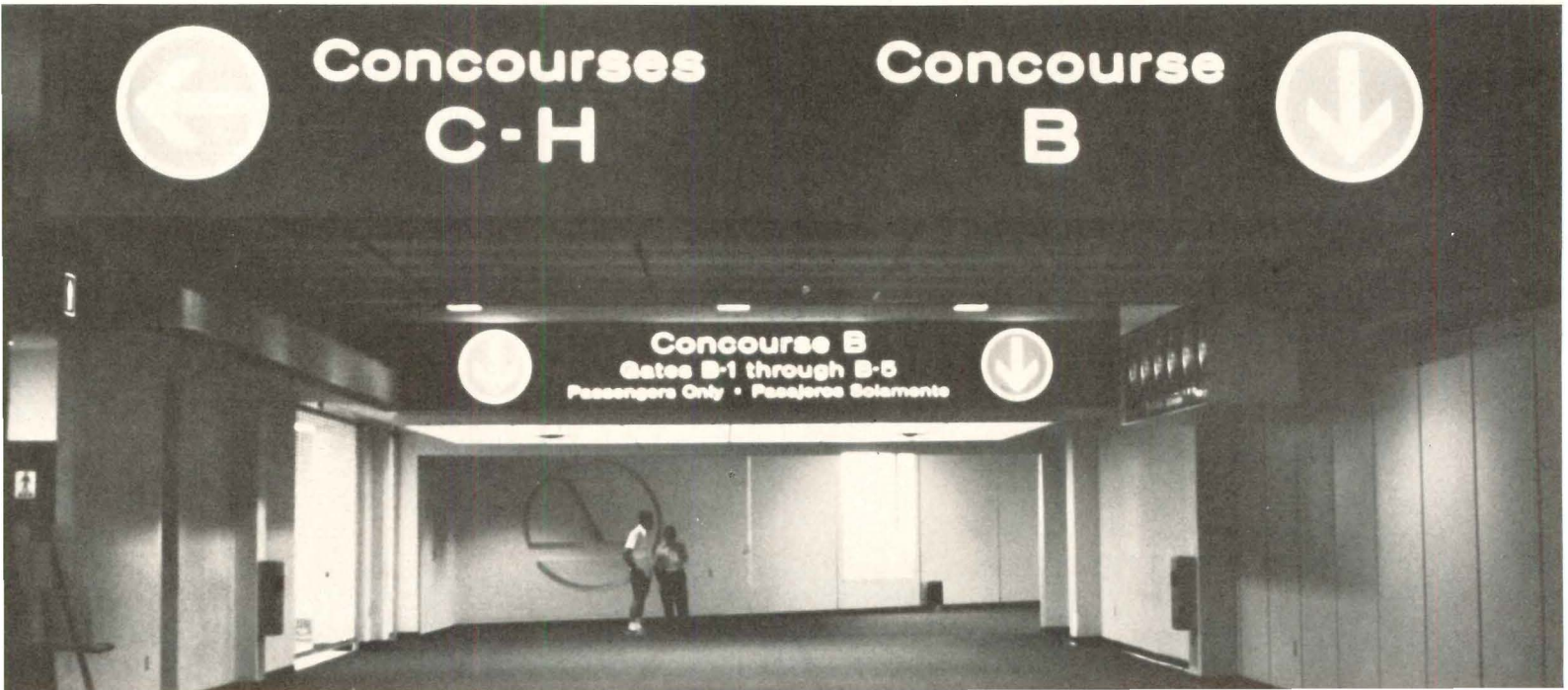
—Charles King Ho

ASIC RENOVATION: NEW RAPHICS FOR MIAMI

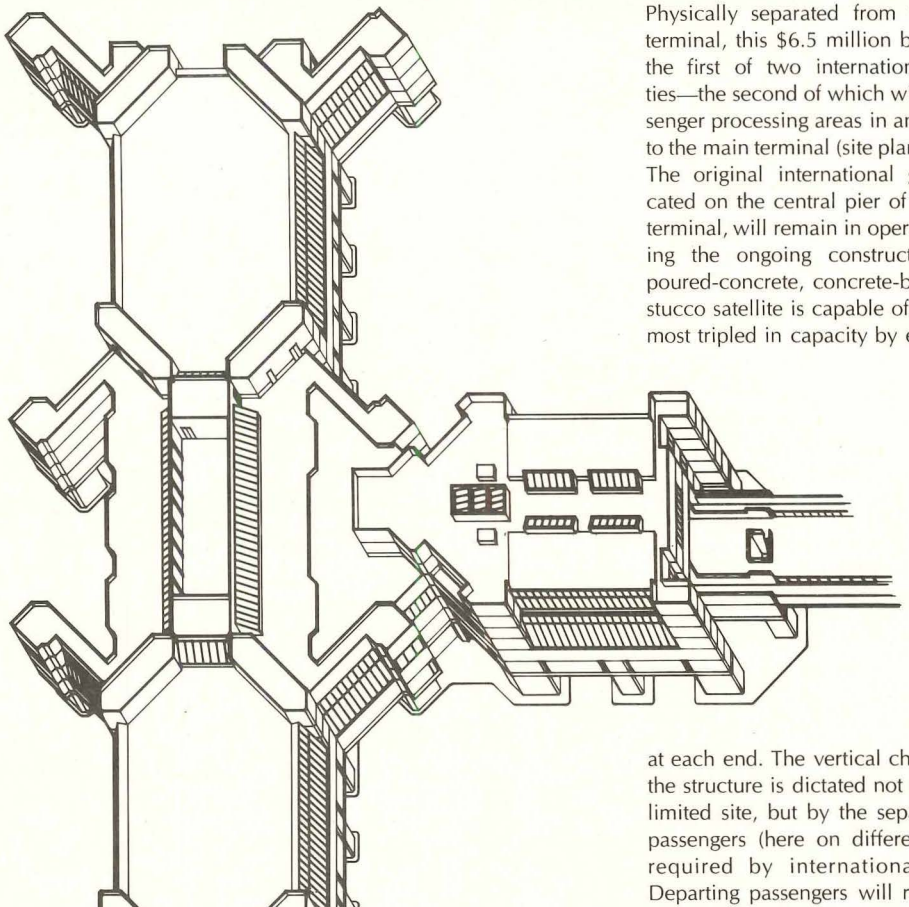
cent projects at the Miami International Air-
t utilize the spectrum of techniques avail-
e to the process of renewing an older facil-
While a major construction effort at Miami
hown on the next four pages, a more mod-
program that has begun to revolutionize the
ospitable appearance of the existing build-
s is shown here: the reorganization of
phics, signage and interior design by Archi-
tural Graphics Associates. As succinctly
ted by A.G.A. designer and principal Jane
ggett, "the visually cluttered original termi-
had the charm and confusion of a 1950s
s station." To date, only the northern section
he interior (see site plan, overleaf) has been
nodeled to A.G.A.'s plans (photo, bottom).
re are lowered general light levels, and—
st importantly—new signage.

But it is the exterior graphics that have
own the most far-reaching current success.
e program was the first such to receive FAA
ding; the award was made because of the
ed to effectively direct passengers and—as
designers successfully argued—in a form
t would create a unique image for Miami.
sides giving now-clear information, the
ght purple and orange signs provide a unity
design that has overlaid the disparate exist-
buildings with a visual organization. The
el standards (photo, top), designed by asso-
te Deborah de Moulpied, also carry light-
, recessed into curving forms to emphasize
ual importance for both esthetic effect and
torists' safety. Color coding is used to sepa-
e traffic from arriving and departing gates,
nough the designers emphasize that it can-
be relied on alone, because many people
color-blind. They also emphasize the re-
ction in the number of possible signs.





CLEAR-SIGHTED ADDITION: MIAMI'S NEW SATELLITE

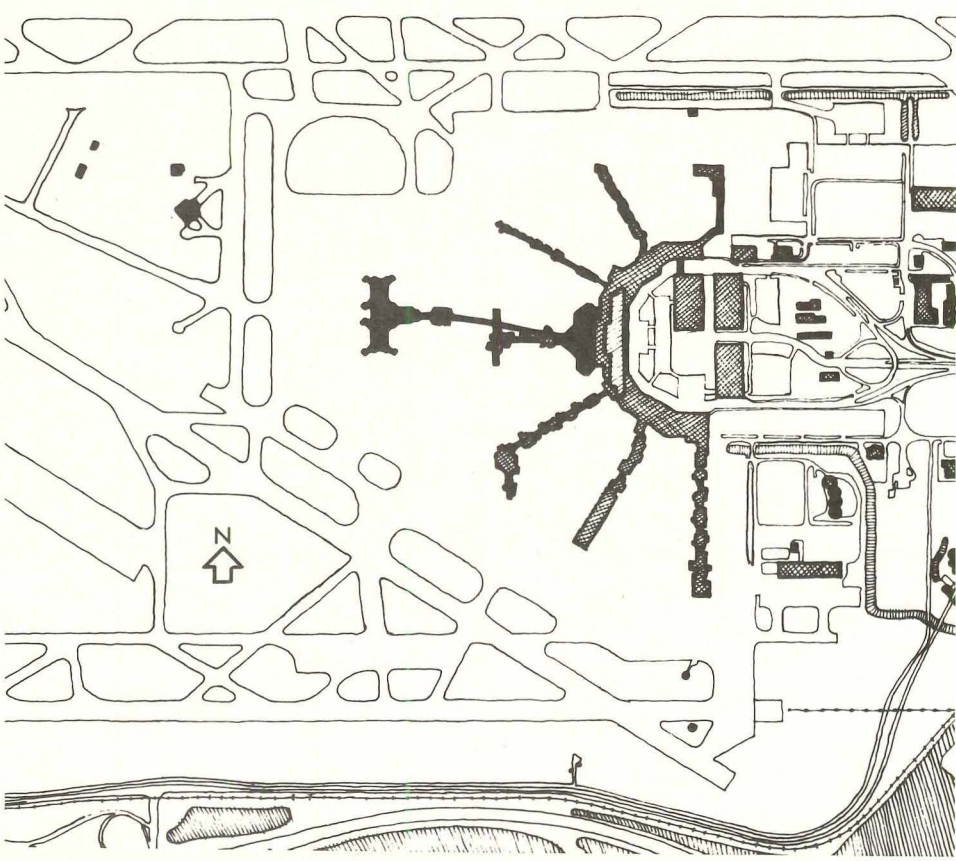


Physically separated from the m terminal, this $6.5 million buildin the first of two international fa ties—the second of which will be senger processing areas in an addi to the main terminal (site plan, bel The original international gates, cated on the central pier of the m terminal, will remain in operation ing the ongoing construction. poured-concrete, concrete-block-a stucco satellite is capable of being most tripled in capacity by expan

at each end. The vertical characte the structure is dictated not only limited site, but by the separatio passengers (here on different le required by international tra Departing passengers will remain the top main level until they desc by escalator to the boarding gate the floor below. At such times, gates will be sealed from the arri facilities, which occupy the remai of the floor. While current connec to the main terminal is by ground-l bus, the second phase is to provid elevated guide-way as shown in isometric view and site plan.

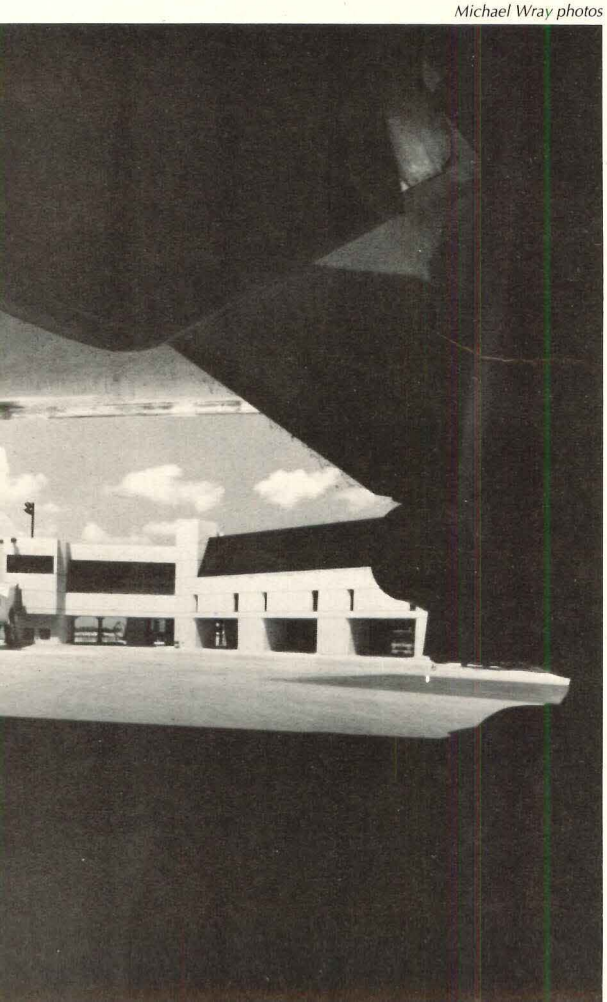
Architects Harry, Oppenheimer, Ross and Associates have designed this handsome building to eliminate congestion for international flights, and have—at the same time—eliminated some of the biggest problems of additive construction at airports: disrupted operations at existing gates, and lack of future-expansion potential. Commissioned to study the whole international operation in 1969 when the 12-gate central concourse was woefully inadequate (Miami is the second in international passenger volume in the United States), HOR recommended and won approval for a remote facility for 12 additional gates for the new larger planes. The separation, of course, was to allow existing operations while the new construction proceeded, and to provide room for future expansion. The not incidental result has been striking architecture that is a high point for the Miami terminal (see page 127).

The architecture is striking not only for its appearance and the efficiency of construction phasing, but for the clear-sighted ways in which it copes with an ever-increasing factor in airport construction: the particular requirements of international travel facilities (in this case further complicated by a vehicular connection to the main building). As strict separation of the arrival and departure of passengers almost always requires dual circulation systems, HOR has placed these on separate levels, both in the building shown here and in a planned extension of the main terminal that will house all customs and immigration facilities (right in site plan). The only place where these levels are planned to come together is at the connection between the buildings, an elevated guide-way system. Here, cars developed from those similar to Seattle's (RECORD, November 1973, page 149), will operate in tandem, with departing passengers entering and leaving one car from one side, while the arriving passengers use the opposite side of the other car. The main levels of the satellite are divided into those for departing passengers at the top and arriving passengers below. The latter proceed in "sterile" concourses, leading toward their own shuttle platform. Large ground level areas within the building are provided for the parking of service vehicles that normally clutter aprons.

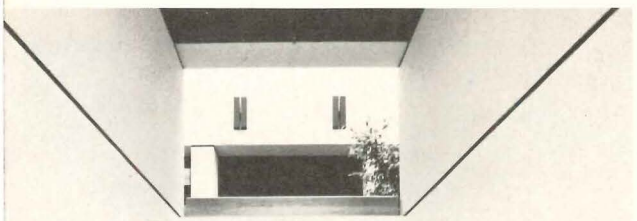


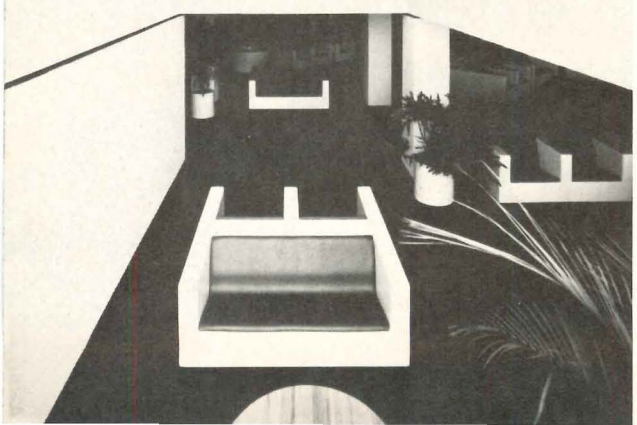
INTERNATIONAL SATELLITE FACILITY, Miami International Airport. Owner: *Metropolitan Dade County Aviation Department.* Architects: *Harry, Oppenheimer, Ross and Associates—associate-in-charge: Robert Keinker.* Engineers: *Ross-Adams Engineers, Inc.* (mechanical/electrical). Consultants: *Harold Mull/Bell Associates* (acoustics); *Dennis Jenkins and Associates* (interior design); *Bugdal Graphics* (graphics); *Louis T. Klauder & Associates* (transportation). General contractor: *Edward Nezelek, Inc.*

Michael Wray photos

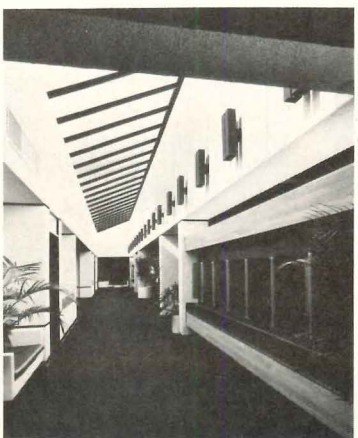


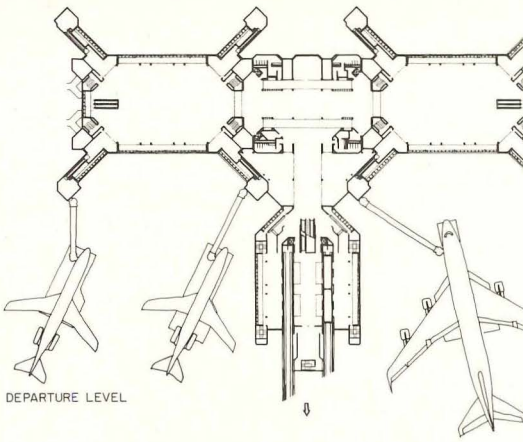
Contrasted to the building's white stucco walls, large sloping dark-glass areas bring light and views to departing passengers. Arriving passengers, as required by Federal processing procedures, are contained on the floor below, with the limited fenestration. The plan of the projected processing building (overleaf, bottom) shows the new customs facilities on the ground floor. These are to be reached from the immigration hall above by direct escalator access, through a level containing the departure lobby and offices. At the top floor will be the "guide-way" car station. The architects describe the resulting space distribution of functions as a pyramid, which is to be roughly the shape of the building. The scheme greatly reduces walking.

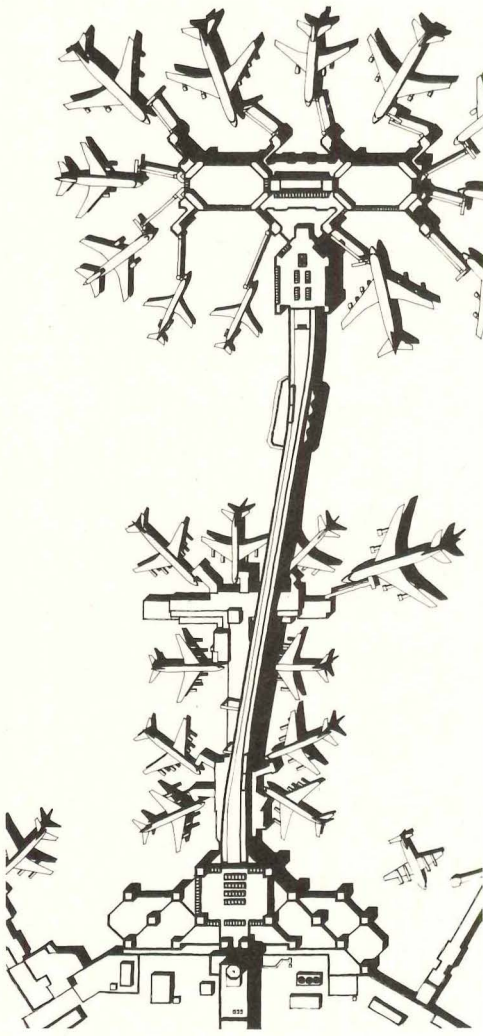


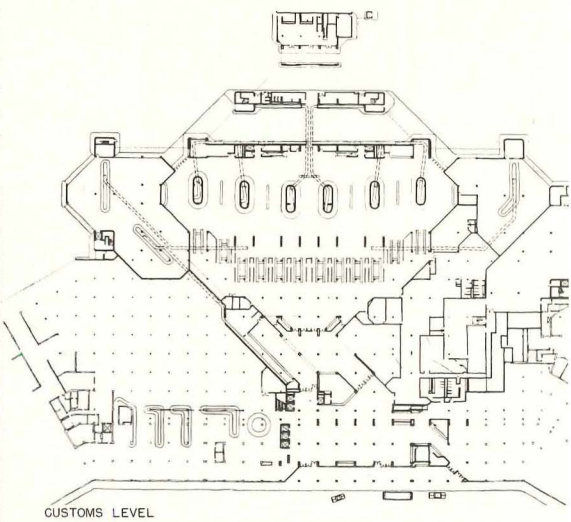


Despite the restrictions imposed by the necessity of providing separate facilities for incoming and outgoing passengers, a great deal of interior openness has been achieved—largely through the sharing of lounge areas by all of the airlines. For outgoing passengers, the lounges are divided into two main areas (photo and plan, top), with numerous smaller areas where those with the time can escape the mass movements of those enplaning. A restaurant is planned on the top floor.

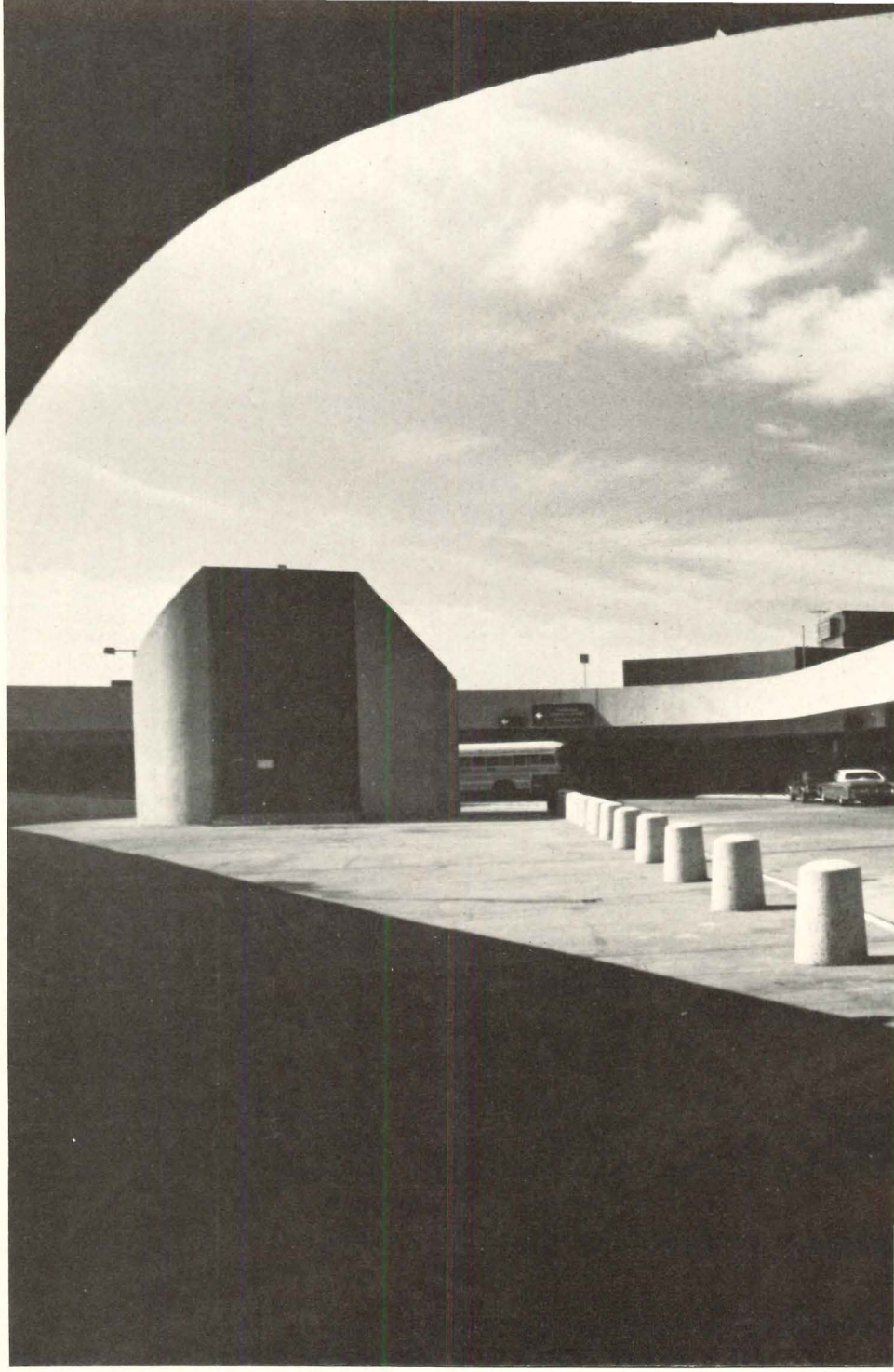






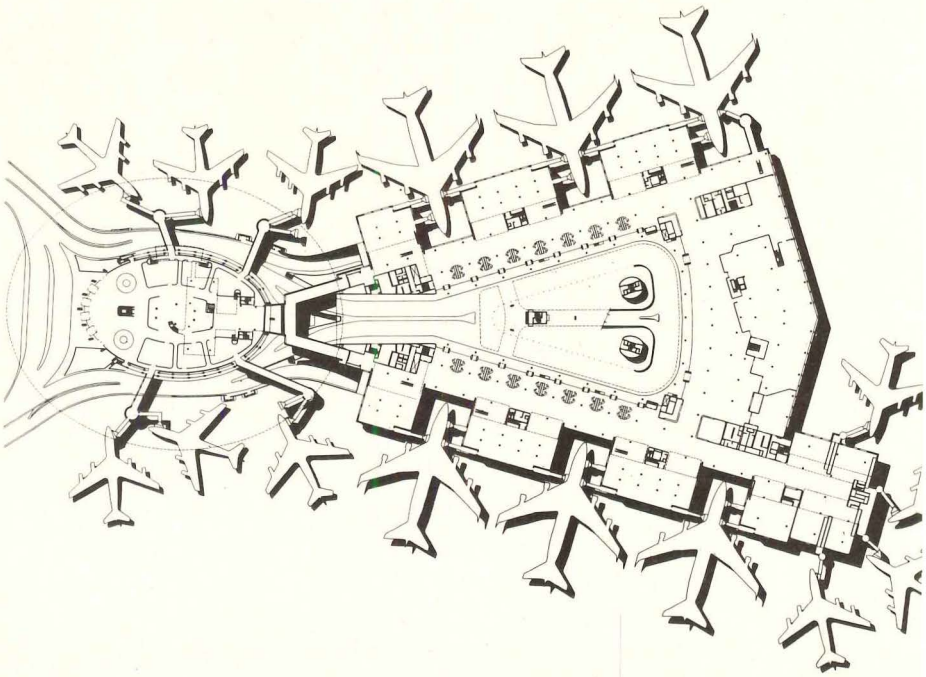


BIG EXPANSION FOR A LITTLE SITE: PAN AMERICAN AT KENNEDY



With the addition of some 750,000 square feet of new terminal space to the 100,000-square-foot original terminal (oval area at left of plan), architects Tippetts-Abbett-McCarthy-Stratton have created an ingenious solution to a number of seemingly contradictory requirements. Perhaps most difficult were the requirements to add the mammoth new international facilities in the only available location, a constricted site on the apron directly behind the original terminal, without disturbing the latter's operations and character. Opened in 1960, the original building had centralized boarding gates under an enormous cantilevered roof. And because the majority of the 12 gates to be added were to serve the new larger planes, many more people had to be accommodated than those that might be indicated by the number of extra gates (an estimated 6,600,000 passengers for 1980 vs. 1,250,000 in 1966). It was clear that a centralized system, which was innovative in the 1950s, would not work, and that—in a linear scheme—the resulting walking distances from the older entrance (left in plan) would defeat the original terminal's amenity. Accordingly, ground vehicles both for construction and eventually for passengers would have to be introduced into the area of the new construction. There was no way of appreciably expanding the existing terminal laterally along its frontage on the access road, because of the presence of other immediately adjacent terminals. On top of these problems, sight lines from the airport's control tower (fortunately close to the original building) had to be maintained, and parking had to be provided. (The once-convenient parking location had been on the other side of the main road.)

