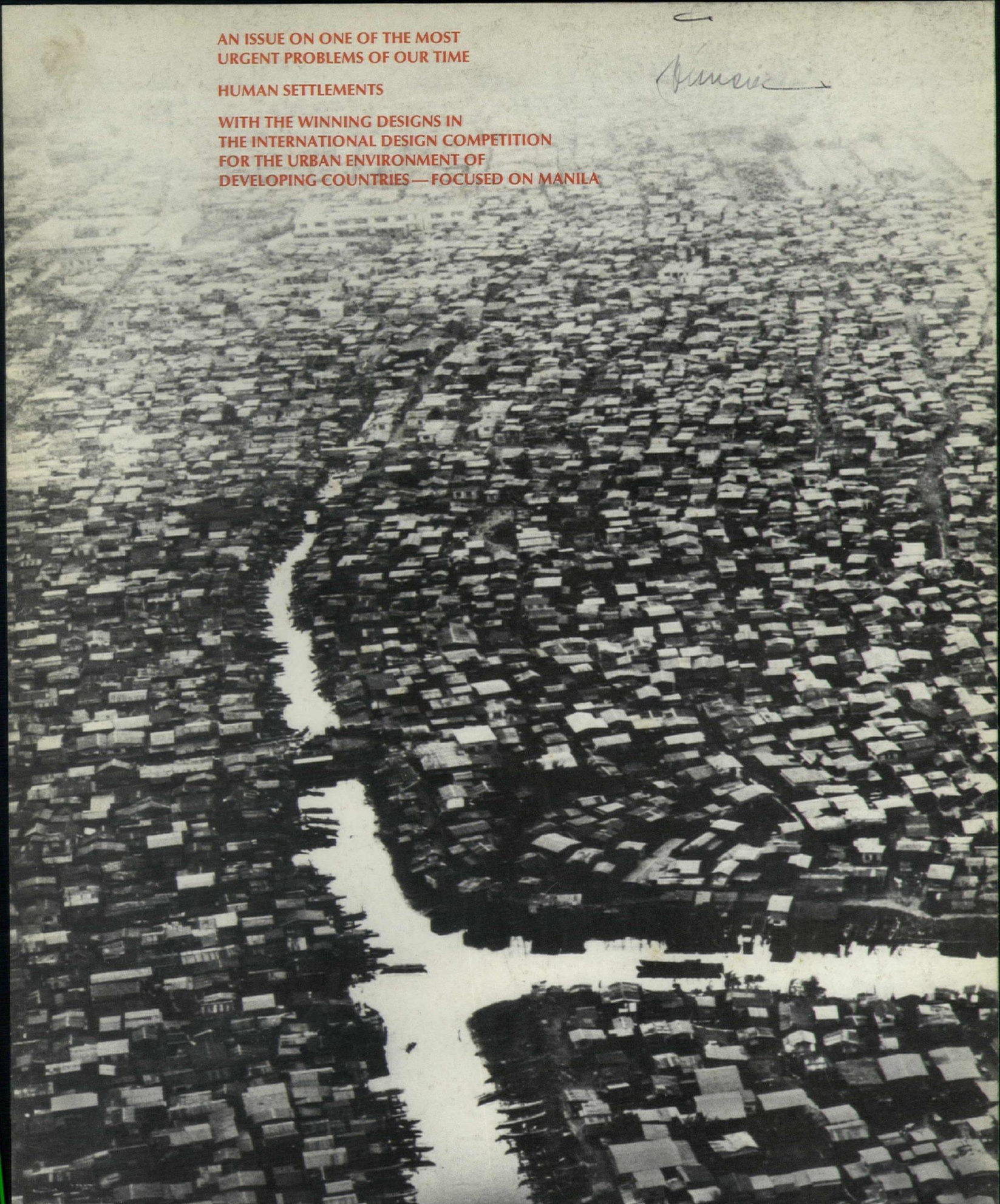
AN ISSUE ON ONE OF THE MOST
URGENT PROBLEMS OF OUR TIME

HUMAN SETTLEMENTS

WITH THE WINNING DESIGNS IN
THE INTERNATIONAL DESIGN COMPETITION
FOR THE URBAN ENVIRONMENT OF
DEVELOPING COUNTRIES—FOCUSED ON MANILA



ARCHITECTURAL RECORD

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Midland College, Midland, Texas, Architect: Preston M. Geren Architect & Engineer and Associates, Fort Worth, Texas, Ceiling System: Armstrong Symmetry Luminaire

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Datacenter/The Equitable Life Assurance Society of the United States, Easton, Pennsylvania, Architects: Kahn and Jacobs, New York City, Ceiling System: Armstrong C-60/60 Luminaire

There are five Luminaire Ceiling Systems: C-60/30, C-60/60, AW 3600, Symmetry®, and Pentaflex™. Each is basically scaled to a 5′-square module but is also available in custom variations to meet just about any requirement.

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Security National Bank, San Antonio, Texas. Architects: Environmental Professionals Corporation, San Antonio, Texas. Ceiling System: Armstrong AW 3600 Luminaire

results in almost unlimited design possibilities.

For instance, you can choose from three vaulted systems as well as two flat-type systems that provide either exposed or concealed grids. You can vault your entire ceiling or mix your vaults with flat types. You can light all the vaults or space your lighting to meet specific requirements of the job. Within a vaulted system like the C-60/60, you can even choose various light options—including square light fixtures 2′ x 2′, 2½′ x 2½′, 3′ x 3′, or rectangular fixtures 1′ x 4′ and 2′ x 4′. All of which adds up to a freedom of choice you'd be hard put to match.

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To learn more, write: Armstrong, 4201 Rock St., Lancaster, Pa. 17604.

In Canada, write: Armstrong Cork Canada, P.O. Box 919, Montreal 101, Quebec.

Palmyra Area High School, Palmyra, Pennsylvania. Architects: Lawrie and Green, Harrisburg, Pennsylvania. Ceiling System: Armstrong C-60/30 Luminaire

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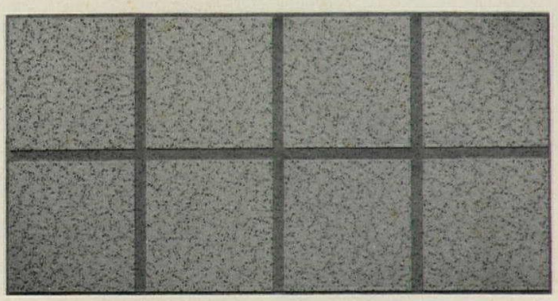

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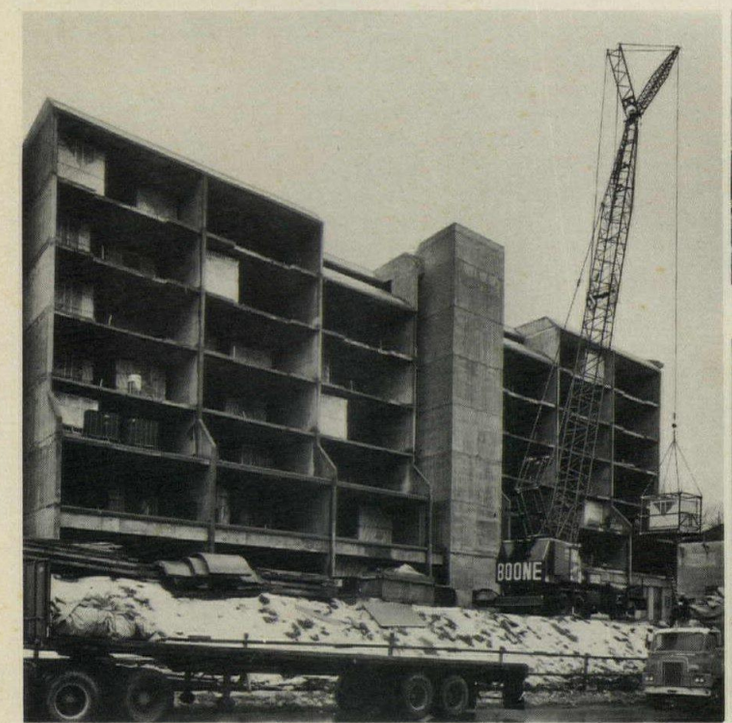

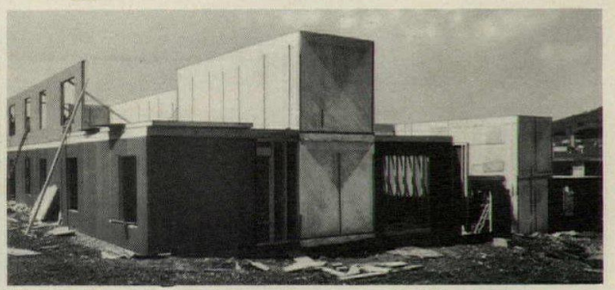

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Letters to the editor

I very much enjoyed your editorial in the February 1976 issue.

In your discussion with Louis de Moll regarding design-build, the readers would be led to believe that architects are prohibited by ethics from being *builders*. As you know, this is not the case. What they are prohibited to be are *building contractors*. A few architects through the years have provided design-build services normally by separate contracting.

It would be a mistake for the architect to give up his role as agent of the owner. In fact that is what construction management is all about. That is—the builder becoming the agent of the owner rather than a contractor in an adversary position because of his need to make a profit.

By the utilization of a management system, such as GSA's Construction Management Control System with the built-in checks and balances, a project can be delivered with predetermined restraints in the areas of time, cost and value.

A problem lies in the fact that most architectural firms are not normally staffed with personnel who can make construction management systems function properly. This is perhaps the reason that the field of construction management has been more attractive to those in the field of construction—general contractors, if you prefer. In any case, whether it be a traditional architectural firm or a traditional general construction firm, both would need to modify their philosophy and their staff to become a satisfactory group to supply a service of construction management.

To sum it up, let me say that the goal should not be to provide a design-build service but to provide design and construction management services by those who best fill the owners' needs.

James D. Hillhouse, AIA
Division of Facilities Management
The University of Alabama
Birmingham, Alabama

Responding to your provocative editorial in the January 1976 issue, it seems to me that lack of direction is the real problem that faces today's architects.

Is it better to be a complete architect, charting a known course, or a "lackeytect" bowing to the whims of the nonprofessional money merchandisers, doing deck-hand duties, aimlessly sailing through uncharted waters?

Direction is well defined in the philosophy of Vitruvius that makes an architect high-minded and not self-assuming, but rather renders him courteous, just, and honest without avariciousness. No work can be rightfully done without honesty and incorruptibility. Let the architect not be grasping nor have his mind preoccupied with ideas of receiving perquisites, but let him with dignity keep up his position by cherishing a good reputation.

We have been blown off that course by bigness and ugliness that usually go hand in hand. We like to think that we are all things to all segments of society. We feel comfortable, wrapped in our irresponsibility, because we are insured against errors and omissions. We rise to take the bait of bigness. We are a bunch of suckers.

By heeding the Vitruvius philosophy, we could set the course of direction to that of a good reputation.

Frederick Vance Kershner, AIA
Tulsa, Oklahoma

With reference to your invitation in your February editorial, here are some thoughts on critical problems facing:

a) Architects: If you have to show a medical examination to get a driver's license, you must go to a licensed physician. Going to court you must use the services of an accredited lawyer.

It is time to give building permits only if the plans are signed by registered architects—with very few exceptions allowed. The result may favorably surprise both the public and the architects.

b) Architecture: There will always be clients satisfied with mediocre architecture produced even by big offices.

Those who look for architectural excellence will go to good architects.

Wouldn't it be funny to see a plan signed by Frank Lloyd Wright & Associates or by Le Corbusier, Inc., Architects, Engineers and Planners?

Eugene Padanyi-Gulyas, FARA
Billings, Montana

Concerning your advice to the profession, appearing in the February 1976 issue, BRAVO.

I am extremely disappointed at the thought of losing our professionalism, which is an expression of basic integrity, either for profit, expanded opportunities or whatever.

P.D. Pharmakidis, AIA
Toledo, Ohio

We are most pleased to see our first and only municipal building to date published. It is things like this that make the practice of architecture worthwhile.

B.B. Levinson, MRAIC
Orme & Levinson
Victoria, B.C., Canada

Calendar

MAY

12, 23 Executive Briefing Sessions on Energy Conservation in New Buildings: Business Opportunities, sponsored by Arthur D. Little, Inc., drawing on its examination for the Federal Energy Administration of the economic impact of ASHRAE 90-75. May 12 at Essex House, New York City, May 23 at Executive House, Chicago. Contact: Margaret Kilburn, Arthur D. Little, Inc., Acorn Park, Cambridge, Massachusetts 02140.

14-15 American Society of Landscape Architects, New York Chapter annual conference on Recreation, Open Space and the Environment, Bear Mountain, New York. Contact: Signe Nielsen, ASLA, 30 East 4th Street, New York, New York 10003.

16 Seminar, Architectural License Seminars, Los Angeles. Contact: Architectural License Seminars, P.O. Box 64188, Los Angeles, California 90064.

18-22 Hyogo International Conference, International Federation for Housing and Planning, Kobe, Japan. Contact: Samuel R. Mozes, AIP, 86-10, 34th Avenue, Jackson Heights, New York 11372.

23-26 Effective Marketing of Architectural, Engineering and Construction Services, a course sponsored by Rutgers University Center for Continuing Engineering Studies. Contact: Mr. R. H. Karol, Center for Continuing Engineering Studies, Busch Campus, Rutgers–The State University, New Brunswick, New Jersey 08903.

24-28 Biennial Symposium of the International Association for Housing Science. Sponsored by The Housing Institute at Clemson University, the National Science Foundation, Florida International University and the I.A.H.S. in cooperation with 19 institutions and agencies. Contact: Office of Continuing Engineering Education, 116 Riggs Hall, Clemson University, Clemson, South Carolina 29631.

31-June 11 Habitat, the UN Conference-Exposition on Human Settlements, Vancouver, British Columbia. (The Exposition will include an exhibit at the Vancouver Art Gallery of submissions in the International Design Competition for the Urban Environment of Developing Countries Focused on Manila, conceived by ARCHITECTURAL RECORD and *L'Architecture d'Aujourd'hui*, sponsored by International Architectural Foundation.

JUNE

23-25 NEOCON, National Exposition of Contract Interior Furnishings, Merchandise Mart, Chicago.

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, ARCHITECTURE and WESTERN ARCHITECT AND ENGINEER)

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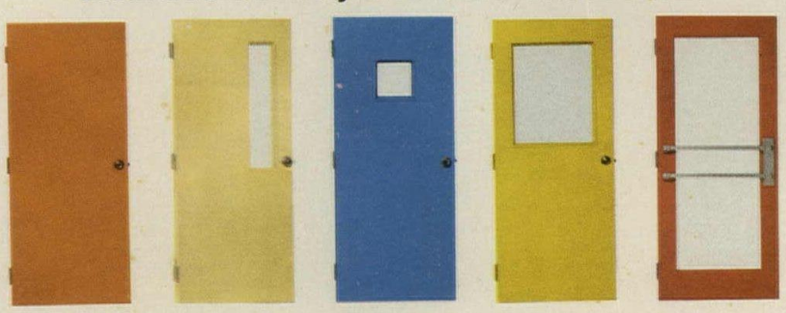

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Architect: Richard Levin Associates, Inc., Dayton, Ohio.
Interior Designer: Design Collective Inc., Columbus, Ohio.
Flooring Contractor: Weiffenbach Marble and Tile Co., Dayton, Ohio.

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These are the properties most specifiers expect from "Antron" II, the fiber known for its lasting good looks. And they are among the reasons why it is the leading contract carpet fiber brand.

How Antron® II hides soil. Here in the 250X electron micrograph, you can see the remarkable four-hole fibers of "Antron" II. The four microscopic voids scatter light to hide soil and help blend soil concentrations into the overall carpet look. The smooth exterior shape minimizes soil entrapment, making cleaning more effective than irregularly shaped fibers.

Specifier's Information Kit. For more information—a carpet manufacturers' resource list, a specification guide for health-care institutions and a maintenance manual—write: Du Pont Contract Carpet Fibers, Centre Road Building, Room AR, Wilmington, DE 19898.

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Announcing Grinnell's new Quick Response Actuator.

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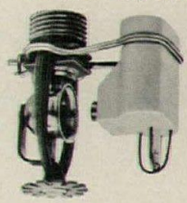
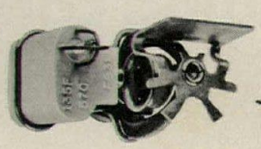
For information contact your nearest Grinnell representative listed in the Yellow Pages. Or write: Grinnell Fire Protection Systems Company, Inc., 10 Dorrance Street, Providence, Rhode Island 02903.

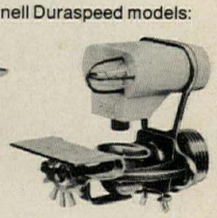
New Quick Response Actuator installs on these Grinnell Duraspeed models:



Pendent Sprinkler



Sidewall Extended Coverage Sprinkler



Standard Horizontal Sidewall Sprinkler

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Uniform thickness of doors, stiles and wall posts create a distinctive "flush-front" appearance. "Lifetime" stainless steel hardware is concealed inside the compartment. And for extra strength, steel cores reinforce the stiles; factory-installed threaded steel inserts secure the hardware.

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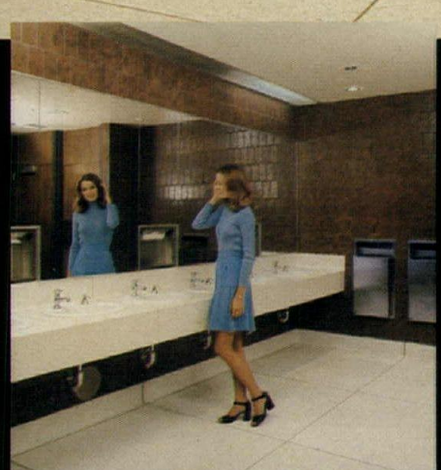

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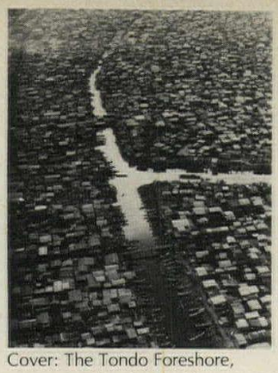


Cover: The Tondo Foreshore,
a squatter slum in Manila.
Photographer: Patrick Crooke

BUILDING TYPES STUDY 488: HUMAN SETTLEMENTS—WITH THE WINNING

95 Settlements—an introduction

This issue concentrates on one of the urgent problems of our time—that of excessive population growth, unemployment, environmental decay, alienation, and urban squalor in the urban slums of developing countries around the world. And to encourage the development of thoughtful prototypical designs for such housing and community development, it presents the winning designs in the International Design Competition for the Urban Environment of Developing Countries.

96 From slum to community, from despair to hope

This thoughtful analysis covers some of the approaches that have been tried to solve the problem of upgrading the slum and squatter settlements that are spreading as a blight in and around the sprawling and fast growing cities of the developing world.

100 A combination of government intervention and community self-help offers the most hope

In this photo essay, the noted social scientist Dr. Aprodicio A. Laquian urges new directions that planning and enlightened government intervention should take—new directions that take into account the migrants' traditional living patterns and resources for self-help, and that integrate them into public efforts.

106 Manila became the focus of the International Design Competition

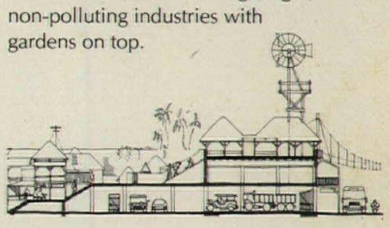
Manila was chosen as a real locale for the competition because its problems are prototypical, and because plans were underway to relocate over 100,000 squatters from a slum in its Tondo Foreshore to a nearby resettlement site in Dagat-Dagatan, which needed to be planned. The explicit problems and needs of the areas are discussed.

112 The winning designs

The competition—from conception to completion—was a three-year project involving hundreds of people: ARCHITECTURAL RECORD; *L'Architecture d'Aujourd'hui;* The International Architectural Foundation; United Nations officials; Philippine architects, planners, and government officials; organizations and individuals whose grants made the competition possible; dedicated professional advisors; and a distinguished international jury of architects.

114 The first prize winner

The first-prize-winning design by Ian Athfield of New Zealand proposes for each *barangay* a new kind of work place: a periphery of linear buildings designed for a combination of cottage, light, and non-polluting industries with gardens on top.



124 The second prize winner

The second-prize-winning design by Takagi Design Associates of Tokyo proposes the use of colonnades to help shape the pedestrian paths and other open spaces of the *barangay* providing an order within which the individual houses can multiply in a modular pattern.

130 The third prize winner

The third-prize-winning design by Sau Lai Chan of Malaysia makes the most of cluster grouping, creating a clearly defined hierarchy of spaces, from individual lots, to community courtyards, to alleys, pedestrian spines and vehicular roads.

DESIGNS IN THE INTERNATIONAL DESIGN COMPETITION FOR THE URBAN ENVIRONMENT OF DEVELOPING COUNTRIES

136 The honorable mentions

In addition to the three award winners, the jury singled out four other designs from among the 476 submissions for honorable mentions.

136 This honorable mention scheme by San Francisco architects Holl, Tanner and Cropper organizes the competition site with a simple series of arcades—"a line that defines public and private spaces."

140 This honorable mention by Robert F. Olwell and Jim Fong proposes an unusually ordered site plan with a hierarchy of public amenities that ultimately focus on the adjacent river.

144 An honorable mention by a team of Mexican architects headed by Hector Giron de la Peña makes a "human habitat" by developing a structural system with local materials for meeting specific conditions.

146 Honorable mention by a team of Japanese designers, led by Akira Kuryu, develops an inexpensive and efficient building system based on a concrete block module and using the "workable group approach"

148 Among the non-premiated entries there is an instructive variety of clear and useful design ideas

149 Example: strong precast concrete frames to support tenants' own construction, proposed by a team headed by architect Gerald Jonas of New York City.

150 Example: concrete towers that partially support construction and house sanitation facilities, proposed by Kiyoshi Seike of Tokyo.

152 Neighborhood plans, Kiyoshi Seike proposes, can be generated both by the utility lines and a humane concern for small-scale spaces.

153 Or each *barangay* could have one large open area for common uses, as proposed by architect Iwao Onuma of Tokyo.

154 And one planning proposal by architect Kum-Chew Lye of the University of Manitoba, proposed intensive use of the water that covered the site.

156 A RECORD staff analysis of the results

The housing and community design input was excellent, but perhaps even more important was the thinking about how much technology is appropriate, how the projects should be financed, and what the best ways are to help motivate people.

157 The report of the Jury of Assessors for the International Design Competition

158 Comments by world leaders in the struggle to improve conditions of human settlement around the world:

158 Barbara Ward, noted author and economist

158 Robert S. McNamara, president of World Bank Group

159 Enrique Peñalosa, Secretary-General HABITAT/United Nations Conference on Human Settlements

159 J.G. van Putten, chairman, Non-Governmental Organization's committee for HABITAT

159 J. W. MacNeill, Commissioner General of HABITAT for Canada

159 C. Eric Carlson, deputy director, Division of Financial and Technical Services, United Nations HABITAT and Human Settlements Foundation

159 Helena Z. Benitez, president III Governing Council, United Nations Environment Programme; and president, Philippine Women's University, Manila

160 A final word: With the competition complete, what action could be taken to follow up?

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NEXT MONTH IN RECORD

Building Types Study: Elementary, secondary schools

Some of the continuing trends in school design, construction and function are: more round-the-clock use by the community; simple, repetitive structural elements. This article will examine seven schools that overlap in several of these trends, all of which respond to major cost considerations

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The International Design Competition: What lessons for the developed world?

This issue—as you have or shortly will see—is devoted to the problems of human settlements in the developing world. As we wrote in an earlier issue: "Problems of excessive population growth, unemployment, environmental decay, disease, alienation and urban squalor are all interrelated—breeding despair and desperation. . . . Nowhere are these ugly problems more clearly focused than in the urban slums of the developing world." But. . . .

Those ugly problems are also focused, quite clearly, in the urban slums of developed countries—like right here in the United States. That is not to make any simplistic comparisons between the conditions or the aspirations of the poor crowded into our cities and the urban poor of, say, Manila.

But there are legitimate parallels. In our country, too, there has been a migration to the cities—people driven by the same forces that have driven the rural poor to Manila or to Bogotá: hope for a job, for a higher income, for a better education for their children. And in the U.S., as in many other countries, what those rural poor often find is only a different kind of deprivation. As the unemployment statistics (especially for inner-city minority families) show, there are not enough jobs. There is far too little decent and affordable housing. So it is fair to ask:

Question: Could a different kind of governmental intervention, plus self-help, improve housing for our urban poor?

Our housing subsidy programs are today suffering either from simple impoundment or simple failure. HUD's Section 8 program, intended to assist the poor to rent decent apartments (by subsidizing, through local housing authorities, the rent above 25 per cent of the family income) is simply not working: budgeted at about $1 billion with a goal of providing 400,000 families with decent apartments in this fiscal year, the Section 8 program has managed to serve only about 8,000 families—and no one is optimistic about the future.

Nor have earlier programs worked well. Much public housing has not been well accepted, and has often been badly treated by tenants, if not vandalized. While it is easy to criticize this mistreatment, it also deserves to be said that there are often understandable reasons for it: tenants who live in public or subsidized housing—and slums—do pay rent, and if they do not get the services they are entitled to, it does breed a frustration that is often taken out on the building. (A somewhat more unhappy version of kicking the vending machine when it fails to deliver your candy bar.) As both Mildred Schmertz and Dr. Aprodicio Laquian point out in their essays on squatter settlements around the world, housing that is "supplied" to the urban poor by the government has not worked any better in Venezuela or Colombia or Malaysia than it has worked here.

The design competition featured in this issue responds to this frustration of people towards housing in which they have no personal equity, or over which they do not have some kind of management control. It suggests a new kind of governmental intervention—a minimum intervention—and an invitation to the poor to assist themselves in getting better housing, and in return to be given a real equity in the project. Could it work here?

Answer: It sure is worth a try. In one New York experiment, welfare clients are rehabbing buildings with no subsidy.

Probably the most successful self-help (or sweat equity) program in the country is U-HAB—The Urban Homesteading Assistance Board—which is sponsored by The Cathedral of St. John the Divine and directed by Ian Donald Terner, on leave from M.I.T. where he is an associate professor of Urban Studies and Planning.

Over 600 apartments have been or are now being rebuilt by their future tenants (most of them on welfare) at a cost currently averaging between $10,000 and $13,000 per unit. At that kind of unit cost, amortization of the mortgage plus heat and electricity costs about $150 per month—which tenants on welfare can afford and which is less than many pay in rent for a cold-water flat with a shared toilet, no operable central heat, and roaches. The only intervention by the Federal government is Revenue Sharing funds, which are used by the city to give below-market interest rates on loans. The only intervention by the city is to sell abandoned buildings at a cost ranging from almost nothing to $1,000, and to give a 10-year tax abatement. This is scarcely a subsidy, since such buildings are already off the tax rolls, since many buildings now being rebuilt by U-HAB were slated for demolition at a cost averaging $6,000, and since after 10 years the buildings will again become taxpayers.

The program works like this: a group of people interested in the program come to U-HAB. It helps them find an abandoned building—of which there are over 10,000 in New York City. It helps the group form a nonprofit cooperative eligible for a loan to finance materials costs and a minimum of licensed work, mostly by plumbers and electricians. These loans were originally financed under the Municipal Loan Program (now defunct), but now use a combination of revenue-sharing and private bank funds.

Finally, U-HAB offers free staff help and technical advice—"offering free access to trained construction supervisors, architects, cost estimators, lawyers, accountants, tradesmen, expeditors, purchasers and others who can make the difference between an inexperienced but willing group of amateurs, and an effective self-help construction and management team." Virtually all labor is done by the co-op members—with only technical assistance and inspection by licensed workers (unions have been most cooperative, according to Terner). Obviously, the heavy work is done by the able-bodied; the very young might typically scrub sinks or ranges; the older members provide meals for the workers or, as Terner reports, "call two dozen suppliers to get the best price in town on $1,000 worth of electrical fittings." Can these unskilled workers do the job, and do it safely? "They *do* do it!" says Terner. "People with no training or experience become effective very quickly—with a minimum of supervision."

How well do these homesteaders maintain their enthusiasm through the long and difficult job? "Don't kid yourself about enthusiasm," says Terner. "Participants are rarely enthusiastic. . . . They are driven to it, by an absolute lack of alternatives. There is nowhere else to go, no one else who will help but they themselves. . . . These are often the city's most oppressed people—struggling to maintain lives, jobs, and families in the worst buildings and neighborhoods in the cities."

So maybe there is a workable, usable alternate to present housing programs in the U.S. Maybe the poor in this country can be helped—really helped—by the same combination that seems to be working in developing countries: minimum but sensitive government intervention, and the motivation toward self-help.

It sounds worth a try.

—Walter F. Wagner Jr.

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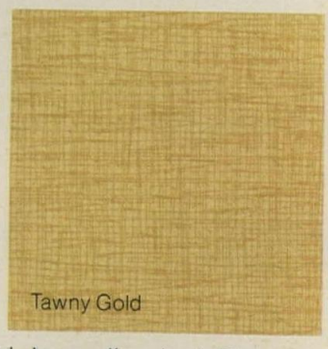

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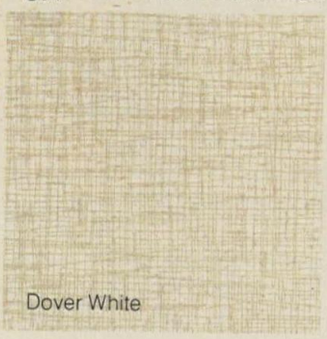

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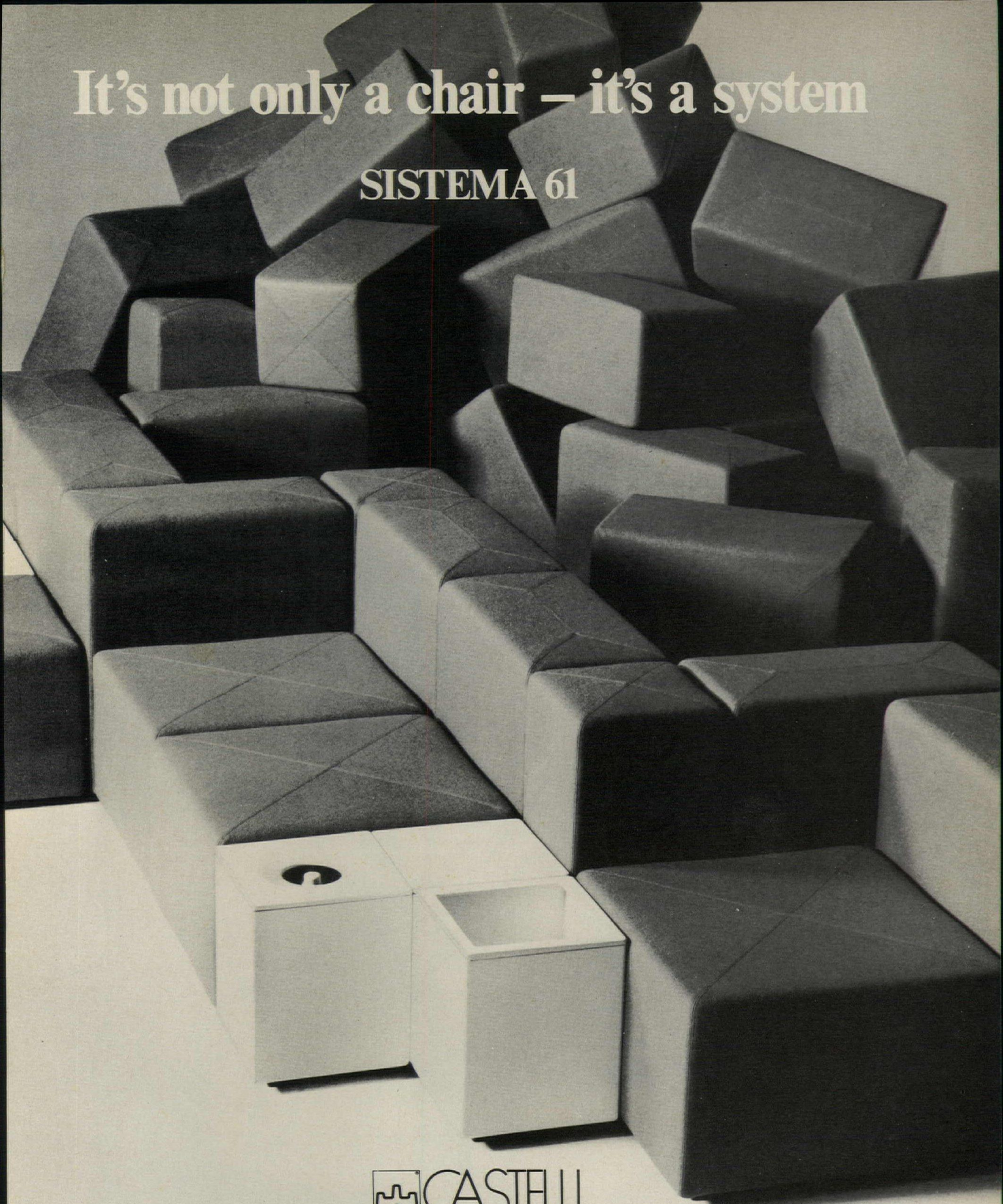

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You know that many factors have to be considered when you design a waterproofing system. For example, some will be on grade, some below, some above grade. You may be looking for products with special qualities, such as quick adhesion to damp or green concrete, or surface finishes that are rougher than usual. Some systems will be limited by tight budget.

When you work with Tremco, there's one factor you don't have to concern yourself with: the quality of the system you choose. Just tell us your waterproofing requirements and you can count on us to recommend a proven Tremco system that will do the job effectively. To help you get the most out of the system, we'll work with you from drawing board to job-site application instruction.

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A versatile hot-applied system

Say, for example, the job has to be done under a wide range of temperatures and the concrete surface finish may be a little rougher than usual. TREMproof 150 is an excellent choice, particularly for unexposed waterproofing applications such as bridge decks, parking garages and plaza decks.

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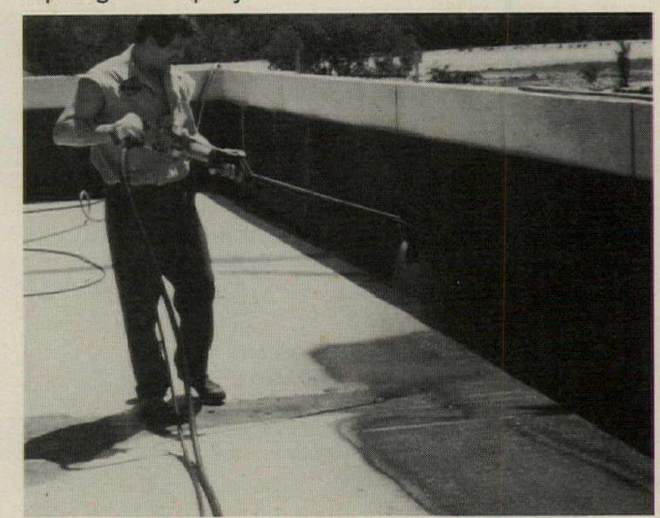
Tremco gives you a range of job-proven cold-applied systems to meet a broad range of two-course concrete construction techniques, plus critical areas (planters, reflecting pools, etc.) Take TREMproof 50. This two-part bitumen modified moisture-curing urethane provides a high-performing, flexible rubber-like seamless blanket that becomes an integral part of the structure. It can withstand constant water submersion. And because it's highly elastomeric, a 60-mil application provides up to 90% recovery. Service temperature range is —40° C (—40° F.) to 65.6° C (150° F.). It can be used on both vertical and horizontal surfaces and can be applied with trowel, squeegee or spray.



TREMproof 90W is a unique rubberized polymeric emulsion modified with asphalt. The system sprays on quickly and easily and cures within 15 minutes which prevents wash-off. It can be safely applied to green or damp concrete.

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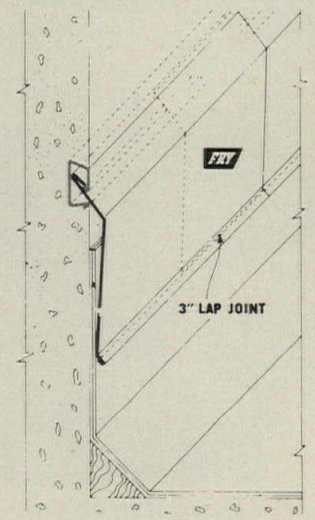

Reglet is designed especially for placing in concrete to take roof flashing. Taped to prevent invasion of grout. Flashing snaps instantly into reglet without screws after roofing is applied. Flashing is easily removed from reglet for re-roofing.

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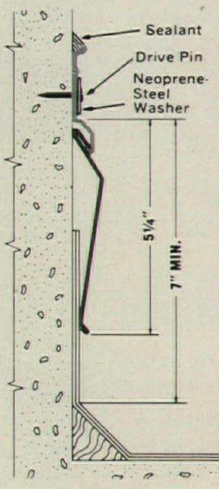

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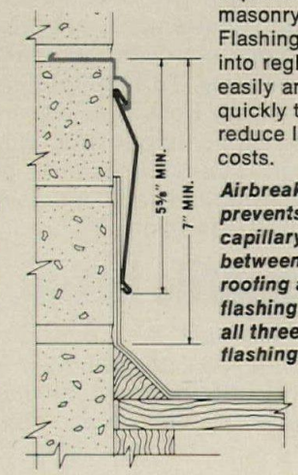

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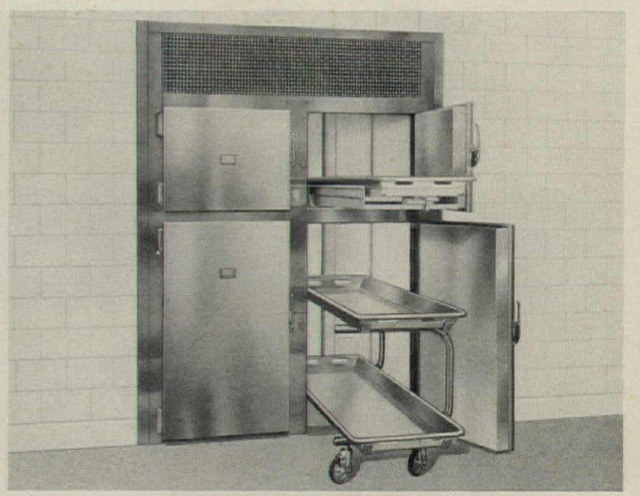

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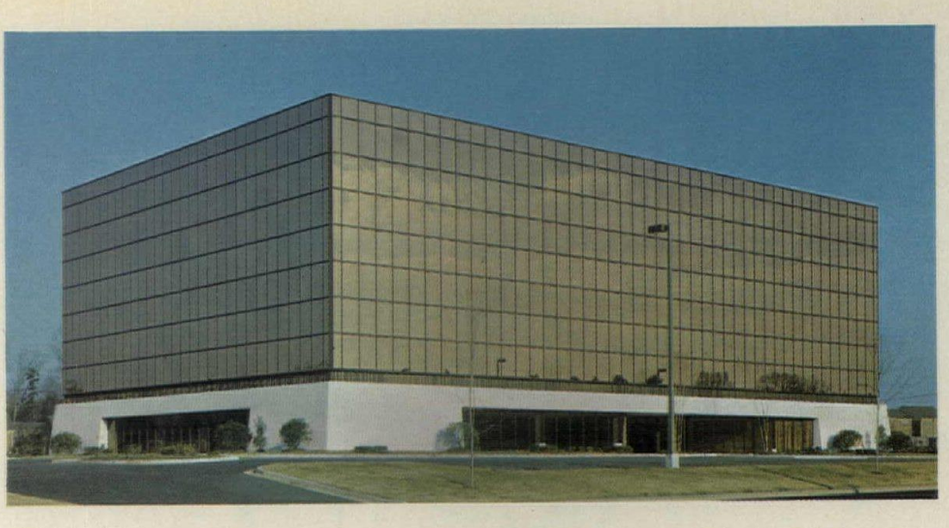

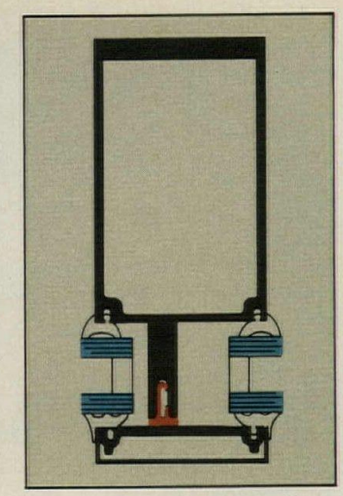

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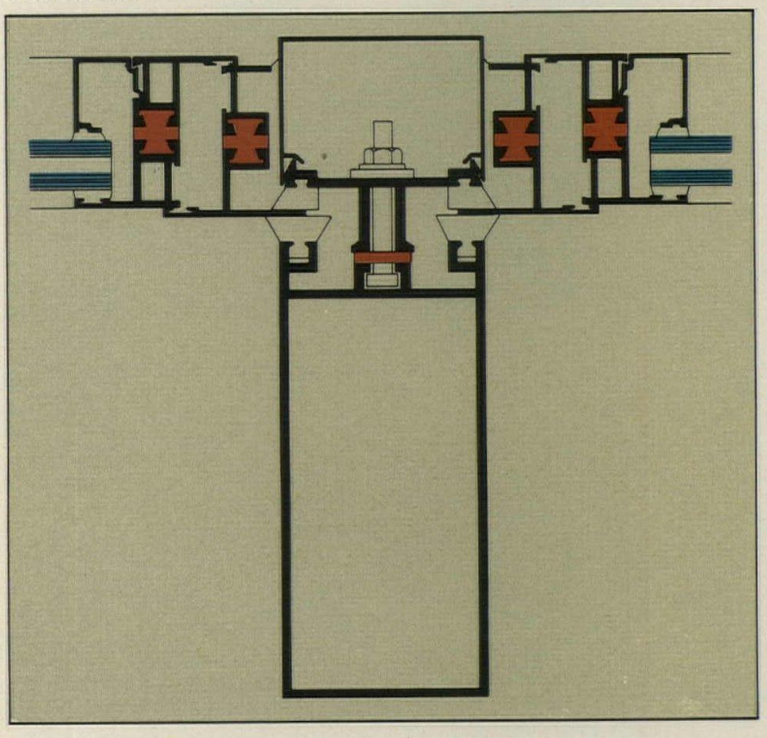

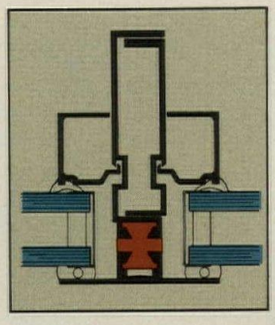

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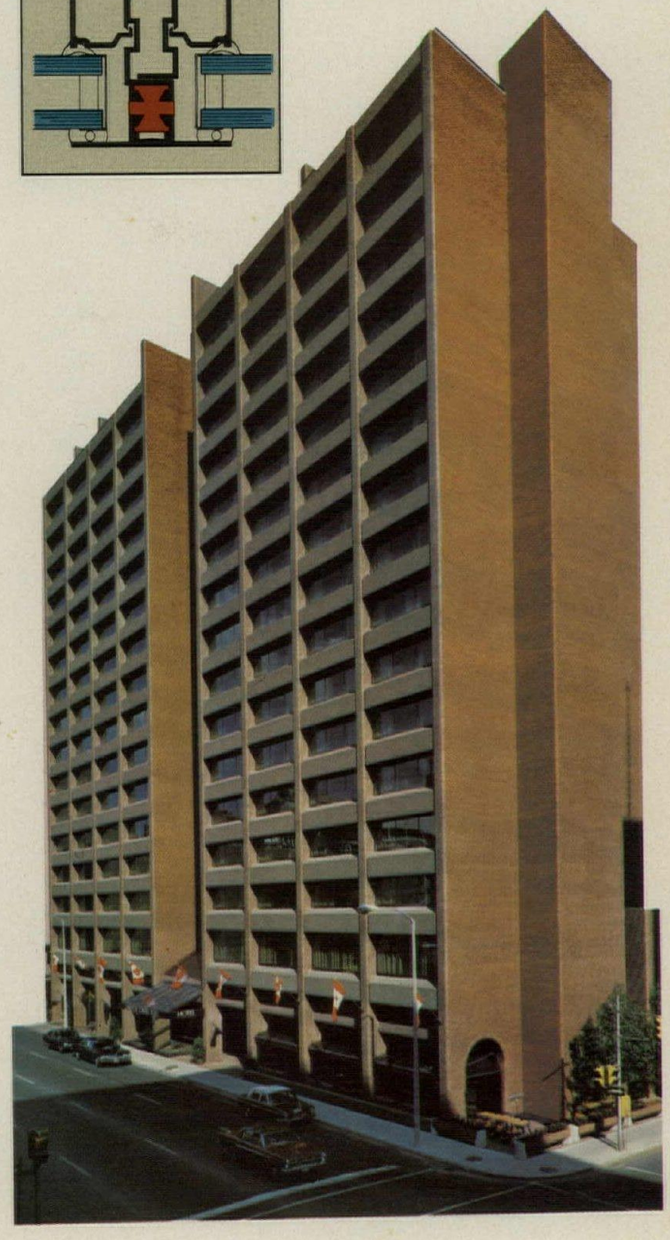

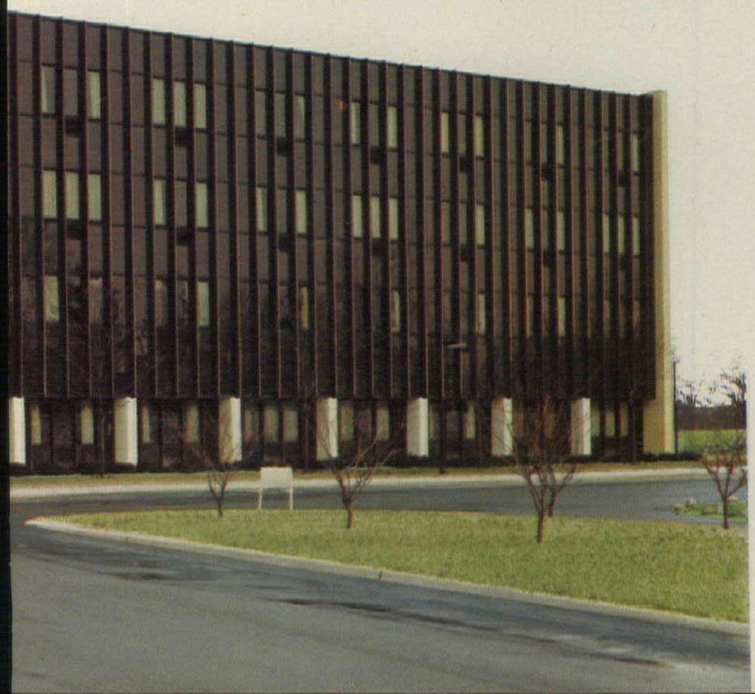

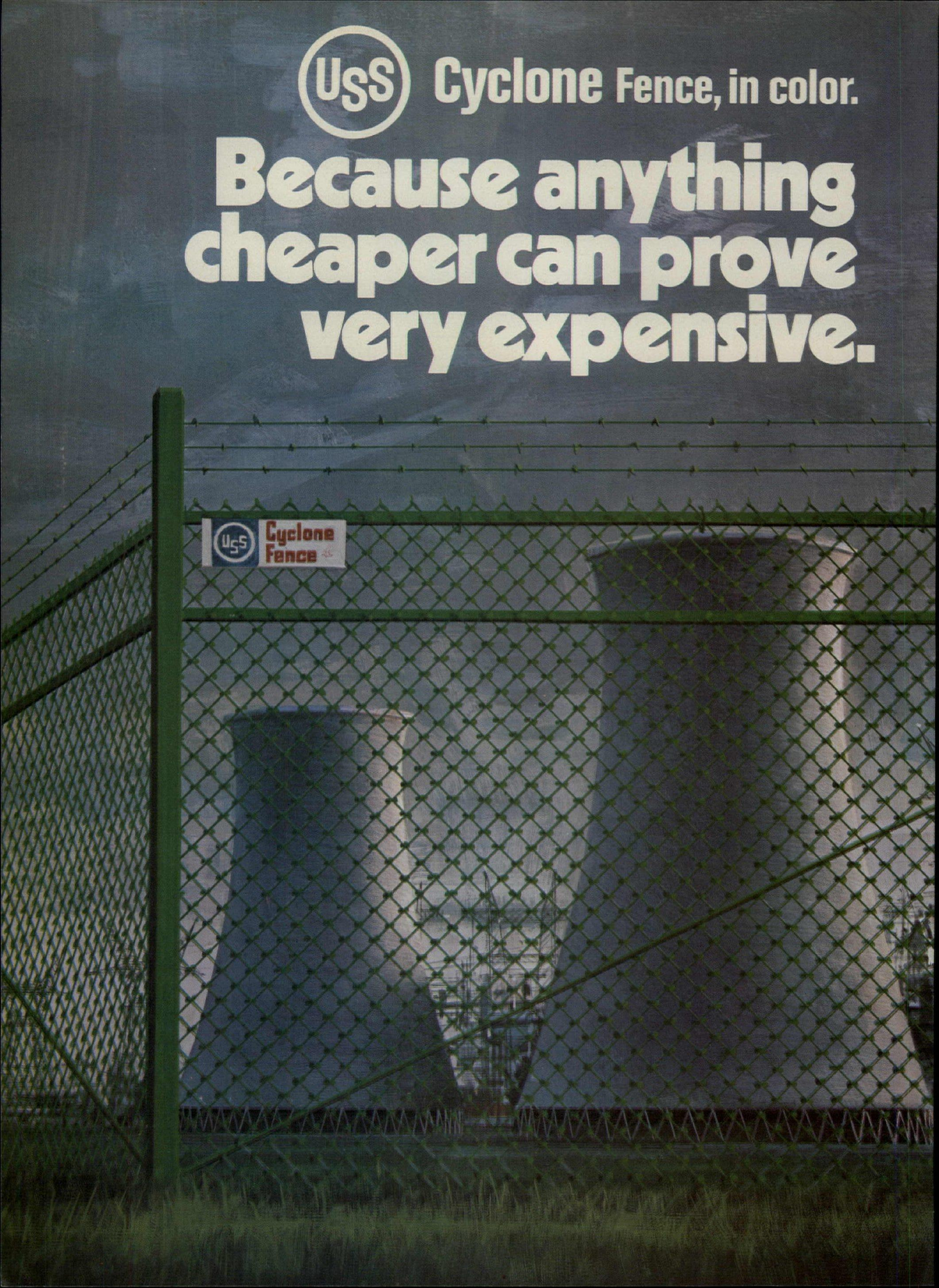
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Pleases the eye, soothes the ear.

The Rosemount/85 screen has 7 layers of acoustical materials. Covering is 100% modacrylic fabric woven with irregular yarn to create a homespun look.

The center of the core is ¾" thick fiberglass, sandwiched between two sheets of perforated hardboard.

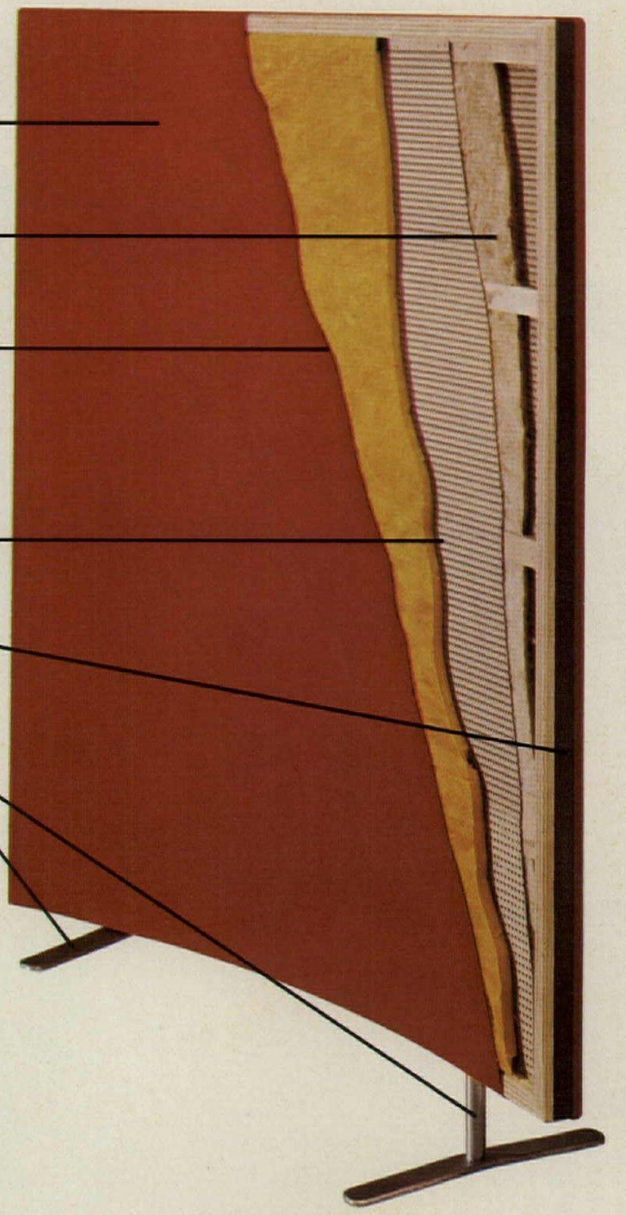
No problems with sagging or pillowing! The fiberglass behind the face fabric is rigid, not bat-type — and, on all inside curves, the fabric is bonded to the fiberglass.

Flat or curved. For standard heights and sizes, see chart, below.

Inch-thick rigid fiberglass is placed over the perforated hardboard on both sides of the Rosemount/85 screen.

Choice of edge trims: Oak, Walnut, or Fabric — or your choice (optional).

Legs may be easily adjusted to compensate for unlevel or unequal floors. Floor opening may be varied from 0" to 7". (Base closure optional.)



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ROSEMOUNT/85	FLAT	CURVED (96" Radius)
WIDTHS:	48," 60" *	48," 60" *
HEIGHTS:	56," 66," 72"*	56," 66," 72"*
OPTIONS:	Closed base, satin chrome legs, special edge trim.	

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Or write: Rosemount Partitions, Inc., Box D, Airlake Industrial Park, Lakeville, MN 55044.

Rosemount

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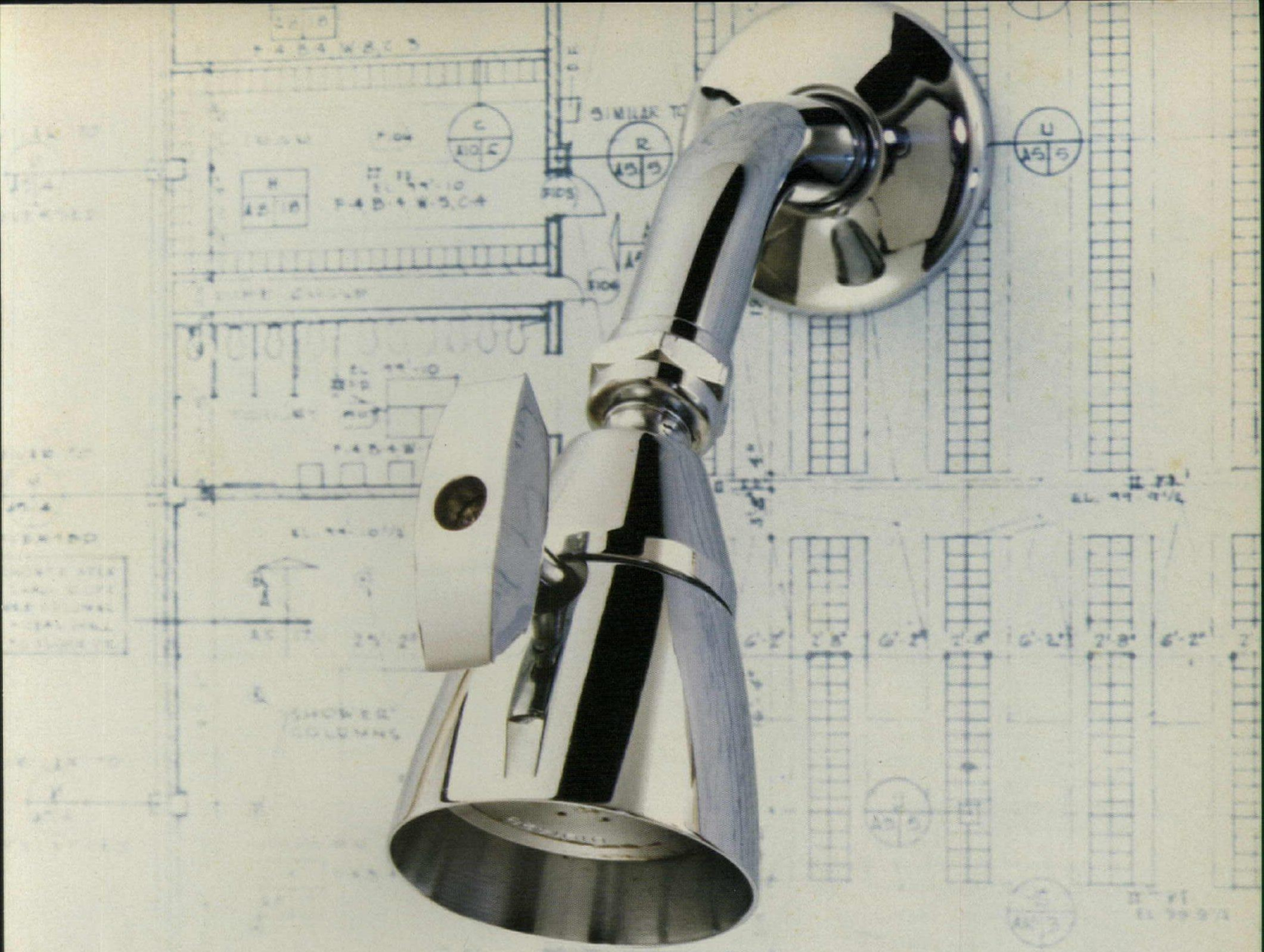

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Bradley. One source for the widest selection of shower fixtures anywhere. Fixtures you can combine to save space and cut costs by serving more people in less space than ordinary showers. Up to 6 people from one set of plumbing connections. Allowing you to plan on more showers, not more space. At a big saving in installation costs. No matter what size room. No matter what the design.

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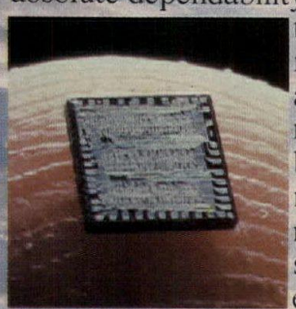

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Though February's construction figures dropped 7 per cent below January's, they showed a strong gain from a year ago—up 22 per cent—according to figures released by the F.W. Dodge Division of McGraw-Hill Information Systems Company. Dodge economist George A. Christie comments, "Not only is housing's recovery well established, but nonresidential building finally appears ready to turn up and, in fact, may be making its turnaround right now." February residential contracts reached $2,545,502,000, and Mr. Christie points out that the value of the residential market has increased more than 60 per cent over the last 12 months. Nonresidential building, at $1,995,830,000, was about 6 per cent below last February, but nonresidential contracting rebounded nearly 20 per cent from December to January, a gain that held through February.

The Australian government, which will build a memorial to architect Walter Burley Griffin in his centennial year, has named Cope & Lippincott Architects of Philadelphia the winners of an international competition for the design of the pavilion, to be built in Canberra. Details on page 35.

Mies van der Rohe's Lakeshore Drive apartments in Chicago will receive the AIA's 25-Year Award, given for architectural design of enduring significance and restricted to buildings at least 25 years old. Making the award, the Institute's Honor Awards Jury for Extended Use said in its citation, "This elegant group of structures set a standard of achievement in the design of high-rise apartment buildings that many successors strove to emulate, few equalled, and almost none ever surpassed."

Federal encouragement of the redevelopment of Washington's Pennsylvania Avenue may be at an end, unless the House reconsiders its rejection of continued funding for the project. Details on page 35.

Three buildings received First Honor Awards in the 1976 Library Buildings Award Program, sponsored jointly by the American Institute of Architects and the American Library Association. In the public library category, First Honor Awards went to the Pekin (Illinois) Public Library, designed by John Hackler and Co. (see RECORD, mid-August 1975, page 117) and to the Jefferson Market Branch of the New York Public Library, a renovation designed by Giorgio Cavaglieri, FAIA. In the academic library category, a First Honor Award went to the Bates College Library in Lewiston, Maine, designed by The Architects Collaborative (see RECORD, August 1974, pages 104-108).

The French Academy of Architecture has bestowed its 1975 Gold Medal on Josep Lluis Sert, former dean of the Harvard Graduate School of Design and founder of the firm Sert, Jackson and Associates of Cambridge, Massachusetts. The citation for the Medal, which is France's highest award for design, made particular mention of Mr. Sert's design for the Maeght Museum at St. Paul de Vence, France (see RECORD, October 1974, pages 102-103).

The first 4.5 miles of the Metro in Washington, D.C., opened last month midst huzzahs from straphangers—and some concern about future funding. Details on page 34.

The Federal Urban Mass Transit Administration will finance as many as three small-scale people-mover systems in urban demonstration projects. Details on page 34.

New officers assume leadership of the American Consulting Engineers Council this month: Dick Stanley, of Stanley Consultants, Muscatine, Iowa, becomes president, and William A. Clevenger, chairman of Woodward-Clyde Consultants, San Francisco, is president-elect. The ACEC's new vice presidents include Howard Cottrell, of Cottrell/Vaughan and Associates, Inc., Albuquerque; Emmanuel Nicolaides, of Hufsey-Nicolaides Associates, Miami; and Russell L. Smith, Jr., of the Russ Smith Corporation, Honolulu.

Kuwait has designated 1976 "The Year of Construction," and has declared its intention of spending much of its estimated $10-billion oil revenues on construction, with special attention to sophisticated medical, educational and industrial complexes. A press release announcing a trade fair—American Expo-Kuwait 76—to be held in Kuwait City in November, reports that the country will need all types of construction materials and equipments, as well as city planners, architects and design engineers.

A summer course, Focus on Design, intended as an introduction to the design professions—architecture, landscape architecture, historic preservation and urban design—for high school, college and graduate students is offered by Columbia University's Graduate School of Architecture and Planning. The only prerequisite for the course is "an interest in our environment and environmental design." The six-week course, which begins July 5, will involve lectures, seminars, field trips and design studio. Tuition is $500. For information: Karen Lee Sobol, Program Director, Focus on Design, Graduate School of Architecture and Planning, 400 Avery Hall, Columbia University, New York, New York 10027—phone 212/280-3473.

Chicago AIA offers a plan to save the Loop El—and to save money

A controversy, ignited by the Chicago Chapter, American Institute of Architects, has flared up over whether to replace the city's Loop elevated railway with subway lines.

Led by a three-architect task force consisting of Harry Weese, Larry Booth and Douglas Schroeder, the Chicago Chapter contends the Loop El can be renovated or rebuilt. By doing so, they say, a new public transit system could be built in downtown Chicago for less than a third of the $1.43 billion needed for the subway proposed by the Chicago Urban Transportation District (CUTD).

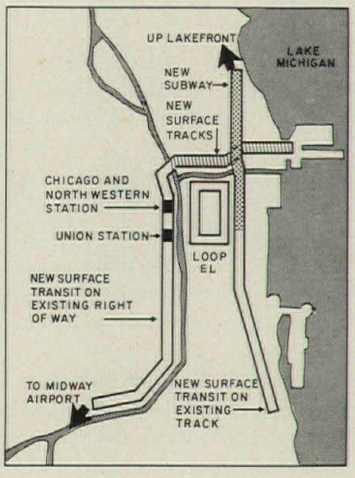
Since its inception in 1970 as a tax-levying municipal corporation, CUTD has steadfastly maintained that the aging Loop El should be replaced with more expensive subways. CUTD has spent nearly $20 million on predesign, two detailed reviews of its plans, and environmental impact work. And although the District made its first capital-grant application to the Federal Urban Mass Transportation Administration (UMTA) in 1971, it has yet to receive any construction funds for the project. A 1974 application is now pending.

"The longer CUTD fiddles around, the less credibility they have," says Mr. Weese, who is also general architectural consultant for the new Metro Transit System in Washington, D.C. Mr. Weese says the AIA proposal, which he has submitted to UMTA, would require only 1.75 miles of subway construction, compared to 11.9 miles of subway in CUTD's first phase. Says Mr. Weese, "We're fed up with space-age technology which doesn't work and costs like crazy anyway. Our plan is just being responsible to the principle of getting the biggest bang for the buck."

"The guy is dreaming," counters Harold E. Nelson, CUTD's executive director. Yet even Mr. Nelson concedes that $1.43 billion would not build what CUTD eventually wants. That figure would not cover 5.6 miles of subway also needed for the downtown Loop area, which would be in addition to the main north-south and east-west lines included in the first phase of construction. Mr. Nelson declines to estimate what the total system would cost.

Mr. Nelson and the CUTD say the elevated track is an obsolete structure that actually impedes service to patrons and will be an obstacle to future downtown development. Mr. Weese, on the other hand, says, "Instead of making things nice for developers, we want to make things nice for people." And by placing the elevated tracks in sound-absorbing beds and putting up sound barriers, he says, the El could be made quieter. The CUTD disagrees.

Besides renovating the El in its present location, Mr. Weese says that in the AIA plan another saving would result from building new transit track on nearly six miles of existing railroad right of way (see map). Both the north-south and east-west spines of the AIA scheme are mostly above ground. Indeed, Mr. Weese says, only 1.75 miles of subway would be needed: a mile to go beneath Michigan Avenue, and two short tunnels. The AIA plan would cost no more than $300 million; that would include $80 million for the subway portions and two new stations, $66 million for rebuilding the El and eight new stations, $60 million for new tracks at grade and four new stations, and money for cost escalations.



The local AIA's rebellion against the CUTD plan began in 1973, Mr. Weese says. His firm, Harry Weese & Associates, was part of a joint venture with American Bechtel, Inc., which evaluated 12 alternative public transit plans for downtown Chicago. One of the alternatives called for rebuilding the Loop El, "but they [CUTD] walked away from that," says Mr. Weese. So he notified the local AIA chapter, which has been on record since then as opposing permanent destruction of the elevated track.

Mr. Weese believes there is no chance UMTA will approve enough funds to build the $1.5-billion-plus CUTD plan, but the District remains hopeful. Says Mr. Nelson, "We're still confident funds will be provided for the project. Chicago is about the only major city that hasn't yet received a transit construction grant." For construction, CUTD is asking for $115 million the first year, and $205 million for each of five years thereafter.

Meanwhile, Mr. Weese admits that his proposal amounts to "architects dabbling in things beyond their traditional expertise." But he says, "We put these ideas forth as hypotheses—the burden of proof is on them to prove us wrong."—*Dan Brown, World News, Chicago.*

Street railway reborn in downtown Detroit

Detroit, which abandoned 400 miles of street railway 20 years ago, now plans to install a downtown trolley system at a total cost of $1.4 million. The city has rescued four American-built trolley cars, vintage 1899, from Lisbon, Portugal, where they had been in service for 70 years. These streetcars will operate on a three-quarter-mile track from Detroit's convention center to the downtown business district. "We're trying to revitalize Detroit," explains architect Alex Pollock, director of the Mayor's Merchant Assistance Program and prime mover of the short-line trolley. "We have two back-up cars, and two extra cars for spare parts. Eventually we hope to expand the line." Trolley fare will be 25 cents when service begins on July 1.—*Roger Guiles, World News, Detroit.*

UMTA studies people-movers for small-scale transit systems

The Transportation Department's Urban Mass Transit Administration (UMTA) will fund up to three small-scale automated people-mover systems in urban area demonstration projects. None of the systems, however, will come close to matching the scale, complexity, or cost of UMTA's first people-mover effort, the $65-million Morgantown, West Virginia, program.

Those proposals accepted will be financed from capital grants rather than from research and development funds, which were used to underwrite Morgantown. The new systems will use the simple shuttle-loop technology developed primarily by private industry and now in operation at several major airports.

Because these systems can handle relatively small passenger volumes, rarely exceeding a capacity for moving 9,000 passengers per line per hour, UMTA officials will consider applications from medium or small cities only.

According to UMTA Administrator Robert E. Patricelli, the shuttle-loop projects are needed "to develop hard data on the cost-effectiveness of the simple automated system." Because the agency concentrated from its start on more advanced people-mover technology, it has no statistical foundation to determine the economic feasibility of the smaller systems.

UMTA does not expect to fund more than three miles of any project accepted under the program, and currently projected costs range from $15 million to $20 million per mile.—*James Wargo, World News, Washington.*

Washington's new subway opens to passengers' praises

The first short leg of Washington, D.C.'s, new subway, dubbed "Metro," opened and quickly won plaudits from riders. More than 50,000 people took advantage of a free ride on the first day of operation on a Saturday at the end of March. Only 4.5 miles of subway are in operation—from Rhode Island Avenue just northeast of Union Station through Farragut Square and to the beginning of the major shopping area along Connecticut Avenue.

But while local officials celebrate the opening, there is still a major cloud on the horizon for Metro. The system will cost $4.6 billion, but there is only $2.7 billion committed as yet to further construction. The funding shortfall will largely be made up from the transfer of funds earmarked for local segments of the interstate highway system, if Transportation Secretary William T. Coleman, Jr., has his way. There is almost enough highway transfer money available, but the District of Columbia, Maryland and Virginia must go along with the plan. The District has already transferred $286 million in such funds, but much more is needed.

Secretary Coleman does not want to commit Federal funds in excess of those already needed and has qualified his endorsement of the full system on the understanding that the current final cost prevails. Any addition, he feels, should be paid for locally. Local governments, however, have not yet added money beyond that put up as local matching funds when the ultimate price tag was expected to be only $2.5 billion. A decision for either more funding or shortening the system must be made soon.

But the initial favorable public reaction to Metro may result in increased support for building the entire system. The railcars are quiet, traveling on welded tracks that are cushioned underneath. Moreover, the trackbed itself "floats" on a thin polymer-like substance. Sound-absorbent material is also placed in the ceiling and beneath the platforms at each station. (See RECORD, mid-August 1974, page 96.)

The entire Metro system—when built—will have 98 miles of track and 86 stations, with 47 miles of track and 33 stations above ground. More than 500 cars carrying 175 people each (seated and standing) will operate every two minutes during rush hours. Each station has coffered vaulted ceilings of unpainted concrete. DeLeuw, Cather & Co. are the general engineering consultants; Harry Weese & Associates are architects for stations.

Although Metro construction has adversely affected some downtown shops, local businessmen are generally still behind Metro, viewing it as a major asset to community development.—*John K. Higgins, Jr., World News, Washington.*

Congress halts improvement of Pennsylvania Avenue

Government-encouraged redevelopment along Washington, D.C.'s ceremonial Pennsylvania Avenue may be halted by economy-minded members of the U.S. House of Representatives.

The House unexpectedly voted against continuing to fund redevelopment efforts along the segment of the avenue running from the Capitol to the White House. (The Senate had already approved the financial aid, and the Administration was backing it.)

Congressional advocates of Pennsylvania Avenue redevelopment are unsure about the next step. But they are clearly worried. The Pennsylvania Avenue Development Corp. will presumably run out of money at the end of the fiscal year.

Approval of the House bill would have provided an authorization of $38.8 million in direct Federal funding for redevelopment work in the next two years. Additionally, the corporation would have received authority to borrow up to $200 million from the U.S. Treasury to use as a revolving loan fund for developers.

The Senate's version followed a White House suggestion that $130 million be authorized for direct Federal spending. It also granted authority for borrowing $200 million. This spending was expected to spark considerable private investment.

Under both House and Senate versions, the corporation would be empowered to acquire and preserve the Willard Hotel, a landmark.

The vote against the bill in the House apparently was motivated by concern among members over the growth of Federal spending as election time draws near.—*William Hickman, World News, Washington.*

New glass failures stop occupancy of Hancock Tower

Boston Building Commissioner Francis W. Gens has suspended all unused occupancy permits for John Hancock Tower following the failure of a pane of glass on the 53rd floor. So far, eight panes have fallen from the 60-story glass tower since installation of tempered glass last May. (All of the more than 10,000 original double-glazed panes were replaced because of severe breakage problems. The earlier wall is presently a matter of litigation between John Hancock, Libbey-Owens-Ford, I.M. Pei & Partners and a number of contractors and insurers.)

Saying that he would not issue any new occupancy permits until he has received and reviewed a report from John Hancock, Commissioner Gens has requested the owner to supply specifications and other information. He has also appointed a five-man panel to review the data.

A spokesman from John Hancock said the company believes the Commissioner acted "hastily and in an unwarranted manner without some prior review of the testing program."

According to John Hancock, three of the eight failures were attributable to construction accidents and one to glass imperfection, the probable cause of three other failures. One panel was shot out by a sniper.

Commissioner Gens says that he may order the building evacuated unless it can be shown that there is no danger to occupants or to pedestrians below. Only six upper floors are occupied.—*Paul Giguere, World News, Boston.*

Money problems bedevil HUD-insured new towns

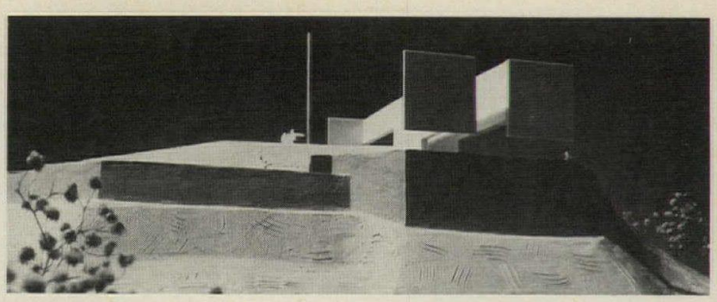
"New Town" developments across the country are slipping into deeper financial troubles, and the Federal government is being called on to bail them out. The Department of Housing and Urban Development, whose ownership of thousands of houses, empty lots and defaulted mortgages already makes it the nation's largest landlord, is about to become the unwilling owner of Gananda, a new town near Rochester, New York—and eventually of perhaps a half a dozen others.