The fan-shaped new building solves all of these problems, and provides up to 20 plane-boarding positions (including two remote ones reached by mobile lounges) in a modified-linear, drive-to-the-gate-scheme (see caption for description). The gates surround a central open area, under which the lower levels are assigned to baggage handling and claims plus the all-important immigration and customs functions. Pan American was the first to use a drive-to-the-gate system at Kennedy, and its success has overcome initial objections about the possible back-up of traffic.

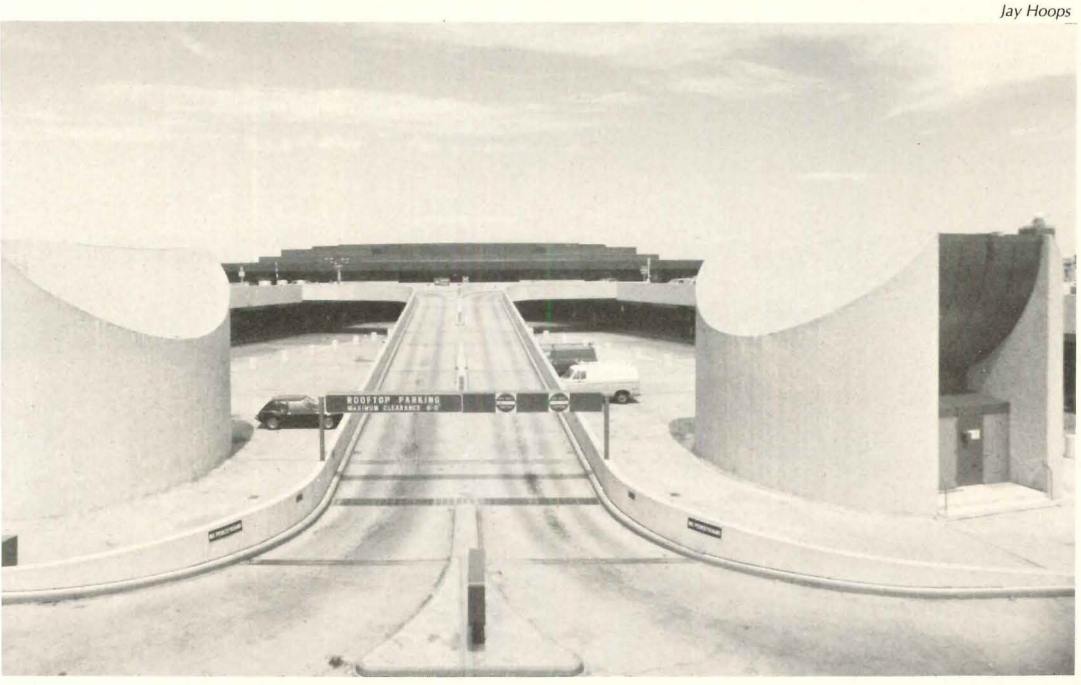


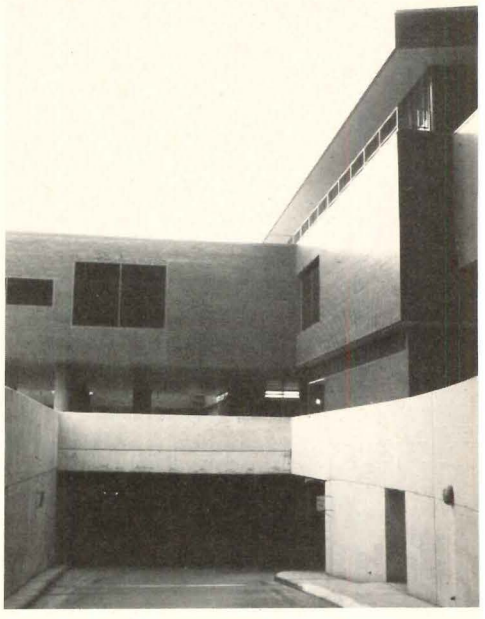
PAN AMERICAN TERMINAL ADDITION, J.F. Kennedy International Airport, New York, New York. Owner: Pan American World Airways. Architects: *Tippetts-Abbett-McCarthy-Stratton—consulting architect: Philip Ives—partner-in-charge: Walther Prokoch; project managers: Donald Peirce and Curtis Fremond; project architects: Leo Mogel and Francis Booth;* Consultants: *Eliot Noyes* (interiors); *Goodfriend Ostergard* (acoustical); *Architectural Graphics Associates* (graphics): *Howard Brandston* (lighting) Contractors: *Corbetta, Humphreys & Harding.*

Jay Hoops

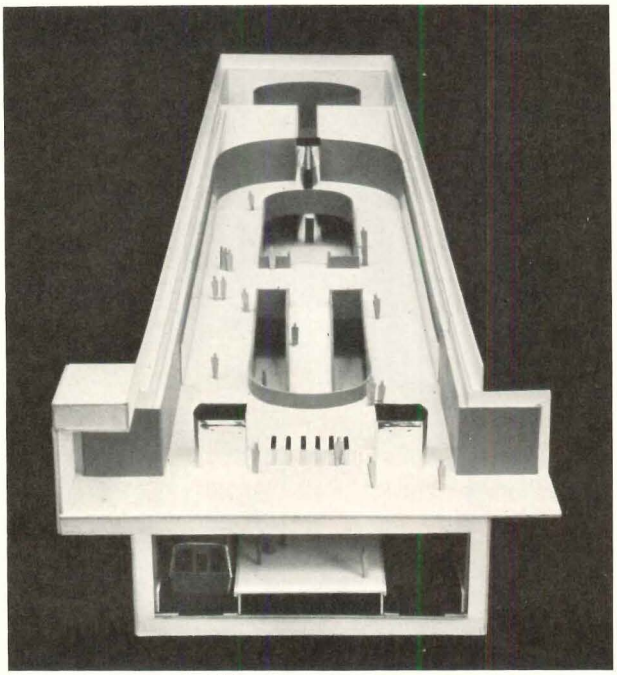
To expedite the flow of construction equipment and, eventually, passenger vehicles to the new building, extended bridges to the planes (photo, below) were placed over access roads adjacent to the original terminal (left in plan). Today, the roads split to provide access to the new arrivals level under the gates (photo, bottom) or to an upper-level, roof-top "court" where departing passengers can proceed directly to their gates (plan and photos, left). (From here, automobiles may proceed to park on the upper roof via a ramp between the two large circular fresh air intakes for the terminal levels below.) In order to keep traffic moving by being directed to the right gate (and hence, to make the system work), Architectural Graphics Associates has designed directions whereby flight numbers are pre-matched to one of four differently-colored geometric shapes flashed on screens suspended from the projecting roofs over the respective gates.

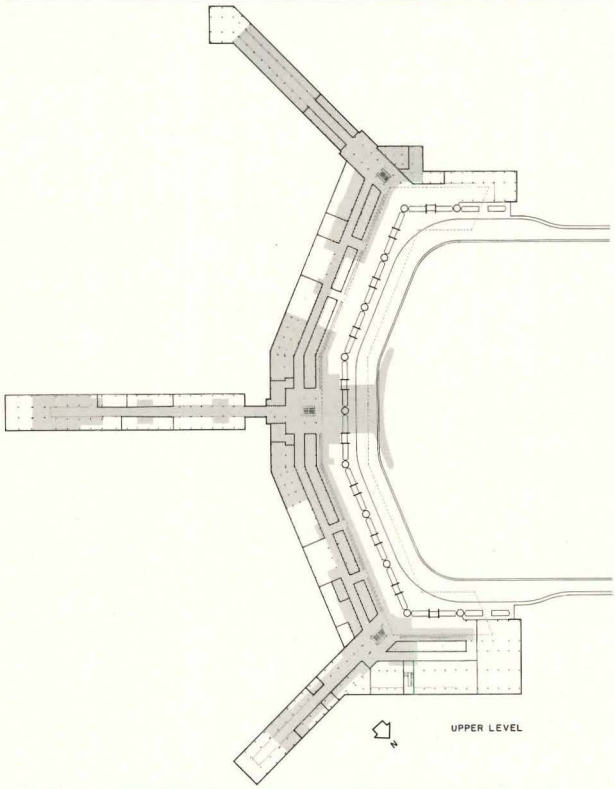
Jay Hoops





EXPANSION AND RECONSTRUCTION: BALTIMORE

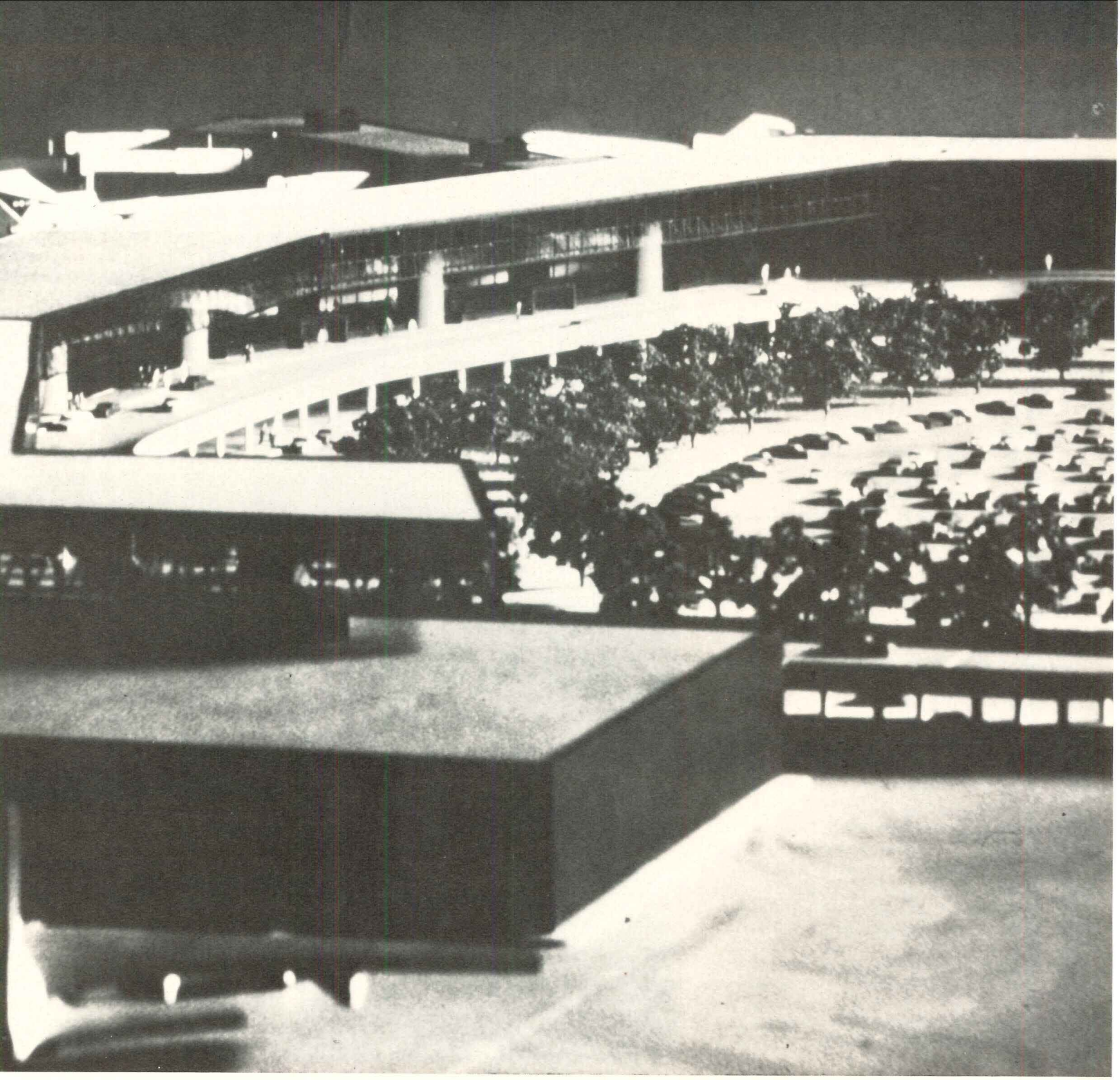


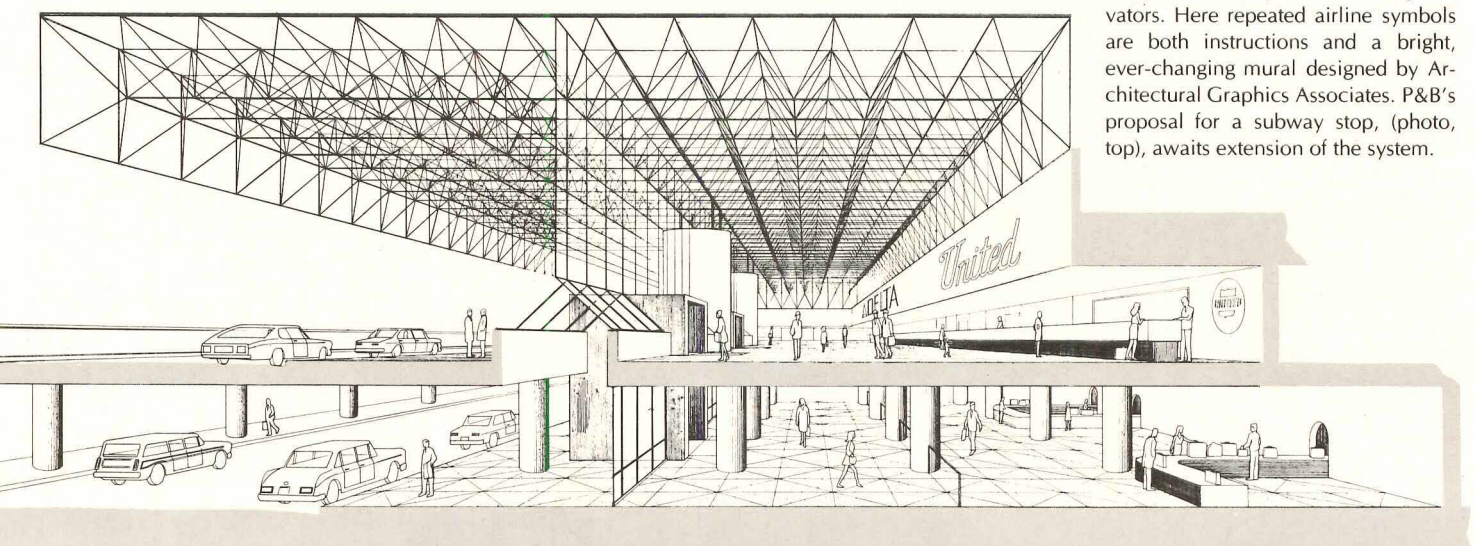


Unlike the last three projects, present construction at the Baltimore Washington (formerly Friendship) International Airport involves both expansion and total renovation on an existing 25-year-old building. Consequently the need to perform work without disruption to ongoing flights has been critical, and has caused the almost-new $64.5-million facilities to be built in stages (roughly beginning at the ends of the building and finishing at the middle). As a consequence, construction that began almost two years ago, will not be complete until 1978. Designed by a consortium of architects and engineers, Friendship Associates, the project is to accommodate an expected 11 million passengers per year by the 1980s. A similar consortium provides management for some 50 separate construction contracts. As a result, Baltimore's experience has become archetypical of the difficulties that older terminals' administrators may now go through to alter buildings in present locations (as explained on page 126). Here, the reasons were reinforced by the existence of one of the country's first double-level terminals with radiating piers, occupying the only buildable location on the landing field.

Design was focused on two purposes: an increased terminal capacity (at current standards of efficient operations) and a coherent visual image, that would indicate the new larger scale. The former changes include the creation of a raised access drive with multiple entrances directly related to piers (reducing walking distances up to 60 per cent), and the widening of those piers to reflect the greatly increased volumes of passengers, created by the new larger planes. Accomplished in a checkerboard fashion to keep gates open, the widening also accommodates the new, security related lounges. A new lateral ticket concourse was created in front of the old building to separate basic functions from the commercial ones behind. But the most dramatic change is the result of architects Peterson & Brickbauer's design for the large-scale roof (see caption), which covers the new drive and ticketing area. It provides a grand "gateway," which expresses the large-scale civic commitment in the entire project.

BALTIMORE WASHINGTON INTERNATIONAL AIRPORT, Anne Arundel County, Maryland. Owner: *Aviation Administration, Maryland Department of Transportation.* Joint-venture architects and engineers: *Friendship Associates—Peterson and Brickbauer, Inc.;* (architects) *Ewell, Bomhardt and Associates* (structural/civil); *Howard, Needles, Tammen and Bergendoff* (programing, airport facility planning, mechanical/electrical). Consultants: *William Richardson, Jaros, Baum & Bolles* (lighting); *Architectural Graphics Associates, Inc.* (graphics). Associated construction managers: *Ralph M. Parsons Company and Baltimore Contractors, Inc.*

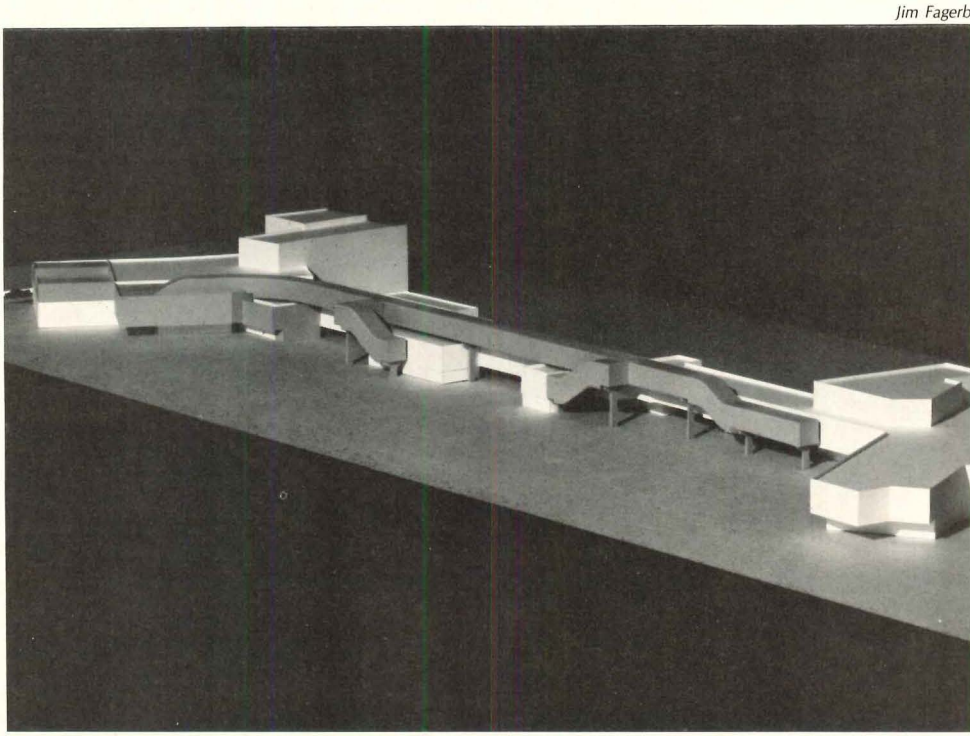


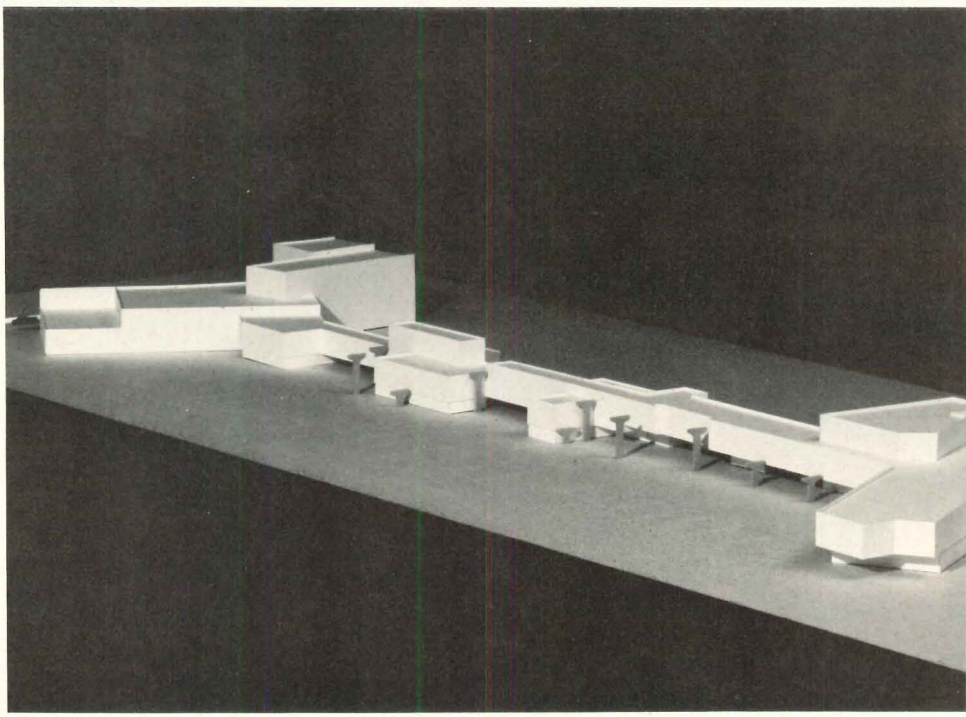


A 1,200-foot-long roofed space frame covers the new entry drive and ticket sales concourse. It is supported on bright-red round piers containing elevators. Here repeated airline symbols are both instructions and a bright, ever-changing mural designed by Architectural Graphics Associates. P&B's proposal for a subway stop, (photo, top), awaits extension of the system.

SUPERIMPOSED FUNCTIONS: AMERICAN AT KENNEDY

Jim Fagerb

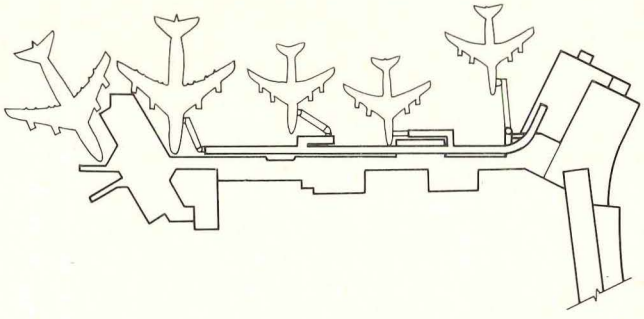


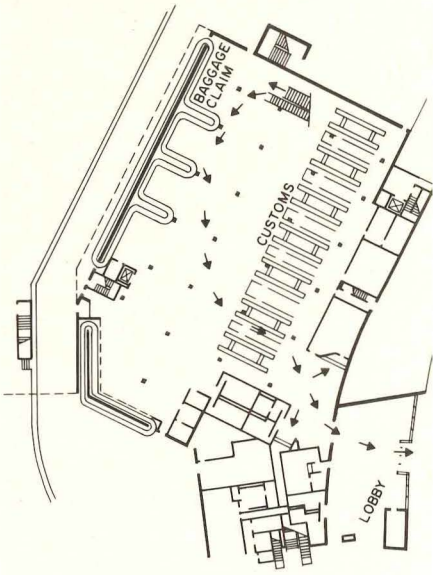


Involving not so much the expansion of capacity as adding international service, the new arrivals' facility for American Airline's existing domestic terminal at J.F. Kennedy International Airport is being built as a separate, but coordinated unit, rather than integrating it into what was already there. As such, it appears as a literal diagram of what happens when international passengers arrive and must enter processing without contact with the outside world: exit doors ingate lounges of older parts of the building are closed and traffic is diverted to escalators leading up to the new duct-like "sterile" passage at the third level—leading in turn to the new customs and immigration building (left in model photos). While the government requires that such passages are always fully enclosed with no windows, architects Heery & Heery have planned a lively graphics program in order to brighten the space and to give information on the right direction of travel along the 700-foot length. Added because of American's expansion of international service (especially in the Caribbean), this first phase addition was programed and initially planned by the airline's planning department, directed by architect Walter Hart (with senior planner Benito Lao) and vice-president O.W. Hullet. It is designed to accommodate 600 passengers per hour, with future expansion capability to 1000 passengers. For similar psychological reasons as the graphics program, the concourse (and trusses) are curved near the terminal to avoid a right angle turn.

FEDERAL INSPECTION STATION, AMERICAN AIRLINES PASSENGER TERMINAL, J.F. Kennedy International Airport, New York, New York. Architects and engineers: *Heery & Heery—project architect: Jack Gesbocker.* General contractor: *James King & Son, Inc.*

To minimally disrupt ongoing flights, the new international arrivals concourse is being built with box-like sections, formed by prefabricated steel trusses, which span over gate positions (photo, left). These are hoisted into place by cranes, onto irregularly-spaced concrete piers, placed to avoid ongoing ground operations (photo, above). The trusses have up to 120-foot-clear spans, and the curved section was fabricated in one piece.



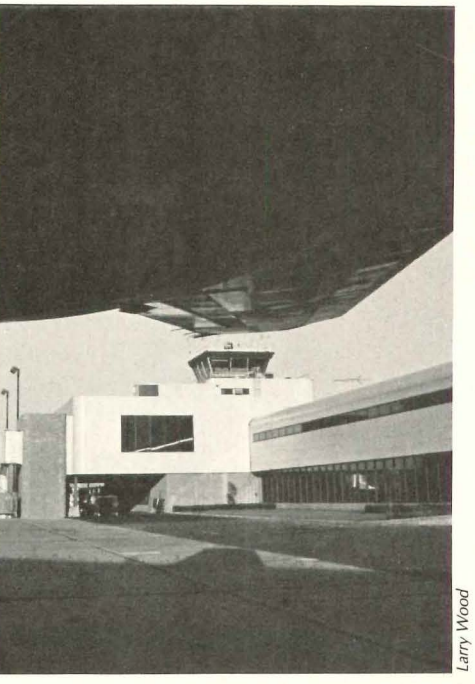


. AND A SUMMARY
F RE-USE TECHNIQUES:
OLEDO'S EXPRESS

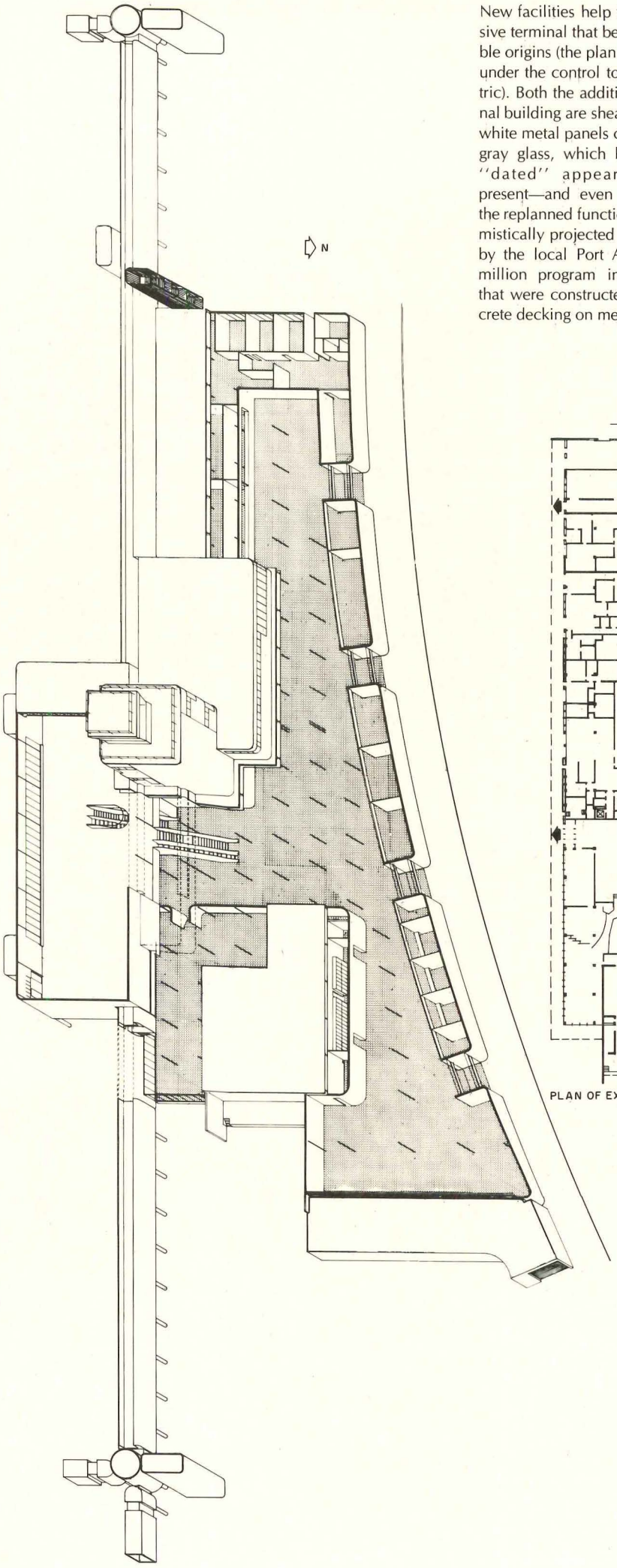
nceptually a combination of the design con-
ots used in Baltimore (page 134) and at
nerican's terminal at Kennedy, recent con-
uction at the relatively small Toledo airport
s—as at Baltimore—completely reorganized
d expanded a relatively obsolete facility
ilt in the 1950s. And in the process, it has
ovided an image and an efficiency that are
mpetitive with the nearby large Detroit air-
rt. The modest original building was a single
vel structure where passengers used apron-
vel access to and from planes. Greatly under-
ed for current operations, it had no separa-
n of circulation for arriving and departing
ssengers, who had to cross and re-cross
ch other's paths. Security checks had to be
ade at either of only two gates, and meant
ng delays for crowds of anxious travelers.

Designed to meet projected needs into the
d 1980s, the expanded facility of 100,000
uare feet organized circulation and opera-
ons in the manner of much larger airports.
ccordingly, a central hold room was pro-
ded in the center of the new second level, so
at passengers could clear security well ahead
flights. And the baggage claim and ticketing
eas—although still on one level—were sepa-
ted in a greatly enlarged concourse to be on
spective sides of the escalators to the gates;
coming and out-going passengers no longer
oss, having their own routes of travel.

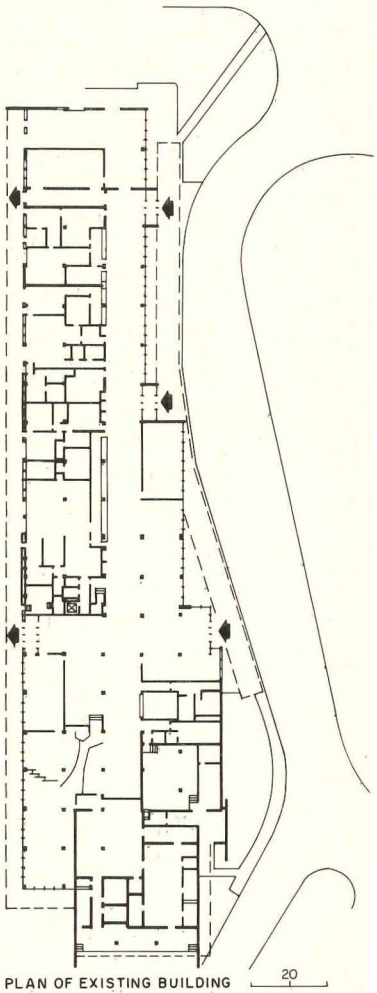
ASSENGER TERMINAL, TOLEDO EXPRESS AIR-
ORT, Swanton, Ohio. Owner: *Toledo Lucas*
ounty Port Authority. Architects: *Parsons, Brinck-*
noff, Quade & Douglas—partner-in-charge: Perry
rd. Engineers: *Saddler Associates* (structural). Con-
tant: *Clair Hoffman* (interiors). General contrac-
: *McKinnon Parker.*



Larry Wood



New facilities help to form an expansive terminal that belies its more humble origins (the plan below fits directly under the control tower in the isometric). Both the additions and the original building are sheathed in gleaming-white metal panels contrasted to dark-gray glass, which bring the original "dated" appearance into the present—and even future. Similarly, the replanned functions allow for optimistically projected service. Financed by the local Port Authority, the $5-million program included additions that were constructed of poured concrete decking on metal joists.



PLAN OF EXISTING BUILDING 20

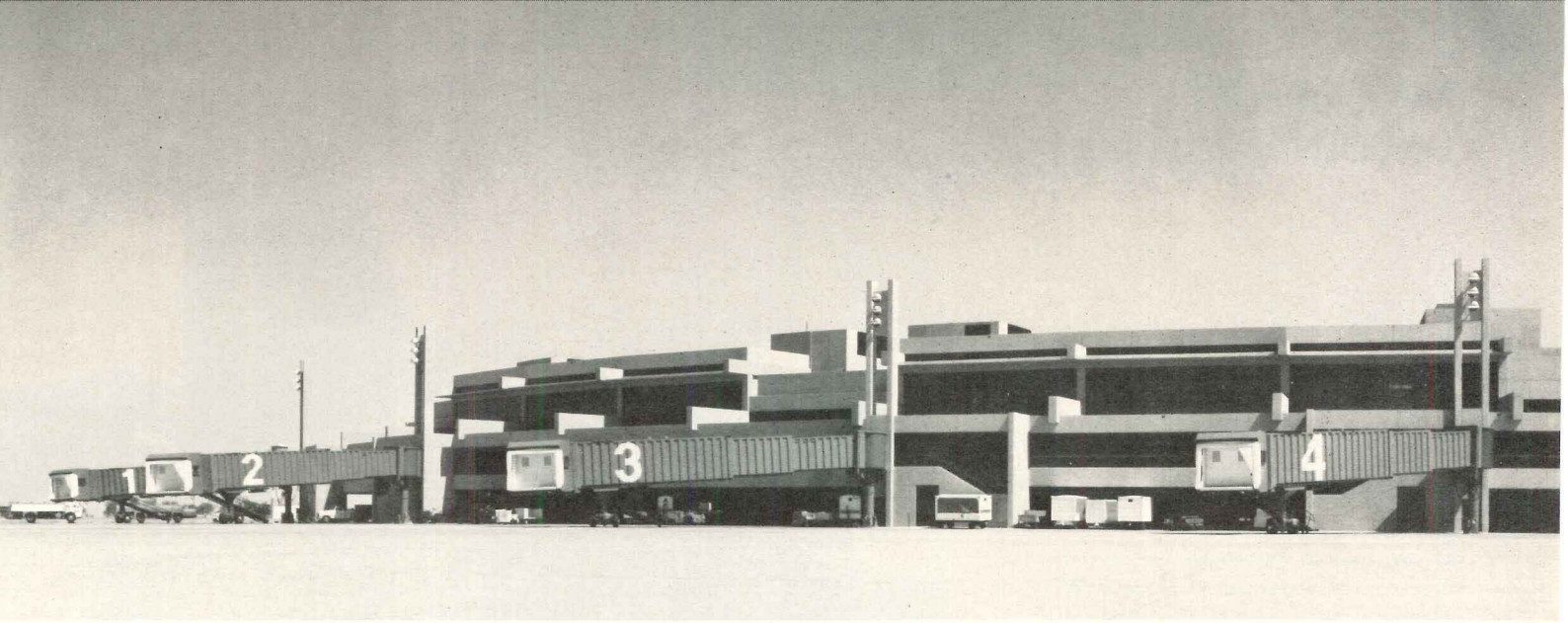
NEW AIRPORT WITH A BIG COMMITMENT: LUBBOCK

Exemplifying the manner in which (and the reasons why) many smaller all-new U.S. airports will be built in the near future, the just-completed Lubbock Regional Airport—having 144,000 square feet of area for six gates—allows for a future four-fold increase in facilities that would completely surround the existing parking field. And although the building just provides those facilities needed for the present, the future expansion is sure to come. Over the past 25 years, the number of yearly passengers has increased over five times to approximately a current 250,000, and the city fathers see the presence of the new airport as an incentive for more new large businesses to locate in Lubbock. A request to the CAB for additional non-stop service to major cities across the country could bring an immediate incentive for expansion.

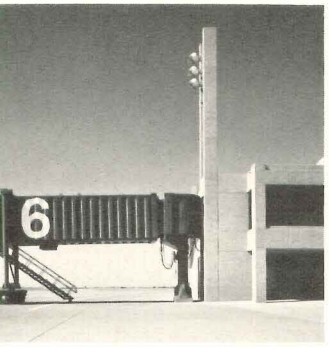
To compare the amount of monetary commitment for an all-new airport with that of a remodeled existing one, the remodeling at Toledo (page 137) cost a relatively small $1 million less (or about one year's operating costs) than this all-new $6 million building, and had the disadvantage of disruption to ongoing operations in the process. However, the total costs of all-new airports cannot be judged so easily. Lubbock's total investment to date has been over $26 million (including almost $6 million from the FAA in such ancillary facilities as runways, highways, utilities, a rescue station, control tower and hangars), and another $10 for such construction is still pending. Only great civic optimism and the reassurance that the facility can greatly expand for the future (on a 2,500-acre site) would make such expenditure seem reasonable. Cities with slower growth and limited available land would find such an investment more difficult to justify.

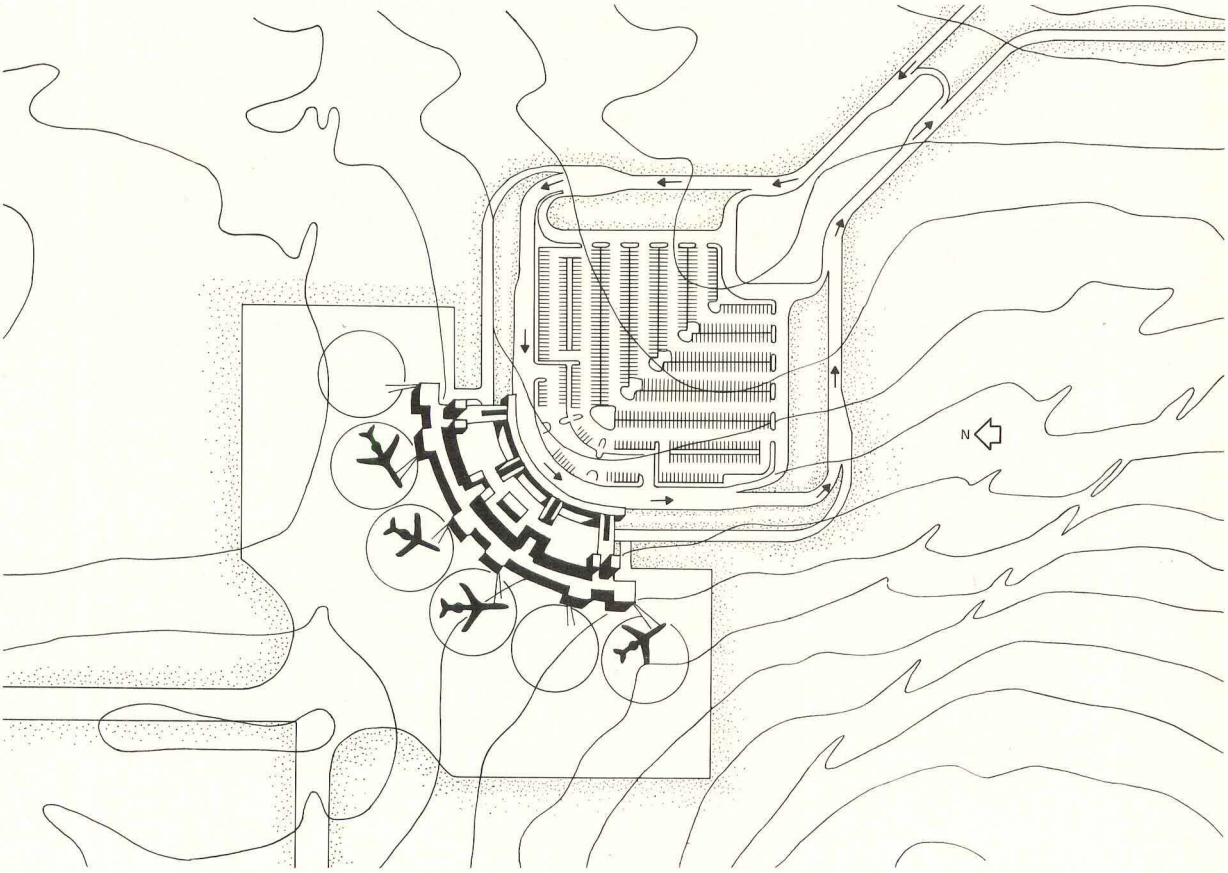
Designed by joint venture architects Hellmuth, Obata & Kassabaum/Whittaker & Hall, Lubbock shares a number of apparent similarities to HOK's work at Dallas-Fort Worth, including the warm-colored precast concrete construction and the design of the vertical precast apron lights. It also exemplifies the newly-possible prominence of areas for passengers cleared by security checks, as the major portion of what would have been—before such times—public areas is devoted to what is now a large, two-story hold room (compare to Toledo, page 137).

LUBBOCK REGIONAL AIRPORT TERMINAL, Lubbock, Texas. Owner: *City of Lubbock.* Architects and engineers: *Hellmuth, Obata & Kassabaum/Whittaker & Hall-principal-in-charge of design: Gyo Obata (HOK); principal-in-charge: Herbert Koopman (HOK); project designer: James Henrekin; principal-in-charge: Joseph Hall (W & H); project architect: Yancey Jones.* Interior designer: *InterArc.* General contractor: *Page & Wirtz Construction Co.*

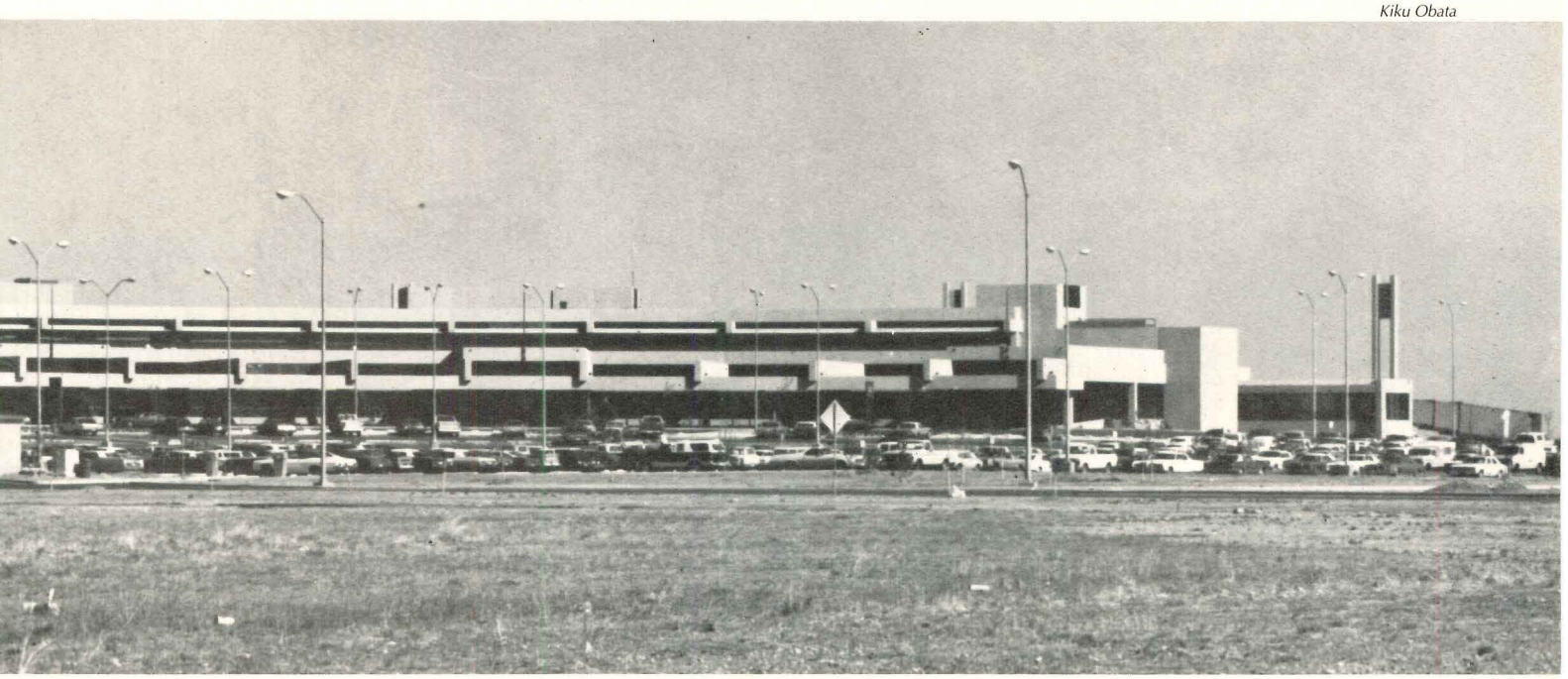


e first increment of the new building on three levels, with all passenger ivity on the second—reached by vered ramps from the entry drive. A atively-narrow public concourse, ere ticketing and baggage claims cupy opposite ends, is separated m a large two-story-high concourse "secured" passengers (photo, op-site page) where banners provide ament and gate information. Two-y-high glazed walls provide a view the field for passengers and from ces and meeting rooms on the mez-nine above. The arrangement of urse allows passengers to pass di-tly to and from planes with mini-m confusion and level changes. ght operations are contained on the und level.

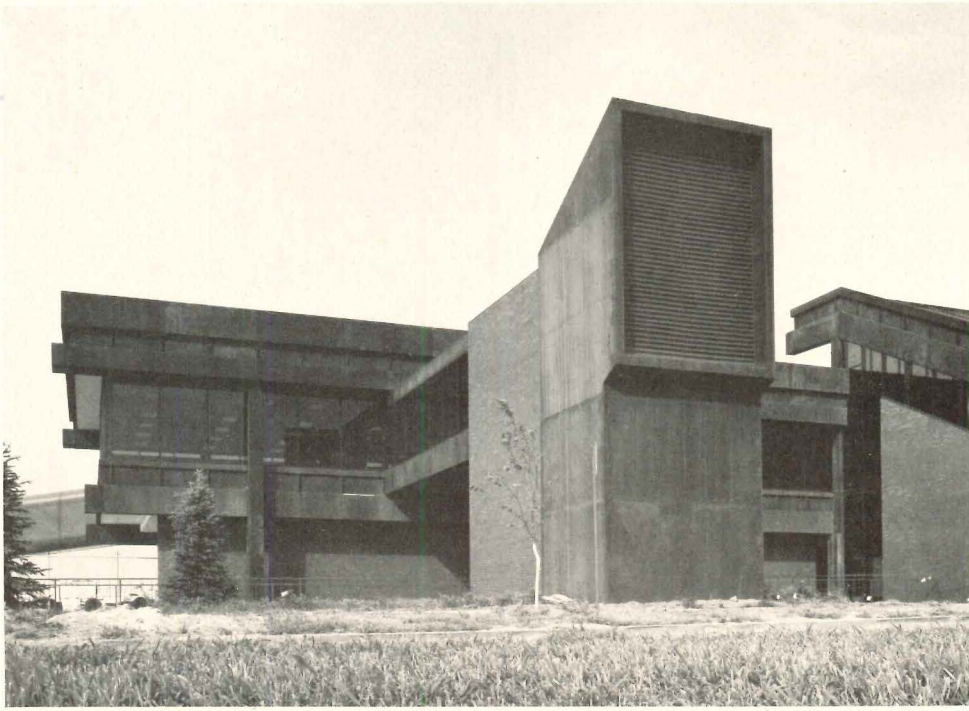




Kiku Obata



NEW AIRPORT: LINCOLN, NEBRASKA



Two-thirds of the size and capacity of Lubbock (preceding two pages), Lincoln's new terminal designed by architects Davis, Clark and Associates provides four gates and 100,000 square feet of facilities. Like the previous project, it is planned for growth: estimates indicate that up to one million passengers per year by 1980 may pass into and out of Lincoln. When demand indicates, a duplicate of the existing facility, with a mirror-image plan, will be built on the opposite side of an intermediate parking field. The two buildings will be connected by elevated glazed bridges, and the determination in these proposals is indicated by the current presence of the projecting, funnel-like bridge supports (photo, top).

As is typical in the smaller airports shown here, Lincoln has a second-level concourse, which provides direct building-plane access, and the remainder of passenger-related functions such as ticketing and baggage claims are in a ground-level lobby. Here, walking distances for ticketed passengers, or those without luggage, is reduced between concourse and automobile entrances by bringing the central escalator forward toward the drive to bypass the lower level altogether. A direct expression of this function is the sloping roof over the lobby which rises with the path of travel. The $3.8 million terminal is constructed of a steel frame spanned by precast concrete T sections, and is clad in weathering steel and brick. The sloping roof rises above the second-level to provide clear story lighting for the lobby.

LINCOLN MUNICIPAL AIRPORT TERMINAL
Owner: *Lincoln Airport Authority.* Architects: *Davis, Clark and Associates.* General contractor: *Cook Construction Co. of Lincoln, Nebraska.*

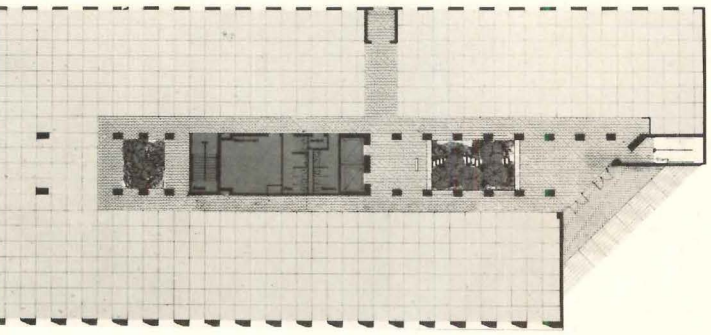
Joel Stras

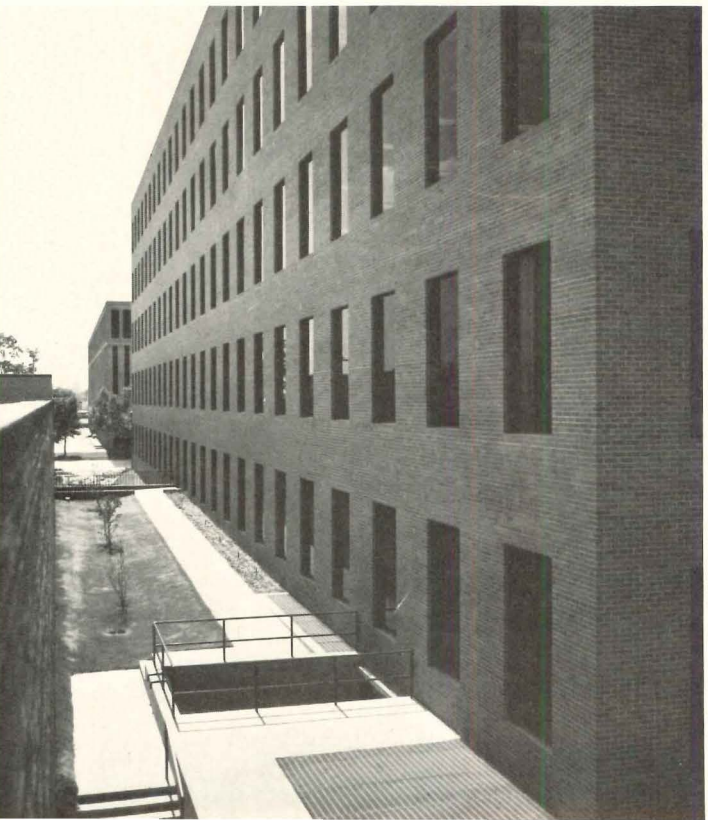
oad-bearing brick walls offer economic and esthetic benefits

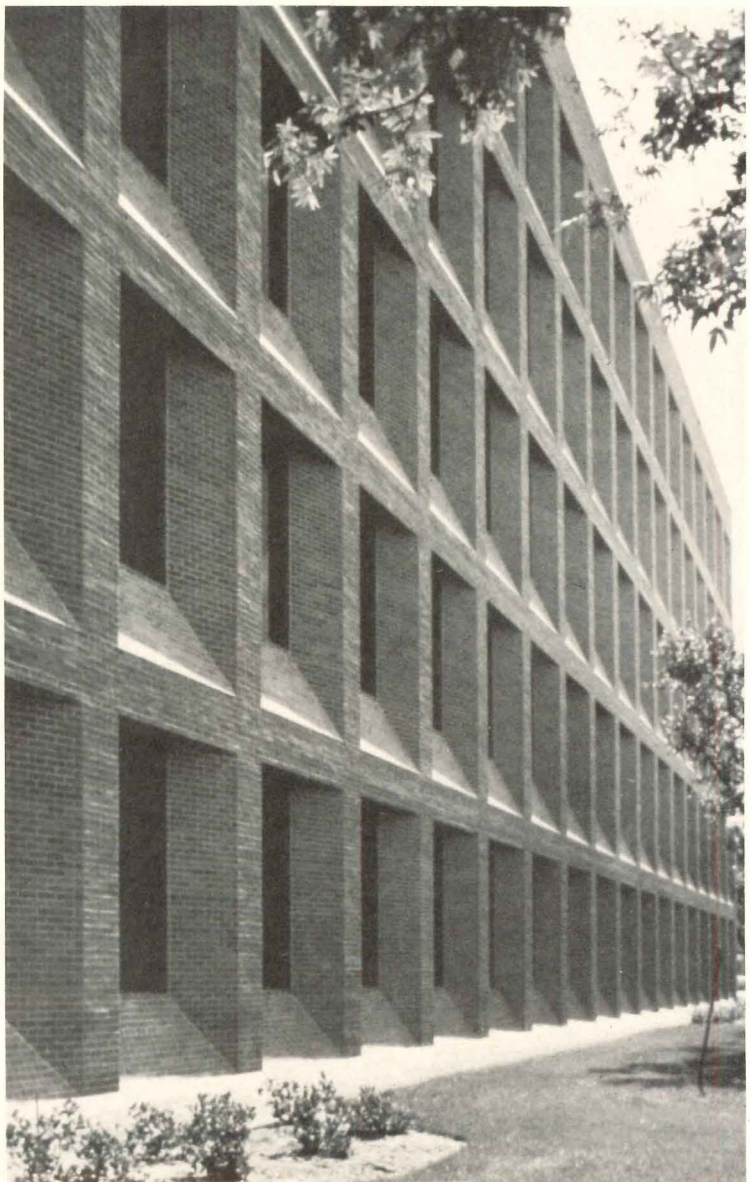
most as a matter of course, the architect and uctural engineer for Halbouty Center—a story suburban office building in Hous-n—presumed that the structure would be eel columns with rolled beams spanning be-reen columns, and open-web bar joists span-ng between beams. But when the architect ecided to consider brick finishes for both the side and the outside faces of the exterior alls, a different, cost-saving approach was ossible. Two wythes of brick would, the de-gners believed, provide sufficient resistance carry gravity loads and wind loads without e need for columns and spandrel beams in e exterior walls. So a preliminary design of e structure was prepared using load-bearing brick masonry exterior walls and core walls supporting steel bar joists directly. Pricing by the contractor—who was a member of the design team from the start—showed that this design could be achieved for approximately $23 per sq ft. This was well below the owner's initial budget of $27 which he felt would allow somewhat nicer finishes and features than are found in the typical suburban office building. Even at the low $23 figure, the architect was even able to provide such amenities as two atria—one on either side of the core.