Gananda is one of 14 Federally approved new communities. It was started in 1972 as a 5,800-acre project financed with the help of $22 million of HUD-insured bonds. But the housing and real estate depression caught up with the developers, and they ran out of cash before a single housing unit could be built. Last year, HUD paid the $1.7 million due Gananda's bond-holders, and it will be paying them for many years to come.

James F. Dausch, the new administrator of HUD's new Communities Administration, notes that HUD is already paying bond interest for seven other new towns in addition to Gananda. By June 30, HUD will have paid out $17 million in interest and another $1.5 million in fees for new towns that lack the cash flow to meet their obligations. The new towns and the amounts they owe are: Jonathan, outside Minneapolis, $2.6 million; Park Forest South, near Chicago, $2.1 million; St. Charles, between Washington, D.C. and Baltimore, $3.7 million; Riverton, also outside Rochester, $598,000; Newfields, near Dayton, $1.4 million; and Flower Mound, near Dallas, $1.4 million.

The new communities program has been plagued by the same sales and tight money problems that have bankrupted builders, real estate investment trusts and other housing developers. New towns also got a setback when the Nixon Administration froze the program, along with other housing subsidy programs, in January 1973.

At Gananda, HUD's hope is that, with most or all of the $15 million of private debt converted to equity and with HUD picking up the payments on the outstanding bonds, a new developer can be found to keep the project alive.—*Donald Loomis, World News, Washington.*



Philadelphia firm wins Griffin Memorial competition

Walter Burley Griffin, the Chicago architect who designed Canberra, Australia, would have been 100 years old this year, and in his honor the Australian government will build a memorial pavilion on the summit of Mount Ainslie overlooking the capital city.

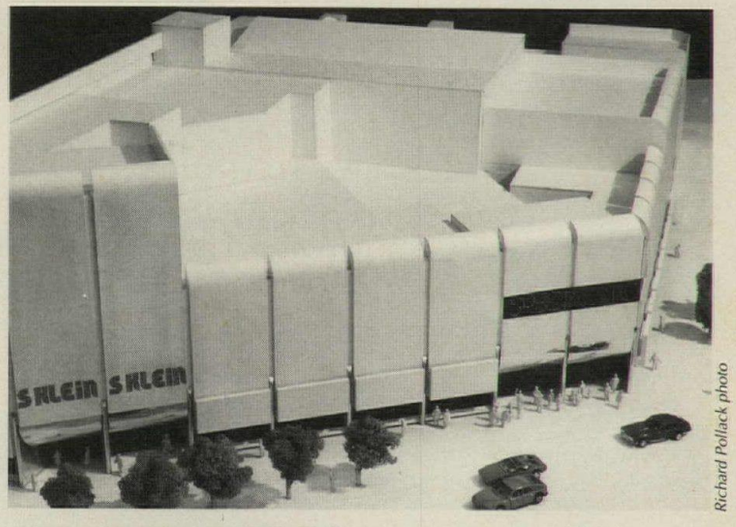
Winners of the international competition sponsored by Australia were the Philadelphia firm of Cope & Lippincott Architects, whose associate Robert T. Crane III designed the winning entry.

The memorial comprises a pair of parallel slabs that frame a vertical view along Griffin's great central axis and channel the visitor's attention on the War Memorial, Parliament House and Capitol Hill. As the visitor proceeds through the pavilion and descends to a lower level, a parapet and the two large squares that jut out from the slab ends will provide a horizontal frame for the entire central city and the surrounding countryside.

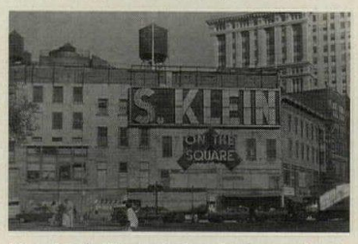
The structure will be reinforced concrete, a material Griffin himself felt "would contribute to the dignity and impressiveness of the entire city . . . [and] would, with imagination, suffice for a genuine and national style." On the exterior, one wall will carry a relief diagram of Griffin's 1912 design, the other a diagram of the new regional plan now in development.

Groundbreaking will take place July 4, 1976, in celebration of the American bicentennial, and the unveiling is scheduled for November 24, 1976, Griffin's 100th birthday.

Manhattan's Union Square gets a much-needed face lifting



Richard Pollack photo



New York City's Union Square, a large green park at the intersection of 14th Street and Broadway, is surrounded by marginal retail shops housed in run-down buildings. One of the square's "landmarks"—S. Klein on the Square, a bargain clothing store—closed last August, leaving the east side of the square more woe-begone than ever.

Now, however, Julio Tanjeloff, a retail developer with properties on Manhattan's 57th Street and Fifth Avenue, has announced plans to restore—not to say, improve—S. Klein.

The old S. Klein was a mélange of small buildings bearing little resemblance to each other either inside or out. The design for a new store, by Andrew S. Blackman Associates with Stephen Lepp & Associates as associated architects, will make no structural changes inside, but will simply wrap the store's collection of seven or eight buildings in a new facade. (The facade will also encompass some small shops on 14th Street and Klein's warehousing facilities.)

A steel substructure will reinforce the buildings' exteriors and will support stucco-like panels of expanded polystyrene with fiberglass-reinforced finish. The curving entrance soffits, column covers and other elements at ground level will be polished stainless steel.

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NFPCA schedules research and training in fire safety

The Federal Government's National Fire Prevention and Control Administration, created by Congress two years ago, is about to begin making its mark.

By mid-May, NFPCA expects to unveil a five-year plan of research and professional education and training aimed at reducing deaths and economic loss due to fire. Among professionals eligible for the training will be architects, engineers and code officials.

At the same time, NFPCA is moving toward selection of a site for a new National Academy of Fire Prevention. Congress authorized the spending of up to $9 million for the training academy, the money to be used to adapt or rehabilitate existing buildings or to construct a new facility. The location of the academy has been a source of keen competition, with 200 proposals flowing in from 40 states eager to offer the school a home.

While NFPCA has no regulatory power, its charter as the pre-eminent Federal agency in the field is certain to influence the design of buildings and building codes. Congress gave NFPCA authority to devise "a coordinated program to support and reinforce the fire prevention and control activities of state and local governments."

The effectiveness of codes and standards will be evaluated and, according to Deputy Administrator David A. Lucht, research and technology should be applied so that "codes and legal instruments can be used more effectively."

Some architects have expressed concern that the NFPCA, despite the lack of explicit authority to set codes, eventually will use its leverage to impose Federal standards on state and local building codes. NFPCA officials deny any such intention.

NFPCA, along with the Fire Research Center of the National Bureau of Standards, has already funded 39 grants totaling $2.6 million, including $294,000 to the University of Montana for studies on flame spread and smoke movement, $96,000 to Harvard to study safety in urban housing, and $81,216 to the University of California at Berkeley to devise an up-to-date course for architects on designing for fire safety.—*Donald Loomis, World News, Washington.*

HUD funds feasibility study for modular utility system

In a search for new concepts to conserve energy in buildings, the Federal government is pushing development of on-site, self-contained utility systems that generate their own power.

The Department of Housing and Urban Development has awarded a $400,000 research grant to Interstate Land Development, Inc., for preliminary planning and design work to determine the feasibility of a Modular Integrated Utility System (MIUS) for St. Charles, a new town in Charles County, Maryland, 25 miles southeast of Washington, D.C. Interstate has in turn contracted with its own Hamilton Standard Division of Hartford, Connecticut, Chicago engineers Gamze Korobkin Caloger, and architects Harman O'Donnell & Henninger, master planners of St. Charles, to conduct the feasibility study.

St. Charles now has about 2,000 housing units completed and expects to reach the 24,000 level over the next 10 to 15 years. The study will ascertain how many housing units and what size shopping center complex could be served by five MIUS outputs: electric power, space heating and cooling, solid and liquid waste processing, and potable water.

HUD began working on the MIUS concept in 1971 with assistance from the National Bureau of Standards, the Department of Defense and the National Aeronautics and Space Administration. Initially, its goal was to free housing developments from utility hook-up requirements and thus open land for development that was not serviced by utilities. As the energy shortage developed, however, the program has taken on new meaning.

A companion program, IUS (for Integrated Utility System), funded by the NBS and adminstered by the Department of Health, Education and Welfare, is moving more rapidly. Under a $132,221 contract, engineers Reynolds, Smith & Hills, Inc., of Jacksonville, Florida, are conducting feasibility studies on installing IUS at two universities—the University of Florida at Gainesville and Central Michigan University at Mt. Pleasant. The company will complete its studies at the universities by late April and file a report with HEW by late June.

The studies will determine whether it is practical to install an IUS system servicing the same basic utilities as the MIUS program. The difference between the two approaches is that MIUS modular additions to the system would be made as a community grew, while IUS would service self-contained institutions where growth is expected to be limited.

On a slightly different front, NASA is building a prototype home at Langley, Virginia, called Tech House and billed as the "house of the future." The house, in the $40,000 to $50,000 range, uses existing mechanical equipment or equipment expected to be available off the shelf within five years. The projected savings will come through extensive use of solar heat, partial water reclamation, extra insulation and other energy-saving devices.

The house will be completed this summer. It has been heavily instrumented to check on performance of equipment. Following public demonstrations, the house will be occupied by a family of four for a year, during which time NASA will be able to determine if the concept lives up to expectations.—*Seth Payne, World News, Washington.*

2,000 delegates will convene at UN Habitat this month

For 12 days in Vancouver, British Columbia, opening May 31, about 2,000 ministerial delegates from 140 countries will meet in plenary session at Habitat: the United Nations Conference on Human Settlements. Delegates will endeavor to formulate three major policy statements on the issue of housing and urban development: (1) a global declaration of principles, (2) a program for action at the national level, and (3) proposals for international cooperation and assistance.

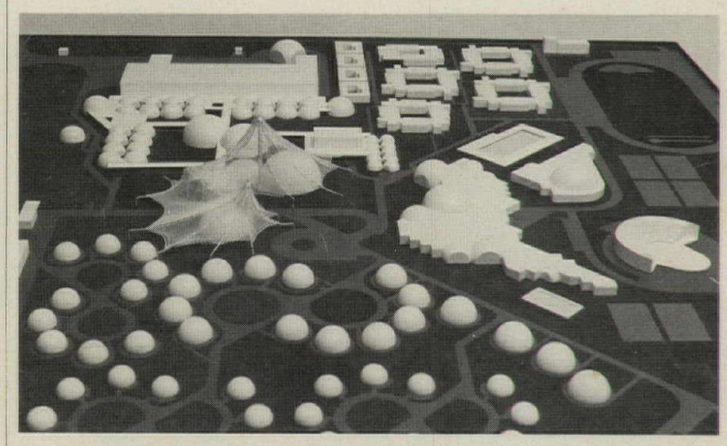
The largest, and perhaps the hardest, work at the conference will center on the definition of national programs. This agenda item has been broken down into six divisions:

- settlement policies and strategies, encompassing policies designed to meet human settlement needs within the framework of national development planning;
- settlement planning—that is, territorial planning on the national and regional levels and physical planning at the settlement level;
- institutions and management—that is, institutional structures needed to implement, monitor and sustain policies, plans and programs;
- shelter, infrastructure and services, considering housing and physical and social services through an integrated response to settlement needs;
- land, viewed as a resource rather than a commodity, with special attention paid to its control and use for public benefit;
- and popular participation—that is, consideration of ways to involve people in decision-making, implementation, and management of programs concerning their lives.

Of nearly as great importance at Habitat as the ministerial session itself will be the activities of the nongovernmental organizations (NGOs), which encompass architects, planners, economists, lawyers, sociologists, environmentalists and others. Although some UN-accredited NGOs will attend the plenary session as observers, the main activities, open to any interested visitor, will be meetings and exhibitions conducted by Habitat Forum.

Topics likely to be discussed at the Forum include national human settlements policies, human settlements and the new economic order, rural development, community involvement in improving the quality of life, land use and ownership, user-oriented urban technologies, the man-made and natural environments.

Among the planned exhibits will be—at the Vancouver Art Gallery—the winning designs and other submissions in the International Design Competition for the Urban Environment of Developing Countries Focused on Manila, conceived by ARCHITECTURAL RECORD and *L'Architecture d'Aujourd'hui* and sponsored by The International Architectural Foundation (see pages 95-160). In addition to drawings, the exhibit will include a model of one of the housing units designed by the winner, New Zealand architect Ian Athfield (see pages 114-123).



A campus of domes planned for Algerian Petroleum Institute

The domes of El Oued, Algeria's "City of the Thousand Cupolas," inspired the design of the Algerian Petroleum Institute extension at Hassi-Messaoud, designed by the Italian architectural firm ICOMSA of Padua.

The university's educational complex comprises 16 domed classrooms adjoining a long workshop. Two larger domes nearby house the library. The concrete domes are constructed with inflatable forms—neoprene membranes with prefitted reinforcing. Each dome will take about a week to complete.

Near the center of the campus, a huge tent lends importance to, and acts as a windscreen for, the university's administration building, petroleum museum and a conference center. Masts of varying heights will support the steel net and its translucent plastic covering.

Students will be housed in five one-story residences, built around central courtyards, while instructors and technicians will live in detached domes across campus. The project will also include ancillary athletic and recreational facilities.

The school, scheduled for completion in 1977, is being built by ENCO of St. Peter Port, Guernsey.—*Martine Rossard, World News, Algiers.*

These oxfords have scurried back and forth among the dining tables at the Holiday Inn for over a year.

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

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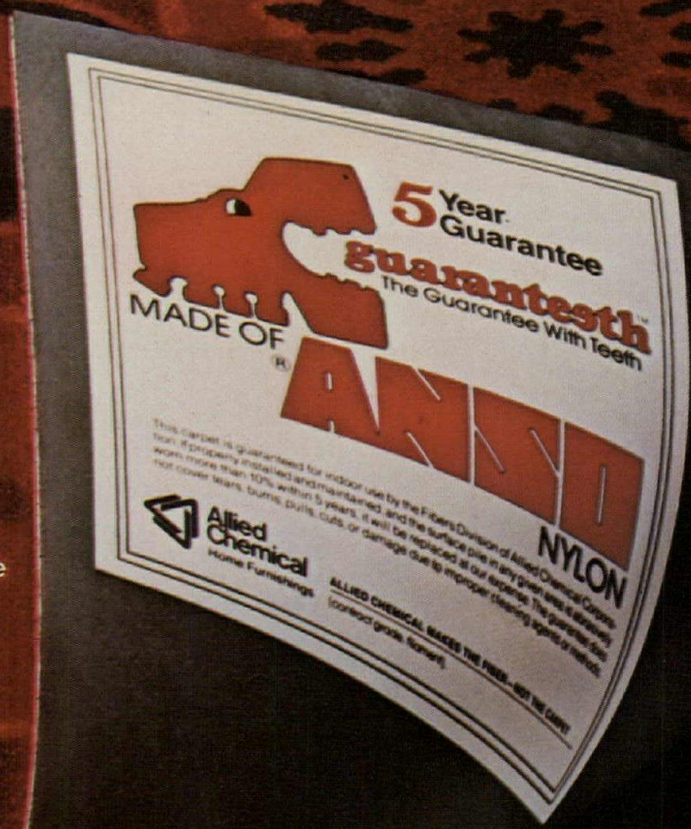

The International Architectural Foundation takes pleasure in announcing the winners in its International Design Competition for the Urban Environment of Developing Countries

FIRST AWARD ($35,000): **Ian Athfield, Athfield Architects, Wellington, New Zealand**

SECOND AWARD ($15,000): **Mikiro Takagi, Kunihiko Hayakawa, Keiichiro Takahashi; Takagi Design Team, Tokyo, Japan**

THIRD AWARD ($10,000): **Sau Lai Chan, Manchester, England and Kuala Lumpur, Malaysia**

HONORABLE MENTIONS ($1,000 EACH):

Hector Giron De La Peña, Mexico City, Mexico

Steven Holl, James Tanner, John Cropper; Holl, Tanner, Cropper, San Francisco, Calif., U.S.A.

Jim Fong and Robert Olwell, Reid & Tarics Associates, San Francisco, Calif., U.S.A.

Akira Kuryu, Tokyo, Japan

The IAF wishes to express its appreciation for services rendered by:

- **The distinguished international jury:** Balkrishna Vithaldas Doshi, architect (India); Eric Lyons, FRIBA (Great Britain); Moshe Safdie, PQAA (Canada); Mildred F. Schmertz, AIA (U.S.A.); General Gaudencio V. Tobias (Philippines); Takamasa Yosizaka, JAA, AIJ (Japan); William Whitfield, RIBA (Great Britain)
- **The Union Internationale des Architectes**
- **The Professional Advisors,** Gutheim/Seelig/Erickson
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Special Grant: The Government of the Philippines

Habitat '76 Exhibit *Winning designs will be exhibited in The Vancouver Art Gallery during the United Nations Conference on Human Settlements (May 31-June 11) and until July 4. You are cordially invited.*

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IAF

"Help make a world where hope makes sense"

AIA honors ten buildings—including four adapted for re-use—in its 1976 awards program

The American Institute of Architects saluted six new buildings and four old ones adapted for re-use in its 1976 Honor Awards program. The Institute has established a separate Honor Awards Jury for Extended Use to confer honors on work in restoration or adaptive re-use of old buildings. The four honor awards in this category went to : **1.** the Marcus House, Bedford, New York, Myron Goldfinger, architect, (RECORD, mid-May 1974, pages 68-71); **2.** Old Boston City Hall, Anderson Notter Associates (RECORD, December 1971, pages 130-131); **3.** Butler Square, Minneapolis, Miller Hanson Westerbeck Bell, Inc. (RECORD, December 1975, pages 108-112); **4.** Whig Hall, Princeton, Gwathmey Siegel Architects. Honor awards went to: **5.** Crosby Kemper Memorial Arena, Kansas City, Missouri, C.F. Murphy Associates (RECORD, March 1976, pages 119-124); **6.** Dormitory, Dining and Student Union Facility, Purchase, New York, Gwathmey Siegel Architects; **7.** Columbus (Indiana) Occupational Health Center, Hardy Holzman Pfeiffer Associates (RECORD, October 1975, pages 95-102); **8.** Waterside, New York City, Davis, Brody & Associates (RECORD, March 1976, page 119-124); **9.** Center for Creative Studies, Detroit, William Kessler and Associates; **10.** Douglas House, Harbor Springs, Michigan, Richard Meier & Associates (RECORD, July 1973, pages 90-91). In addition, Kemper Arena, Butler Square, the Center for Creative Studies, the Columbus Health Center and the Purchase Dormitory received the Bartlett Award for barrier-free architecture. These honor buildings are especially accessible to the handicapped.

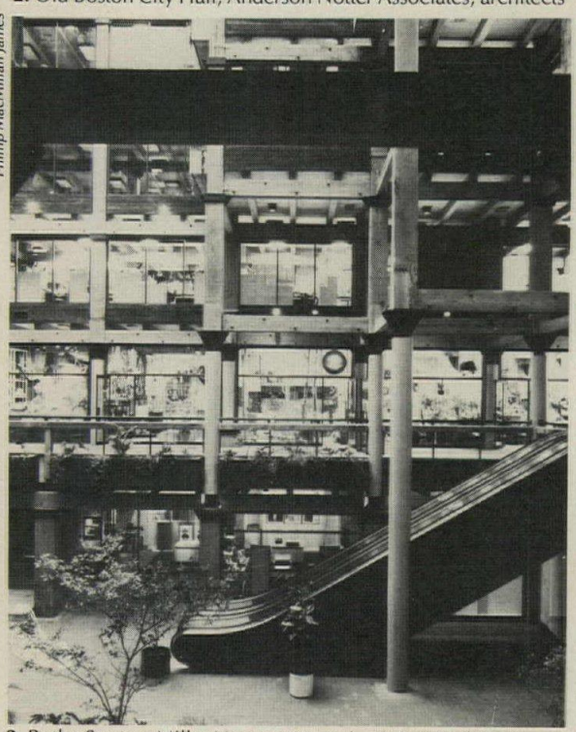
Norman McGrath

1. Marcus House, Myron Goldfinger, architect

Randolph Langenbach

2. Old Boston City Hall, Anderson Notter Associates, architects

Phillip MacMillan James

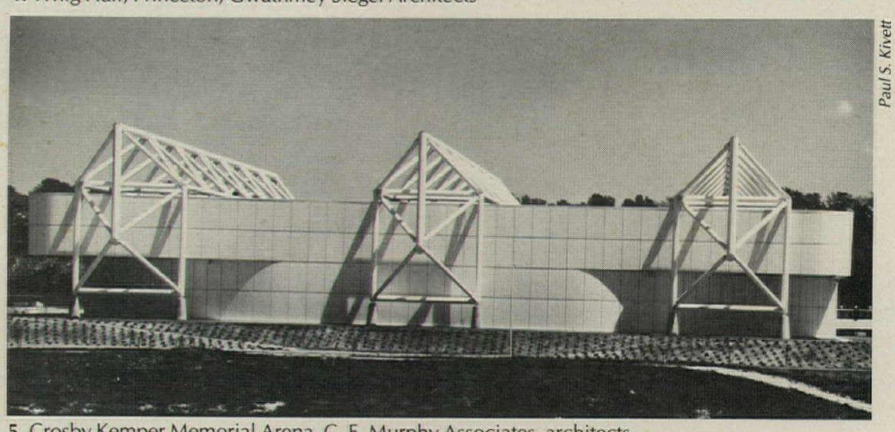


3. Butler Square, Miller Hanson Westerbeck Bell Architects

William Maris

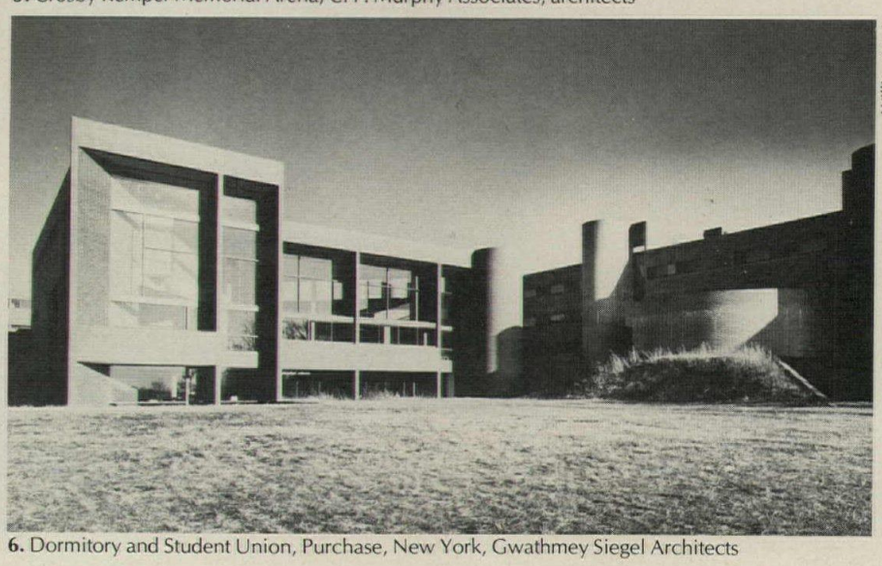
4. Whig Hall, Princeton, Gwathmey Siegel Architects

Paul S. Kivett

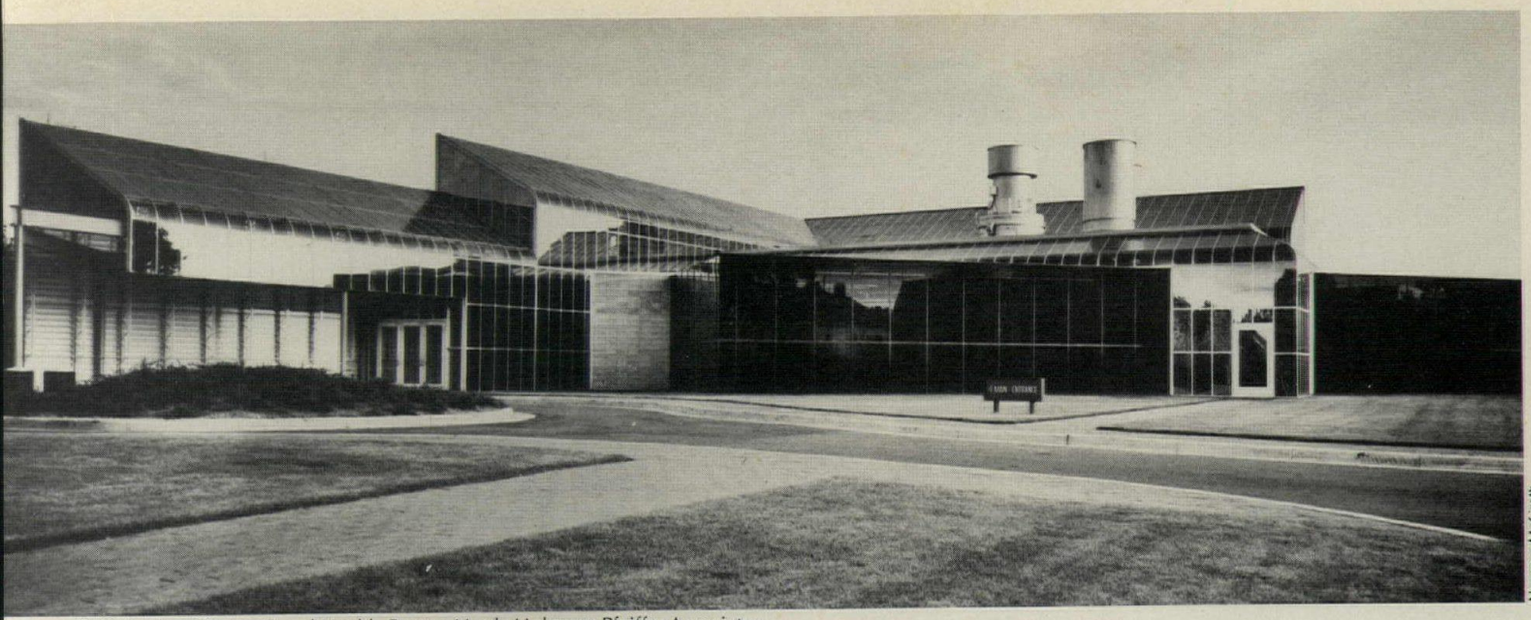


5. Crosby Kemper Memorial Arena, C. F. Murphy Associates, architects

William Maris



6. Dormitory and Student Union, Purchase, New York, Gwathmey Siegel Architects

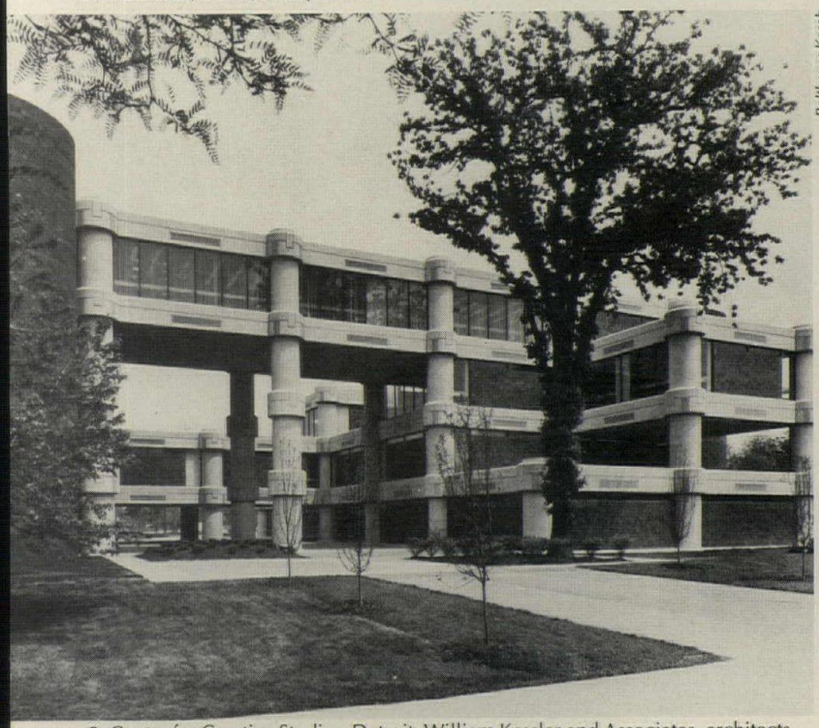


Norman McGrath

7. Columbus Occupational Health Center, Hardy Holzman Pfeiffer Associates

David Hirsch

8. Waterside, Davis, Brody & Associates, architects



Balthazar Korab

9. Center for Creative Studies, Detroit, William Kessler and Associates, architects

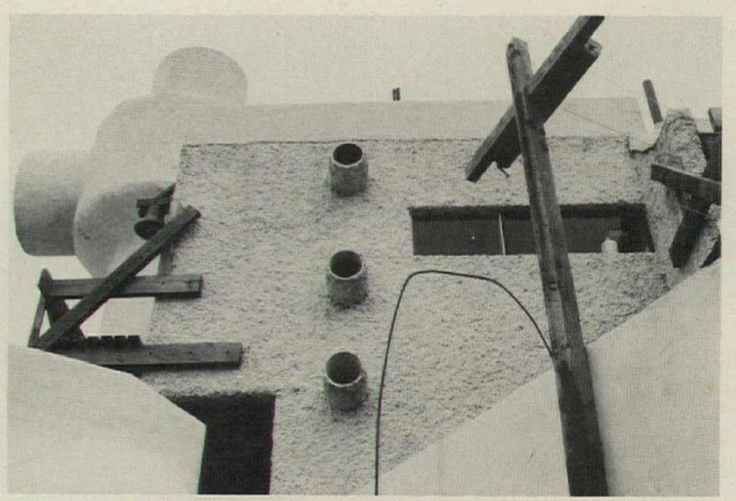
Ezra Stoller

10. Douglas House, Richard Meier & Associates, architects

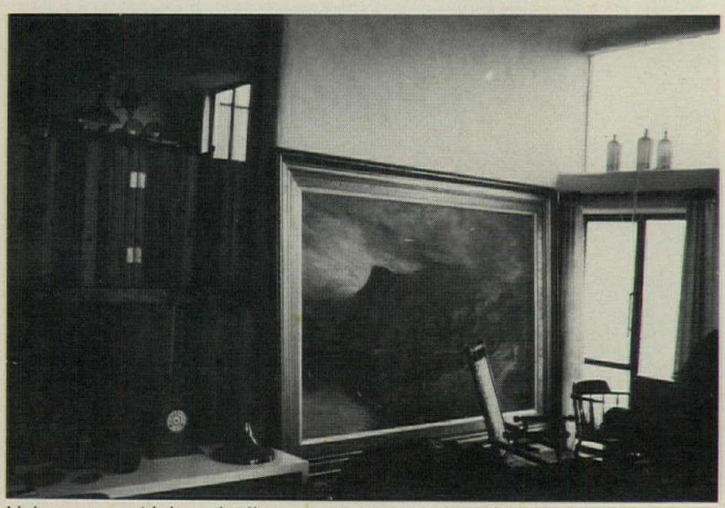
Competition winner Ian Athfield's own house, with the city of Wellington beyond

Stewart Silk photos

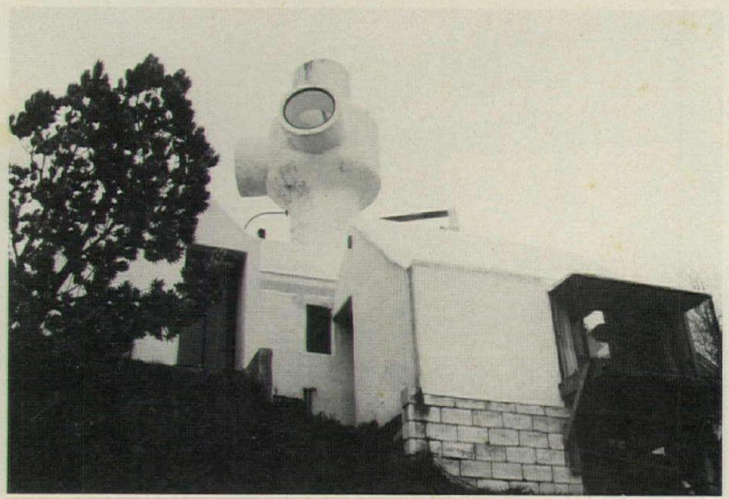
Roof terrace with skylights and New Zealand folk paraphernalia



Side view of Athfield's house, showing portholes and attached wood balcony



Living room, with large landscape painting and view of the sea



View of house from below, showing dominant turret or crow's nest

Profile of the competition winner:

Ian Athfield has a sensitivity to the way people live and relate to one another that runs deeper than forms or images. . . .

by Stewart Silk

When I arrived in Wellington from Rotorua—with a catch of rainbow trout in my Mini 850, after six hours of driving through the pastoral part of the North Island of New Zealand—my primary interest was to see Ian Athfield. I was to take the long ferry ride across the Strait to the South Island the next day and would not have much time to waste. I had spent three and a half months working for the New Zealand architect Neville Price, and I had heard a great deal about Athfield—a bearded, loosely-trapped rebel who was a bit disdainful of traditional architectural procedures and was forging his own path and style. Price and Athfield had lectured together to the students of the University of Auckland architectural school. It was interesting that their topic, "Politics and Architecture," was perhaps the only subject that they could have discussed from the same podium, since they stood at opposite poles in the New Zealand architectural community. Price is an elegant professional who designs cleanly sculptured and composed buildings. Athfield, on the other hand, sees a building as a constantly evolving organism responding to the needs of its users and the pressures of its site; the processes of building seem to be as important to him as the finished form. Both architects are sensitive and gifted designers, and to see them on the stage together was an exciting contradiction, not without its tensions.

Stewart Silk is a third-year graduate student at the Yale School of Architecture.

With directions to his office in hand, I climbed into my little machine and sputtered out of town, up into the steep Malibu-like canyons until I eventually found the correct street address: a traditional frame house undergoing major reconstruction. I chinned myself up onto the front porch and peered in through the dusty window, where, in a bizarre shambles of books and clutter, sat Athfield, huddled over his desk finishing a drawing, accompanied by the blaring fury of a national rugby contest on the radio. "Hi! Be with you in a minute. . . . Have a seat, look around." All around me was an archeological den of cardboard models—not the usual kind one sees in architectural offices, shrouded in plastic. Instead, these were torn and remanipulated and now finally disappearing into the layers of dust. He finished, and we began to talk. He explained that the rest of his small team were in another office, an elegant three-story Victorian house in town. We began looking at some of his projects, most of which were exciting groupings of small buildings. There were also some larger buildings, one in particular an office block with two enormous Oldenburg-like turnbuckles serving as exterior diagonal bracing. At the base of this otherwise ordinary building lay a grouping of three-quarter scale pitched-roof shops which, Athfield explained, were to bring vitality to the otherwise depersonalized office tower.

Later we drove back into Wellington for a tour. The city is a compact cluster of buildings that seem to have been swept down the huge harbor until together they found solace at the base of a ring of steep hills. The streets, radiating in many directions, quickly disappear into the surrounding hills. The residential areas, defined by pockets of buildable land, are virtually invisible unless seen from a neighboring hilltop. The houses along the ridge seem more like sentries protecting the city than they do like residential neighborhoods. Athfield's own house (photos left), with its dominant turret, can be seen clearly from town as it peers out over the harbor. From here, one can look point-blank down the harbor, into the teeth of the prevailing winds and on to a limitless view of the Pacific that excites existential thoughts.

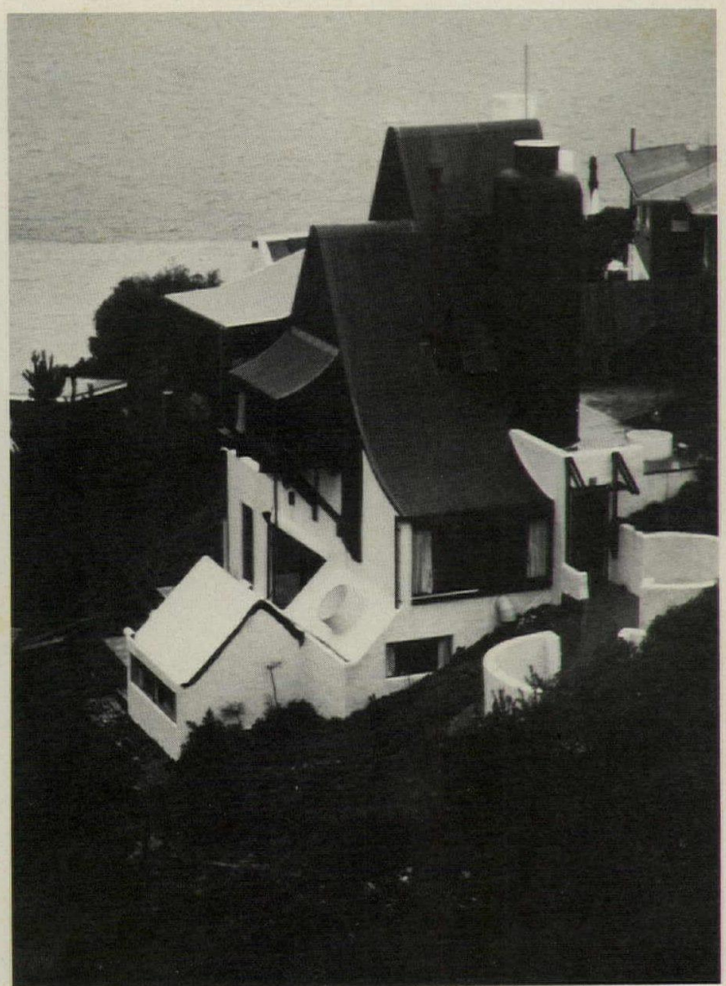
Below lies Athfield's self-styled Alhambra, a seemingly endless procession of rooms connected and tumbling down the side of the hill, which was considered too steep to build on by other builders. The brick-paved entry leads into the public part of the house—kitchen, living and dining areas that flow together both in section and in plan. One becomes aware of the expansiveness of this miniaturized hill town when one moves down the tile stairs and enters the bedrooms.

Athfield and I spent several hours exploring Wellington and its buildings—including houses, apartment clusters and an apartment block. I learned that a number of his houses were designed to require an enormous amount of self-help investment by the inhabitants (photo below left). Construction that lasts several years and involves masonry and heavy timber is not easy for the average family; but I kept on seeing examples where it had occurred to the unmistakable reward of the clients.

In recent years some of New Zealand's architecture (led, perhaps, by Athfield) has seen a shift away from stark and abstract Modern forms towards a reinterpretation of the English-inspired vernacular cottage (photo bottom right). By distorting the forms and reducing the scale, Athfield has drawn a starry vision that one might encounter in an English fairytale, with little children floating aloft in thatched baskets.

Listening to Athfield speak about his buildings (and about the Manila project—page 114—which he was beginning to work on) I began to recognize the essential vein in Athfield's design: a sensitivity to the way people live and relate to one another that runs deeper than heroic forms and exotic images—which may explain why he won the competition. At dusk, I gave him a trout wrapped in the morning's paper and said good bye.

Self-help house by Athfield in Wellington



Athfield's steeply pitched reinterpretation of the English-inspired cottage

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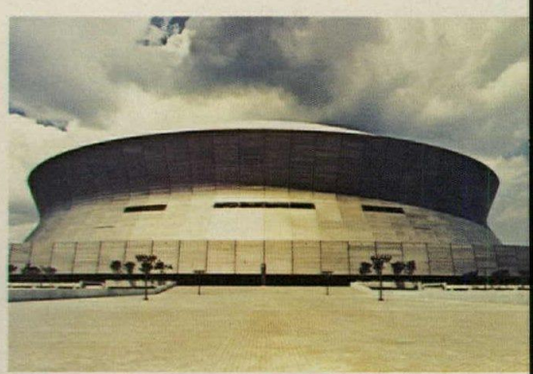

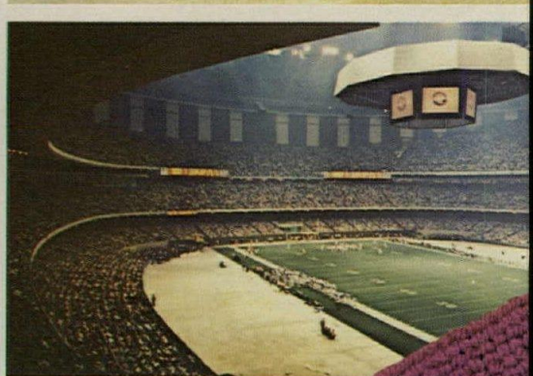

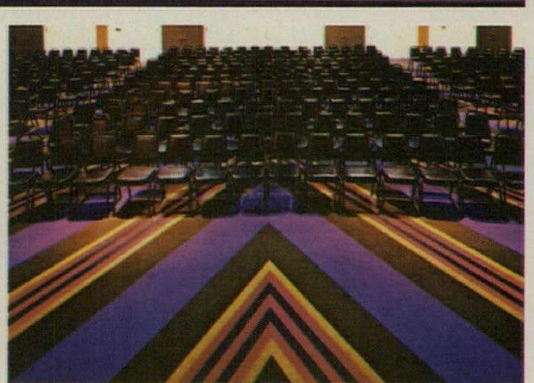

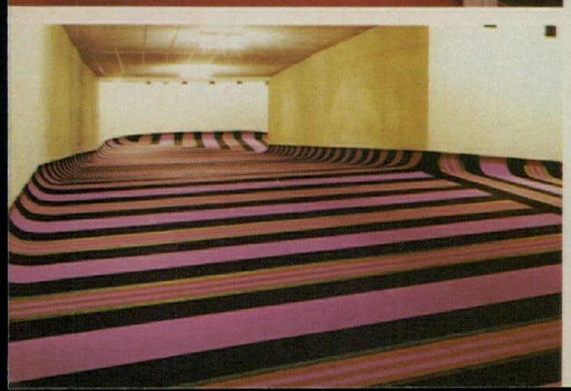

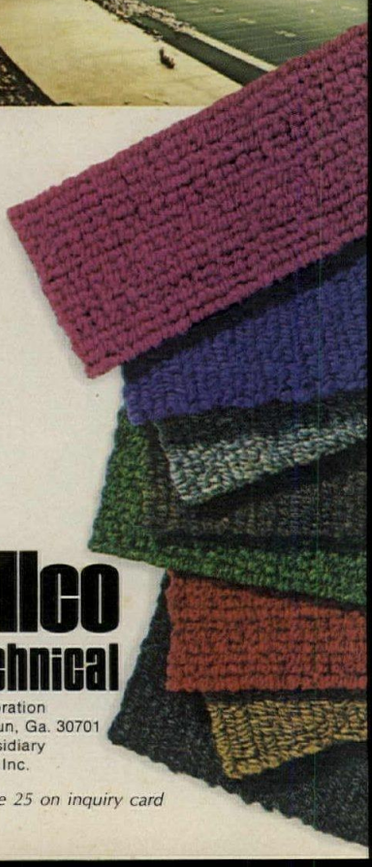

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Housing: a classic experiment

LIVED-IN ARCHITECTURE, *by Philippe Boudon, translated by Gerald Onn; The MIT Press, Cambridge, Massachusetts, 1972, 200 pages, illustrations, $7.95.*

Reviewed by Michael Adams

"I authorize you to put your theories into practice and to carry them to their most extreme conclusions; I wish to achieve really conclusive results in the field of low-cost housing: Pessac must be regarded as a laboratory." Thus began the original commission of M. Henry Frugès to Le Corbusier to design and construct 200 units of housing for Frugès's sugar factory workers at Pessac near Bordeaux, France. And architects familiar with the *Oeuvre Complète: 1910-1929* know the results as the *Quartiers Modernes Furès*—the International Style precursor of the unités *d'habitation,* exhibiting the five cardinal qualities of Le Corbusier's work: wide windows, roof gardens, stilts, open facades and open plan interiors. This was the state of affairs in 1925.

But, half a century later, Pessac's wide windows have been reduced to smaller, more vertical openings, shuttered and draped, framed with lintels and sills; roof gardens and terraces have been partially enclosed or have had pitched roofs added—some go unused; open areas around the stilts have been closed in to make additional interior space; facades are adorned with planters, moldings, awnings and textures; and open plans have become less open with the addition of corridors, partitions, new rooms, and adjacent lean-to structures. Was this the laboratory M. Frugès had in mind? Is this the "machine to live in" that Le Corbusier intended?

Exactly what happened at Pessac and why are the subjects of this monograph, and in the preface Henri Lefèvre suggests that Philippe Boudon's analysis demonstrates three levels of thought and reality. At the theoretical level, architectural and planning theory is carefully and necessarily distinguished from ideology. At the practical level, mind and will are shown to supplement ideology—as the architect built and as the occupants lived. And at the town-planning level, Boudon examines 'toposociological' issues, correlating what the occupants do with where they live within the collective Pessac district.

The first part of the book sets the stage, focusing on the historical development (units were left unfinished to avoid a seven per cent conveyance tax), contemporary press reactions ("Frugès cubes of sugar") and Le Corbusier's conceptions, revealingly ambiguous on key issues of serial production, machines, standardization, functionalism and the relationship of the individual dwelling unit to the collectivity. The threads that tie the two major parts of the book together are the construction game (as played by Le Corbusier) and the conversion game (as played by the occupants), the traditionalism of the Bordeaux region, stability and strength (bombs couldn't shake the walls, but the occupants weren't shy about tearing down or erecting partitions) and the new architectural esthetic.

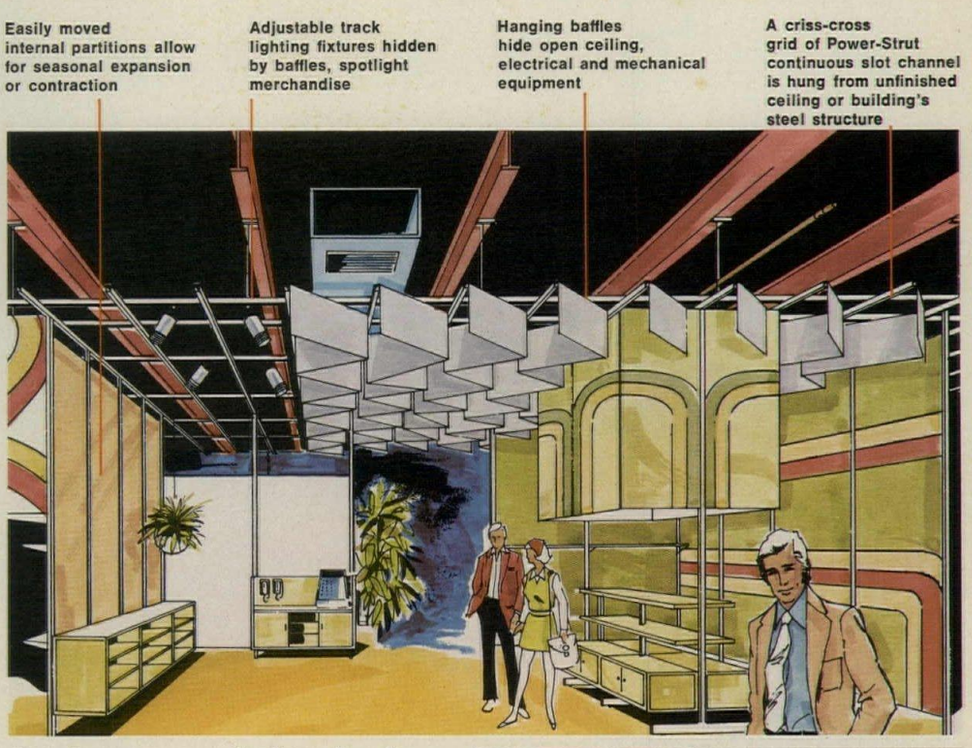
In total, only 51 of the 200 planned units were built, and Boudon was able to interview only a small fraction of these occupants. These non-directive interviews (reproduced in some cases in full) plus careful observation as to the extent and nature of alterations, composition of various types of housing, and the relative position of the houses in the district comprise the second and most exciting portion of the research. Exciting is not a gratuitous adjective in this case, for Boudon carefully leads us along his original hypothesis which was that alterations by the occupants were made to establish the personality of each dwelling unit. Along the way we discover through these interviews that people think about their houses as well as live in them. It is important that Le Corbusier's houses at Pessac were capable of being altered—in fact, they facilitated and encouraged these changes and, almost in spite of the exterior aspect of the Pessac units, buyers realized this potential and took advantage of it. One wife speaks proudly of the number of alternative arrangements her husband has already drawn out). It seems clear, to Boudon at least, that this is not exactly what Le Corbusier had intended, nor was he particularly proud of the state of Pessac in later years.

But the surprising aspect of Pessac is not to be found by comparing Mr. X's kitchen with Mrs. Y's parlor. It is, rather, the realization that

more books on page 46

Michael Adams is director of the health services division of MDC Systems Corporation, and a doctoral candidate in architecture at Columbia University.

design flexibility **The Key to Power-Strut's Grid Ceiling Support System**



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REQUIRED READING *continued from page 45*

the collectivity is realized in three distinct zones—a marginal zone, a neutral zone, and an interior zone. Change, in terms of the extent of alterations, was used by occupants to reinforce and emphasize the unique qualities of the dwelling inherent in its siting—as in the case of units located at the entrance to the development, at the corner of major streets or in a particular boundary situation between zones. Fewest changes exterior or interior have been made in the interior zone of the development. Equally interesting is the finding that, by initial choice or subsequent move, occupants located in the zone that represents the level of mutual interaction they desire—the interior zone being the preserve of the "social misfit."

Philippe Boudon has written for us a major and readable and, above all, useful book about people making and re-making their personal living environments. Because the research focuses on beliefs, notions and concepts, the result is a new and important departure for the evaluation of the built environment.

Also received

THE TREATMENT OF INDUSTRIAL WASTES, *by Edmund Besselievre and Max Schwartz; McGraw-Hill Book Company, New York, 1976, 386 pages, illustrations, $18.95.*

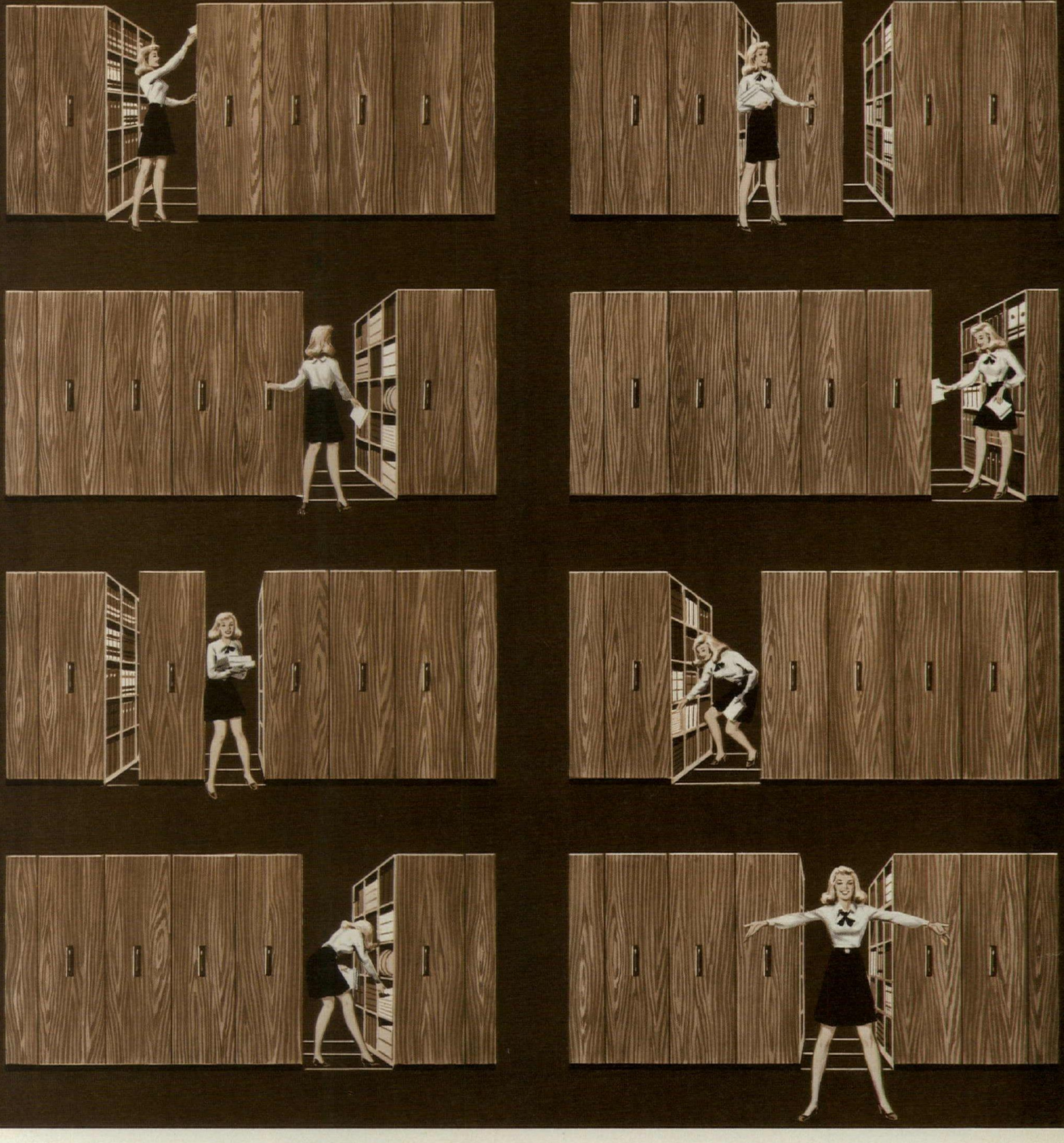
Providing data on the many treatment facility designs now on the market, this book discusses the relative merits of the latest prefabricated and custom-designed units and compares various construction materials (piping, pump stations, tanks, concrete structures and instrumentation) in terms of cost and suitability. A separate chapter provides comprehensive coverage of the requisition and purchase of equipment, construction supervision, and installation cost and procedures. An operational section includes information on testing, monitoring, record-keeping and equipment life-expectancy, as well as helpful instructions for pipeline and tank cleaning and operation manuals.

GAUDI: HIS LIFE, HIS THEORIES, HIS WORK, *by Cesar Martinell, translated by Judith Rohrer, edited by George R. Collins; The MIT Press, Cambridge, Massachusetts, 1975, 486 pages, illustrations, $50.00.*

A translation of the original, published in Spanish in 1967, this is by far the most comprehensive work in English on Antonio Gaudi. As its title states, the book is in three parts—a biography, a study of the architect's theories, and a step-by-step description of his works. There are 555 photographs (60 of them in color), and a number of fine drawings.

A CARTOON HISTORY OF ARCHITECTURE, *by Osbert Lancaster; Gambit, Boston, 1975, 205 pages, illustrations, $9.95.*

This is a new American edition of the architectural drawings of England's virtuoso cartoonist Osbert Lancaster; most—but not all—of the drawings have appeared before in other places, but assembling them in this collection is a worthy undertaking, and the book is very much worth having.



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Preliminary frame analysis determines simple steel frame with braced core most efficient.

Eastern Properties Office Building, Lexington, Ky., is a 33,300-sq-ft structure designed to accommodate a radio station, a corporate headquarters for a large financial organization, a computer operation, and a complete printing shop.

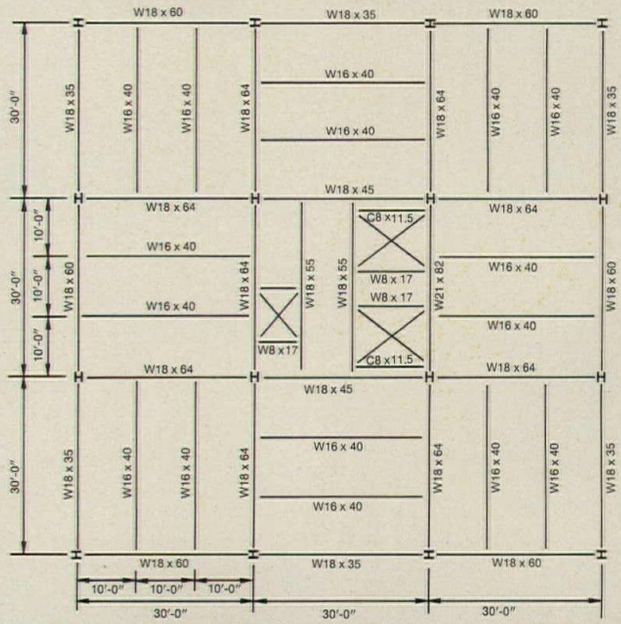
The owners, along with the project's structural engineers, White, Walker & McReynolds, requested a preliminary analysis based on a building having six supported levels. Several framing schemes were investigated, but the most efficient proved to be a simple connected frame with a braced core. Because of various other factors involved, the owner decided on a 4-level structure with a 5th-level mechanical penthouse. The framing scheme, however, remained essentially the same as that recommended by the framing study. "We selected structural steel for the framing material because of its ease and speed in erection, lower cost, and its structural ability to support the clear spans required by the owner," reports Bank Management Associates, construction managers for the project. "Based on Bethlehem's preliminary framing analysis, we selected the scheme that would be the most economical and use the smallest amount of steel necessary."

Erected in 30 days

The office, situated on an elevated site, rises 66 ft 6 in. from its on-grade, 93-ft-sq base. ASTM A572 Grade 50 high-strength steel is used in the base tier portion of all columns. The balance of the steel is A36. The entire structural frame was erected within one month and is expected to be ready for occupancy within eight months.

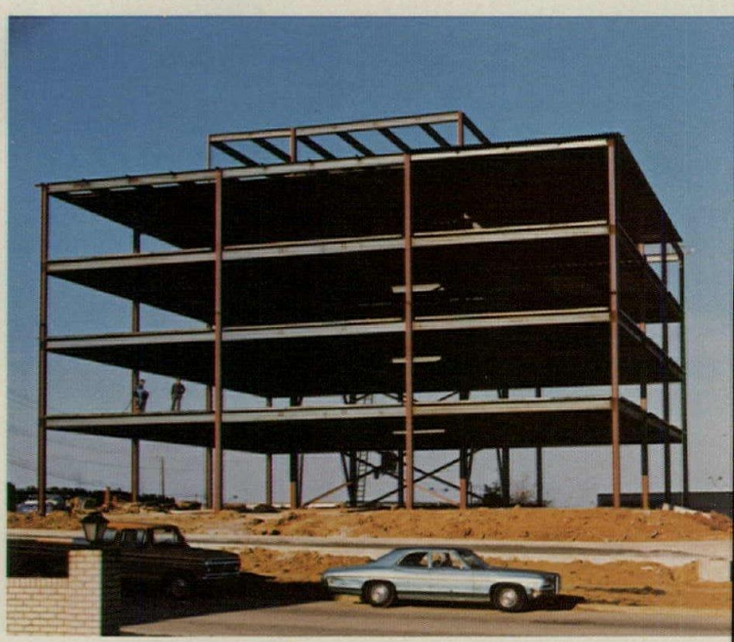
Wind loads are accommodated in the central core by X-bracing in one direction and K-bracing in the other. The core houses all vertical transportation, fire protection equipment, restrooms, mechanical, and electrical shafts.

Spray-on fire protection is applied in accordance with the BOCA building code specifications. Columns are rated for 2 hours; beams for 1 hour.



Typical floor framing plan illustrates the structure's generous column-free bays. The frame is designed for a live load of 100 psf plus 25 psf for partitions.

The floor system consists of a 3¼-in. lightweight composite concrete topping over 2-in. non-cellular composite steel deck. Floor-to-floor height is 12 ft. Bethlehem furnished all of the structural steel requirements for the building.



Owner: Eastern Properties, Inc., Lexington, Ky.; *Architects:* Johnson/Romanowitz, and W. D. Hatcher III, consulting architect, Lexington, Ky.; *Structural Engineer:* White, Walker & McReynolds, Lexington, Ky.; *Fabricator/Erector:* Englert Engineering Company, Nashville, Tenn.; *Contractor:* White & Congleton Co., Inc., Lexington, Ky.

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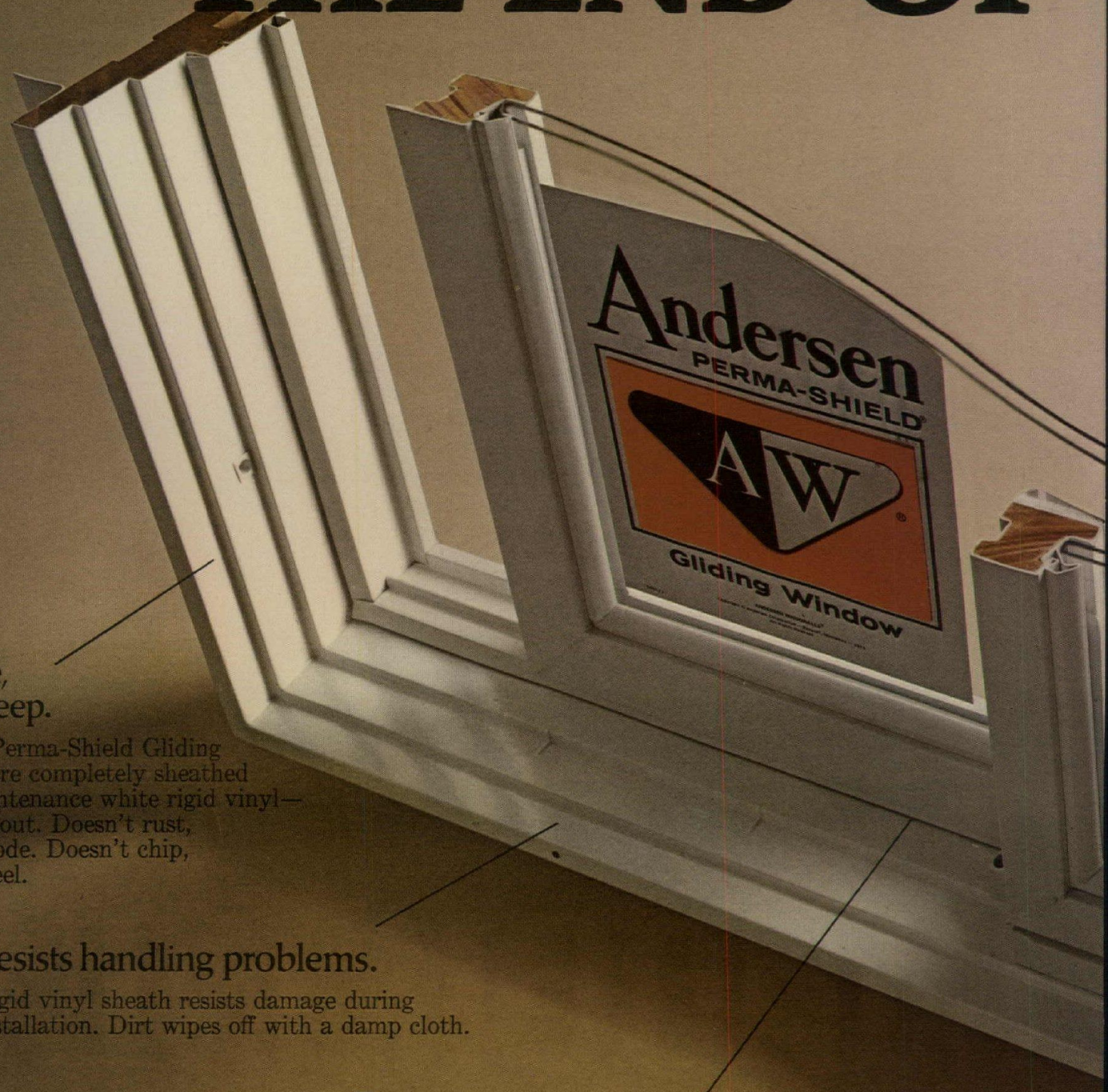

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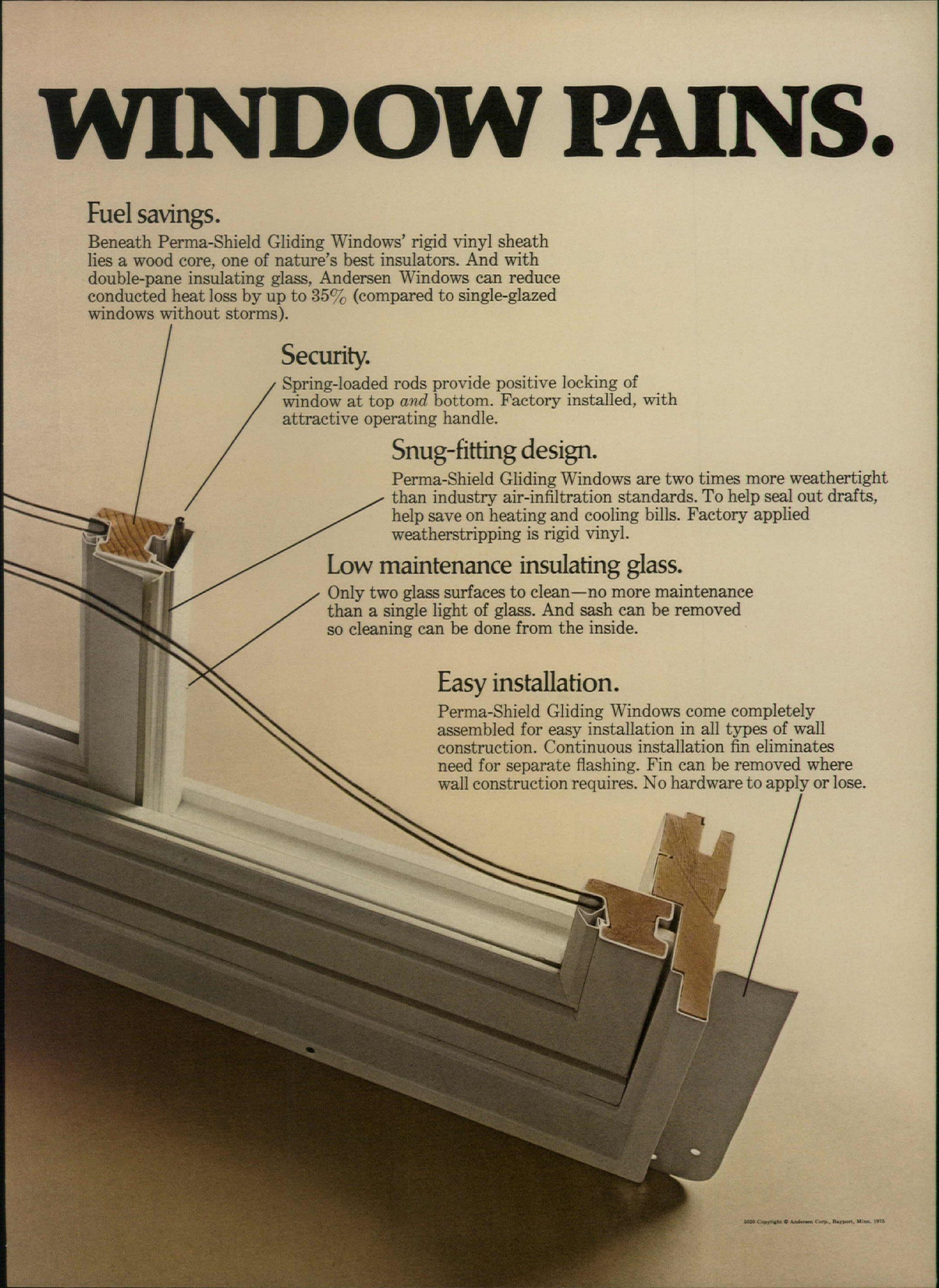

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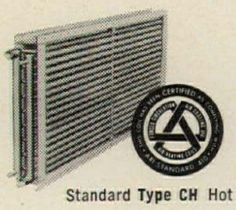

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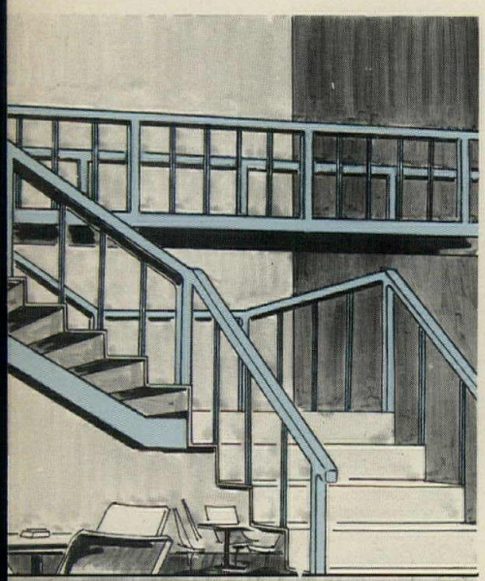

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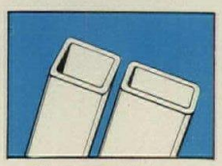

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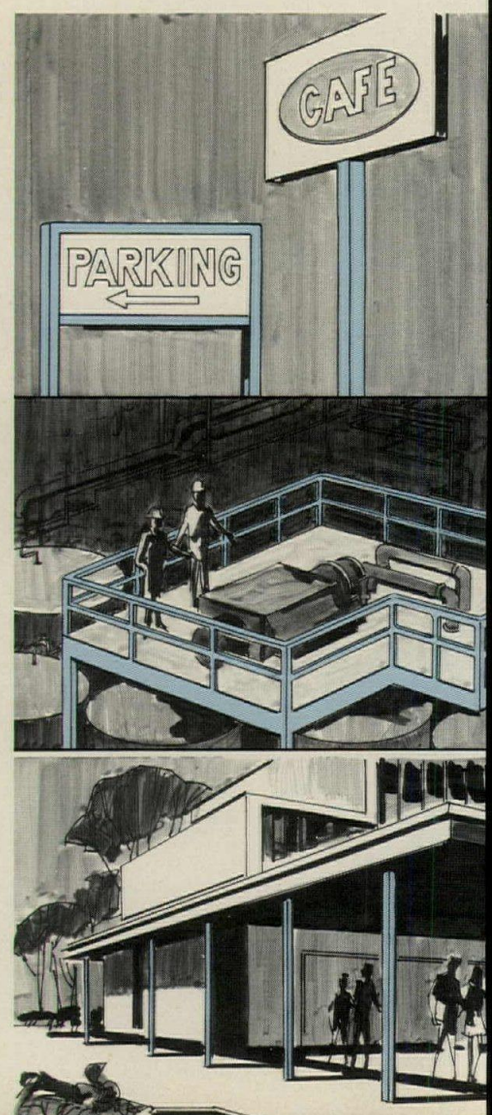

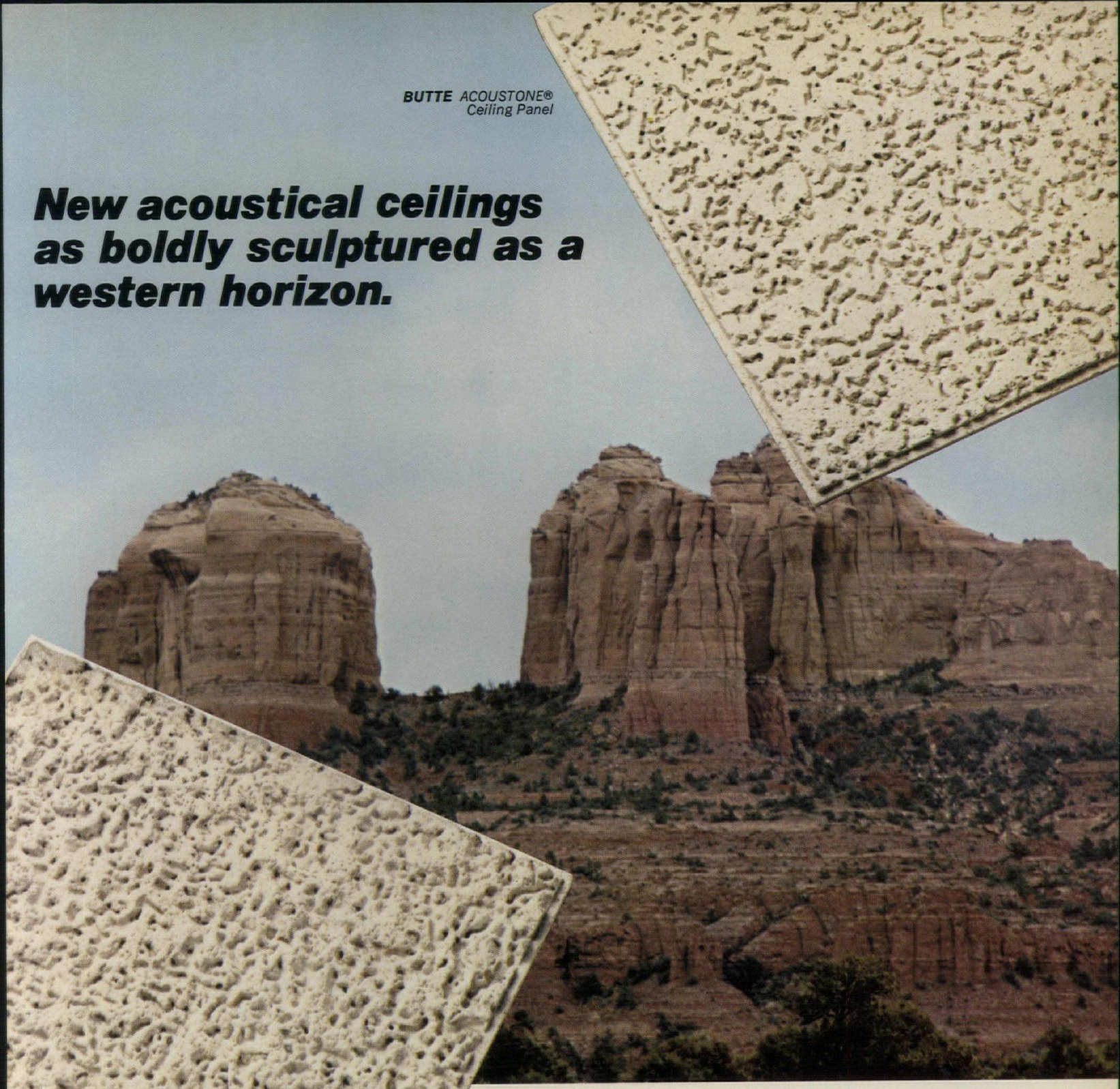

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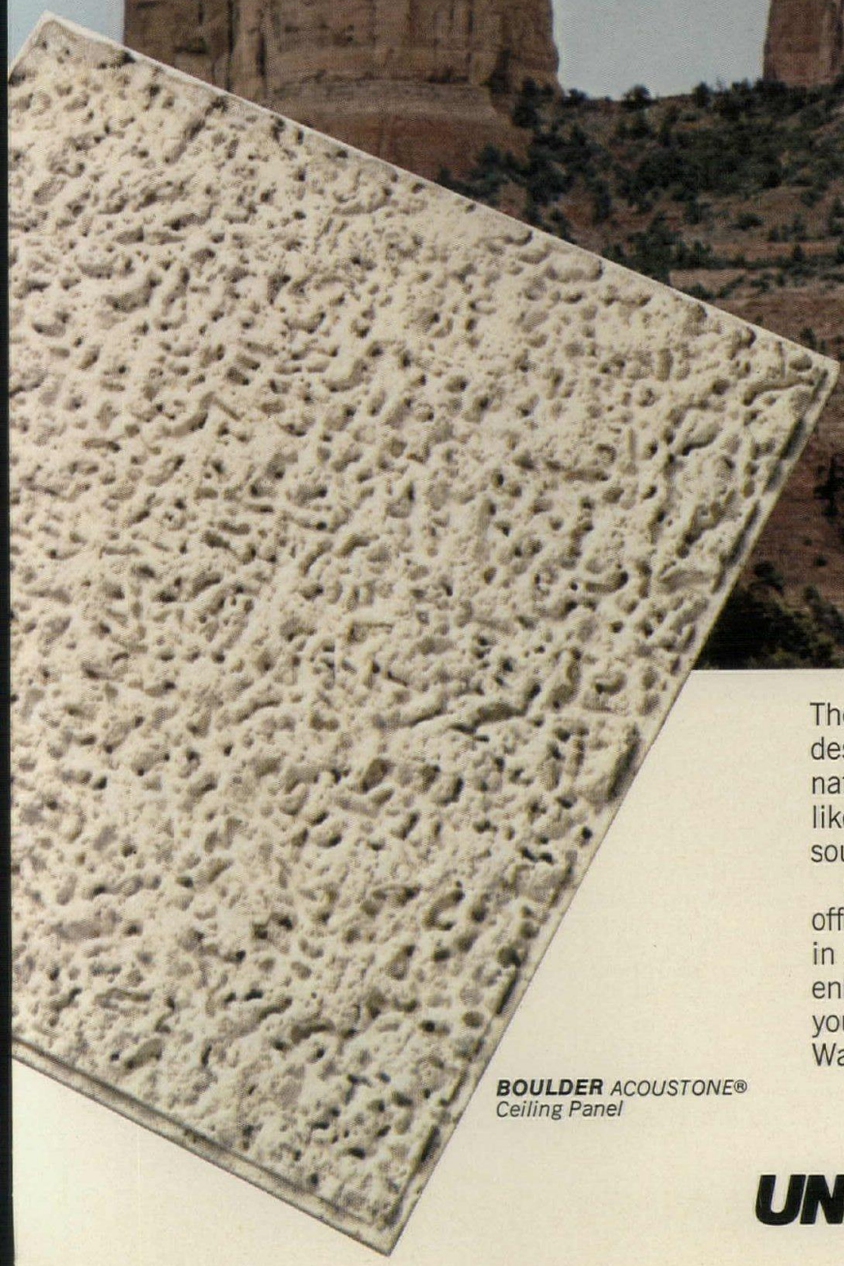