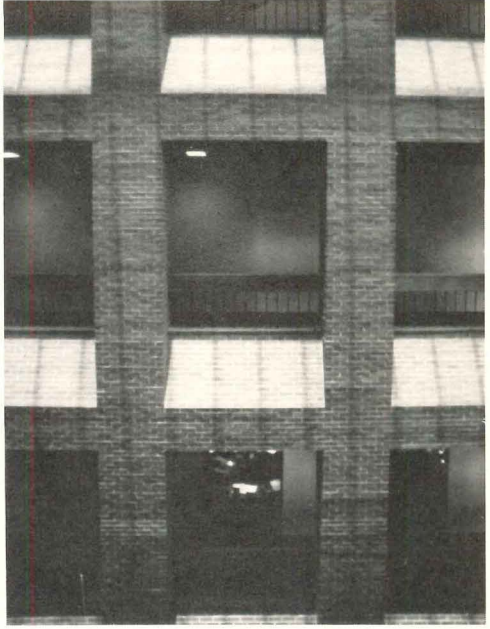
The load-bearing walls consist of two wythes of modular brick plus a grout core with a nominal amount of horizontal and vertical reinforcing. Wind forces on the building are carried to the foundation through the brick walls acting as shear walls. The south wall of the building is somewhat thicker than the others in order to provide for recessing of the windows as a protection against direct sunlight.

The masonry walls were designed to span as reinforced brick beams across window openings. Openings in the core walls and in the walls around the two atria were also designed to be spanned by reinforced brick beams. Interior columns around the atria and two interor columns in line with the core walls at the west end of the building were designed as reinforced brick columns, constructed with one wythe of brick around the column exte-









rior, and with a core of concrete and reinforcing steel.

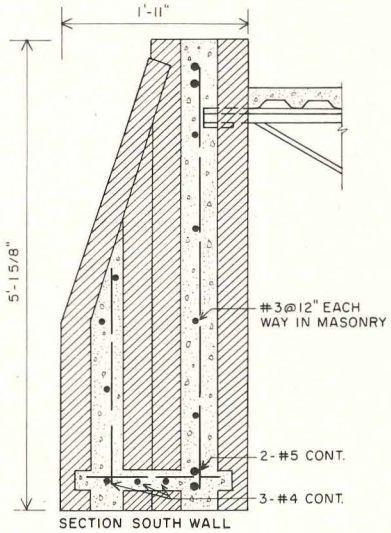
In order to provide maximum resistance to lateral wind forces and to provide maximum rigidity in the whole building, which rests on a layer of clay soil with some potential for expansion, the architect and engineer decided not to provide any expansion joints in the load-bearing masonry walls. Short, vertical expansion joints were used, however, in the parapet—stopping short of the roof line.

Probably the most difficult aspect of the structural design was containment of the differential strains anticipated from: 1) expansion of the brick as it absorbs moisture, 2) shrinkage of the grout core as it cures, and 3) temperature expansion and contraction of the walls of the building. The engineer decided to contain these strains, insofar as possible, by providing continuous bands of reinforcing steel around the entire perimeter of the building in every floor at the heads and sills of the windows. This horizontal reinforcement is, in fact, the top and bottom reinforcement of the reinforced brick spandrel beams, which were simply made continuous around the entire building. In addition to this horizontal reinforcement, special vertical reinforcement was provided at the jambs of the windows, and diagonal reinforcement at the corners of the windows. This solution has apparently been successful because no cracking has been observed in the walls over the three years since the building has been completed.

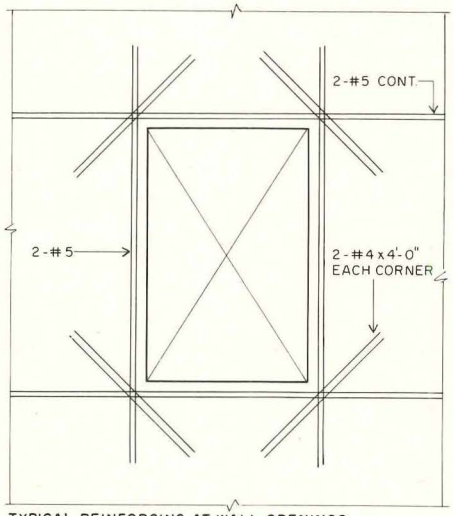
Quality control of the structure during construction was ensured by providing for full-time inspection of workmanship, and by laboratory tests on all the materials used in construction. The individual bricks were required to have a compressive strength of 8,000 lbs per sq in., which was not restrictive from the standpoints of colors and textures. Mortar was type PL and grout and concrete had a specifi compressive strength of 3,000 lbs per sq The brick laid in mortar was assumed to ha an ultimate compressive strength of 2,400 per sq in., and this was verified by havi workmen on the job build 8- by 8- by 16- prisms of brick that were tested in compr sion.

Because this was the first experience t design team had with exposed brick on the s fits of reinforced brick beams, they decided test the bond strength of the soffit brick. Tv specimen beams were prepared in the sar fashion as the beams in the building, and we supported at the two ends. A hole was th drilled in one of the soffit bricks of each bea and a steel reinforcing rod inserted in the ho and cemented with epoxy cement. After t beam had cured, a tensile force was applied the rod in an effort to pull the soffit brick the main body of the beam. In one of the tv beams, the steel rod pulled out of the epo cement without damaging the brick. In t other beam, the bottom half of the soffit bri fractured when the tensile force was increas to 3,400 lbs, leaving half of the brick s bonded to the upper portion of the beam.

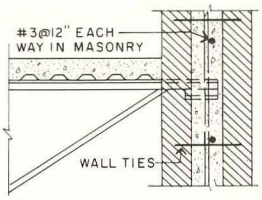
HALBOUTY CENTER, Houston, Texas. Own Gerald D. Hines Interests. Architects: *Neuhaus Taylor.* Engineers: *Krahl & Gaddy* (structural); *Che ault & Brady* (mechanical). General contractor: *H vey Construction Company.*



SECTION SOUTH WALL



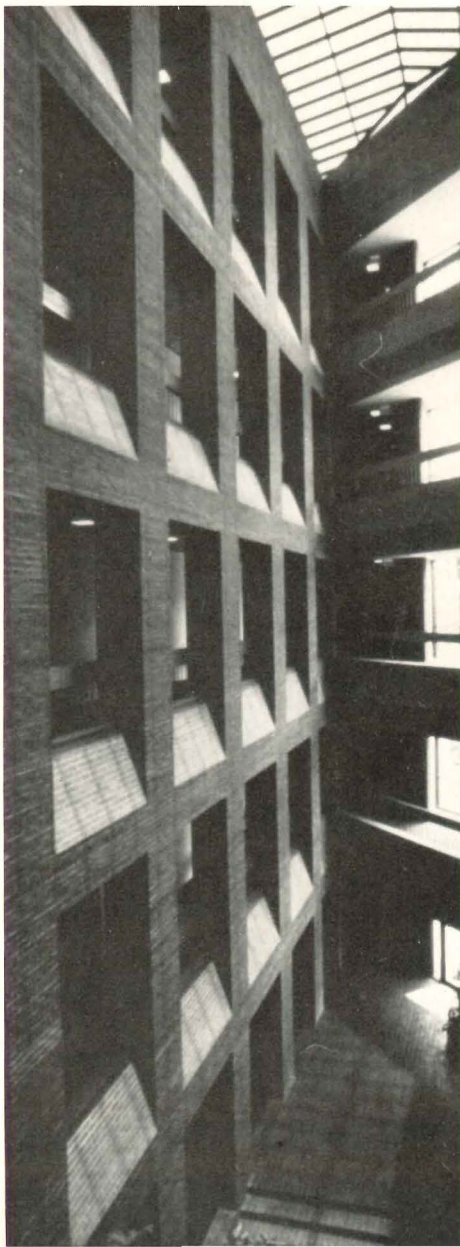
TYPICAL REINFORCING AT WALL OPENINGS



SECTION NORTH WALL

Exterior walls comprise two wythes of modular brick, plus a reinforced grout core, except for the south wall, which has more deeply recessed windows for sun shading. On the other facades the load-bearing walls are 9½-in. thick for the top two stories, and 11-in.-thick for the bottom three stories. Joist bearing was designed to bring gravity loads as close as possible to the center of the walls to avoid eccentricity. Windows are 5-ft wide on the north and south exposures, but only 3-ft wide on the west (see plan, previous page).

In the atrium (photos right, and above, left) reinforced brick beams span between reinforced brick columns (a wythe of brick around a core of reinforced concrete).



he ASHRAE Energy Standard for New Buildings: A Digest

RT TWO

is is the concluding part of the digest, prepared by consulting engineer William Tao of St. Louis. The first part, ıich appeared in the July issue, covered the building envelope, hvac systems and equipment, service water ating, and electrical distribution systems. This part includes a table of envelope thermal factors for buildings major U.S. cities based upon requirements of the standard, and calculated by William Tao. It also includes ondensation of the standard's sections on lighting, alternate energy calculation procedures, and requirements buildings using non-depletable sources of energy (solar, geothermal, wind, etc.).

LIGHTING POWER BUDGET DETERMINATION OCEDURE

eneral—Power budget procedure is not a design procedure. Its purse is solely for determining the maximum power limit for the lighting. The designer should strive to develop the actual lighting system provide an effective and pleasing visual environment and is enuraged to use less power than the limit allows.

ference—The 5th Edition of Illuminating Engineering Society Light Handbook (IES/HB) is used as the source for technical information d calculation procedures.

dget For Building Interiors—shall be calculated from the criteria ven in Table 1.

TABLE I. INTERIOR POWER CALCULATION CRITERIA

	ILLUMINATION (E)	
1	FOR TASK AREA (E_{TA})	From IES/HB Fig.9-80
2	FOR GENERAL AREA (E_{GA})	1/3 E_{TA}, ≮ 20 FC
3	FOR NON-CRITICAL AREA (E_{NCA})	1/9 E_{TA}, ≮ 10 FC
	DETERMINATION OF AREAS	
4	Task Area (TA)	Actual or 50 SF/Sta.
5	Non-Task Area(NTA)	Room Area – TA
6	General Area (GA)	up to TA
7	Non-Critical Area (NCA)	NTA – GA
	MINIMUM LAMP EFFICACIES	
8	Moderate Color Rendition	55 Lm/W
9	Good Color Rendition Required	40 Lm/W
10	High Color Rendition Required	25 Lm/W
11	Space Smaller Than 50 SF	25 Lm/W
12	Where the use of HID Lamps < 250W or Fluorescent Lamps < 40W is appropriate.	25 Lm/W
	MINIMUM COEF. OF UTILIZATION (CU @ RCR = 1)	
13	Task subject to Veiling Reflection	0.55
14	Task not subject to Veiling Reflection	0.63
15	Without specific Tasks	0.70
	MINIMUM REFLECTANCES & LIGHT LOSS FACTOR	
16	Ceiling Cavity Reflectance	0.80
17	Wall Reflectance	0.50
18	Floor Cavity Reflectance	0.20
19	Light Loss Factor (LLF)	0.70

rty Atmosphere—Expected values of reflectances and light loss facs shall be used in power budget calculations for spaces where they e impractical to control.

ilding Areas Exempted—The following building areas are exempted om the power determination procedures:

a) Residences and apartments other than kitchens, bathrooms, laundry areas, and public spaces.
b) Residential type spaces in institutions (hospitals, hotels, churches, museums, etc.).
c) Theater auditoriums, entertainment, audio-visual presentation spaces.

Lamps and Luminaires Exempted
a) For medical and dental purposes
b) For highlighting applications, exhibits, displays
c) Special applications—color matching, electrical interference, etc.

Budget For Building Exteriors—shall be based on the following:
a) Overhead lighting—use same procedure as interior lighting
b) Floodlighting—use beam lumen method and 0.75 as coefficient of beam utilization (CBU)
c) Facade lighting not to exceed 2 per cent of interior power budget.

Lighting Design and Controls
a) Design—consider non-uniform lighting pattern related to task locations, select luminaires with proper distribution pattern, better light-loss factor based on carefully evaluated cleaning and relamping schedule.
b) Controls—capable to reduce illumination by at least one-half when task is not being performed in any task areas greater than 100 sq ft; light in any space must be turned off when not in use or when daylight is adequate.

Guidelines and Forms—are provided to assist the designers to reduce the effort for determining the power budget of a building.
a) Part 1 Building interiors or exteriors—lumen method procedure
b) Part 2 Special task lighting—point calculation procedure
c) Part 3 Building floodlighting—beam-lumen method procedure
d) Part 4 Summary.

Simplified Procedures
a) Spaces with similar size and requirement—only need to be calculated once.
b) Spaces smaller than 150 sq ft may be consolidated into one equivalent large space having equal illumination requirements (using room cavity ratio (RCR) of a square space equivalent to the average space size).
c) Spaces without specific visual tasks—may be consolidated into one

large space using RCR=1, 55Lm/W and 10 FC (or use 0.5W/ft² as power density)

d) Spaces with more than two tasks—may be combined into two equivalent tasks weighted average illumination.

Power Calculations—for the spaces shall be calculated from the following formula:

$$W = \frac{A \times FC}{CU \times LE \times LLF}$$

where W = Lighting power for the space, watts
A = Size of task area, general area, etc., sq ft
FC = Illumination level (E), footcandles
CU = Coefficient of utilization
LE = Lamp efficacy, lumens/watt
LLF = Light loss factor; use 0.70 unless otherwise justified

10. ENERGY REQUIREMENTS FOR BUILDING DESIGN ON SYSTEMS ANALYSIS

Scope—This section is included to provide an opportunity to deviate from the specific standard design criteria of Sections 4 through 9 by demonstrating that such deviations will result in annual energy consumption equal to or less than that resulting from compliance with these criteria. If any proposed alternate design deviates from the specified criteria of Sections 4 through 9, the annual energy consumption of the proposed design shall be compared with the "standard design" using the same heating and cooling energy sources.

Energy Analysis—Annual energy consumed by standard and alternate systems shall be based on same building area and environmental requirements, and shall be of sufficient detail to permit the evaluation of the effect of system design, climate factors, operational characteristics, and mechanical equipment. The calculation shall be based on ASHRAE recommended techniques and procedures for 8,760 hours of operation of the building and its service systems. Detached residential buildings and light commercial structures having the indoor temperature controlled from a single point may use simplified energy ar ysis procedure, such as bin or degree-day methods.

Documentation—Analysis and report shall be made by a registe professional engineer and shall provide sufficient technical detail verify that the alternate system will result in equal or less annual ergy consumption.

11. REQUIREMENTS FOR BUILDINGS UTILIZING SOLAR, GEOTHERMAL, WIND OR OTHER NON-DEPLETING ENERGY SOURCES

General—Non-depletable energy (including nocturnal cooling) s plied to the building shall be excluded from the total energy cha able to the proposed alternative design.

Solar Energy—To qualify for energy exclusion, solar energy must derived from a specific collection, storage, and distribution system passing through windows when the windows are: 1) provided v operable insulating shutters or other devices to limit the maximum values of gross wall (see Table A), and 2) shaded or otherwise p tected from direct solar radiation during cooling periods.

Documentation—The energy savings derived from non-depleta sources and nocturnal cooling, supported by documentation prepa by a registered professional engineer, shall be separately identi from the over-all building energy consumption.

Exceptions—Proposed alternative design for residential and light co mercial structures (less than 20,000 sq ft) that derive a significant p tion (greater than 30 per cent) of their total annual energy consumpt from non-depletable sources shall be exempt from the requireme of a full-year energy system analysis. For other structures that de over 50 per cent of their "annual thermal" requirements (heati cooling, service water heating) or over 30 per cent of their "ann total" energy requirement from non-depletable sources shall be empt from comparing the proposed alternative design to a stand design.

MAXIMUM U_o AND OTTV FOR MAJOR U.S. AND CANADIAN CITIES (*Data from Airport Station)

CITY & STATE	CLIMATIC DATA *		MAXIMUM U_o (Btu/h·ft²·F)						Maximum OTTV (Btu/h·ft²)
			Gross Wall						
	Annual Heating Degree Days	Latitude (Degree North)	Over 3 Stories	3 Stories & Under	1-2 Family Dwelling	Floor Over Unheated Space	Roof & Ceiling		
Anchorage, AK	10,900	61.2	.28	.20	.16	.08	.060	39.4	
Atlanta, GA	3,000	33.7	.41	.33	.27	.19	.100	31.7	
Birmingham, AL	2,600	33.5	.42	.34	.27	.21	.100	31.7	
Bismarck, ND	8,900	46.8	.28	.22	.18	.08	.060	35.4	
Boise, ID	5,800	43.5	.34	.28	.22	.08	.077	34.5	
Boston, MA	5,600	42.3	.34	.28	.23	.08	.079	34.2	
Burlington, VT	8,300	44.5	.28	.23	.19	.08	.060	34.8	
Charleston, SC	2,000	32.8	.43	.35	.28	.26	.100	31.5	
Chicago, IL	6,600	42.0	.31	.27	.21	.08	.071	34.1	
Dallas, TX	2,400	32.5	.42	.35	.27	.23	.100	31.4	
Denver, CO	6,300	39.8	.32	.27	.21	.08	.073	33.5	
Des Moines, IA	6,600	41.5	.31	.27	.21	.08	.071	33.9	
Detroit, MI	6,200	42.3	.33	.27	.22	.08	.074	34.1	
El Paso, TX	2,700	31.8	.41	.34	.27	.21	.100	31.2	
Fairbanks, AK	14,300	64.8	.28	.20	.16	.08	.060	40.5	
Great Falls, MT	7,800	47.5	.29	.24	.19	.08	.061	35.6	
Honolulu, HI	0	21.3	.48	.39	.31	.40	.100	28.3	
Houston, TX	1,400	29.7	.45	.36	.29	.30	.100	30.6	
Indianapolis, IN	5,700	39.4	.34	.28	.22	.08	.078	35.3	
Jacksonville, FL	1,200	30.5	.45	.37	.29	.31	.100	30.9	
Lincoln, NE	5,900	40.8	.33	.28	.22	.08	.077	35.7	
Los Angeles, CA	2,100	34.0	.43	.35	.28	.25	.100	31.3	
Memphis, TN	3,200	35.0	.40	.33	.26	.17	.098	32.1	
Miami, FL	200	25.8	.48	.39	.30	.38	.100	29.5	
Milwaukee, WI	7,600	43.0	.29	.25	.20	.08	.063	34.4	
Minneapolis, MN	8,400	44.8	.28	.23	.18	.08	.060	34.9	
Montreal, Quebec	8,200	45.5	.28	.23	.19	.08	.060	35.0	
New Orleans, LA	1,400	30.0	.45	.36	.29	.30	.100	30.7	
New York, NY	5,200	40.7	.35	.29	.23	.08	.082	33.7	
Oklahoma City,OK	3,700	35.3	.39	.32	.25	.14	.094	32.2	
Philadelphia, PA	5,100	39.8	.35	.29	.23	.08	.083	33.5	
Phoenix, AZ	1,800	33.5	.44	.36	.28	.27	.100	31.7	
Portland, ME	7,500	43 7	.29	.25	.20	.08	.064	34.5	
Richmond, VA	3,900	37.5	.39	.32	.25	.12	.093	32.8	
Salt Lake City, UT	6,100	40.8	.33	.28	.22	.08	.075	33.7	
San Francisco, CA	3,000	37.7	.41	.33	.27	.19	.100	30.7	
Seattle, WA	4,400	43.5	.37	.31	.24	.09	.088	34.5	
Sheridan, WY	7,700	44.8	.29	.24	.20	.08	.062	34.9	
Sioux Falls, SD	7,800	43.7	.29	.24	.19	.08	.061	34.5	
St. Louis, MO	4,900	38.8	.36	.30	.24	.08	.084	33.1	
Tampa, FL	700	28.0	.47	.38	.30	.35	.100	30.1	
Toronto, Ontario	6,800	43.7	.31	.26	.21	.08	.069	34.5	
Vancouver, B.C.	5,500	49.2	.34	.29	.23	.08	.080	37.7	
Wichita, KS	4,600	37.7	.37	.30	.24	.08	.087	35.2	

$$U_o = \frac{U_{wall}A_{wall} + U_{window}A_{window} + U_{door}A_{door}}{A_o}$$

where
U_o = the average thermal transmittance of the gross wall area. Btu/h • ft² • F
A_o = the gross area of exterior walls, ft²

$$OTTV = \frac{(U_w \times A_w \times TD_{EQ}) + (A_f \times SF \times SC) + (U_f \times A_f \times T)}{A_o}$$

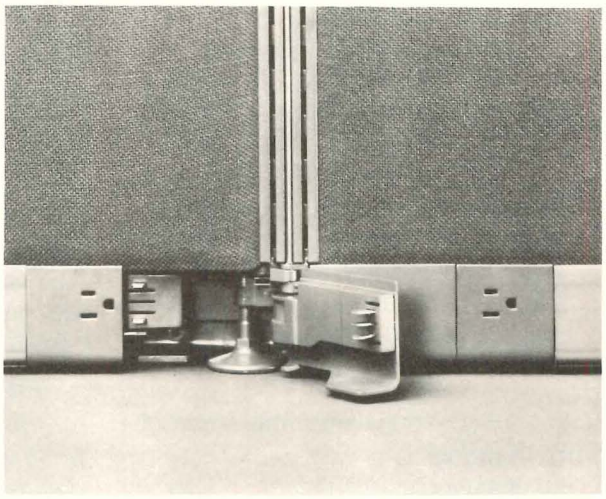
OTTV = over-all thermal transfer value
where
U_w = the thermal transmittance of all elements of the opaque wall area Btu/h • ft² • F
A_w = opaque wall area, ft²
U_f = the thermal transmittance of the fenestration area Btu/h • ft² • F
A_f = fenestration area, ft²
TD_{EQ} = a temperature value varying from 23 F to 44 F depending upon the mass of the construction
SC = shading coefficient of the fenestration
T = temperature difference between exterior and inte design conditions
SF = solar factor value given in Btu/h • ft²
A_o = gross area of exterior walls, ft²

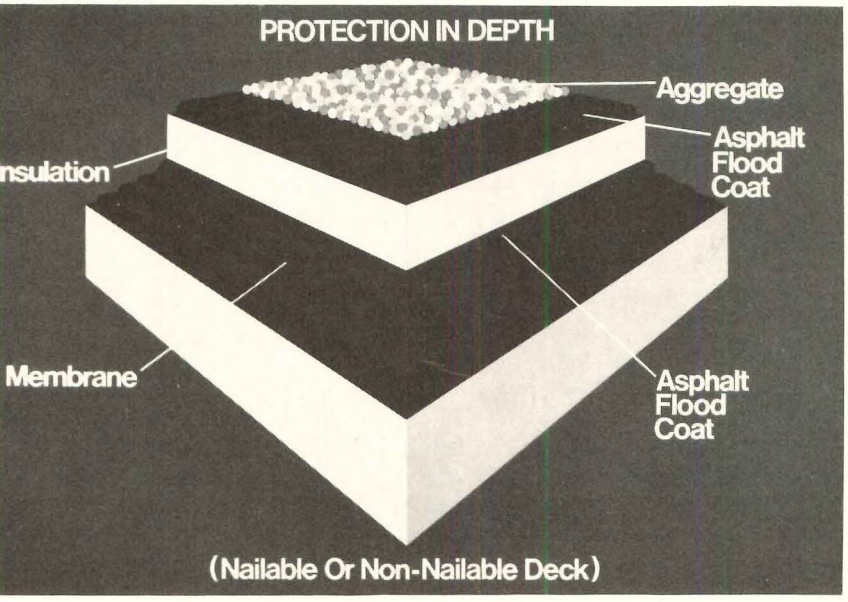
e information, circle item numbers on Service Inquiry Card, pages 205-206.

Prewired panels carry power, communications

"ERA-1" is a panel system prewired for power to supply individual work stations with electricity. Raceways built into the base of the panels are connected with each other by power connectors that snap into place. Each panel offers four outlets. The system connects to existing fixed wiring via telescoping aluminum raceways to the plenum, or simple base feed connections to wiring in any lay-in floor grid system, peripheral walls or building columns. These wired steel panels integrate with the company's *UniGroup* office interiors system. ERA-1 panels come straight or curved, in 1-, 2-, 3-, 4- and 5-ft widths, in heights from 42 to 80 in. Various finishes are offered. ▪ Haworth, Inc., Holland, Mich.

Circle 300 on inquiry card





erted" roofing places membrane underneath urethane insulation

y component of this "in- roofing system for com- applications is "Temp- a glass reinforced ure- core roofing insulation hat affords dimensional . A major advantage of hek in combination with d application methods d protection for the roofing membrane. The insulation boards placed above the membrane protect it against rapid temperature changes, extreme climatic conditions, abrasion, blistering and accidental puncture. When applied on steel decks with an underlayment of ½-in.-thick fire-rated Type-X gypsum board, the system qualifies for an FM class I-90 fire rating with 90-lb wind uplift resistance as well as UL Construction No. 99. Inverted roofing specifications for wood, concrete and steel decks are described in a 20-page manual. The system is especially recommended for reroofing applications. ▪ The Celotex Corp., Tampa, Fla.

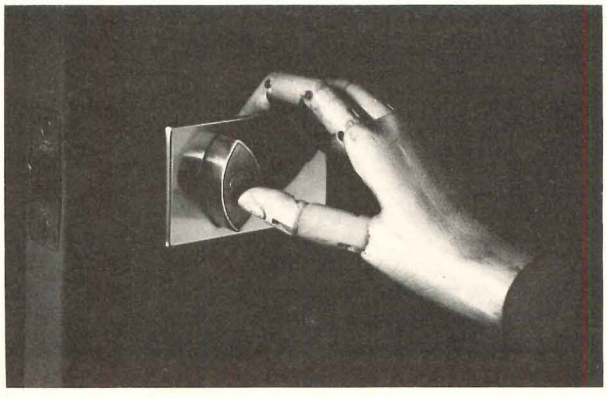
Circle 302 on inquiry card

more products on page 152

Pushbutton lockset operates like car door

The "Webster" lockset action is similar to that of a car door, and the push-button is said to be easily operated. The latch and handle are die-cast zinc alloy; the latchbolt is high tensile brass; and the spring is stainless steel, with phosphor bronze bearing surfaces for the internal moving parts. The satin chrome-plated finish on a plated base is said to withstand extreme atmospheres. Providing bolt-through assembly, the lockset is suitable for doors from 1¼ to 1¾ in. thick. ▪ The Ironmonger, Chicago.

Circle 301 on inquiry card



Now, Computerized Building Automation at an Affordable Price.

In the past, when you suggested computerized automation for a client's building, you may have gotten responses like these: "Sounds great, but I can't afford all that. What do you think I am, a finance company? Tell it to the Pentagon." Today your answer can be forthright and simple:

Tell him Johnson Controls computerization, in new and existing buildings from 15,000 to 500,000 square feet, averaged *only 51¢ a square foot* last year.

Fifty-one cents! It comes to a lower total cost than he usually pays for exterior lighting, or landscaping, or carpeting the corridors.

Fifty-one cents—for the computer, the control center, and the building-wide multiplex wiring—out of an average building cost of $20 to $60 a square foot!

How the JC/80 Computer System Cuts First Costs

The JC/80 is the computer built for buildings only. It's not designed to reserve flights, or mail bills, or figure compound interest. Its sole purpose is to monitor and control building automation systems. The JC/80 system cuts first costs because the *same* computer, the *same* control center, the *same* multiplex wiring are used to monitor and control HVAC, humidification, firesafety, security, communications, lighting and clock systems. What's more, with or without input/output devices, it can monitor and control three, four, five or more buildings *all* from a single location.

Even more impressive are the *ongoing* savings the JC/80 delivers year-in and year-out. In the average installation, the JC/80 pays for itself in less than three years!