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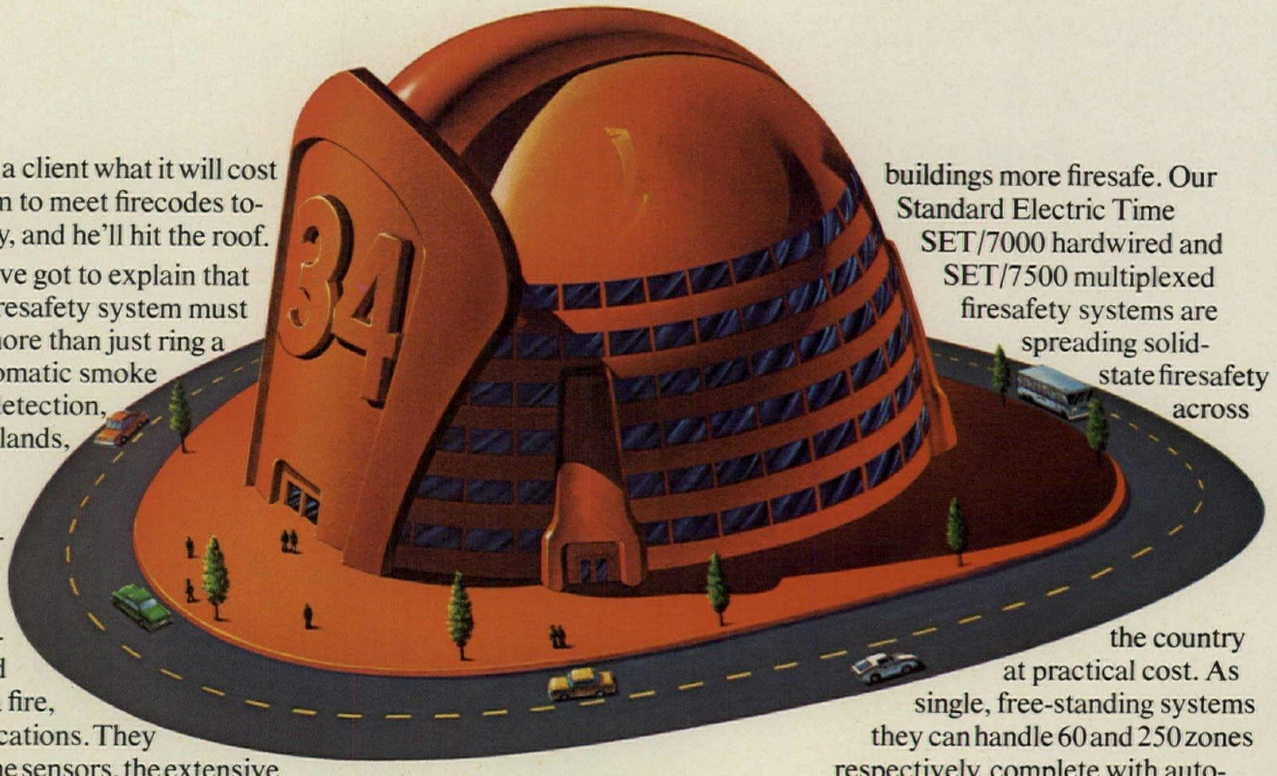

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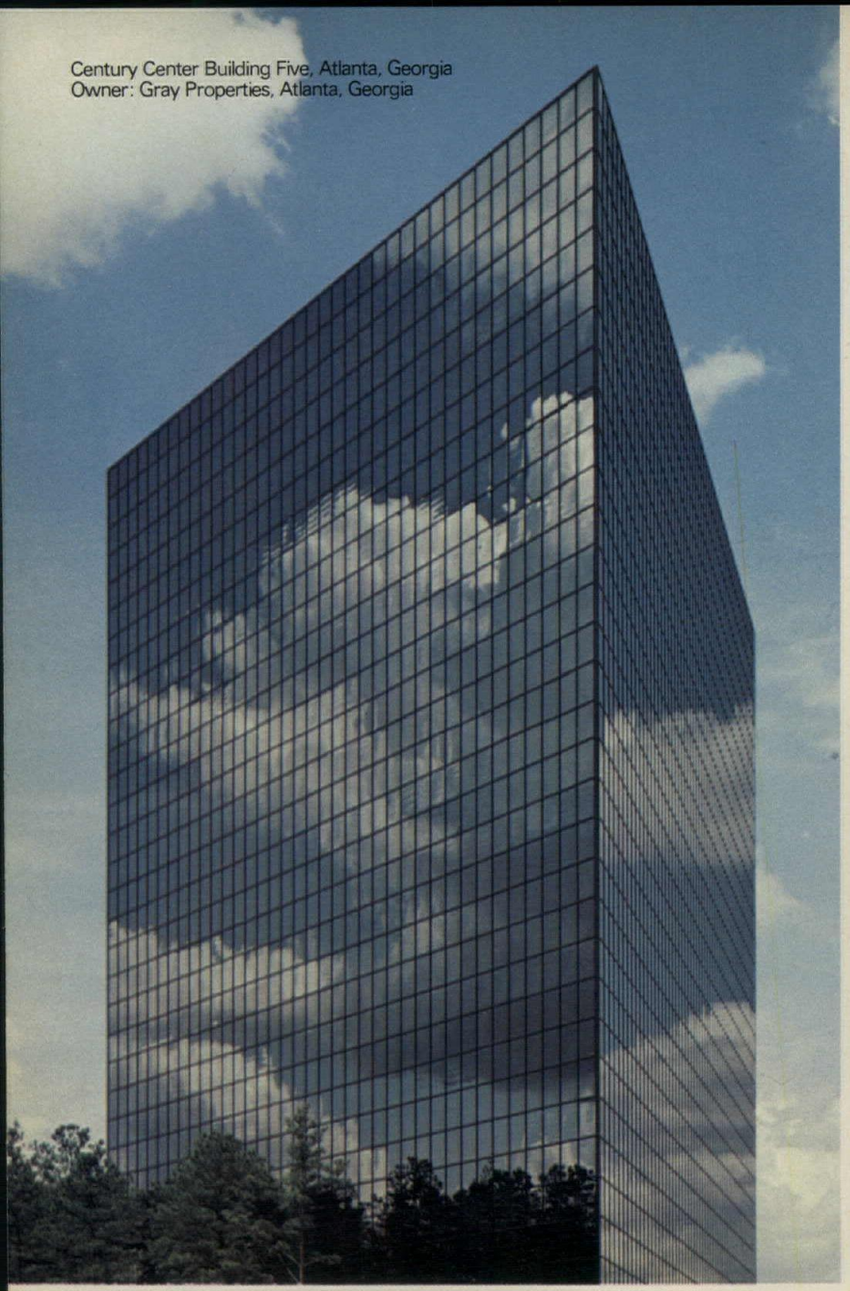

Century Center Building Five, Atlanta, Georgia
Owner: Gray Properties, Atlanta, Georgia

101 Marietta Tower, Atlanta, Georgia
Owner: Hicks and Associates, Atlanta, Georgia

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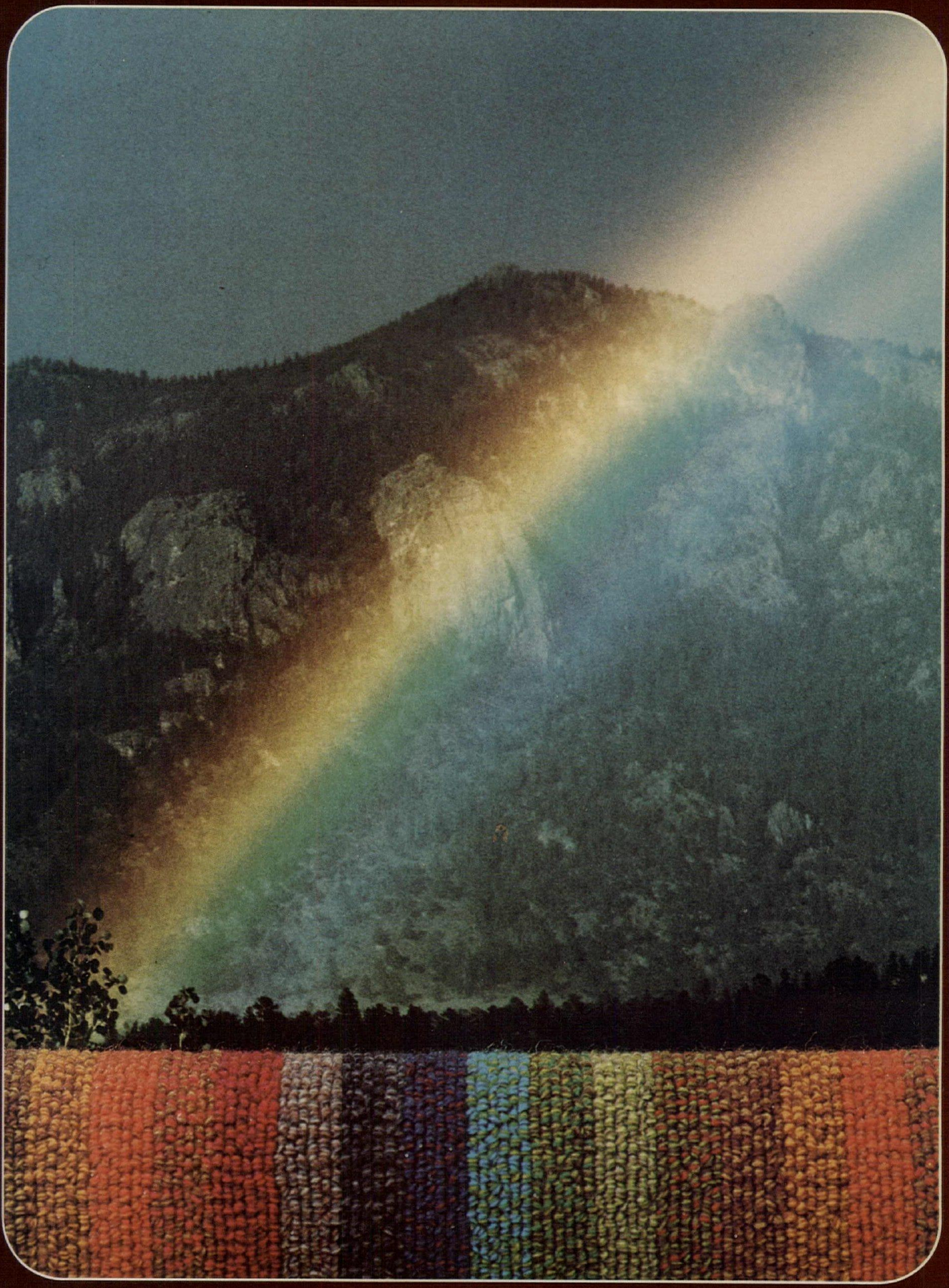

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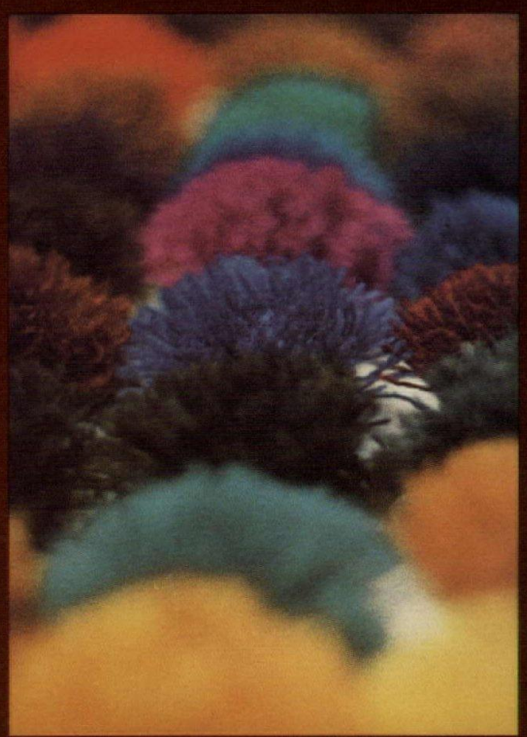

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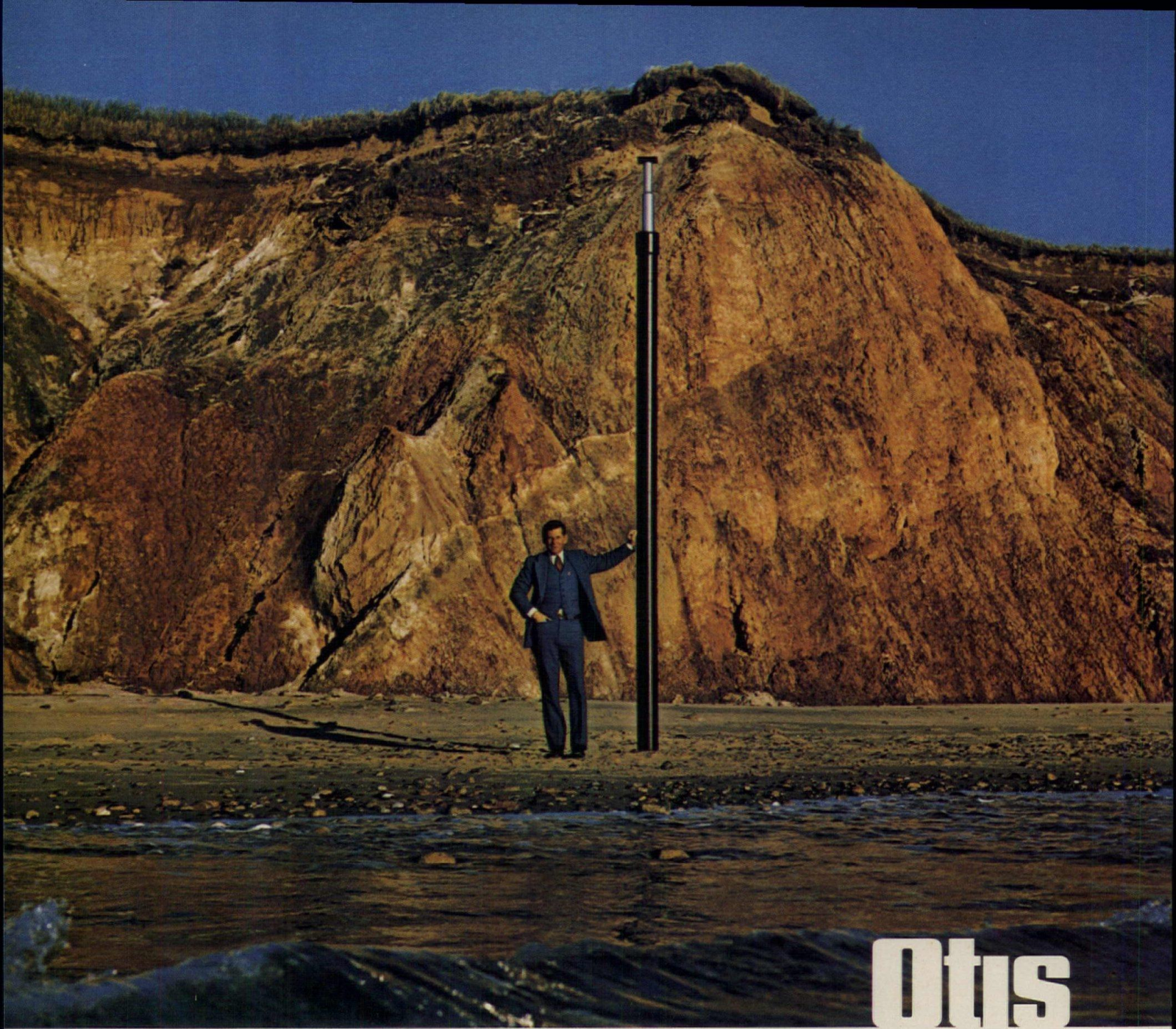

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A management framework for urban housing provision

by Bradford Perkins, Llewelyn-Davies Associates

Housing throughout the world has been in a state of crisis for so long that the word "crisis" has lost its impact. Even in the United States, England and many other developed countries, a sophisticated private sector and a vast array of public programs have not been able to achieve the basic goals. The U.S. national objective of 26 million new units in ten years has long since been abandoned as unrealistic under current conditions, and with inflation and shifts in public priorities, the gap between the supply and demand for adequate housing is widening.

As this issue of ARCHITECTURAL RECORD points out, the problem elsewhere is even more serious. Any planner or architect who has ever traveled to a developing country has seen visual confirmation of this, whether in the shacks climbing the hillsides of Caracas, or in the beautiful—but inadequate—rural housing in parts of Africa.

In some countries, lack of money and education can be called an insurmountable barrier to a full solution of this problem. In others, however, one has to ask—why does this situation persist? With all the money, technology, and other resources devoted to providing housing, why have the results been so disappointing?

Using the word management in its broadest definition, the problem has largely been a *management* failure at a national and an international level. Both the developed and developing countries have failed to manage their limited resources of technical skill, production capability and available capital in an effective manner.

In many countries where we are currently planning and designing housing, our clients ask what they should be borrowing from the U.S., British, Canadian or other developed-country experience. We believe that almost every aspect of the housing problem has been studied and that suitable answers appear to exist for almost every conceivable question, from what is a feasible self-help structural reinforcing technique for adobe houses, to how the proper financing mechanism for a new town in Canada can be developed.

Nevertheless, in spite of this vast array of knowledge and experience, there has been a world-wide failure to consistently deliver the right answer to the specific problems.

Therefore, this article takes on the highly presumptuous task of looking at this management failure, at what we in the developed countries are learning in the process of trying to overcome it, and which of these lessons have potential international application. This analysis does not, of course, try to provide a comprehensive review of the worldwide housing problem. Instead, the following discussion outlines a management framework for looking at the issue of urban housing provision. Within this outline I have drawn on our recent housing experience in the U.S. and applied it to the housing problems we and other firms face both here and abroad.

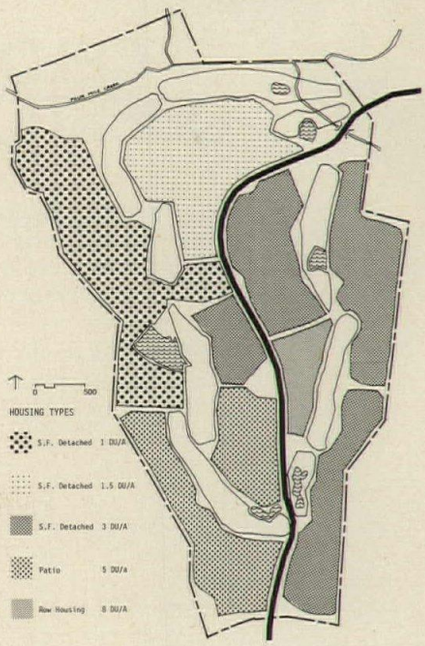
This framework follows a typical management analysis format: identification of the problem, establishment of objectives, planning (problem solving), and implementation.

The problem: identifying the right living environment

Here in the U.S., the problem has been defined by everyone from Presidential commissions to local community development planners. Nevertheless, these definitions have often not been successful in dealing with the more important aspect of the housing situation—i.e., what is needed to create an adequate living environment for each part of this country's diverse population. The nursing home scandals in New York, the demolition of the unsuccessful public housing in St. Louis, and the abandonment of large quantities of potentially sound housing in inner cities across the U.S. are all symptoms of failures to define a proper living environment.

In the U.S. the normal complications of age, income, geographic and other differences common to most cultures have been exacerbated by the lack of a single strong cultural tradition—such as has existed in many other countries—to guide the creation of a living environment. The "American Dream" of a single family detached home in the suburbs is probably an answer for only a decreasing percentage of this country's population. Even in the suburbs new housing forms reflecting the impact of inflation, changing life styles, the ongoing mobility of the United States population, the cultural diversity of the country's population, and many other factors are continuing to make it hard to define the proper role and structure of many suburban areas. The growing battle on exclusionary zoning, no-growth policies and continuing housing discrimination are symptoms of this situation.

The result of this has been increasing effort by numerous homebuilders to achieve considerable diversity in their offerings. In one North Carolina PUD, for example we were asked to include at least five different product lines—each in its own neighborhood—to deal with the diversity in that market (below).



On the other side, however, some progress is being made in the United States and other countries in understanding what the housing and urban environmental needs are for people. The environmental movement began in large part over the issues of air and water pollution, but with increasing research and experience, is being used to address the socio-economic and other more subtle impacts of new development. In our own experience of evaluating the projected impact of a major energy development such as the North Sea oil on the Shetland Islands, it was clear that one aspect of the problem was the need to preserve a strong existing community while providing a suitable living environment for a large build-up of new residents. Similar recognition of the need to preserve, restore and support the healthy and positive elements of the living environment has, therefore, become an important part of the definition of the problem here and in a growing number of other countries. Preservation of historic and esthetic urban assets has also received increasing recognition. People need a feeling of place and community pride, especially in this time of accelerating change and continuing "future shock."

Other aspects of the developing problem definition, however, stress the need to recog-

continued on page 65

THE ROOF: PART ONE

CELOTEX ANSWERS ROOFING QUESTIONS ASKED BY ARCHITECTS.

Q. Can I increase roof insulation values for energy conservation purposes without substantially increasing the weight of the roof or the height of parapet walls?

A. Here is a comparison of different types of roof insulation materials showing the thickness required for each to give the same insulating value.

fiberglass	1-5/8 in.
perlite	2-1/2 in.
fiberboard	2-1/2 in.
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In addition, urethane is three to six times lighter in weight than the other materials.

Celotex makes Tempchek® urethane roof insulation. It is recommended for exactly the purpose you are asking about.

Q. I design buildings in various parts of the country in many different climates. My standard design calls for a steel deck with rigid insulation. What roofing system can I specify as a standard that will perform in all weather conditions?

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Q. I'm located in the upper Midwest. During cold weather there is frost on steel decks. If roof insulation is secured with asphalt, will there be positive adhesion?

A. It is doubtful. However, you can achieve positive adhesion, and a Factory Mutual Class I Rating, by fastening the roof insulation to the deck with the Insulfast Nail/Disc System from Celotex. With Insulfast Nails, your roof insulation can also be installed in a moderate wind.

Q. When are expansion joints required?

A. The responsibility for determining the need for structural expansion joints is that of the architect and/or structural engineer. However, all agree that they are needed if:

1. There is a change in direction of steel framing.
2. Deck material changes, e.g., between steel and concrete sections.
3. There is a difference in elevation of adjoining decks.
4. A single dimension of a building exceeds 200 feet.

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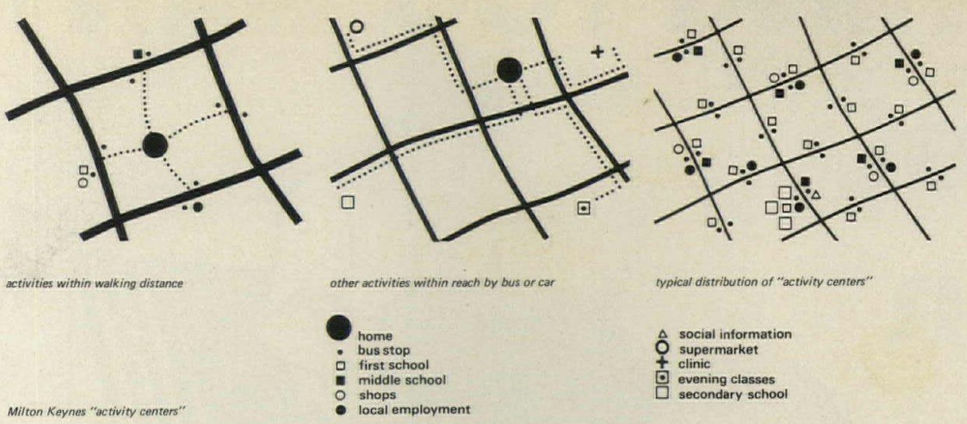

Milton Keynes "activity centers"

nize not only the stabilizing of the strong aspects of the urban fabric but also to accommodate change. For example, one of the factors that built our firm's early work in new town planning was its rejection of highly rigid planning concepts used in the past. Our plan was a flexible development structure that only set fixed guidelines where they were appropriate rather than the highly deterministic, rigid master plans of the past. One result of this revised approach was the recognition that the automobile and personal preference for diversity made the earlier theories of inwardly oriented neighborhoods somewhat obsolete. As a result, a number of new communities have developed proposals where housing areas are planned in such a way that local residents are given considerable freedom of choice in local retail and social services—by siting neighborhood centers along major access routes, rather than in the center of the neighborhood (above).

But, of all the lessons learned in the process of defining the problem, the most important has been that the process needs effective management. Many urban renewal programs—the New York Urban Development Corporation, New York City's extensive experiments, HUD's Title VII New Communities program—here and abroad have been declared disasters, but upon closer examination they had considerable potential or partially realized merit. In some cases this potential was often dissipated, however, due to inadequate development, especially in areas of financial planning and cost control. In the case of urban renewal, the bulldozer approach was wrong in many instances. In areas where demolition was appropriate, there has been limited ability to bring about the planned improvements that clearance and write-down were supposed to make possible. The new Community Development Act's programs and processes have already shown signs of management misuse in cases where funds have been inappropriately assigned (tennis courts in affluent neighborhoods) or have not produced the projected salutary results.

The first transferable general lesson that can be applied to major housing, such as the one which formed the basis for the competition illustrated in this issue, is that the problem of creating an appropriate living environment begins with the proper definition of the problem. Other specific lessons—in addition to the ones discussed above—are transferable too, but this general one is the proper starting point.

In the case of rapidly growing countries with limited resources, it is not enough just to state that the need is for housing. In the case of the wealthy developing countries—such as the ones in the Mideast—the need is not just for the best that modern technology can produce. In both cases, there has been an unfortunate tendency to dismiss environmental concerns as a luxury only relevant to wealthy, developed countries; to ignore the importance and societal value of the historic built and natural environment; to create unrealistically rigid master plans for societies that are often in the midst of rapid cultural transition; and to fail to note the shortages in management skill, sensitivity or effort can prove the undoing of any program.

Define a reasonable set of objectives

Management by objectives is one of the business school's favorite lessons. In this case, if the problem is properly defined, it is usually possible to define a reasonable set of objectives. In the U.S., however, housing and community development goals have often been inadequate guidelines, in part due to the uncertain nature of the problem definition and in part because of an uncertainty about who has the role of setting and carrying out the objectives.

But objectives must be defined to a degree that they serve as identifiable targets for realistic development programs. If the goal is—as has been the case in recent years at the national level—to put the housing burden on the private sector, that means that the private sector must be stimulated or at least not discouraged. Rent controls, inadequate money supply, overly restrictive legal restrictions and other programs often become counterproductive. If, however, there is a public role in housing for some sectors, this role must be realistically defined. The stratagem of "moral obligation" bonds used for the New York UDC, the HUD role in the Title VII new town program, and many other promising experiments in public/private partnership foundered in part because the expressed goals were not congruent with the longer term goals of the actual public and private participants involved in the development program.

At the more detailed level of specific projects—such as the one in the Manila competition—clear goals are as, or even more, important. The goals should state clearly what is to be accomplished, the relative importance of competing priorities, and the other guidelines necessary for a responsive program. The design professions have already contributed a great deal to the state of the art in goal setting with the development of the programming and planning techniques used for educational, medical and some other types of facilities. To date, however, the same sophistication has often been lacking in the largest building task faced here or anywhere—housing. Too often the goals for a housing project are expressed strictly in terms of cost, return on investment or often arbitrary physical criteria. Interesting experiments such as New York City's innovative mixed-use zoning and housing quality guidelines are among some efforts to change this situation.

Therefore, the second transferable management lesson should be that goals can and must be a clear response to the problem, they must reflect the true commitment of the group responsible for implementation, and they should incorporate the best available technical objectives.

Where this exists, remarkable achievements can be made in the face of extreme odds. Brasilia, despite its over-publicized problems, and Israel's resettlement housing program are just two examples where goals were set that reflected the necessities for implementation.

Planning: design professionals' response to the problem

The third step in the management process is planning. Here planning is used in its broad context of developing programs, solutions and physical designs in response to a problem. This step is where the design professionals have traditionally begun to have a major management impact on the process. It is at this point that transfer is made from the policy makers to the technocrat. The design professions should have a major role in the first two steps, but to date that has been the exception rather than the rule.

Planning—as part of the management process—has been evolving here and elsewhere. There was a time when a housing project or even an entire new city was regarded almost strictly as a physical planning issue. More recently other disciplines—in particular, economics, financial analysis, etc.—have taken a leading role in defining what gets done and how. These collaborations have also led to failures, especially where too much emphasis was placed on one particular skill or discipline at the expense of other factors. As a result, today it is increasingly common to see the manager of the process using a multi-disciplinary team, tailored to achieving a balance between different disciplines, with inputs carefully timed to achieve maximum results.

In Houston recently, for example, our role, in conjunction with that of the developer/client's project manager, was to orchestrate a group of 12 specialist teams, each of which had one of the specific required skills identified during the problem definition stage. Yet, on other projects of similar scale but different development contexts, objectives or

continued on page 67

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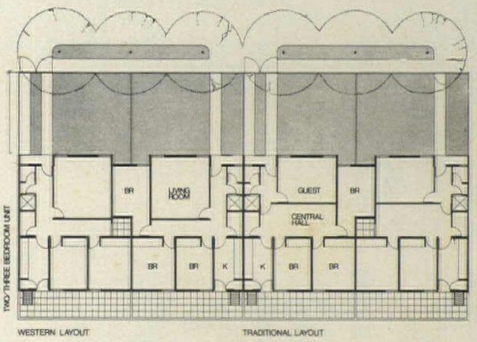
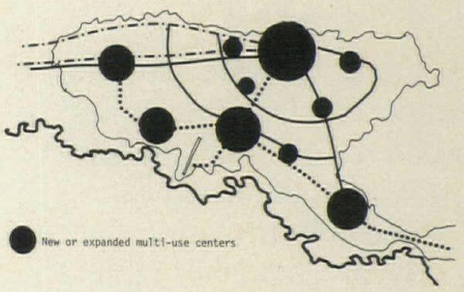
technical questions, the same planning step has required only four or five disciplines. The common elements on all successful planning efforts, however, have almost always been a good manager for the planning process and effective assembly and use of the necessary technical skills.

This has been less true, unfortunately, overseas. We recently had the interesting experience of being able to compare one of our new community scale housing programs with that of another firm given the same assignment on an adjacent piece of property in southern Iran. The two firms started from the same point and ended up with very different conclusions. Naturally, we felt strongly about our conclusions as to housing needs, which were premised on the goals of providing an inexpensive house that reflected traditional living patterns in the area, and which with minor variations could be adjusted to reflect the increasingly western life style of some potential residents (plan below). The other project introduced a variety of new housing forms almost entirely dependent upon a shift to living patterns very different from those currently in use. A prior example completed as part of a public housing project in the same area stands empty in large part due to this error.



Alternative Unit Plans



In many other situations, both here and abroad, projects have never been implemented because some other major parameter such as the financing or construction feasibility has been ignored. We just had a call from a development firm like many others in the Mideast that had commissioned housing designs, but had not insisted that a construction management plan be included as well. As a result, in spite of adequate financing, a sure market and a complete set—in U.S. terms—of planning and design documents, they, as laymen in housing, did not know how to proceed.

In the U.S. the issue is rarely construction feasibility, but it often is a failure to adequately reflect the problem definition and objective in the recommended design. We, and many other experienced housing designers, win more arguments with our clients about the necessity for upgrades in quality on the basis of feasibility than we do on pushing for what the client regards as merely "an architect's dreams." In one project last month, for example, it was possible to achieve a 35 per cent reduction in density by being able to demonstrate that potential profits would be higher and risk exposure lower as a result of the improvements in the project design.

Therefore, the third transferable lesson is that the manager of the planning phase must see that the team developing the project plan can respond to the full range of feasibility issues. These issues will be different for almost every project.

In some developing countries a comprehensive planning approach has been applied successfully even at the regional and national level. For example, our own recent work on the Bogotá regional plan employed a combination of comprehensive urban planning and PPBS (Program Planning and Budgetary System) to examine the full range of urban investments (housing, industry, transport, etc.) necessary to accommodate Bogotá's rapid and massive growth. This technique made it possible for the government and World Bank to evaluate alternative public investments. Specifically, it tested the investments associated with each alternative growth plan and allowed the planning team to quantify tradeoffs. The result was a decentralized, multi-nuclei plan that shifted investment from transportation into housing and employment (lower left).

Implementation depends on effective resource management

This final phase is, of course, the true test of the plans outlined later in this issue as well as an important area of management. Among the management lessons to be learned about this phase are the following:

In areas of scarce resources, there must be a mechanism for channeling these resources to the target need. In the U.S., dependence on the private sector has often meant that there is extreme duplication of effort and waste. As one developer put it, "if the market projections say an area needs 1000 units of housing, three different developers will initiate projects for 1000 units."

Over-control by the public sector, however, can be equally bad. The rather consistent failure of public housing efforts to compete on either a cost or a qualitative basis with the best elements of the private sector has consistently discredited a public takeover of housing implementation. Even in the successful English new town efforts, success in implementation has had to be measured by largely different criteria than those used in the U.S. Milton Keynes, one of the new towns (RECORD, December 1973, page 134) we planned, used a full-time staff of almost 1000 to handle the management role. This staff size makes it impossible to achieve—as defined in this article—any normal financial feasibility criteria applied to private sector projects. In the handful of successful large scale U.S. new communities, the same rate and quality of implementation have been accomplished with less than 20 per cent of Milton Keynes' staff. Even where public bodies exercise indirect control, a failure to manage the process can seriously inhibit needed development.

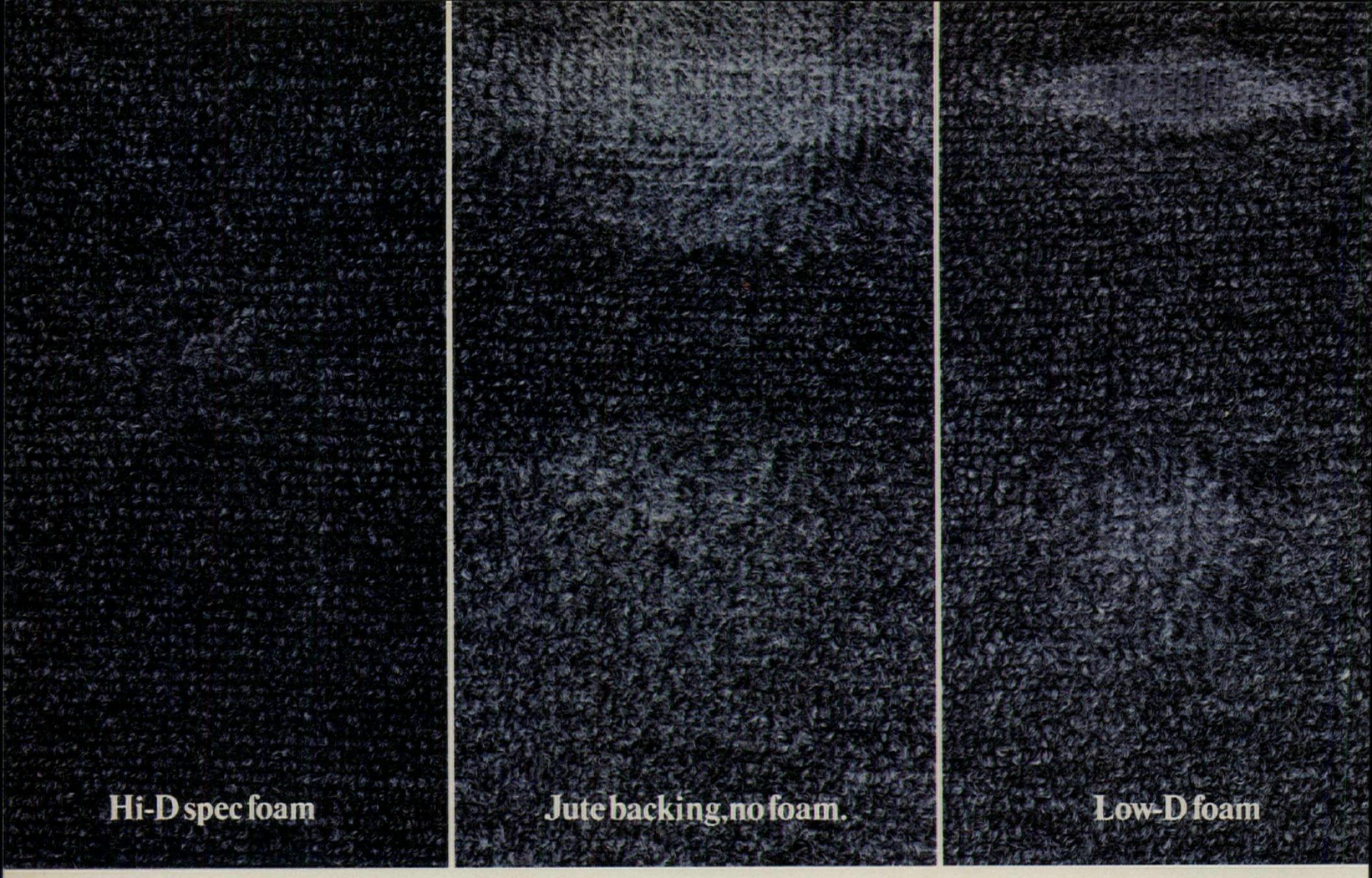
Right now we are learning in the U.S. that some mechanisms are needed for resolving disputes about priorities in such areas as environmental impact, zoning and other issues. It is not uncommon to see housing projects locate in some place other than where they are either most needed, most appropriate or even most feasible. Instead, they often locate where they are least likely to be stopped by one of the many groups with the legal power to stall implementation. One of the positive elements of the English planning process is that while it is still overly restrictive in many cases, there is a process which does minimize the disruption caused by no effective channeling of the various adversary elements in the approval process.

The actual mechanisms used are important too. At present many countries are still enamored with systems. As some of the competition submissions illustrate, however, there are other effective means of achieving the same results. Technology, when looked at as the sole answer to the problem, has more often than not been a failure—equalled only by our own Operation Breakthrough.

Even past construction management issues such as maintenance are of cultural importance. Some of the early results of the Mideast building boom are becoming unpleasant environments because this issue was not dealt with in the management process. This is also a large part of the reason the Levittowns have not been the failures that many planners have predicted. Therefore, the fourth general lesson about the mangement process is that it takes effective, experienced management at every point to make it work.

It is here that the lack of effective management at any of the four stages discussed in this article becomes most apparent, and it is here where the largest quantity management must be applied. We have—as a matter of course—tried to include a management plan for the implementation phase in many of our recommended plans and designs. In some cases we have not been able to sell the need for this until after implementation has been delayed, but in almost all developing-nation situations—as well as a large number of U.S. projects—this plan is a necessity. Included in this plan is the need to find the people to fill the management portions identified and to design the mechanisms and controls for guiding the implementation process.

An increasing amount of the management must even come from the design professions. As the problem of creating a suitable urban environment continues to grow in complexity, the management role increasingly requires the perspective and experience of the design professions in leadership roles. To regain leadership in the process, however, the design professions must recognize this management framework and apply our various skills to making it work.



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Hospital/healthcare building costs

With the public focusing on rising medical costs, both healthcare and construction professionals will bear increased accountability for budgeting and estimating new construction and major renovations.

A new research report presents cost "comparables" for more than 200 recently-constructed healthcare facilities. Each of the project listings covers square and cubic foot costs (based on actual contract award prices), specifications for major systems in the building, and, frequently, costs of these systems and of special equipment.

The report also contains detailed building cost case histories which show completion costs. Quick "ball park" figures can be obtained from the "Average Building Costs" section which gives square foot costs (for low-, middle-, and high-quality construction) for a variety of different facilities. Data in this section also show what percentage of the total building cost each major system absorbs. All costs in the report can be adjusted to any of 183 U.S. cities.

Further information on "Hospital/Healthcare Building Costs" may be obtained by writing to McGraw-Hill Information Systems Co., Room 2050, 1221 Avenue of the Americas, New York, N.Y. 10020.

John H. Farley, chief editor
Dodge Building Cost Services

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Metropolitan area	Cost differential	Current Indexes non-res.	residential	masonry	steel	% change last 12 months
U.S. Average	8.5	538.1	505.4	531.6	517.9	+ 9.2
Atlanta	7.5	610.9	576.0	603.8	592.2	+ 3.2
Baltimore	8.5	621.2	584.0	609.5	595.2	+13.2
Birmingham	7.3	Figures not available at this time				
Boston	9.0	543.7	513.7	550.7	529.3	+10.6
Buffalo	9.1	576.6	541.4	568.6	551.8	+ 6.5
Chicago	8.3	569.2	541.2	550.9	543.0	+ 3.9
Cincinnati	8.8	611.8	575.7	601.5	586.2	+16.4
Cleveland	9.0	587.9	553.1	578.1	561.2	+12.0
Columbus, Ohio	8.2	523.9	492.0	520.4	504.4	+ 3.3
Dallas	7.9	511.7	495.5	505.1	493.9	+ 3.6
Denver	8.4	587.8	552.9	583.0	570.0	+ 9.4
Detroit	9.8	623.0	593.5	632.4	608.1	+10.9
Houston	7.4	506.2	475.3	495.1	486.3	+11.6
Indianapolis	7.8	480.7	451.4	473.2	462.8	+ 8.2
Kansas City	8.7	531.6	502.3	523.5	509.3	+ 8.9
Los Angeles	8.5	613.4	560.7	597.7	583.9	+ 9.6
Louisville	7.6	512.7	481.4	500.7	490.9	+ 6.9
Memphis	8.4	545.9	512.5	527.6	516.4	+ 7.5
Miami	7.9	596.2	568.0	594.2	585.4	+17.7
Milwaukee	8.7	617.6	579.9	613.1	592.4	+ 9.5
Minneapolis	8.9	555.4	522.5	548.5	535.7	+ 6.7
Newark	9.0	499.7	469.2	496.6	483.5	+ 2.5
New Orleans	7.5	530.6	500.8	522.4	510.6	+12.8
New York	10.0	552.8	514.0	543.1	531.6	+ 2.9
Philadelphia	9.1	589.3	561.4	590.6	571.9	+ 9.4
Phoenix (1947 = 100)	8.2	316.0	296.7	312.1	303.9	+ 8.6
Pittsburgh	8.9	515.1	484.6	514.9	497.7	+ 7.0
St. Louis	8.7	550.8	519.9	545.8	533.4	+ 9.1
San Antonio (1960 = 100)	7.6	214.7	202.3	209.9	205.5	+14.4
San Diego (1960 = 100)	8.7	250.5	235.2	248.1	246.5	+20.0
San Francisco	9.6	808.8	739.2	802.2	775.8	+10.3
Seattle	8.6	540.6	483.8	531.0	513.0	+11.3
Washington, D.C.	8.4	524.9	492.8	517.3	502.4	+ 7.7

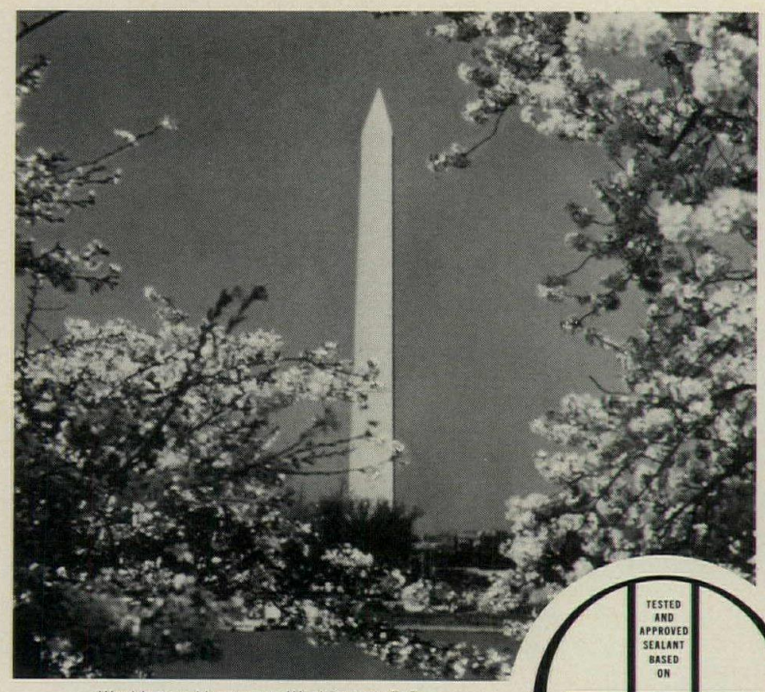
Cost differentials compare current local costs, not indexes, on a scale of 10 based on New York

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

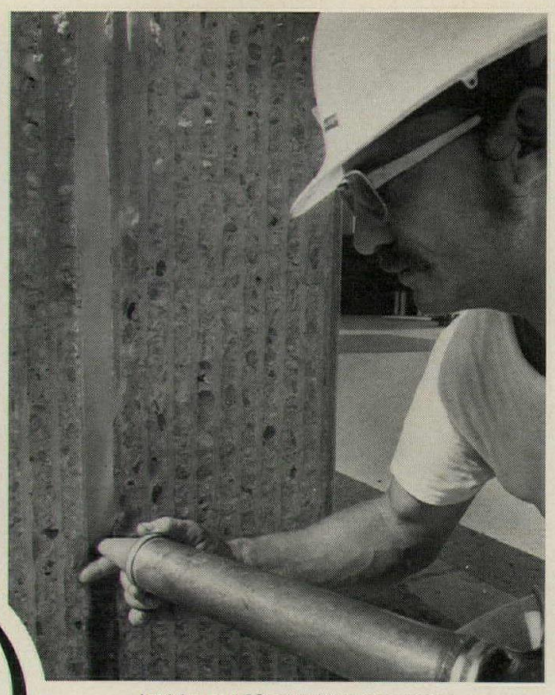
HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL NON-RESIDENTIAL BUILDING TYPES, 21 CITIES — 1941 average for each city = 100.00

Metropolitan area	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975 (Quarterly) 1st	2nd	3rd	4th	1976 (Quarterly) 1st	2nd	3rd	4th
Atlanta	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			
Baltimore	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			
Birmingham	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	Figures unavailable			
Boston	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			
Chicago	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			
Cincinnati	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			
Cleveland	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			
Dallas	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			
Denver	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			
Detroit	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			
Kansas 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			
Los 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			
Miami	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			
Minneapolis	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			
New 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			
New 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			
Philadelphia	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			
Pittsburgh	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			
St. 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			
San 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			
Seattle	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			

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.0) divided by the index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0 ÷ 200.0 = 75%) or they are 25% lower in the second period.



Washington Monument, Washington, D.C.



Applying an LP® polysulfide-base sealant.

United Services Automobile Association headquarters, San Antonio, Texas—after the Pentagon, the nation's largest low-rise office building.

Long life for new structures. And new life for old ones.

This sprawling new building and the towering Washington Monument have more in common than you might think. Both required a sealant that could withstand joint movement, take the punishment of environmental extremes and still maintain a watertight bond. So both structures were protected with sealants based on LP polysulfide polymer.

After all, what other sealant can offer more than 25 years of successful performance under all kinds of conditions, including the notorious humidity of Washington, D.C. and the baking sun of San Antonio.

Polysulfide-base sealants are routinely subjected to torturous tests that simulate actual conditions . . . tests that require a compound to remain flexible and provide good adhesion after being heat aged, soaked in water and exposed to cycles of extension and compression.

And only those polysulfide base sealants that come through with flying colors earn the right to wear the Seal of Security—the symbol of product quality and your assurance of long sealant performance.

So whether you're involved with specifying or applying sealants—on buildings new or old, low or high; in climates hot or cold, wet or dry—insist on those products that display the Seal of Security.

For a listing of Seal of Security sealants, write C. Kranz, Marketing Manager, Thiokol Corporation/Chemical Division, 930 Lower Ferry Road, Trenton, N.J. 08607.

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Specialty Polymers • Off-the-Road Vehicles • Synthetic Fibers • Sprayers • Propulsion • Educational Services
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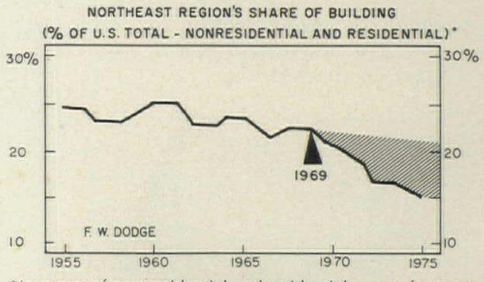
The Northeast: Get out?. . . Or wait it out?

What had once been a gradual and predictable decline of architectural business in the Northeast during the 1960s accelerated to a near-collapse in the first half of the 1970s. Will the forces that caused this region's worsening situation in recent years just continue to gain momentum, or is the decay reversible?

The reasons behind the long-established downward trend (as opposed to the recent collapse) of the Northeast are mainly demographic. They are familiar enough to need no more than brief mention: the general movement to the South and West of the population; the reverse migration of Southern poor to the inner cities of the North; the exodus of the middle-class to suburbia; the shift of manufacturing industry to the less unionized South—all worked to the Northeast's disadvantage. Some of the obvious consequences: slower net population growth; higher unemployment; slower income growth; eroding tax base; diminished business capital spending—all key factors that undermined the demand for private and public construction. Yet, if the trend of the 1950s and 1960s had continued along its slow and steadily downward course into the 1970s, the Northeast's share of the national building total today would still be more like 21 per cent than its actual 17 per cent—a difference of as much as $3 billion of lost construction potential for the region in 1975 alone as a result of the developments of the past several years.



*(per cent of non-residential and residential square footage)

Why the sudden turn for the worse around 1970? Beyond the basic demographic movements that continued to shape the region's long-term relative decline, some special situations came along in the early seventies to compound the problems of this already vulnerable building market:

- A glut of office buildings throughout most major cities of the Northeast—the legacy of the commercial boom of the late 1960s.
- The recent shift in the funding of Federally-financed construction from a direct program approach (as in the 50s and 60s) to the "New Federalism's" emphasis on local determination (via Revenue Sharing and Community Development allocations). This change works to the benefit of smaller cities and suburbs and against major metropolitan areas—and especially to the disadvantage of the Northeast.
- New York City's well publicized "fiscal crisis," which has brought municipal building in the nation's biggest construction market to a virtual halt.

What does the future hold for the Northeast construction market? Several possibilities are open, and the one that turns out to prevail will depend, more than anything else, on how quickly this region's special problems of the early 1970s can be turned around. For anyone involved in construction in the Northeast, the obvious choices are something like these:

1. *Head for the Sunbelt, the worst is yet to come:*
That is, the Northeast's share of national building will continue to shrink at the accelerated rate of the 1970-75 period, sliding all the way to 12 per cent by 1980 . . . or . . .

2. *If you made it this far, you might as well hang on:*
The region's share will stabilize at or near the depressed 1975 level of 17 per cent . . . or . . .

3. *Take heart, Yankees—the Northeast will rise again:*
The 1970-75 period was a temporary departure from trend and its devastatingly negative effects will be partially reversed. The region's share will soon begin inching back toward its long-term (1950-70) trend, making it as far as 18-19 per cent of the national total by 1980.

Number three—back toward the long-term trend (but not all the way back)—is the one that best fits the conditions that are most likely to prevail during the next five years. But not all types of building demand will be affected in the same way. Here's a quick look at the potential for some of the key building types in the Northeast between now and 1980.

Commercial Building: Until 1970, the Northeast's share of total commercial building was holding steady at 25 per cent, then dropped sharply (to 17 per cent) when the office building market crumbled. Over the next five years, commercial building is the Northeast's strongest hope for revival, but before that happens a lot of vacant office space has to be absorbed. A strong economy and a rapid return to full employment are obvious pre-conditions.

Manufacturing Construction: With the nation's economy still struggling its way out of the worst recession in decades, industrial building is depressed everywhere, and will be the last of the major categories of construction to recover from the 1974/1975 slump. Once the recovery of manufacturing building does take hold, the South and West will again enjoy their significant advantages of lower labor cost, more abundant energy, and expanding markets. There is little likelihood that the Northeast will regain much of its lost share of national importance as a manufacturing center even when the economy is back on its feet.

Institutional Building: The key to this market is epitomized in New York's fiscal crisis which has greatly curtailed public institutional building there for the time being. If the city's financial problems can be arrested before becoming epidemic among the Northeast's metropolitan areas, the region's share of institutional building will—in a couple of years' time—regain some of its recent loss.

Apartments: The Northeast yielded its commanding 30 per cent share of the national multi-family building market to other regions long before the 1970s began. During the mid-60s, the Northeast's share of apartment building dropped from 30 per cent to less than 20 per cent in the space of a few years, and never recovered—not even during the subsidy-boom of the early 1970s. Without a special (unlikely) effort by HUD to stimulate inner-city apartment construction, the Northeast's share of the multi-family market will probably continue to fluctuate in the 15-20 per cent range through the remainder of the decade.

On balance, the case for option three—a change for the better in the Northeast's sagging construction market—comes down to this: two categories of building, commercial and institutional, offer promise of recovery once some temporary obstacles are cleared away. Demand for most other types of architect-designed buildings, having shrunk badly during the past five years, will at least stabilize for the time being.

So, without losing perspective about the limited prospect for long-term growth in the Northeastern building market, we can nevertheless anticipate some improvement from its presently depressed state in the years just ahead.

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

Note: This article is the first in a series on regional construction trends. The Northeast includes: New England, New York, New Jersey, Eastern Pennsylvania, Middle Atlantic States, and Virginia.

One of today's smart new creations can save this store $12,000 in lighting.

Automatic Energy Control from Wide-Lite is one beautiful example.

With a typical HID lighting system* AEC can save over 400,000 kilowatt hours and $12,000 for each and every relamp interval. This means savings from 15% to 25% for most commercial installations.

Why? Because AEC maintains constant level illumination — so you won't have to pay for higher initial footcandles to meet the specified minimum as lamps age.

And how does Automatic Energy Control work?

It all starts with a photocell sensor which simply reads illumination levels.

Then the AEC system converts this reading into a signal which alters power input. Thanks to our special dimming ballasts which continuously and automatically adjust lamp lumen output to maintain a predetermined value.

So, as lamp lumen depreciation lowers illumination, AEC automatically compensates by increasing lamp power.

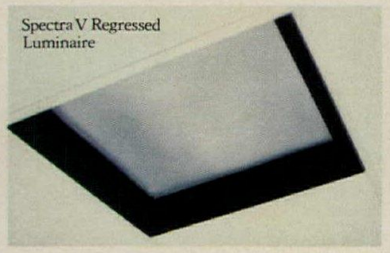
Or if ambient daylight increases total room illumination, AEC automatically compensates by reducing lamp power.

The result is that you get only the amount of light you need. And pay for only the amount of light you need.

Of course, we recommend you use our dustproof luminaires as part of your AEC system to keep maintenance costs at a minimum.

We also recommend you write for our brochure that details how AEC can save on any indoor lighting project you may have.

It shows how fantastic you can look with our smart new creation.



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*150 1000-WATT FIXTURES WITH MERCURY VAPOR DX LAMPS, BURNING 12-HOURS PER DAY, FOR A TOTAL OF 16,000 HOURS BEFORE RELAMPING, AT 3¢ PER KWH.

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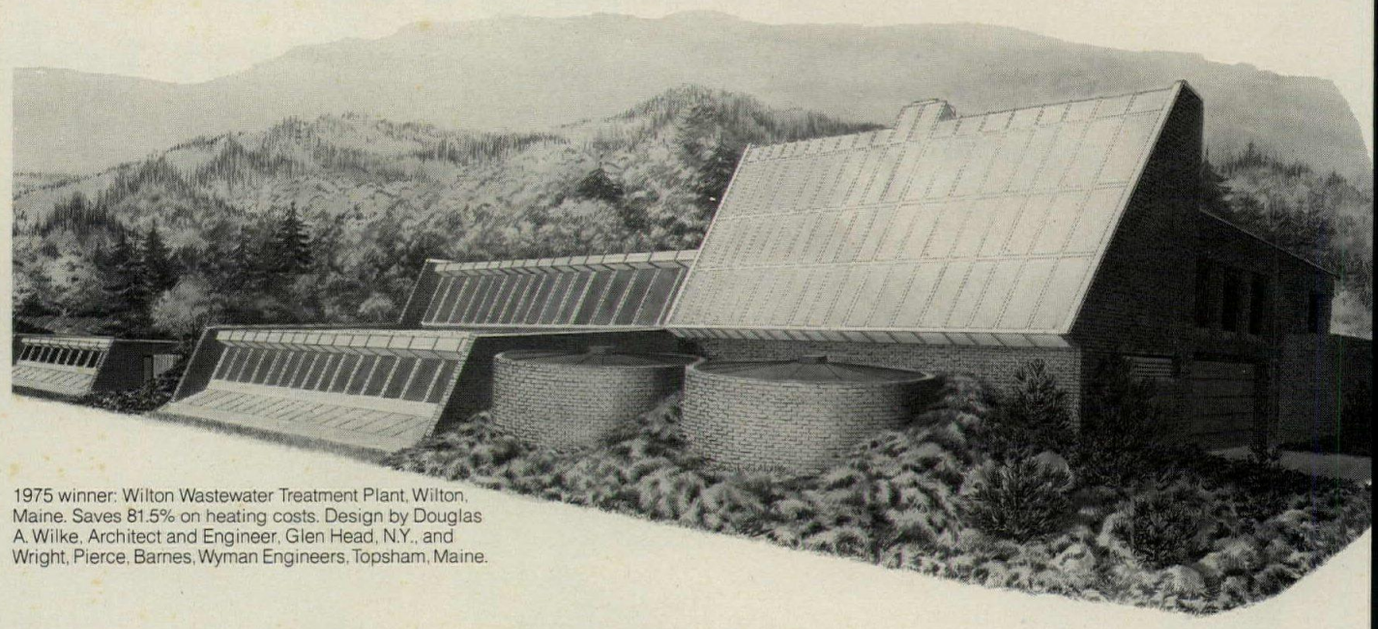
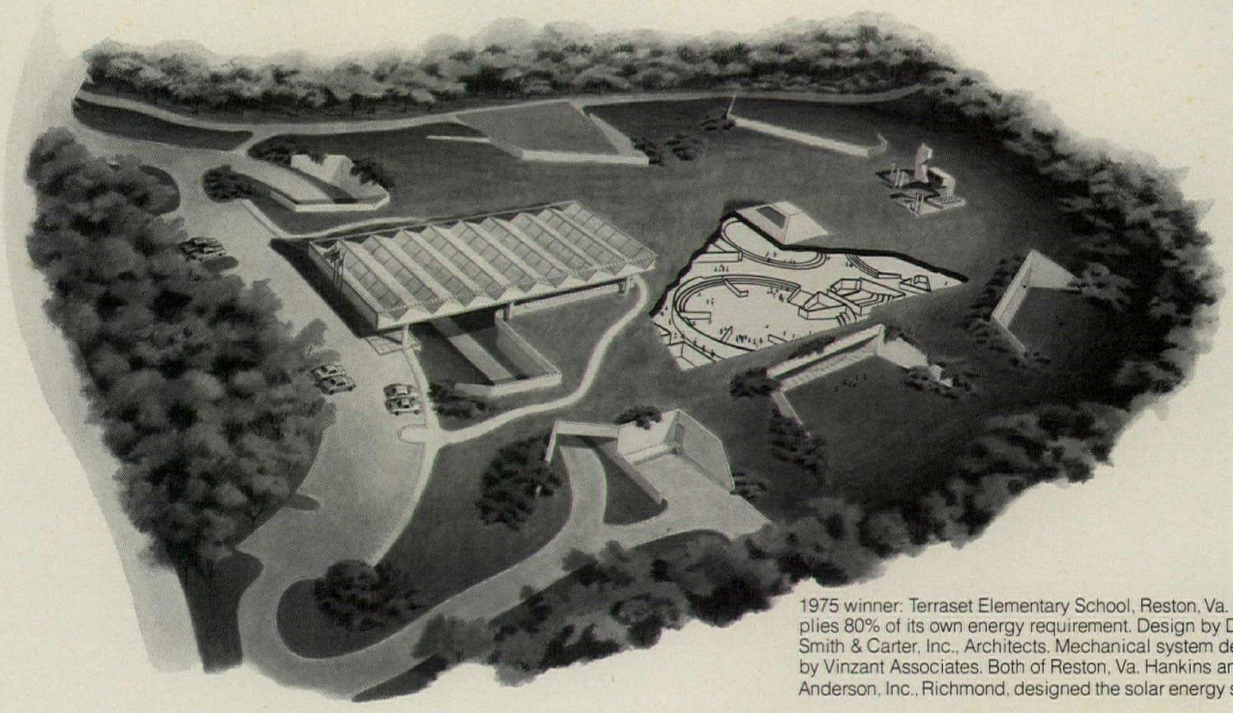
Could your building design earn this distinguished award?

See details on next page.



1975 winner: Wilton Wastewater Treatment Plant, Wilton, Maine. Saves 81.5% on heating costs. Design by Douglas A. Wilke, Architect and Engineer, Glen Head, N.Y., and Wright, Pierce, Barnes, Wyman Engineers, Topsham, Maine.



1975 winner: Terraset Elementary School, Reston, Va. Supplies 80% of its own energy requirement. Design by Davis, Smith & Carter, Inc., Architects. Mechanical system design by Vinzant Associates. Both of Reston, Va. Hankins and Anderson, Inc., Richmond, designed the solar energy system.

These designs earned our 1975 award.
Read how you can enter our 1976 program.

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

Announcing the 5th annual Owens-Corning Energy Conservation Awards Program

The Owens-Corning Energy Conservation Award. "Triangles," a Steuben Crystal sculpture that captures and reflects light from multiple triangular planes.

Show our Awards Jury a building design that doesn't waste energy—and you could receive one of the Energy Conservation Awards Owens-Corning will present in 1976.

The Awards Jury will be looking for three things: Creativity. Originality. And most important of all—designs that save energy. Too many of our buildings waste fuel.

By continuing the Energy Conservation Awards Program we began in 1972, Owens-Corning hopes to stimulate even more ways to conserve energy. It also lets us recognize—and honor—those who do the best job of designing buildings and mechanical systems that help conserve our nation's energy.

Who can enter

Any registered architect or professional engineer practicing in the U.S. is eligible. As an individual. Or in a team. But to qualify, your entry must be a commissioned building project—in the design process, under construction, or a completed structure.

Although Fiberglas* products are an excellent way to conserve energy, their use is not an entry requirement.

Four entry categories

Winners will be selected from four design categories:

Institutional—schools and hospitals, for example.

Commercial—office buildings, shopping centers, retail stores, and similar structures.

Industrial—including manufacturing plants, research centers, and warehouses.

Governmental—post offices, administrative buildings, and military structures, to name a few.

The Awards

Winning architects and/or engineers will receive the handsome Steuben Crystal sculpture. Owners or clients will receive other Steuben Crystal awards.

The Awards Jury for 1976

Outstanding professionals in architecture and engineering will serve as the Awards Jury to select the winners.

Send for entry details now

Completed entries must be submitted by August 31, 1976. Winners will be selected and notified in early October.

For a brochure with details on how to enter, write: G.R. Meeks, Owens-Corning Fiberglas Corp., Building Products Operating Division, Fiberglas Tower, Toledo, Ohio 43659.

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For more data, circle 44 on inquiry card

Owens-Corning tells why you this unusual picture next time

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 to achieve *workable* sound levels.

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

The ceiling. Handsome is as handsome does.

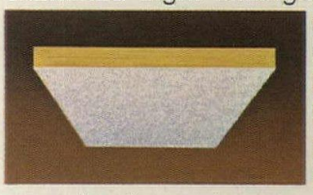
The ceiling is the single most important acoustical component in an open office. It should absorb, not reflect, sound. A perfect ceiling would have the same

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

should remember you design an open office

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

An independent acoustical testing laboratory examined 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 speech privacy at economical installed cost. In these tests, Nubby II was the *only* ceiling board with an NIC′ as high as 20 in a flat configuration.

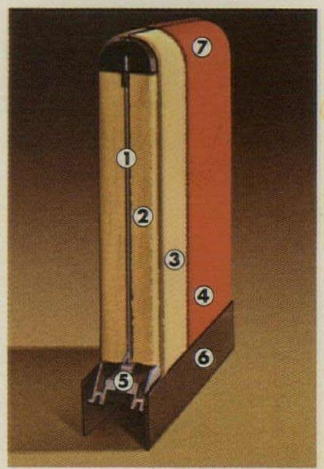


Some architects prefer the look of ceilings with *concealed* grids. Caution: As yet, *no* such ceiling provides the minimum NIC performance necessary to achieve satisfactory acoustical privacy in an open office.

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

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

The sound screen, visual symbol of the open office, offers flexibility, economy, personal privacy, and acoustical control. It has *two* acoustical *functions.* First, to block direct sound transmission from one work zone to another. Second, to absorb sound, reducing flanking reflections into adjacent zones. Owens-Corning's sound screen is the *most* effective screen available. Its engineering features include:



1. A metal septum—to block sound transmission.

2. One-inch Fiberglas core on each side of septum—to absorb sound.

3. Sturdy special Fiberglas sound diffuser (Glastrate)—for abuse resistance.

4. Stain-resistant Dacron® Polyester fabrics. These fabrics are washable, colorfast, and fire-retardant (Class 25).

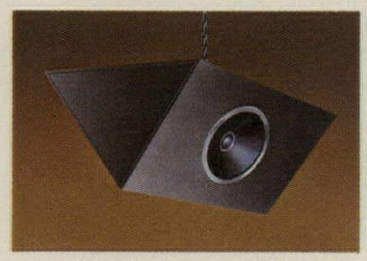
5. Extruded aluminum frame, fastened to septum—for strength and stability.

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.

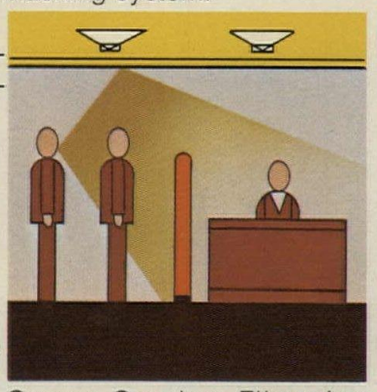


This sound must be unobtrusive—and *uniform.* Even at a few decibels above the desired $NC_{40} = 40$ rating, the masking sound causes people who are working in the office to begin raising their voices, defeating the whole purpose of the masking.

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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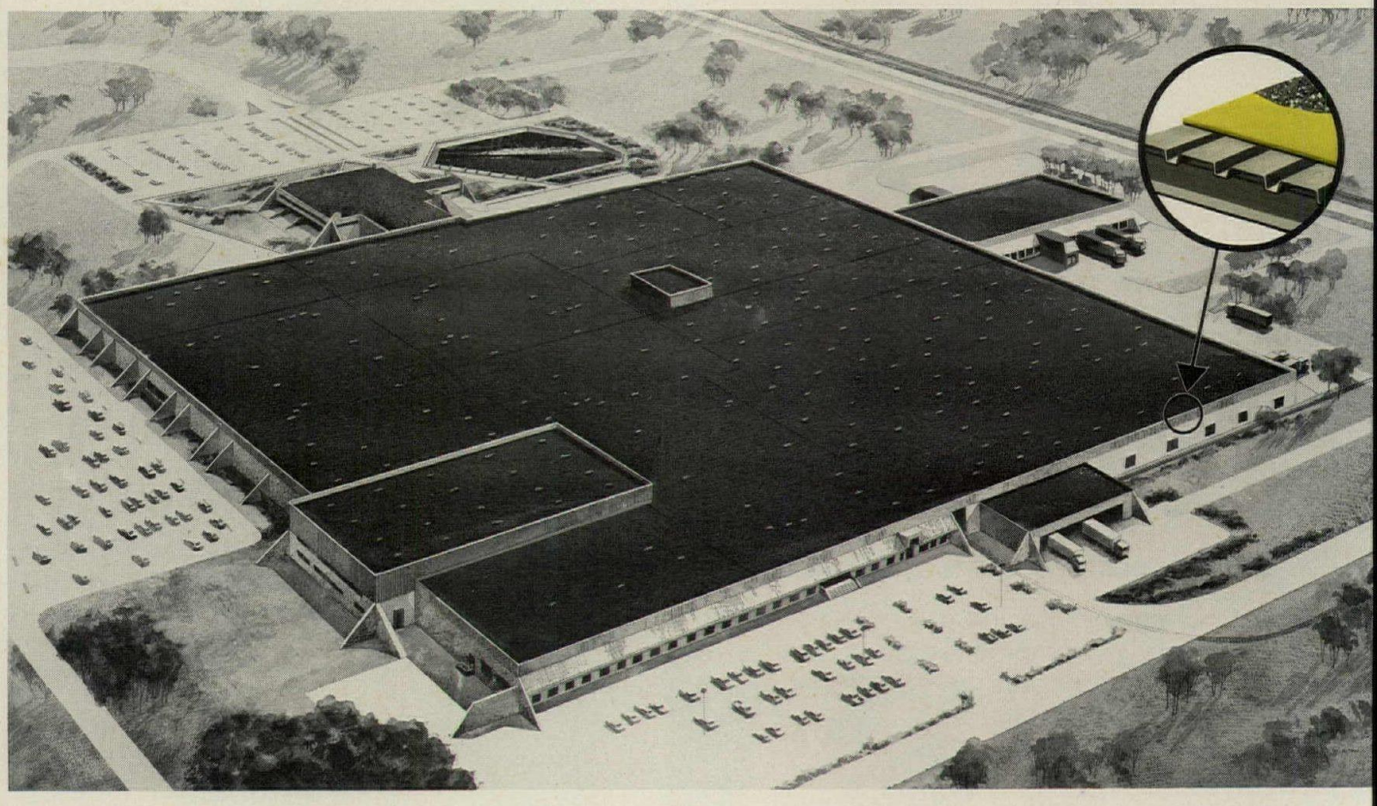
Insulation is

$1,849,996 Projected cost to heat and cool the 46-acre J.C. Penney warehouse for 20 years with only 15/16-inch Fiberglas roof insulation.



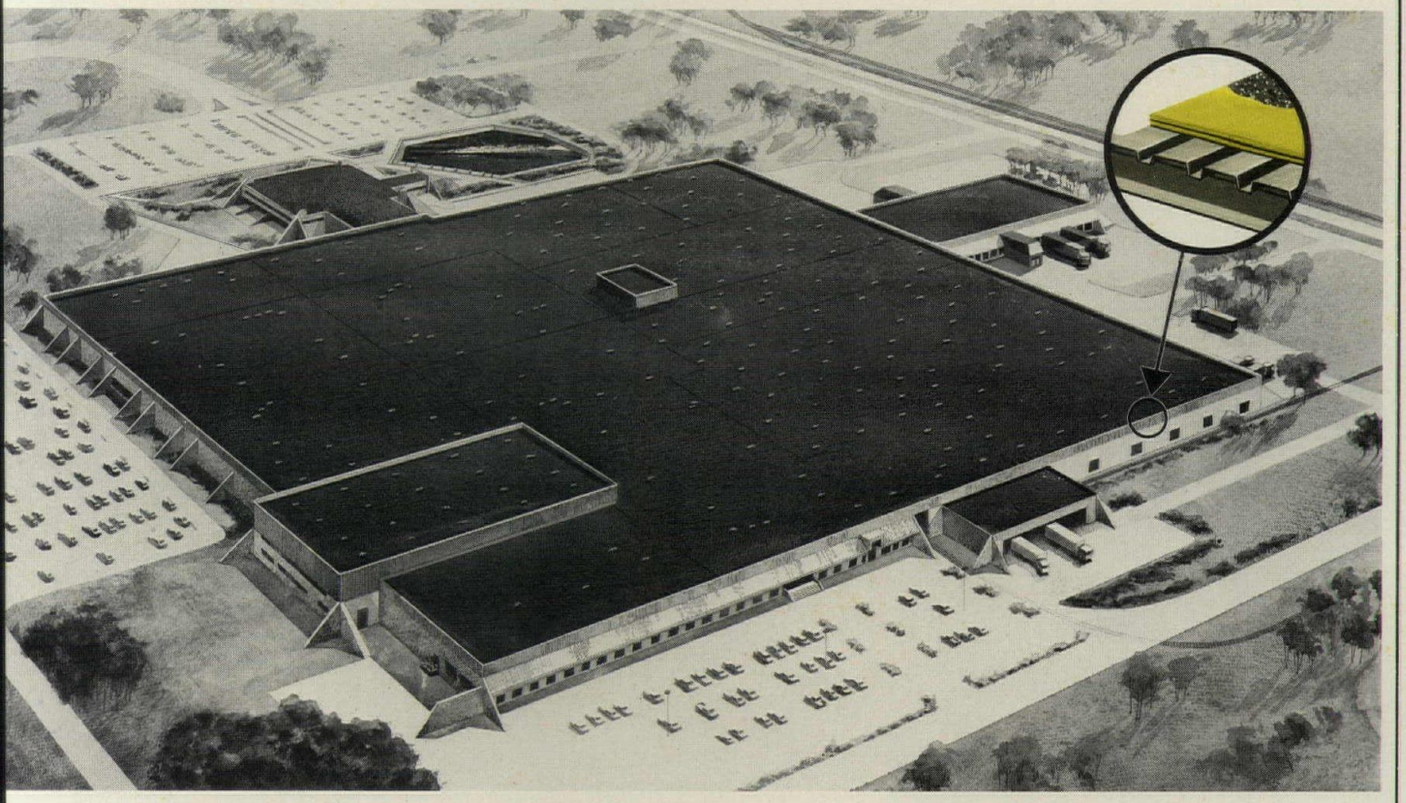
Owens-Corning Fiberglas roof insulation—the only glass fiber roof insulation on the market. Dimensionally stable. Retains thermal value. Easier and less expensive to apply than organic/mineral boards. For over 30 years, the *best* base for built-up roof decks.

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

cheaper than oil

$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!)



A remarkable savings of $972,024! With it, architect Paul Slusarev, Project Manager of the massive new J.C. Penney warehouse/office in Lenexa, Kansas, is helping to point the way for designers of schools, offices, stores, and other commercial buildings everywhere.

Saves money two ways

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

1. It saves on energy costs. Estimated savings per year, based on gas heating and electric cooling in Kansas 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 46 on inquiry card

The sky's the limit for new uses of Kynar 500* based coatings.

Architects, owners, builders and applicators are developing new uses for Kynar 500 based coatings every day. Their interest in new applications is proof of the performance of these modern architectural coatings.

Only ten years ago, Kynar 500 based coatings were specified for wall panels, louvers, and miscellaneous trim on industrial and small commercial buildings.

Today these coatings have earned their way onto gravel stops, curtain wall panels, windows, sun screens, ceiling panels, roofing and signs—for office buildings, hospitals, apartments, stadiums, power plants, department stores, and residences.

It's easy to see why. Coatings based on Kynar 500 retain their original beauty and durability for years and are virtually maintenance-free. They also resist chipping, cracking, fading and peeling. In brief, Kynar 500 based coatings are a standard of quality in architecture today.

To learn more about the exceptional properties Kynar 500 imparts to coatings, contact the Plastics Department, Pennwalt Corporation, Three Parkway, Philadelphia, Pa. 19102. (215) 587-7519.

Or contact one of the following Kynar 500 licensees: DeSoto, Inc. (Fluropon®); E. I. du Pont de Nemours & Co, Inc. (Du-Lite®); Glidden-Durkee Division of SCM Corporation (Nubelar®); and PPG Industries (Duranar®).

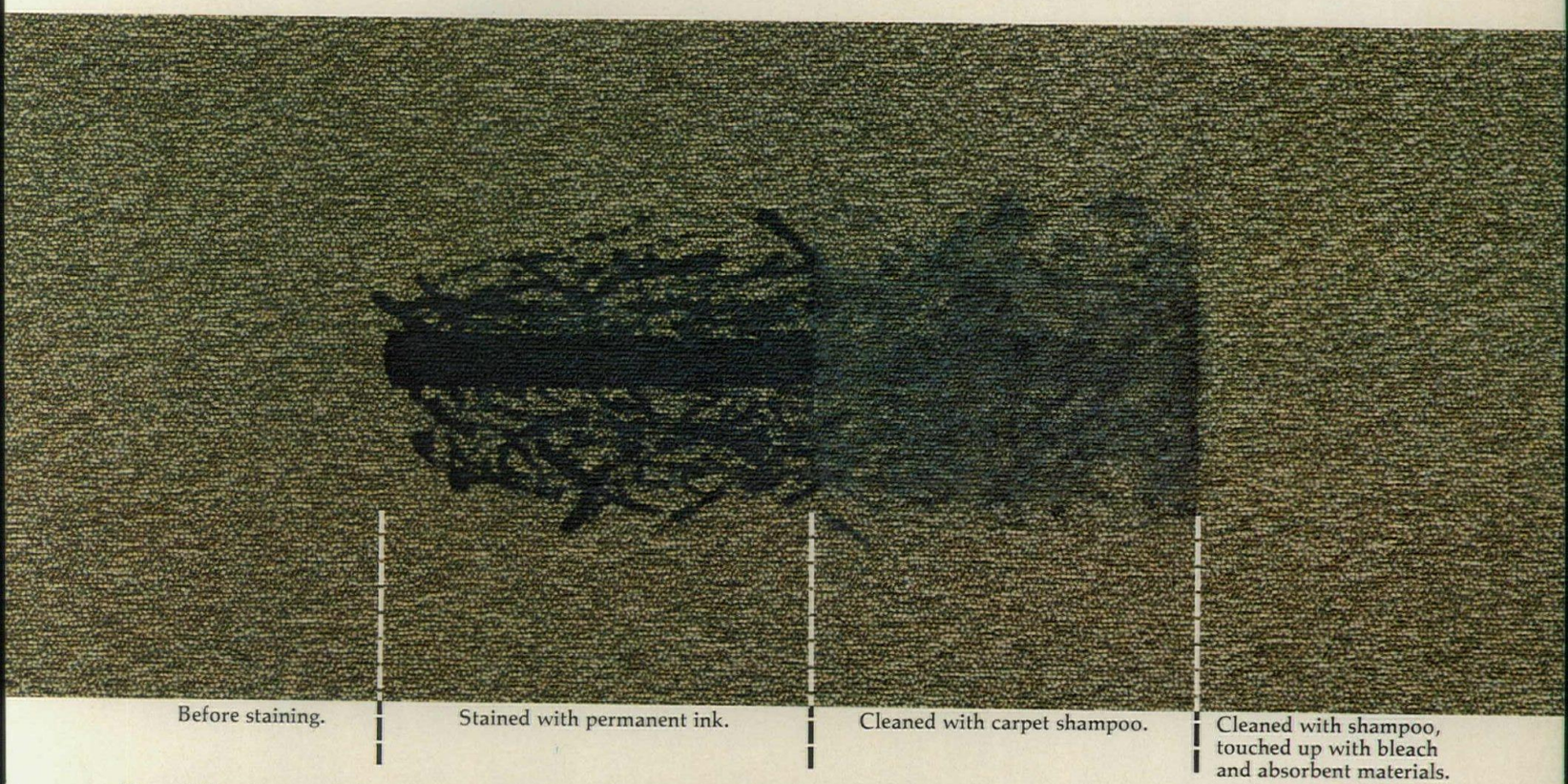
*Kynar 500 is Pennwalt's registered trademark for its polyvinylidene fluoride resin.

PENNWALT
ARCHITECTURAL COATINGS

For more data, circle 47 on inquiry card

Cleanability.

What's durability without it?



Before staining. | Stained with permanent ink. | Cleaned with carpet shampoo. | Cleaned with shampoo, touched up with bleach and absorbent materials.

Durability is certainly a major criteria for carpet selection in commercial buildings. But, so is cleanability. And the first without the second could leave you with a carpet that lasts and stains that do too. That's why Monsanto has engineered Acrilan® acrylic fiber to be both cleanable and durable.

Acrilan® 2000+ carpets are a product of this engineering. The fiber they're made from is solution-dyed. This means that color, in pigment form, is an integral part of the fiber. As a result, Acrilan® 2000+ carpets are exceptionally colorfast and thus, exceptionally cleanable.

For most stains, Monsanto recommends that you start with normal spotting methods and proceed as needed to more powerful agents. These harsher agents can be used effectively without harming either the color or fiber tenacity. When backed with a man-made backing, Acrilan® 2000+ carpets aren't even fazed by 100% bleach.

Our proof is in our picture. Consider the stain. Consider the results after removal. Then consider Acrilan® 2000+ carpets. They're both cleanable and durable.

Acrilan®
the ability fiber

ACRILAN
Monsanto
2000+

Monsanto

Monsanto Textiles Company
320 Interstate North Parkway
Atlanta, Georgia 30339 (404) 434-4949

For more data, circle 48 on inquiry card

ONLY 43 DAYS AFTER WEAVER GAVE THE ORDER, VULCRAFT RODE INTO GRAND PRAIRIE, TEXAS.

Weaver and Vulcraft had teamed up many times before.

That's why it came as no surprise to anyone when Weaver Iron Works, a large steel fabricator, called on Vulcraft to help them take on a big job they were doing for the Vantage Companies.

The job was the Parkway Distribution Center. It was located in Grand Prairie, Texas, midway between Dallas and Fort Worth. The complex itself was to be composed of five separate buildings covering a spread of 34.9 acres. To be used for offices, distribution and manufacturing facilities.

So Vulcraft acted fast to get steel joists and joist girders to Weaver. So fast that only 43 days after they got the order, they rode into town with hard, cold steel.

The first shipment of this 746,852 square foot job had arrived right on time. Everyone had a lot to smile about.

The Vantage Companies above all.

Delivery was quick as lightning. That meant more money in their pocket, less money paid out for rising construction costs.

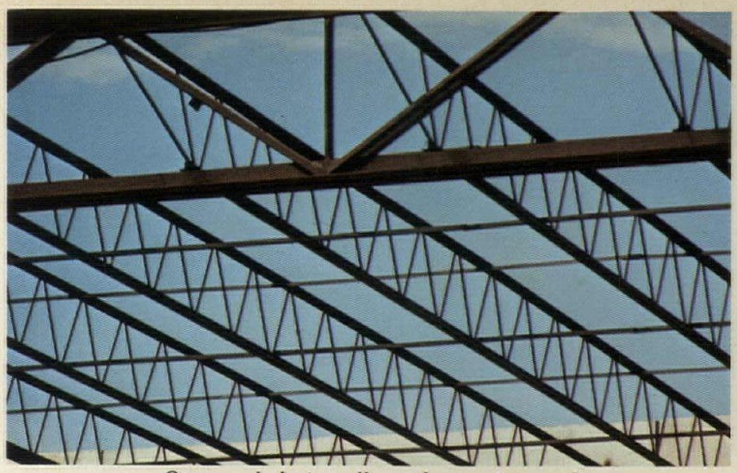
The joists themselves were specially designed by the experts at Vulcraft to meet the load requirements of this specific job. So Vantage saved again.

And with lightweight joist girders on the job, Vantage could even sit back and enjoy the wide open spaces. Since supporting columns could be placed farther apart, allowing for larger bay areas.

That's what happened when Vulcraft and Weaver got together in a Texas town.

It can happen to you. To give the order, just contact your local Vulcraft representative. Or write Vulcraft, P. O. Box 17656, Charlotte, North Carolina 28211 for your Joist & Joist Girder Guide. (See Sweets 5.2/Vu.) Or call (704) 366-7000. But do it now.

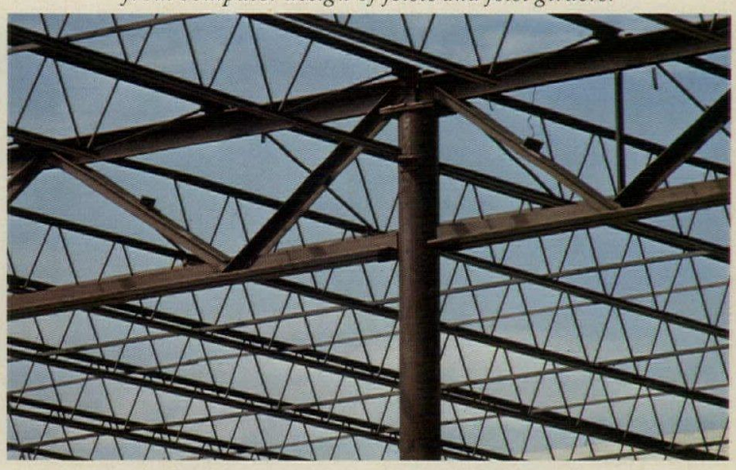
Because the faster you give us the business, the faster we deliver the goods.



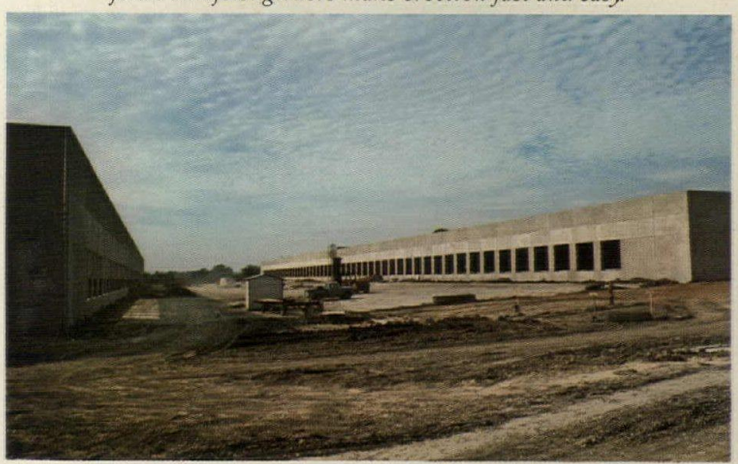
Open web design allows ducts, pipes and wiring to pass directly through the steel members.

Increased spans and larger bays result from computer design of joists and joist girders.

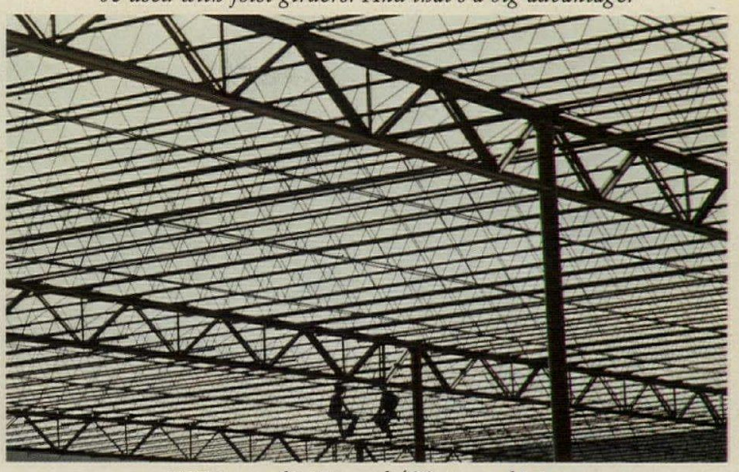
The simplicity and light weight of Vulcraft joists and joist girders make erection fast and easy.



Lighter weight columns can oftentimes be used with joist girders. And that's a big advantage.



Ease and speed of erection with Vulcraft products enabled the first building to be under roof in 19 days.



717 tons of joists and 433 tons of joist girders were used in this 746,852 square foot job.

Vulcraft joists and joist girders helped Vantage in a Texas town. They can help you with a job too. Large or small. Anywhere.

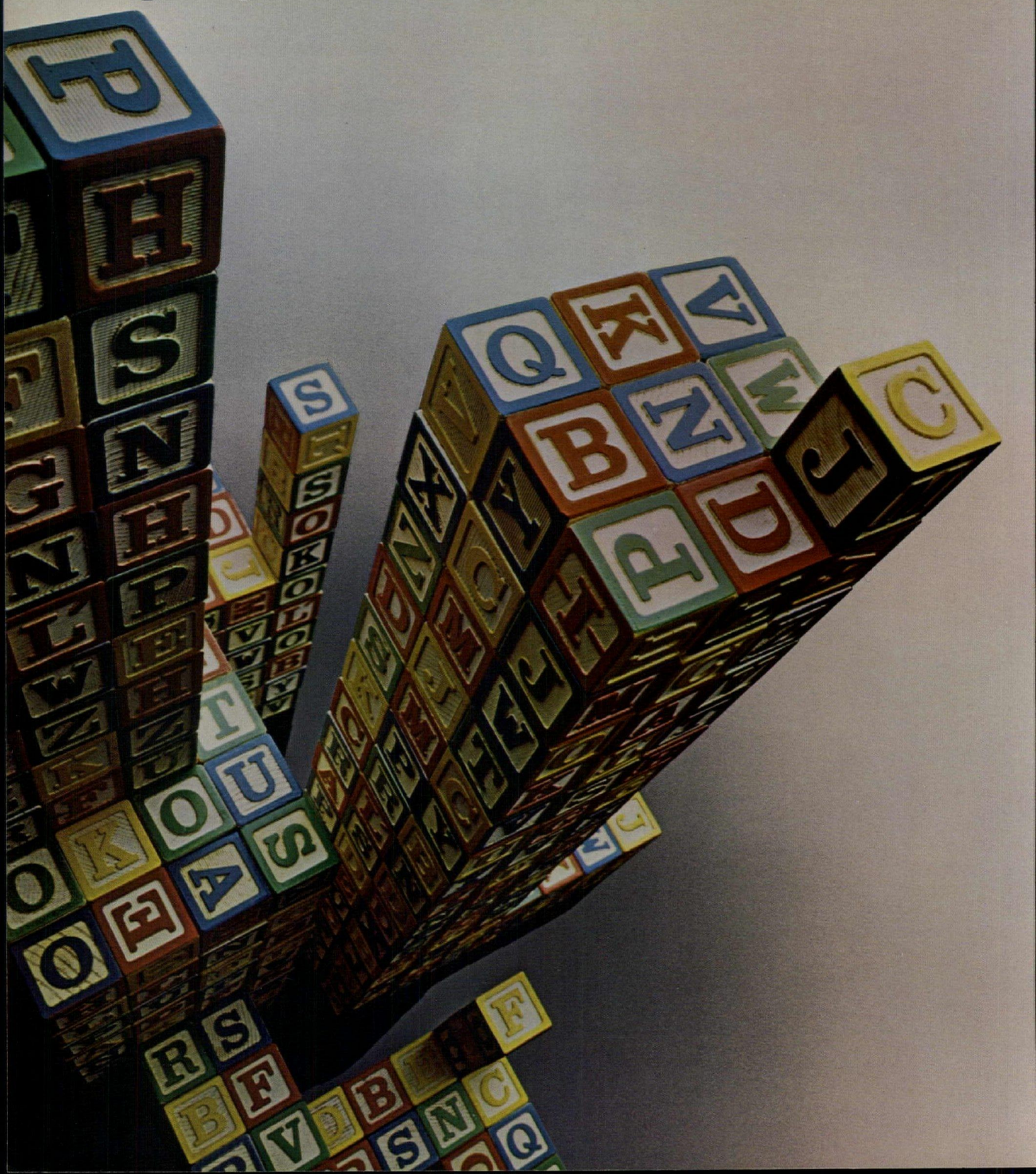
VULCRAFT

A Division of Nucor Corporation

Developer: Vantage Companies
General Contractor: Vanco Construction, Inc.
Architect: Thomas E. Cook
Consulting Engineer: Arnold & Burch
Steel Fabricator: Weaver Iron Works, Inc.
Steel Erector: Bob McCaslin Steel Erection Company

For more data, circle 49 on inquiry card

Specifying a building has suddenly become simpler, faster and more efficient.



Things have just gotten easier for you.

Thanks to better building systems from Johns-Manville.

Simpler because you can specify a whole built-up roof or a wall, for example, with all components supplied by J-M.

Faster because the time and effort you spend specifying is cut drastically.

More efficient because one very uncomplicated specification will serve for an entire wall or roof system.

And J-M building systems offer savings to contractors, builders and owners as well. Because all J-M building components are made to fit and work together. Because one source supply can mean better delivery schedules, quicker erection, reduced handling and labor costs.

Some of the better building systems that can save you time and effort include:

J-M Built-Up Roofing Systems, a complete, from-the-deck-up capability using J-M components, including vapor barrier systems, roof insulation boards, inorganic base and finishing felts, expansion joint covers, roof drainage and flashing systems, adhesives and special products.

J-M Wall Systems that give the look of masonry without the massive weight, plus economy, fast enclosure and long life.

Corspan® extruded masonry panel system, in a selected range of colors. Spans floor-to-floor without intermediate girts. Used as a complete wall for an entire structure of any size or type.

Struct-O-Wall™ thru-wall system combining J-M masonry architectural panels with lightweight structural steel studs, insulation and interior finish.

Plus a wide selection of Architectural Panels, lightweight masonry accent or feature panels providing freedom of design for both spandrel and fascia applications.

J-M Pre-Engineered Building Systems including an insulation/ceiling package providing an effective thermal barrier and an attractive finished ceiling; combination insulation/facing materials; plus lighting components, architectural panels, acoustical ceiling panels and tiles and air-handling components.

The new Johns-Manville Building Systems Division is staffed and structured to help put these systems to work for you. By providing technical specialists who can help you and your team with your project. By supplying complete application literature.

Find out how better building systems from Johns-Manville can make things easier for you.

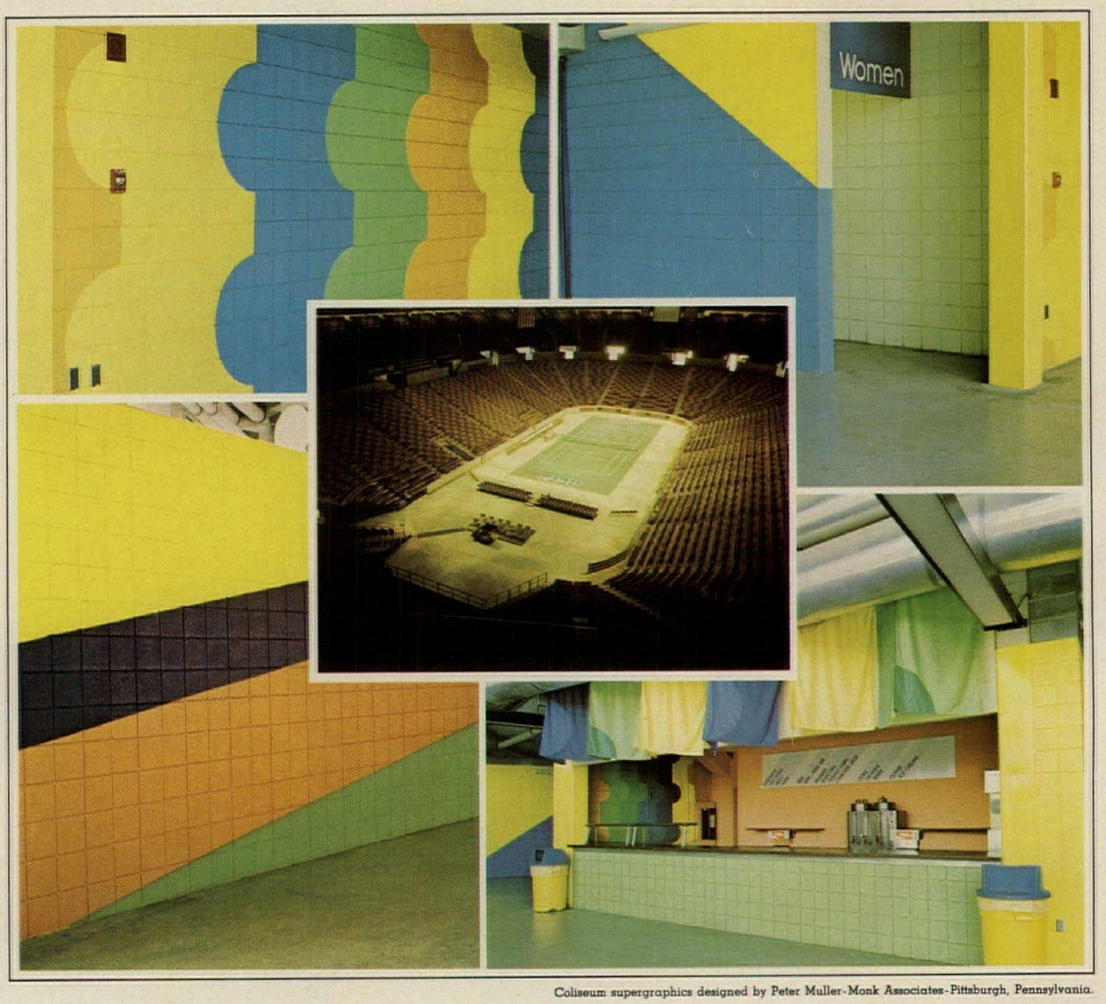
For detailed information refer to Sweet's Catalog File under "Architectural," "Industrial Construction," and "Plant Engineering and Engineering." Or phone Johns-Manville at 303/770-1000 and ask for any of the following: Built-Up Roofing Systems-Dick Ducey; Insulation-Pete McCracken; Roof Accessories-Don Korte; Wall Systems-Dave Lucy; Pre-Engineered Building Systems-Roger Bengtson.

And for general information, call the J-M Product Information Center, Ext. 2745.

We've got better building systems.

Johns-Manville

For more data, circle 50 on inquiry card



Coliseum supergraphics designed by Peter Muller-Monk Associates-Pittsburgh, Pennsylvania.

"One of our biggest jobs, and no time for goofs. We counted on Glidden."

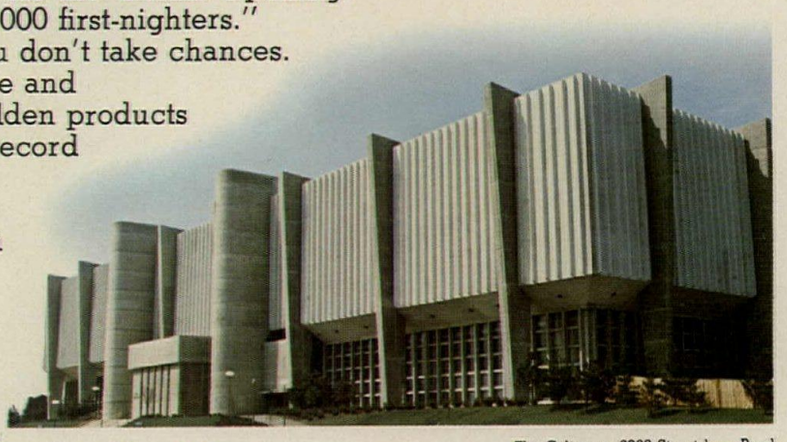
Tom Fiala, Vice President
Broadway Decorating Company, Cleveland

"Only six weeks to be ready for the Grand Opening with 'ol Blue Eyes' and more than 21,000 first-nighters."

"With a deadline like that you don't take chances. We picked spray coatings to save time and money. We picked Glidden and Glidden products we'd used before. They had a track record we knew wouldn't let us down."

Broadway Decorating used Glidden Block Filler, Build-Dur® High Build Latex, Glid-Guard® Alkyd Enamel (in OSHA color codes), Spred® Satin, Spred® Gloss Varnish, and Ceiling Texture — more than 2,000 gallons of six different Glidden coatings for three different substrates.

"Our big job was a hit — and so was Frank."

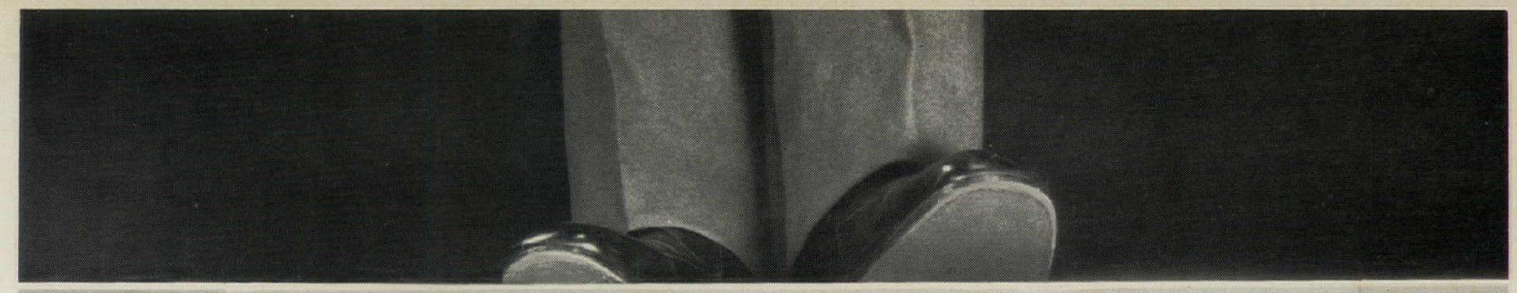


The Coliseum, 2923 Streetsboro Road, Richfield, Ohio

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

Glidden

For more data, circle 51 on inquiry card



If you specify any computer floor but aluminum, it's a bad compromise!

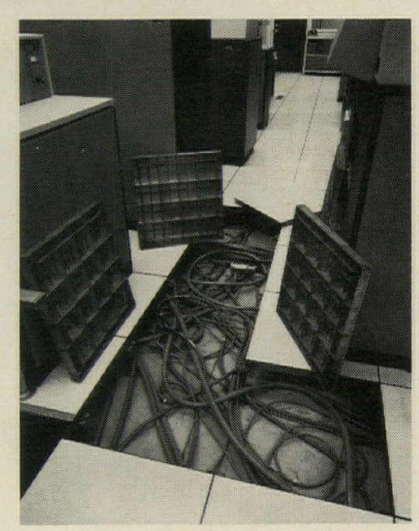
Truth is that in 1956 when the need for raised flooring in computer rooms became apparent (with function the chief design criteria) a stringerless floor made up of pedestal mounted die-cast aluminum panels was the choice. That's how the Floating Floor System was developed. Since then, Floating Floors® have been providing trouble-free service in thousands of computer rooms.

Stringerless design makes Floating Floors the only true infinite access floor system. Male and female locking devices, at four corners of each floor panel, provide the highest lateral stability. In fact, Floating Floors meet Federal specifications for seismographic zone #3 (San Francisco).

The sad truth is that in order to compete with Floating Floors, other manufacturers have had to promote floor systems of inferior materials and design such as stringer-supported wood and steel. While costing a little less initially, these other floor systems can represent a very bad investment over the long term.

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.

Floating Floors on the other hand have proven to be problem-free even after as many as 20 years of service. Monolithic construction with aluminum ensures dissipation of static electricity. And since aluminum is non-magnetic and does not require painting, iron rust and paint flakes are not present to enter the air and interfere with computer operation. Aluminum will not of course, rust, warp or burn.



The Floating Floor system is designed to meet future expansions and changes. Components can be easily changed around since precision die cast and milled alluminum floor panels ensure a uniformity in size (machined to +.005 — .000) not found in hand assembled products. And there is plenty of strength for the installation of new equipment.

In fact, the overall quality of Floating Floors is so good that we are able to give a FIVE YEAR UNCONDITIONAL GUARANTEE AND BUY-BACK PROGRAM with every floor installed.

For more complete information refer to Floating Floors bulletin 10.27 FL as shown in SWEETS under Specialties — Access Flooring. Call us for assistance.

FLOATING FLOORS, INC.
6955 Wales Road, Toledo, Ohio 43619
Tel: (419) 666-8750

IN CANADA: Bruce (EDP) Services Ltd.
3650 Weston Rd.
Weston, Ontario
Tel: (416) 741-0854

FLOATING FLOORS, INC.

For more data, circle 52 on inquiry card

Available World-wide from Licensees and Distributors • Installations Coast to Coast

THERE'S A NEW CHOICE IN LOW-GLARE LIGHTING...

Attractive appearance and energy efficiency have now been combined to create a new era of low-glare lighting.

General Electric's new low-glare luminaires cut off unwanted light above 90 degrees and put light on the task — where you want it. These new lighting systems have been specially engineered for HID (high intensity discharge) light sources such as Lucalox®, so you don't lose good efficiency while you gain light control.

Choose between the Powr/Door® cut-off luminaire (upper left) or the Decashield® (lower left) for higher wattage applications. Both provide easy component accessibility for maintenance or upgrading. Or select from the Decaflood® luminaire (lower right) with its unique set of area or roadway optical systems . . . to the Spaceglow® with the attractive glow shield.

The choice is yours. If you'd like to start putting efficient light where you want it, write for more information to: General Electric Company, Section 460-09, Hendersonville, N. C. 28739.

THAT'S EASY ON YOUR EYES

GE LIGHTING
MAKES THE
DIFFERENCE

GENERAL ELECTRIC

For more data, circle 53 on inquiry card

Cut life-cycle energy costs and construction costs, too, with new Inryco/wall.™

Lower life-cycle energy costs
result from better insulation values. If less energy is lost through the walls of a building, smaller heating and air conditioning equipment can be used. The owner saves twice: on the equipment itself, and on the fuel consumed.

Inryco/wall's superior insulation core
of isocyanurate foam gives it an outstanding U-factor: .064. This is twice the thermal efficiency of an ordinary field-assembled metal wall, and almost seven times the efficiency of an 8″ concrete block wall.

Lower construction costs
can result from labor-saving construction methods. If field erection time can be reduced by delivering factory-fabricated components to the site, the total job moves faster towards completion without additional crew. The owner saves twice: on construction costs and on the time period before occupancy.

One-piece Inryco/wall
makes possible significant labor savings because the parts handled on the job are only a fraction of those needed in conventional construction. Visualize a single Inryco/wall panel's area: 30″ wide and 24′ high. Figure how many concrete blocks must be laid to take the place of that single panel . . . or how many field assembled metal wall parts. In either case, fewer parts mean lower labor costs, more job time saved.

Find out more about new Inryco/wall
and about the three types available:
2″ sandwich panel for exterior use, ¾″ liner panel for interior use, and 1⅛″ face panel for use either inside or outside to remodel an existing building.
We invite you to send the coupon for more details.
INRYCO, Inc. (General Offices: Melrose Park, Ill.)

Inryco
an Inland Steel company

Formerly Inland-Ryerson Construction Products Co.

For more data, circle 54 on inquiry card

INRYCO, Inc. Building Panels Division,
Dept. E, 4033 W. Burnham Street
Milwaukee, Wis. 53201.

Please send me more information on new preinsulated Inryco/wall.

Name

Firm

Address

City State Zip

Inryco/wall 2 PS 30 sandwich panel

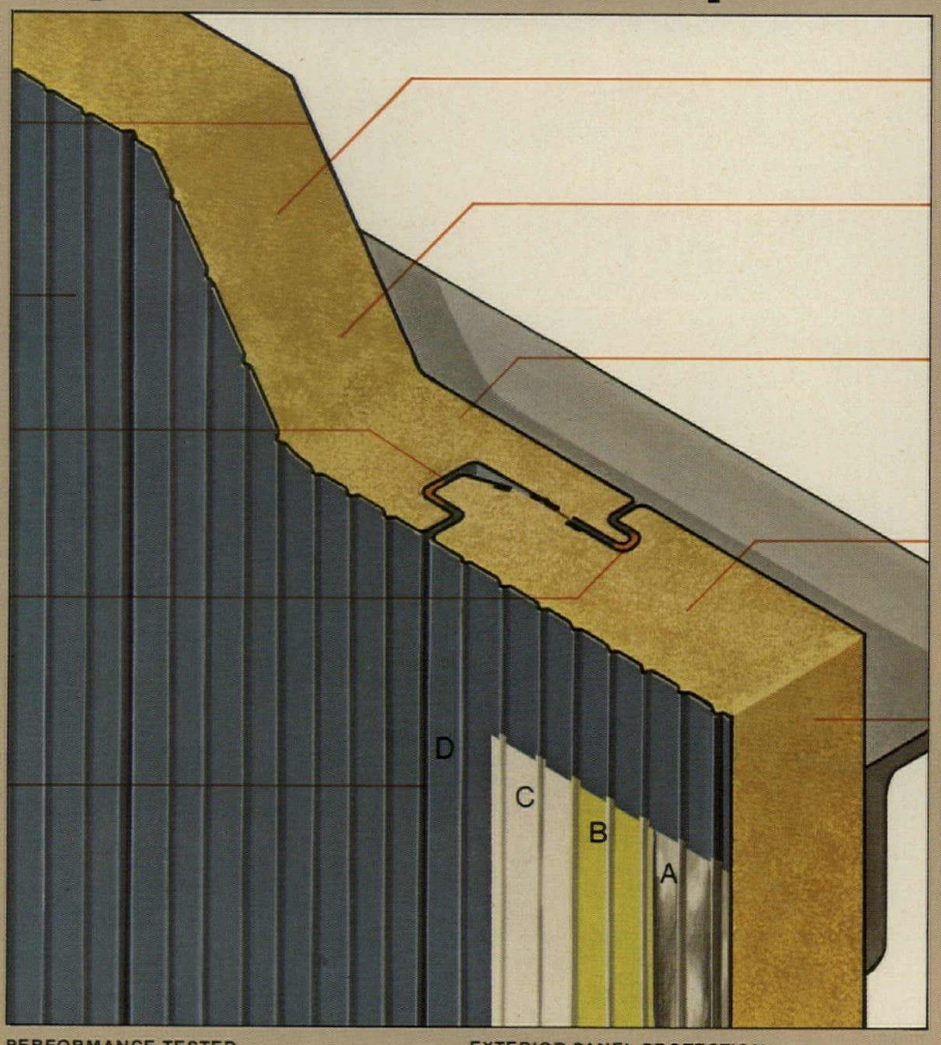
INTERIOR PANEL PROTECTION with Inryco Duofinish 100™: G-60 galvanized steel, chromated, coated with an epoxy primer and a polyester finish coat, both oven-cured. No field painting necessary.

ATTRACTIVE SURFACE looks flush, monolithic on the finished building. Available slightly rippled (shown) or flat with shallow v-ribs on 6" centers.

STRONG, SIMPLE JOINT of double tongue-and-groove design makes the erection of Inryco/wall easy, and it resists damage in field handling.

FACTORY-INSTALLED SEALS keep out moisture—even wind-driven rain. No need for field caulking or other weather-proofing procedures.

NEAT, UNOBTRUSIVE JOINTS, and few of them. Panel's 30" coverage is the reason. And the design of the joint completely conceals fasteners.



ONE PIECE CONSTRUCTION reduces erection time. Fewer parts to handle on the job than in masonry or ordinary metal wall construction.

FACTORY APPLIED INSULATION foamed-in-place under precision conditions. Eliminates need for vapor barriers or the handling of rolls and batts.

THIN WALL, WIDE COVERAGE Sandwich panel is only 2" thick, but it's 30" wide. Light, easy to handle, yet covers a large area in one operation.

COMPOSITE STRENGTH of steel skins bonded to the foam core permits the use of lighter gages of steel, fewer girts for the same span conditions.

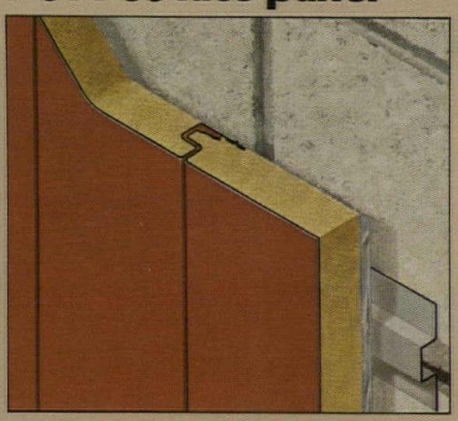
SUPERIOR ISOCYANURATE FOAM insulation is a 93% closed cell material with exceptional performance in thermal properties, dimensional stability and low smoke emission. Gives the sandwich panel a U-value of .064.

PERFORMANCE TESTED by independent laboratories for structural strength, thermal properties, flame spread, smoke generation, air and water infiltration. Specific results from Underwriters Laboratories and Factory Mutual (Class I) available through Inryco Sales Engineers.

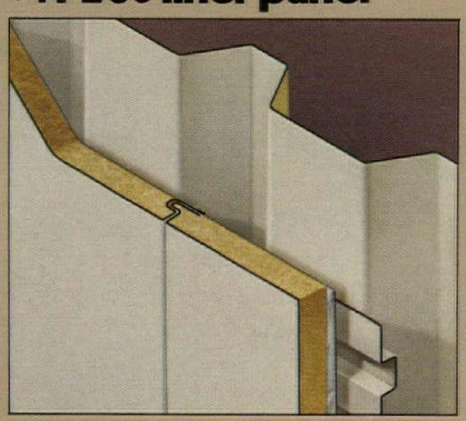
EXTERIOR PANEL PROTECTION with Inryco Duofinish 500™:
A. G-90 Galvanizing over steel (1¼ oz. hot-dipped)
B. Zinc Chromate for bond with primer coating.
C. Epoxy prime coat, oven cured.
D. Finish coat of 70% Kynar, polyvinylidene fluoride, oven cured. Available in 8 standard colors.

1⅛ PF 30 face panel

Designed primarily for the remodeling of existing buildings to improve their appearance, and at the same time greatly improve their heat retention capabilities. Panel's foamed-in-place isocyanurate insulation gives it a U-value of 0.12. Can be used either as exterior or interior panel. Low maintenance costs.



¾ PL 30 liner panel



For use as an interior liner in conventional field-assembled metal walls. Eliminates the need for separate field insulation, cutting labor costs. Excellent U-value of 0.15 despite its ¾" thickness, results from the liner's isocyanurate foam insulation. Interior surface is oven cured Duofinish—easy to maintain, enhances lighting levels.

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

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

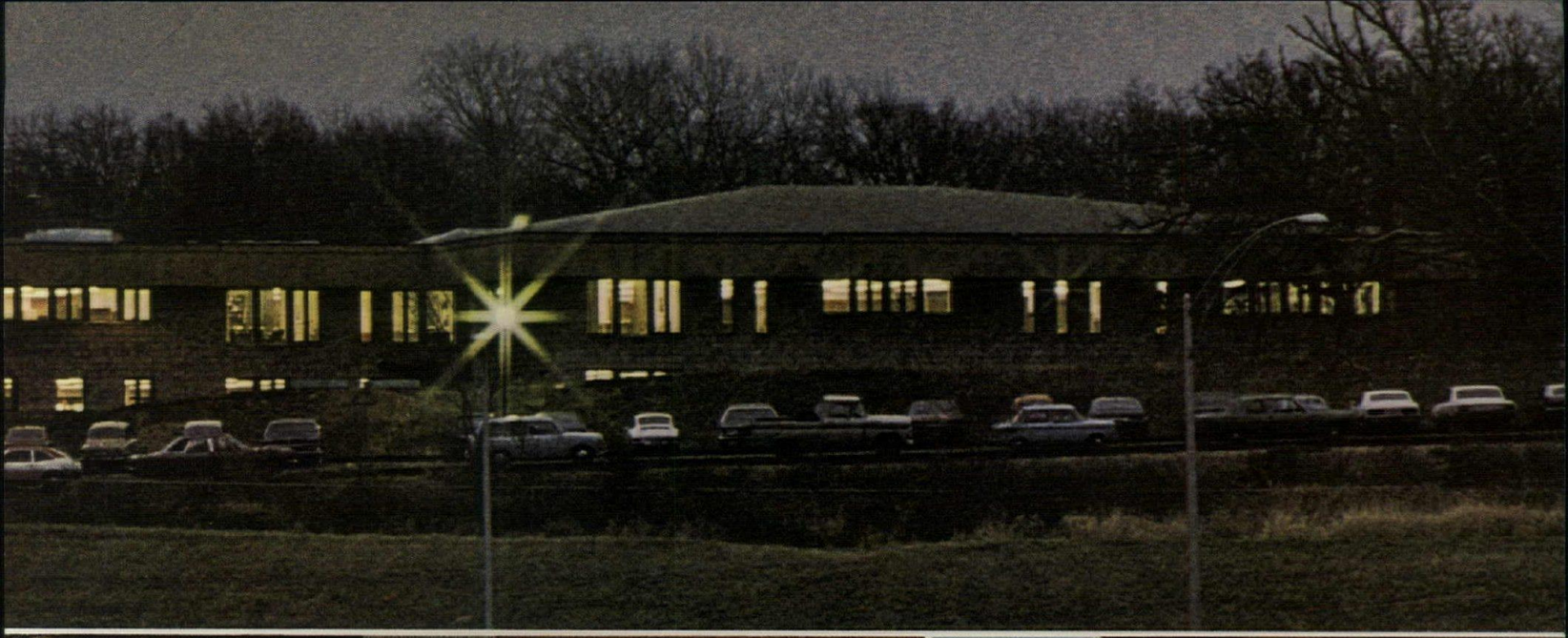
(a)

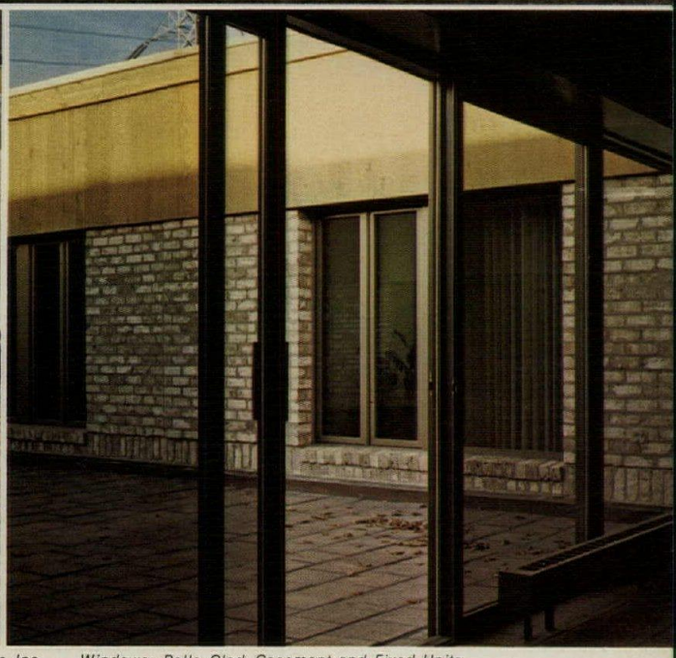
Inside, the natural warmth and beauty you expect to find in a quality wood window.

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

(b)

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

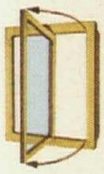




Architect: Ackerberg and Associates Inc. Architects *Builder: Nystrom Constructors Inc.* *Windows: Pella Clad Casement and Fixed Units*

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

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



(c)

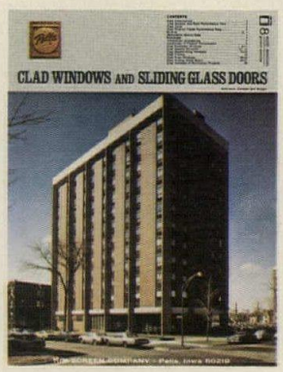
Pella Clad Sliding Glass Doors are as solid, as beautiful and as maintenance-free as a Pella Window.

Pella Clad Sliding Glass Doors combine the natural beauty and insulating value of wood with an exceptionally solid framing system. Welded steel T-sections (d) frame the glass in the slender wood panels. This prevents warping and keeps the panels aligned for smooth, easy operation. Pella Clad Sliding Glass Doors let you extend the view, without having to sacrifice inside appearance or comfort. They are weathertight, even under severe weather conditions. Available in all 11 colors.

(d)

Pella®

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



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

Name_____

Firm_____

Address_____

City_____ State_____ ZIP_____

Telephone_____

Mail to: Pella Windows & Doors, Dept. T31E6, 100 Main St., Pella, Iowa 50219.
Also Available Throughout Canada This coupon answered within 24 hours.

To see what makes this steel door last so long, stay flat and smooth, weigh less...

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Just over two years ago, in the April 1974 issue, ARCHITECTURAL RECORD announced the formation of the non-profit International Architectural Foundation for the purpose of "organizing an international design competition for the urban environment of developing countries." That project, conceived by the staffs of RECORD and *L'Architecture d'Aujourd'hui,* is intended to focus the attention of architects and planners around the world on the accelerating urban crisis in developing countries, to encourage the development of thoughtful prototypical designs for housing and community development, and to make the results of this effort known throughout the world. In the hope that the results of the design competition do "help make a world where hope makes sense," we present this issue to architects, planners, international aid and lending agencies, and government officials around the world—on behalf of more than a billion people who live in urban slums.

HUMAN SETTLEMENTS

. . . an issue concentrating on one of the urgent problems of our time, with the winning designs in The International Design Competition for the Urban Environment of Developing Countries

In the developing countries around the world, millions of families have moved from the countryside to the cities in hope of jobs, education, and a better standard of living—and instead have found only a different kind of deprivation. Nowhere are the global problems of excessive population growth, unemployment, environmental decay, alienation, and urban squalor more clearly focused than in the urban slums that have resulted. This unprecedented transition from rural to urban societies has vast national and global repercussions—social, economic, and political.

As senior editor (and competition juror) Mildred Schmertz points out in her article beginning overleaf, there is new hope and new direction in efforts to help the urban poor. Her article—and the photo essay on page 100 by noted social scientist Aprodicio Laquian—describes and evaluates the principal strategies by which the developing countries are seeking to improve squatter settlements—and focuses on the great promise of new strategies which combine sensitive and minimum governmental intervention with squatter community self-help.

These new strategies were the basis for the competition program—developed with the assistance and enthusiastic support of the Philippine government, which agreed to build the winning design as a prototype in a planned redevelopment in Manila for 140,000 squatters. The competition site and its people—the framework for the competition—is described on page 106.

The competition, clearly the most significant design competition of its kind ever held, also proved to be one of the largest. An astonishing 2,531 registrations—from 68 countries—were received; and 476 submissions were judged by a distinguished international jury (see page 112). The winning designs—and a number of unpremiated entries—are shown beginning on page 114.

Finally, beginning on page 156, is a summation that includes an anthology of comments by world leaders in the struggle to improve the conditions of the world's urban poor, the report of the jury, and an analysis by the editors of the significant achievements of the competition and speculation on its possible impact on the future of urban development around the world.

As we wrote in our first editorial on the competition two years ago: "We are not so naive as to believe that architecture is the solution to all the problems of the world; that good planning and design is a substitute for jobs that don't exist, or food that does not exist or is too dear. But housing and a sense of community are basic human needs—and that is the part of the problem that we [the RECORD staff and architects everywhere] know most about and can best do something about. So let us try. . . ."

This issue is the result of two years of trying by literally thousands of people. —*W.W.*

From slum to community, from despair to hope: Upgrading the slum and squatter settlements that are spreading as a blight in and around the sprawling and fast-growing cities of the developing world

In the developing nations, masses of humanity are moving from isolated rural villages to intermediate towns and smaller cities on their way to the big metropolitan centers. They swarm into Seoul, Bombay, Mexico City and São Paolo, which have populations of over 5 million. Cities of over 4 million such as Manila, Hong Kong, Jakarta, Delhi and Cairo are still absorbing an incessant flow. Bangkok, Calcutta, Madras, Karachi and Tehran have now reached populations of more than 3 million. Cities of 2 million and more such as Lima, Bogotá, Buenos Aires, Santiago, Caracas, Istanbul, Singapore and Taipei are hosts to an ever-growing number of unwanted migrants. In many of these cities, squatters comprise at least one-half of the population. In Calcutta, Jakarta, Lima, and Baghdad they add up to more than one-half. In the words of social scientist Aprodicio A. Laquian (who has contributed a photo essay to this issue beginning on page 100): "These poorest of the urban poor live in dilapidated settlements that cling precariously to hillsides, line smelly canals, block roadsides, or crowd inner-city alleys. In their tattered misery, they mock the aspirations of all those who yearn to make their cities sophisticated and modern. They serve as an all too visible reminder of the economic and social injustices that still plague our society."

Furthermore, these human beings are unwelcome because they build shacks on urban land to which they have no legal right and for which there is little or no infrastructure of public services. The construction by the public sector of such a conventional urban network—which should include roads, a public transportation system, piped water, storm water and sanitary sewers, waste collection and disposal, and electricity—is considered to be too heavy a burden upon the financial resources of the expanding cities of the developing world.

In the next thirty years, the world's population will reach the 6.5 billion mark, nearly double the number of people alive today. By the year 2000, 3.5 billion people will have become urban, living in cities of over 20,000 inhabitants. In the developing countries where no significant decline in population growth is expected, the number of urbanized people will grow from 464.3 million in 1970 to 1.437 billion in the year 2000. Today's largest cities—Calcutta, Bombay, Jakarta, Mexico City, Buenos Aires and others will become urban mega-regions of over 10 million each.

Choosing urban squalor over rural misery: the escape from village life

Why does the rural peasant come to the city? In response to its opportunities for growth for him and for his family. For many such men and women, it is no longer possible to lead a tolerable life and provide for their children's future in the environment in which their families have lived for generations. Poverty is a worsening problem, because of diminished availability of land and overpopulation. The rural environment itself is becoming so overpopulated that the peasant family can no longer function as it did in the past. Improvements in health care and sanitation have dramatically reduced death rates in rural as well as urban areas. As a result, the numbers of rural people continue to increase in spite of the massive emigrations to the cities.

The amount of work in agriculture available to the individual is decreasing, however, largely because of this increase in numbers, but also because of the gradual mechanization of farming and the improved yields brought about by modern methods of agronomy. Where there has been land reform, the peasant has usually not been granted a sufficient number of acres to be able to bequeath a significant amount of farmland to each of his sons, who are then forced to make their way to the city. In Southeast Asia, now only 15 per cent urban, the migration of only one out of six such sons will (assuming the current birth rate) double the natural growth rate of the city to which he moves for a better future.

Rural people are frequently displaced by development—the construction of roads, dams (which flood settled areas) and industrial and commercial centers. If the peasant owns his land and sells it to a developer, the sum he receives is usually not sufficient for him to acquire land of similar agricultural quality. Many use the money as a stake in the city to tide them over until they find a job.

In Muslim Indonesia, a peasant who has sold his land may spend the entire sum paid him for a once-in-a-lifetime trip to Mecca. After returning home a hero to his fellow worshippers of Allah, he migrates to Jakarta or Bandung—poor in everything but spirit.

The rural migrant who makes it to the city fights to stay there

Although the squatter or slum dweller endures great hardships in his adopted city, he will not return to the country of his own volition, nor does he submit to being sent back against his will by the government. If the city does manage to deport him to a rural area, he soon makes his way back. A *favela* song from Brazil by *Zé Keti* expresses his spirit:

I may be arrested, I may be hit,
I may not even have something to eat
But I won't change my opinion
I won't ever move from this hill.

If there is no water I'll dig myself a well
If there is no meat, I'll buy a bone
And put it in the soup—I'll get on, I'll get on.

They can say what they like
Here I don't have to pay rent
If I die tomorrow morning, I'm very near the sky!

According to studies conducted in six Philippine cities by Laquian and his team of researchers, under a research grant from the Southeast Asia Development Advisory Group of the Asia Society, New York, the squatting process is difficult to reverse. His team, from the International Development Research Centre in Ottawa, found that most of those interviewed prefer their present urban life to their rural past,

principally because of better economic conditions in the city. Jobs are more available, incomes are higher, and better educational opportunities improve the job prospects for their children.

Laquian's Philippine respondents appear to appreciate their lives in the squatter community. The urban squatter's friends, relatives and neighbors are there, the communities are close to their places of work reducing transportation costs and time, and they have invested considerable time and money in their dwellings and community facilities and services. Of great significance to them, of course, is the fact that as illegal occupants they pay little or no rent or taxes and such amenities as they have are cheap. Laquian's figures support his thesis that relocation techniques will not work unless the new areas offer better conditions than those the migrant has already gained.

With support from the International Development Research Centre, eight teams of researchers coordinated by Laquian also surveyed squatter settlements in Bandung, Seoul, Caracas, Kuala Lumpur, Istanbul, Lima, Manila and Lagos—cities where the rate of growth of squatters and slum dwellers is revealed to be two or three times the normal growth rates for other city dwellers. The researchers wanted to see if these settled, now-urban migrants preferred the city to the farm. Asked if they were willing to return home, the "no's" ranged between 70.7 per cent and 81.9 per cent. To the question of whether the city was better for their children, 88.9 per cent of the respondents in Istanbul answered "yes."

Slums of hope: the typical squatter is a family man, courageous and optimistic

Laquian's researches in the Philippines reveal the squatter to be an adventurous taker of risks, leaving his rural home to try his luck in a harsh metropolis which does not want him. Says Laquian: "Calling on their native resourcefulness and survival instincts, most of the squatters and slum dwellers get by. Even an unskilled person can work as a cargo loader or a tricycle driver. His wife can wash clothes, roll cigars, or work as a hawker and vendor. Cheap housing can be obtained in the slums and squatter areas. And the city is so fascinating one can get lost in its whirl. Most important of all, the city provides hope—if not for the squatters and slum dwellers, at least for their children." The squatter is a family man willing to make sacrifices for his children's future, about which he is optimistic. Although unskilled or semi-skilled himself, he sees them in professional or managerial positions, or more modestly in commerce, teaching and skilled labor.

He forms close ties with his own community of relatives, friends and neighbors. This strong community feeling is rooted in his rural past and has become essential to his urban existence. Such widely shared feelings have led to the development of community organizations that work to improve life in the squatter settlements.

The squatter is independent and self-sufficient. He does his best, within his severely limited financial means, to improve his squatter shack and the neighborhood of which it is a part. He hopes for eventual ownership, or at least secure tenure in the land upon which he has built and to which he claims a right.

Although his wife and children also work, the family income is exceedingly low (in the Philippines it averages 371.43 *pesos* a month or $53.06 U.S.). Nonetheless, he finds the life it buys acceptable by comparison to his former rural existence.

Because the non-taxpaying squatter is illegally based, and because his numbers overwhelm the city's public services, he does not have equal access with other citizens to roads, public transport, piped water and drains and must depend upon himself for such services. As a result, he has learned to expect little from the government and to view it cynically. On the other hand, the means exist by which his voice can be heard within the larger political and administrative arenas. The community organization to which he belongs has members with access to politicians and government officials at varying levels of the hierarchy. His cynicism, therefore, is mitigated by his own experience of some degree of political effectiveness.

Slums of despair: not all squatters fit an optimistic profile

All squatter settlements have their share of social ills, but some slums are worse than others. Not all slum dwellers possess the characteristics of the migrants just described. Criminals, fugitives, mental deficients, alcoholics, drug addicts, pimps, prostitutes, social outcasts and the indolent are found in every slum. More common are those who are unemployed or underemployed and have become adjusted to poverty, or for whom, as in Calcutta, it is simply inescapable. (In Calcutta, 600,000 people have no houses at all and live on the city's pavements.)

In the world's worst slums such as those of India and Africa, many people are slowly starving. They are apathetic, hostile, and suspicious. Means have been found, however, to motivate even such people as these toward self-help in terms of making their own physical improvements—paving their lanes, installing electric lighting and new water taps; and cleanliness—cleaning their drains, disposing of fecal matter, whitewashing their houses.

Squatters and slum dwellers, whatever their personal characteristics, occupy urban villages which are an ever-expanding danger and threat to the host city. Because of flimsy construction, they are a fire hazard to the entire metropolis. Poor sanitation makes them a health hazard for everyone, spreading the risk of amoebic dysentery and other communicable diseases to rich and poor alike. Slums have the potential for mob violence, crime, political revolution and other forms of social disruption.

Governments in the Third World are becoming more aware of the threat to the economic and political survival of their cities, and the danger to the human species posed by the spreading malignancy of squatter settlements. These governments are beginning to realize that the problems posed by urban squatter settlements are symptoms of rural-urban imbalance at a scale that is regional and national. The

problem is larger than the question of how to go about providing better housing and living standards for rural-urban migrants. What needs to be asked, the developing world now is beginning to see, is what the present and future roles of these people should be in the economic and social life of their country. People should be counted as a resource. What work should they be doing and where? What solutions are being tried? How well do they work?

Attempts to transform dying rural villages into vital economic centers have not solved the problem . . .

By improving the living standards of rural people, the governments of the Third World hope to persuade them to stay in their villages or in the smaller towns and cities to which they have already migrated. Scientific methods to increase crop yields have been initiated. Better sanitation and water supply and improved health services and education are being tried. So far, however, these efforts have not significantly stemmed the flow of migrants to the big cities.

Large estates have been divided among the former tenant farmers in the hope that land ownership will keep them in the country. Large land holdings have also been nationalized and turned into cooperatives in which the peasants share in the administration and profits. Studies, including those of Laquian, have begun to show, however, that land reform is not keeping the younger rural people at home. Improved agricultural methods decrease the need for their labors, and new affluence and rising expectations increase their demand for the kind of education that can only be found in the cities. Furthermore, as already noted, the number of acres acquired by individual families through land reform are too few to provide a useful inheritance to the second generation.

It should be added that young people are drawn to the cities because they find them exciting and attractive. Buckminster Fuller thinks that rural villagers might be persuaded to stay in their villages if they could be transported to "the bright lights" on weekends.

Attempts to discourage the migrant from staying in the city by the "entry permit" approach have not been successful

Some cities in the developing world are making deliberate efforts to return the migrants to their rural villages. Jakarta has instituted several policies to reverse the flow of rural people. As reported by Laquian: Every migrant who arrives must register with the city government and apply for a "short visit card." To get the card, he must deposit with the city twice the cost of his return fare back to his native village. He is allowed six months to find a job and a house. If he is this fortunate, his deposit is returned to him minus administration costs and he is allowed to buy a Jakarta citizenship card. If he fails to find work and shelter in half a year, he gets a one-way ticket home and the government keeps the rest of his deposit.

This harsh system, however, is far from foolproof. Faked cards and papers can be bought, encouraging widespread corruption on the part of sellers and users. In spite of official claims to the contrary, countless numbers of illegal migrants and their families manage to stay and eke out a marginal living in the city. It is difficult for restricted entry techniques to succeed because people want to be where the jobs, education and opportunity are, and once there manage to stay.

Migrants do not want to move to "frontier sites," "growth poles" and "new cities"

At the worst, governments uproot settled squatters and send them out of the city to remote frontier sites without employment opportunities, public services of any kind, or transportation to the city. Most squatters who are forcibly relocated to these areas manage to find their way back to the city as soon as possible.

Some governments encourage urban squatters to move to growth poles or new cities. Rural people are also directed to these sites to keep them from moving to the metropolis. This is a more integrated approach to planning in which economic growth, job opportunities, public services, market demands and population movements are seen as interrelated factors. Sophisticated urbanization strategies are used, such as the provision of free land, tax abatement, and public investment in infrastructure to attract industrial entrepreneurs to these preselected growth poles. New towns and cities such as Cuidad Guayana in Venezuela are being built in conjunction with industrial estates.

Although these efforts have had some success, their effectiveness has been limited by the fact that businessmen in a market economy prefer to locate close to the public services, skilled labor and markets of the larger cities. Therefore, the development of these growth poles has been slow, and in many cases too slow to justify the large public investment in their infrastructure. Furthermore, the development of industrial estates as magnets for the growth of new cities has been limited to the few developing countries, such as Venezuela, which can afford the large capitalization they require. Another minus for the growth-pole strategy is the fact that the new industrial cities are not labor-intensive to the degree that the overpopulated developing countries require. These industries tend to employ small numbers of highly skilled individuals, rather than the low-skilled, poorly educated rural migrant who needs a job.

One more limitation to the growth-pole approach is the scarcity of undeveloped land. Third World countries will eventually run out—as has already occurred in many Asian nations. As available land decreases, the major urban centers will continue to be magnets of tremendous force.

Dealing with reality: accommodating the migrants where they want to be

In spite of all the strategies and programs to make them stay in the country, return to the country, or move to smaller urban centers, the migrants keep on coming to the ever-growing mega-regions. Most cities provide their squatters and slum dwellers with limited water,

Many approaches have been tried to solve the problems of the urban squatter: Develop rural areas, prohibit entry to the city, build new "growth poles." But migrants want to be in the city—so the best approach seems to be to accommodate them in the city with a combination of sensitive government intervention and community self-help. . . .

sanitation and health services, if only to protect the urban population as a whole from disease and plague.

Because the cost is so high, only governments with large economic resources such as Venezuela have attempted large-scale, low-cost housing programs—which have not usually worked (see Laquian's photo essay overleaf for an assessment of these programs). For most squatter and slum families the rents in this type of housing, even though subsidized, are too high. Too often the apartments go to not-so-poor people with political connections. Those who can afford bribes get apartments. Poor families double and triple up in the new apartments, reducing the rent per family but introducing to the new settlements the overcrowded conditions that they left. A study made by the World Bank, the International Development Association, and the International Finance Corporation found that the cheapest form of low-cost housing provided by the governments of the cities studied could not be afforded by 55 per cent of the people in Mexico City, 35 per cent in Hong Kong, 68 per cent in Nairobi, 47 per cent in Bogotá, 64 per cent in Ahmedabad and 63 per cent in Madras.

The most promising alternative to government-built low-cost housing is the "sites and services" approach combined with "self-help" on the part of the squatter. By this method, the government may put in water lines with communal taps, electricity, a minimum sewage and drainage system, and the beginnings of a road network. The World Bank has funded sites and services projects in Senegal, Indonesia, and in Zambia, and is considering them in other places including the Dagat-Dagatan resettlement area in Metropolitan Manila, the site of the International Architectural Foundation competition.

Supplied with the basic infrastructure, the squatter builds his own house out of whatever materials he can find or can buy through government credit. The neighborhood community of which he is a part jointly builds recreation areas and simple community buildings. The hope is that given security of tenure and increasing prosperity, the squatters will steadily improve their settlements as Laquian's photo essay demonstrates.

The design problem is to create a framework for government intervention combined with self-help

The architect-urbanist qualified to engage in human settlement work should be an expert at working with the community, increasing its involvement with the planning process. Ideally, he should live for a time in the settlement to gain the best insights and ideas about its growth. In addition to making design, site planning and technical proposals, he should be able to help devise the financial, administrative and social arrangements required to shape the growth of the settlement to better meet the migrants needs.

As part of this work, the professional must act as a liaison between the slum dwellers and the government, interpreting the squatters' needs to the authorities, while acting as a catalyst for positive change. He can help them in their fight for tenure and in their battles against slum clearance and relocation. He can help establish the degree to which the squatters can help themselves, technically and financially, and the point at which government aid is required. In turn, he helps the government establish the necessary forms of aid.

The role of the architect-urbanist is to help determine what the publicly financed infrastructure should be, the form it should take, how it should be integrated with the particular site and the surrounding urban areas, and to what extent it should be constructed by self-help. The government sites and services initiative, if properly conceived, can establish the network for growth of a squatter community with a strong potential for transforming itself.

The first-prize-winning design for the IAF Competition, won by Ian Athfield of New Zealand (pages 114-123), was premiated in large part for a brilliant new concept within the "sites and services/self-help" framework. He proposes that the government-subsidized infrastructure for the Dagat-Dagatan settlement in Metropolitan Manila should include, in addition to the conventional sites and services, a new element—a continuous linear building surrounding each 500-family *barangay,* which would serve as a work place for the community. Portions of this so-called "working periphery" could be leased to small, non-polluting, labor-intensive industries to provide jobs so desperately needed by the underemployed of the *barangay.* The rest of the work space would be used for profit-making industries which the squatters would set up for themselves.

In addition to proposing that the government finance the basic sites and services and the incremental structure that is to become the working periphery, Athfield urges that the government lend money to the residents to build their housing units. Once the *barangay* community is established, however, all administration, rental collection and financial management would be organized at that level. A community development bank would be established in each *barangay,* which would undertake the administration and repayment of the government loans until the *barangay* was self-sufficient. The bank's steering committee would include representatives of the industrial users, the migrant community and government technical advisers.

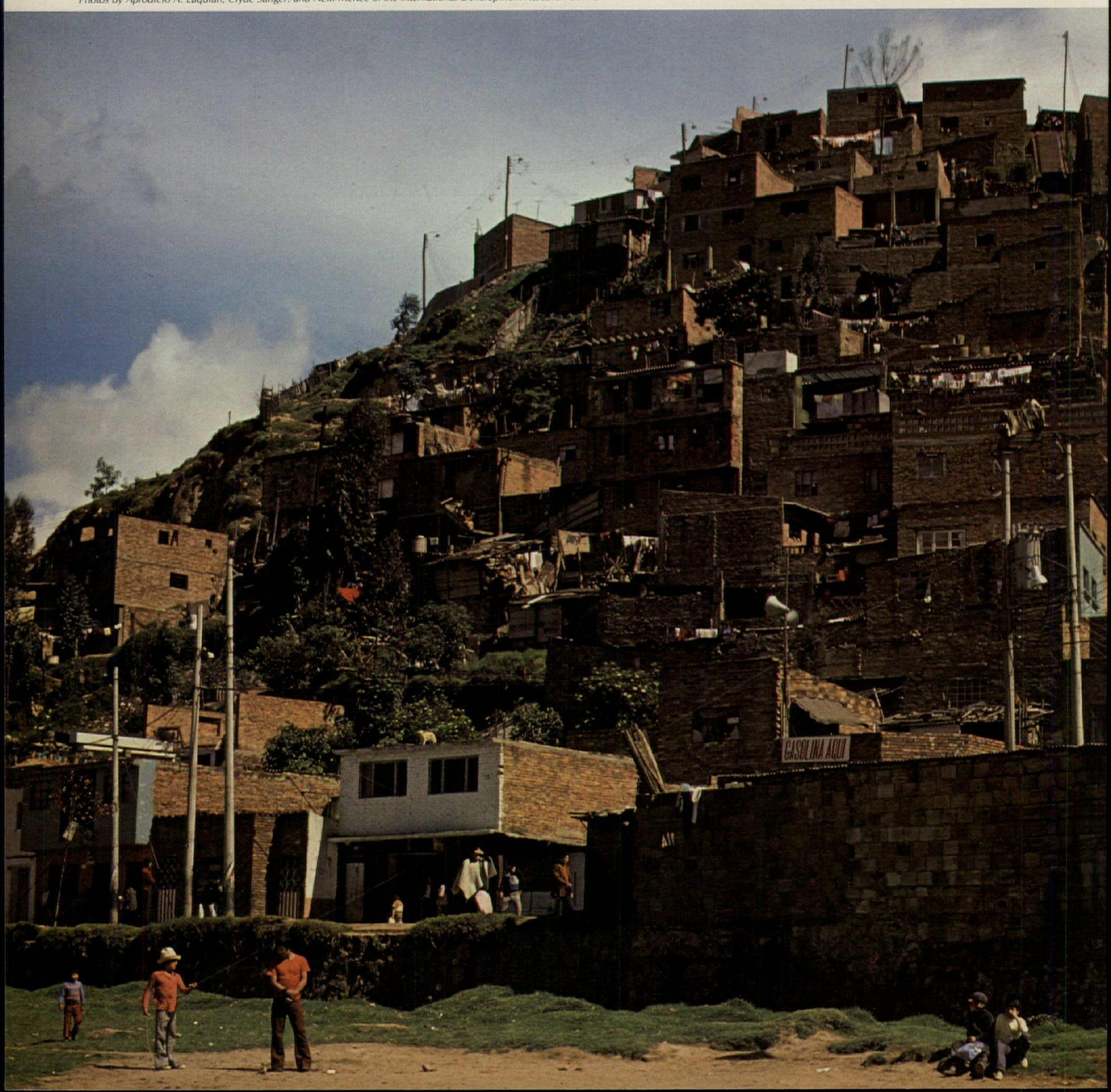
In his winning proposal Athfield points out that the inhabitants will need technical as well as financial help as individuals and as a community. He envisions himself and his team working closely with them, becoming acquainted with their problems and difficulties as well as their aspirations and needs. He sees his role as helping to resolve such problems as boundary disputes in the siting of houses, while giving practical advice on simple erection procedures and techniques. Athfield believes that this direct work with the people is the primary task of migrant community design.

Athfield's proposal should be carefully studied by everyone concerned with the design of cities. Its implementation by the Government of the Philippines will be a genuine advance toward the solution of the world-wide problem of building truly human settlements.

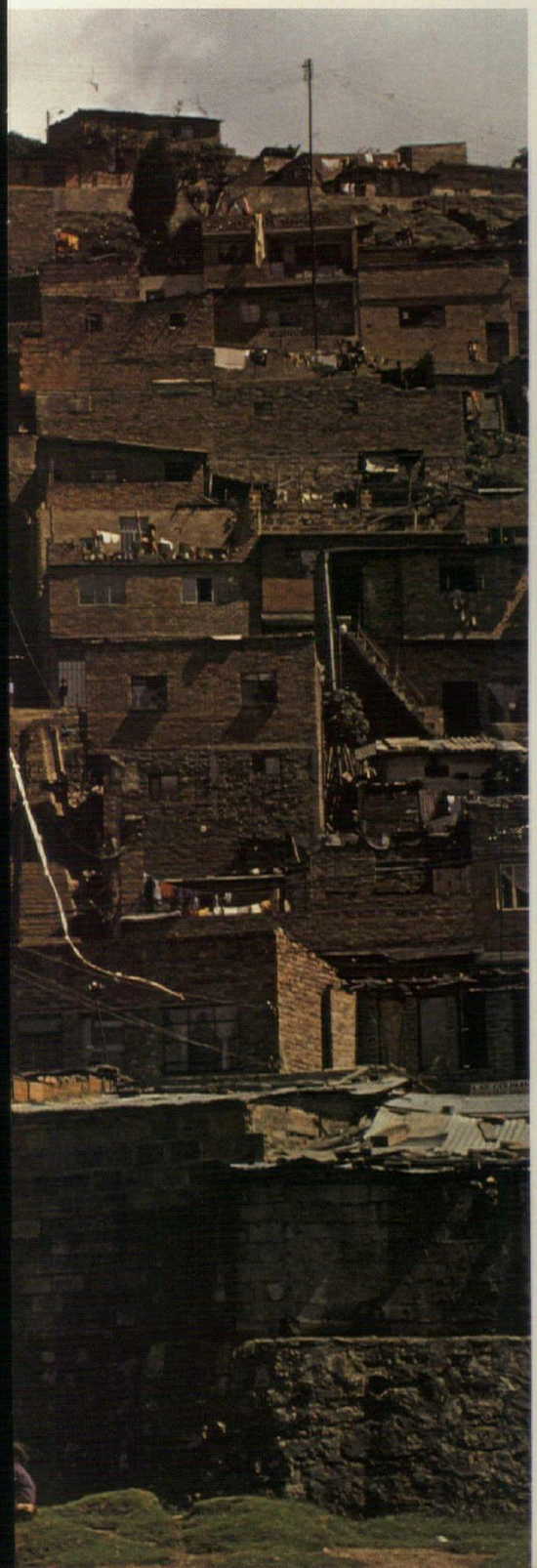
—Mildred F. Schmertz

"With improved understanding of the urbanization processes involved, it becomes clear that a combination of government intervention and community self-help offers the most hope..."
...a photo essay by Dr. Aprodicio A. Laquian

Photos by Aprodicio A. Laquian, Clyde Sanger, and Neill McKee of the International Development Research Centre



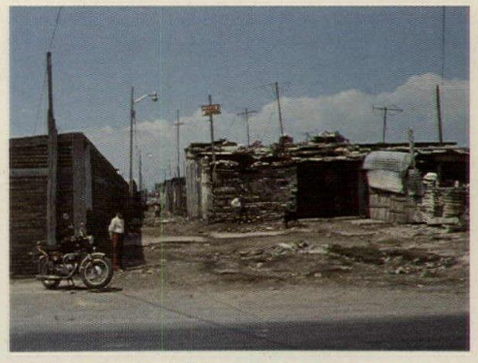
Many squatters and slum dwellers
leave picturesque villages
and neat homes to move to the city.
Some are pushed out by rural poverty
—but most are attracted
by what the city offers. . .