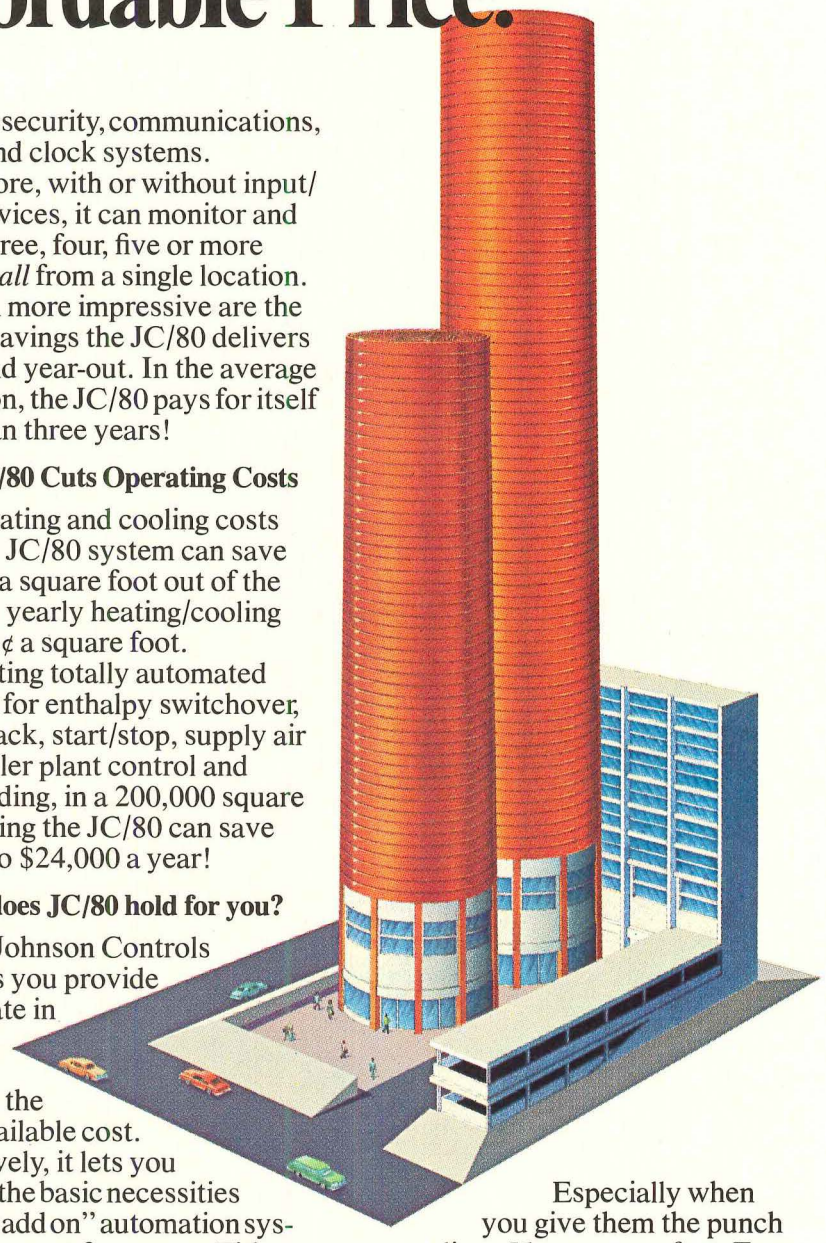
How JC/80 Cuts Operating Costs

In heating and cooling costs alone, the JC/80 system can save 8¢ to 12¢ a square foot out of the estimated yearly heating/cooling cost of 36¢ a square foot. By activating totally automated programs for enthalpy switchover, nite set-back, start/stop, supply air reset, chiller plant control and load shedding, in a 200,000 square foot building the JC/80 can save $16,000 to $24,000 a year!

What does JC/80 hold for you?

The Johnson Controls JC/80 lets you provide the ultimate in esoteric building control at the lowest available cost. Alternatively, it lets you start with the basic necessities and then "add on" automation systems in the next few years. Either way the JC/80 gives you a cost-saleable design. And Johnson Controls backs you up with one-source supply, one-source responsibility, and the expertise that has commissioned more than half the computerized automation systems in U.S. buildings.

Owners want what computerized building automation can do, and they're prepared to pay for it.



Especially when you give them the punch line: *51¢ a square foot*. For more information call your local Johnson Controls office. And send for Johnson Controls 12-page booklet, *"JC/80 Computerized Building Automation."* Write R.J. Caffrey, Vice President-Marketing, Systems & Services Division, Johnson Controls, Inc., Reference M-2, P.O. Box 423, Milwaukee, Wisconsin 53201.

JOHNSON CONTROLS

Prime source of problem-solving systems.

For more data, circle 73 on inquiry card

ıore information, circle item numbers on
'er Service Inquiry Card, pages 205-206.

SET FIXTURES / The "All-a-Round" circular ıing rack is available in either manually-ated or motor driven models, both with a hed rack 7-ft 4-in. in circumference. An illus-d brochure gives dimensions and design features ıese space-saving units for residential installa-. ▪ All Enterprises, Petoskey, Mich.

Circle 400 on inquiry card

NAGE GUIDE / Five different plastic materials in sign construction, including the company's *iglas* and *Tuffak,* have been rated as to weath-ility, impact resistance, stiffness, thermoforma-, thermal expansion and contraction, and paint ɔration. A 16-page booklet presents manufac-'s' data. ▪ Rohm and Haas Co., Philadelphia,

Circle 401 on inquiry card

ATING/GRID PRODUCTS / Heavy-duty metal and grating installations are shown in an eight-e brochure. The material details capabilities for engineering, manufacturing, fabricating to ct dimensions, and jobsite delivery for a com-e line of steel, aluminum and stainless steel prod-. ▪ Keene Corp., Building Products Div., Santa prings, Calif.

Circle 402 on inquiry card

FFIC DOORS / Full-color illustrations show y types of high-traffic doors, including impact, sparent strip and sliding units. An eight-page se-on brochure also shows controls and operators, contains a doorway evaluation form. ▪ W. B. Guire Co., Inc., Hudson, N.Y.

Circle 403 on inquiry card

SONRY CLEANING / Heavy-duty cleaning of ding exteriors, including brick, concrete, natural recast stone, is one of the services offered by the *MAC* maintenance system. Specialized treat-ıts remove excess mortar, lime stains and efflore-ıce from new masonry surfaces. An illustrated kit s details. ▪ Sermac Surface Maintenance Sys-s, Downers Grove, Ill.

Circle 404 on inquiry card

NCRETE ADMIXTURES / Three basic types of *zolith* concrete additives are explained in a 12-e catalog. The compounds are intended to im-ve workability, increase concrete strength, con-setting time, etc. ▪ Master Builders, Cleveland, o.

Circle 405 on inquiry card

ALTH CARE EQUIPMENT / A complete line of th care equipment and services is described in 4-page buyer's guide. Among the 10 product gories covered are: sterilizing products and sys-s; water processing equipment; material han-g systems and nursing care items. ▪ AMSCO/ erician Sterilizer Co., Erie, Pa.

Circle 406 on inquiry card

NDBALL/SQUASH COURTS / Proprietary cifications for the *Ballwall* wall and ceiling sys-for handball, racquetball and squash courts are en in a four-page form. Included is a general de-ption of the courts and their components; base, rmediate and final finishes are also detailed. inestone Corp., Detroit, Mich.

Circle 407 on inquiry card

T WASHERS / A three-model line of institutional hen pot washers meeting NSF standards is de-bed in an illustrated brochure. ▪ Metalwash chinery Corp., Elizabeth, N.J.

Circle 408 on inquiry card

AIR CONDITIONING UNITS / Installed cost savings of 15 per cent or more are claimed for the *Seasonmaker* line of fan coil air conditioners, which can be stacked up to 40 units high on a single water riser. A six-page folder describes the units, all of which feature factory-installed thermostat and wiring. ▪ McQuay Group, McQuay-Perfex Inc., Minneapolis, Minn.

Circle 409 on inquiry card

MOVABLE WALL SYSTEMS / Engineering and design features of the *Trackwall* acoustic movable wall systems are discussed in an eight-page brochure. Data on the walls' noise-reduction performance and ease of operation—even when installed 300 ft long by 43 ft high—is given, as well as solutions to multiple ceiling elevation problems. ▪ Industrial Acoustics Co., Inc., Bronx, N.Y.

Circle 410 on inquiry card

PUBLIC SEATING / Basic data on neoprene cushioning foam and its performance in FM-conducted flammability tests are covered in an illustrated brochure on the synthetic rubber product's properties and applications. ▪ E. I. Du Pont de Nemours & Co., New York City.

Circle 411 on inquiry card

STAINED GLASS RESTORATION / Deteriorating, drafty stained glass windows can be restored and protected—with no cutting down of original glass—using the methods outlined on this color brochure, according to the company. With the custom installation of *Thermo-Barrier* exterior sash and glazing, stained glass windows can have excellent thermal and acoustical properties. Vandalproof polycarbonate sheet can be used in these installations, according to the company. ▪ DeVac, Inc., Minneapolis, Minn.

Cirlce 412 on inquiry card

FLOODLIGHTS / A full-color brochure describes the cylindrical styling and rated optical performance of *Vectorflood* high-efficiency architectural HID floodlights. Charts and graphs demonstrate how the lens and reflector produce highly accurate beam patterns using a variety of lamps. The unit is UL-listed and "suitable for wet locations." ▪ Holophane Div., Johns-Manville, Denver, Colo.

Circle 413 on inquiry card

WATER COOLERS / A new color catalog features 13 water coolers for a variety of applications, including wheel chair units and explosion-proof models for hazardous locations. Data is also given on all the coolers in the manufacturers' line ▪ Sunroc Corp., Glen Riddle, Pa.

Circle 414 on inquiry card

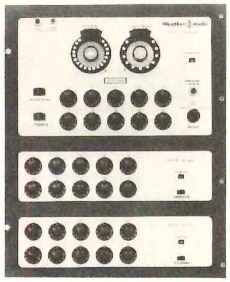
PIPE RAILINGS / A non-welded pipe railing system with aluminum and stainless steel components is described in a 16-page catalog. Properly installed *Connectorail* barriers meet or exceed OSHA requirements; assembly is accomplished by concealed mechanical fasteners and structural adhesives. ▪ Julius Blum & Co., Inc., Carlstadt, N.J.

Circle 415 on inquiry card

VIBRATION-DAMPING MAT / *Damp-R-Mat* is a lamination of polyurethane outer sheets and a laminated fiber glass core; integral suction cups help hold machines and equipment in place. A bulletin shows how the mats can eliminate up to 90 per cent of the vibration of office machines, computers, testing devices, etc., and deaden sound to help meet OSHA requirements. ▪ Liasson International Inc., Springfield, Ohio.

Circle 416 on inquiry card

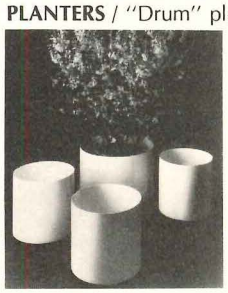
IRRIGATION SPRINKLER CONTROLLER / The



solid-state *SSM* controller for landscape irrigation installations comes with 10, 20, or 30 stations; 10-station modules can be added at will. Features include variable timing; alternate-day, repeat cycle and calendar programming; dry indexing mode; and automatic, semi-automatic or manual operations. Power requirements are 155 VAC at 60 Hz; other power inputs are available as options. ▪ Weather-matic Div., Telsco Industries, Dallas, Tex.

Circle 303 on inquiry card

PLANTERS / "Drum" planters have recessed casters

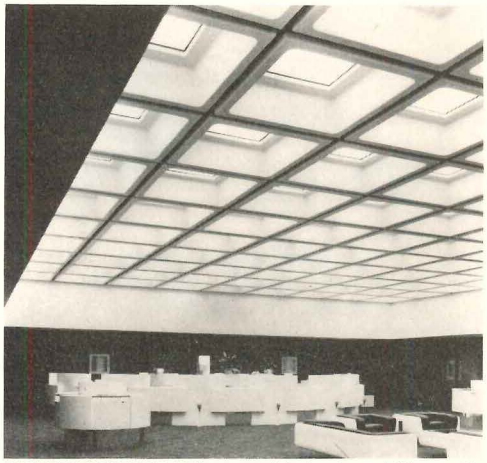


for easier maintenance and mobility in turning and re-arranging plants. The one-piece tubs are molded of high impact ABS plastic; they come in 15¾-in. and 23½-in. diameters, 14-in.-high, and are available in a choice of red, black, white or brown. ▪ Architectural Supplements Inc., New York City.

Circle 304 on inquiry card

PENDANT LIGHTING / Heavy-gauge spun aluminum forms a 14-in.-dia cylinder 13¼-in.-deep for this "Habitat" #37131 pendant lighting fixture. The matte white inner surface provides good reflectance for a 300-watt lamp. Outer finishes include polished chrome or brass; satin bronze; and white, black, or "wet" red. ▪ Habitat Inc., New York City.

Circle 305 on inquiry card



COFFER CEILING / These molded mineral-fiber ceiling modules offer design flexibility for both interior and exterior commercial building applications. *Versa-Tile* ceilings are strong enough to support lighting fixtures, and readily incorporate air-handling and sprinkler systems. The lightweight units are available in standard or custom configurations of many different shapes, textures and colors; all are said to be flame- and moisture-resistant. ▪ Holophane Div., Johns-Manville Sales Corp., Denver, Colo.

Circle 306 on inquiry card

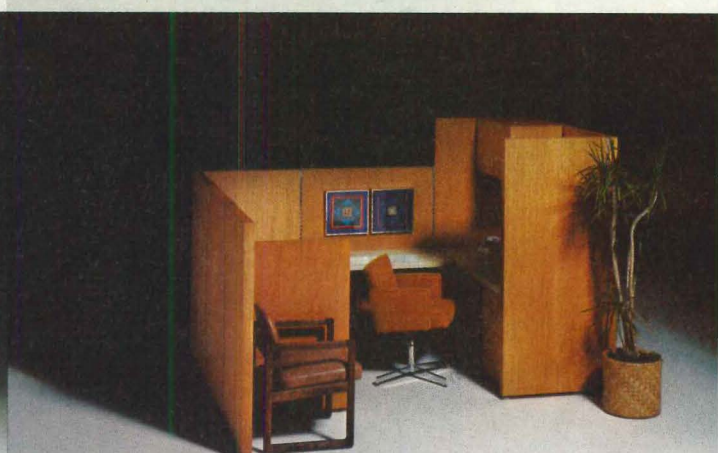
more products on page 155

Alma introduces Ad-Infinitum. Designed for the climb to the top

The Receptionist requires just enough work surface and storage space to do an efficient day's job. And Ad-Infinitum offers it. Handsomely.

The Secretary needs more work space, and plenty of storage sp for files. So she gets a pleasant work station designed specifica for the job.

The Accounting Clerk, working with computer printouts and reams of materials, needs additional storage room. And panels to keep machine noise level down.



The Sales Manager requires extra storage space for departme records, so a panel-mounted cabinet is added. And a visitor's cha interviews.

The Executive Vice President, with lots of paperwork to do, needs an office with more work surface to do it on, and more room and more privacy to do it in.

The President deserves an office befitting his position. An Ad-Infinitum gives him one that underlines his image as the at the top of the corporate ladder.

Now, after years of research into the strengths and weaknesses of pioneer open office systems and the requirements of modern bus Alma presents Ad-Infinitum. An illuminated open plan office system that lets you start with any budget, any space, and create an offic meets today's needs and tomorrow's requirements; an office that provides customized work space for every level of the corporate l

Designed by ISD, engineered by Alma Desk, and shown for the first time at NEOCON '76, Ad-Infinitum may be seen at our showrooms in Chicago, New York, and High Point. See it there. Or write for more information to Alma Desk Company, P.O. Box 2250, Dept. 41, High Point, N.C. 27261.

Then create the ultimate office with Ad-Infinitum.

alm

Alma Desk Cor

Showrooms: 280 Park Avenue, New York; 1140 Merchandise Mart Plaza, Chicago; Southern Furniture Exposition Building, High

NASIUM FLOORING / The "GymTech" floor-

ing system combines a hard-wearing surface necessary for multi-purpose use (even roller skating) with a cushioned cellular foam underlayment to absorb shocks of sport activities. The floor itself is formed of 12-in.-sq ⅝-in.- tiles of high-resin particle board, interlocked a tongue-and-groove edge; no structural clips steners are needed. "GymTech" floors can be lled over a variety of substrates. ▪ ARCO mical Co., Philadelphia, Pa.

Circle 307 on inquiry card

DAL-RESISTANT FOUNTAIN / Designed to

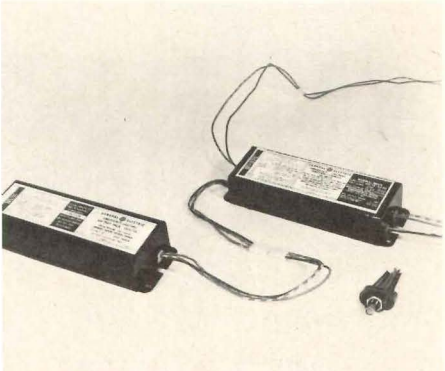
offer maximum protection against vandalism and abuse, "Model 35" pedestal drinking fountain is constructed of 10-gauge rolled steel finished in scratch-resistant green epoxy. The bubbler is shielded by ¼-in. plate steel, and the push button e is concealed inside the sleeving. Access panel tted with vandal-proof screws. The 36-in.-high tain is suitable for playgrounds, parks, golf rses, and other areas of heavy use. ▪ Western king Fountains, Glen Riddle, Pa.

Circle 308 on inquiry card

MPUTER ROOM AC / Glycol-cooled computer

room air conditioners of from 3 to 15 nominal tons capacity, have been added to this manufacturer's line of air-, water-, and chilled-water units. The glycol-cooled system includes an in-room air ditioner, and a dry cooler on the roof. The fac--sealed and tested refrigeration unit is a closed- system, with no restrictions on the length of pip- uns. Low ambient start and operation is possible n to −35°F. ▪ The Trane Co., La Crosse, Wis.

Circle 309 on inquiry card

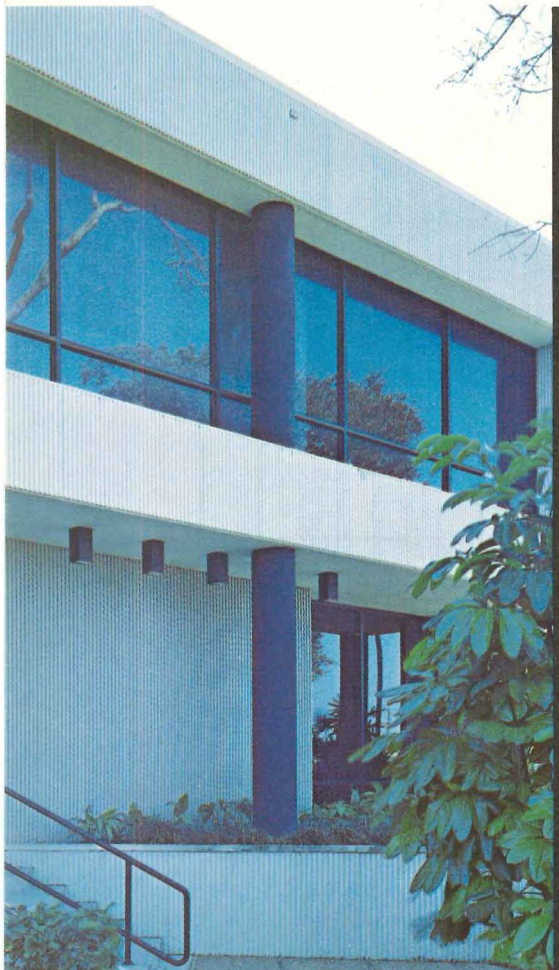


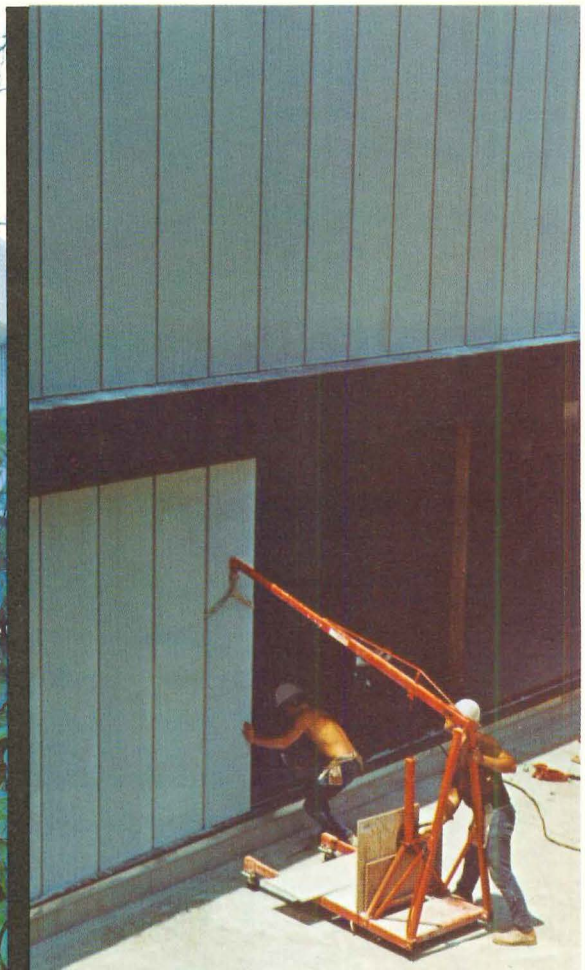
RGENCY LIGHTING / This battery-powered converts a 4-, 6-, or 8-ft *Slimline* fluorescent in--start fixture into a UL-listed emergency light. wired components are said to make installation asy as ballast replacement; the nickle-cadmium ry-operated device fits into the fixture chan- ▪ General Electric Co., Danville, Ill.

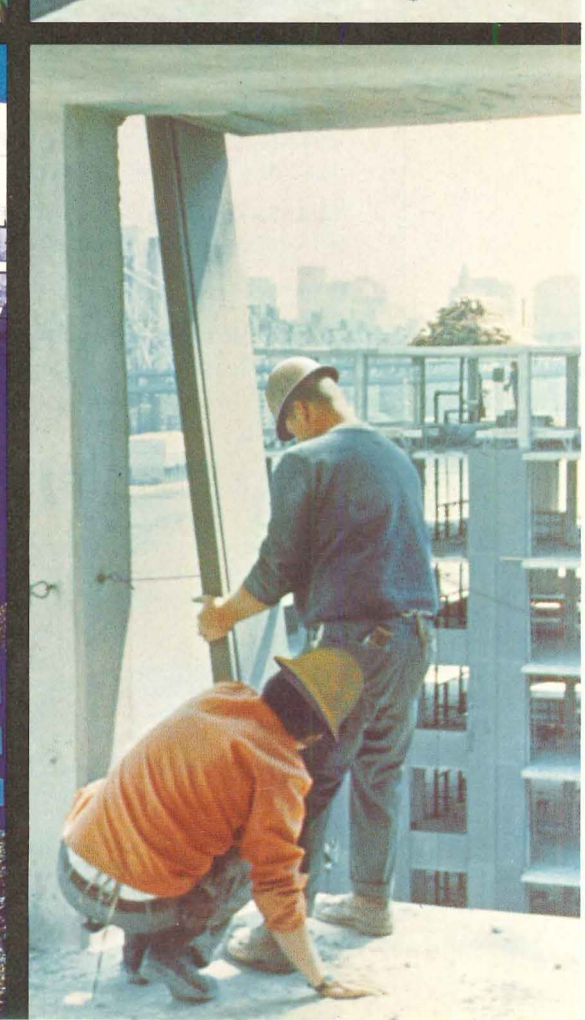
Circle 310 on inquiry card

more products on page 163

Save time and money with this J-M exclusive.. a lightweight, durable, long-span masonry wall system that's easy to install.







J-M is in the masonry wall business. In a very beautiful and practical wa

With J-M Corspan®...an exclusive thru-wall system that combines desig freedom and long life with ease of installation.

That gives the desirable and massiv look of masonry without the massive weight.

J-M Corspan is an extruded masonr panel manufactured in a wide variety of configurations, textures and colors

It can be used as a complete wall fo an entire structure of any size or height.

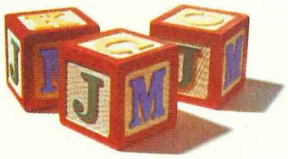
It offers great strength without great weight. Ease of handling. Carefree beauty. Versatility of shape and texture.

Corspan can be installed quickly and easily to steel or concrete framing using positive mechanical attachmen It can be used for unsupported vertica spans up to 20′.

It can be installed from the floor of the structure without the need and expense of scaffolding.

And Corspan's unique features have inspired its use in many ways impossib with conventional masonry materials

Find out more about Corspan. Write for brochures BSD-2A, BSD-5A and BSD-6A giving descriptive information test data, and installation details, to Johns-Manville, Greenwood Plaza, Denver, Colorado 80217.
Or call Dave Lucy, 303/770-1000.



We've got better building systen

Johns-Manville

For more data, circle 77 on inquiry card

Why steel is the material others are compared to!

When toilet partition materials are talked about, comparisons are inevitably made to steel . . . comparisons in performance, availability, design, colors *and* price.

Why? Because steel partitions have proven their value over decades of use . . . in all types of structures with a wide range of problems. Problems that include design criteria for traffic, resistance to vandals, fire, humidity, stains, scratches and effects of intensive rest room cleaning procedures. Bridgecore insulation in panels, pilasters and doors provide low sound transmission.

STEEL IS STRONG! Steel pilasters, panels and doors provide support strength and rigidity unmatched by other materials. Steel will not warp or burn . . . steel "Stands Up".

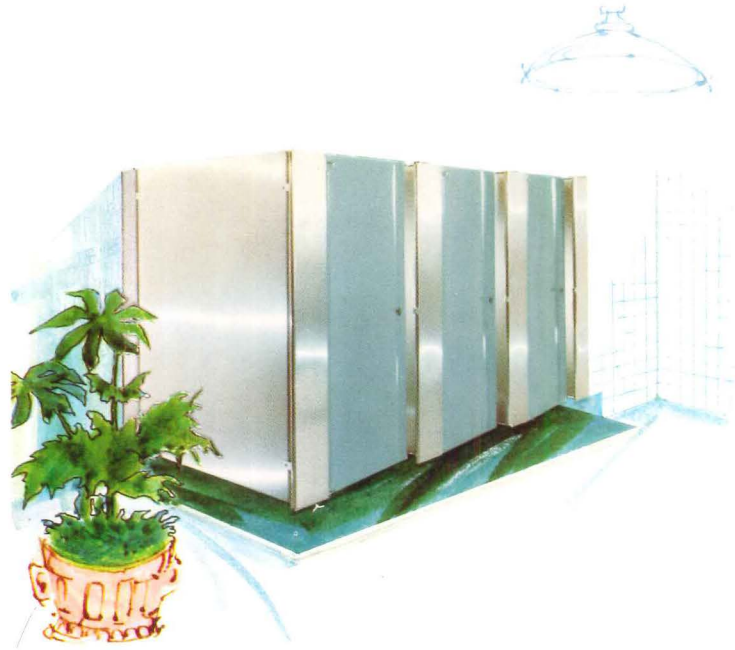
STEEL IS VERSATILE . . . in design and colors, and — it's available in finishes to meet your specific needs; baked acrylic finish that resists cigarette burns, stains, common acids and caustics, while meeting rigid budget requirements. Porcelain on steel for ultimate corrosion resistance . . . glass hard surface fused to steel and stainless steel trim, add up to ultimate resistance to acids, scratches, stains and effects of heavy use. 302 Stainless Steel . . . jewel-like in appearance with lifetimes of strength and beauty. And for the "luxury look", vinyl bonded to steel to provide texture and color.

STYLES? Only steel can offer *all* styles: Wall supported partitions to provide easy cleaning and greater design flexibility. Head-rail and floor supported "Academy" for new or old buildings, ceiling-hung "Century" for clear floor areas and "Normandie" floor supported units.

VERY IMPORTANT! Consider the construction and hardware. Sanymetal hinges are smooth, flush, integral to the pilasters and doors . . . no exposed bolts or screws — easy cleaning, strong and proven through *millions* of swings. Concealed latches are recessed, pilaster bases are extra strong with one piece stainless steel shoes, corners are welded for strength and smoothness.

These are just some of the reasons steel is a "standard" for comparison . . . it's the "standard" too, for *value* . . . in-place cost versus in-place performance.

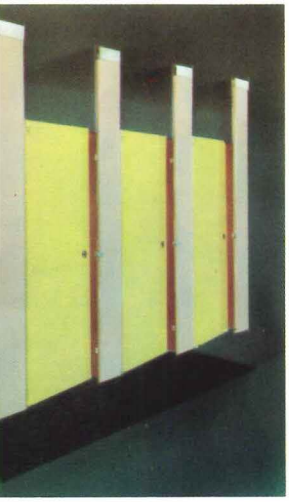
For functional and design disciplines that do not require all the attributes of steel . . . consider Sanyplastic (high-pressure laminate) or Sanymetal Mela-Mate — the new, fast-cycle melamine surface in wood grains and contemporary colors.