. . . jobs, education for their children, new opportunities, and entertainment and excitement. What the migrant needs is a toehold into urban life—and this happens when he finds shelter, a job, and a social life in a community of fellow migrants who bring with them the warmth and pride of a rural village.

In many developing countries, most migrants come from fishing villages and farm areas that have not changed for centuries. Many villages, such as this one in Dahomey, West Africa, are now being reached by modernization. Rural development is improving life, but people are not necessarily staying on the farm. Migration to cities is increasing, and will most likely continue to increase in the future, despite improvements in rural living conditions.

A strong reason for urban migration is rural poverty. A cluster of huts in a minifundio *in Mexico where a family usually tills less than a hectare (2.5 acres) of land shows the poverty of rural people. Each year, thousands of* campesinos *move to cities, contributing to the primacy of Mexico City.*



A migrant's toehold may be a squatter shanty, such as these makeshift dwellings built by invading "parachutists" in Mexico City.

It may be a hillside of adobe shanties, shown at far left, in Bogotá, Colombia.

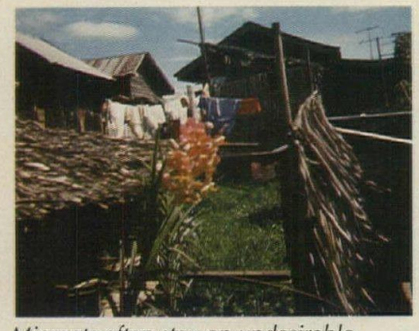
An interesting phenomenon in Ibadan, Nigeria, are the many "Brazilian" houses built by returned slaves and migrants. These large houses are internally subdivided into rental units. This particular house has more than two dozen families who share common bathroom and kitchen facilities.

Dr. Laquian is associate director, Social Sciences and Human Resources, of the International Development Research Centre of Ottawa. Born in a village and raised in a Manila slum, he graduated from the University of the Philippines in Manila in public administration, and received his doctorate in political science from the Massachusetts Institute of Technology. He is the author of many important publications on housing for the poor and rural migration, and has conducted two major field studies in developing countries on patterns of migration and housing for the rural and urban poor.

Planners have often allocated sites for low-cost housing for squatters, and then have been surprised when the poor have refused to stay in such sites. The reason is that there are natural dynamics in the process of urban settlement

. . . that we are only beginning to understand. For example, most migrants in Latin America usually find homes in inner-city slums, where —despite high densities and poor services— the people find a gateway to interpersonal relationships. Closeness to jobs and amenities is a consideration tempered by availability of land. As time passes and the economic and social position of a migrant improves, he also changes his location in the city. Programs that do not take this mobility pattern into consideration will most likely fail because they use criteria—such as the availability of public land or the desire to improve the esthetics of poor areas— different from those perceived by squatters.

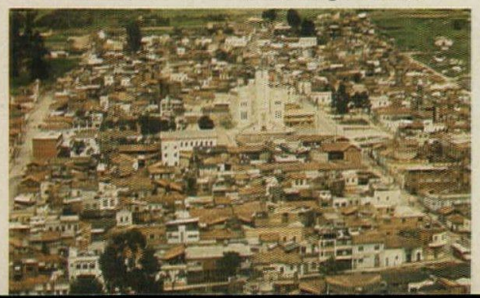
In the teeming inner-city slums called corralones, *such as the one in Bogotá, Colombia shown in the photo at right, recent migrants join relatives and friends.*

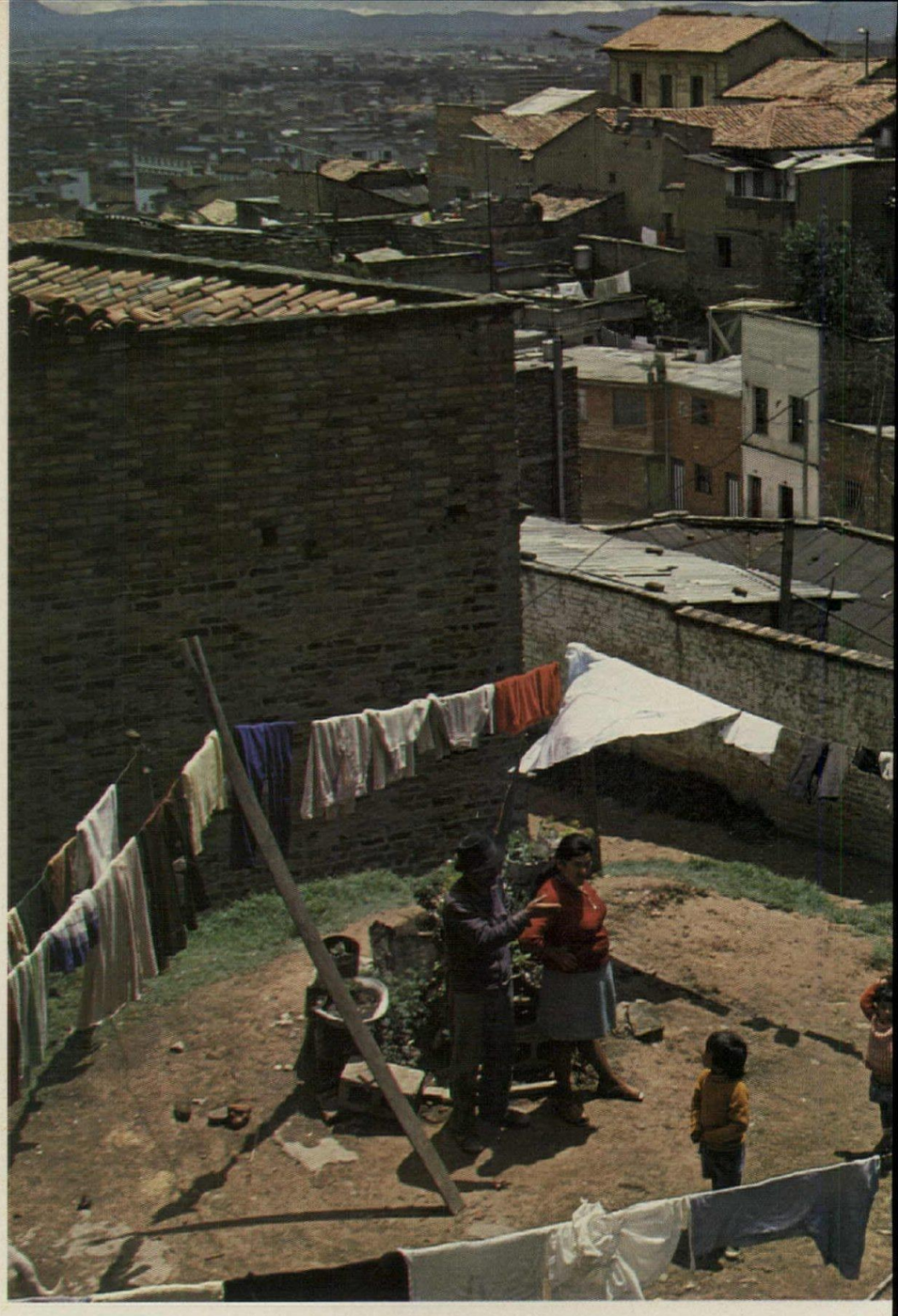


Migrants often stay on undesirable sites, hoping that public authorities will not notice their invasion of public or private lands. These huts in Klong Toey, Thailand, are built on stilts atop a marshy and frequently flooded land.

Governments often forcefully evict inner-city squatters, pushing them to sites on the city periphery, such as these gecekondus *outside Istanbul (right).*

Planners, of course, would like to stem the tide of migrants. They hope they will be able to do this by improving the economic and social conditions in intermediate cities and towns such as the one in Colombia shown below. But they do not have enough attractions to rural people, who continue to move to the largest cities.





Upon arrival in the city, migrants use whatever materials they can lay their hands on to build shelter.

They build in accordance with traditional forms, working old and new materials together the best way they know how. The city, however, offers greater variety of materials—plastics, galvanized iron sheets, flattened-out oil drums, cardboard, and wood from packing crates. As the economic lot of the migrant improves, his house becomes more consolidated and new materials and forms are introduced.

Wood, bamboo, and nipa thatch are the basic materials for an early shelter. This squatter house in Iloilo City, Philippines, gives an idea of housing materials used in early stages of squatting.

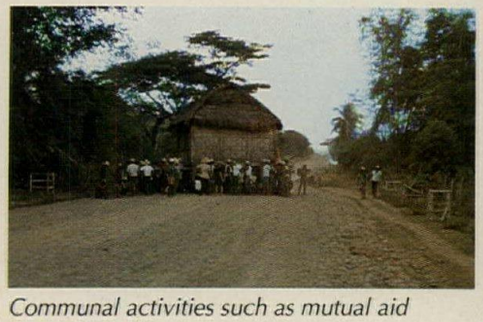
The city, however, offers other materials. In this roadside store in Lagos, Nigeria, squatters can buy tin drums, salvaged wood and other materials for building their houses.

One of the oldest materials used for construction, bamboo, provides the main structure for this house in Bogotá. Traditional construction methods have also been used.

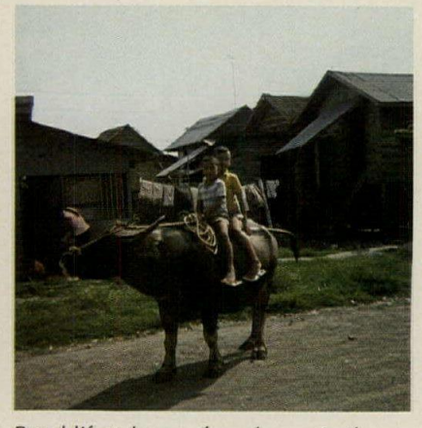
The influx of rural families to cities has transformed metropolitan areas into settlements of rural villagers—and planners and government officials must take rural forms and traditions into consideration . . . .

In new communities on the periphery of cities, houses retain their rural forms, because of the materials used and the way in which they are arranged to make the most of interpersonal and familial relationships.

. . . in formulating policies and programs for urban development. Religion, folkways, social organization, and styles of life must be interwoven with more modern forms in the city. They lend variety and rich diversity to the management or urban life at the same time that they create problems of politics and administration. Survival of rural forms poses a basic challenge to urban planners and authorities in developing countries.

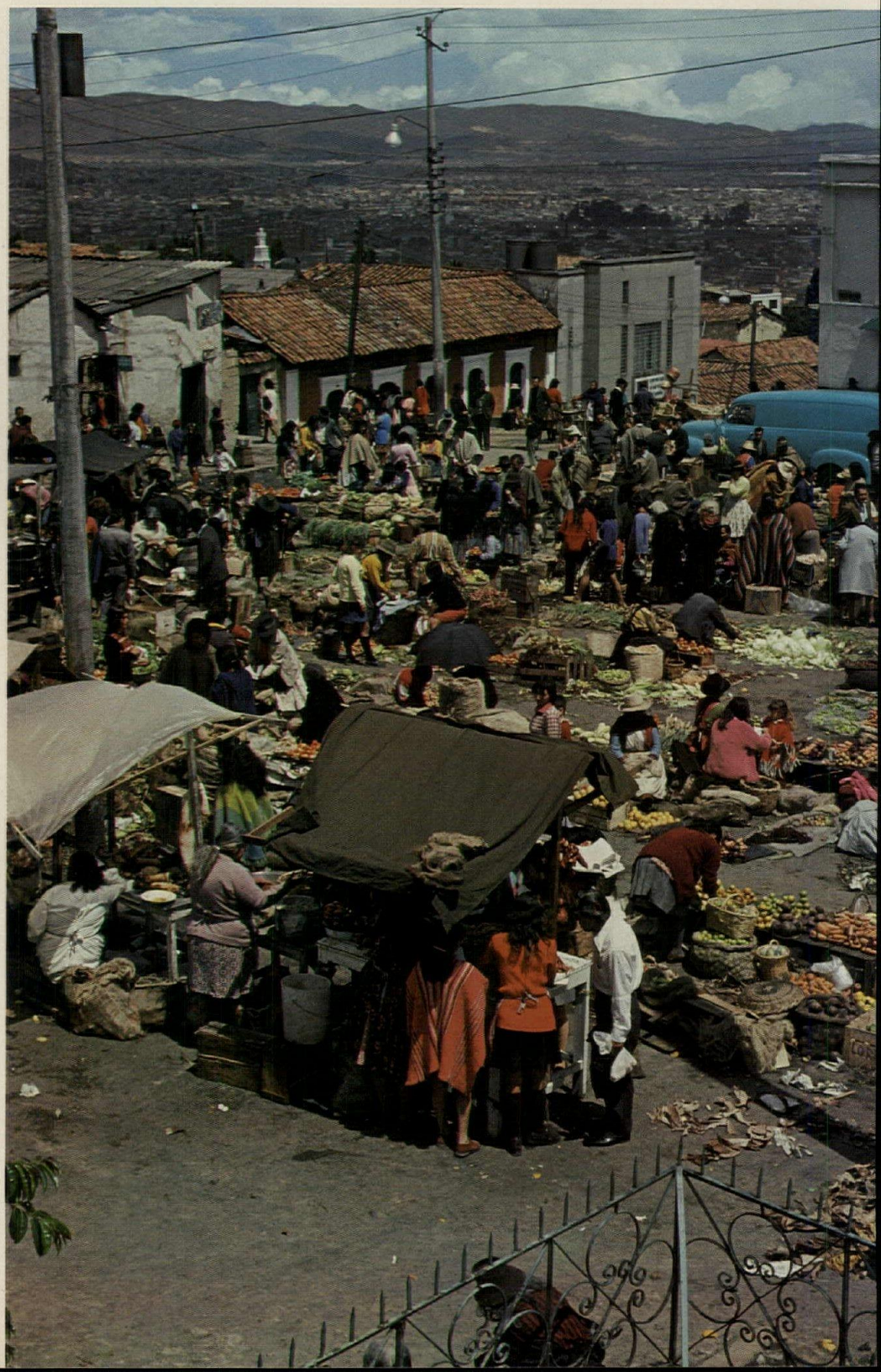


Communal activities such as mutual aid in moving a house are common among recent migrants. Here, able-bodied persons in a community help a settler move his whole house to a nearby relocation area.

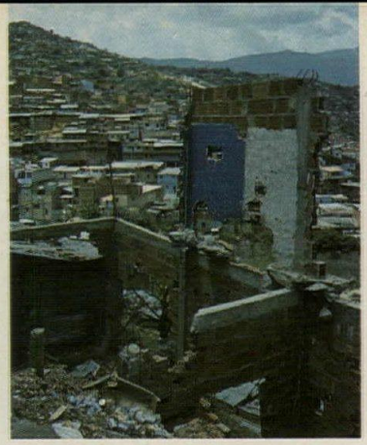


Rural lifestyles are found even in the center of cities. A couple of boys enjoy a water buffalo ride in this slum/squatter community in Davao City, Philippines.

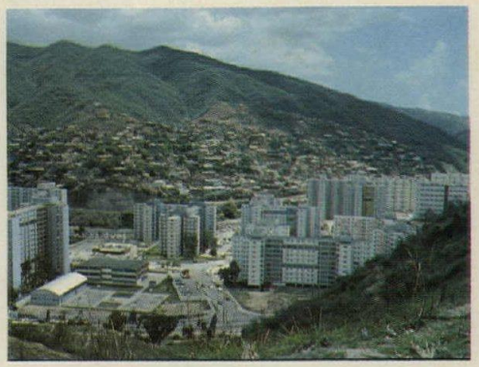
Even as supermarkets rise up in rich suburban communities, the urban poor still rely on periodic markets for their daily food needs. In Bogotá, the town square (right) becomes the hub of commercial and social activities twice a week.



In many countries around the world, governmental responses to the problem of squatters and slum dwellers has vacillated between punitive measures and political coddling . . . .



As lands in the central city are required for public projects, government officials often pursue "urban renewal" and evict squatters, as from these demolished houses in Caracas.



Wealthier countries like Venezuela, with its oil revenues, have built superblocks to house former squatters and slum dwellers. However, there has been some resistance on the part of rancho *dwellers to live in these high-rise buildings.*

With strong local and international criticism of the superblocks, the Venezuelan government has swung to the opposite extreme of low-rise housing. However, while these houses are better, they also miss the point in that they are already finished and leave no room for flexibility. The squatter here would not be able to enlarge or improve his own dwelling when his life improves.

Architects have been slow to understand the evolutionary processes involved in housing squatters. Thus, projects are often carbon copies of housing in developed countries, despite difference in climate and culture. In some cases, architects design low-cost housing for the sake of form, not people, as in the building at left, in Mexico City.

So what must happen now is for planners and government officials to recognize the mistakes of the past; and to recognize the now-quite-clear new directions that planning and enlightened government intervention should take—directions that take into account the migrants' traditional living patterns and resources for self-help, and integrate them into public efforts.

Manila became the focus of the International Design Competition because its problems are prototypical, and because plans were underway to relocate over 100,000 squatters from a slum in its Tondo Foreshore to a nearby resettlement site —Dagat-Dagatan—which needed to be planned

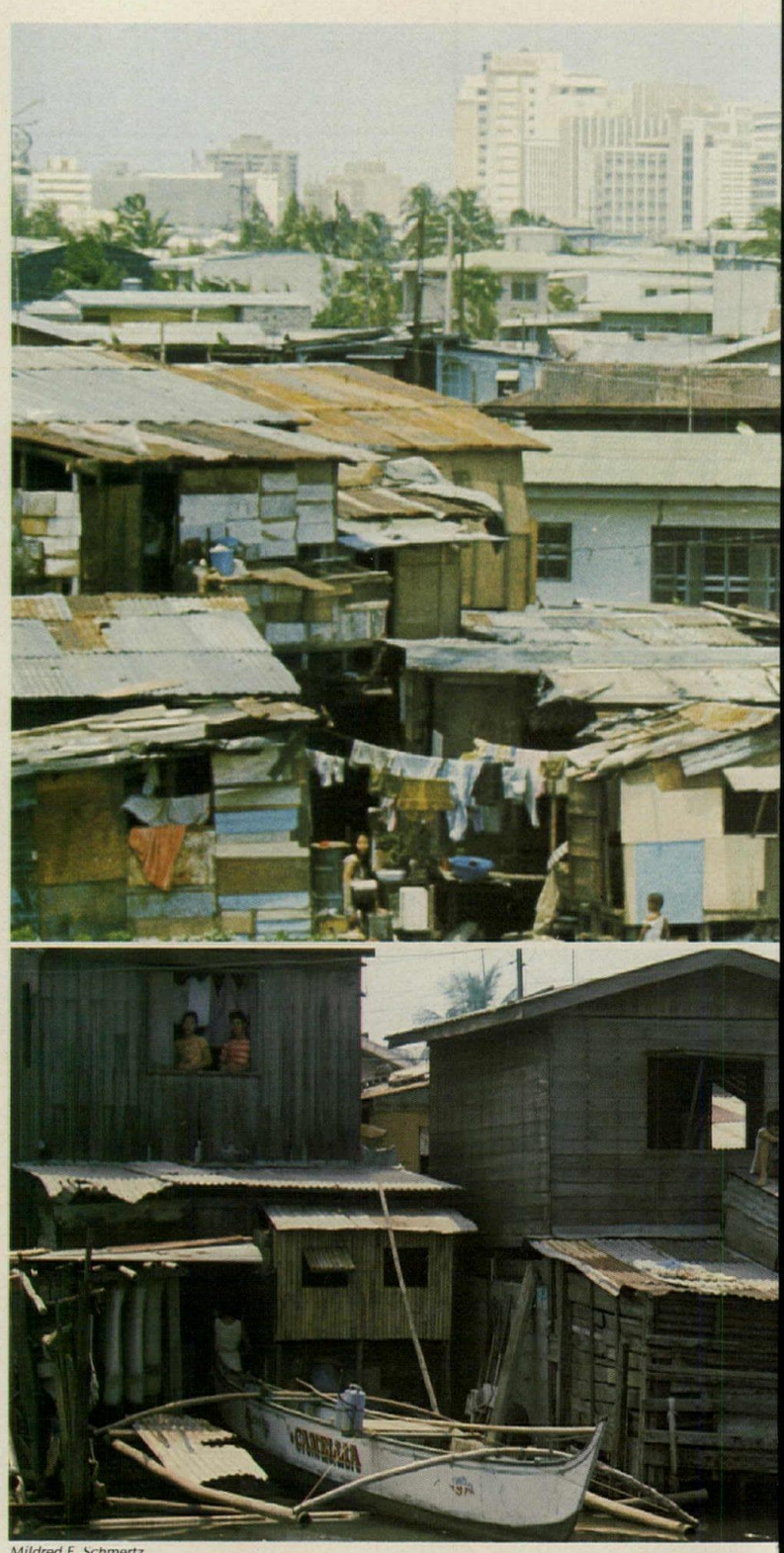
Metropolitan Manila has been growing rapidly since the end of World War II. It has over 4.4 million people, or 12 per cent of the total population of the nation, and this 12 per cent produces over 25 per cent of the gross national product of the Philippines.

The larger Manila Bay Metropolitan Region has almost one-fourth of the national population or 8.6 million people, in an area of 18,051 square kilometers (6,967 square miles). This is a large land area with a relatively low population density, but present projections indicate that this low density won't last—and that the Region's population may range anywhere between 17.8 million and 24 million by the end of the century. Philippine planners who are studying growth and land-use problems at the national scale are proposing that, to offset this forecast growth, new urban centers should be developed throughout the islands from Luzon to Mindanao. But no government policies have yet substantially reduced the attractiveness of the Metropolitan Region to the rural migrant.

Manila suffers all the usual bad effects of random, haphazard growth; including overcrowding of the districts inhabited by the poor such as the Tondo Foreshore area (right, and cover). Efforts to resettle the squatters on new rural sites, in new towns or growth poles, or to send them back where they came from, have been unsuccessful. The squatters simply make their way back to the city where they want to be.

The government of Metropolitan Manila is now evaluating the policy of obtaining and using vacant lands within the city as sites for squatter settlements. Existing are substantial amounts of agricultural land, little-used fishpond areas, and other types of undeveloped or underdeveloped land. Many of these sites are close to the squatters' jobs and to existing streets and highways (there is no public transportation in Manila—the population moves by foot, private car, or jeepney). The transformation of these sites into human settlements would include the improvement of the existing transportation network. A second approach being considered in conjunction with the first would be to upgrade the sites, services, transport and housing of existing low-income settlements within the metropolitan boundaries. These combined initiatives would help reverse the ever increasing sprawl of squatter urbanization at the metropolitan fringe.

To this end, an initial effort being made by the Metropolitan Manila government is the vast landfill project underway in the 1,272-acre Dagat-Dagatan Resettlement Area (pages 110-111). Fishponds are being filled in to prepare the site for the relocation of the squatter community to be relocated from the adjacent Tondo Foreshore area—in preparation for *its* redevelopment as an industrial site. The program for the IAF Competition was conceived and inspired by the challenge and opportunity of designing Dagat-Dagatan. The Philippine government plans to build at least one *barangay* (a 3,500-person or 500-family community) to the winning design, and may indeed follow the proposals of the winning architect for the entire 100,000-140,000-person resettlement site. What will happen at Dagat-Dagatan is of interest to all professionals engaged in the planning of human settlements.



Mildred F. Schmertz

The existing squatter slum —the Tondo Foreshore on Manila Bay— has a population of 169,710 on only 455 acres

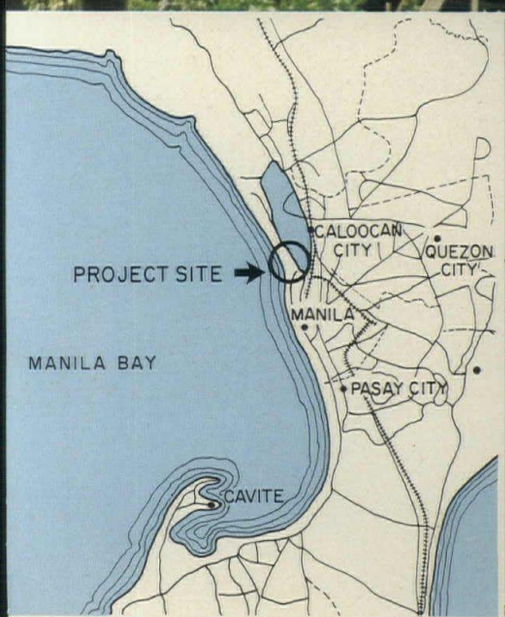
Black Star: Romeo Vitug

This silted, marshy land is—with a population of 373 per acre—one of the most congested in the country (see cover). Compared with other districts within Metropolitan Manila, it has more disease, crime, children per family, and deaths per 1,000 persons. The Tondo has fewer hospital beds, less schoolroom space per pupil, fewer street lights, fewer policemen, and more property loss due to fire and typhoon. The Tondo consumes less water and has 50 per cent less of its garbage collected than the city average. Its sewage disposal system is far below the standards of other districts. There are fewer buses and jeepneys available to the squatters, and less park and recreation area per person than anywhere else in the rest of the city.

The Tondo Foreshore area was originally reclaimed from the sea to be developed as an industrial site, but during the long delay before the government was ready to commence construction, the squatters took over. (Throughout the Third World, all vacant sites and public lands attract squatters.)

Through strong community organization, the Tondo squatters have developed a degree of political power, and have been difficult to dislodge. To help solve this problem, the adjacent (and more than twice as large) Dagat-Dagatan site is being planned to rehouse them.

When the Tondo area is finally developed for further industrial uses, it will be a major source of jobs for the squatters who desperately need them. The area will not become entirely industrial, however, since plans provide for at least 9,000 people to remain on the site. This is in line with the government's policy to upgrade existing settlements within the metropolitan limits.



Tondo Foreshore Redevelopment Authority Task Force

Mildred F. Schmertz 1

2

Mildred F. Schmertz 4

5

In spite of its squalor,
the people of the Tondo
want to live there or near there—
for jobs, education, and a better future
for themselves and their children

3

Tondo Foreshore Redevelopment Authority Task Force photos

6

The people of the Tondo live close to the piers where the men earn their living as laborers and stevedores. They are also close to transport terminals and open markets where they find work in helping load and unload fresh produce. In addition to their own shacks, the area in which they live contains industries such as slaughterhouses, glass plants, and heavy equipment depots. It is a poor place for human beings to live—and the shift to nearby Dagat-Dagatan should be a welcome one for the squatters lucky enough to be moved, provided they are given land tenure. The Tondo itself is being developed further as an industrial site—as planned by the Tondo Redevelopment Authority—but will still retain about 9,000 families.

The squatters of the Tondo, like those elsewhere in the Philippines and many parts of the developing world, fit a profile developed by social scientist Aprodicio A. Laquian (pages 100-105) and outlined in his report "Slums and Squatters in Six Philippine Cities." In his words: "Squatters and slum dwellers consider their present life better than their former situation. They see economic and other opportunities in the city and are unwilling to leave their present communities. The break with the rural place of origin seems to be relatively final. Most squatters and slum dwellers make the move to the city when they are mature and, often, married. In the case of the married migrants, the head of the family usually goes to the city first, but the number of families who move as a group is also high. These facts support the irreversible nature of rural-urban migration.

"The migration chain plays an important part. Relatives and friends who precede the migrants help them make the decision to move and settle down in the city. In this way, the adjustment of the migrants to life in the city becomes easier.

"Most squatters and slum dwellers have a low level of education, lack technical and professional skills, and find employment only in unskilled or semi-skilled jobs. Their aspirations for themselves and their children, however, are high. Ownership of home and land is a primary motivation.

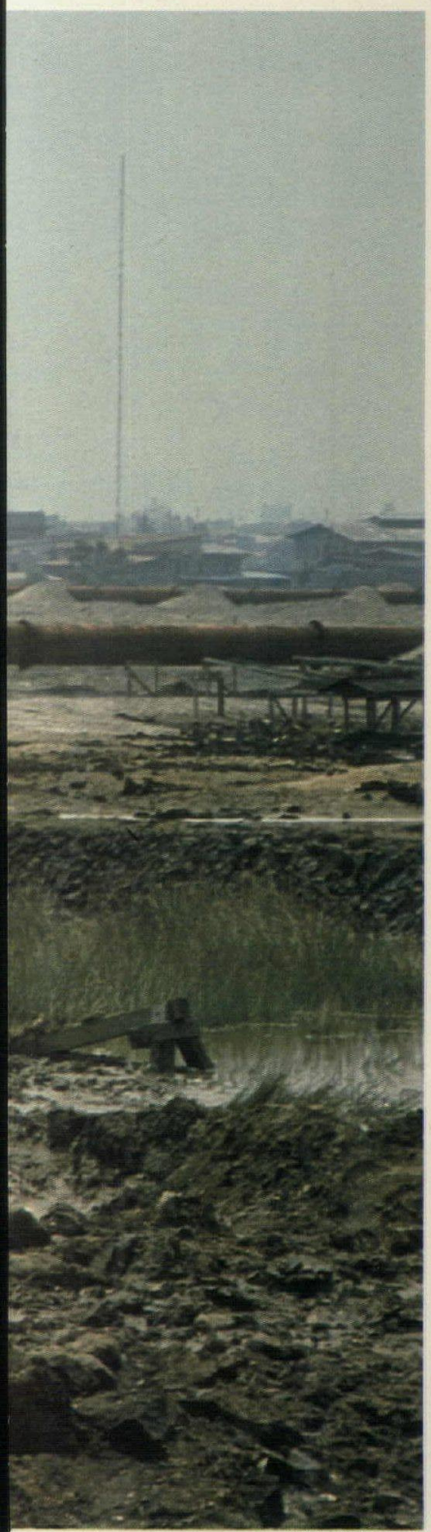
"The incomes of squatters and slum dwellers are low. Living in slum and squatter areas helps make ends meet. Other family members besides the father work. Squatters find the slum conditions acceptable as compared to their former condition of life in the rural areas. Although they see living conditions as hard, they seem to accept them, and consider them temporary."

The photographs of Tondo life (left) show squatters and their children at leisure (1 and 4); women washing clothes in water seeping from ruptured pipes (2); children at a common water tap (3); residents "cottage-manufacturing" picture frames (5); children at a small open-air store (6).

Density within the residential areas of the Tondo ranges from 10 to 1470 persons per acre.

Tondo has a very young population. Of the total members of 17,418 households, one-half are below 19 years old. Those between the ages of 20 to 39 comprise 29.6 per cent, while 12.17 per cent are between 40 to 59 years old. The median age was found to be 17.3 years, which is lower than for the Metropolitan Manila area (19 years), and that of the entire country (17.9). The average number of children per family is five.

Dagat-Dagatan—the site of the competition— will become a new-town-in-town instead of a remote, underserviced, resettlement area



Mildred F. Schmertz

The Tondo Foreshore Redevelopment Authority studied several resettlement sites for the Tondo residents for their accessibility and general suitability. The site had to be located near the Tondo Foreshore where most of the squatters work, and it had to be large enough to handle the expected spillover from renewal of the Foreshore with room for expansion.

In terms of these criteria, the Dagat-Dagatan lagoon (shown adjacent to the Tondo Foreshore in the site plan at top right and in the photograph left) was selected. It has an area of about 778 acres, with another 494 acres available for expansion. It is located less than two miles north of the Foreshoreland.

In accordance with the Tondo Foreshoreland Redevelopment Plan, about 64 acres of the Foreshore will be devoted to industrial and commercial uses and about 334 acres will be developed as a residential community for approximately 9,000 families. About 17,000 Tondo families are to be resettled on the Dagat-Dagatan site requiring about 494 acres of land. About 284 acres of the new site may be developed for commercial and industrial purposes of a non-polluting nature.

The International Architectural Foundation competition program called for a master plan of the entire 1,272-acre Dagat-Dagatan site, and a detailed site plan of a 12.5-acre portion of it, which is the first to be reclaimed by hydraulic fill. This area can accommodate 500 families who will help to build their own houses along the guidelines set by the winning competitor. The area selected for detailed design in the competition program (shown in color on the plan, bottom right) is bounded to the west by the Malabon-Longos River, to the northeast by a proposed 49-foot-wide vehicular road, and to the south by the proposed circumferential road C-3. Accessibility will be provided by the proposed extensions of existing multi-lane roads.

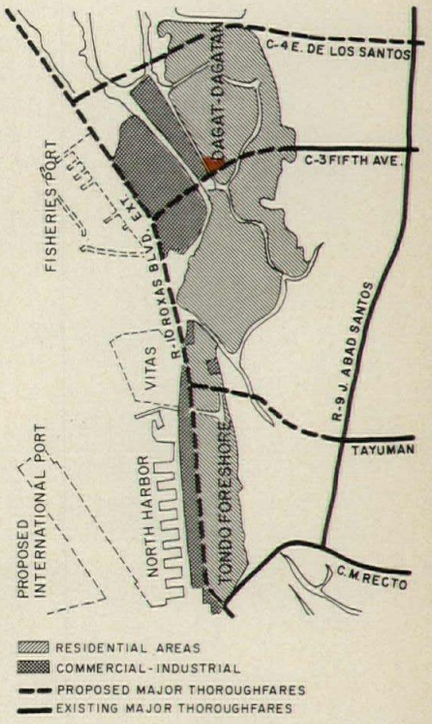
The competition program called for high densities, low-rise structures, low-cost construction for low-income people, self-sufficiency for the 500-family community, pedestrian orientation, and ecological fit.

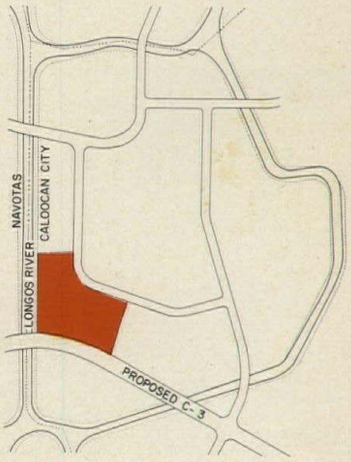
The competitors were required to propose the environmental arrangements to be provided both for the community as a whole and for the individual dwelling unit. Attention was to be paid to the water supply, hot water heating, domestic heating and cooking provisions and sanitary and solid waste disposal. These arrangements had to be economically feasible.

The competitors were asked to design a hierarchy of community facilities shaped by the social structure of the new town. As part of the site planning process, the competitors established the location of the town center with its high school, hospital, fire and police stations and administrative building. Dividing the site into the smaller units for 500 families each, called *barangays,* they located within them the community halls, elementary schools, clinics, chapels, *sari-sari* stores and the small fishermen's markets known as *talipapas.*

Since Dagat-Dagatan is to become a high-density, low-rise new town, the planning of parks, open spaces and recreational facilities assumed an important role.

Finally, the competitors were urged by the competition program to consider the problem of developing new jobs on or near the site and to find ways of integrating work and living patterns.

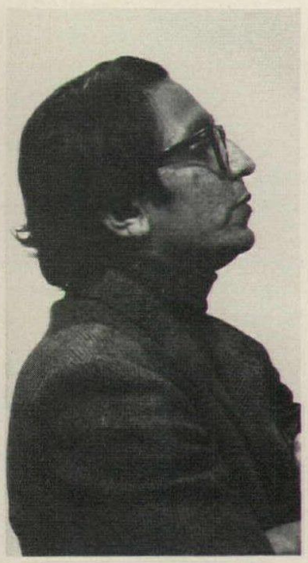


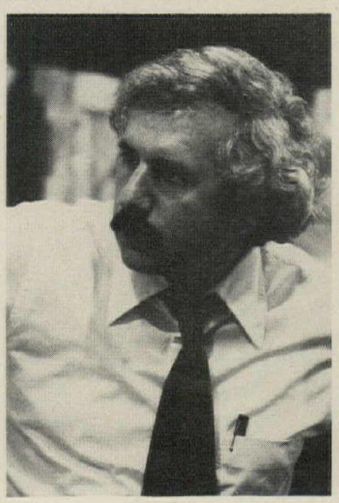


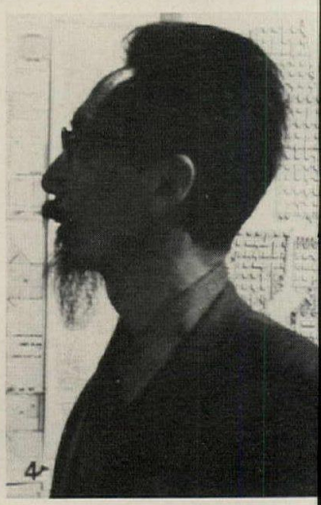
The International Design Competition for the Urban Environment of Developing Countries—Focused on Manila—attracted 476 submissions. On the next 42 pages, as chosen by a distinguished international jury, are...

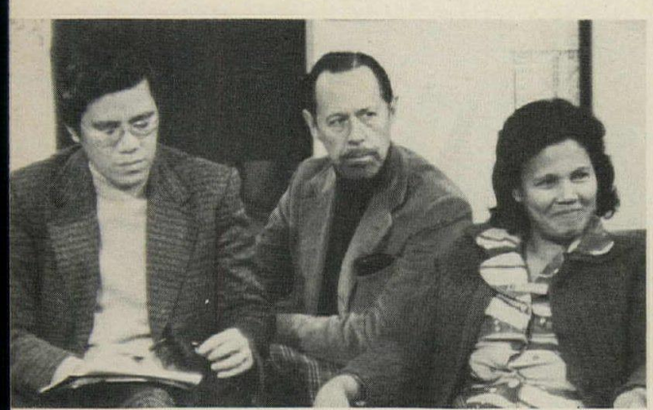
THE

Photos by Walter F. Wagner, Jr. and James Hughes









The jury relaxes (top left) after the winner is announced. The jurors were Balkrishna Doshi, Eric Lyons, Mildred Schmertz, Moshe Safdie, William Whitfield, General Gaudencio V. Tobias, and Takamasa Yosizaka. At left, Dr. Aprodicio Laquian, jury advisor; IAF president Blake Hughes; and Teresita Vicera, resident of the Tondo and advisor to the jury. At right, the professional advisors: Michael Seelig, Fritz Gutheim, Arthur Erickson of Gutheim/Seelig/Erickson.

WINNING DESIGNS

In his editorial announcing the competition, back in April 1974, RECORD publisher Blake Hughes quoted Charles Abrams: "The solutions to the problems of urbanization may be the key to an international rapprochement—and even to a lasting peace. . . . The main obstacle is, of course, the dearth of talent and knowledge for meeting the challenges of urbanization." There are, of course, many major efforts in the world community to alleviate the condition of the poor trapped in slums around most of the world's major cities. But, as we said in an earlier editorial: "It is fair to argue that with few exceptions . . . there has been little opportunity for architects as a group to participate, and thus little opportunity for governments and concerned individuals to see the possible contribution of the thinking and talent of the world's architects. Thus the competition."

The competition—from conception to completion—was a three-year project involving hundreds of people

The formation of the non-profit International Architectural Foundation (IAF) to hold the competition was announced in RECORD and *L'Architecture d'Aujourd'hui* in April 1974. But in the development stage of the IAF, Blake Hughes—its president—was greatly assisted by Ms. Helena Benitez, then director of the Preparatory Planning Group for HABITAT and now president of the Governing Council of the United Nations Environment Programme (UNEP); and by Eric Carlson, then deputy director of the PPG. Ms. Benitez was not only enthusiastic and helpful in setting the goals of the competition, but was instrumental in arranging for the enormous cooperation of Philippine architects, planners, and government officials during the writing of the competition program; in making arrangements for a commitment of the competition site in Manila; and in obtaining a special grant from the Philippine government to help cover the costs of the competition.

The publisher and staff of RECORD undertook to raise the money for the IAF, and it is appropriate to name here—with thanks from all who worked on the competition and will benefit from the thinking it generated—the organizations and individuals whose grants made the competition possible: Sponsors are: Graham Foundation for Advanced Studies in the Fine Arts, and Johns-Manville. Patrons are: International Development Research Centre (Canada), National Endowment for the Arts, and The Rockefeller Foundation. Donors are ARCHITECTURAL RECORD; The Architects Collaborative; The Asia Foundation; The Austin Company; The Ford Foundation; Hyatt International Corporation; George P. McNear, Jr. Foundation; Owens-Corning Fiberglas Corporation; PPG Industries Foundation; and Skidmore, Owings & Merrill. Contributors are *L'Architecture d'Aujourd'hui*; the staff of RECORD; W. R. Bonsal Company; Building Industry Development Services; CP Air; Dalton·Dalton·Little·Newport; Arthur Sworn Goldman & Associates, Inc.; Ir. E. Hendrik Grolle, RAIC; Gruzen and Partners; Harrison & Abramovitz; Hellmuth, Obata & Kassabaum, Inc.; Smith, Hinchman & Grylls Associates Inc.; and Stone, Marraccini & Patterson. As noted above, there was a grant from The Government of the Philippines.

As professional advisors for the competition—conducted under the rules of the Union Internationale des Architectes—IAF retained Gutheim/Seelig/Erickson, a consortium formed to do international planning, design, and development by Frederick (Fritz) Gutheim, noted planner and author; Michael Seelig, architect, planner, and teacher; and distinguished Canadian architect Arthur Erickson. The program they developed for the competition was a model of its kind; and their conduct of the judging efficient and impeccable. (Gutheim/Seelig/Erickson is also responsible for the development and design of the exhibition based on the competition designs to be shown at the Vancouver Art Gallery during the UN's HABITAT Conference.)

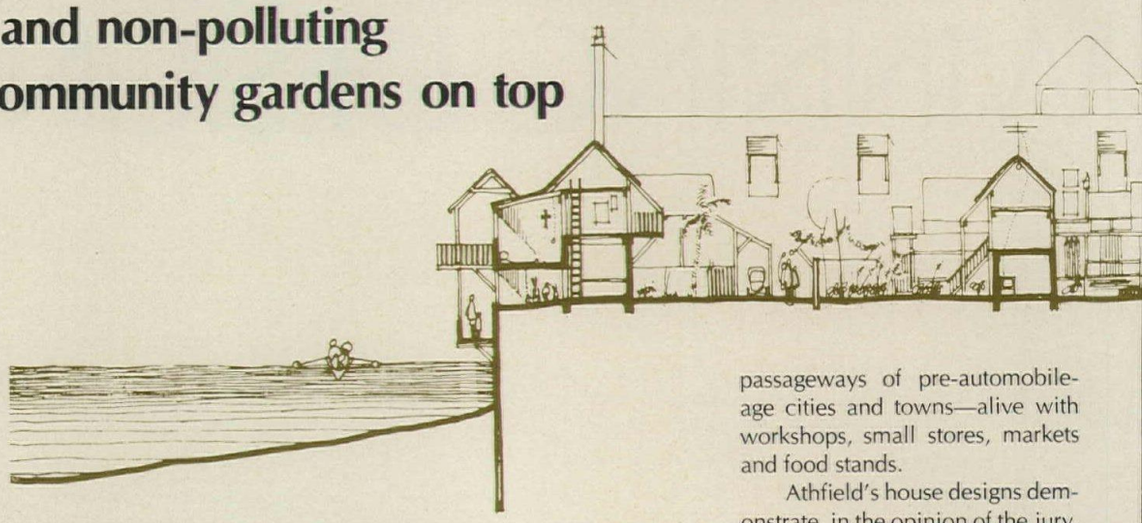
Architects were invited to register for the competition in March 1975; the judging took place in February 1976

In response to an invitation published in RECORD, other professional magazines, and a bulletin of the UIA, 2531 registrations from 68 countries were received. 476 completed submissions were received and presented to the jury, which met in February in Vancouver. Only after five days of study and debate did the jury announce its judgments and relax (see photo top left) as Arthur Erickson opened "the sealed envelopes" with the names of the winners. The judges were (see photos) Balkrishna Doshi, Indian architect and planner, Honorary Fellow of the AIA, dean of the Centre for Environmental Planning and Technology, Ahmedabad, and frequent lecturer at U.S. universities; Eric Lyons, chairman of the jury, president of the Royal Institute of British Architects, Honorary Fellow of AIA, known especially for his award-winning work in housing and his promotion of the concept of architectural competitions; Mildred Schmertz, AIA, architect, RECORD senior editor, and author; Moshe Safdie, Israeli-born Canadian architect with offices in both countries, a broad international practice, perhaps best known for his "Habitat" housing in Montreal and in Puerto Rico; William Whitfield (alternate juror), who practices in London, is active in RIBA, and is a member of the Royal Fine Art Commission; General Gaudencio V. Tobias, who is acting general manager of the National Housing Authority of the Philippines, executive vice president of the National Housing Corporation, and chairman of the Housing and Urban Development Team, Office of the President; and Takamasa Yosizaka (alternate juror) architect, teacher and one-time dean at Waseda University, Tokyo, and past-president of the Architectural Institute of Japan.

Also shown in the photos, at bottom left, are Dr. Aprodicio Laquian, social scientist who advised the jurors and supplied the photo essay on page 100; Blake Hughes, president of IAF and publisher of RECORD; and Teresita Vicera, a resident and *barangay* leader in the Tondo Foreshore, and an advisor to the jury.

The first-prize winner won an award of $35,000 (plus the commission to complete the prototype design in accordance with Philippine law); the second award was $15,000; the third award was $10,000; and four other entrants were awarded $1000 each for special mentions. Their premiated designs are shown beginning overleaf.

The first-prize-winning design by Ian Athfield of New Zealand proposes for each barangay a new kind of work place —a periphery of linear buildings designed for a combination of cottage, light, and non-polluting industries with community gardens on top



The Jury awarded first prize to Ian Athfield, a young New Zealand architect, for a courageous proposal that makes the workplace of the community the major controlling element of the design. This introduction of job-generating space is a truly new concept and represents a genuine advance in the physical planning for human settlements. This work space should significantly help the inhabitants of the Dagat-Dagatan *barangays* to transform themselves into a self-sufficient community.

According to Athfield, this working periphery (see site plan and sections right and overleaf) would be the first part of each community to be built. It would be a significant addition to the customary installation of sites and services — the government-supplied infrastructure of roads, sewers, piped water and electricity.

The people moving to Dagat-Dagatan would help erect this working periphery in increments as needed. A particular area within each working periphery would be reserved for a building cooperative run by the local residents. This cooperative would initially control the supply, manufacture and use of building materials for the *barangay*. Households possessing existing building materials, in the form of their present shanties, could trade these in at the cooperative, which would arrange the recycling of such materials. The cooperative, by limiting the range and variety of the building materials to be made available, could help achieve a consistency and unity in the design and appearance of the housing units.

As the community develops, the role of the building cooperative could broaden to include the provision of other building elements, and to supply a market beyond the initial community, thus increasing the number of jobs available. Space within the working periphery would also be leased to private light industries, thus bringing even more jobs to the *barangays*.

Athfield proposed that the families of any person obtaining employment in the working periphery would have priority in obtaining a house site in the *barangay*. He has calculated that between 300 and 400 people could be employed for every 10,000 square meters (107,600 square feet) of working space surrounding each *barangay*. Given approximately 188,300 square feet of working perimeter, between 550 and 700 persons of the 500 families living in each *barangay* would have jobs within walking distance of their homes. Athfield points out that the place of work and the home should be closely associated to reduce the time and cost of commuting to work, but just as importantly, to encourage cooperation within the community itself.

The working periphery would also contain several community energy centers (pages 120-121) from which the conservation of energy could be directed and where individuals could be trained in alternative energy and recycling techniques. Individual industries and households would be encouraged by a small payment to send all their wastes to the energy center. As awareness and understanding of the waste and energy systems develops, families would be encouraged and assisted to develop their own conservation and energy plants.

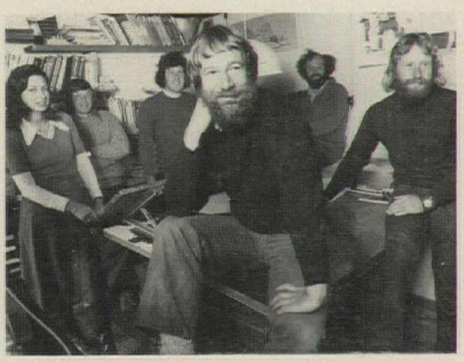
Each energy center would be looked after by a caretaker. Windmills for the energy centers would be located on the roof of the working perimeters adjoining community gardens also located there. The gardens and energy centers would be a strikingly visible expression of the cooperative achievements of the community.

The working perimeter will serve as a strong physical boundary for each *barangay*. As Athfield points out, within the Philippines the wall has been a strong element of design definition as well as security from the beginning of the Spanish influence. The perimeter structures around each *barangay* will help shape lively streets between them. These streets will have the quality of the pedestrian passageways of pre-automobile-age cities and towns—alive with workshops, small stores, markets and food stands.

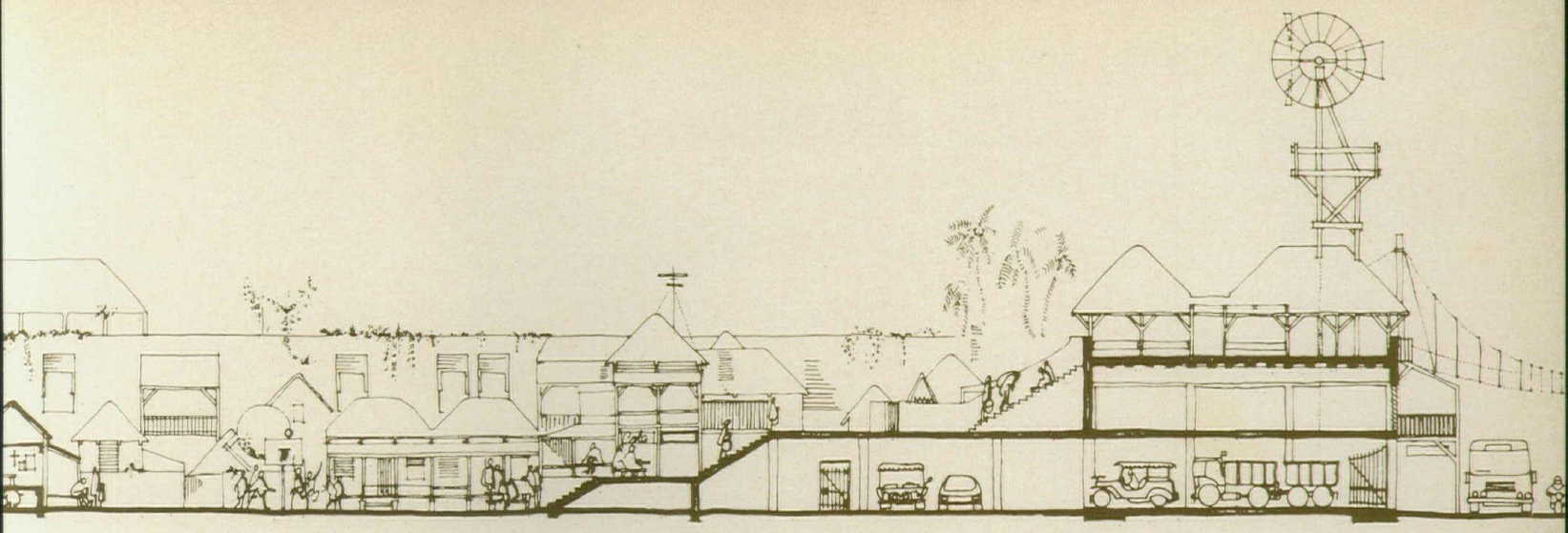
Athfield's house designs demonstrate, in the opinion of the jury, "his sensitivity to the culture and life style of the community and its aspirations." Occupying individual sites, which would average 55 square meters (591 square feet) each, the dwellings can be built by the residents themselves at their present state of competence as craftsmen, within the traditional rural building vernacular of the Philippines (pages 116-121).

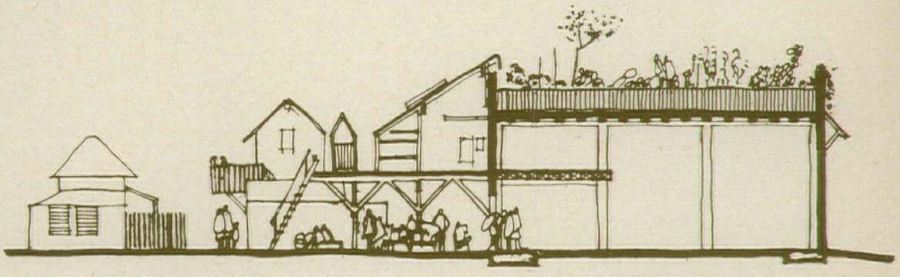
Athfield urges that the sites be leased to the new inhabitants with eventual rights of ownership. His deeply allusive and expressive drawings show how the *barangay* houses could look after the families have been secure in them for awhile. As length of tenure, effort and investment increase, gardens and trees are planted. The houses expand to include small verandas; kitchen and laundry equipment is improved; better furnishings are purchased; potted plants appear and pictures decorate the walls. Doors, window frames and shutters—made at the building materials cooperative and purchased in stages by the migrant as he gradually becomes able to afford them—contribute to the solidity and permanence of his house. As his family grows and his economic position improves, the inhabitant's house grows to express his own and his family's expanding needs and rising aspirations.

In his submission, Athfield proposes that his winning design team work with each family to give advice on boundary situations, erection procedures and building techniques. He sees this direct work with the community as the principal and most challenging task of the design team.

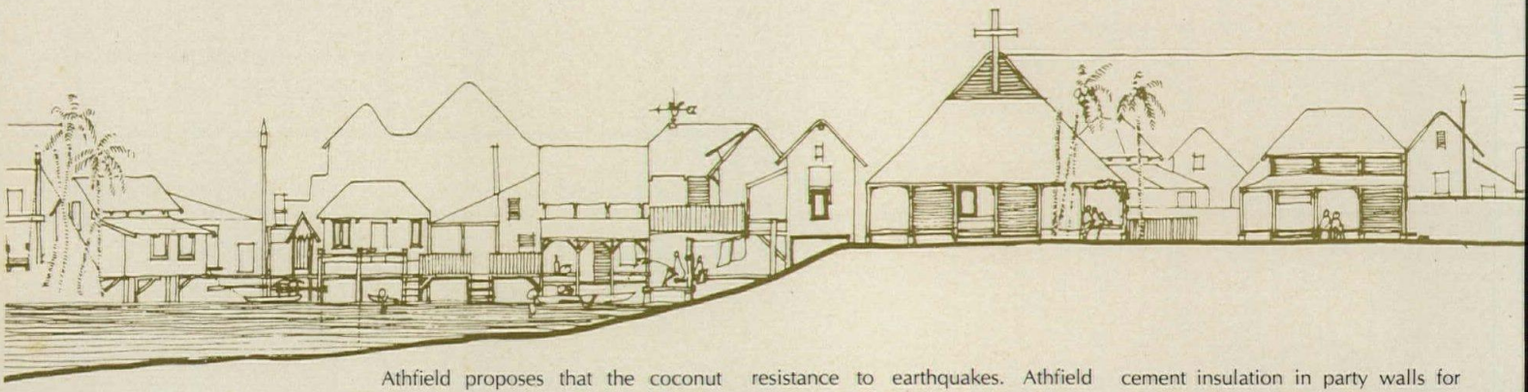


Ian Athfield (front and center) founded Athfield Architects in 1968: (left to right) Moyra Todd, Wal Edwards, Graeme Bouche, Don Baird and Ian Dickson. Absent is Tim Nees. Born in Christchurch, New Zealand in 1940, Athfield earned his Diploma of Architecture from Auckland School of Architecture in 1963. A profile of Athfield and his work is on pages 42-43.

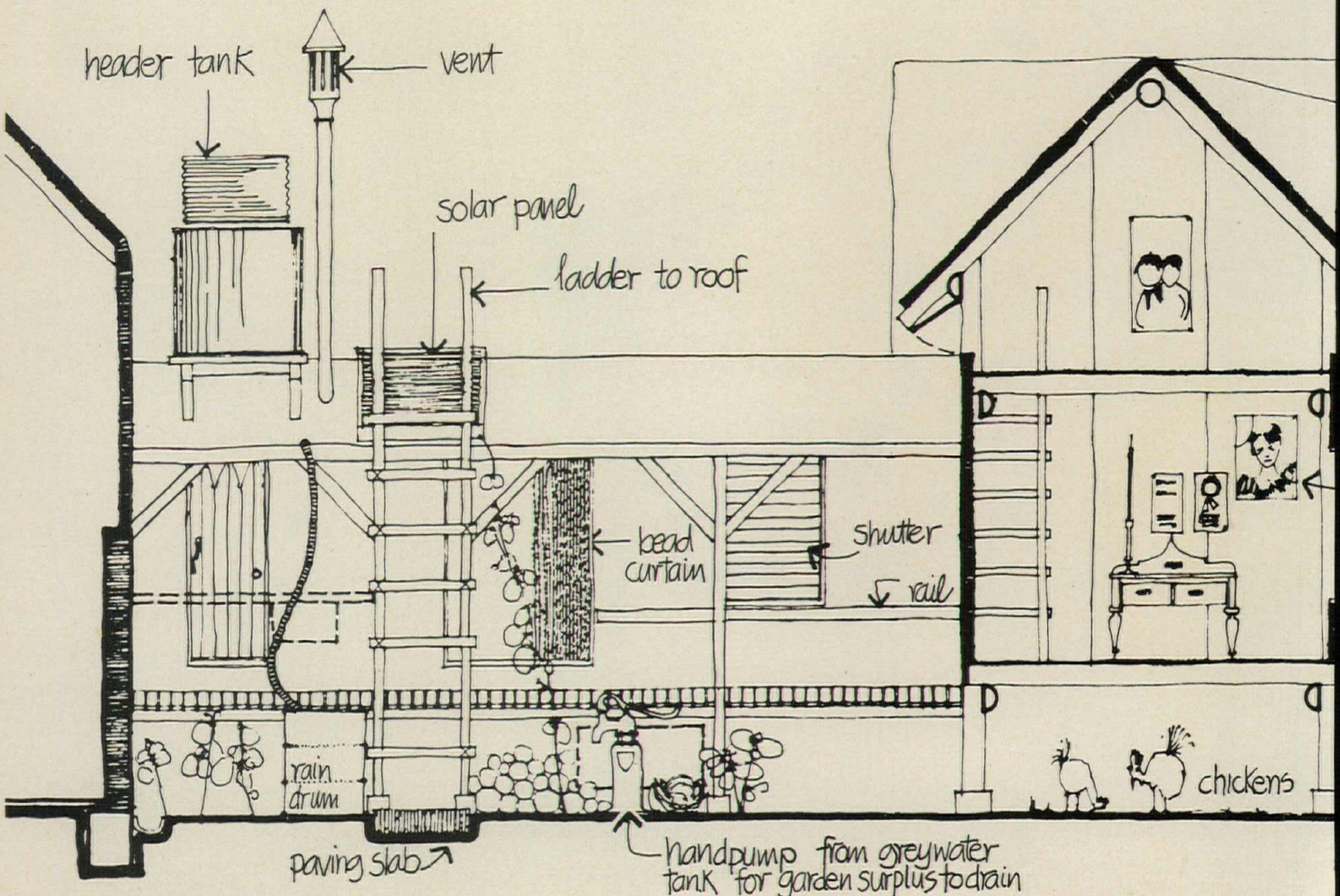


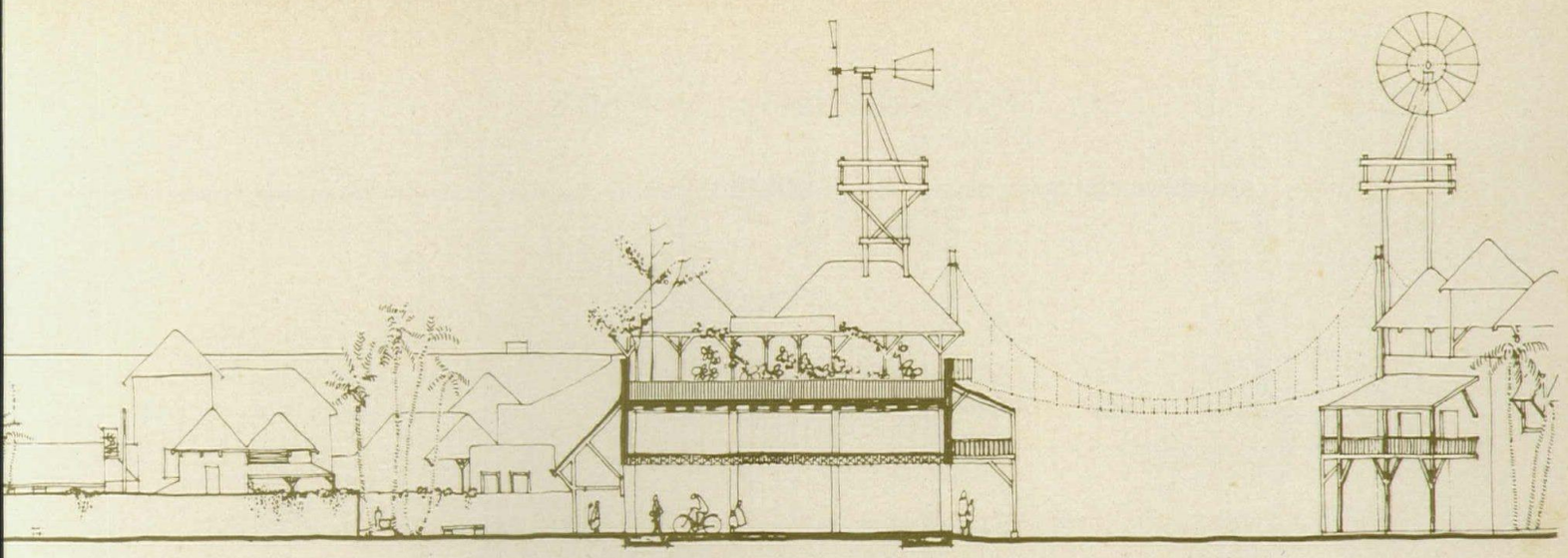


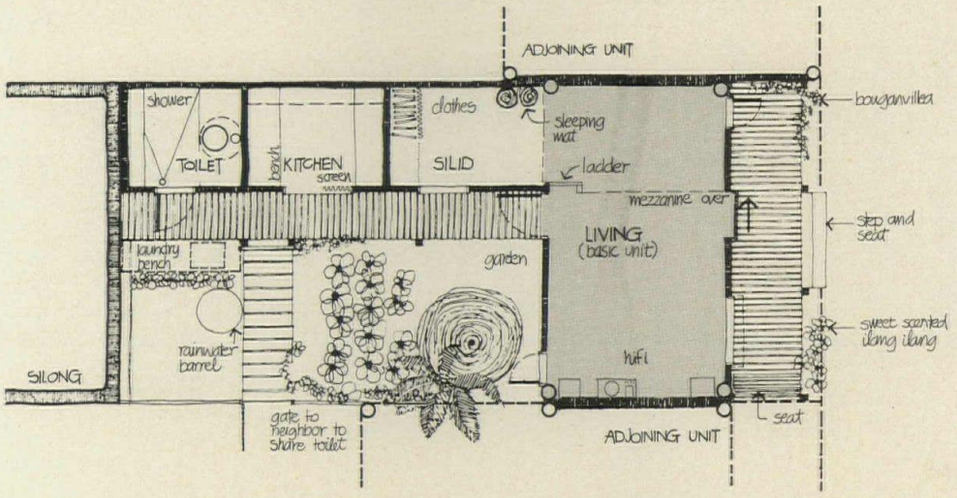
The sections (above) show the relationships between the working periphery and the houses and other community buildings. Shown on top of the linear boundary structure are the community gardens. Adjacent to the market place (M) are a nursery school, elementary school and health clinic. Indicated on the plan are *sari-sari* stores (S), energy centers, and a church (C). Four *puroks* (subdivisions of the *barangay*) each have a basketball court as a center. The number of housing sites per *purok* range from 121 to 138, totaling 484. Automobiles and jeepneys are garaged under terraces which abut the inside walls of the working periphery. Footbridges span the motorways.

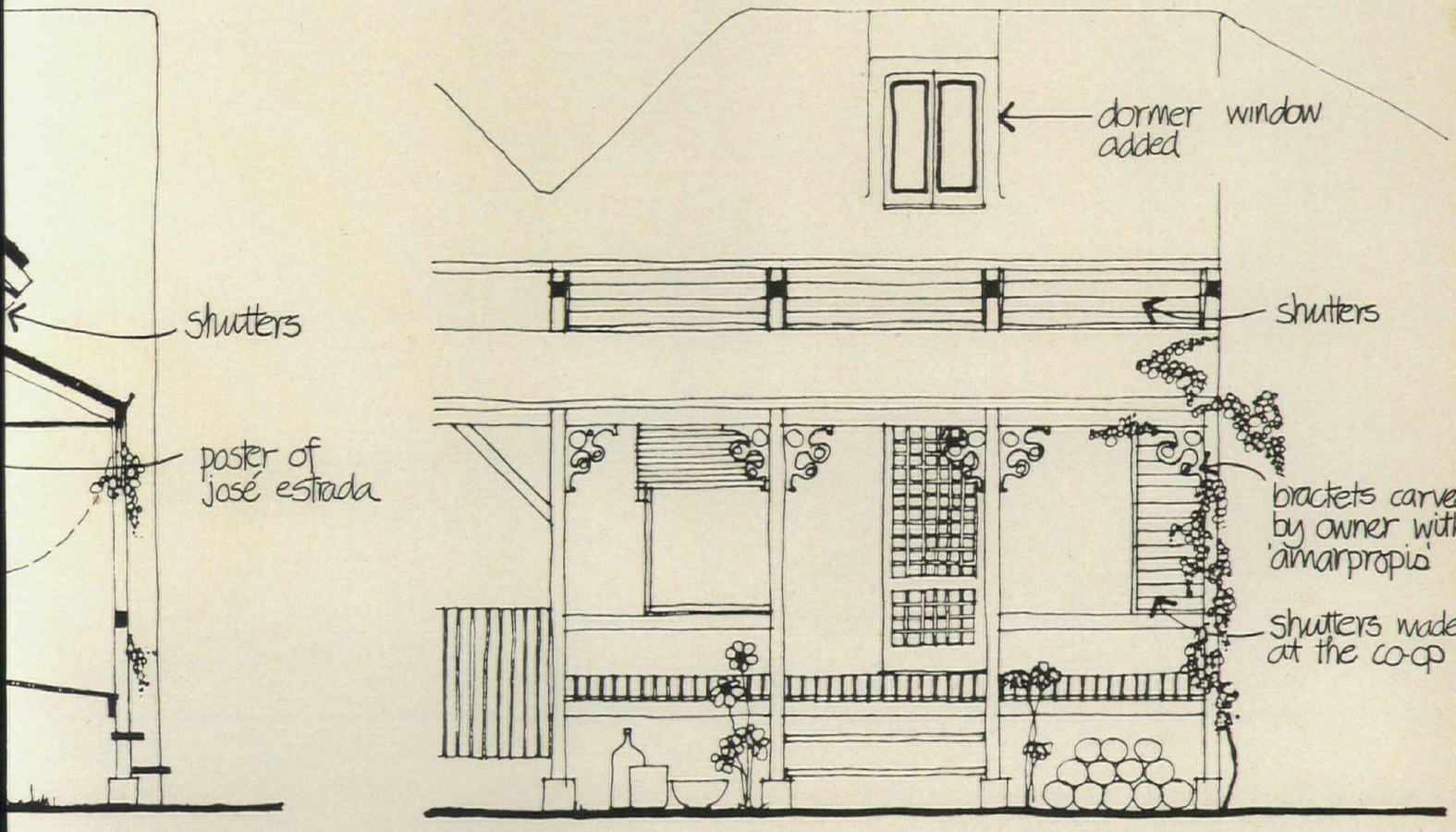


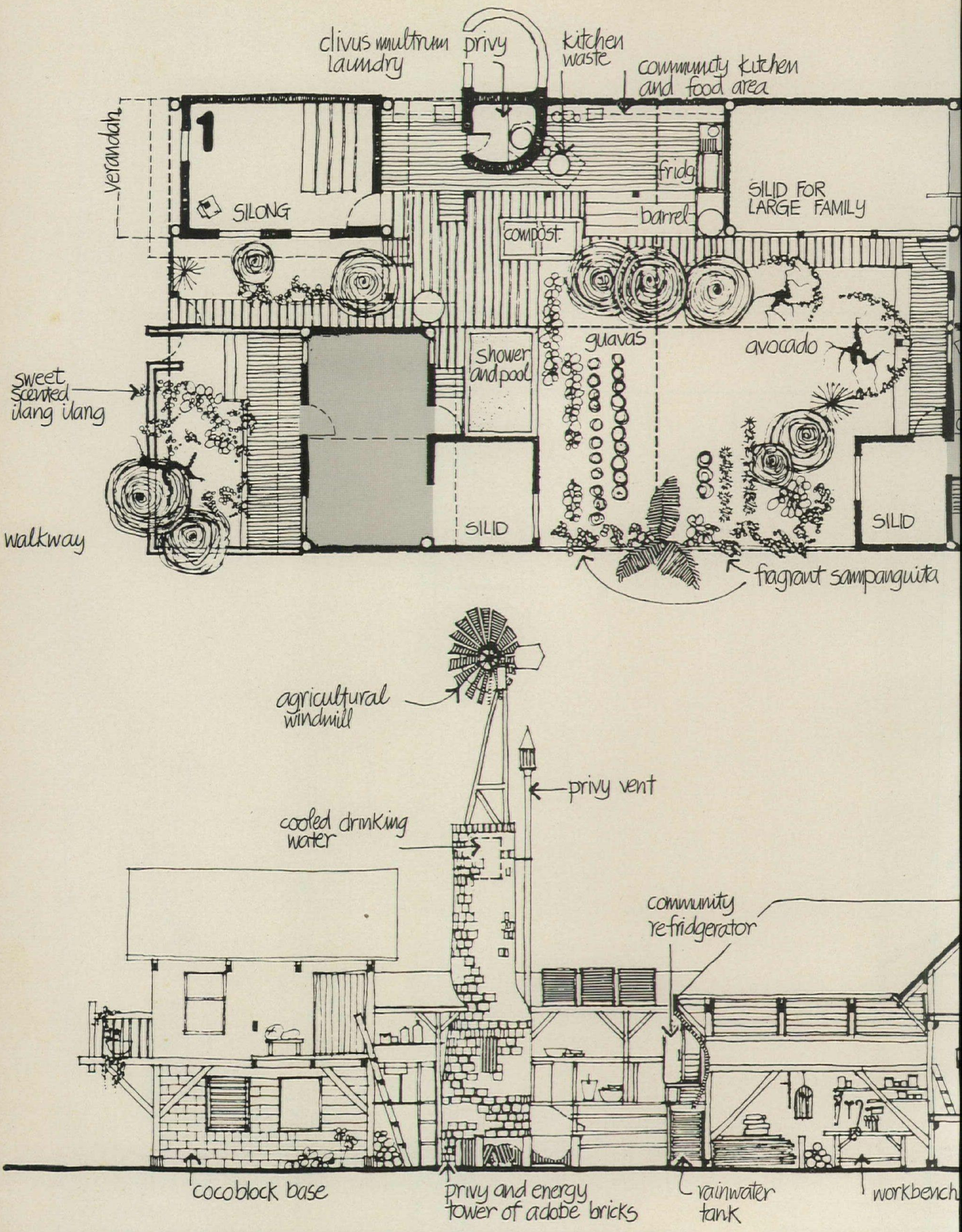
Athfield proposes that the coconut palm be utilized to provide the principal building elements. It is in abundant supply in the Philippines and will continue to be so in the foreseeable future. The timber can be used in its natural state if dried and preserved. Its by-products include the production of charcoal, chip-based cement blocks, particle board, insulation fiber cement board, furniture and joinery. The winning design recommends that the house units be built of timber frame for resistance to earthquakes. Athfield points out that timber frame construction is within the craft skills of the Tondo Foreshore squatter. Roofs and walls would be panels of plaster made with coconut sawdust, sand and cement over expanded metal mesh. (See details page 120). These panels would be fire-resistant and would provide good insulation against the Manila heat. This material lends itself to additions and alterations without skilled techniques. The use of coconut fiber cement insulation in party walls for sound insulation has also been recommended. Athfield strongly urges that the vocabulary of materials be limited to the coconut palm and its by-products to give an underlying visual unity to the *barangay*. Furthermore, by consistently employing these materials, the residents would become skilled in their use. Purchased in quantity the cost could be met by families earning an average of 371.43 *pesos* a month, or $53.06 in U.S. dollars.