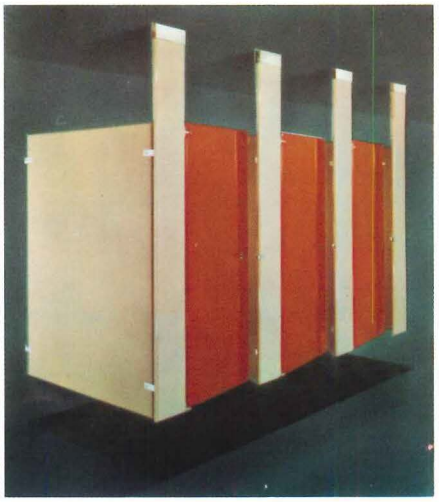


Sanymetals

THE Sanymetal® PRODUCTS COMPANY, INC

1701 URBANA ROAD, CLEVELAND, OHIO 44112





Announcing Grinnell's new Quick Response Actuator.

It speeds sprinkler reaction time up to 75%.

Our new Quick Response Actuator, in combination with our Duraspeed Sprinkler,controls and puts out fires faster.

There's less chance of fatalities, less chance of injuries, less property loss.

The Quick Response Actuator offers excellent life-safety benefits in nursing homes, hospitals, hotels, condominiums, apartments and similar buildings where it may be difficult to evacuate occupants.

It also offers superior protection for high-value equipment and inventories wherever flammable materials present the potential for flash fires.

Under typical approval test conditions, a sprinkler with the new Quick Response Actuator activated in just 30 seconds compared to 115 seconds for a standard sprinkler without it.

The UL-listed actuator installs easily onto our new Horizontal Sidewall Extended Coverage Sprinkler (which gives you twice as much coverage as a standard sprinkler) and our Pendent and Sidewall Sprinklers.

You can order the unit as original equipment or it can be retrofitted into existing Duraspeed installations.

For information contact your nearest Grinnell representative listed in the Yellow Pages. Or write: Grinnell Fire Protection Systems Company, Inc., 10 Dorrance Street, Providence, Rhode Island 02903.

New Quick Response Actuator installs on these Grinnell Duraspeed models:

Pendent Sprinkler

Sidewall Extended Coverage Sprinkler

Standard Horizontal Sidewall Sprinkler

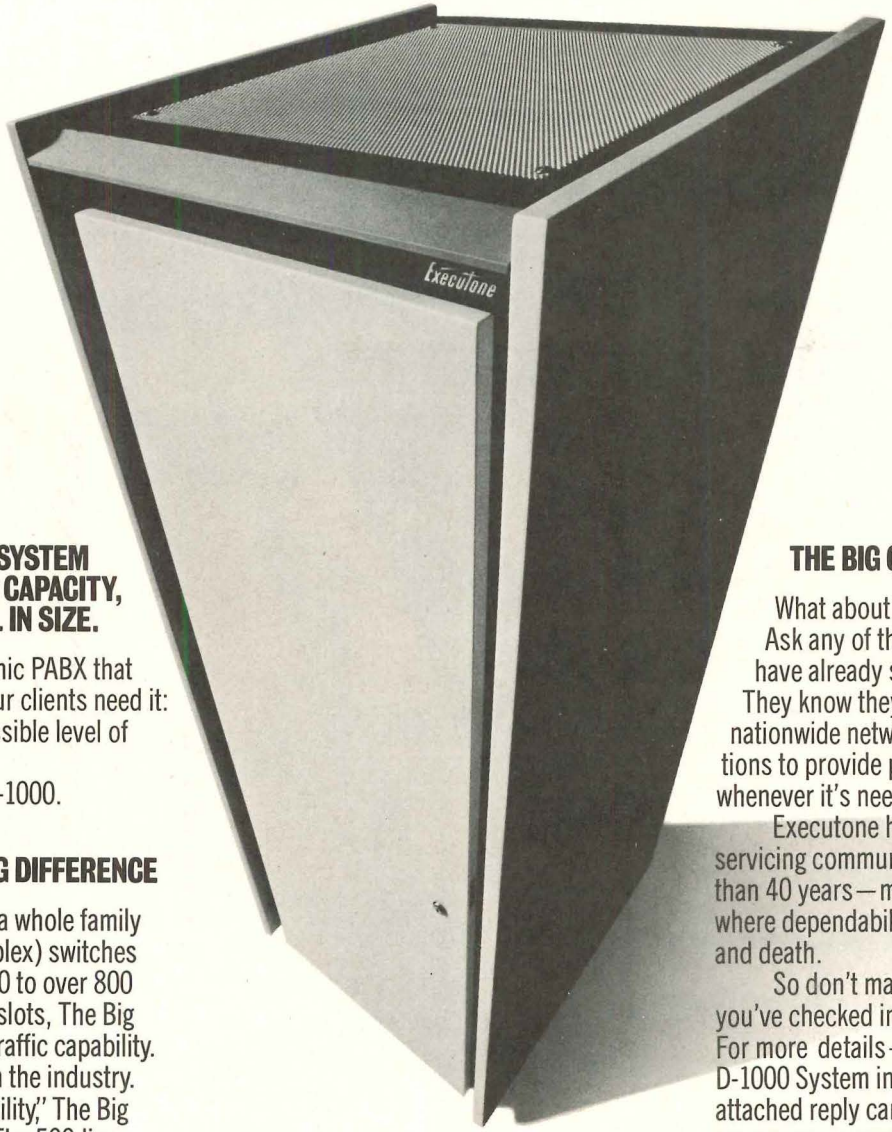
GRINNELL

Grinnell Fire Protection Systems Company, Inc.
Protecting Life and Property Since 1850.

For more data, circle 79 on inquiry card

For more data, circle 78 on inquiry card

THE BIG SWITCH BY EXECUTONE



OUR NEW D-1000 PHONE SYSTEM IS BIG IN CALL-HANDLING CAPACITY, YET REMARKABLY SMALL IN SIZE.

Now there's an electronic PABX that puts the emphasis where your clients need it: on delivering the highest possible level of usable telephone capability.

It's Executone's new D-1000.

The Big Switch.

TRAFFIC-ABILITY: THE BIG DIFFERENCE

The D-1000 is actually a whole family of TDM (Time Division Multiplex) switches that handle anywhere from 40 to over 800 lines. By providing 140 time slots, The Big Switch delivers exceptional traffic capability. In many cases, the highest in the industry.

Yet for all this "traffic-ability," The Big Switch is remarkably small. The 500-line switch, for example, occupies a mere 4-1/2 square feet of floor space.

SIMPLICITY: THAT'S A SWITCH

The D-1000 is exceptionally easy to use. Its outstanding array of features are accessed by pushing a single button or dialing a single digit. No complex operations, no codes to remember. Because all the time-saving convenience features in the world won't help if people steer clear of them after cut-over day.

You get the D-1000's unmatched ease of operation and efficiency with any standard two-wire phone. And Executone has designed a special D-1000 phone to help users take even greater advantage of the system's unique capabilities.

Likewise, the D-1000 offers the most compact and easy-to-use attendant console ever offered in a PABX. Easy-to-read LED displays give the attendant optimum information to handle a high volume of calls quickly and accurately.

FEATURES: THE BIG BENEFITS

The D-1000 offers all the features you'd expect in a stored program electronic switch.

For example: Call Forwarding; Flexible Conferencing for up to 10 parties both inside and outside; Call Pick-Up; and probably the most appreciated anti-frustration feature of all, Automatic Call Back.

Plus additional features you might not expect. Such as fast, convenient Hands-Free Operation. And Locate/Meet-Me, a feature that solves the number one communications problem: "You can't talk with them until you find them."

THE BIG QUESTION

What about service?

Ask any of the more than 200 users who have already switched to The Big Switch. They know they can count on Executone's nationwide network of local service organizations to provide prompt, efficient maintenance whenever it's needed.

Executone has been installing and servicing communications systems for more than 40 years—many of them in hospitals, where dependability can be a matter of life and death.

So don't make your big switch until you've checked into Executone's Big Switch. For more details—or a demonstration of the D-1000 System in action—just mail the attached reply card.

Executone

The world's most advanced business phone systems.

Dept. B-6, 29-10 Thomson Ave., Long Island City, N.Y. 11101

Create seemingly seamless buildings. That's the beauty of designing with Dow Corning® 790 building sealant.

Now you can design the buildings of your dreams, with fewer, narrower joints—for endless expanses of wall.

While most sealants are designed to accommodate joint movement of ±12½% to ±25%, Dow Corning 790 sealant allows design freedom because of its ±50% movement capability without affecting adhesion or cohesion. Use 790 on ±25% joint designs, and rest easy. Its increased capabilities give you an extra margin of safety.

Buildings sealed with 790 remain weatherproof, watertight and maintenance free. For twenty years or more.

Application? Fast and easy. 790 is ready to use. Less material required, less time, labor and expense. No primer needed on most substrates, no job delays or costly callbacks. For design freedom, beauty and practicality, Dow Corning 790 sealant is a dream come true.

Start your dream today; write for more information to: Dow Corning, Dept. 6400A, Midland, Michigan 48640.

DOW CORNING

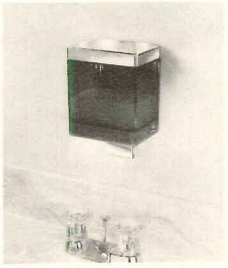
DOW CORNING

For more data, circle 81 on inquiry card

HIGH-SECURITY MAILBOXES / These heavy-duty horizontal boxes are designed to withstand rigorous abuse and break-ins. When the door is closed, the hinge is neither visible nor accessible; tensile steel latchpins within steel bushings secure top, bottom, and side of door to the box frame. Boxes are made in a single rigid row; compartment locks are non-corrosive five-pin tumber cylinder type, with 1000 key changes available. ▪ American Device Mfg. Co., Steeleville, Ill.

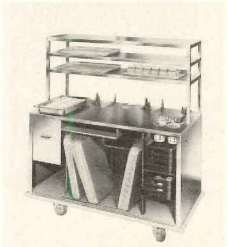
Circle 311 on inquiry card

LIQUID SOAP DISPENSER / The *Visionmaster* dispenser features a non-corroding internal positive displacement pump, said to prevent dripping and soap build-up. The transparent gray, impact-resistant *Lustran* reservoir holds one litre of liquid soap; prepackaged refill cartridges come in ½-litre sizes. The key-locking top is chrome-plated; the pump handle is aluminum. The unit carries a lifetime guarantee. ▪ Steiner Co., Chicago, Ill.



Circle 312 on inquiry card

TRAY ASSEMBLY UNIT / "Model TA-100" is intended for use in central kitchens of healthcare facilities. The mobile unit includes storage for trays, self-leveling adjustable dish dispensers, cutlery holders, glass and cup rack storage and a bread drawer. Assembly cart is constructed of stainless steel to NSF standards. ▪ Crimsco, Inc., Kansas City, Mo.

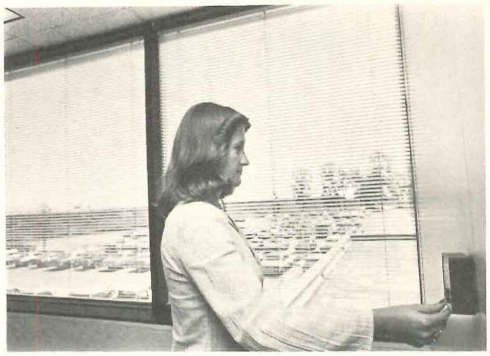


Circle 313 on inquiry card

SUN CONTROL FILMS / Two reversible sun control films have been added to the *Scotchtint* line. These transparent aluminum vapor-coated films reduce through-glass ultraviolet light by as much as 87 per cent, and cut heat gain up to 72 per cent. The new reversible films, in smoke and bronze colors, do not take on a mirror-like interior image when lights are turned on at night. A blue tint has also been added to the standard *Scotchtint* series. ▪ 3M Co., St. Paul, Minn.

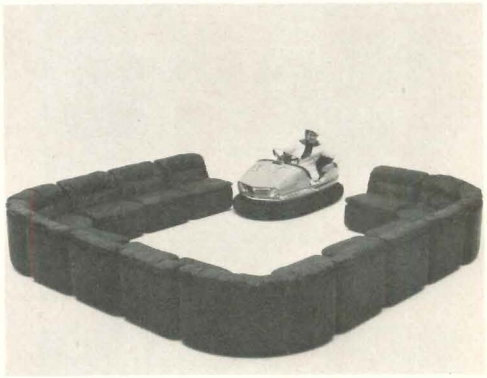
Circle 314 on inquiry card

more products on page 164



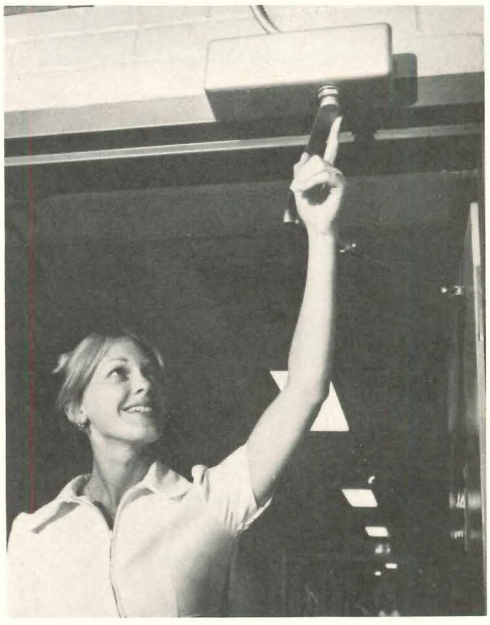
AUTOMATIC WINDOW BLINDS / The aluminum slats of this electrically-operated window blind are 1-in. wide for minimal maintenance. The "mini-blinds" are said to conserve heating and cooling energy, and to produce a glare-free environment while preserving the view through the window. The blinds come in over 100 colors. ▪ Acme-Artforge, Inc., Chicago, Ill.

Circle 315 on inquiry card



CONTRACT SEATING / New "Plus" chairs and sofas, designed by Friedrich Hill, feature upholstered curves and permanently sewn-on down cushions. Pieces are available in a choice of leather or velour. ▪ Brayton International Inc., High Point, N.C.

Circle 316 on inquiry card



ELECTRIC DOOR CLOSER/HOLDER / *Lectro-Close* units combine an electro-mechanical door closer and an electro-magnetic door holder in one compact housing. Door opening and speed is fully adjustable; four possible mounting installations will adapt to individual door locations. ▪ Special Products-Hardware Div., Emhart Industries, Inc., Berlin, Conn.

Circle 317 on inquiry card

more products on page 167

Bold Color: Reynolds Aluminum Roofs a Denver School

Bold color brightens school days in this memorable Denver structure. And the finish is durable because it's Reynolds Colorweld® 200 fluoropolymer coating. But that's only part of the story.

The conventional flat roof approach would have been a virtually invisible and—obviously—non-decorative roofing. Instead, the architects opted for low-pitched gable roofs and a series of shed roof projections. By exposing the roofing and making it a design element, it helped accent and enliven the massive, low-lying appearance of the structure.

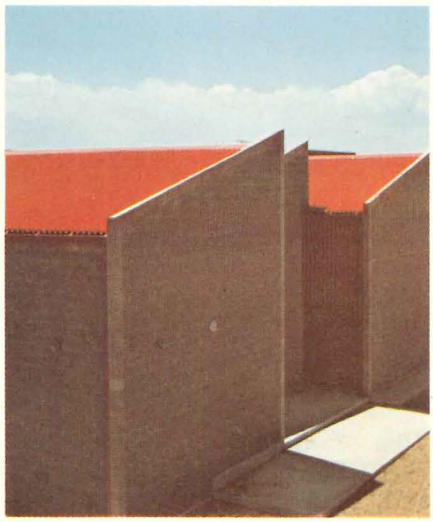
They specified Reynolds Aluminum Vangard™ Roofing for the color and aesthetics they wanted — and brought the project in on budget, and obtained all aluminum's advantages.

Vangard Roofing's Vanlock™ concealed fastener system creates a virtually unbroken sweep of surface. Weather-tight, with positive protection against leaks, yet it expands and contracts freely, while securely fastened to purlins. Lower handling, erection, and maintenance costs are bonuses.

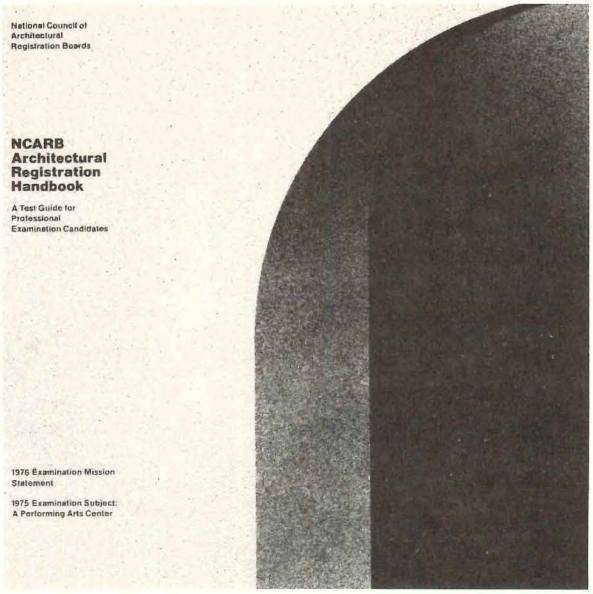
Create a memory. Specify Reynolds Aluminum Commercial Building Products for color and pattern with lyrical subtlety or dramatic fanfare with a backbone of durable practicality. We're in Sweets'—but if you need more information contact your nearest Reynolds Distributor or write Director, General Construction Market, Reynolds Metals Company, Richmond, Virginia 23261.

REYNOLDS
for better building products in
ALUMINUM

For more data, circle 84 on inquiry card



John Ameese Elementary School
Denver, Colorado
Architect: The ABR Partnership, Architects (Denver)
General Contractor: Rob Roy Construction Co. (Denver)



If you are a candidate for the December, 1976 Professional Examination or a practitioner, this 272 page, 1976 ARCHITECTURAL REGISTRATION HANDBOOK is one of the most important publications you can have in your library.

This *Handbook*, prepared exclusively by NCARB, is the only official publication dealing with the NCARB Professional Examinations. Its contents are invaluable to examination candidates and practitioners alike. As a study aid, the examination candidate will receive actual 1976 Professional Examination information and a chance to experience the real 1975 Professional Examination.

For practitioners and examination candidates, this *Handbook* provides an annotated bibliography on the subject of the 1975 exam — "A Performing Arts Center" - as well as a bibliography on the subject of the 1976 exam — a special facility within a correctional institution.

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- Study strategy for the 1976 Exam
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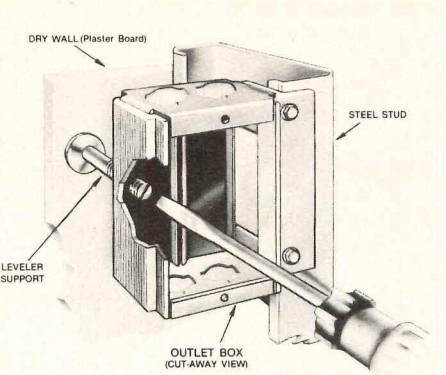

TLET BOXES / Intended for mounting on metal ls, these outlet boxes have an easily adjusted lev- g support to assure correct positioning. Single- two-gang models will accommodate BX cable, n. EMT, and ½-in. flexible conduit. ▪ F. Maier , Inc., Bridgeport, Conn.

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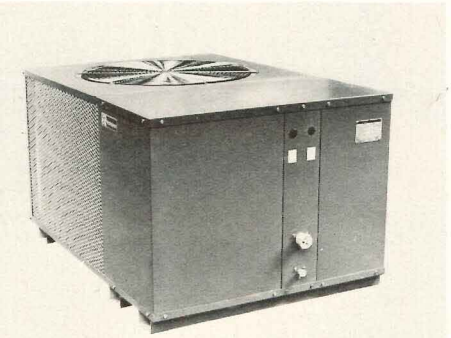

NDENSERS / Three new high-efficiency con- sing units, rated from 32,000 to 47,000 Btu/hr, e been added to a line of split system air-cooled densers. The top-discharge outdoor units are y waterproof, with a galvanized-steel cabinet ted with a weather-resistant finish. The compres- is enclosed in a separate insulated compartment quieter operation. ▪ Westinghouse Central Resi- tial Air Conditioning Div., Norman, Okla.

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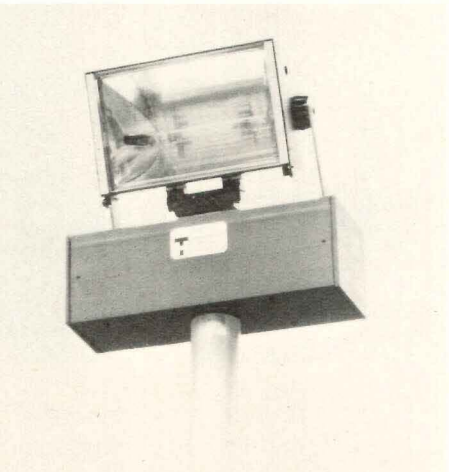

DIUM LIGHTING / New "Trim-Flood" 400W ular high-pressure sodium luminaires are de- ed to give substantially more light using less ver than 1500W tungsten-halogen quartz lamps. np, fixture and ballast packages can be wall, pole ground mounted. Where weight or wind load is ical, the ballast may be remotely mounted. Avail- e voltages range from 120- to 480-volt s. ▪ Trimblehouse Corp., Norcross, Ga.

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PLUMBING FITTINGS / Both traditional and antique brassware designs are available in a new line of "Classic Brass" plumbing fittings. All faucets have *Dial-Ese* controls. The line comes in a variety of handle designs; finishes available include polished or antique brass, white or black marble, and ti- gereye. ▪ Crane Co., New York City.

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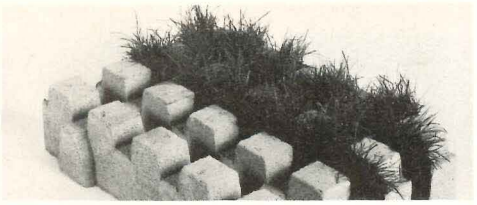

CONCRETE LAWNS / Each 75-lb precast concrete "Turf Block" has nine openings for planting grass and 20 raised supports for vehicle wheel contact. Rainwater drains away through the open gridwork. Lawn-like "Turf-Block" installations are suitable for fire access lanes in high-density apartment areas, res- idential driveways, overflow parking, etc. Each block measures 17½-in.-wide by 23½-in.-long by 4¾-in.- high. ▪ Associated Concrete Products, Inc., Santa Ana, Calif.

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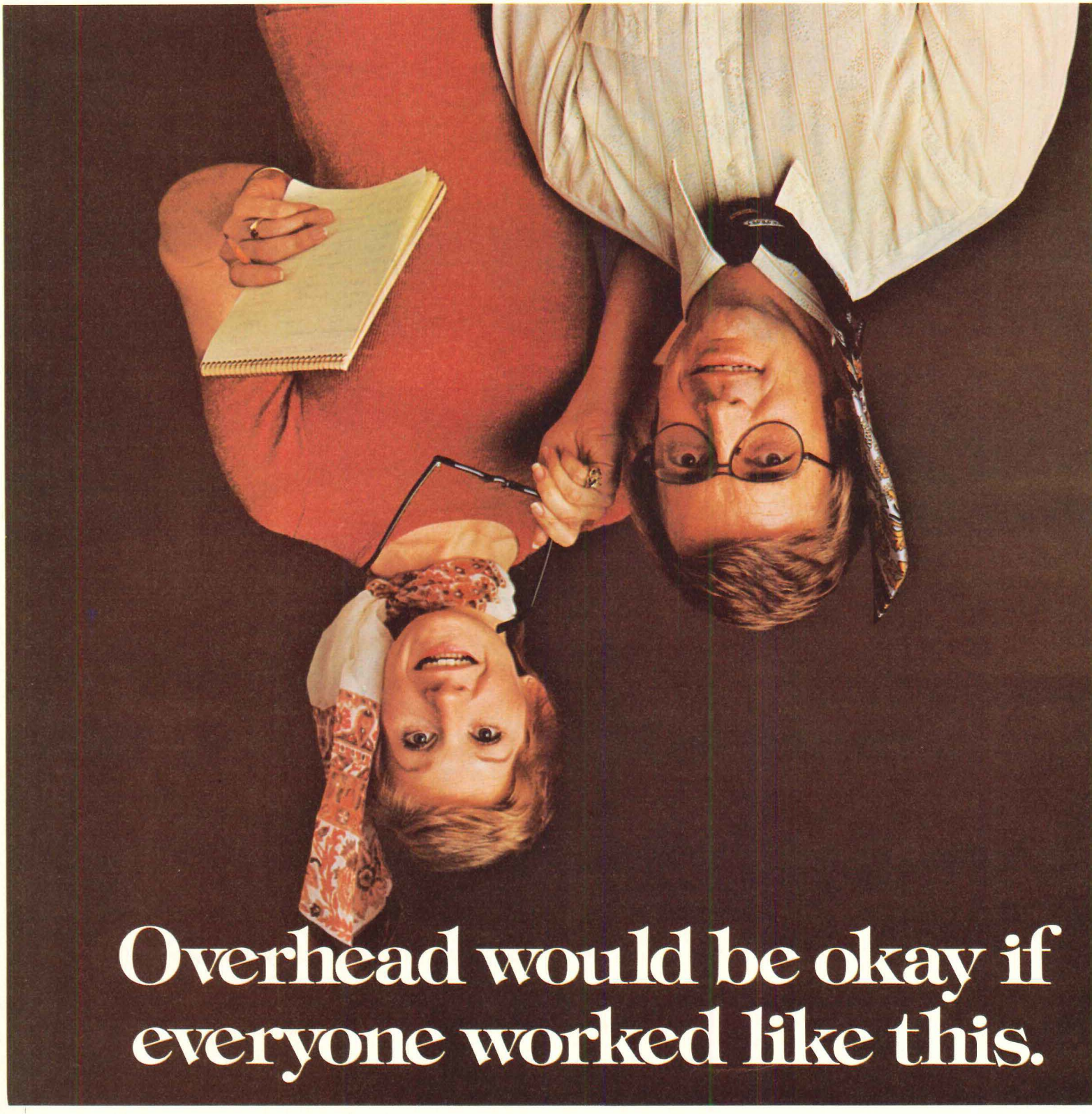
more products on page 173



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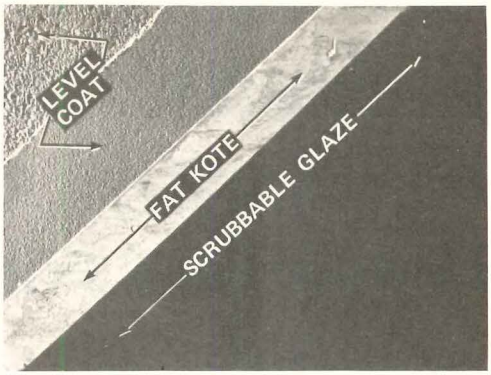

CONCRETE/MASONRY FINISH / A scrubbable surfacing for walls and wainscoting can be applied to either poured-in-place or precast concrete, or to block masonry. The *Mono-Glaze* system includes a scratch and brown level coat of modified portland cement; an intermediate finish of smooth trowelled portland cement; and a final spray-applied finish of "Finestone" matte acrylic polymer glaze. Glaze is available in a variety of standard and custom colors. ▪ Finestone Corp., Detroit, Mich.