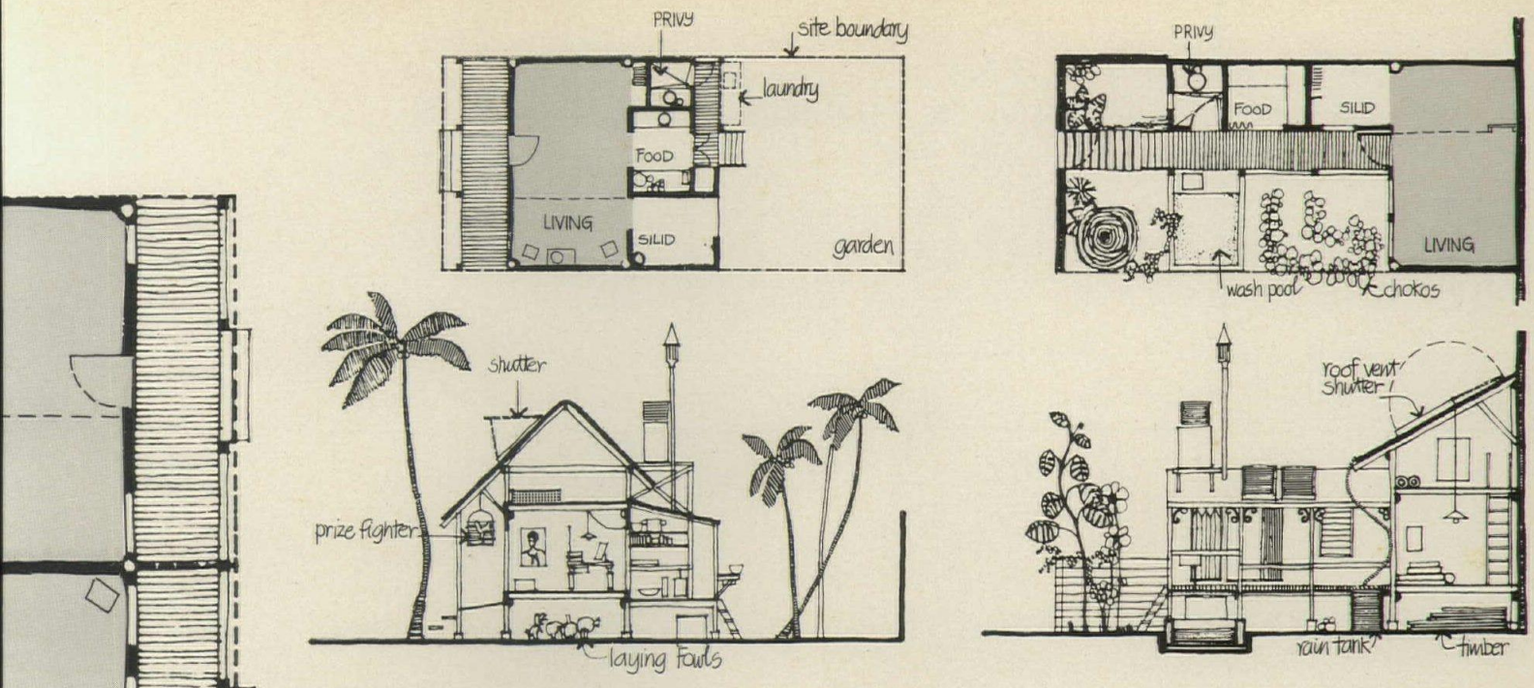



ADJOINING UNIT
shower
TOILET
bench
KITCHEN
screen
clothes
SILID
sleeping mat
ladder
mezzanine over
LIVING
(basic unit)
bougainvillea
step and seat
laundry bench
garden
rainwater barrel
sweet scented ilang ilang
hi-fi
SILONG
gate to neighbor to share toilet
ADJOINING UNIT
seat

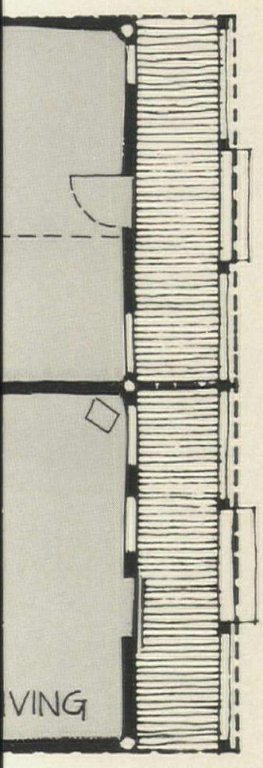

dormer window added
shutters
shutters
poster of José Estrada
brackets carved by owner with 'amarpropia'
shutters made at the co-op

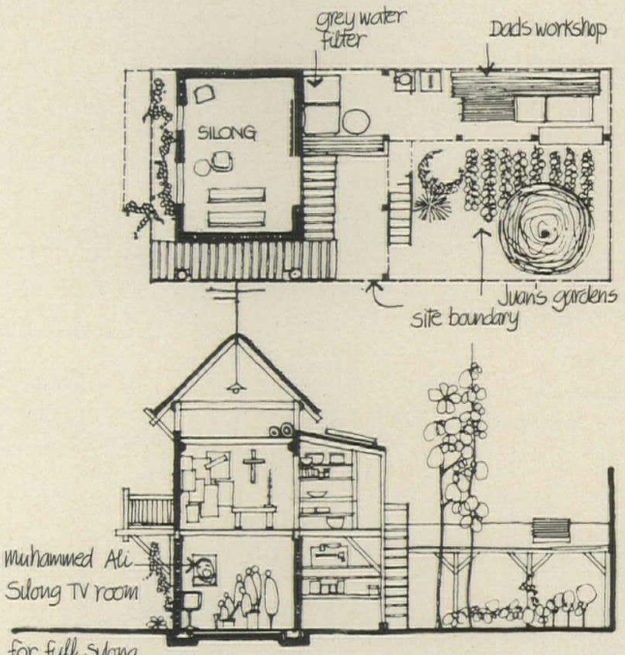


COOPERATION AMONG FOUR NEIGHBOURS

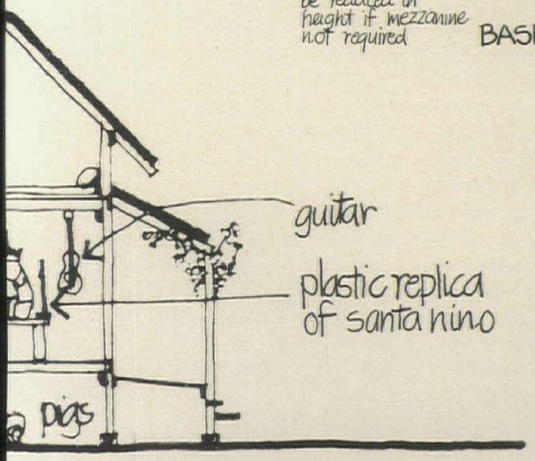


BASIC UNIT WITH LEANTO

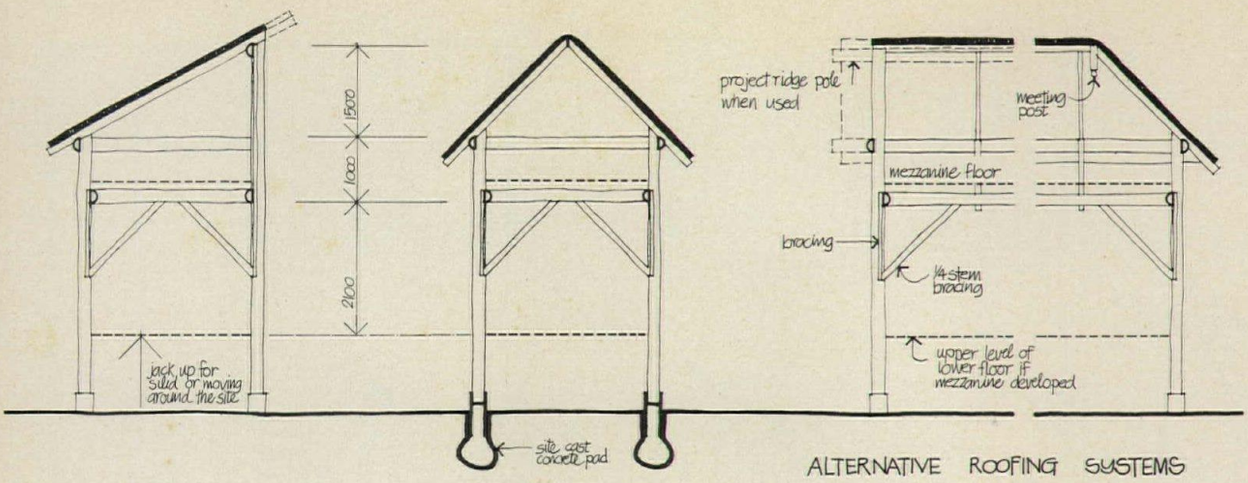




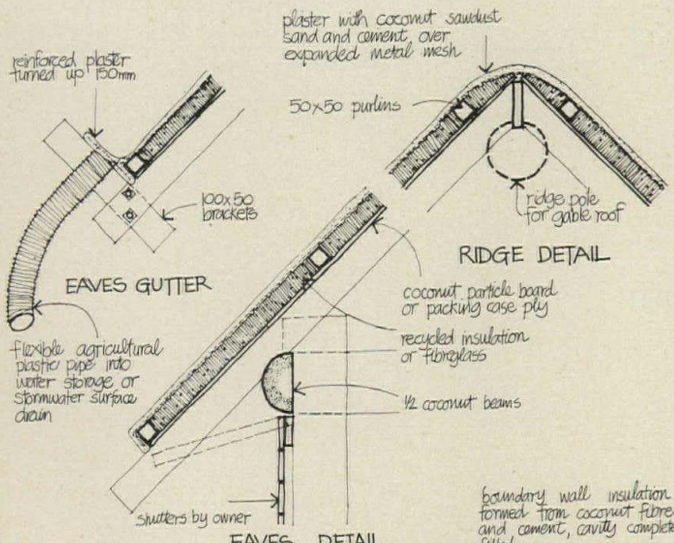
BASIC UNIT WITH FULL SILONG

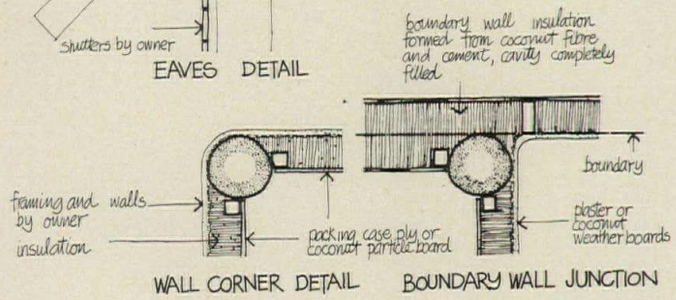


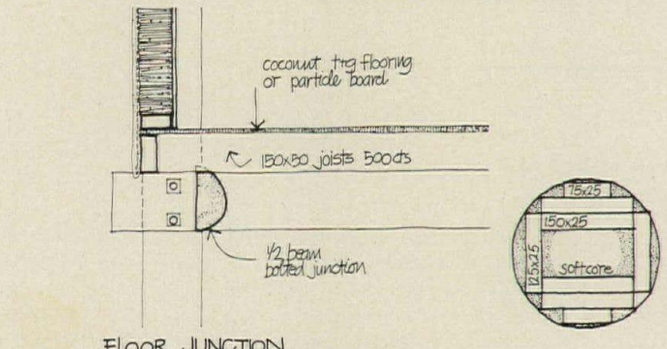
The plan (left top) shows four lots of 592 square feet each, combining in a cluster of houses for four families. The combined elevation-section (left bottom) shows two of the houses. The four families share the privy and laundry, the compost pile, a community kitchen, refrigerator, and food area, the agricultural windmill and the cooled water tank. Each family has a *silong*, or space below the first floor at ground level; and a *silid*, or living and sleeping space on the first or second floor. Athfield has drawn the houses as they would appear after the families had lived in them long enough to build verandas, to plant trees and gardens, and to acquire simple domestic articles and furnishings. The squatters of the Tondo Foreshore keep pigs and chickens for additional income and hope to continue to do so when they move to Dagat-Dagatan. The three plans and combined elevation-sections (above) show variations of the basic house unit, including an example of how the house can abut the inside wall of the working periphery.

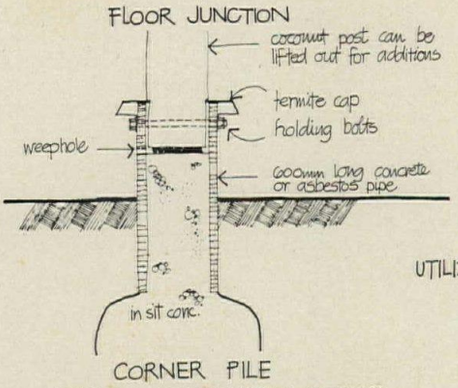


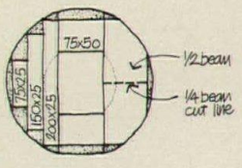
ALTERNATIVE ROOFING SYSTEMS





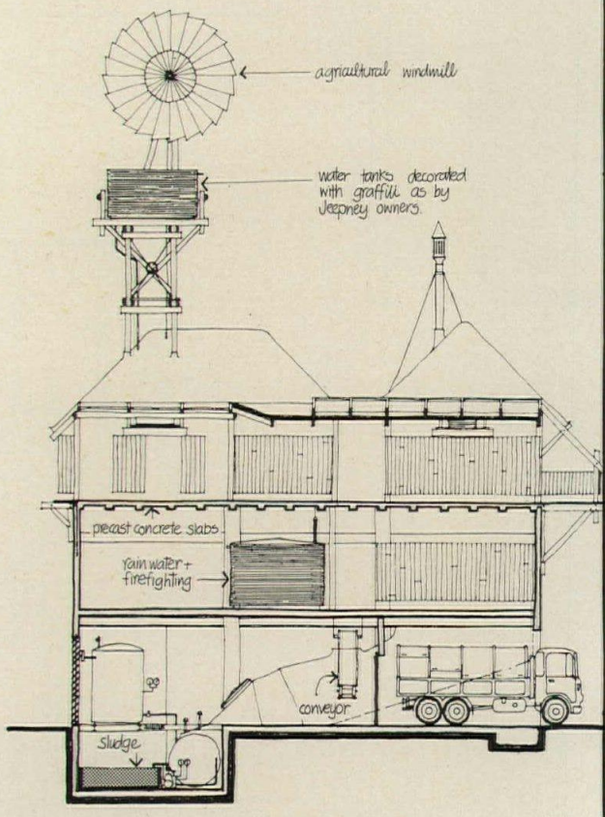




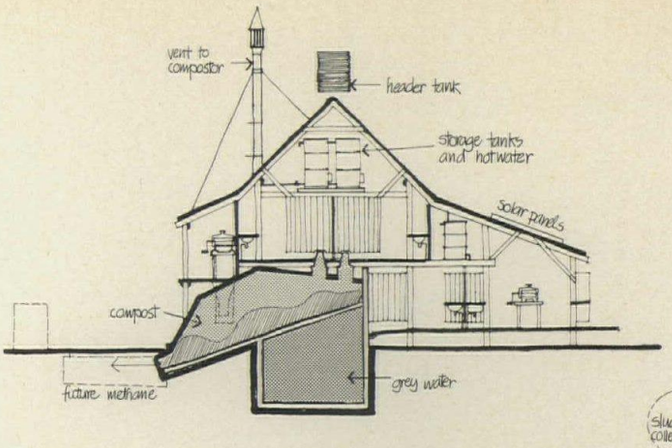


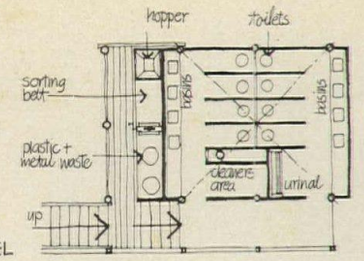
UTILIZATION OF COCONUT LOGS

TYPICAL CONSTRUCTION DETAILS

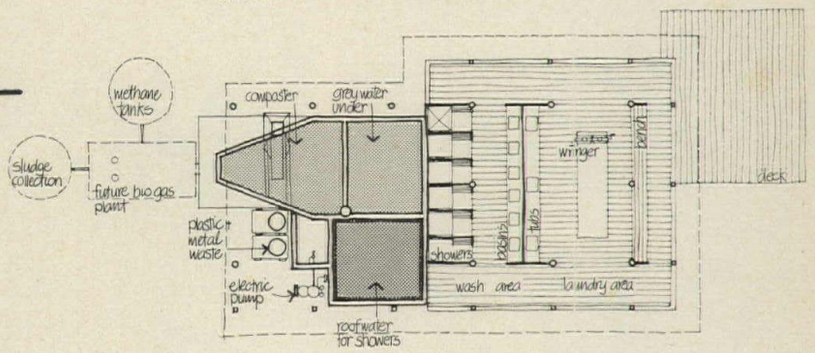


Although Athfield contends that it cannot fairly be suggested "that a family on a wage of 300 *pesos* a month purify its water, cook with charcoal and compost its waste, while an industry uses all the energy and water it wants and discharges its waste untreated into the adjoining river," his design solution, nonetheless, contains excellent proposals for waste disposal and the development of alternative energy sources within the *barangay*. Each community of 500 families would have several small community energy centers (section and plans opposite page top), which would contain toilets, showers, a communal laundry, a solar heating element and a waste disposal plant with a compost unit from which methane gas would be extracted. The *barangay* working periphery would house larger energy centers (above and right). Construction details (left) are for the basic structures.

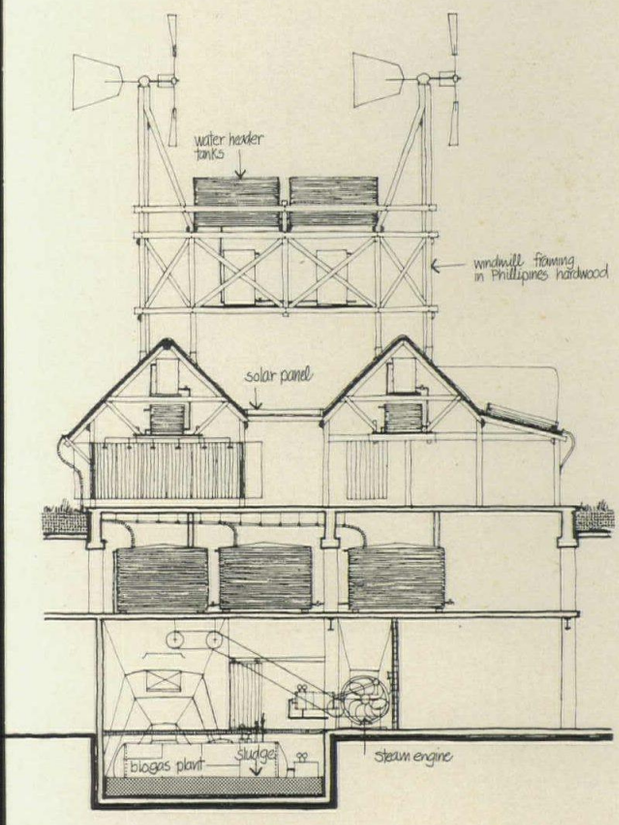




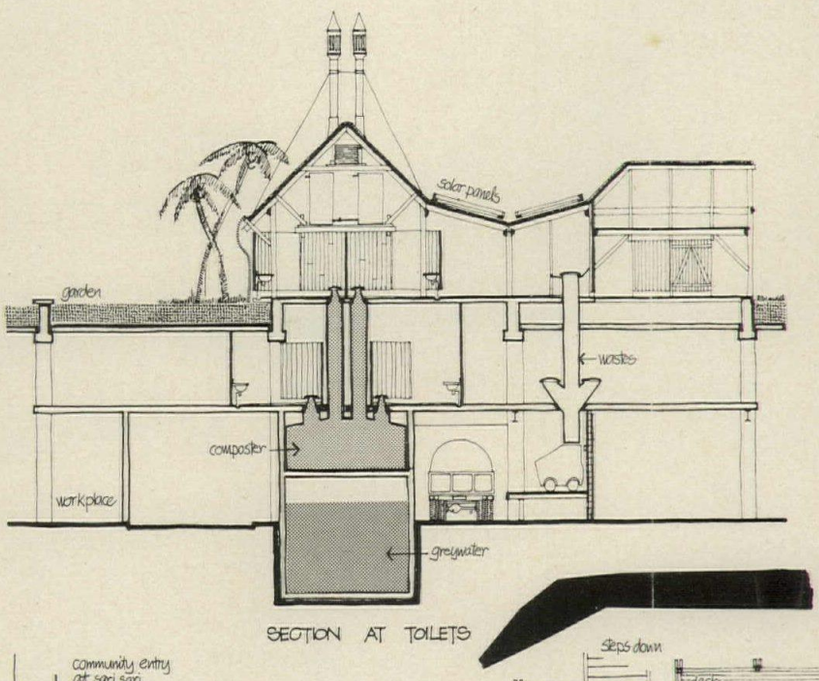
UPPER LEVEL



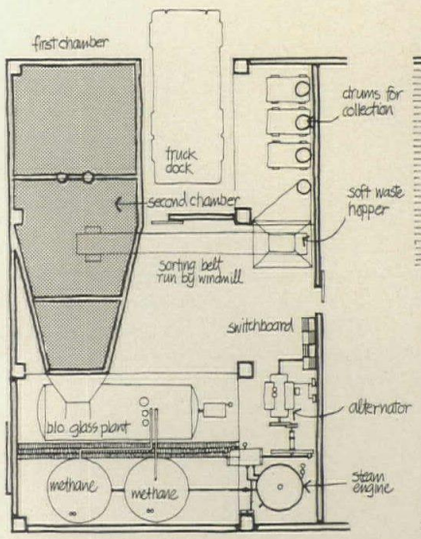
LOWER LEVEL



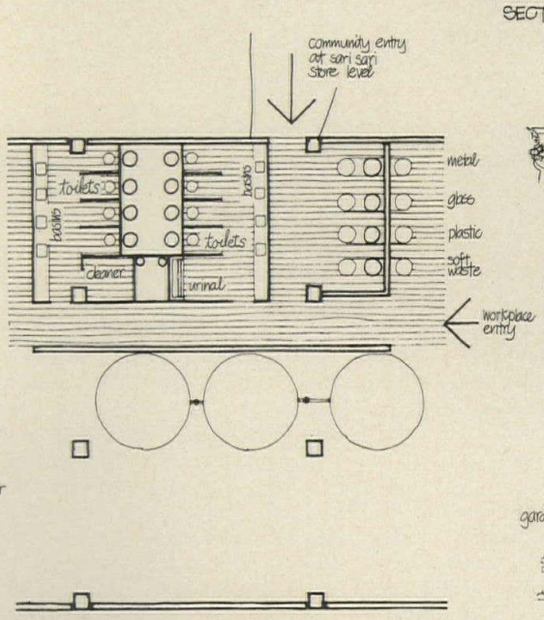
SECTION AT SHOWER



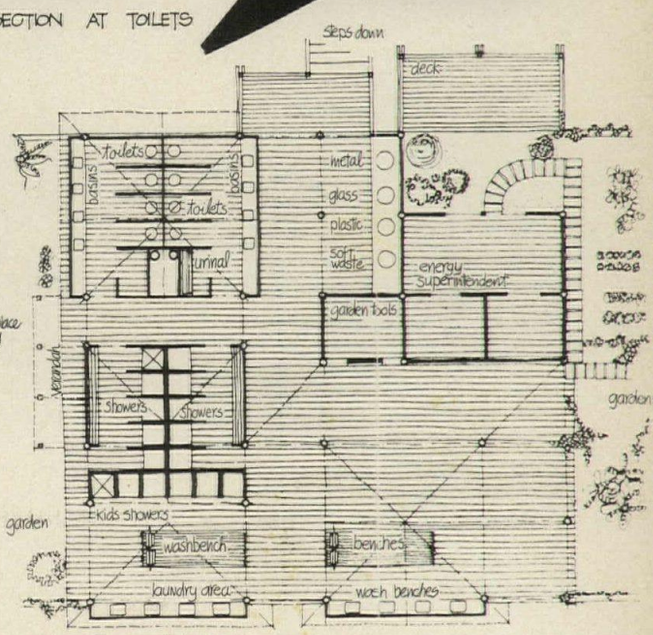
SECTION AT TOILETS



GROUND FLOOR PLAN



MEZZANINE FLOOR PLAN



ROOF PLAN

A Fire station, secondary school, police headquarters, health and community center for *barangays*
B Hospital
C Town plaza, municipal buildings, church
D Pedestrian bridge over motorway
E Walkway under street

Every three to five *barangays* would be served by a town center located within the wall of one of the *barangays*, which would function as a major plaza with more space devoted to commerce, administration and entertainment than will be found in the smaller individual *barangay* plazas. The town center would be adjoined by the hospital, secondary school, fire station and police headquarters. As indicated on the plan for the entire Dagat-Dagatan area (opposite page), major industries and those needing large storage spaces are placed in the industrial zone adjoining the port development area. Service and parking penetrations are provided between *barangays*. Pedestrian pavements are provided on all roads and pedestrian lanes are planned on the periphery of the development and along the banks of the river. These river paths would be supported by the sheet piling driven to retain the banks. The land at the periphery of the Dagat-Dagatan area has been designated as a reserve and will act as a buffer zone between existing developments and the new community. A railway reserve has been zoned to the south side of Highway C-4 and has been extended into the industrial area. This rail link could extend along the line of North Bay Boulevard to link with the existing railway in the south end of the Tondo area.

PARK AREA
RESIDENTIAL
STREET
COMMUNITY SPACE
WORKING PERIPHERY
TYPICAL BARANGAY
Lovigos River
PORT FISHERIES
5th AVE EXT.
C3

The second-prize-winning design by Takagi Design Associates of Tokyo proposes the use of colonnades to help shape the pedestrian paths and other open spaces of the barangay, providing an order within which the individual houses can multiply in a modular pattern

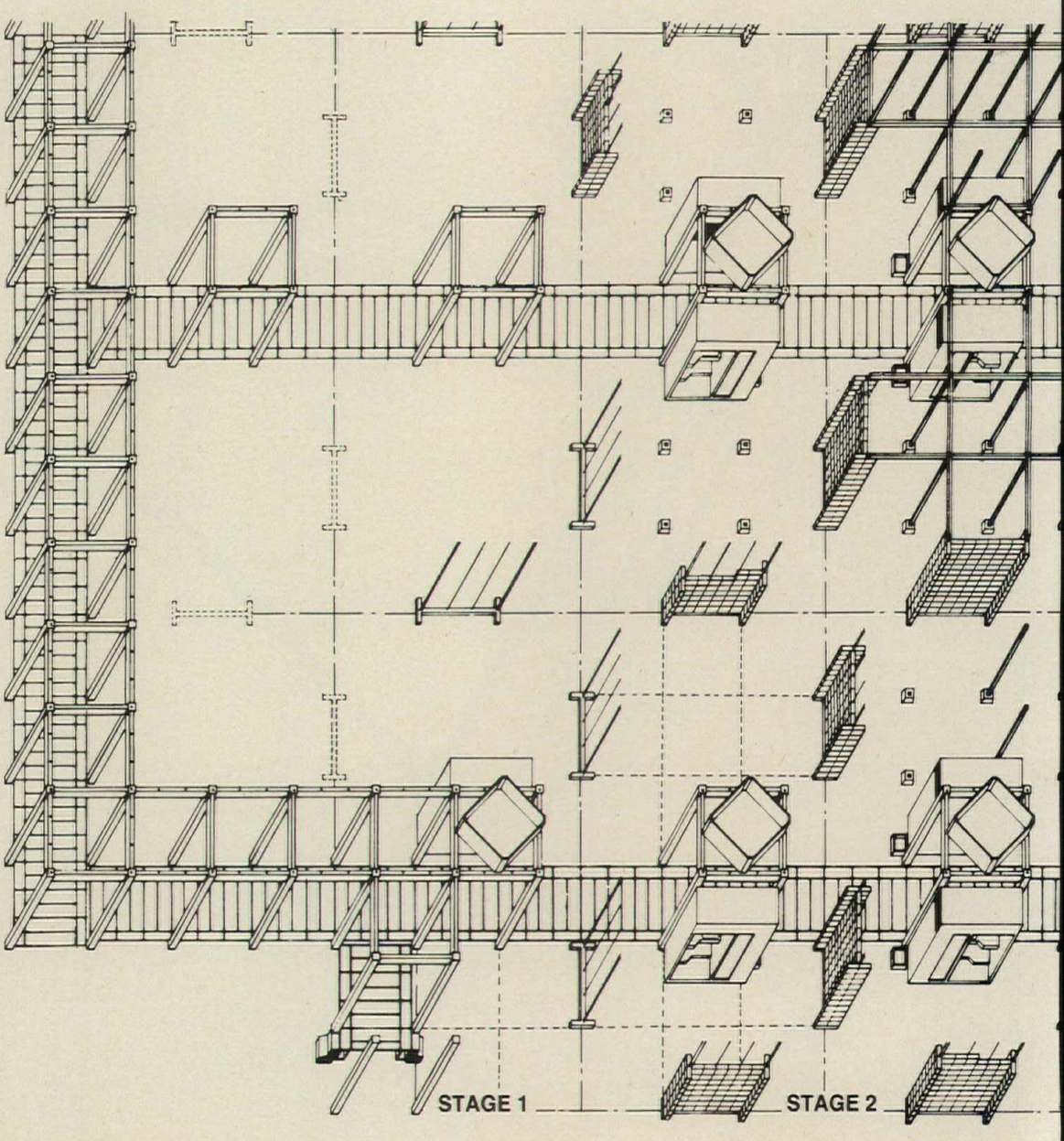
Mikiro Takagi (left), born in Tokyo in 1941, received a degree in architecture from Waseda University in Tokyo. He received a master's degree from the School of Art and Architecture of Yale University, and worked for architects Paul Rudolph and Edward L. Barnes in New York. Kunihiko Hayakawa (middle), also born in Tokyo in 1941, was a classmate of Takagi's at Waseda University and at Yale. He worked for Moshe Safdie in Montreal. Keiichiro Takahashi (right), born in Shiga in 1950, graduated from the Department of Architecture of the Professional School in Shiga.

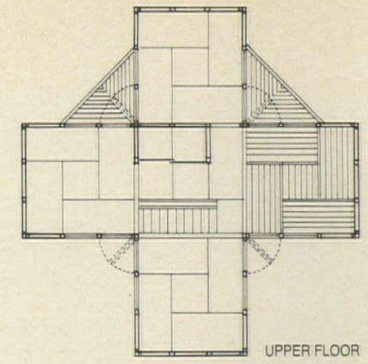
The Japanese team's proposal answers a key question they asked themselves: whether public or private space, or both in combination, should receive the most emphasis in their design for Dagat-Dagatan. Japanese cities are private-space oriented—gardens and courtyards are enclosed within the house and carefully tended—while alleys, streets and general open space are neglected. But even in those countries which—unlike Japan—have cities of great civic beauty, the public spaces of low-income communities are often dilapidated and ignored.

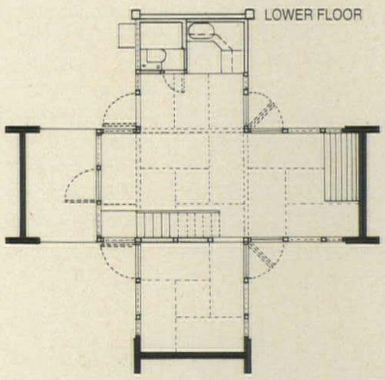
Architects Takagi, Hayakawa and Takahashi decided to give equal emphasis to the achievement of the highest practical environmental standard at both the scale of the neighborhood and the scale of the house. To this end they devised a colonnade, which they believe would act as a catalyst for the gradual enrichment of the publicly shared physical environment of the settlement, as improvements in the economic status and life of the people occur.

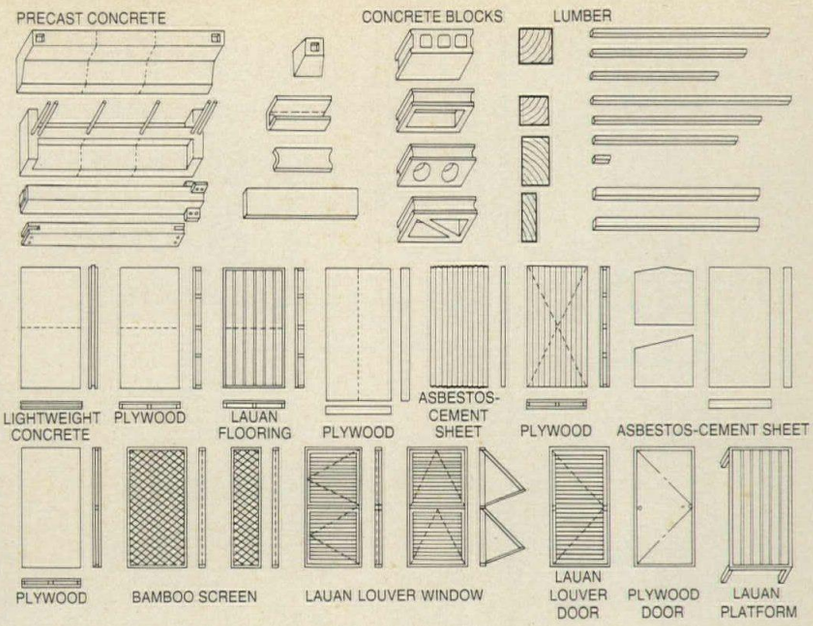
This colonnade, integrated with the pedestrian paths and other open spaces of the *barangay* and helping to shape them, would be the major social, structural and visual element of the community infrastructure. It would be a space maker, the first stage in the building program, and the foundation for the inhabitants' self-help.

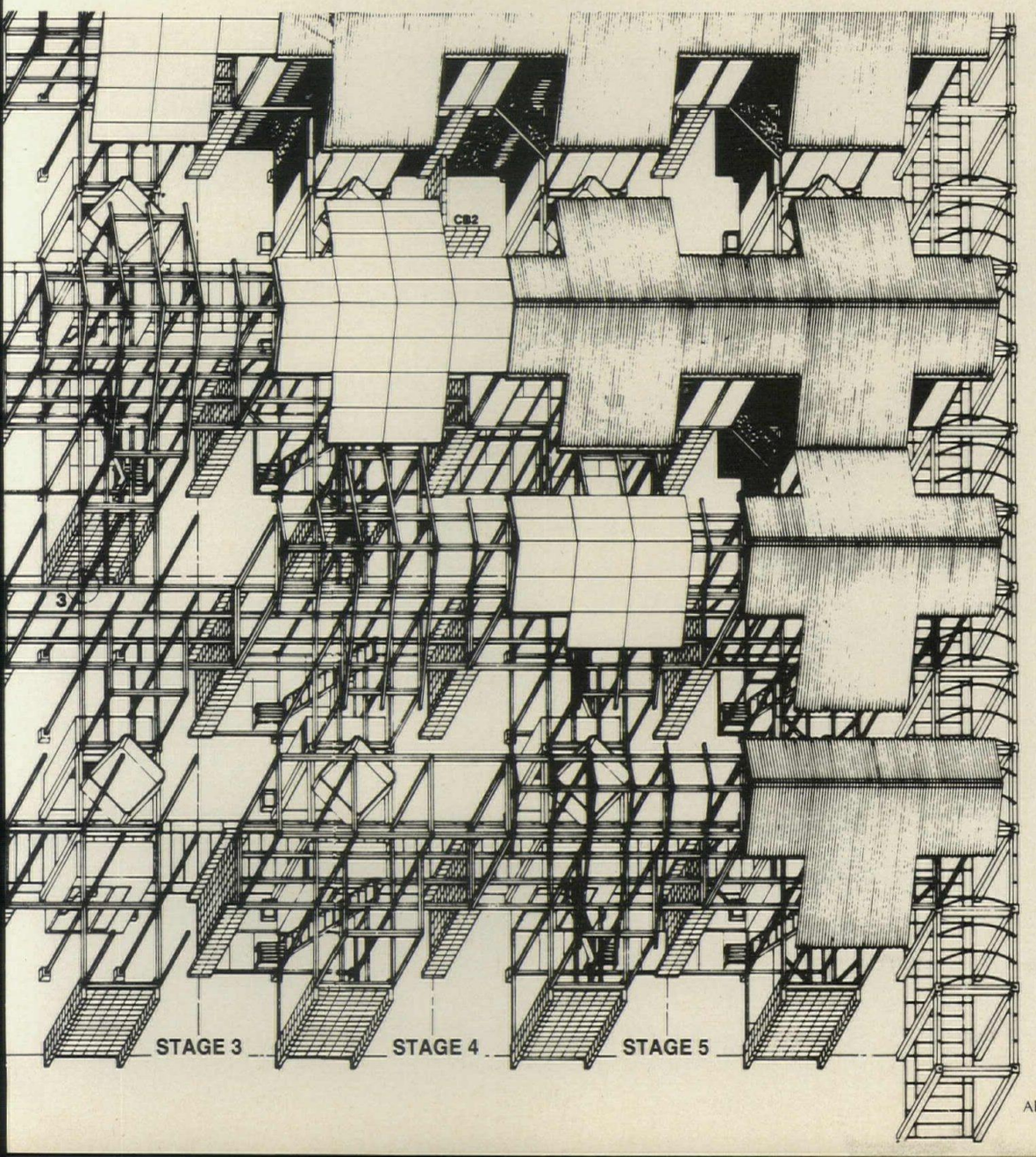
Just as governments build roads and individuals buy on their own the automobiles that are driven on them, the government of Metropolitan Manila would subsidize and construct the colonnades and integrated public services (roads, water supply, electricity, drainage); and each inhabitant would pay for and help construct his private dwelling, which connects to this infrastructure.











The isometric shows how the construction would be phased. The heavy building components, such as the colonnade with its integrated public services, and the kitchen and sanitary elements would be installed by a government-subsidized contractor. Lightweight building components, such as the panels shown above, would be purchased by the inhabitants (with loans from the government) and connected to the support structure by them. The Japanese design team believes that through this process shelter would be provided quickly, the employment of the wage earner would not be interrupted, and the finishing or expansion of the dwellings could be done by the inhabitant during evenings, weekends and holidays.

In stage one, either precast or poured-in-place foundations would be installed, depending on site conditions. The colonnade of precast columns and beams would be added along with precast concrete panels for the pavement and U-shaped ditches.

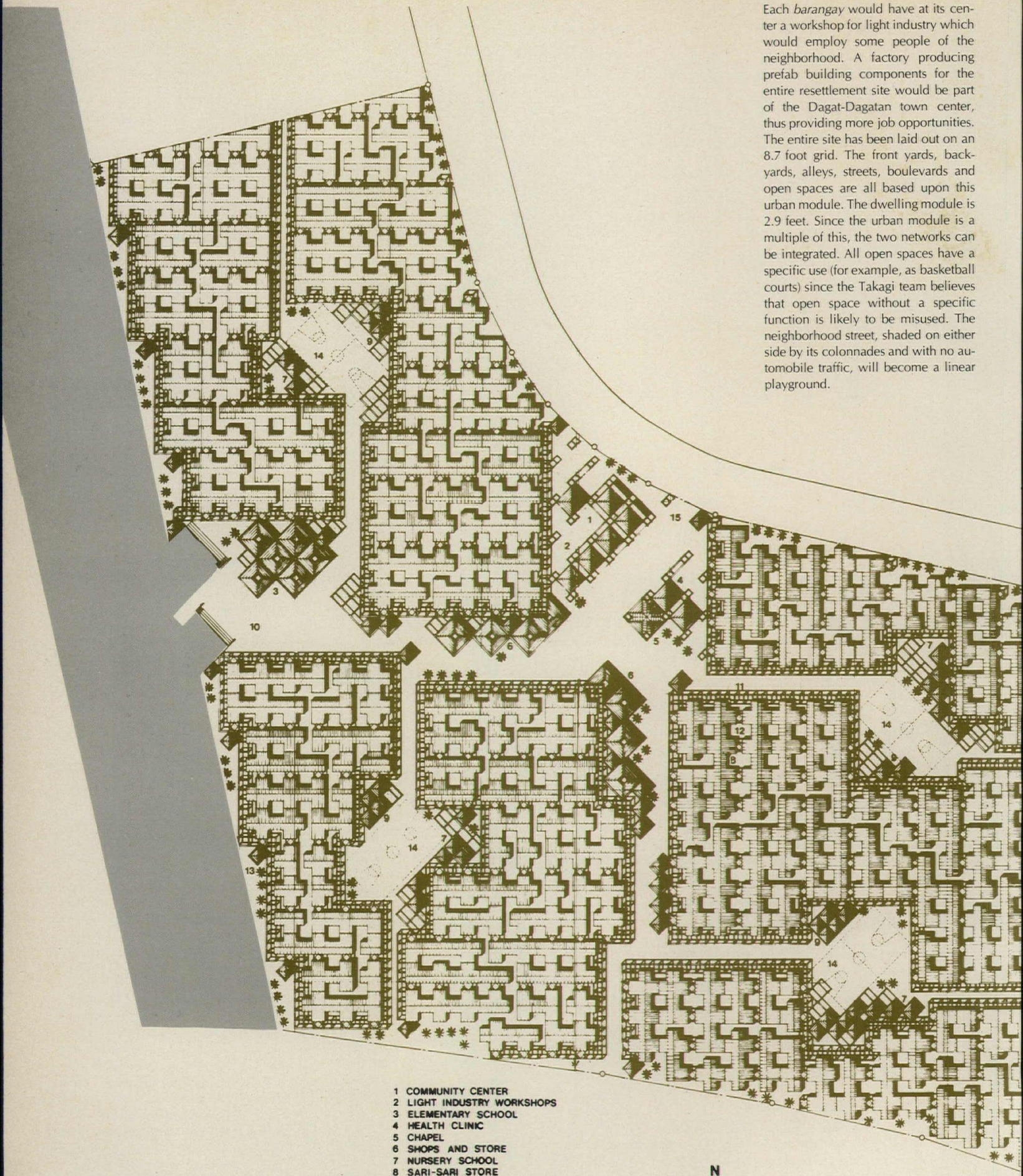
In stage two, the kitchen and sanitary units, pre-assembled, pre-wired, and pre-plumbed would be delivered and installed by the contractor.

In stage three, the concrete block sub-structure would be set up and the wood columns would be bolted to the concrete footings and connected to the wooden beams. At this point, the inhabitants could be expected to enter the construction process.

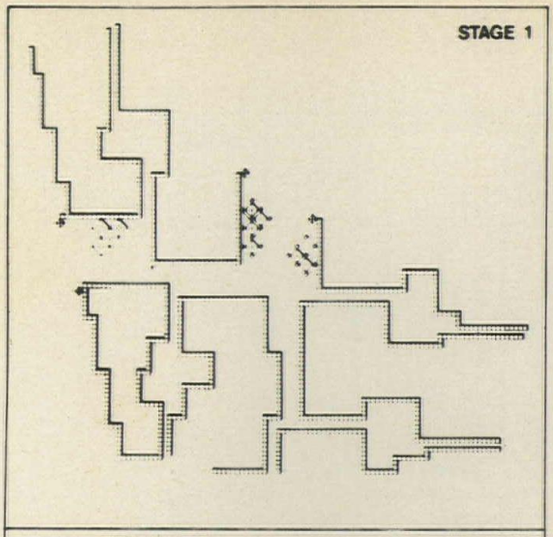
In stage four, the inhabitants would set the insulated roof panels of asbestos cement corrugated sheets, and install the stairs, floor panels, structural wall panels, fireproof wall panels between the dwelling units, and the prehung door and window frames.

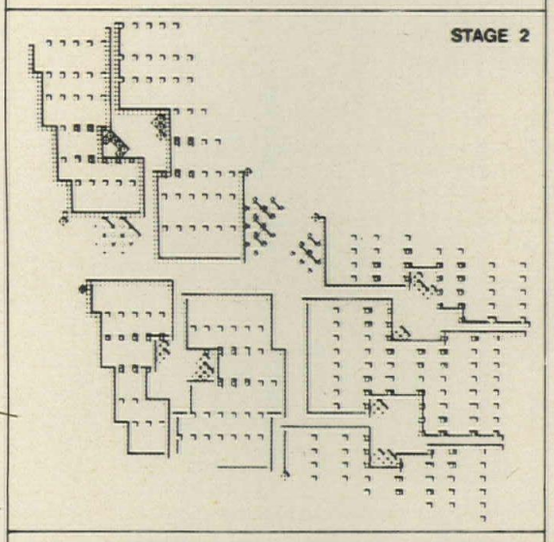
In stage five, exterior and interior finishing, gardening and other domestic and environmental work would be done by the individual households.

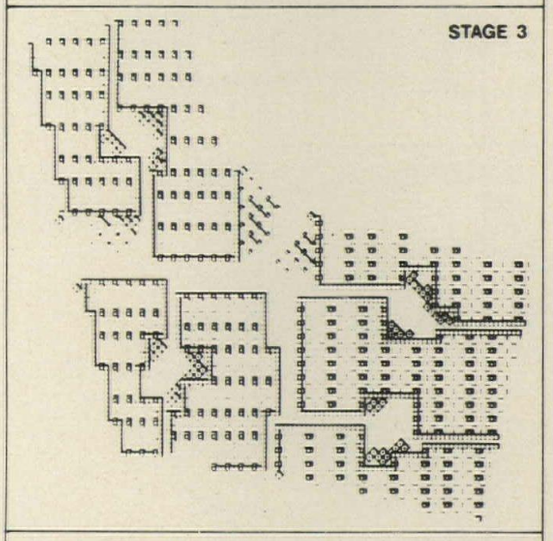
Each *barangay* would have at its center a workshop for light industry which would employ some people of the neighborhood. A factory producing prefab building components for the entire resettlement site would be part of the Dagat-Dagatan town center, thus providing more job opportunities. The entire site has been laid out on an 8.7 foot grid. The front yards, backyards, alleys, streets, boulevards and open spaces are all based upon this urban module. The dwelling module is 2.9 feet. Since the urban module is a multiple of this, the two networks can be integrated. All open spaces have a specific use (for example, as basketball courts) since the Takagi team believes that open space without a specific function is likely to be misused. The neighborhood street, shaded on either side by its colonnades and with no automobile traffic, will become a linear playground.



1 COMMUNITY CENTER
2 LIGHT INDUSTRY WORKSHOPS
3 ELEMENTARY SCHOOL
4 HEALTH CLINIC
5 CHAPEL
6 SHOPS AND STORE
7 NURSERY SCHOOL
8 SARI-SARI STORE
9 WORKSHOPS
10 FISH MARKET
11 COLONNADE
12 ALLEY
13 CANAL-SIDE PARK
14 PLAY GROUND, BASKET-BALL COURT
15 PARKING


STAGE 1


STAGE 2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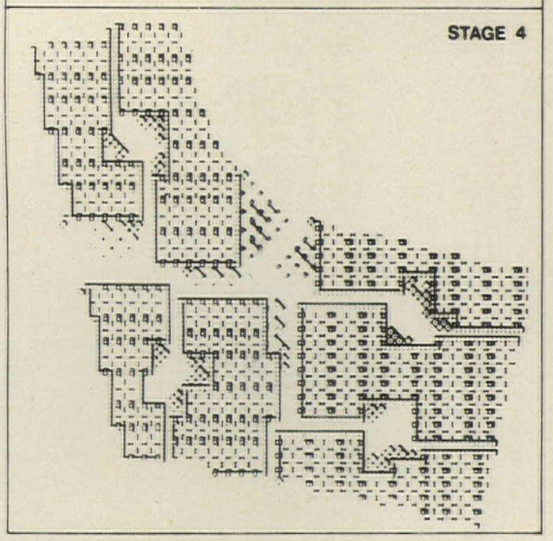
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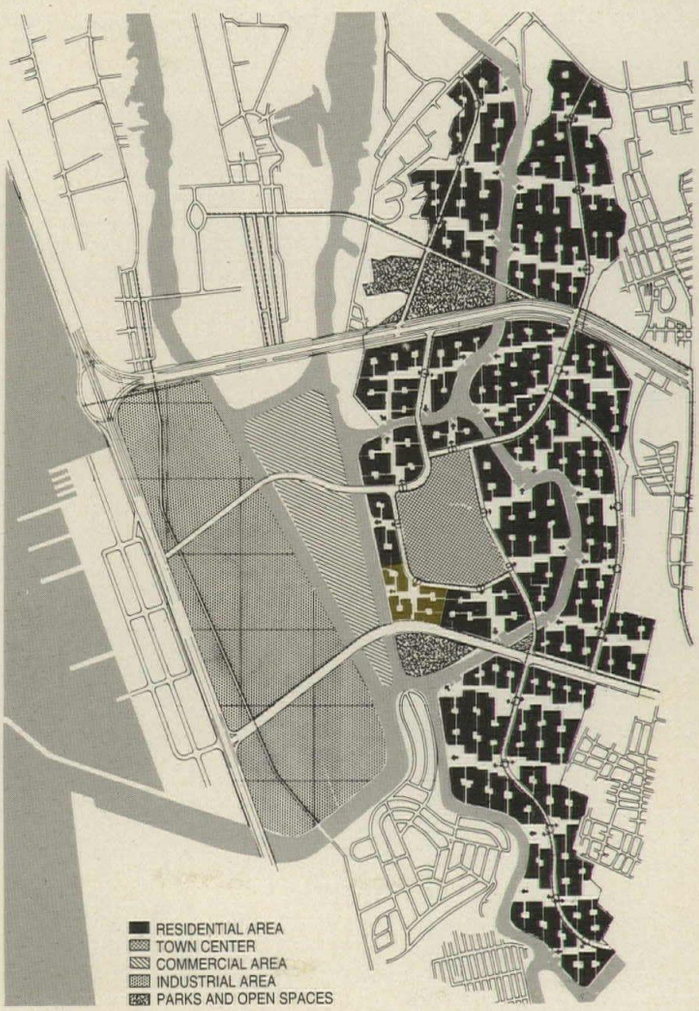
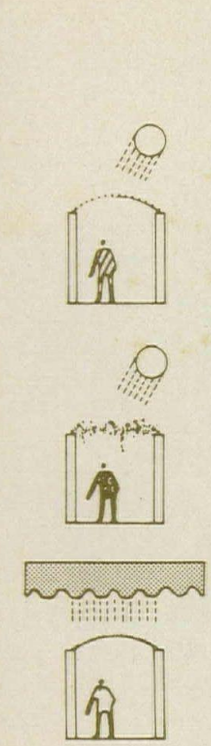
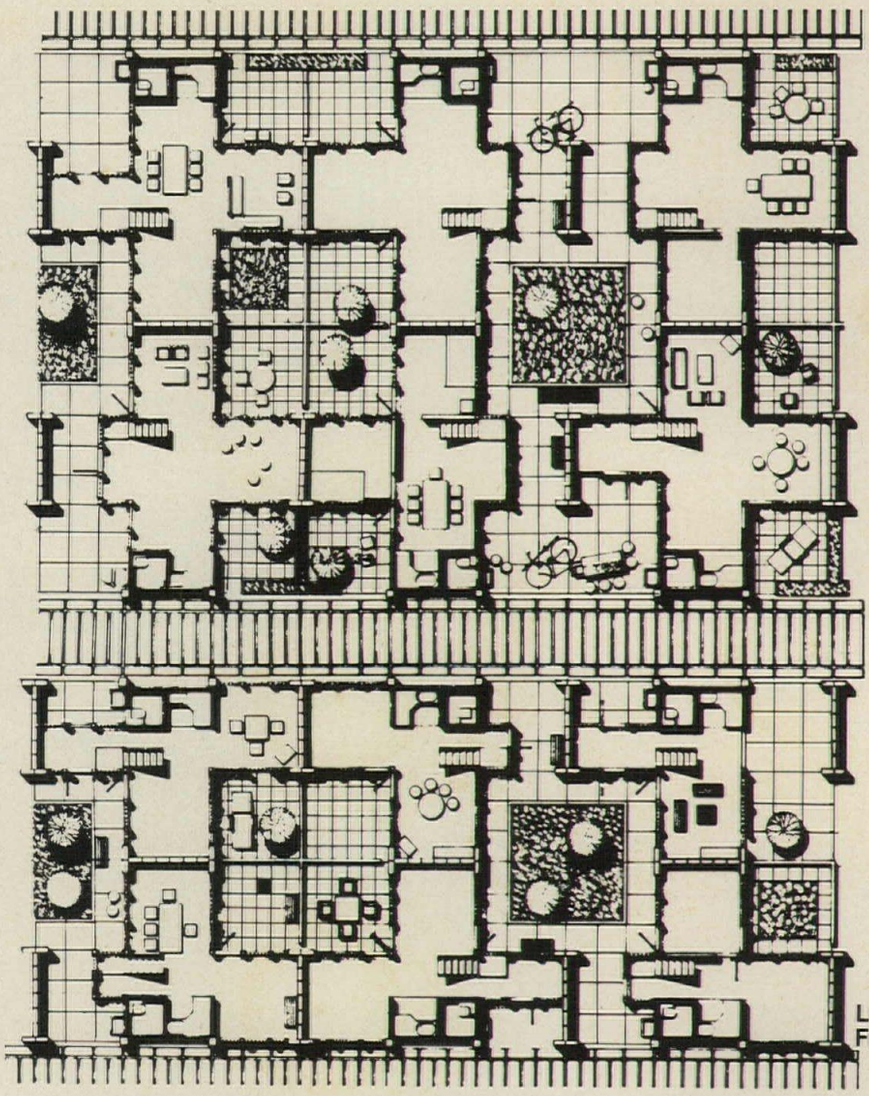
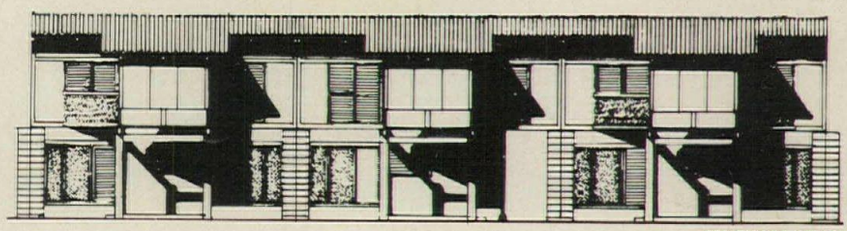
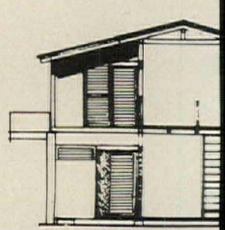
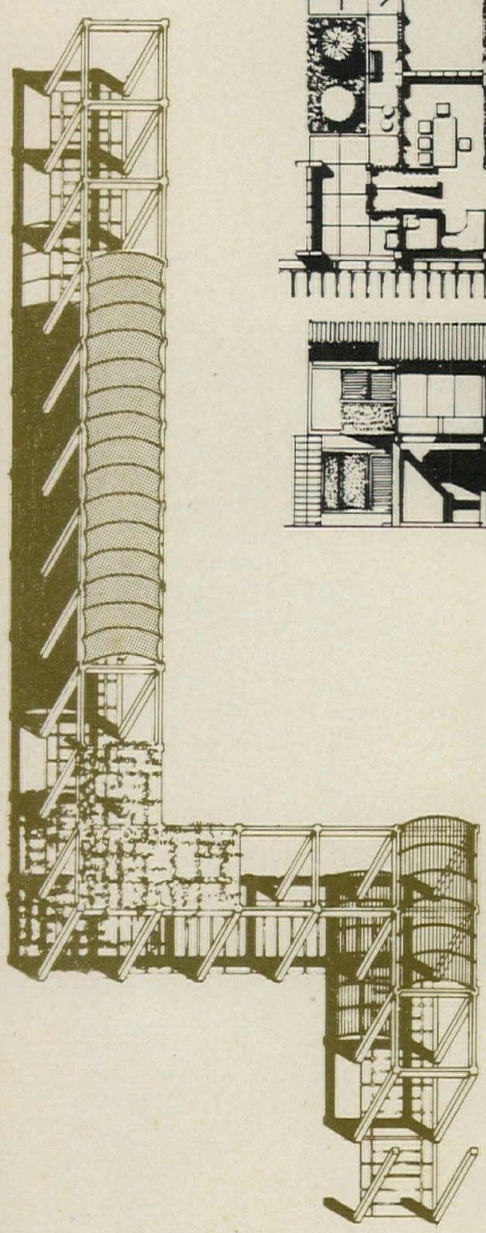

RESIDENTIAL AREA
TOWN CENTER
COMMERCIAL AREA
INDUSTRIAL AREA
PARKS AND OPEN SPACES

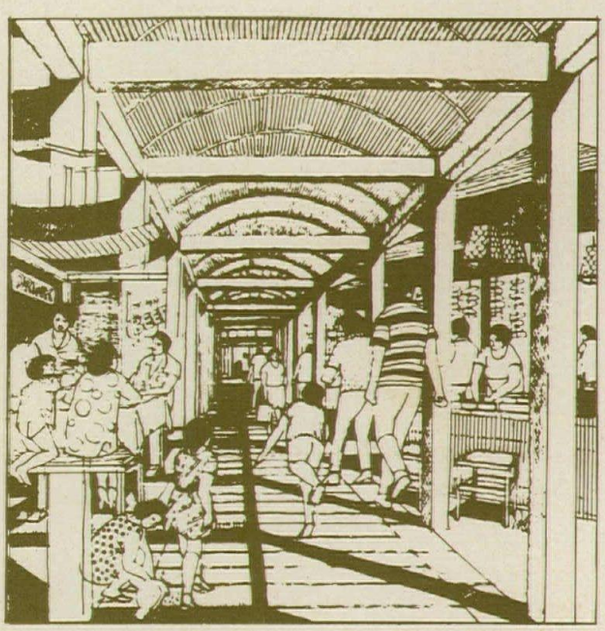


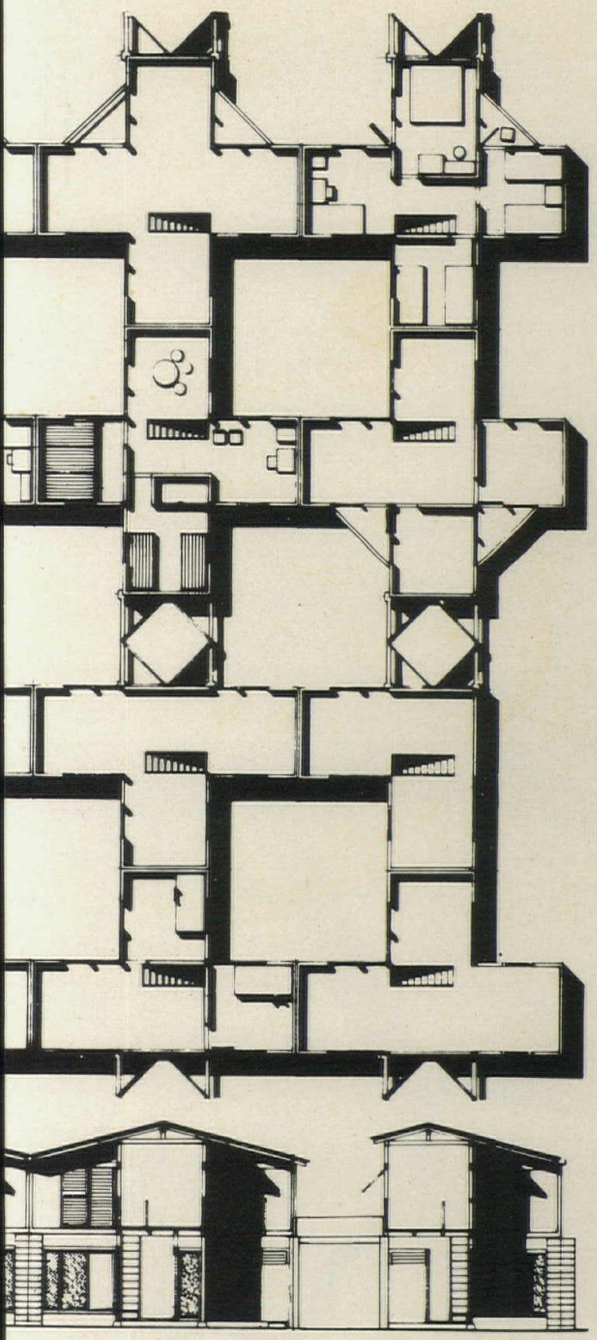


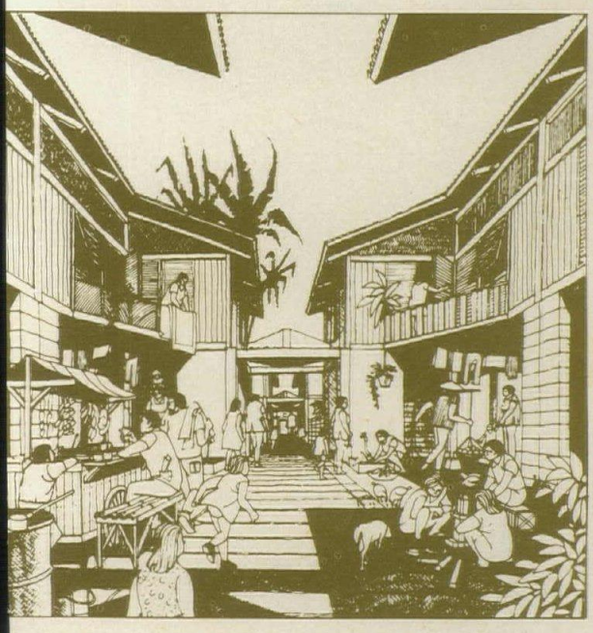

ELEVATION

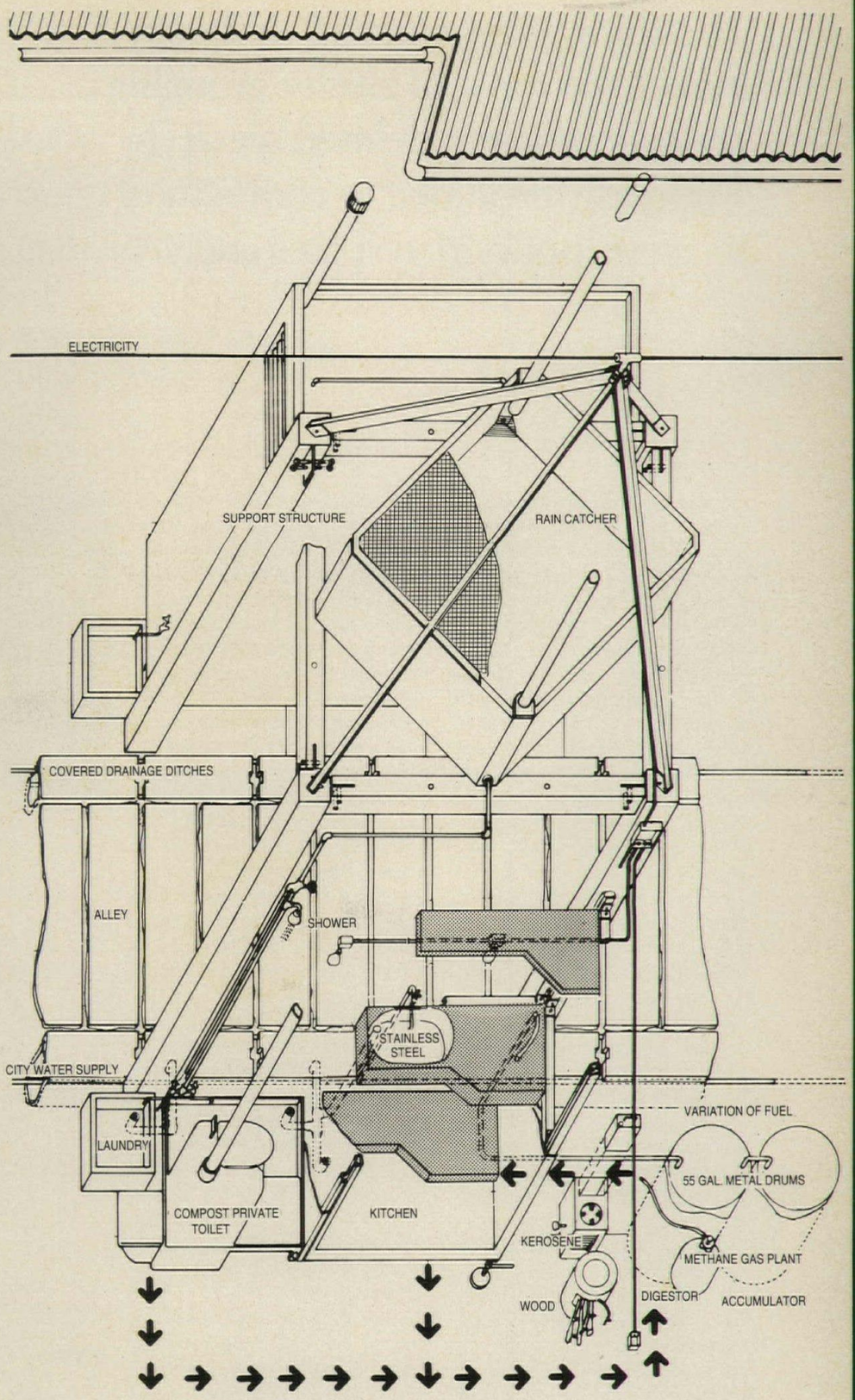

SECTION











The standard lot is 26.6 by 26.6 feet and the dwelling unit plan is cruciform. This shape gives each room unit cross ventilation. Each dwelling unit has a front and backyard. The front yard is an intermediate zone between the public space of the alley, where people will spend a lot of time, and the private space of the dwelling; and can accommodate a variety of outdoor functions. The backyard would be a common space shared by four dwelling units, and function as a more private outdoor space for vegetable gardening and chicken raising. The ground level is a multi-use space, and the second floor is for sleeping.

The Japanese team gave the conservation of water a very high priority. Located at modular points along the alleys are combined kitchen and sanitary units (above) with a rain catcher suspended from a frame on top. A compost privy toilet system has been proposed to save water and to secure human waste as fertilizer for agricultural uses. Because it is necessary to provide alternatives to the use of wood and oil as fuel, the use of methane gas is also recommended. In each dwelling unit, this clean-burning gas would be produced naturally by the decay of animal and human waste and vegetable matter in the absence of air.

The third-prize-winning design by Sau Lai Chan makes the most of cluster grouping, creating a clearly defined hierarchy of spaces, from individual lots, to community courtyards, to alleys, pedestrian spines and vehicular roads

Because the competition program called for a human settlement plan that would foster strong social ties and community interaction, as well as a degree of self-sufficiency—by people who would get about mainly by foot—architect Chan devised a cluster design, which he believes best serves this form of circulation (pages 132-133). He believes that a sense of security and community can be developed by grouping families together who are engaged in similar activities or who have depended on each other in the past. Chan proposes that a survey be made of the Tondo squatters to discover these family and friendship linkages.

Since no figures for existing or predicted car ownership were given in the competition program, Chan assumed that 20 per cent of the 3,500 *barangay* inhabitants would have cars. His *barangay* plan (pages 132-133) provides parking for about 700 cars around the periphery of the *barangay* adjacent to the proposed minor vehicle road, and within the cul-de-sacs of the service roads.

Chan points out that since most movement within Dagat-Dagatan would be by foot, bicycle or public transport, these service roads (which can be seen on the master plan for the entire Dagat-Dagatan site at right), serve more as access routes to important hubs within the site than as surfaces for busy vehicular traffic. The vehicles using these service roads would be fire engines, ambulances, garbage trucks, or jeepneys.

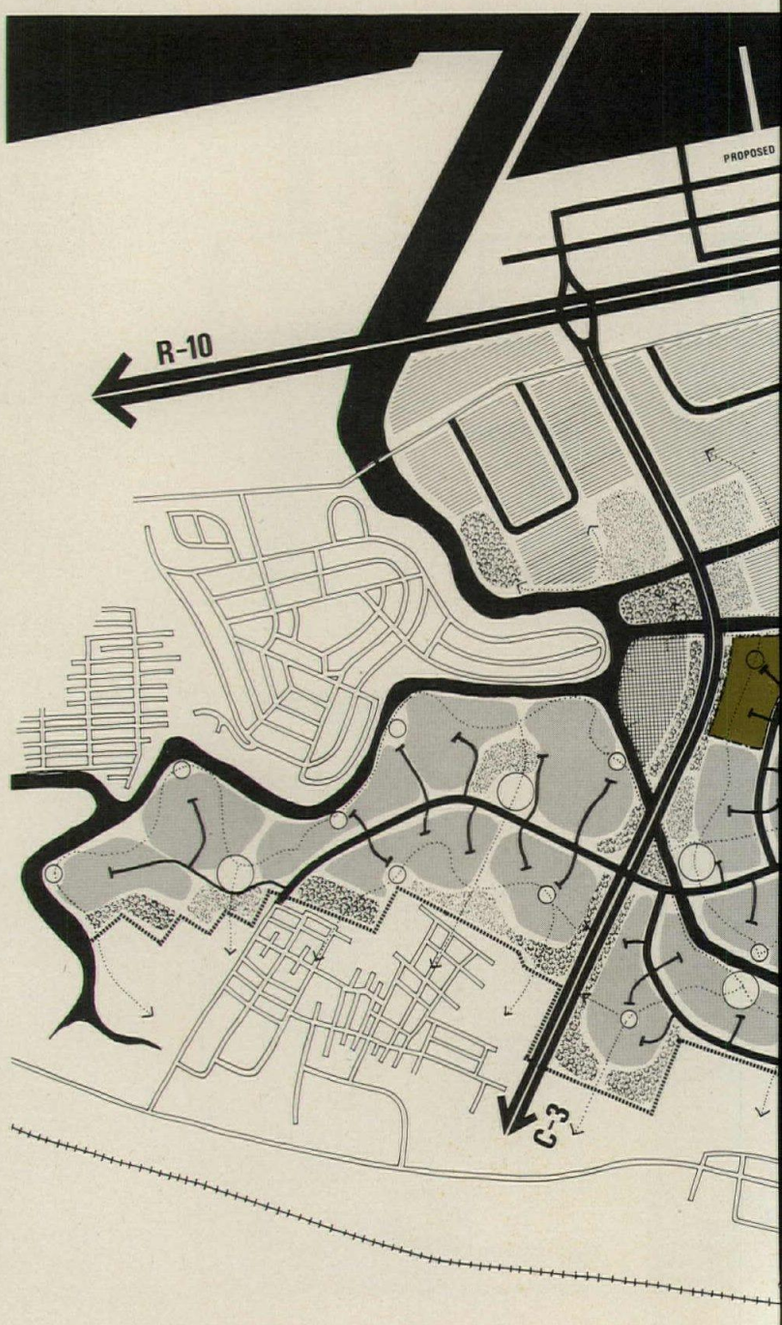
The site plan showing a group of *barangays* around the town center (right top) also indicates Chan's hierarchy of pedestrian networks: from the semi-private courtyards to the minor public paths to the main pedestrian spine which links up to the principal spine of each *barangay*. Architect Chan decided to work with the concept of core housing, and proposes that the core be supplied by the government. The core of the individual house would include the initial sanitary services, the structural frame, and the roof. The type, size, and number of stories required for each house would depend on a government survey of family size, needs and available funds, thus reducing initial government expenditure. The roof is the most difficult part of house construction, becoming more so as the house exceeds one story. It is, therefore, a practical proposal that the roof be supplied and installed by the government.

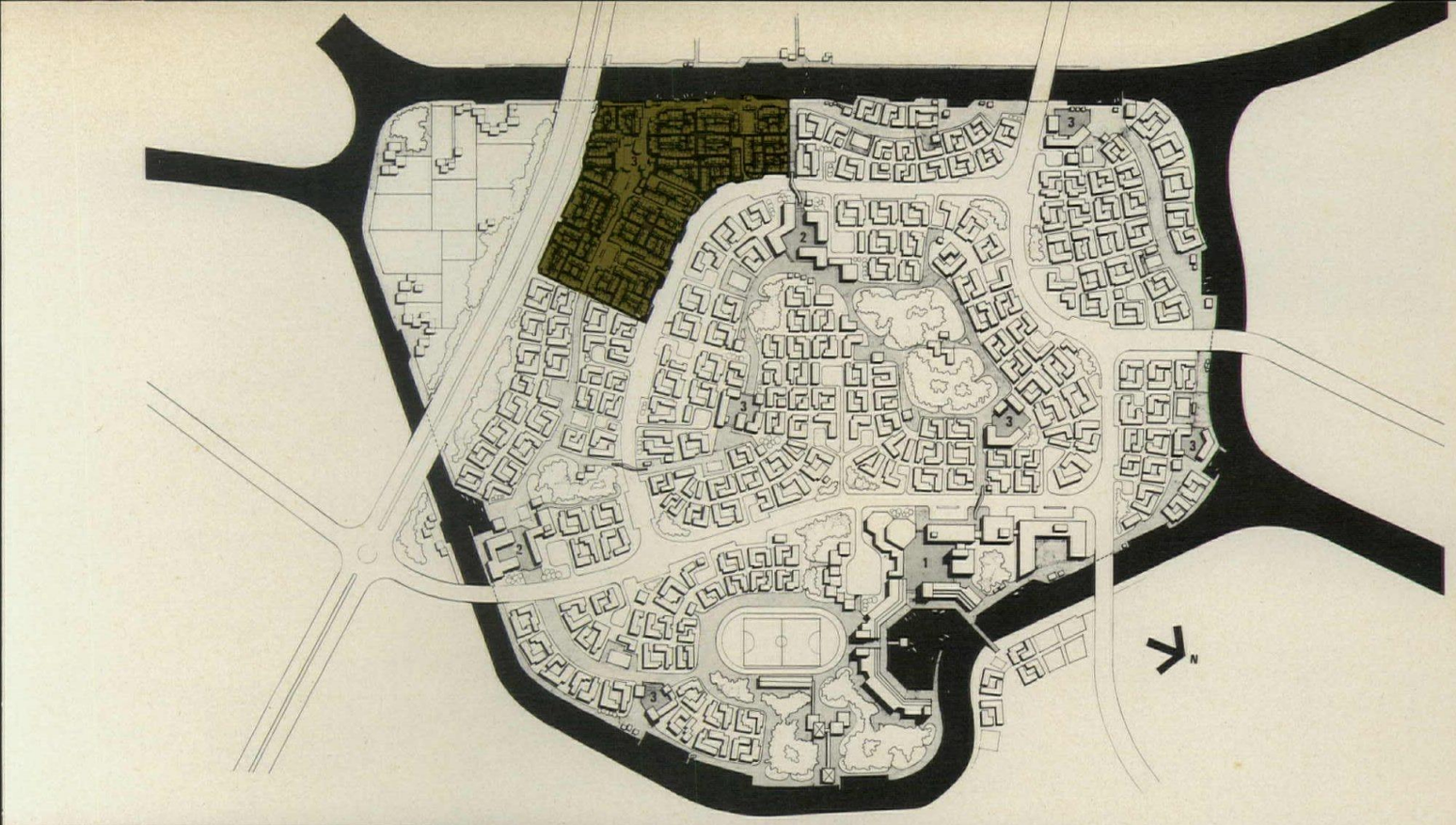
Timber was chosen as the principal building material because it is cheap, easily available, and accepted as permanent (when treated against fungus attack and fire) in the Philippines. The residents, furthermore, are skilled at carpentry and could handle the timber very well. Chan recommends that the construction process be speeded up by prefabricating the external timber wall panels on the site.