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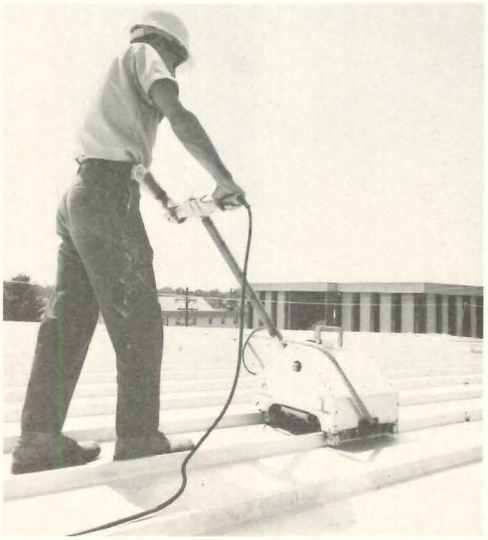

METAL ROOF SYSTEM / The *Steelox CF* exposed metal roofing system is now available for gabled buildings up to 300 ft wide, and for single-slope construction up to 150-ft wide. These new applications are made possible by a new roof crimper (shown) that seals two ribs simultaneously. ▪ Armco Steel Corp., Middletown, Ohio.

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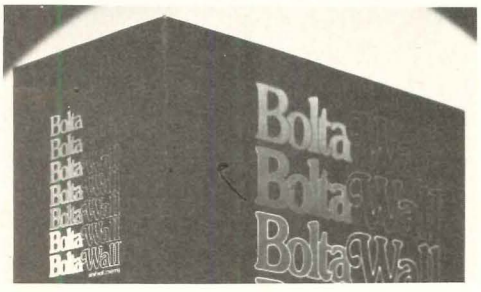

CONTRACT WALLCOVERING / Almost 600 pattern and color combinations may be selected from the "BoltaWall" collection of vinyl fabric wallcoverings. The 54-in.-wide wallcovering line comes in a range of grades, weights, and patterns, including *Mylars,* crushed grains, wet looks, geometrics, brushed suedes, etc., all scrubbable and strippable. "BoltaWall" vinyls meet FS CCC-W-408A. ▪ Bolta Wallcoverings, Reading, Mass.

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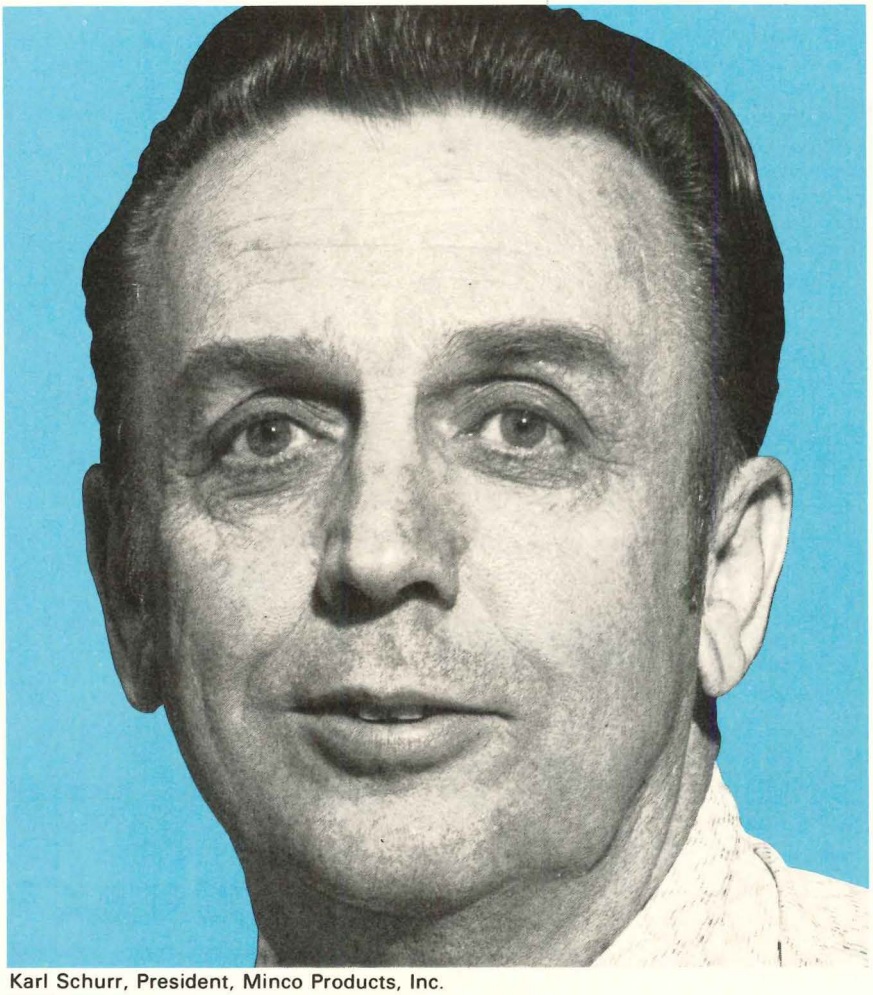
Ask company president Karl Schurr...

Our WATER BASE *Pitt-Glaze*® Acrylic-epoxy keeps his plant clean—at a practical cost



Karl Schurr, President, Minco Products, Inc.
7300 Commerce Lane, Minneapolis, Minnesota 55432

At Minco Products, Inc., Minneapolis, Minnesota, a clean plant is a necessity for the quality control so vital to the manufacture of Thermofoil heaters, temperature detectors and similar precious metal, fine-wire products. So when Minco completed construction on a recent plant expansion, WATER BASE *Pitt-Glaze* Acrylic-epoxy Coating got the nod for use on all inner wall surfaces.

According to Karl Schurr, "We were looking for something that would give us an easy to keep clean plant at a practical cost. WATER BASE *Pitt-Glaze* Coatings met that requirement. *Pitt-Glaze* Acrylic-epoxy also is impervious to water — another important feature since we use so much water around the plant."

The WATER BASE *Pitt-Glaze* Coating System has other advantages, too. Like low odor during application; stain, acid and alkali resistance; soap and water clean-up. It's tough, durable. Is available in hundreds of colors.

WATER BASE *Pitt-Glaze* Acrylic-epoxy might just be the coating you're looking for, too. For more information write PPG Industries, Inc., One Gateway Center, 3W, Pittsburgh, Pa. 15222.

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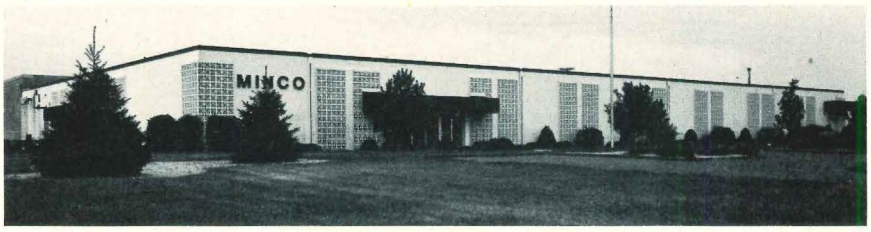

(Below) David and Karl Schurr examine *Pitt-Glaze* Finish with PPG sales representative Jim Olson

Airless spray application of *Pitt-Glaze* Acrylic-epoxy is quick and easy.

PPG: a Concern for the Future

PPG INDUSTRIES

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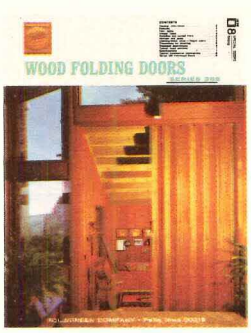
The fact that Pella Wood Folding Doors can help you save money on building materials and labor is worth thinking about in today's economy. For example . . . by using Pella folding doors as closures or partitions, you eliminate the expense of dropped headers and stub walls. And to add even more sales appeal to closets, you can build additional shelves closer to the ceiling. Your customers are pleased because they have gained extra storage space, plus the equivalent of an attractively paneled wall. Choose from genuine wood veneers (factory-finished or ready-to-finish) or vinyl. Stable wood core construction keeps panels straight and true. Use Pella Wood Folding Doors for that *extra* sales feature in the homes you build.

For more detailed information, send for your free copies of our full-color catalogs on Pella Wood Folding Doors. See us in Sweet's Light Construction File. Or look in the Yellow Pages, under "doors", for the phone number of your Pella Distributor.



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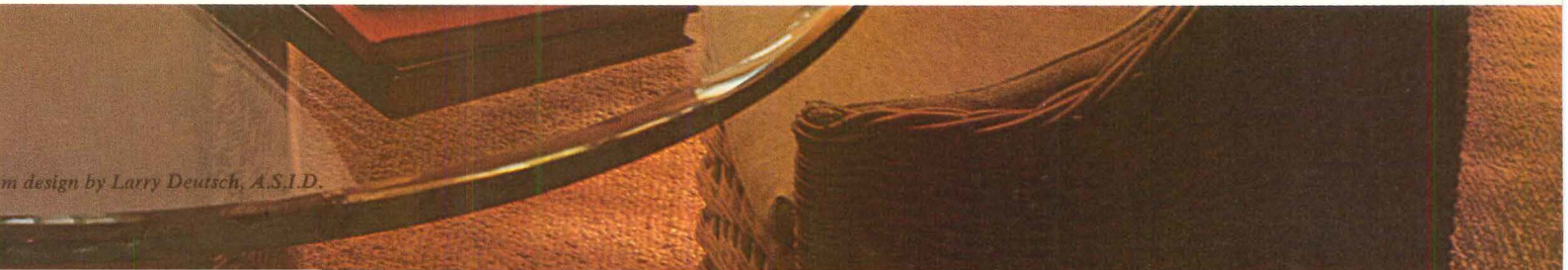

m design by Larry Deutsch, A.S.I.D.

AE/UPDATE *A classified advertising section devoted to help- architects and engineers keep up to date on building product manufacturers.*

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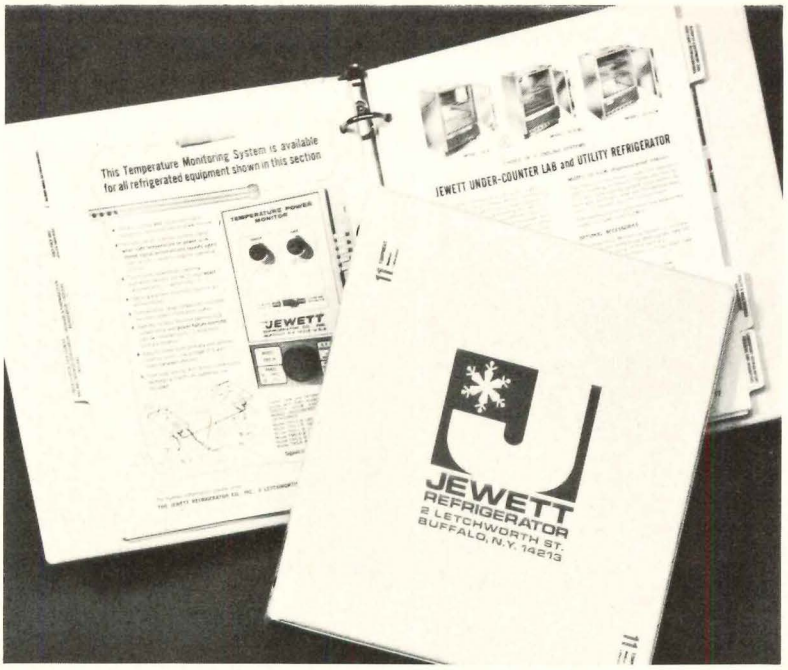

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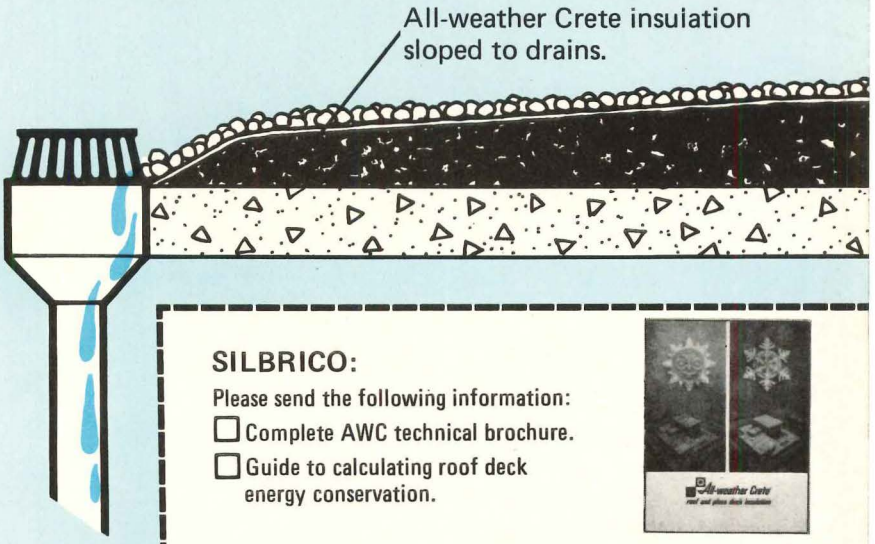

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fifteen issues a year for architects & engineers

one each month... and three spotlight issues

The editors of Architectural Record regularly throughout the year present a wide variety of editorial content specifically geared to the known interests of architects and engineers.

In addition, responding to the need of architects and engineers for in-depth presentations of significant trends and developments in major areas of interest, the editors of Architectural Record each year publish three Spotlight issues. Each is an expansion of a continuing feature in the regular issues of the Record.

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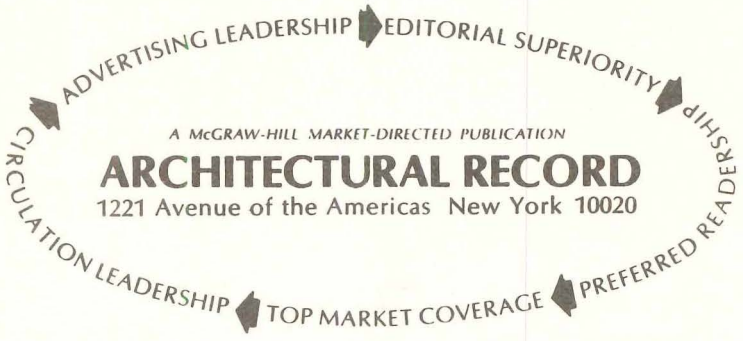
PRODUCT REPORTS

The annual mid-October round-up of the most interesting new and improved building products. Organized by the Uniform Construction Index, this "product file on the drawing board" provides a quick up date of out-of-date catalogs and literature.



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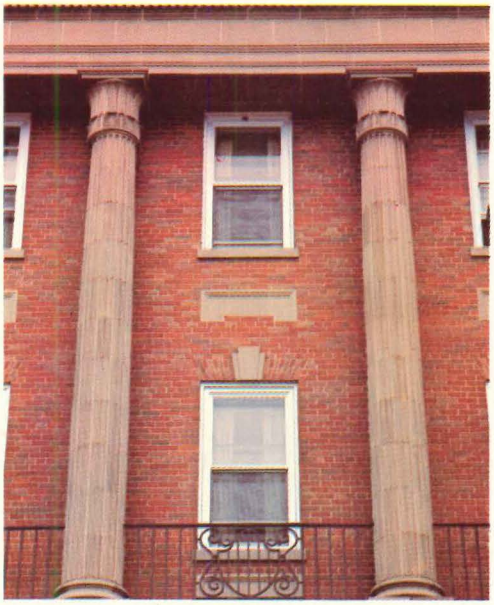
'ith replacement windows protected / DURACRON® enamels from PPG. ore and more, the usefulness of old uildings is being saved from the wreck-g ball. Thanks to modern technology nd companies such as Season-all dustries of Indiana, Pennsylvania. eason-all manufactures custom-made eplacement window units to refurbish d buildings and extend their life. or example...

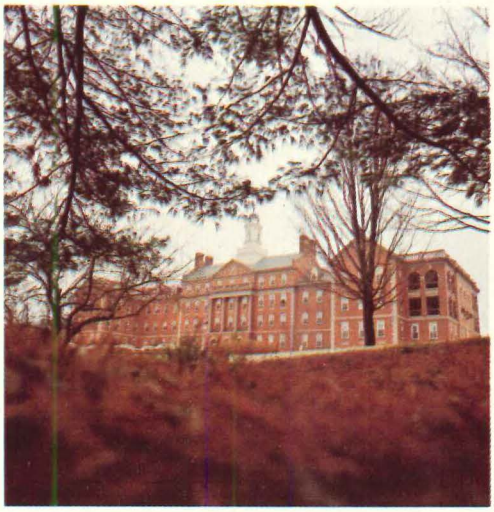
llen County Courthouse objection verruled. Drab, weathered sashes nd frames made this Lima, Ohio ourthouse look shabby. *NuPrime** xtruded aluminum window units by eason-all, with DURACRON thermo-etting acrylic coatings from PPG, im-roved the appearance and reduced eating and maintenance costs.

untington VA Hospital rehabilitates ore than people. At this West irginia VA hospital, the leaky old indows were letting weather in and omfort out. Season-all *NuPrime* nits pre-coated with DURACRON namel stopped all that.

*uPrime is a registered trademark Season-all Industries, Inc.



Huntington VA hospital improved both its appearance and efficiency with replacement window units protected by DURACRON coatings from PPG.



Garfield Junior High learns a lesson in economics. Aging windows in this Johnstown, Pennsylvania school were costing the school system money for maintenance and heat loss. New Season-all units with DURACRON enamel now hold comfort in and keep maintenance costs down.

DURACRON coatings from PPG help cure the old. Year after year. Because the color resists fading and chalking, and the coating itself resists chipping, cracking and peeling. Get full details on how you can improve your image while you reduce maintenance and energy costs. With extruded aluminum replacement window units protected by DURACRON color coatings.

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PPG: a Concern for the Future

Extrusion Coatings

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Already the Ergon Chair is a stunning success. The award-winning design, superb supporting performance and surprisingly low price add up to the fact that Herman Miller has brought forth a winner. A new classic.

Proving this to yourself is something you must do sitting down. Try any or all of the 5 basic models of the Ergon Chair (Executive, Management, Operational, Secretarial and Lounge). This can be arranged at any of our showrooms or participating dealers. For the location of the one nearest you, contact Herman Miller, Inc., Zeeland, Michigan 49464; Telephone (616) 772-3442.

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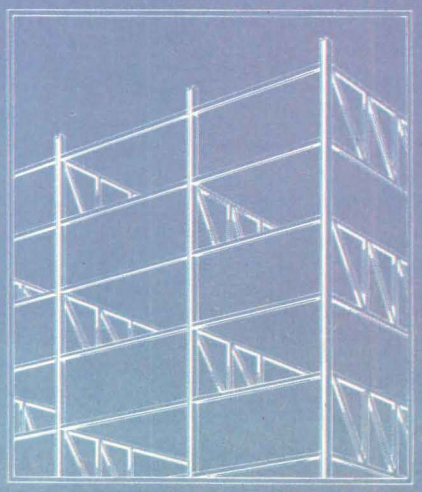
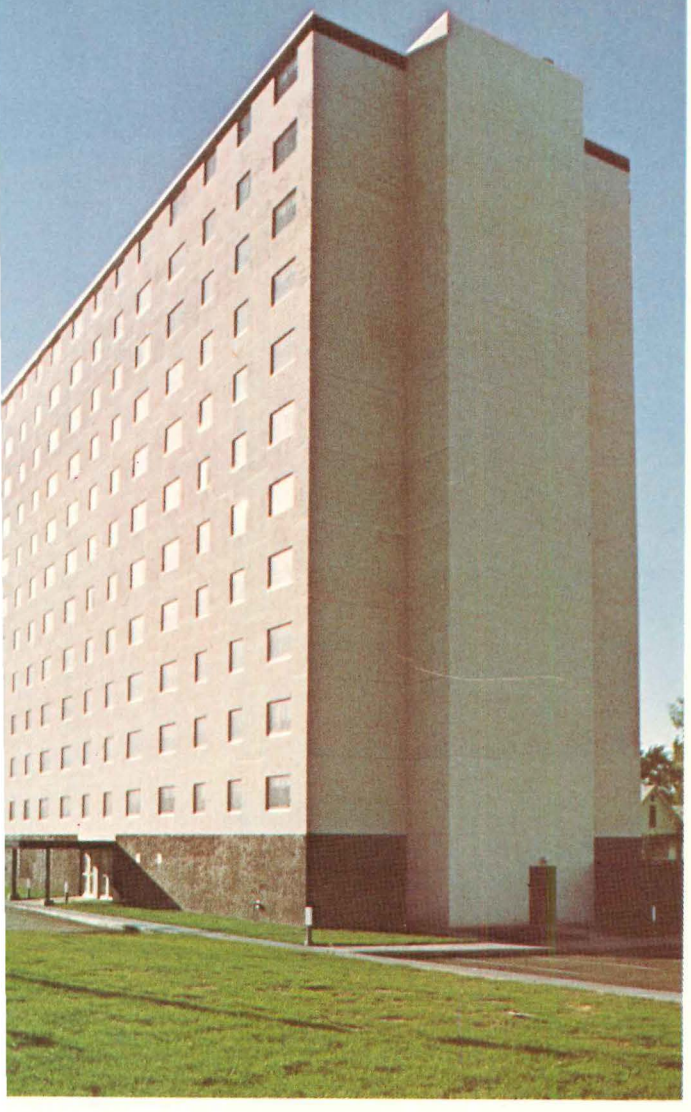
Owner: Kansas City Kansas Public Housing Authority.
Architect: Everett Peace, Jr., Overland Park, Kansas.
Contractor: D & N Construction Co., Kansas City, Kansas.
Fabricator & Erector: Havens Steel, Kansas City, Missouri.
Consulting Engineer: Robert L. Riley, Prairie Village, Kansas.





Steel costs cut 40% in Kansas apartment building– with Staggered Truss Framing System.

It is the first Staggered Truss building in the Kansas City area—a Department of Housing and Urban Development (HUD) sponsored project planned as low-rent housing for the elderly. Called Adams 39, the handsome 12-story building contains 122 apartment units.

The use of the Staggered Truss design eliminated about 40% of the steel required for a similar structure of conventional design. A great cost saver in terms of materials and labor.

Speed of construction was also important in terms of recovering capital investment and, in fact, *the steel frame including floor units was erected in just 36 working days.* The building was completed in 9 months, which is about half the time needed for the construction of a similar building made of concrete.

The staggered trusses span the full 51-foot, 6-inch width of Adams 39, from the second through the twelfth floor, and 400 tons of U.S. Steel's EX-TEN 50 high-strength low-alloy steel went into the building.

For this important project—and for many others—the Staggered Truss design proved to be the most practical and economical system. And it's fast!

For additional information regarding Staggered Truss structures, contact a USS Construction Representative through your nearest U.S. Steel Sales Office or write for our booklet, "Staggered Truss Framing Systems for High Rise Buildings" (ADUSS 27-5227-02) to U.S. Steel, P.O. Box 86 (C603), Pittsburgh, Pa. 15230.

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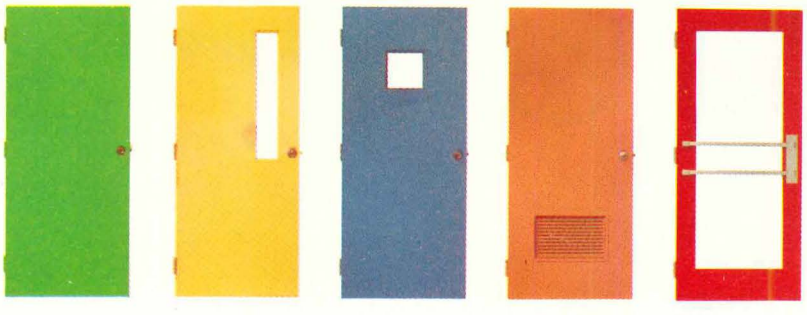
Steel doors satisfy architects' needs better



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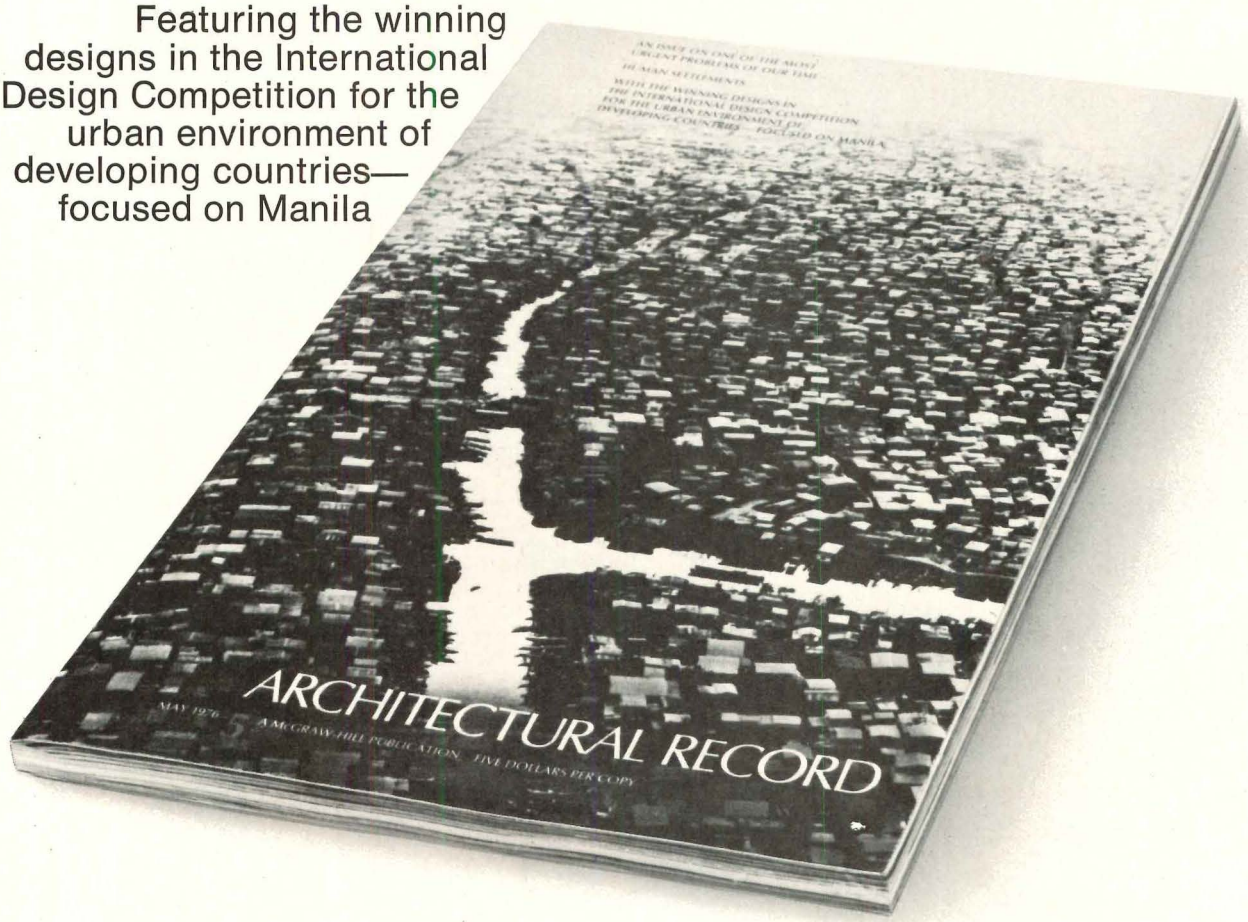
HUMAN SETTLEMENTS

The May 1976 Issue of Architectural Record

Featuring the winning designs in the International Design Competition for the urban environment of developing countries—focused on Manila



's what People Around the ld are Saying About It!

essential document for all who still the world can be made a better e."
—William Houseman, Editor, *Environmental Monthly*

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st striking about the solutions...is act that the architects stuck with building products available, and ded huge elements of self-help..."
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Athfield's design is innovative in its ept, creative in its solution, timely message, and sensitive in its re- se to human needs and human as- ons."
—Robert Spillman, AIA, Bethlehem, Pennsylvania

Thousands of architects, engineers, planners, government officers around the world are studying the design solutions featured in this important issue. Thousands of designs were submitted—and you can see the top prize winners and the honorable mentions, plus an entire section devoted to innovative and useful design ideas from the non-premiated entries.

Beyond the firms that entered and succeeded in this important competition, the real winners are the people from the site in Manila who will occupy the new development that First Prize winner Ian Athfield will create from a grant from the Philippine government. The other winners are the architects, engineers, and planners who will read this outstanding May issue filled with bright, new ideas—not just for urban settlements, but for all forms of architecture.