Because of their low incomes, the new inhabitants of Dagat-Dagatan would be expected to use the cheapest available materials in expanding their houses. The fact, also, that they lack sophisticated power tools and heavy machinery makes their use of more advanced building technology unlikely.

If petroleum products are easily available, Chan proposes, as an experiment, to use a fire-retardant polyurethane foam as an infill between the timber frames of the party wall (see page 134). This material has been suggested for its ease of handling, speed of installation, and ability to be cut fairly easily in the event of alterations.

Sau Lai Chan was born in Malaysia in 1946, and trained in architecture at the North-East London Polytechnic. He earned a master's degree in urban design from Manchester University in 1975. This third-prize-winning IAF competition design was done as his master's degree thesis. After working with several architectural and development firms in London, he is now with the Architects Department of the Government of Malaysia.

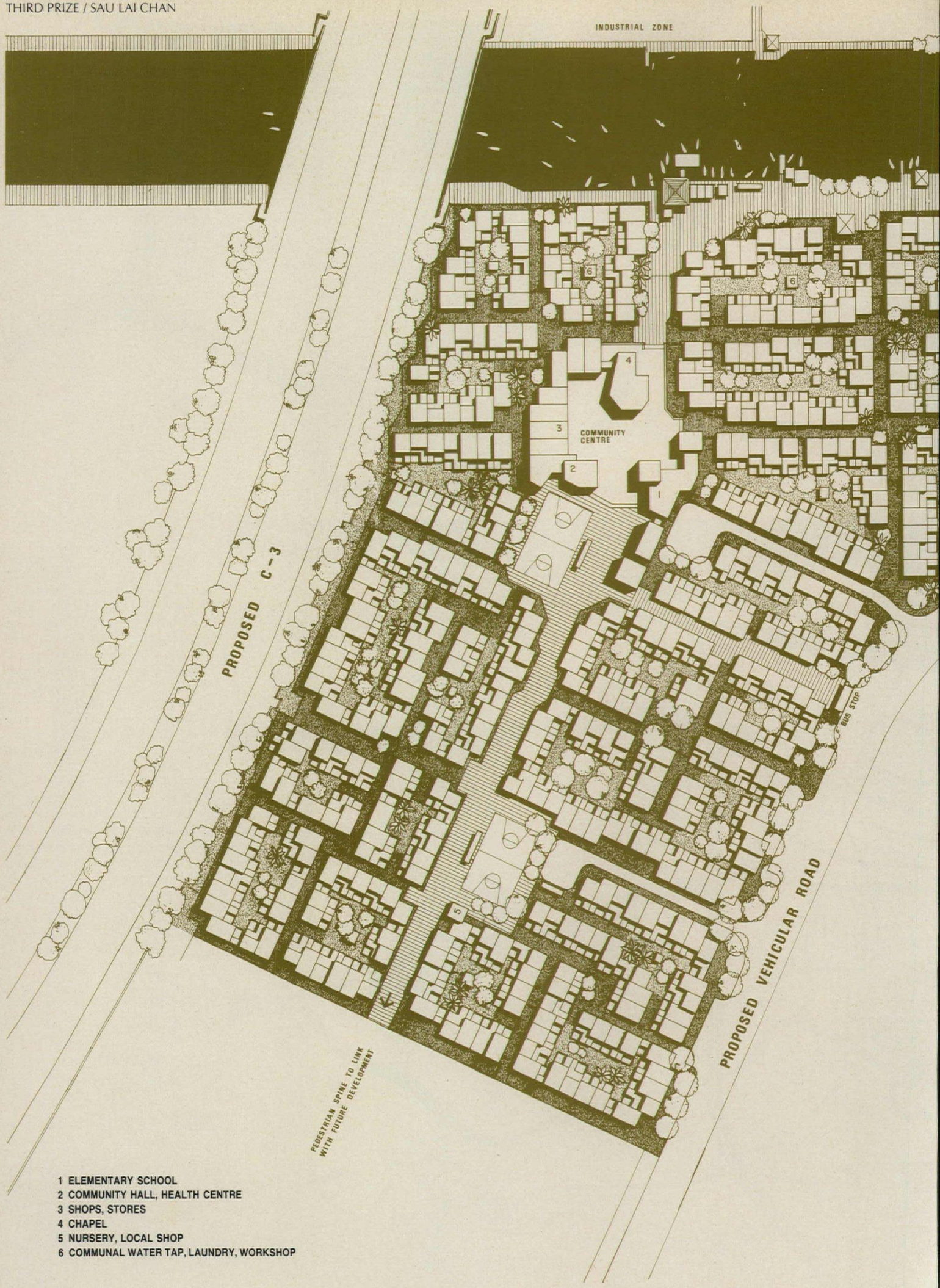


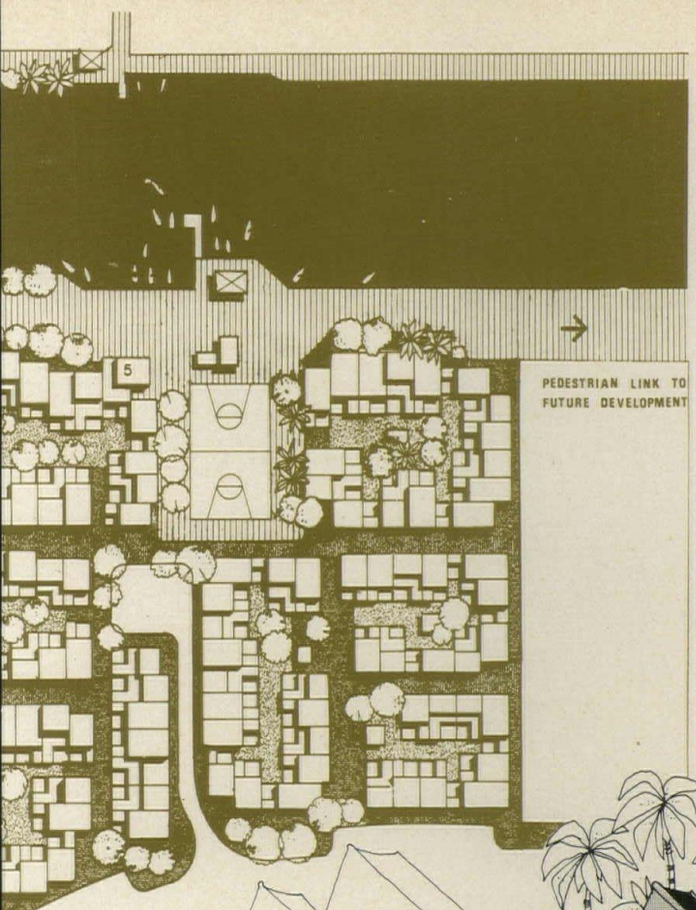


The site plan above shows a group of 500-family *barangays* clustered around the town center. The main pedestrian spine of the *barangay* under study connects the major activity centers within its site and also would extend to link the hubs of future *barangays*. Chan points out that in a development of the size of Dagat-Dagatan, (over-all plan at left) it is probable that different architects would design different *barangays*. In order to unify the entire group of *barangays*, the main spine should pass through and interconnect each one. Chan's proposal also takes advantage of the river pattern and locates the zone centers for each group of *barangays* along its banks. The town center for the entire resettlement area surrounds a man-made lagoon. Indicated above are the town center (1); the zone center (2); and the *barangay* community center (3).

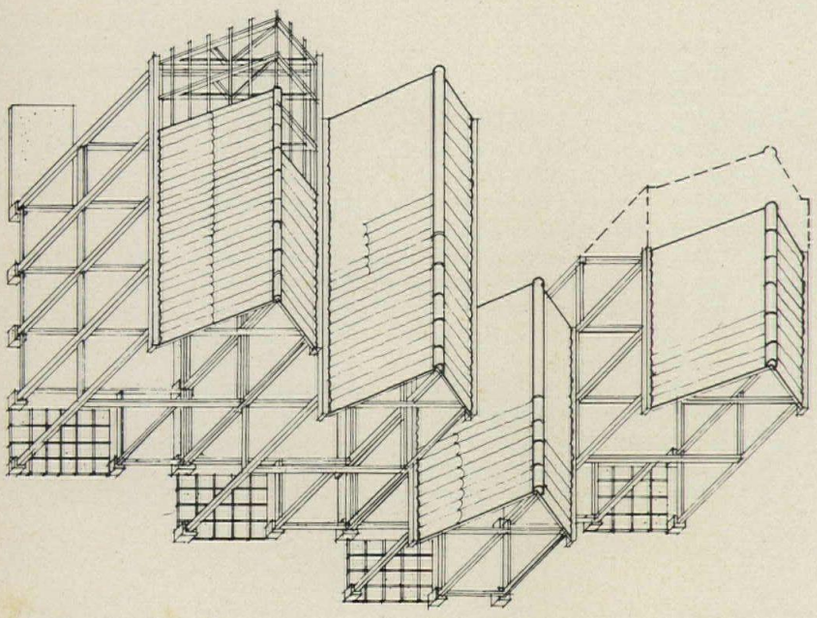
LEGEND

- SITE BOUNDARY
- INDUSTRY
- AGRICULTURE
- PUBLIC OPEN SPACE
- TREE PLANTING
- TOWN CENTRE
- COMMUNITY CENTRES
- ZONE CENTRES
- MAJOR PEDESTRIAN ROUTES
- RESIDENTIAL

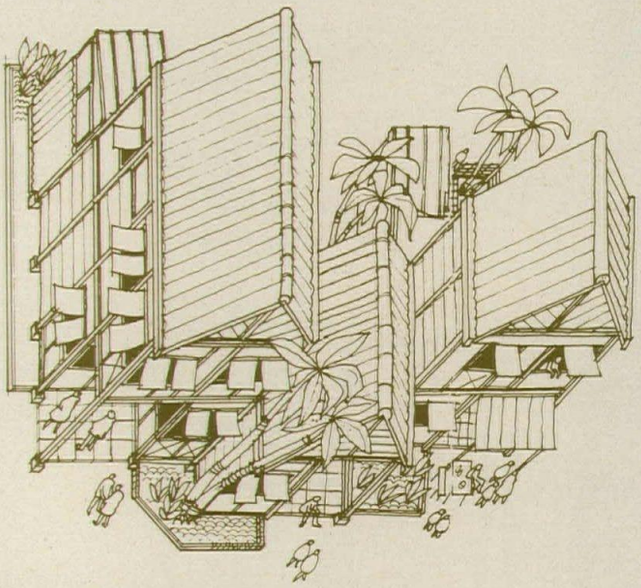

INDUSTRIAL ZONE
PROPOSED C-3
COMMUNITY CENTRE
BUS STOP
PROPOSED VEHICULAR ROAD
PEDESTRIAN SPINE TO LINK WITH FUTURE DEVELOPMENT
1 ELEMENTARY SCHOOL
2 COMMUNITY HALL, HEALTH CENTRE
3 SHOPS, STORES
4 CHAPEL
5 NURSERY, LOCAL SHOP
6 COMMUNAL WATER TAP, LAUNDRY, WORKSHOP



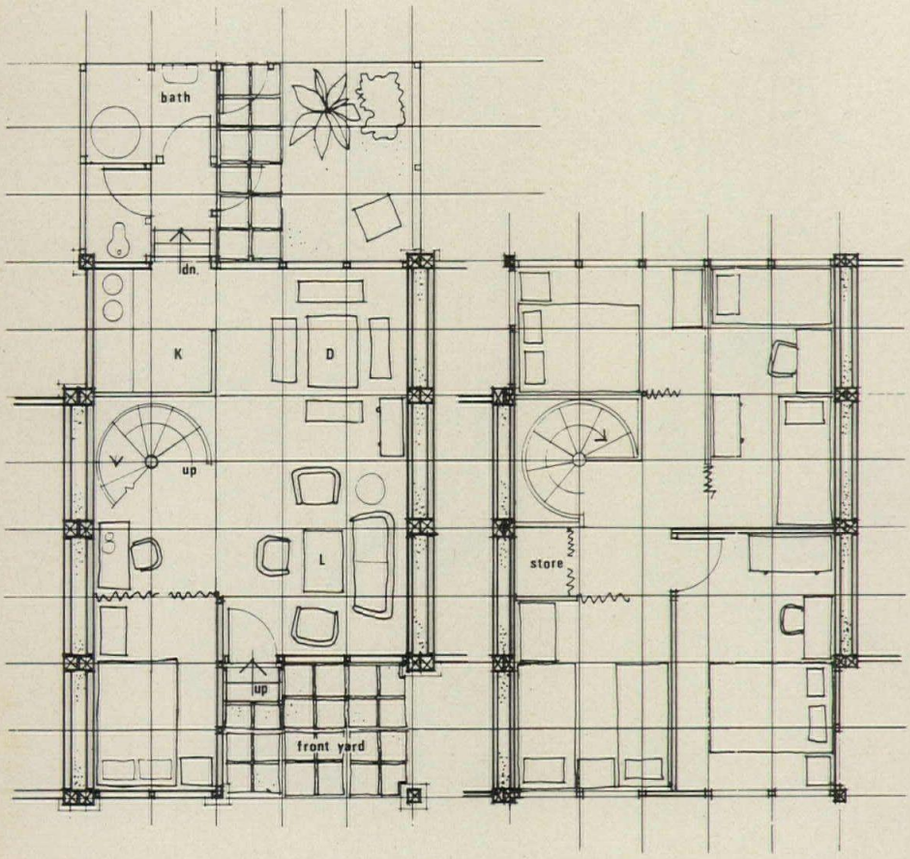
Chan points out that the courtyard concept conforms to the accepted practice of 10 families sharing a communal tap. The proposed courtyards vary in size from 10 to 30 families. Not only would the larger courtyards have more water taps, but they would serve as laundry areas, or contain simple workshops powered by windmills. The courtyards are interconnected by minor pedestrian routes 13 to 16 feet wide. The houses are designed so that their front entrances face these paths. Chan hopes that these circulation areas might be well taken care of since the inhabitants' houses face them. As the *barangay* plan (left) and the isometric indicate, the houses are staggered for variety and identity. The main pedestrian spine meanders across the entire *barangay*, hugging the river bank and occasionally punctuated by the major activity centers. In the *barangay*, the community center is positioned near the junction where the main spine changes axis and where the visual character of the *barangay* changes from being tight, enclosed and interior-like to being loose, open, and river-oriented. Recreational and social activities are centered around the basketball courts. The compact grouping of the houses around these basketball courts and courtyards, combined with their separation from vehicular traffic, should help to create a tranquil environment for both family and social life. To the south of the site is the proposed major expressway C-3. Chan proposes that a combined pedestrian and cycling path should be accommodated within the boundaries of the proposed road. Trees should be planted on artificial earth barriers along the entire length of the site bordering the road, to screen the sight and sound of cars.



FIRST STAGE BY GOVERNMENT

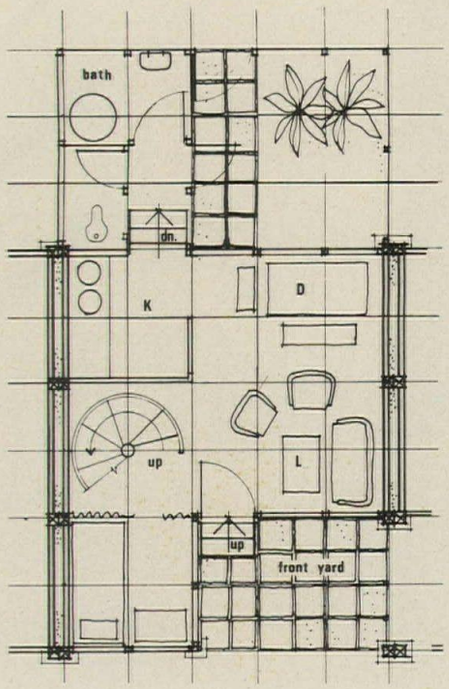


COMPLETED UNITS BY RESIDENTS



GROUND FLOOR FIRST FLOOR

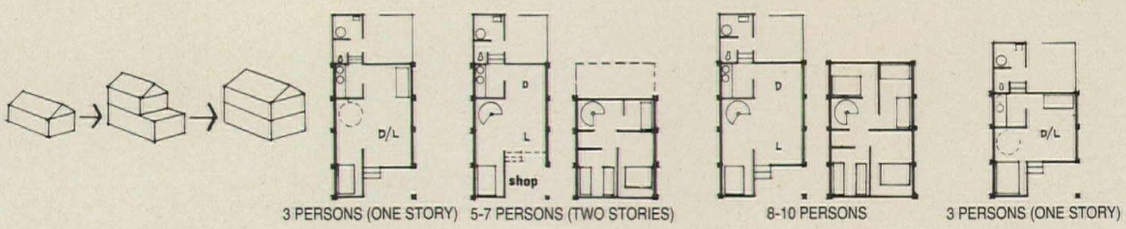
TYPE 'A'. (11 m x 5 m) 10 persons



GROUND FLOOR

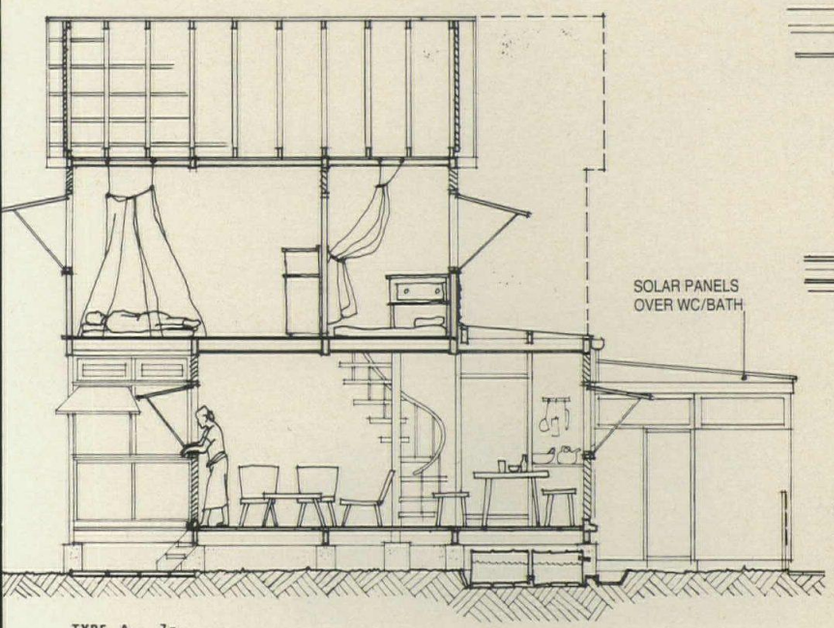
TYPE 'B' (9 m x 5 m)

GROWTH PROCESS

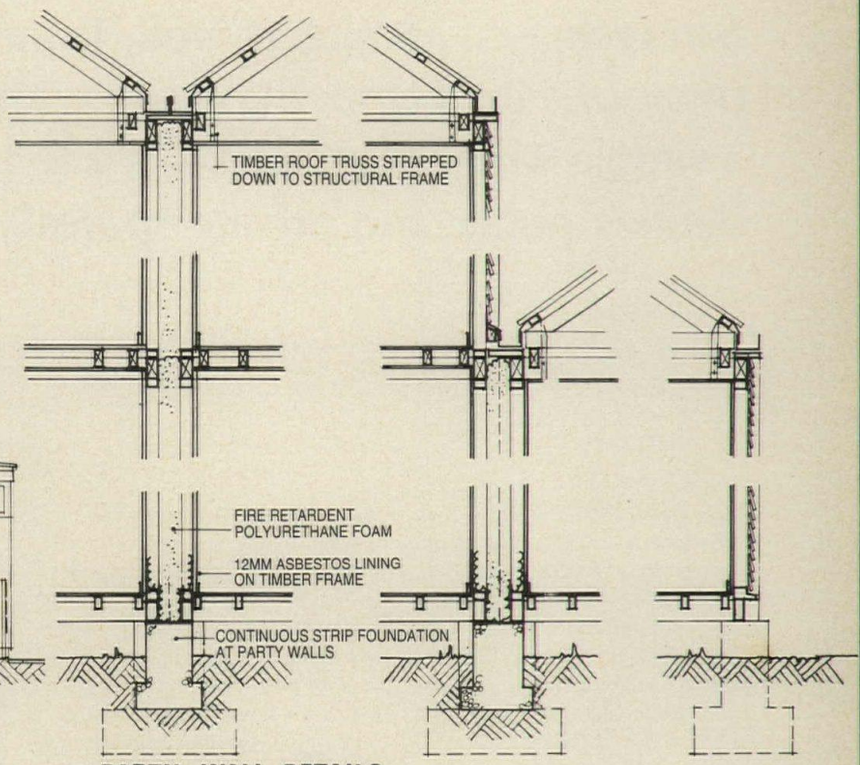


3 PERSONS (ONE STORY) 5-7 PERSONS (TWO STORIES) 8-10 PERSONS 3 PERSONS (ONE STORY)

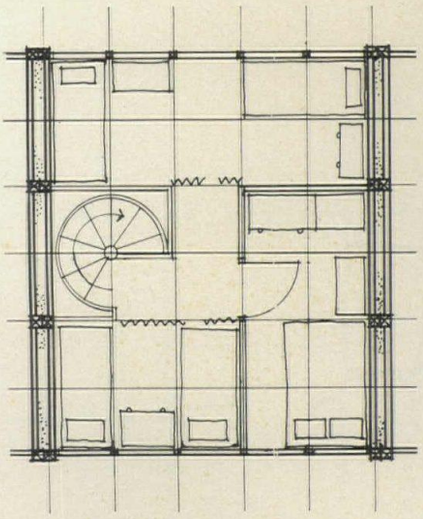
TYPE A TYPE B



TYPICAL LONG SECTION



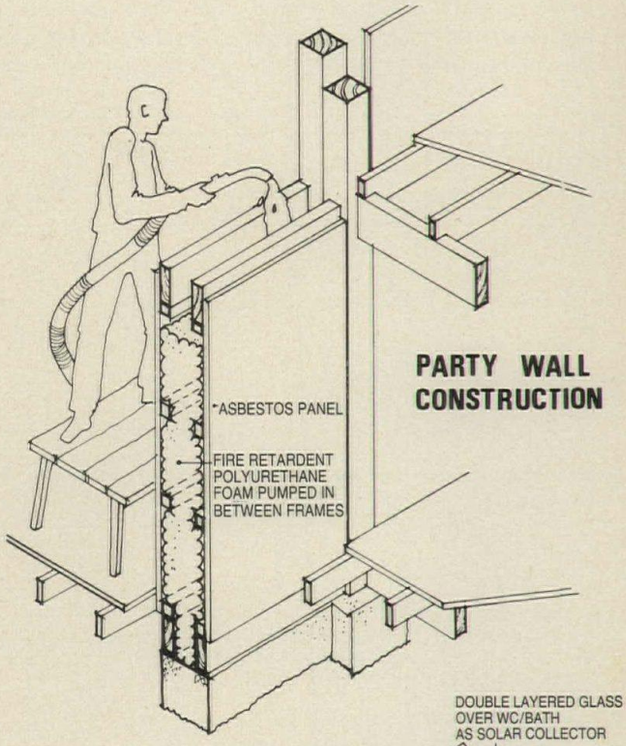
PARTY WALL DETAILS



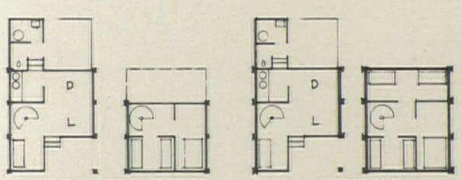
FIRST FLOOR

7 persons

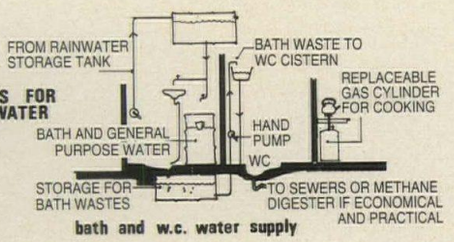
The initial structural frame of timber would be attached to concrete footings, reducing foundation costs. The houses are lifted off the ground at various desired heights as a protection against floods from the Longos River and to adjust to different site gradients. Raising the house one-story from the ground is a traditional form of tropical construction as well, which helps to cool the interiors of buildings by allowing the air to flow beneath the structure. For easy construction and economy, the initial roof frames are to be prefab trusses.



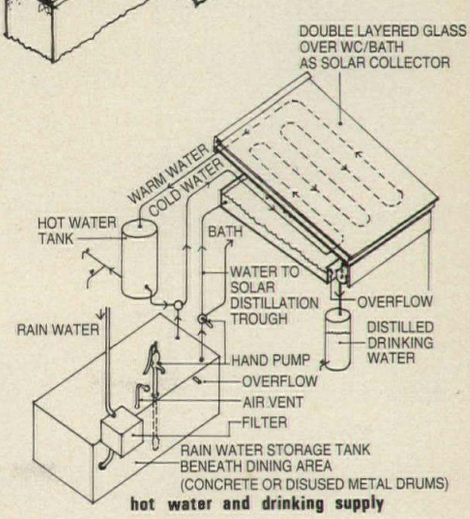
PARTY WALL CONSTRUCTION



SUGGESTIONS FOR DOMESTIC WATER SUPPLY



bath and w.c. water supply

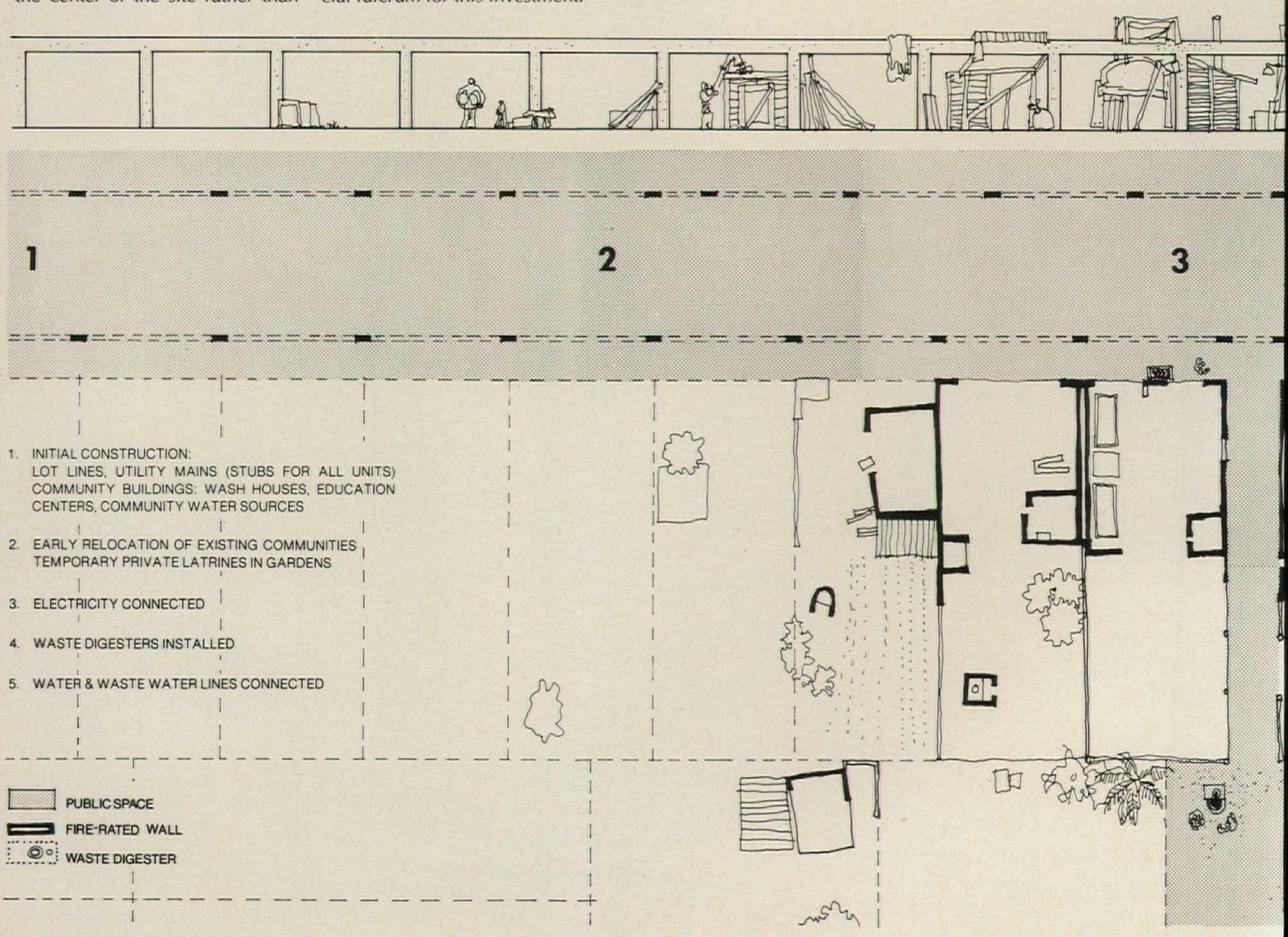


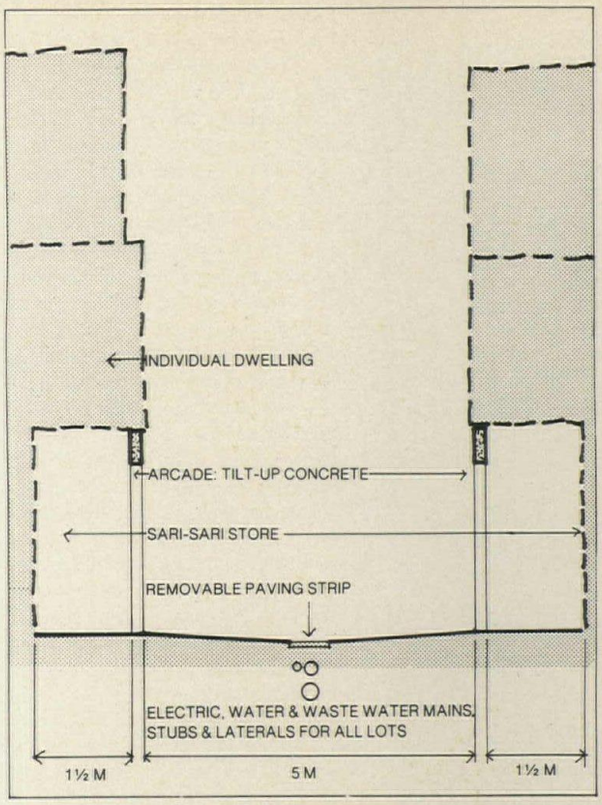
hot water and drinking supply

This honorable mention scheme by San Francisco architects Holl, Tanner and Cropper organizes the competition site with a simple series of arcades--"a line that defines public and private spaces"

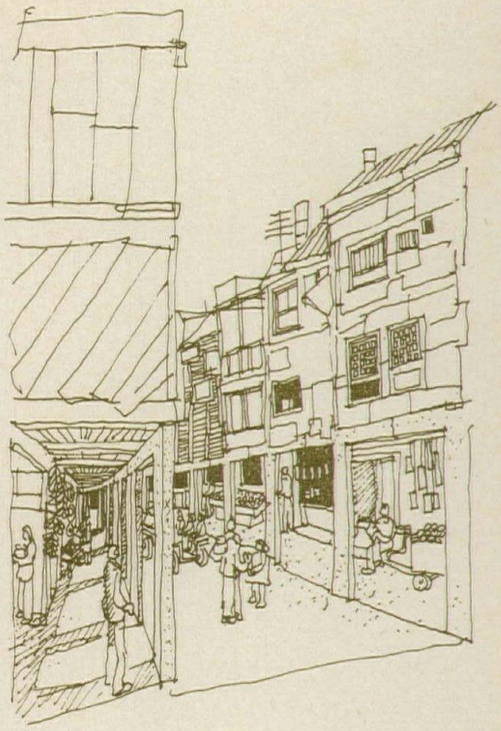
This design shares with the winning scheme by Ian Athfield the impulse to add some special element of infrastructure to the usual site planning and services. Here that special element is a long arcade (below) that wends its way through the site and is capable of detailed development by the inhabitants of the *barangay* (as is projected from left to right in the drawing below). Here, in contrast to the first-prize design, the basic organizational structure is through the center of the site rather than around its edges—a spine that, according to the architects, defines public and private spaces. Important to this scheme as well is the notion of "family tenure"—the possession of individual parcels of land by relocated inhabitants, so that the energy and commitment required to develop them beyond the bare essentials provided in the design can be stimulated by the certainty of permanent possession. The arcade—or *paseo*—provides the unifying socio-commercial fulcrum for this investment.

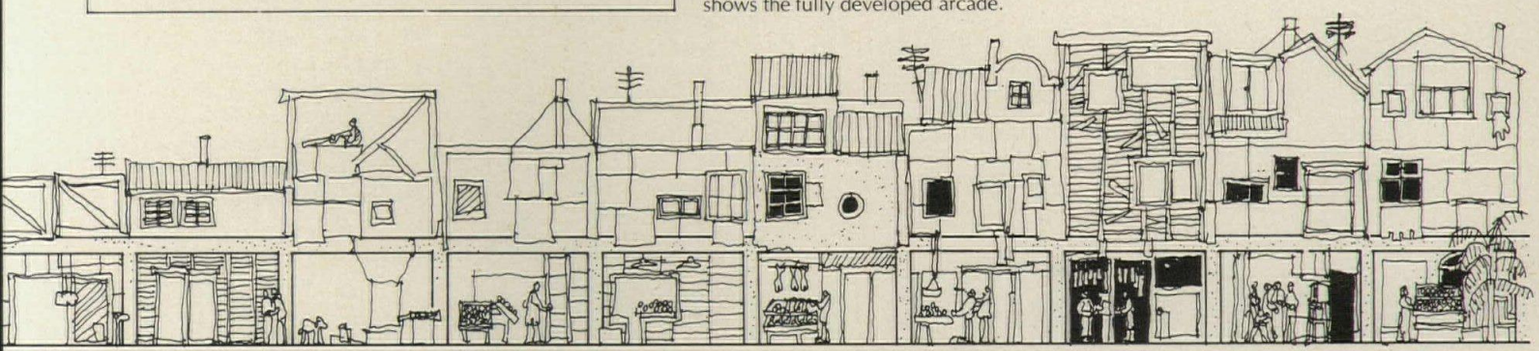
Steven M. Holl, James L. Tanner and John Cropper formed themselves into a team to develop their submission—in a rented room in San Francisco. Holl was educated at the University of Washington and is currently in research at the Architectural Association in London; Tanner was educated at the University of Houston and has worked for firms there and in San Francisco; Cropper was educated in England and practices in San Francisco.

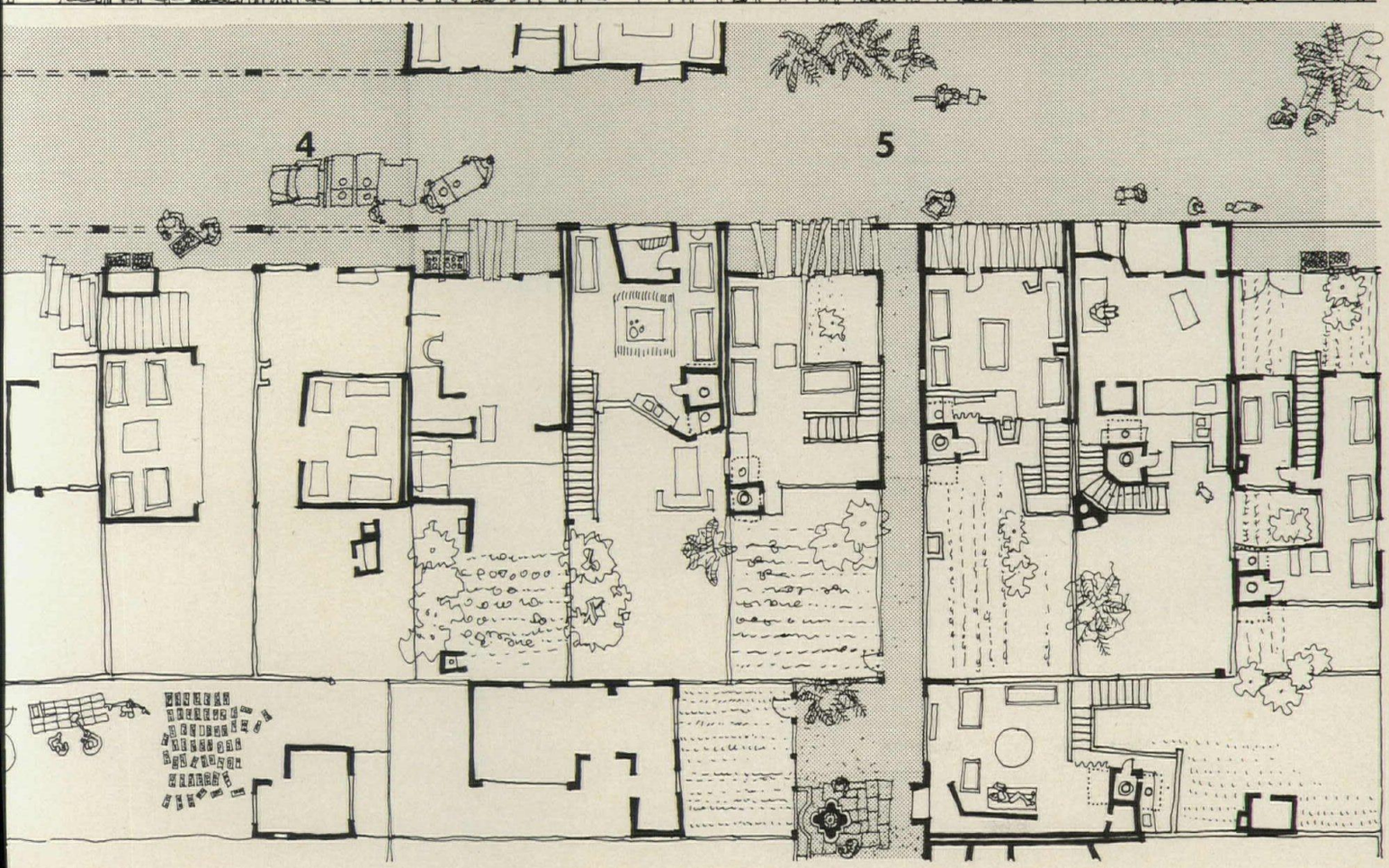


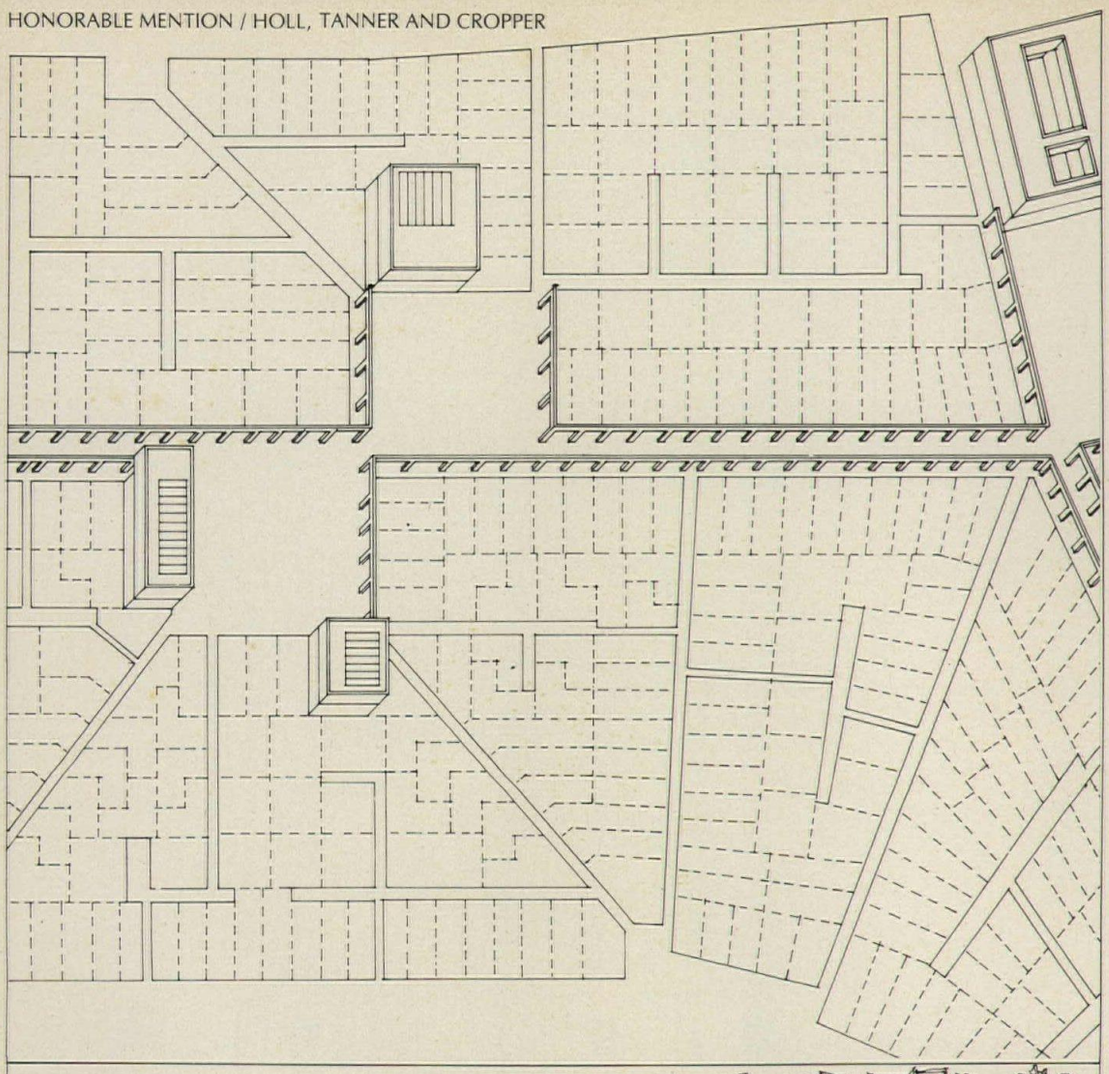


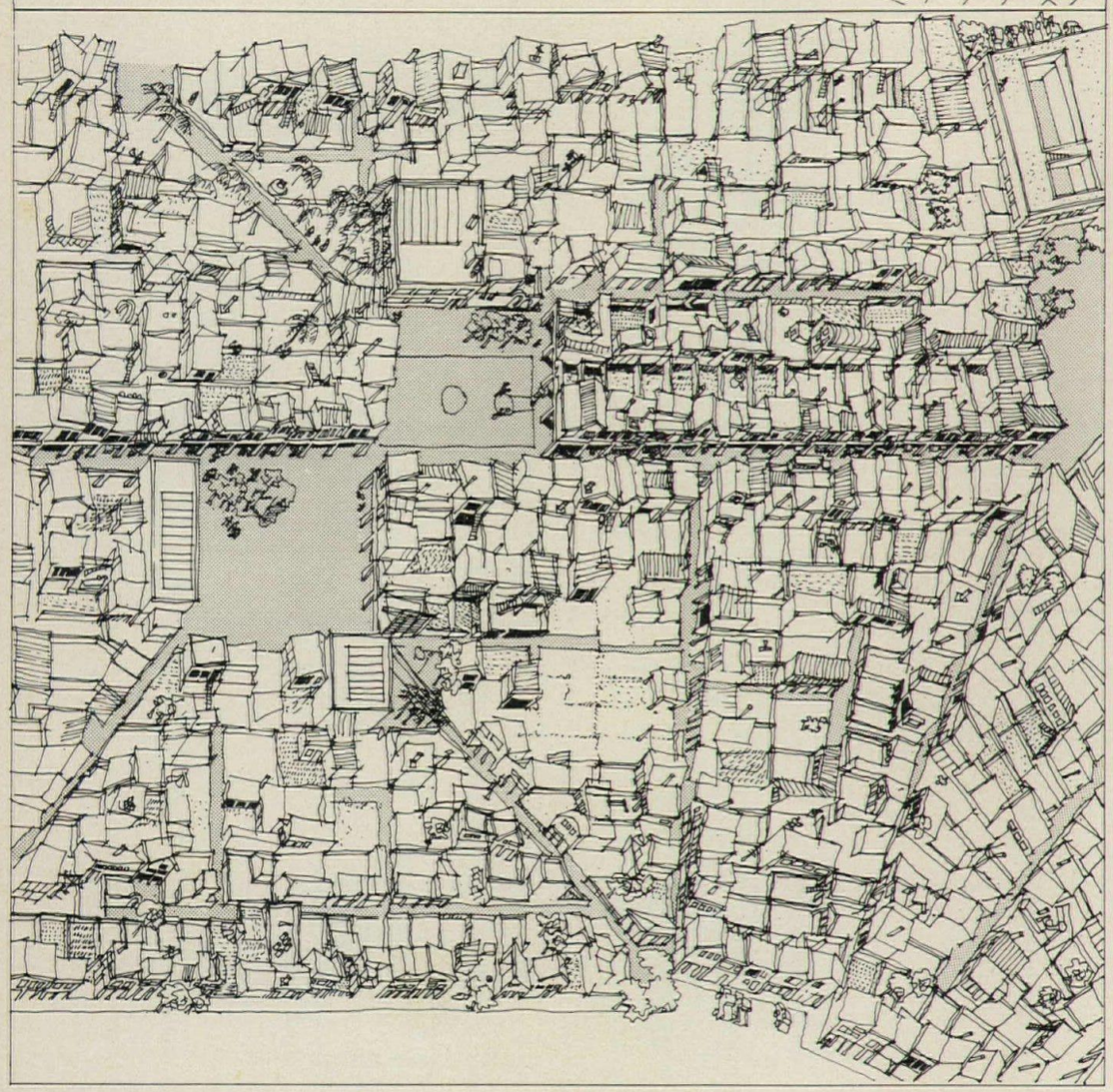
The section on the left shows the basic structure of the tilt-up concrete arcade, together with the provisions for utilities underground along the center of the *paseo*. *Sari-sari* stores can be added at ground level underneath the arcade, and housing can be added at will above—providing what the designers see as the "vitality of mixing residences over shops." The utilities system is designed to be a simple one—with electric, water and waste mains buried in plastic pipes. Initially, residents would use community water sources in semi-public access courts; later, when individual dwelling units have been provided with their own water supply, these community sources would become public drinking fountains. Initially, too, sewage would be disposed of in temporary private latrines; eventually, though, aerobic waste digesters would replace them so that there would be no waterborne sewage. This would avoid the problem of contaminated flood waters, and would make it possible to combine the waste water with the storm sewer. The drawing on the right shows the fully developed arcade.





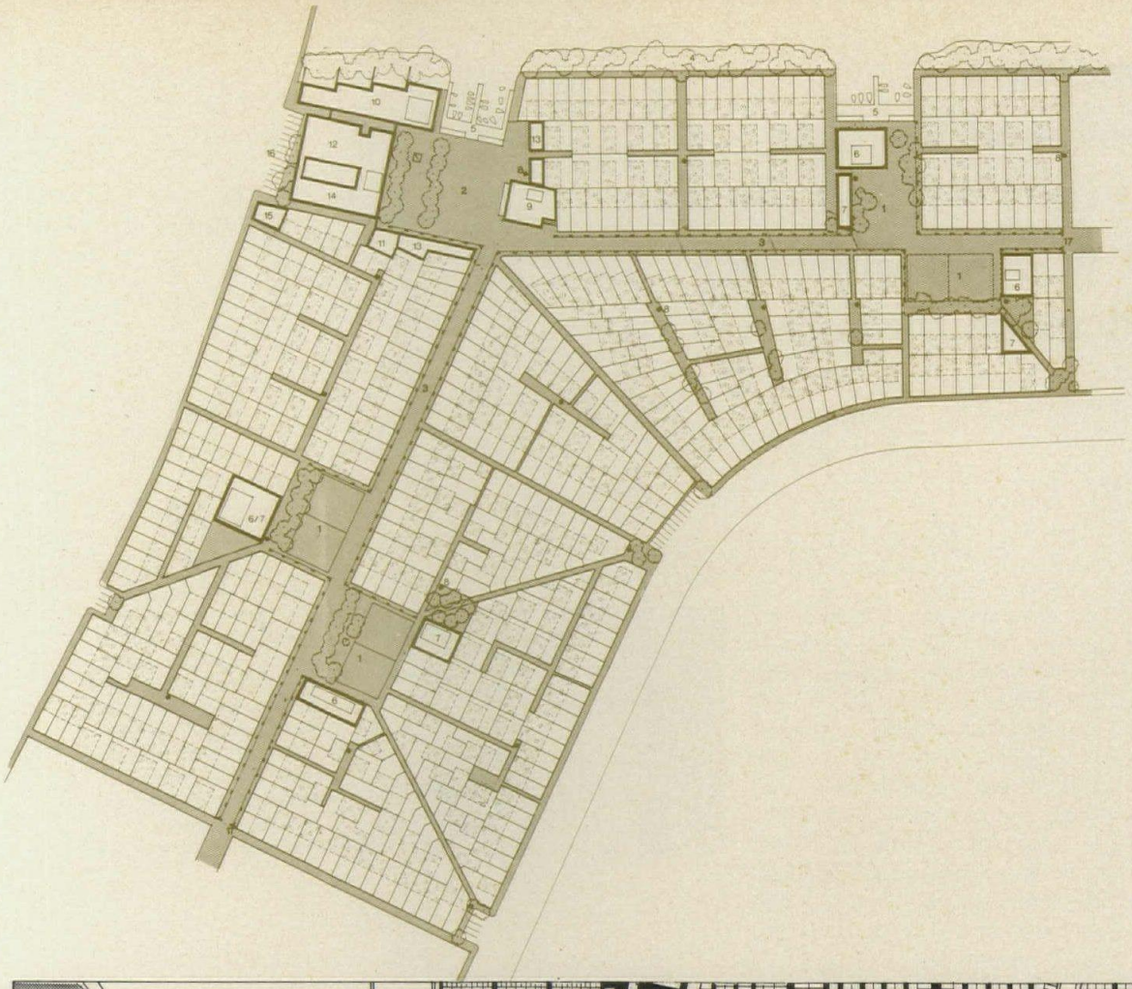






The drawing on the left shows one part of the competition site with only the basic infrastructure in place—the arcade and the lot lines. The lower drawing shows the site fully developed, with almost all of the lots built upon and the *paseo* and the *purok* square remaining free as organizational loci. The drawing on the right shows the entire *barangay* site, with the *barangay* square, or town center, in the upper left-hand portion. Pairs of *purok* squares, organized around *sari-sari* stores and playing grounds, are at either end of the site, as are wash houses for laundry and baths. These are designed to have a simple flatplate solar collector system with a large storage tank. As the community evolves, hot water could be provided as well on an individual family basis by a similar principle. The public spaces are arranged in the plan for changing uses. The *barangay* square, for instance, which might be a quiet entrance space on a Sunday morning, may also be occupied by a fish market on Saturday afternoon. The *purok* squares provide spaces for neighborhood meetings as well as sports, and they are arranged to maximize the feeling of space while allowing for the overlapping community uses.

The location of the *barangay* square is determined by the circulation loop connection to the expressway and the juncture of the two rivers (drawing below opposite).

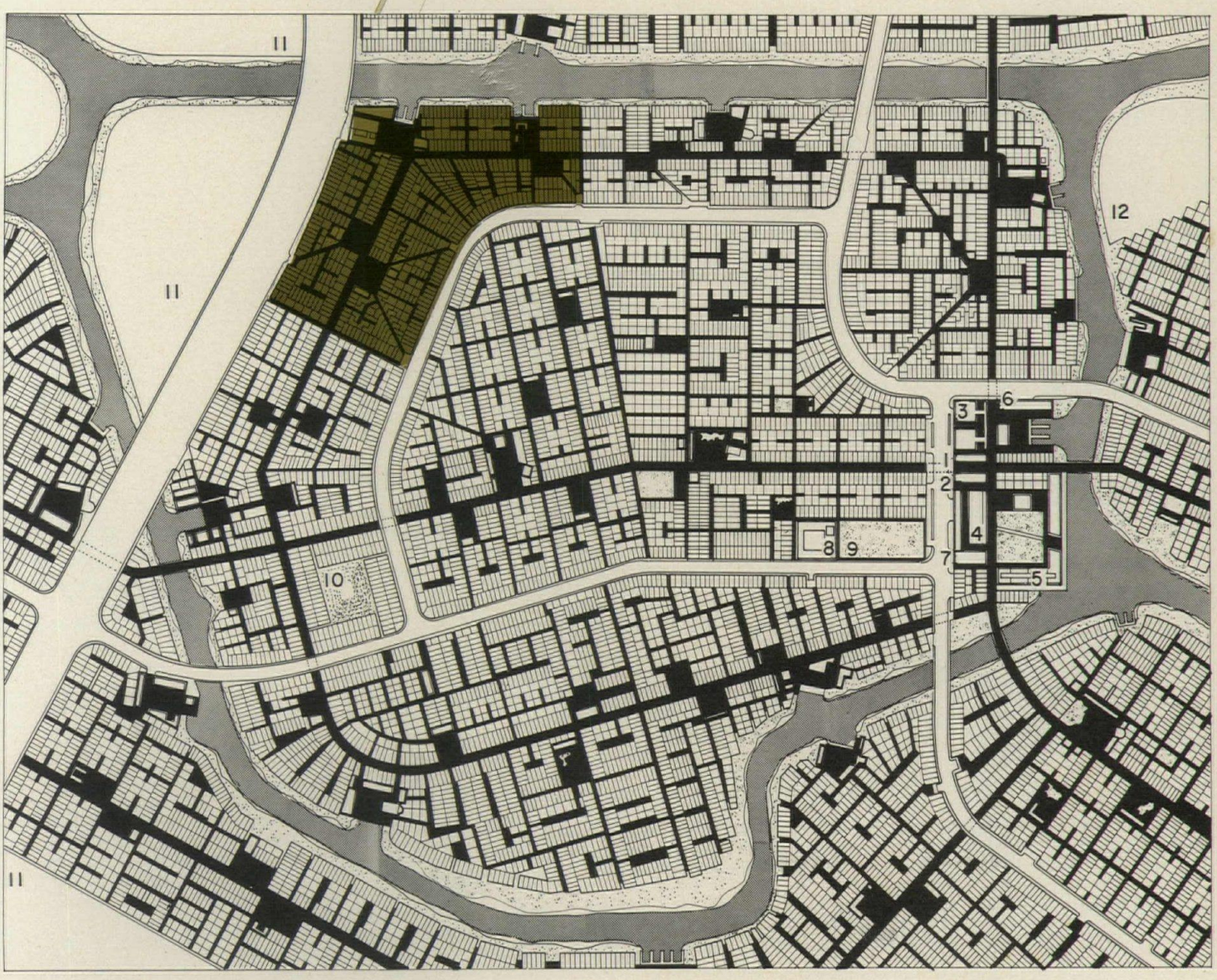


PUBLIC SPACE
DWELLING AREA
ADJUSTABLE LOT LINES
VEGETABLE GARDEN AREA
COMMUNITY FACILITIES

1. PUROK SQUARE: SPORTS, SARI-SARI STORES
2. BARANGAY SQUARE
3. PASEO & ARCADE
4. RIVER PARK
5. DOCKS
6. WASH HOUSE: LAUNDRY, HOT BATHS
7. NURSERY SCHOOL/NUTRITION CENTER
8. COMMUNITY WATER SOURCE ●
(LINE SIZED FOR ALL UNITS)
9. CHAPEL
10. ELEMENTARY SCHOOL 2½ LEVELS
11. HEALTH CLINIC
12. BARANGAY/COMMUNITY CENTER
13. SHOPS, SARI-SARI STORES
14. ZONE/TULUGAN/EDUCATION CENTER
15. POLICE OUTPOST
16. PARKING
17. GATEWAY OPENING

1. ADMINISTRATION BUILDING
2. POLICE HEADQUARTERS
3. HOSPITAL
4. MARKET
5. COMMERCIAL
6. LIGHT INDUSTRY
7. FIRE STATION
8. HIGH SCHOOL
9. SPORTS FIELD
10. VIEWING MOUND
11. ZONE MANAGED FARM/INDUSTRY PLOT
12. EXISTING PRIVATE INDUSTRY

COMMUNITY STRUCTURES
PEDESTRIAN/BICYCLE/OPEN SPACE
PARKS
DWELLING + VEGETABLE GARDENS



This honorable mention by Robert F. Olwell and Jim Fong proposes an unusually ordered site plan with a hierarchy of public amenities that ultimately focus on the adjacent river

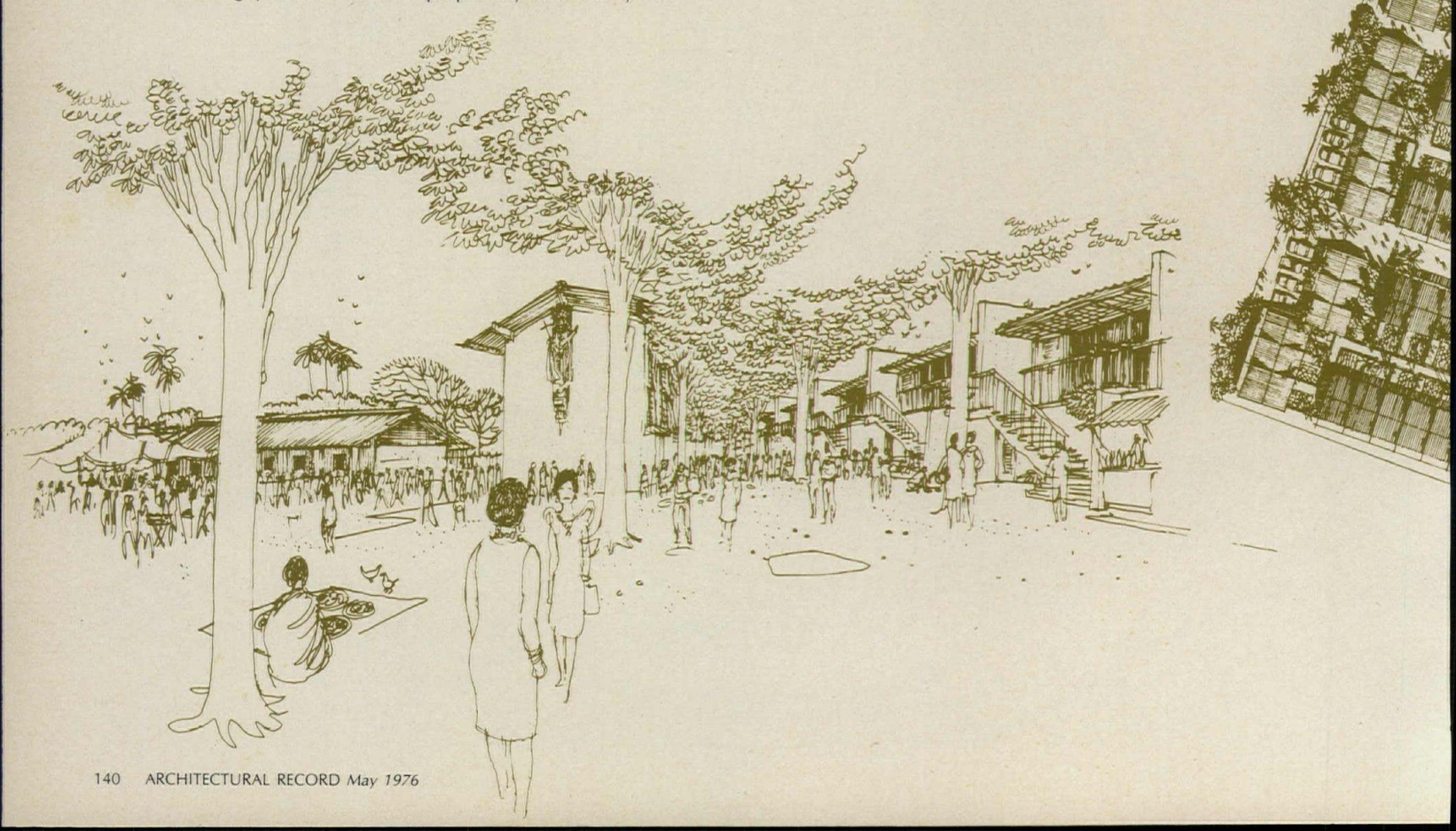
The jury admired the over-all clarity of this design and the straightforward simplicity of the individual dwelling units. In the design, neighborhoods are meant to accommodate groups of families with different preferences, and each neighborhood would contain a center that shelters the common water source. This structure would in turn become the frame for the neighborhood social life—drawing water, washing, tending children and general social interaction. Open space with playgrounds would also be provided.

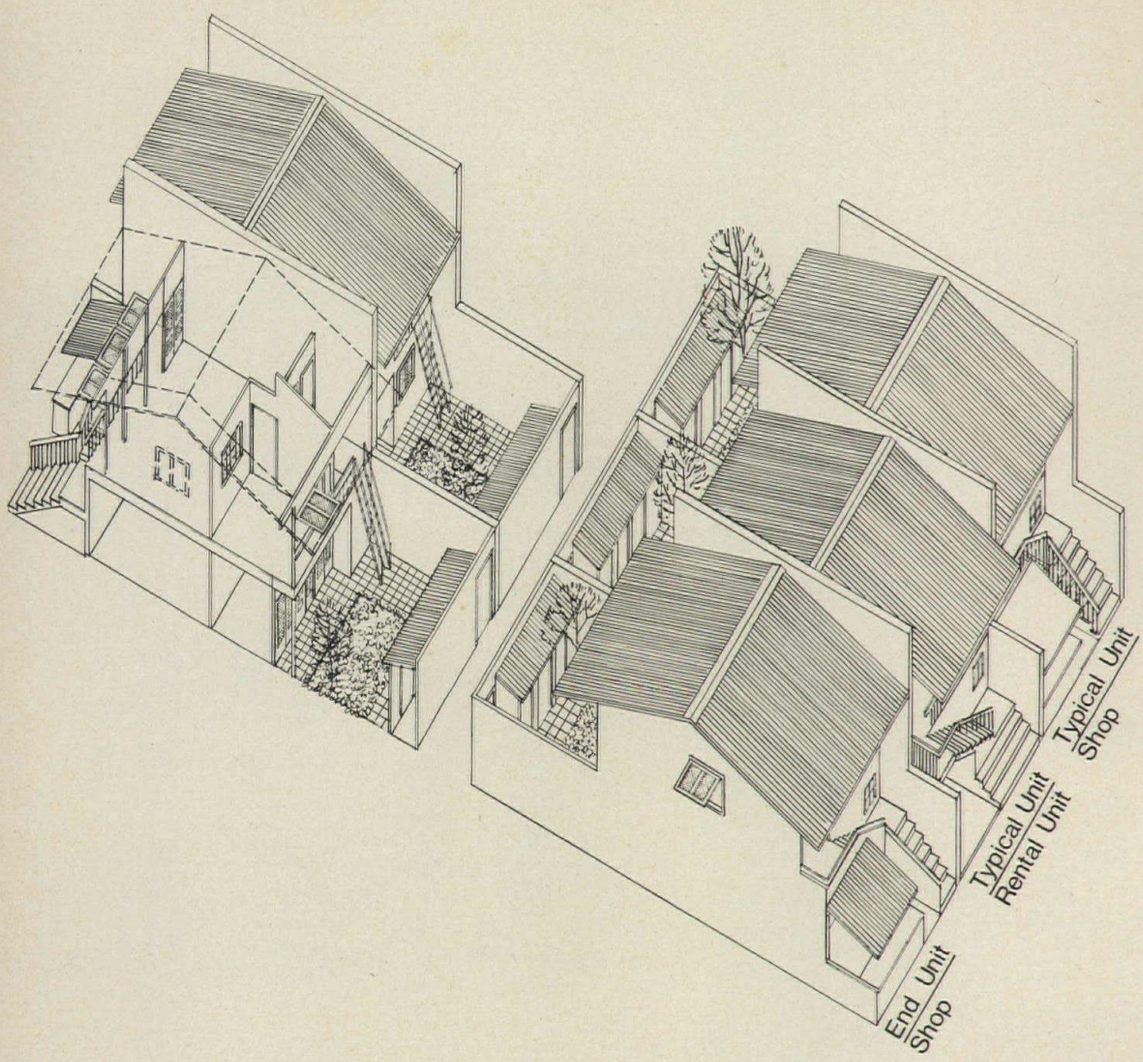
Internal pedestrian paths link the individual houses in each neighborhood to the neighborhood center; major pedestrian and bike paths then link the neighborhoods with each other and with the *barangay* center.

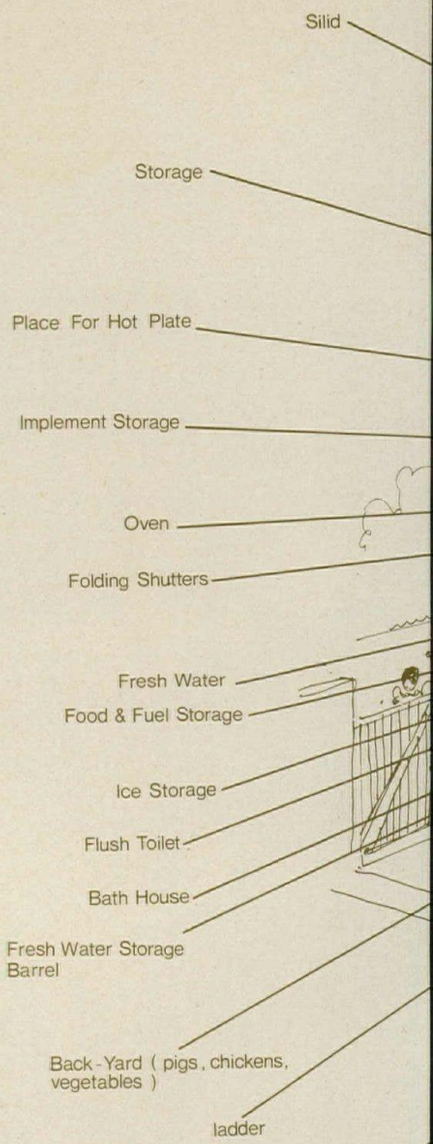
The *barangay* center is located along the river (site plan opposite) and riverside walkways connect it to other *barangay* centers similarly located. The *barangay* center has a chapel, a community building with a health clinic and an elementary school, and shops and basketball courts clustered around the large plaza. The plaza is designed to accommodate the traditional local market—the *talipapa*—as well as special *barangay* celebrations.

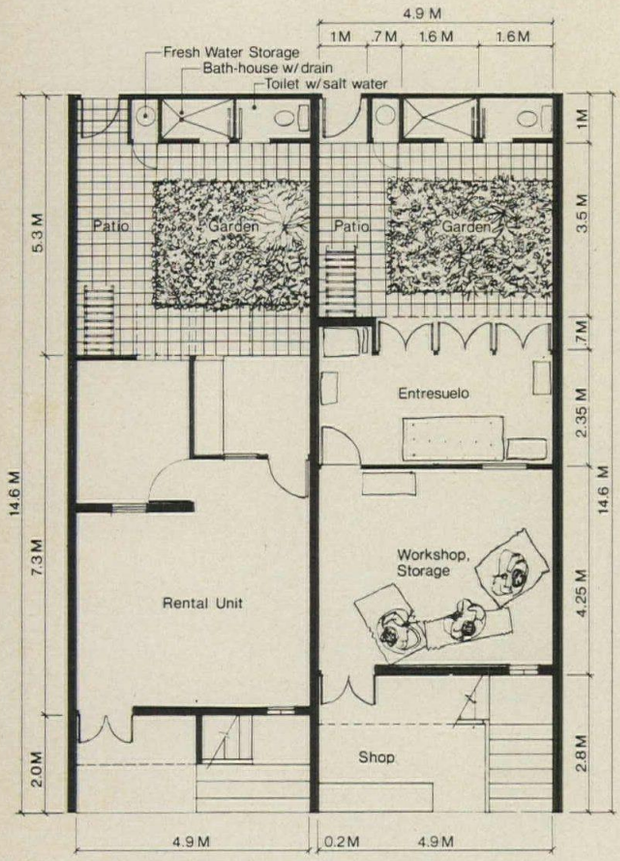
The architects of this scheme argue that it allows the inhabitants to improve their surroundings by "significant but small steps" that begin with the individual house and progress to the neighborhood and then to the whole community, honoring the long-existing social customs that are shared; the plan does not depend in any way on proprietary technical systems.

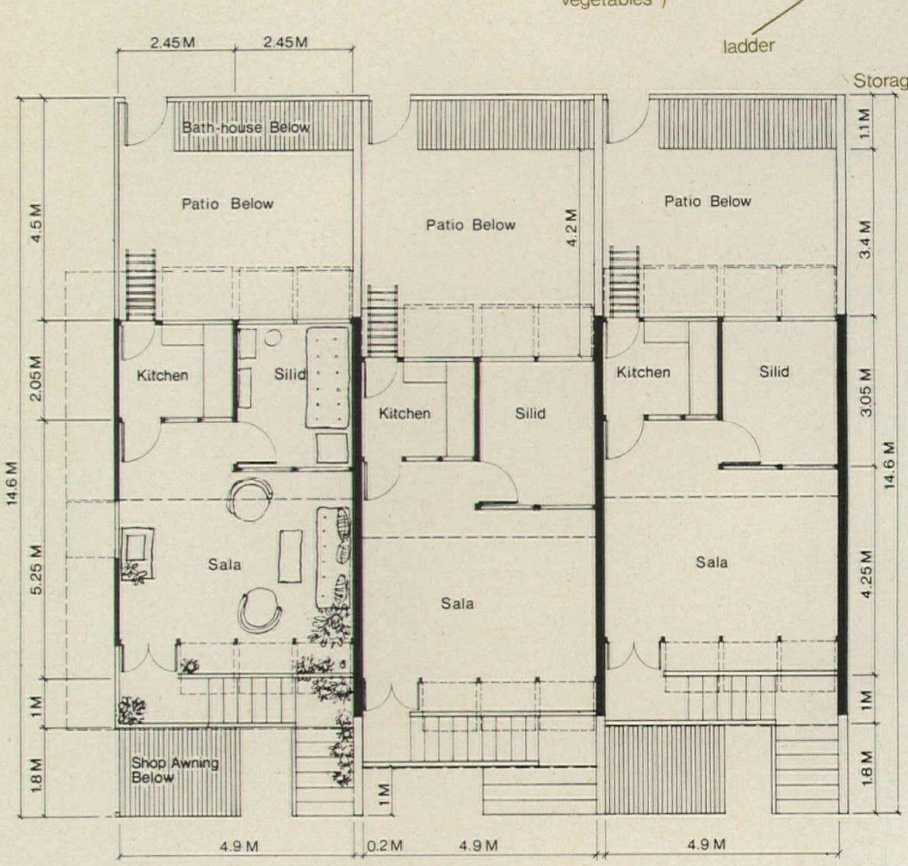
Robert F. Olwell and Jim Fong are members of the San Francisco architectural and engineering firm Reid and Tarics Associates. Olwell, educated at the University of Washington and MIT, has worked with Harwell Hamilton Harris, and Joseph Esherick; Fong was born in Canton and educated at the University of California at Berkeley.