You can still obtain copies of this May issue. Just send $5.00 for surface mail, or $10.00 for air mail, to Architectural Record, May Issue, 1221 Avenue of the Americas, New York, New York 10020

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Please send me ____ copies of the May, 1976 issue on Human Settlements. Please send them via surface mail (@ $5.00 each) ____; by airmail ($10.00 each) ____.

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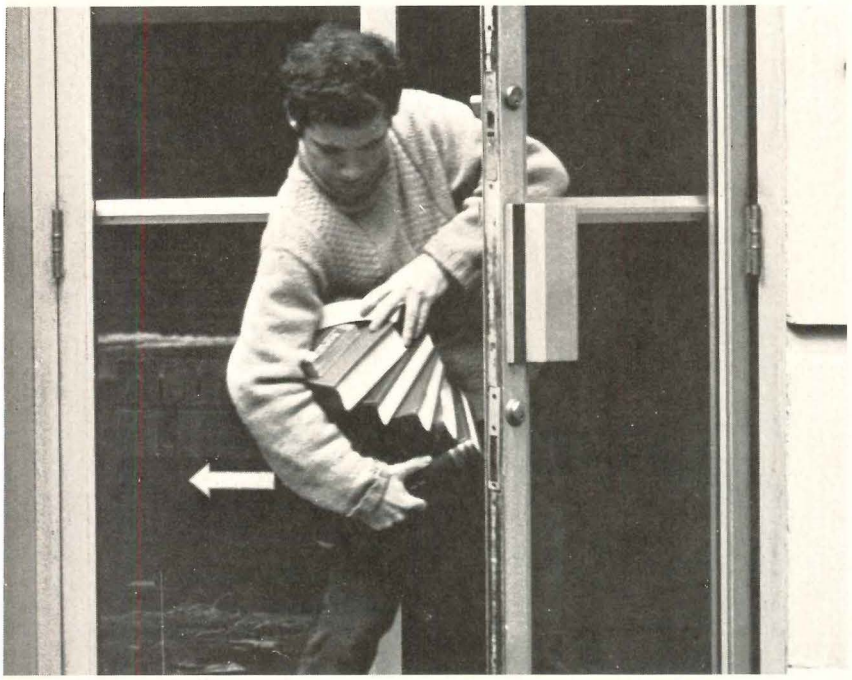

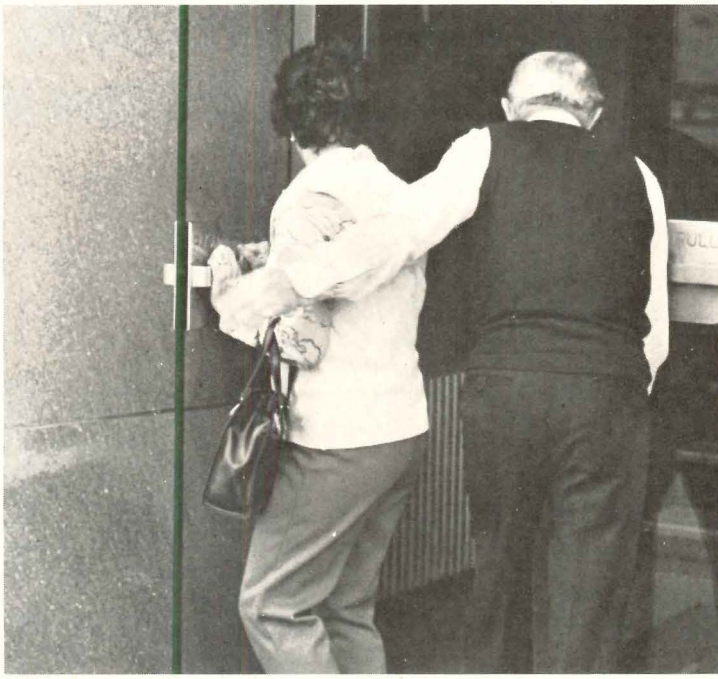

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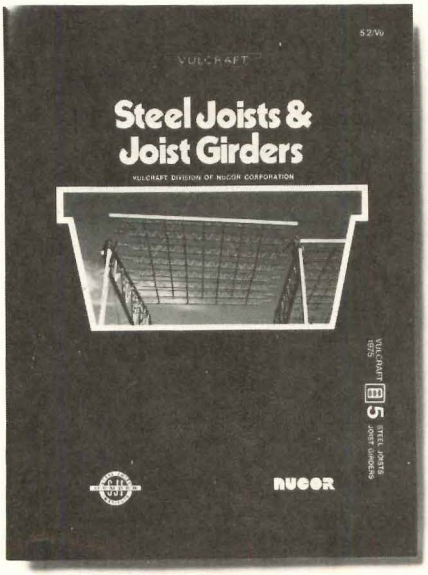

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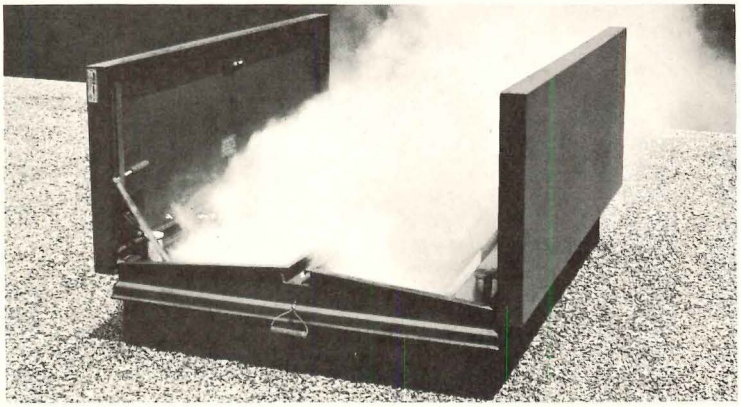

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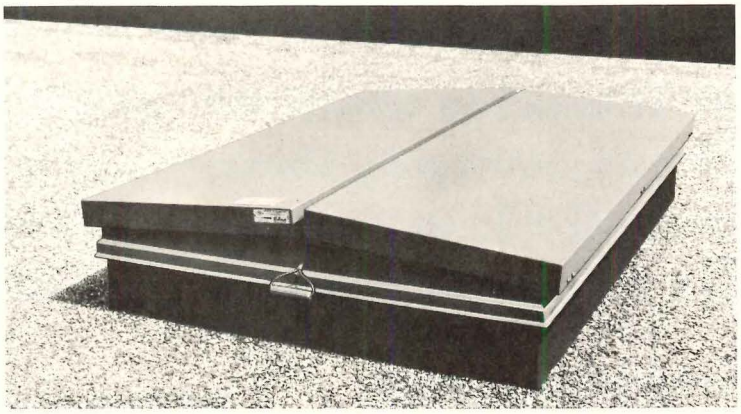

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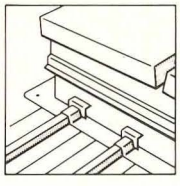

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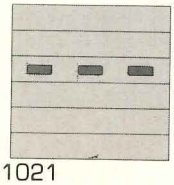

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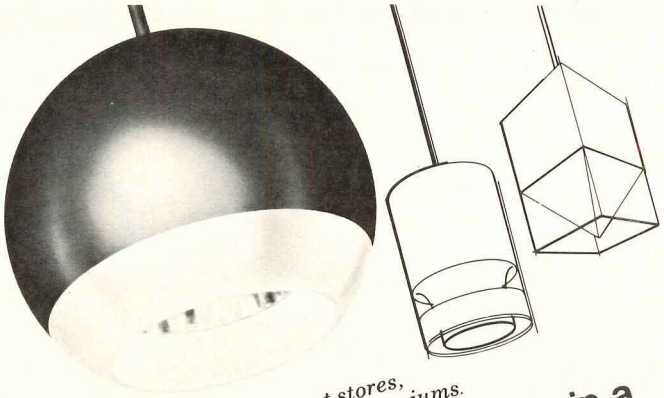

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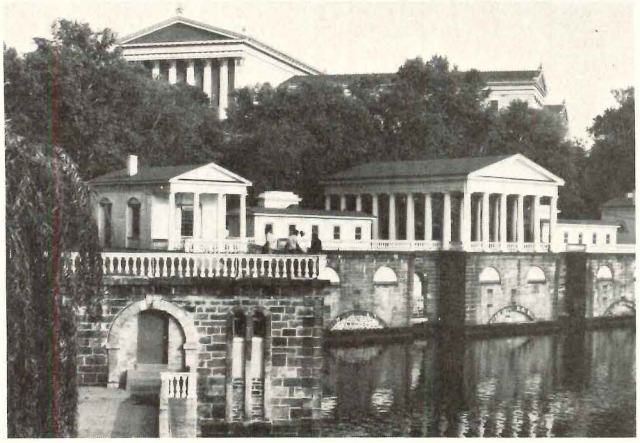

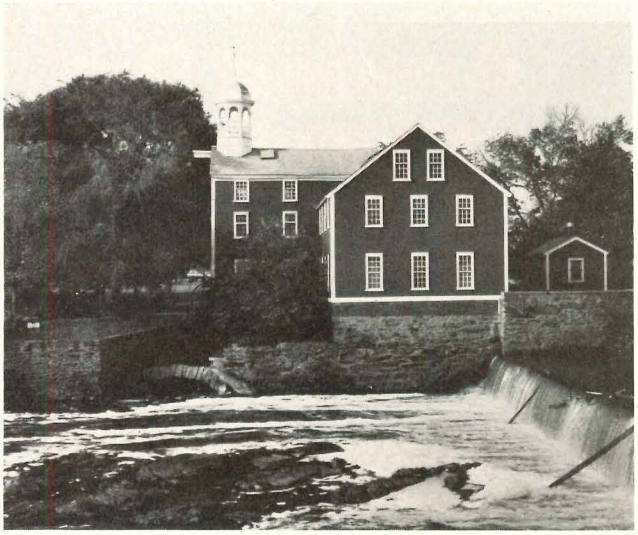

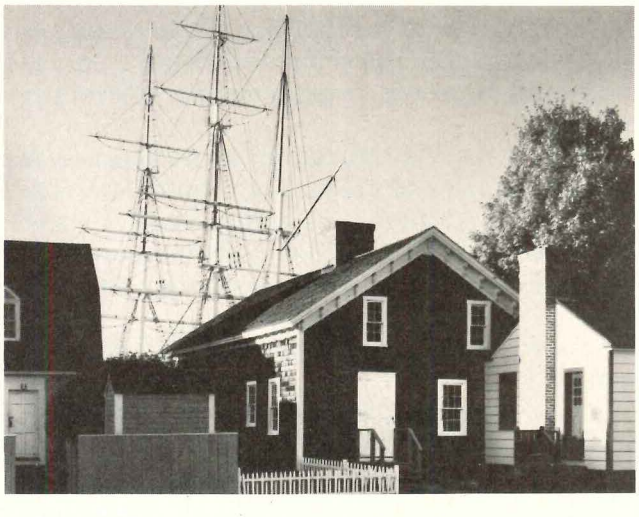

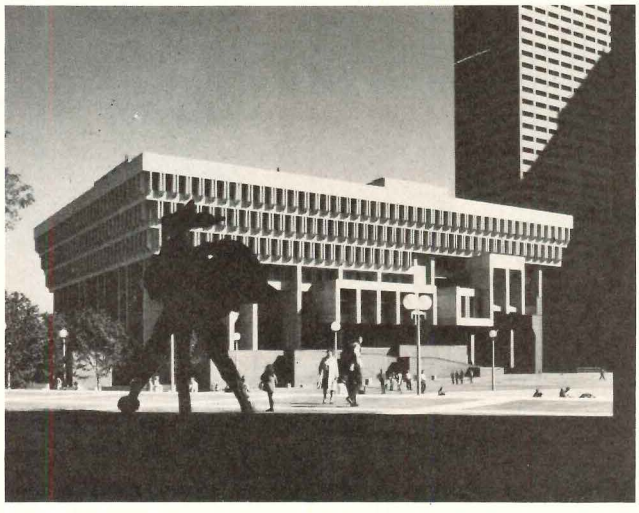

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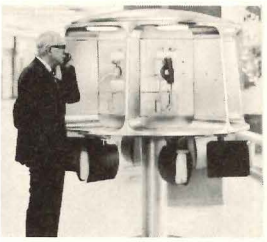

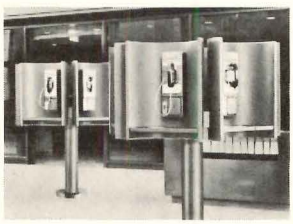

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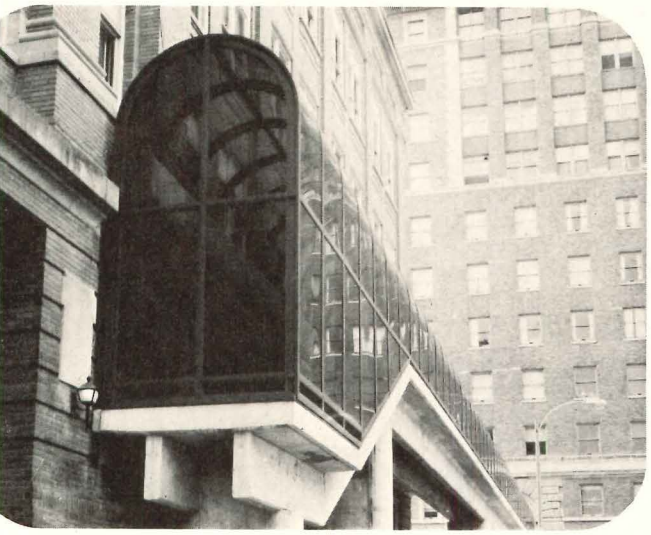

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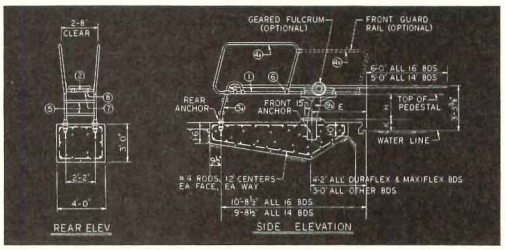

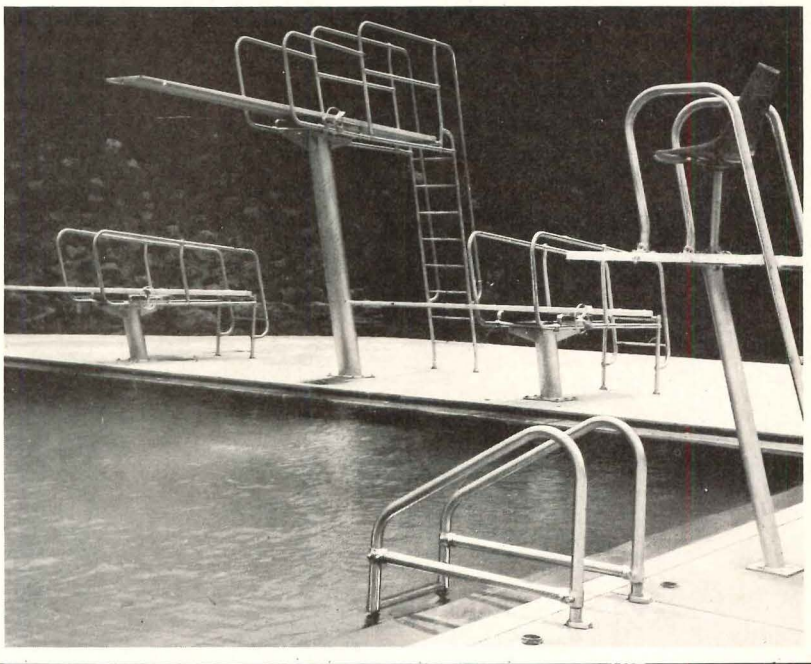

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A Architectural File (green)
I Industrial Construction File (blue)
L Light Construction File (yellow)
D Interior Design File (white)

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Red cedar rounds out a restaurant.

When the architect designed the *Don the Beachcomber* restaurant in Dallas, his plans included red cedar shingles inside and outside. To quote his rationale: "The restaurant is a sheltering dome-like form with no demarcation between roof and walls.

"We selected red cedar shingles because they are a warm, natural material that weathers to a color which enhances the spirit of the building.

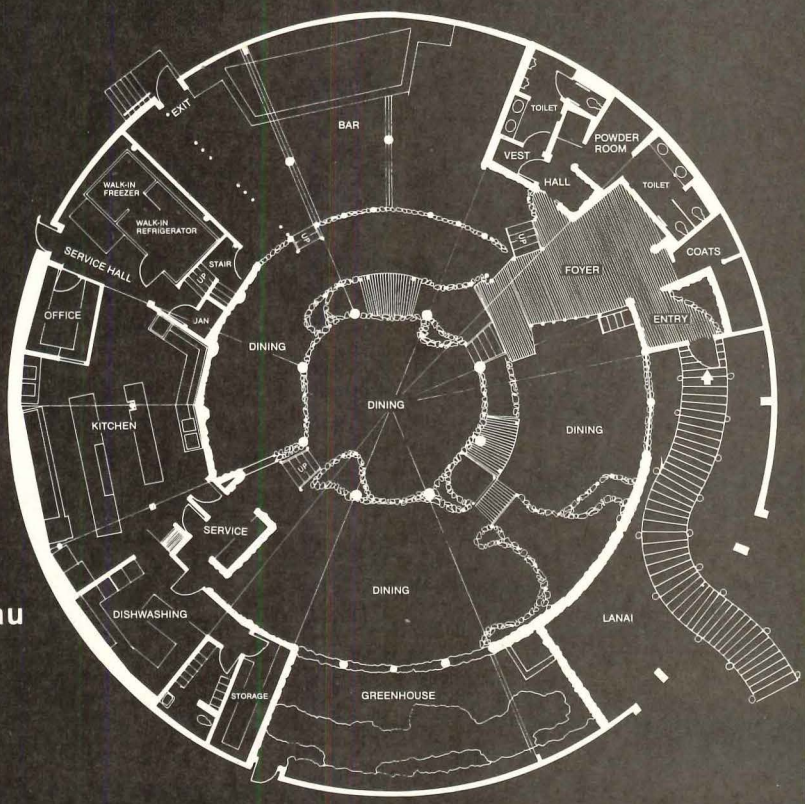
"Red cedar shingles are the ideal material to apply to the convex and concave shapes of the structure."

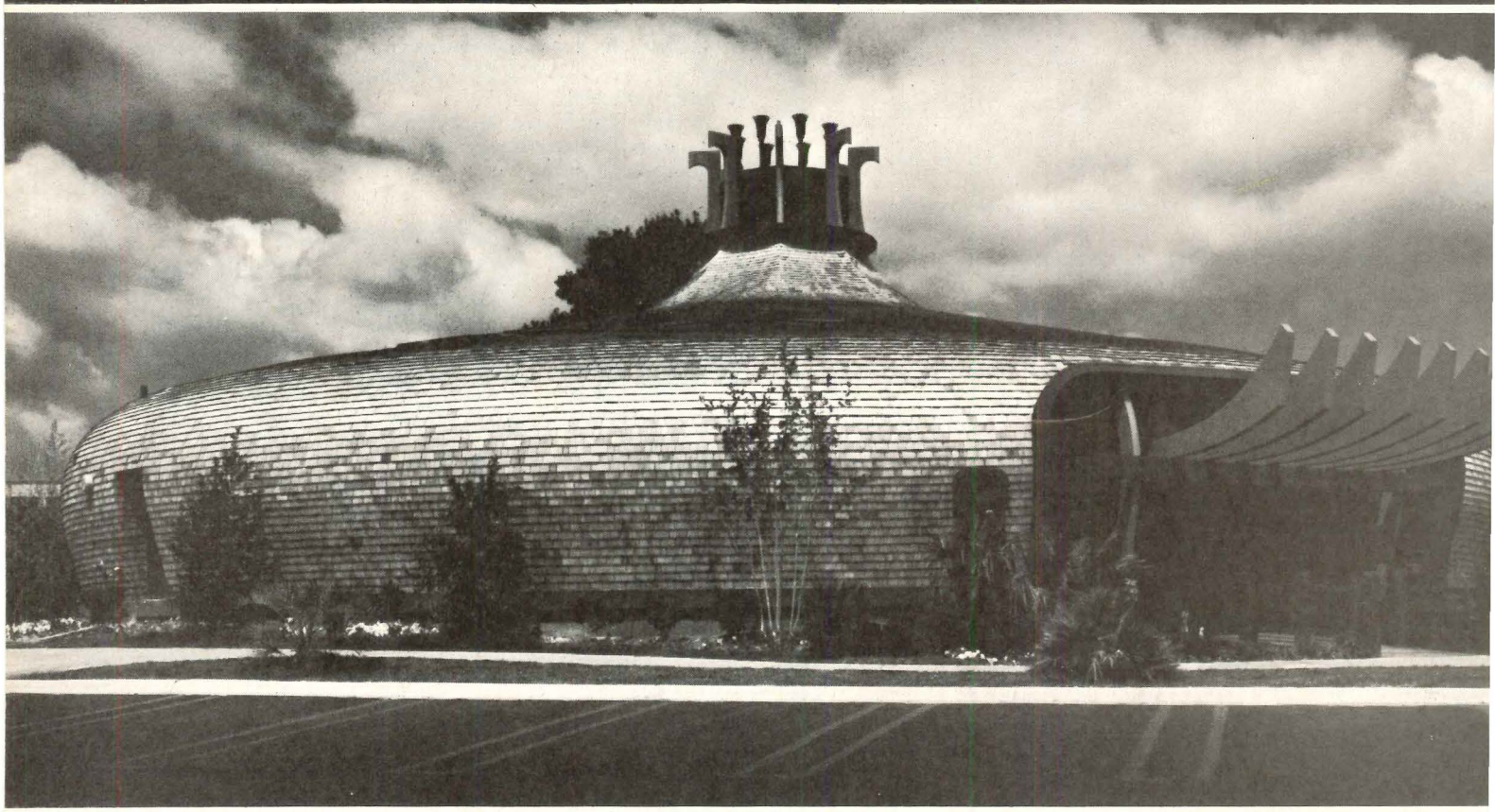
Next time you're looking for a distinctive interior or exterior covering, consider the product with low maintenance, excellent insulative qualities and unique texture.

Consider red cedar shakes or shingles.

Red Cedar Shingle & Handsplit Shake Bureau

For details and specification guide on Certigrade shingles and Certi-Split handsplit shakes, write us at: 5510 White Building, Seattle, Washington 98101. In Canada, write 1055 West Hastings St., Vancouver 1, B.C.





Don the Beachcomber Restaurant, Dallas, Texas. William Landworth and Associates, Architects.

These labels under the bandstick on cartons of red cedar shingles, handsplit shakes and grooved sha are your guarantee of Bureau-grad quality. Insist on them.

For more data, circle 125 on inquiry card

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Lock-Deck®

Space Beautiful

...for homes, churches, commercial and institutional structures.

Lock-Deck is a superior laminated decking designed by Potlatch to free the outer limits of your imagination and work with you to make space beautiful in a variety of ways.

The warmth, charm, and natural elegance of wood: Inland Red Cedar, Idaho White Pine, Southern Pine, Douglas Fir/ Larch, and White Fir.

The textural qualities and subtle color tones allow the designer to uniquely personalize his plan. A broad range of acrylic stains on wire brush, smooth, or saw textured surfaces are available for your selection.

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And, Lock-Deck's strength to weight ratio offers the kind of structural freedom that allows the designer to create imaginative structures as diverse as church and home.

So if you're interested in making space beautiful through free play of the design imagination, contact the Western Wood Products division now.

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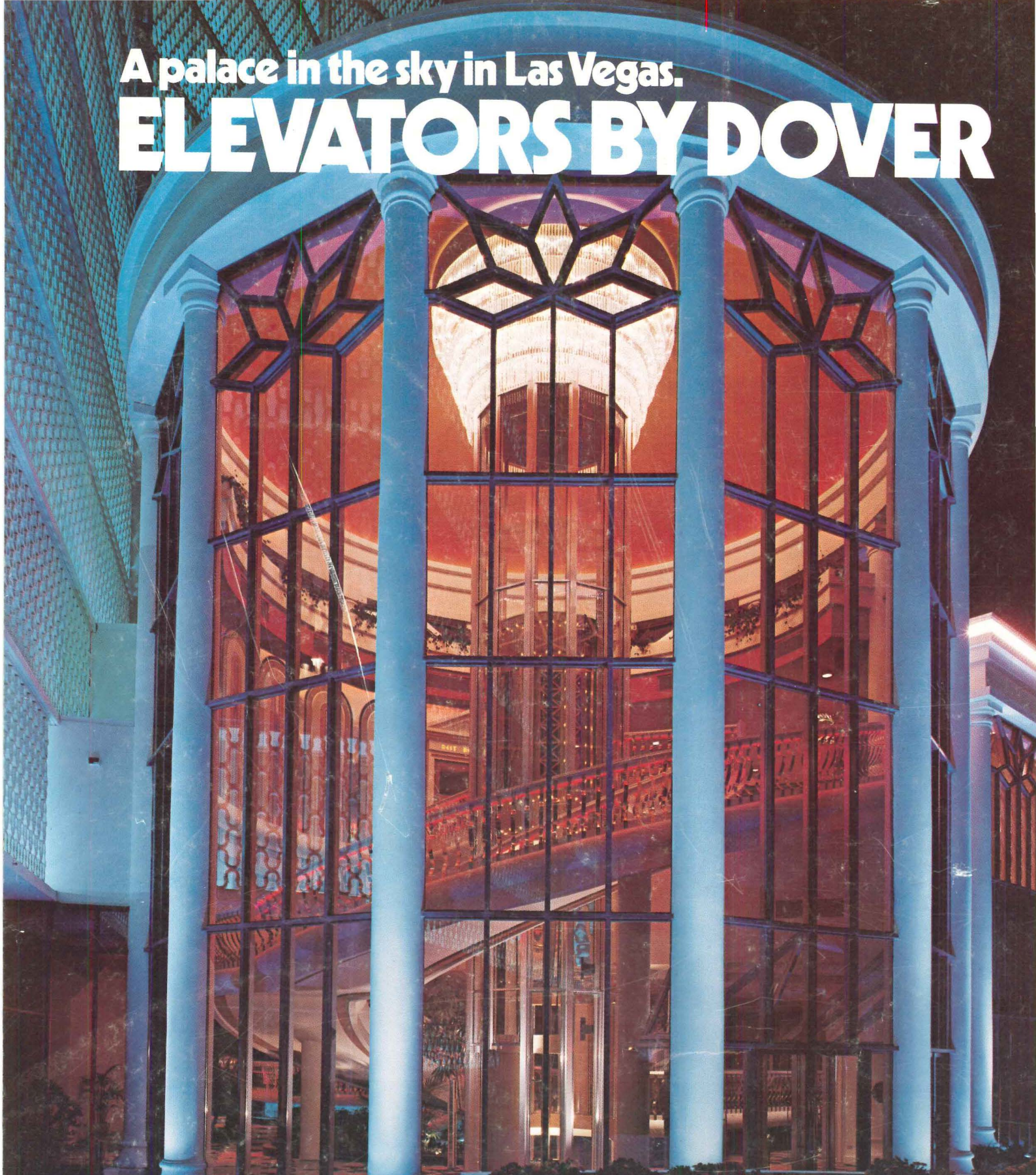
A palace in the sky in Las Vegas.
ELEVATORS BY DOVER



In a city devoted to the pursuit of happiness, Caesars Palace leads the way. This enormous hotel, with more than 1200 guest rooms, boasts a dazzling complex of lounges, casinos, and restaurants. A recent addition to one of these restaurants, the Palace Court, features a spectacular glass-enclosed Dover Oildraulic Passenger Elevator to move diners between the three levels. For more information on Dover Elevators, write Elevator Division, Dover Corporation, Dept. A, P.O. Box 2177, Memphis, Tennessee 38101.

Palace Court, Caesars Palace, Las Vegas.
Architect: Marnell Corrao Associates.
Contractor: Corrao Construction Co., Inc.
Interior Design: Franklin Design, San Francisco.
Dover Oildraulic Passenger Elevator sold and installed by Dover Elevator Co., Los Angeles.

DOVER

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