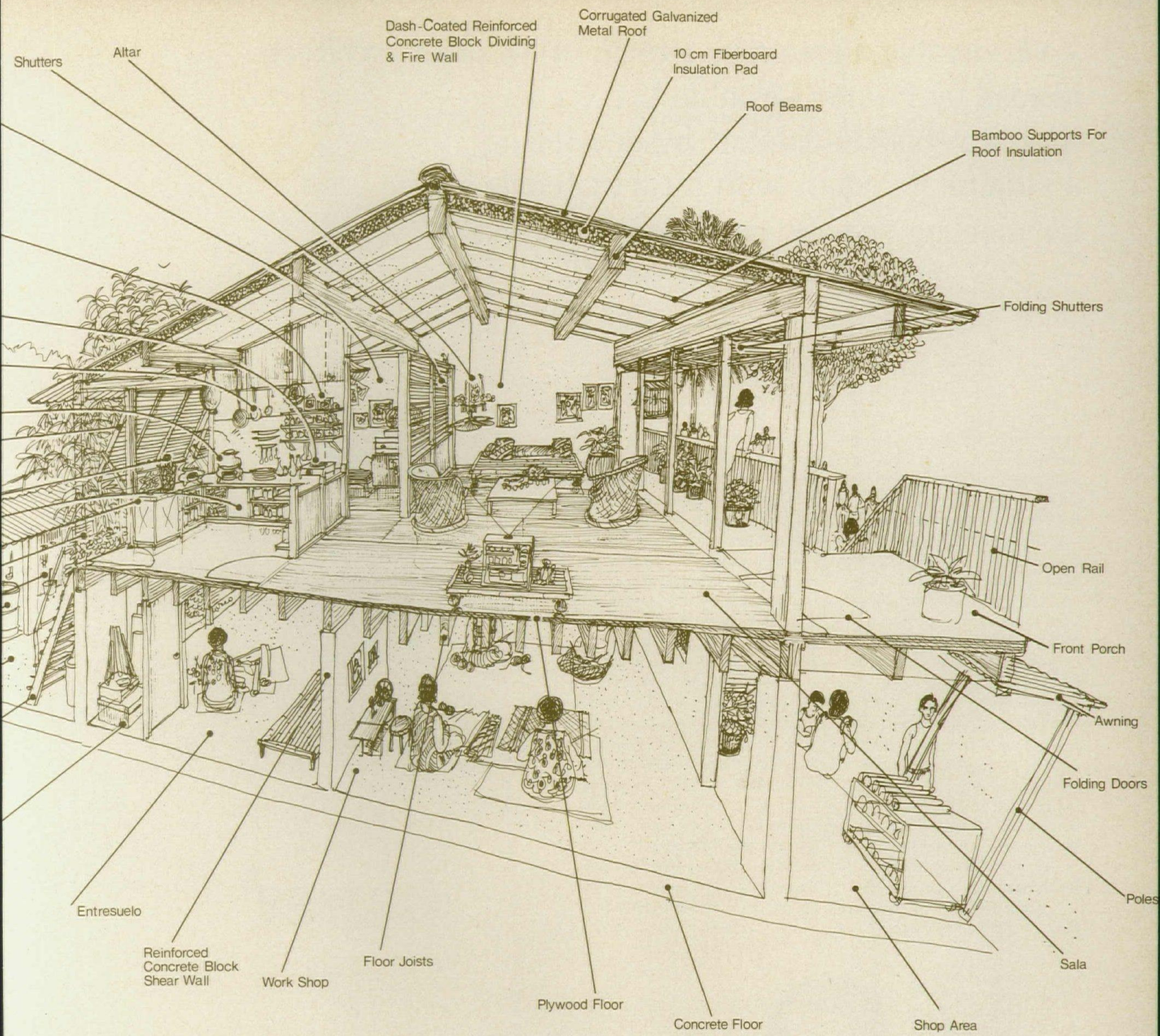






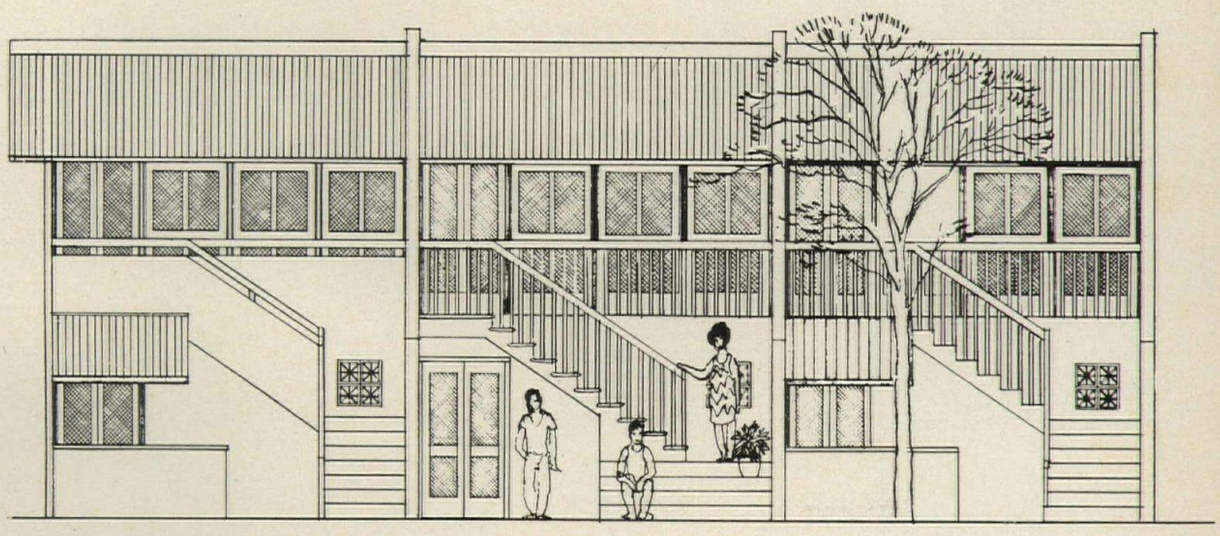
GROUND FLOOR

UPPER FLOOR



The plan of the house is based on the traditional *nipa* hut. The front entrance opens into the more public room, and the private family spaces are in the rear, with the entrance from the backyard into the kitchen. The toilet, which uses untreated water, is in the back in a naturally ventilated structure, which is part of the rear garden wall. The bath house, with a drain only, is adjacent, as is a place for the storage of fresh water, which is brought in from the neighborhood water source.

The basic structure lends itself to team building, with conventional concrete block dividing walls and wood framing; galvanized corrugated iron provides the roof.



End Unit / Shop — Typical Unit / Rental Unit — Typical Unit / Shop

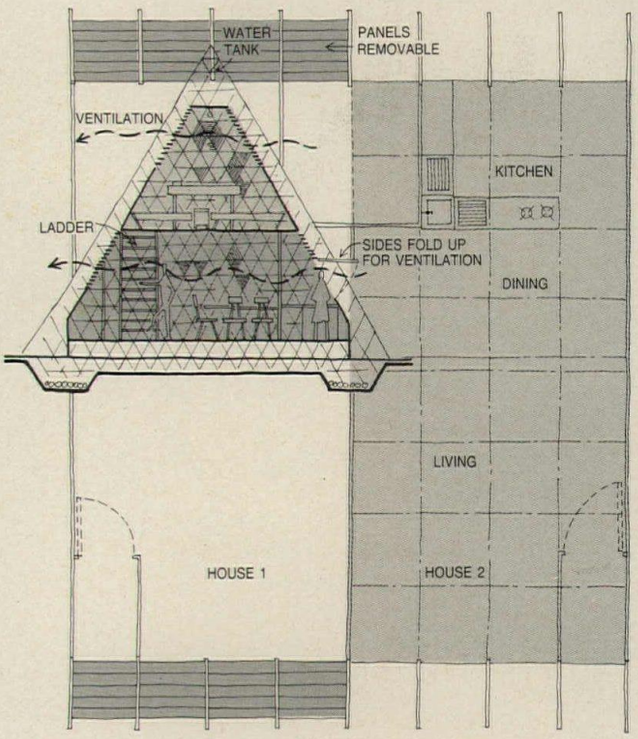
FRONT ELEVATION

An honorable mention by a team of Mexican architects headed by Hector Giron de la Peña makes a "human habitat" by developing a structural system with local materials for meeting specific conditions

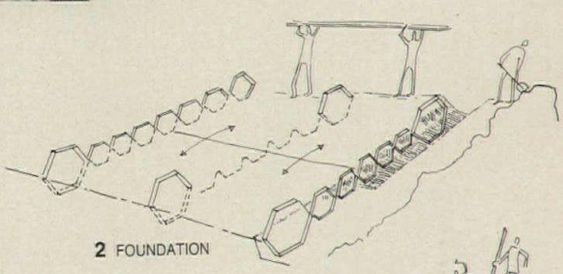
This design focuses in on the problem of designing individual dwellings—a problem which the architects see as having to do with the local characteristics of the site. Thus the units have raised floors (to avoid flooding) and their basic structural unit is a triangle (to resist earthquakes). In addition, wind can pass freely through them (in the event of a typhoon). The houses are framed in simply triangulated sections of wood, and covered with locally available materials (see drawings below and below opposite). Each house has an area of about 38 square meters (410 square feet), and houses are built contiguous to each other, so that pairs of neighbors can begin by erecting party walls and then move on to the construction of their own interior living spaces.

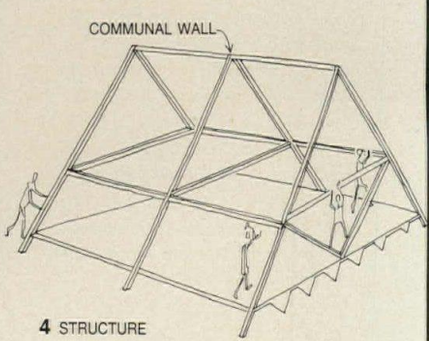
Groups of 12 to 14 houses form a neighborhood, and this has common facilities like a playground, a laundry, water supply and sewage disposal. The neighborhoods in turn group together to form the *barangay*, which has social facilities like a school, stores, a medical clinic and sports facilities (see site plan opposite).

The architects see the success of the individual dwelling units as depending upon three factors: 1) adequate shelter, 2) good localization (meaning adequate job opportunities and urban amenities nearby), and 3) security of tenancy. In achieving the latter goal they do not propose private ownership, but instead a long-lease system for individual tenants, with transference of the lease limited by the leasing authority. They argue that private ownership is an unstable solution for low-income people because of the temptation to sell in an emergency.

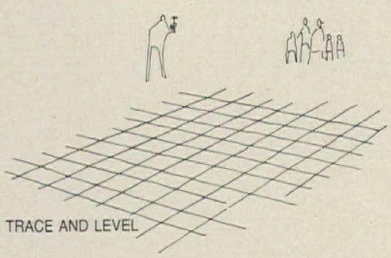


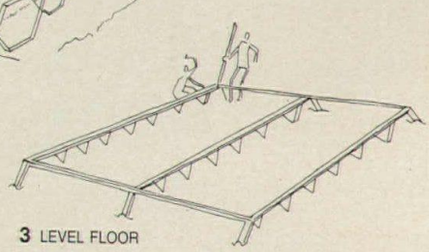
Hector Giron de la Peña is a Mexican-born architect who has studied and practiced there and in Europe. He now teaches at the Universidad Nacional Autónoma de Mexico. Giron de la Peña was the head of a team for this competition entry; it also included Raul Santana Romero, architect and engineer, and Mario Rebolledo Zarate, architect.


2 FOUNDATION



4 STRUCTURE

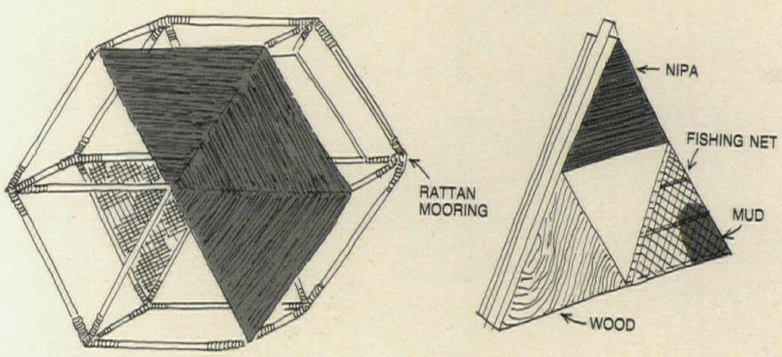

1 TRACE AND LEVEL

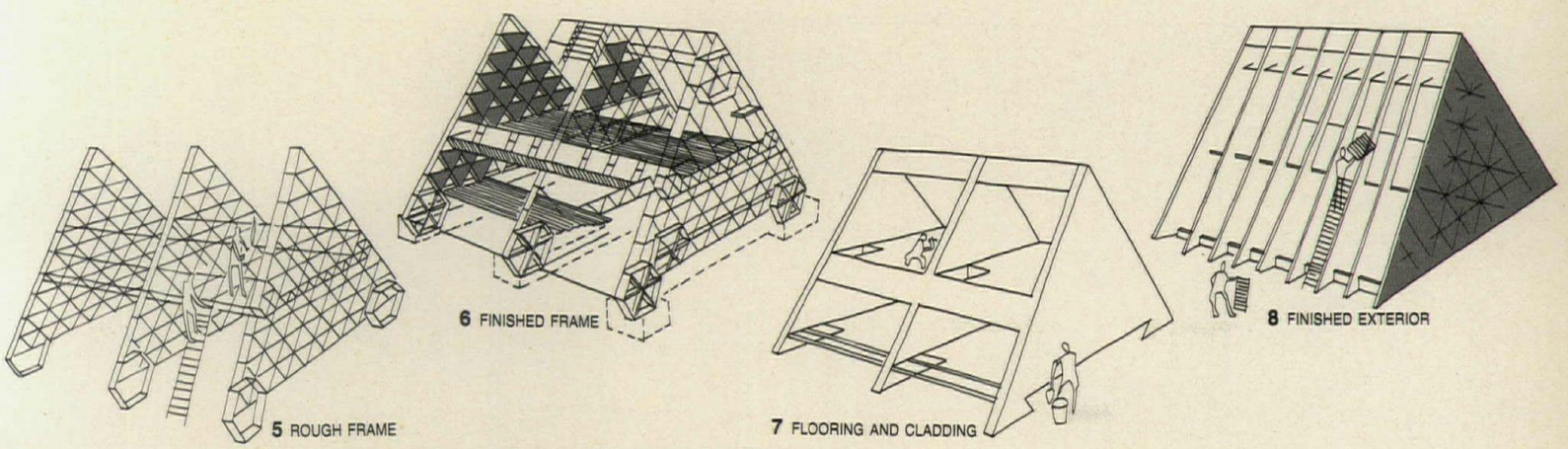

3 LEVEL FLOOR

A COMMUNITY CENTER (BARANGAY)
B ELEMENTARY SCHOOL
C CHAPEL
D HEALTH CLINIC
E MULTIPURPOSE COVER AND SHOPS
F PLAYGROUNDS-GREEN AREA
G PUROK CENTER
H VEHICLES
I SARI-SARI STORES
J COMMUNITY PARCELS
K PATIOS WITH COMMUNITY WATER SOURCES
L PRINCIPAL PEDESTRIAN AND CYCLE ROUTES
M FISHING AND RIVER AREAS
N TALIPAPA-MARKET

LONGOS RIVER

C-3



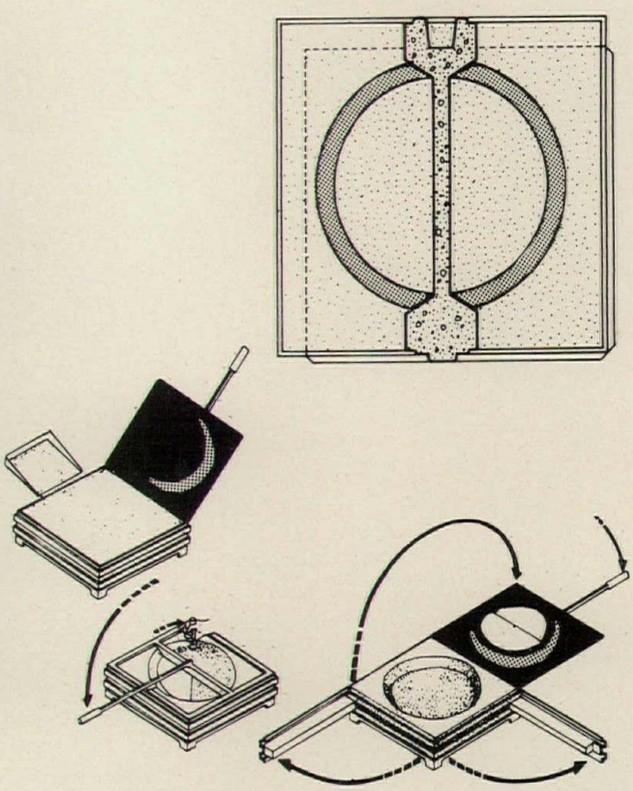


Honorable mention by a team of Japanese designers, led by Akira Kuryu, develops an inexpensive and efficient building system based on a concrete block module and using the "workable group approach"

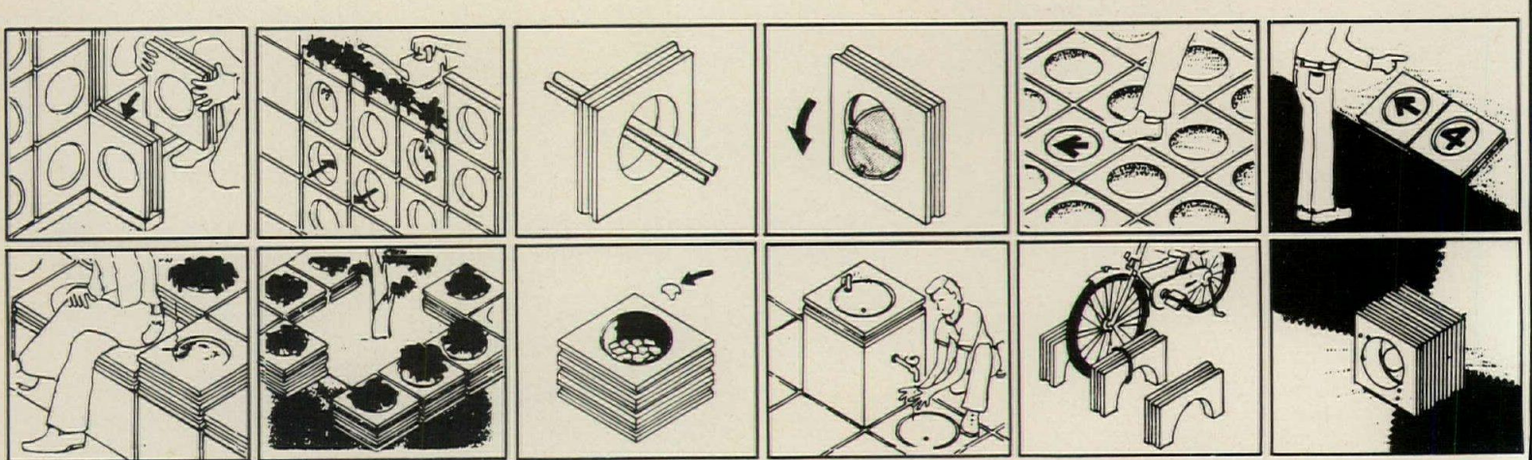
The architects of this design assert that the most effective way to make a self-help scheme work is to maximize both the use and the efficiency of labor and materials; to do this, they propose a compact design based on a "workable group" of self-helpers. Their survey of Tondo residents indicated that the average family has close relationships with about 20 other families. Also, research indicated that in self-help construction projects a single foreman can supervise the construction of from 10 to 25 houses. Thus a basic grouping of from 16 to 20 houses was decided on, and a system of modular concrete blocks was developed, using locally available materials stored in bulk within the *barangay*.

Climatic conditions are taken into consideration by the grouping of the houses to reduce the number of walls on which sunlight falls, and by using the local custom of a masonry ground floor (which stays cool during the day) and a wood-framed upper floor for the bedrooms (which cool down quickly in the evening). Maximum use is made of the prevailing winds and of sea breezes in the placement of the groups of houses, and every house has a patio, as shown in the plan on the opposite page.

The team known as the Akira Kuryu Studio Space Media consists of (from left to right and top to bottom) Akira Kuryu, Akihiko Hamada, Hiroshi Miyazaki, Jun Matsui, Takeshi Aoyagi, Susumu Masuda, John D. Lamb and Kazunobu Kakita.

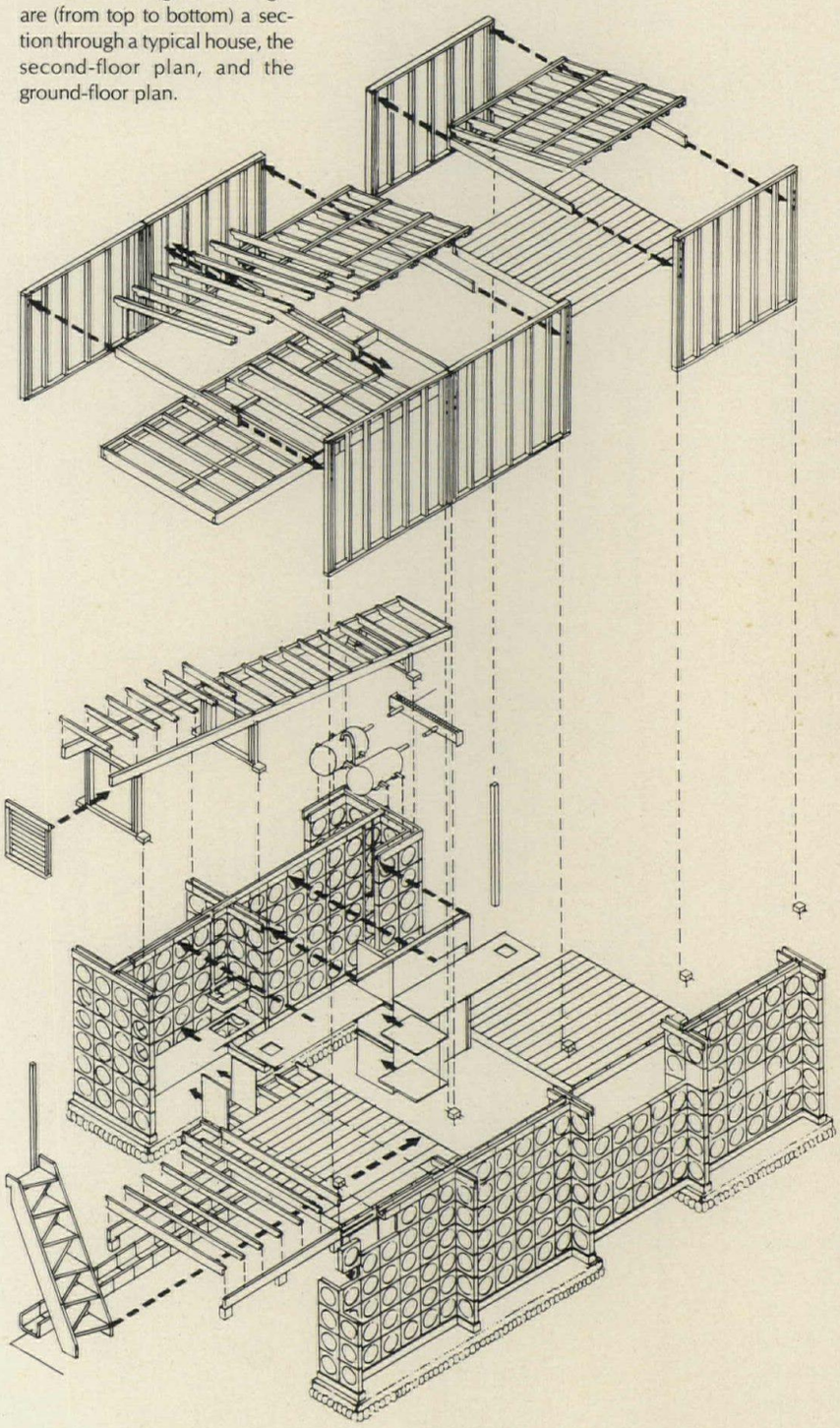


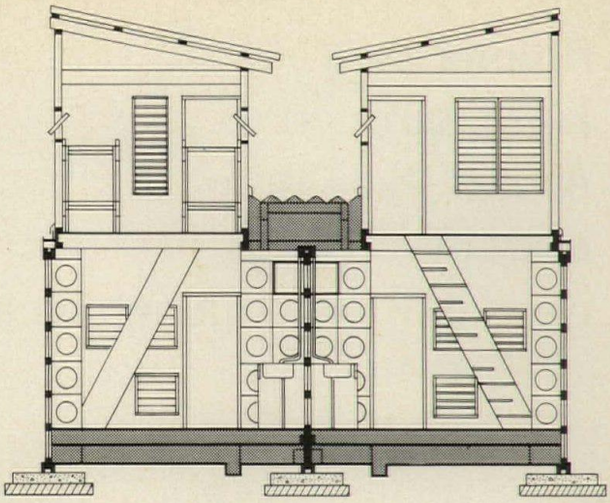
The drawings above show the basic modular concrete block (top) and the mold with which it can be made. Below (and from left to right and top to bottom) are the various uses to which it can be put: as a structural wall, a patio wall, an opening for pipes, a window, paving, signs, a bench, planters, garbage cans, water fountains, bicycle racks and exterior floodlighting.

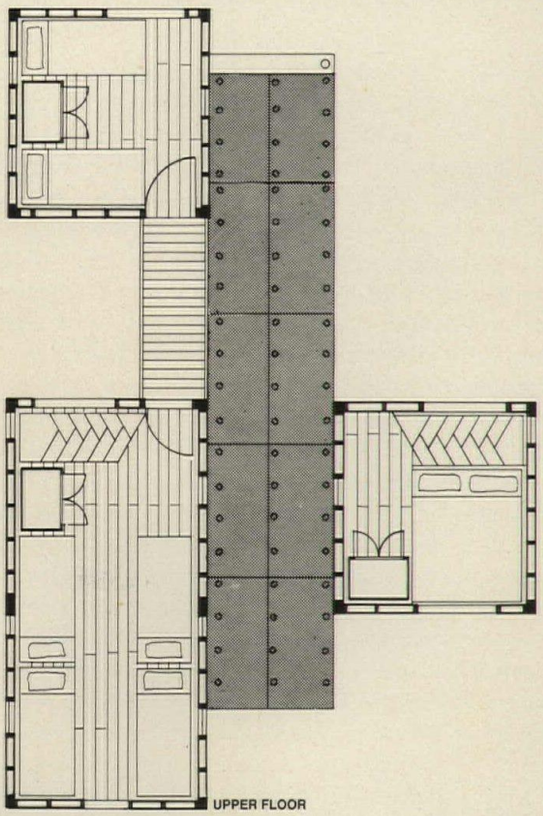


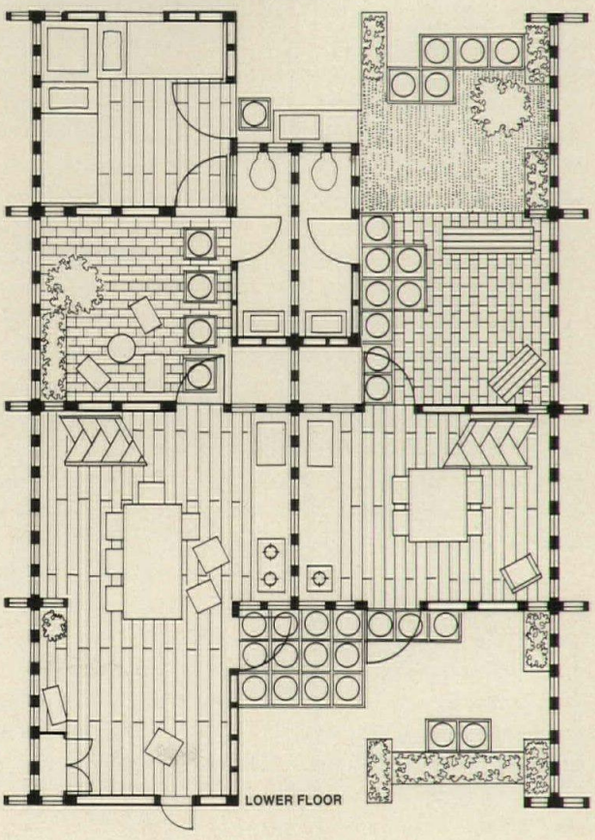
The drawings below show framing details for the second floors of the houses—made of wood because they would thus cool down quickly at night. The ground floors are made of the modular concrete blocks, which tend to stay cool during the day.

The drawings on the right are (from top to bottom) a section through a typical house, the second-floor plan, and the ground-floor plan.









Among the non-premiated entries there is an instructive variety of clear and useful design ideas...

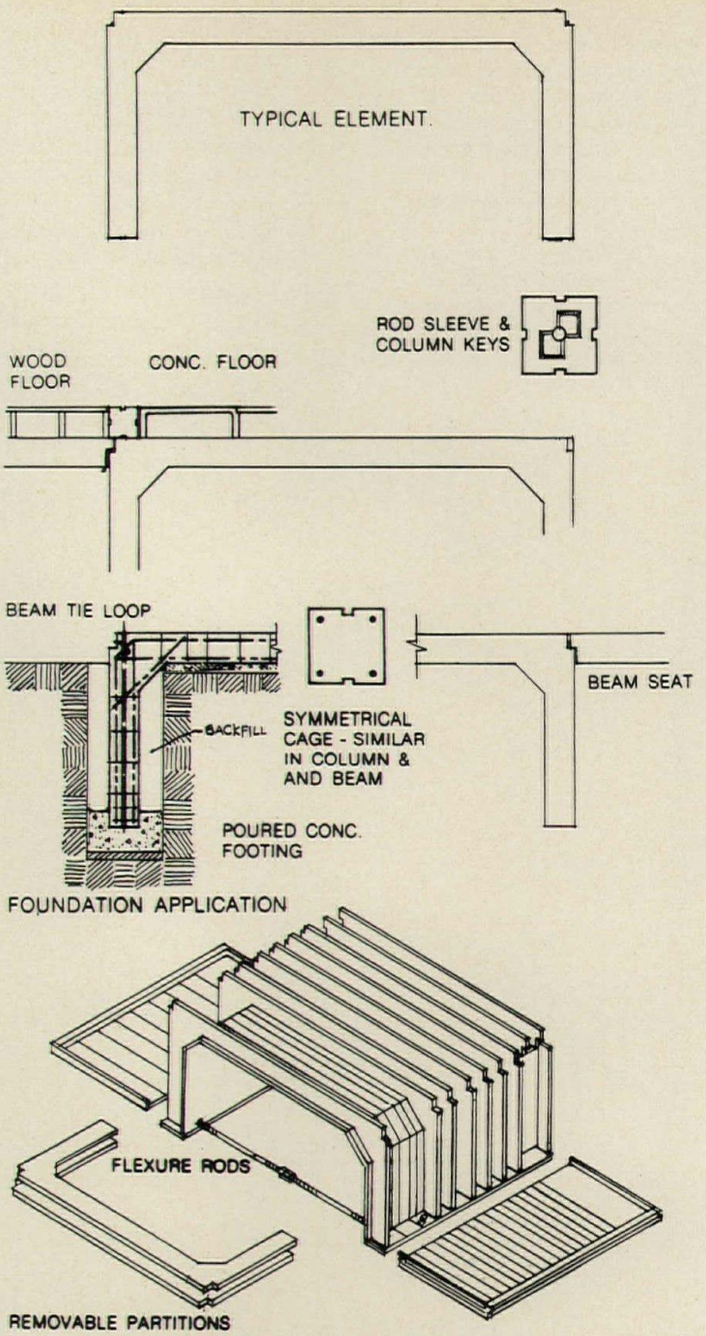
There was a generally high level of thought and execution that went into many of the competition submissions, but it was inevitable, of course, that many plans that represented fine ideas (and a lot of work) would not win. All this good effort, nonetheless, was not in vain. Some of the younger architects who entered found that, in addition to sharpening their own skills, they had through their work developed a major addition to their fledgling firm's portfolio. Others have already used the ideas generated in their competition entries to secure contracts for work in countries other than the Philippines. Most important of all is the fact that ideas are what the competition was finally all about; even when they did not precisely fit the jury's particular expectations, these ideas can still have broad application to the problem of housing the poor everywhere.

After the judging in Vancouver, RECORD editors (including Mildred Schmertz who was a member of the jury) selected a series of particularly clear ideas that were the essence of several non-premiated designs. These are shown on the following eight pages. While every design is not shown in full, the central ideas are. In general, they fall into two categories: construction technologies (which are shown first), and community planning. The former were intended to provide some permanent framework for the inhabitants' individualized efforts. Examples of the latter category are widely divergent—ranging from groups of houses scattered loosely across the site to more formal schemes where land use is rigidly, sometimes hierarchically, defined.

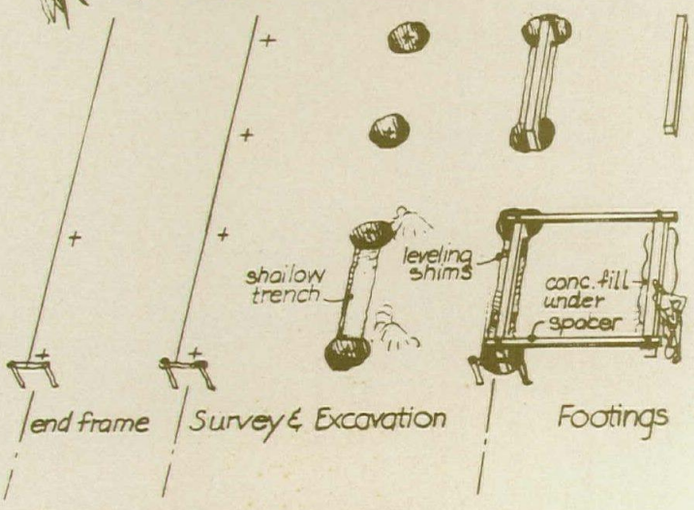
What all of the schemes on the following eight pages have in common is this: they all tend to recognize that the precise planning of every detail is not just difficult but downright inappropriate in the design of self-help housing. In one of the following schemes the designer declined even to show tentative elevations for his proposed housing, arguing that the details could not be predicted, and that only the over-all guidelines—or ideas—could.

Showing the following collection of central design concepts is not meant to deny the richness of secondary areas of concern that the complete submissions reflected. For instance, one scheme (page 153) went into considerable detail describing the problems of ownership and of the concentration of labor required to erect individual houses. The designer proposed to limit the ownership of houses to actual residents, and to limit the resale price to the amount of equity the residents had accumulated. He also proposed a labor bank for the parts of the construction that would require many hands; individual builders could accumulate labor credit for their own houses by working on other people's construction projects.

Fortunately, such secondary ideas—and indeed the primary ideas of many other important submissions—will not remain permanent casualties to a monthly magazine's lack of space. They will be shown at an exhibit sponsored by The International Architectural Foundation at the Vancouver Art Gallery throughout HABITAT, the UN Conference on Human Settlements, (May 31-June 11, 1976), and then will be the subject of an ARCHITECTURAL RECORD book to be published next year.



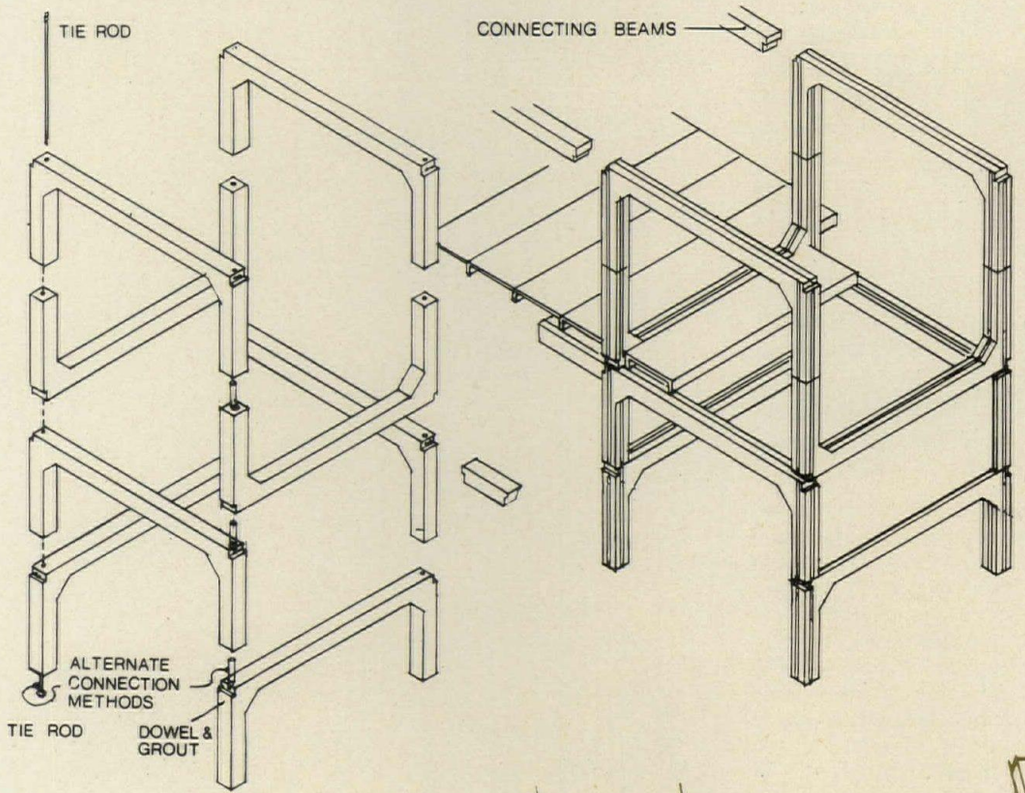
One on-site form (drawing, above) could cast the U-shaped and other concrete elements to support a complete two-bay-width house in two days. The typical elements, tied by grade beams, can be used for foundations, and are grooved to receive a variety of infill materials (sections shown on far right). Material costs are valued equal to those for wood construction.

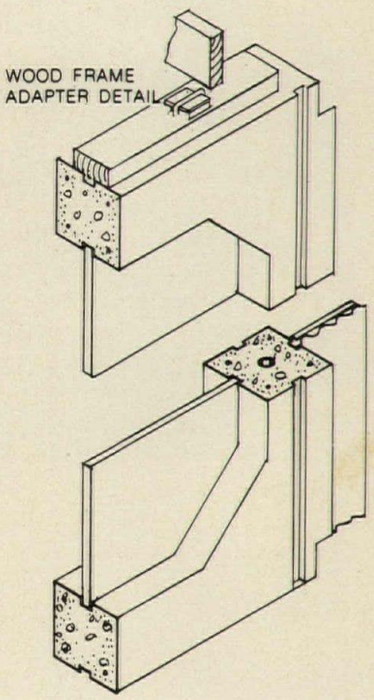


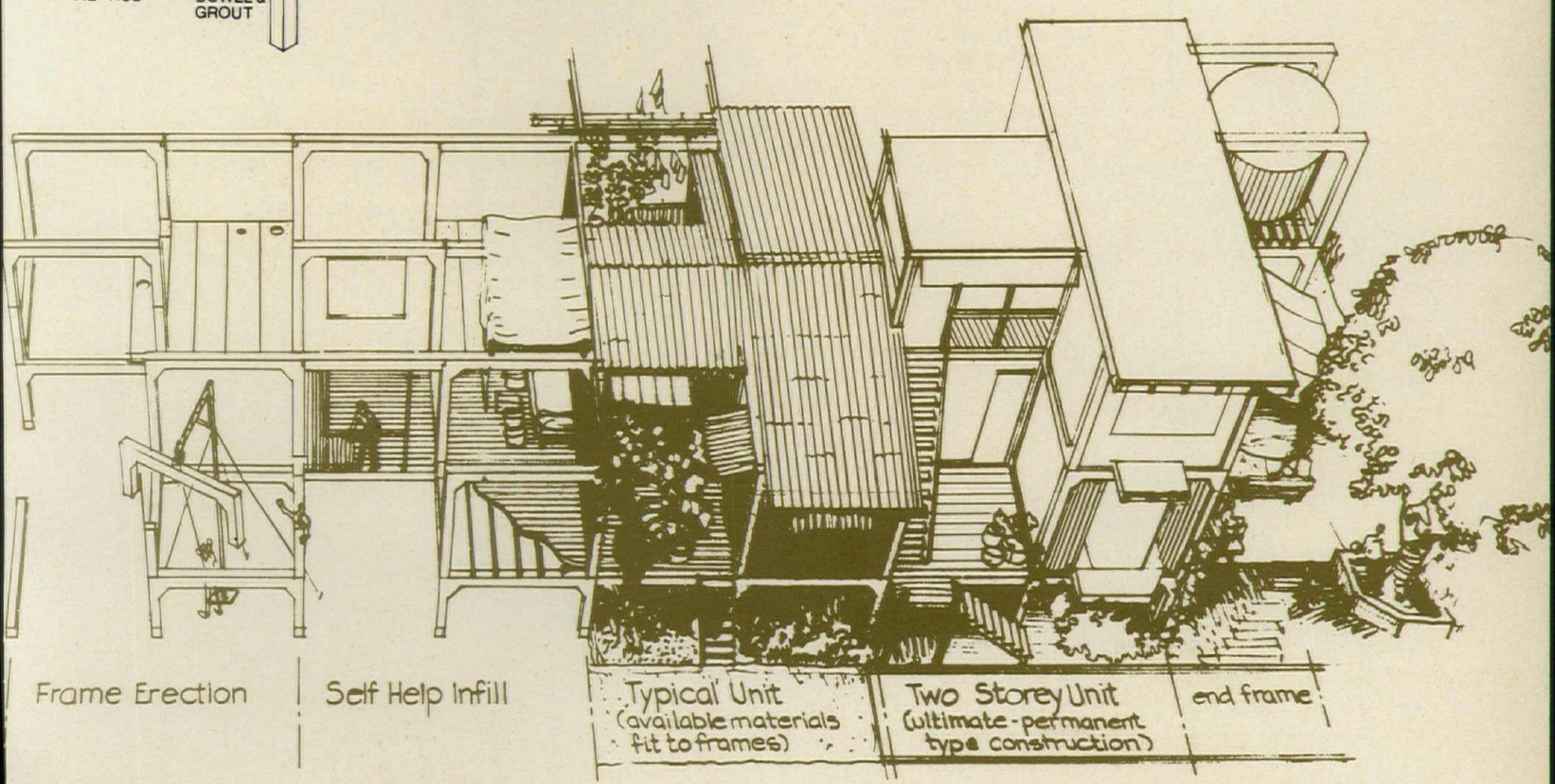
Example: these strong precast concrete frames to support tenants' own construction, proposed by a team headed by architect Gerald Jonas

Submitted by a New York City team, that included an engineer, this proposal—not surprisingly—contained a high level of innovative technical input. Addressing the problem of the structural soundness of tenants' own construction in an area subject to typhoons, Gerald Jonas, Henry Stephenson, Jeff Vanderberg and Silvian Marcus proposed that each homesteader be supplied with a basic set of 16 concrete U-shaped components, plus beams, planks and a concrete bracing panel. These elements, financed by the government and cast on the site, would be small and light enough to be maneuvered to prepared footings by teams of tenants; there they would be assembled to form rigid frames of up to two-and-a-half-stories (drawing below) connected to the footings by tie rods. Grooved surfaces in the frames would allow an interlocking infill of wooden floors and of walls of any available material, from concrete block to corrugated metal to woven bamboo. One wall and one plank floor of concrete would provide bracing.

In the proposal, the architects emphasized flexibility. The proprietary structures can be skewed to adapt to irregular lot lines. The only precision task is the leveling and spacing of footings. Upgrading of the enclosure materials can be accomplished in increments according to the abilities of the inhabitants, and does not require basic rebuilding. The architects also emphasized the long-term economies of investment in permanent re-usable parts, the short-term economies of the labor-intensive fabrication with erection of the parts by residents, and the possibility of an on-going economic benefit to the residents in having an on-site industry fabricate the concrete elements for other sites.



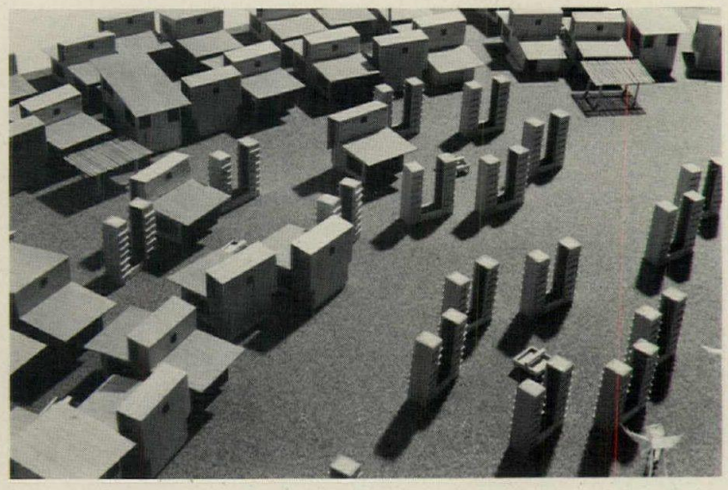




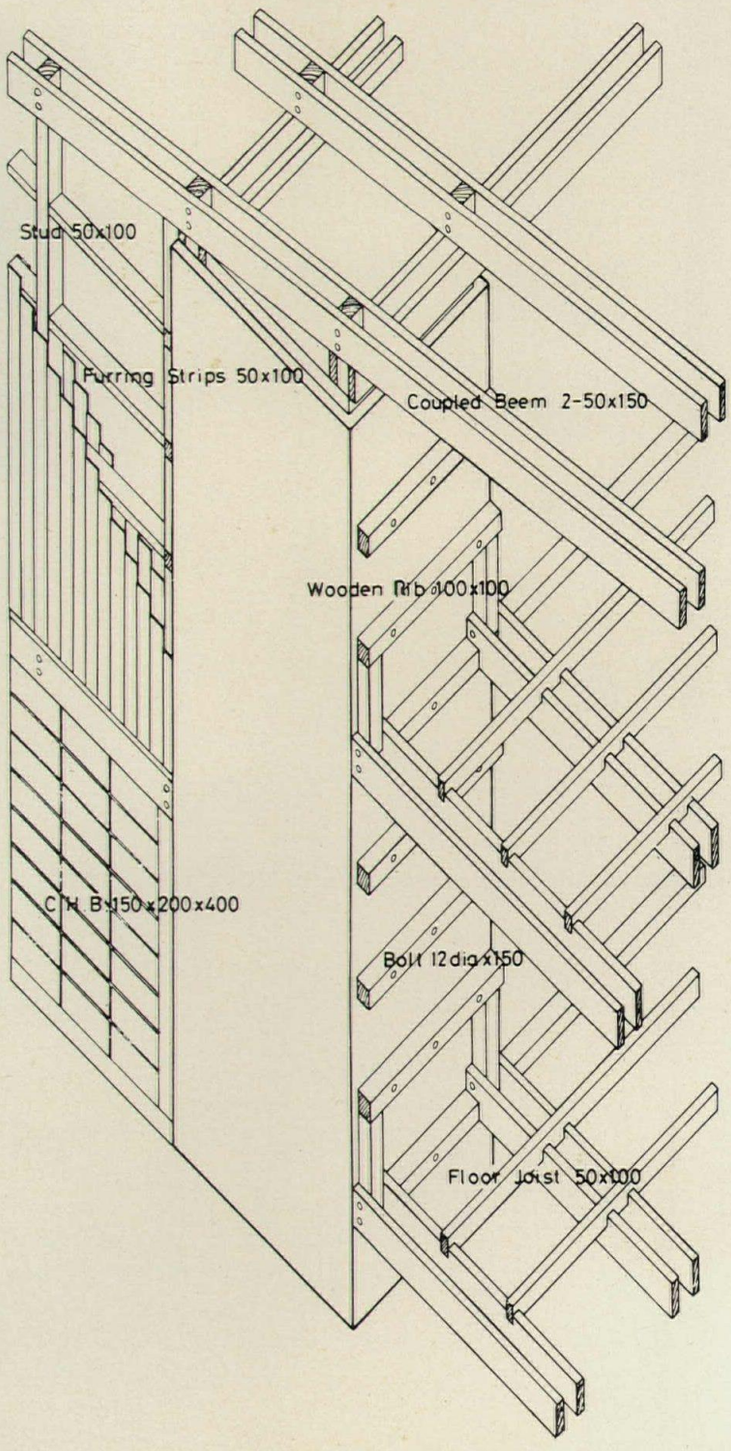
Example: these concrete towers that partially support construction and house sanitation facilities, proposed by Kiyoshi Seike . . .

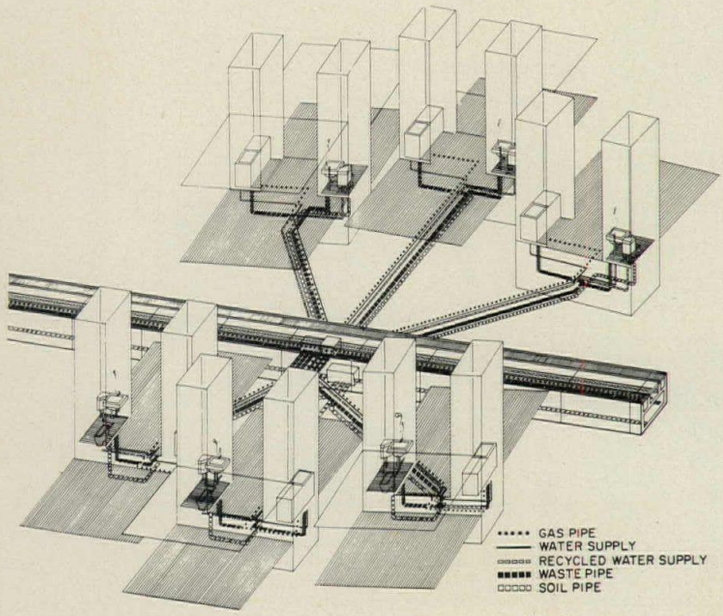
Japanese architect Kiyoshi Seike of the Tokyo Institute of Technology, proposed that the government furnish each family with two in-place, precast-concrete "core posts" which—while partially supporting owner-built construction up to two-and-a-half-stories-high—would also contain a kitchen and bath in the respective structural elements. Connected by grade beams at the bottom, the core posts—supplied with wooden ribs bolted on—would form an earthquake and storm-proof anchor for the usually more fragile construction attached (large drawing below); they might even provide refuge under extreme conditions. Groups of six houses would be located around a central "energy point," where their utility lines would connect with the main utility lines located in a covered trench (diagram, bottom). This arrangement would generate an intermediate sized social unit of mutually dependent families around the loosely defined courtyards containing utility connections (see large drawing, opposite page and site plan, overleaf). Such interdependence would be emphasized by the direct relation of living rooms to courtyards and shared functions.

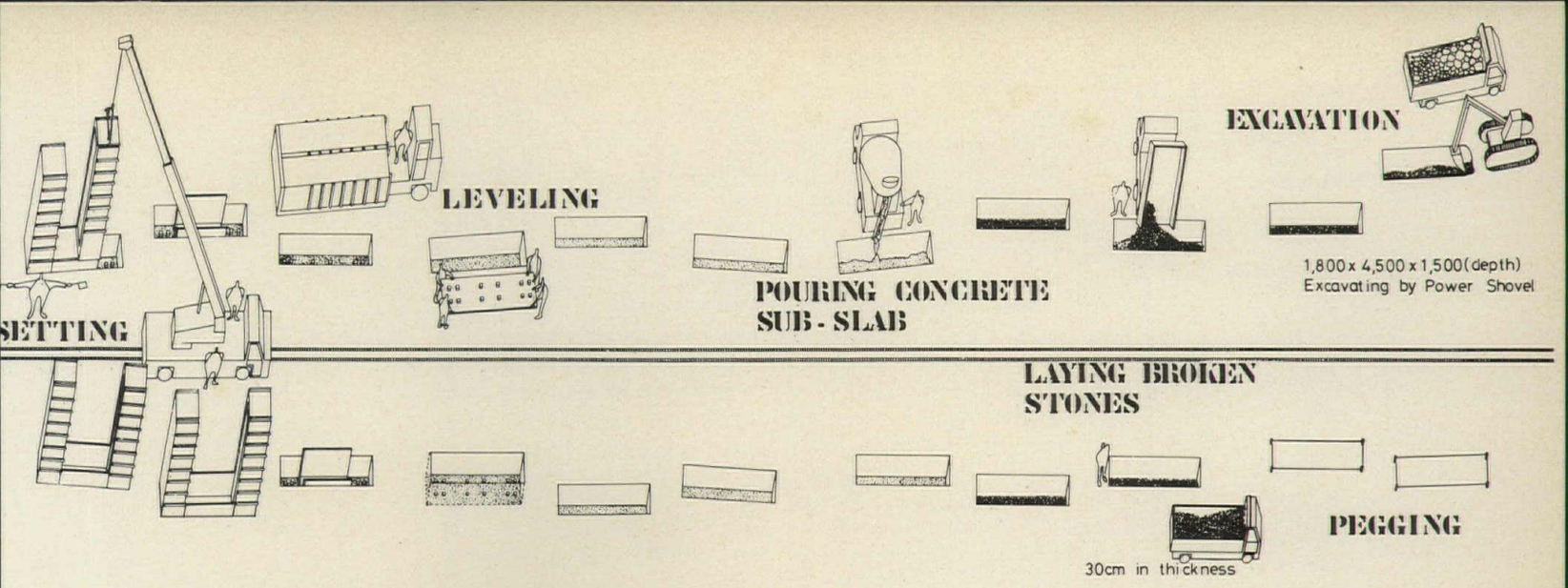
While Seike has given a clear indication by his beautiful delineations of the anticipated forms the houses could take, he also emphasizes flexibility and owner participation in the design—as he has in the over-all planning. Shading devices and the positive effects on natural ventilation of the separated posts—as well as that of the suggested split-level arrangement of rooms—were among his techniques for climate control. And his sensitive description of his design's intended socializing effect on the residents of the *barangay* proves his strong life style concerns.



As the *barangay* was filling with residents (photo, above), it would reveal a landscape of both stark concrete-core towers, containing sanitary facilities, and houses built by residents around them. The precast towers would be installed by a crane (drawing opposite, top), traveling over a linear utility trench. Houses—although subject to the availability of materials and owners' desires—are suggested to be in split-level form on either side of the cores, and in groups of six around a common utility connection.

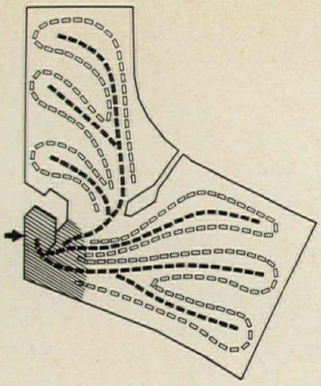


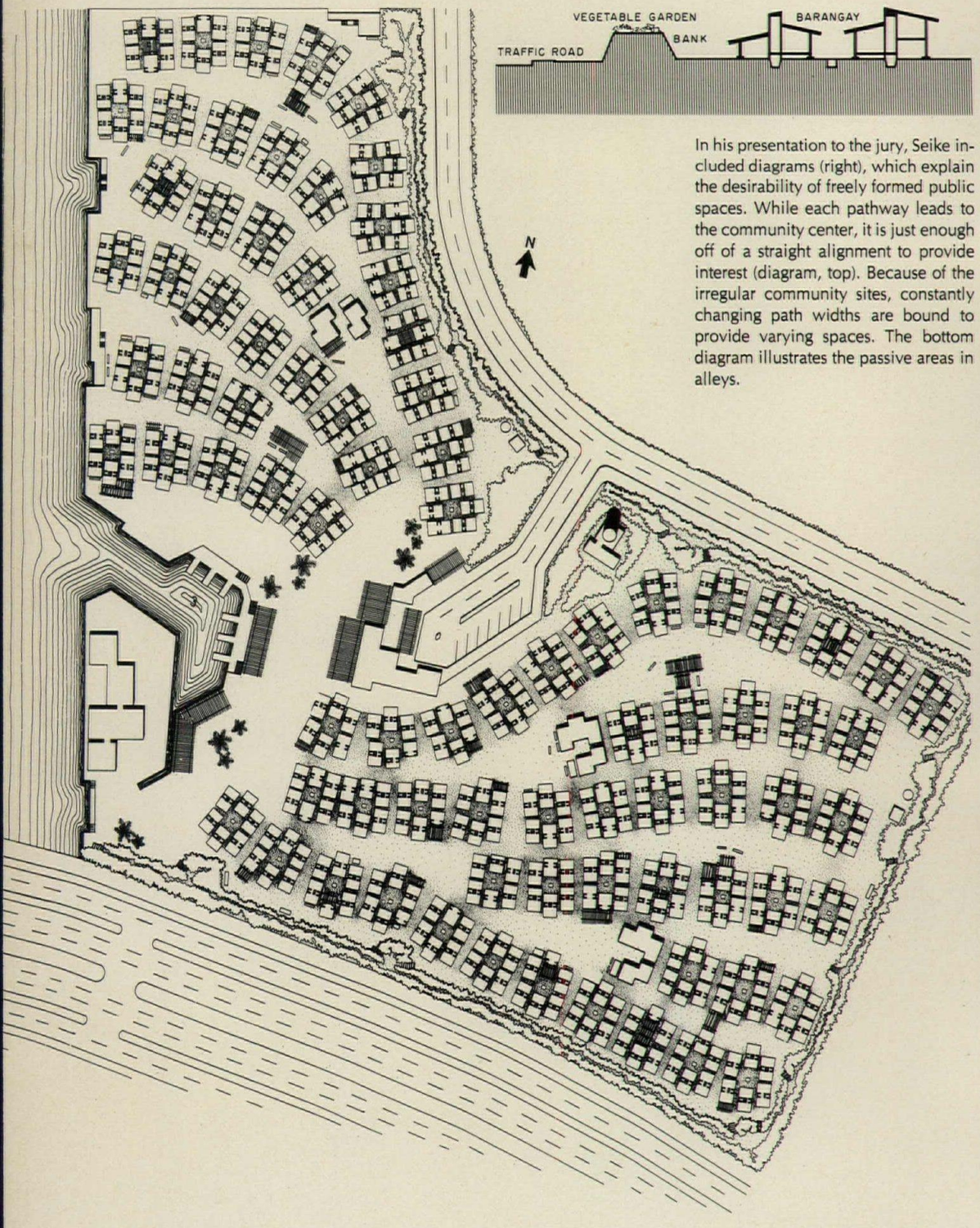



EXCAVATION
1,800 x 4,500 x 1,500 (depth)
Excavating by Power Shovel
LEVELING
POURING CONCRETE
SUB - SLAB
SETTING
LAYING BROKEN
STONES
PEGGING
30cm in thickness

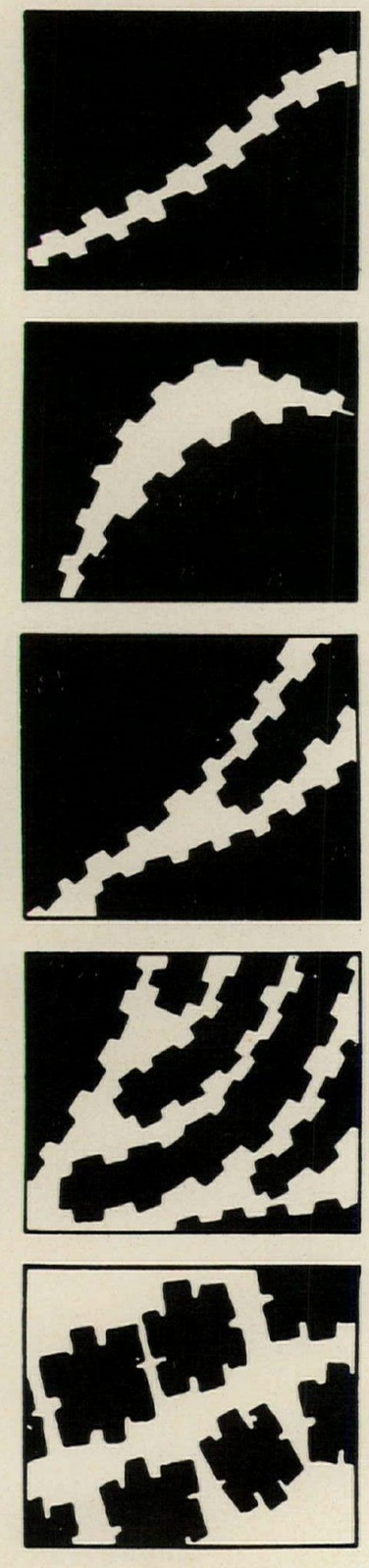
Neighborhood plans, can be generated both by the utility lines —and a humane concern for small-scale spaces

Continuing his sensitivity to technological and life style concerns alike (displayed in his proposal for the housing units shown on the last two pages) Kiyoshi Seike proposes that each *barangay* be laid out by a committee of residents. But the arrangement of houses would be loosely controlled by the nature of freely placed linear utility trenches (see drawing, page 150, bottom). The trenches radiate from a central point between the buildings of the community center (shaded area in diagram, right). The irregular widths and winding plans of the spaces that would naturally occur between rows of buildings are regarded as assets, which would provide visual variety and accommodate differing communal functions—like basketball, markets and meetings—while still allowing fairly direct access to the center. The alleys between groups of houses would form eddies in the main traffic flow for quiet community activities like reading and talking. Each *barangay* would be surrounded by a communal vegetable garden on a community-defining earth berm (section, below). It is planned that many goods (especially materials and equipment during the construction) would arrive by water.



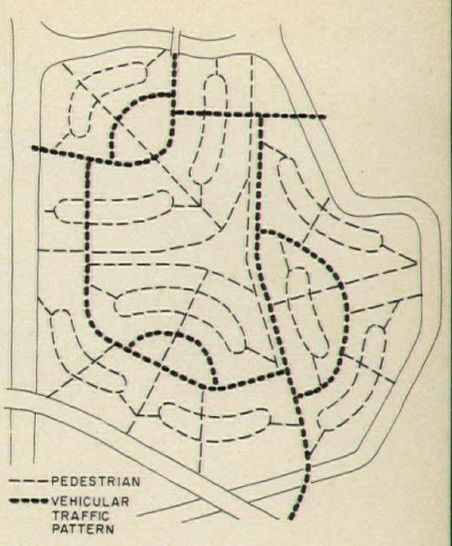


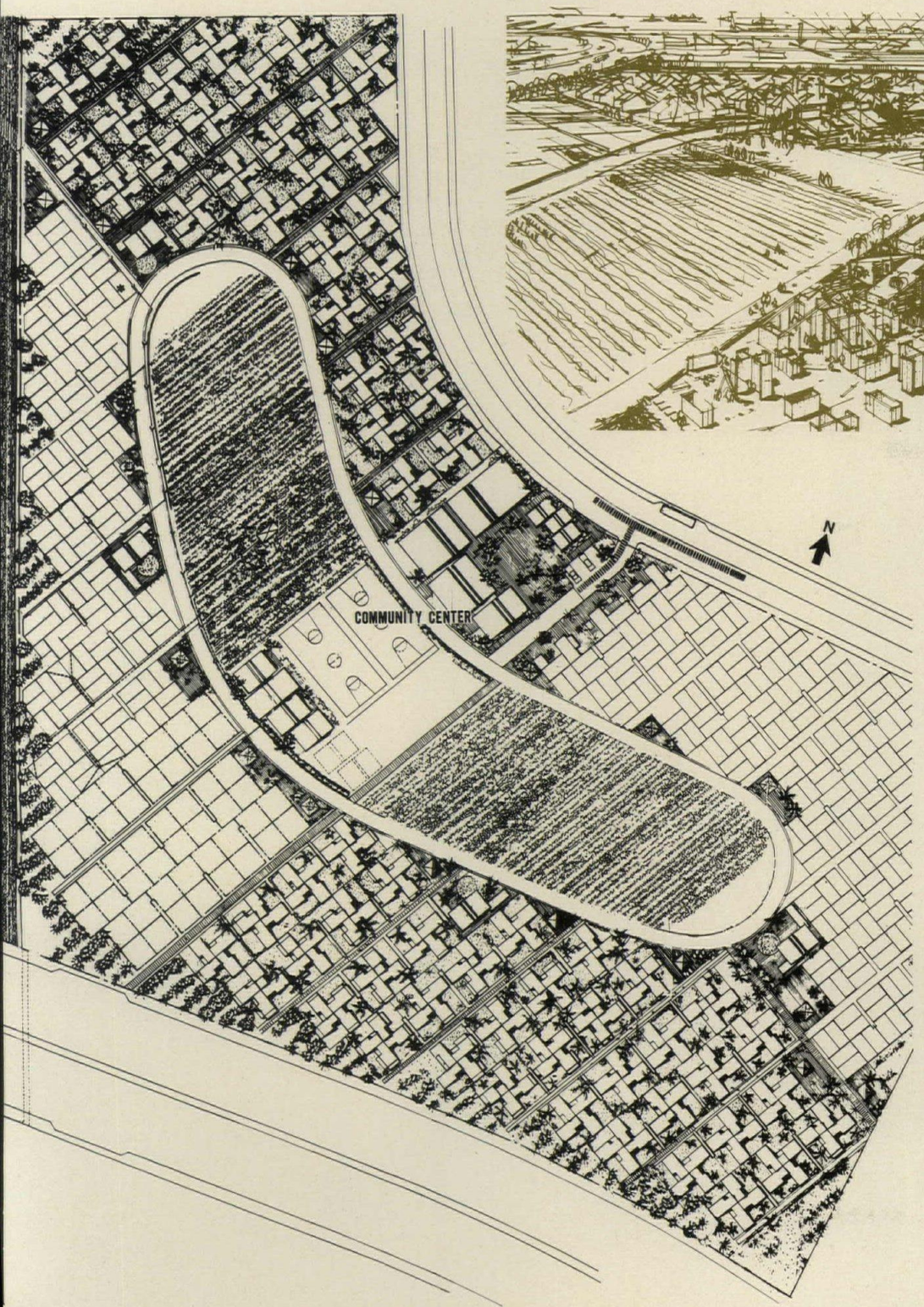
In his presentation to the jury, Seike included diagrams (right), which explain the desirability of freely formed public spaces. While each pathway leads to the community center, it is just enough off of a straight alignment to provide interest (diagram, top). Because of the irregular community sites, constantly changing path widths are bound to provide varying spaces. The bottom diagram illustrates the passive areas in alleys.

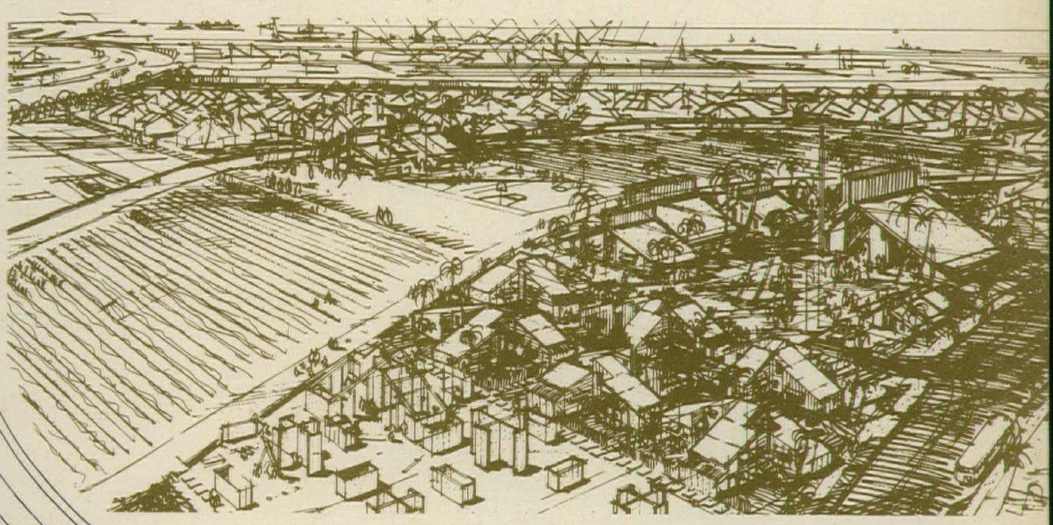


Or each *barangay* could have one large open area for common uses, as proposed by architect Iwao Onuma

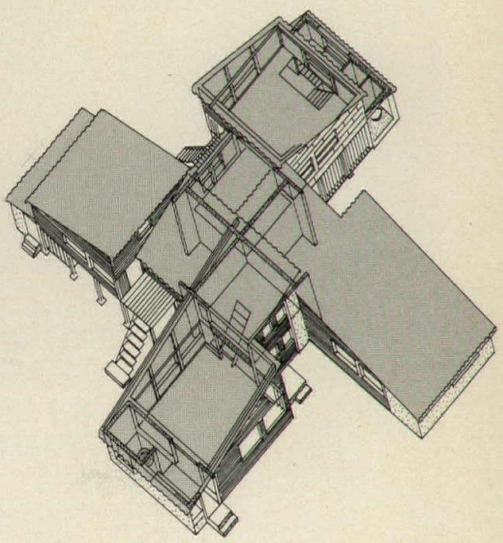
Another Tokyo architect proposed a very different plan from that of Kiyoshi Seike on the opposite page. Instead of distributing open space and houses in a fairly loose manner on almost all of the site, Iwao Onuma proposes that the houses be built in tightly-knit groups of four (see isometric view) with concrete kitchen-toilet units at the lot lines and intersecting concrete party walls. Much of the remaining materials would be supplied by the tenants. The resulting savings in land coverage would allow a large central common area for primarily agricultural use. The elongated shape of the area would place a maximum number of houses close to the residents' own plots, and wide peripheral walkways would also accommodate emergency vehicles. Sewage treatment for the entire community could be processed within the open area and the effluent percolated into the soil. Water supply for agriculture, toilets and washing would come from the river through open channels around the common area. Despite the rather dense construction that would occur, the scheme has the appeal of providing an urban character with its attendant hierarchy of spaces.







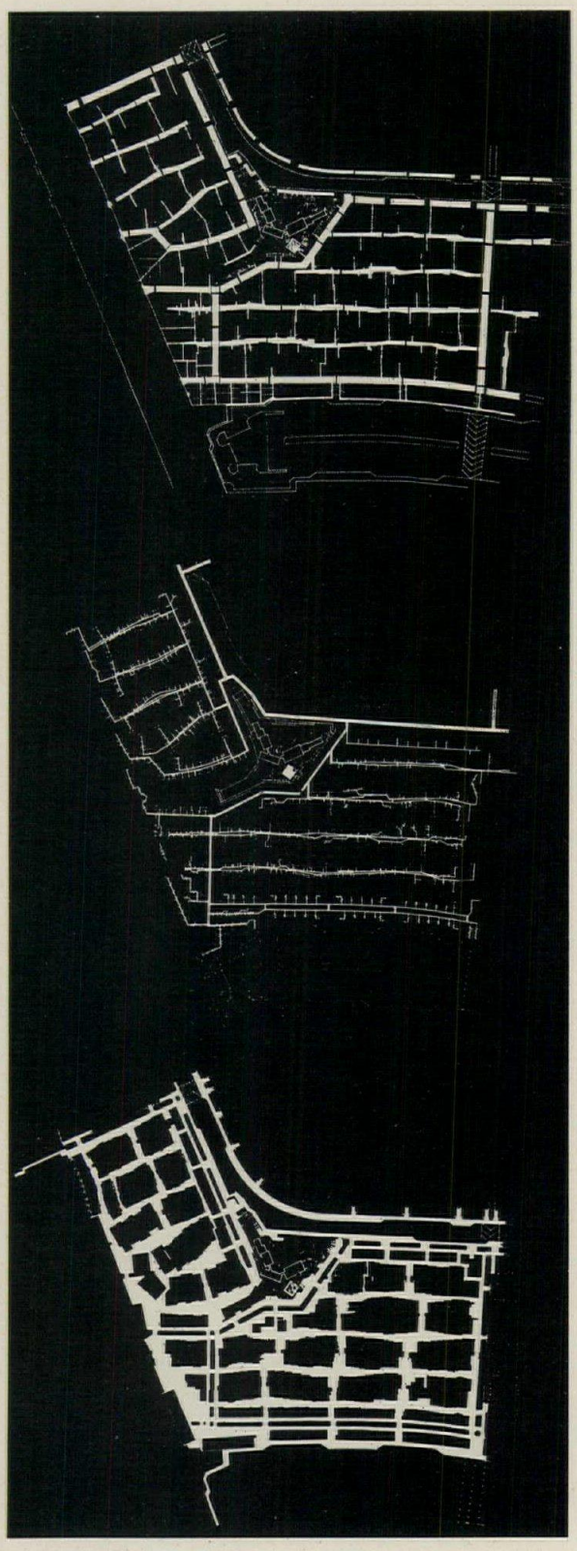
The elongated shapes of the common areas would conform to a group of communities in a manner shown at the top of the page. The tightly knit house layout necessary to produce the open space is shown below. Its construction sequence can be seen in the various stages of progress in the perspective drawing. The location of the community center at the entrance from the major roadway, the large central open area, and the small private yards of the houses define a very strict pattern of land use.

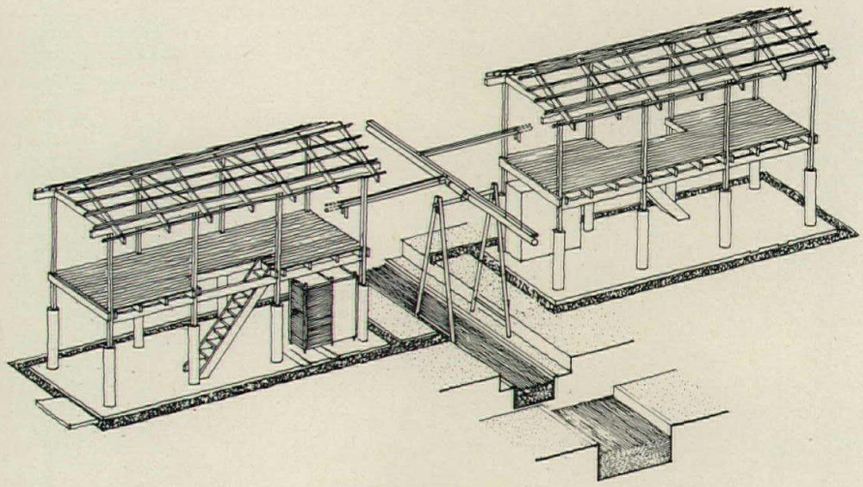


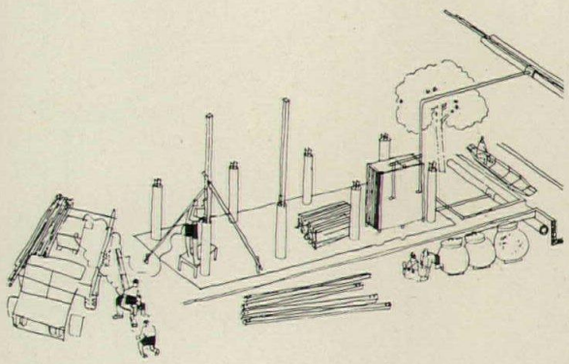
And one planning proposal by architect Kum-Chew Lye proposed intensive use of the water that covered the site

Responding to the fact that the site had been covered with fish ponds, Kum-Chew Lye of the University of Manitoba designed a plan that would lace the *barangays* with a system of river-fed main channels leading to navigable smaller channels between each row of houses. These waterways would provide drainage and allow small boats to deliver goods and pick up garbage. Small concrete channels around each house (shaded rectangles on the plan, opposite) would provide positive drainage for ground floors. Over each waterway, ganged pipes would bring potable water and utilities first to the construction sites and later to the houses (drawings below). In some areas, these pipes would support temporary structures for markets and provide shade from the sun (drawing, right). Because of the low elevation of the land required to promote a free flow of water, each *barangay* would have a refuge mound for safety during storms. Lye emphasizes the small amount of fill that would be required by his scheme. He also points out that the high ground floors required to raise living areas above flood levels can be used for residential expansion and the owners' commercial enterprises.

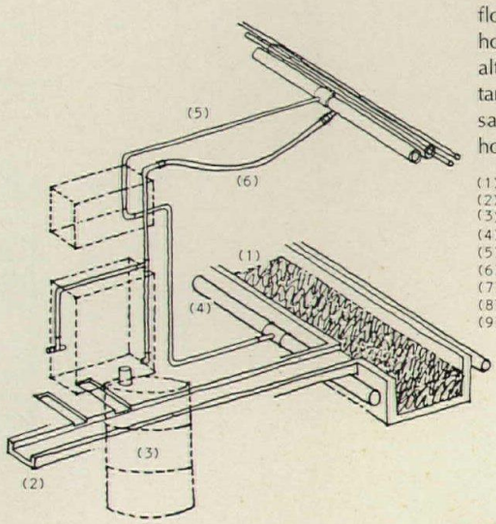
Lye was one of many entrants who emphasized that, even though their drawings suggested definite forms for over-all planning and for houses and utilities, the diversity arising from detailed planning by the residents was not only inevitable but desirable. His prototype house would have a poured concrete ground floor and concrete columns supporting a wood structure above, sheathed in corrugated galvanized roofing and adjustable vertical louvers, instead of walls. Cooking facilities would be placed on the second level, and washing and sanitary facilities on the first floor.



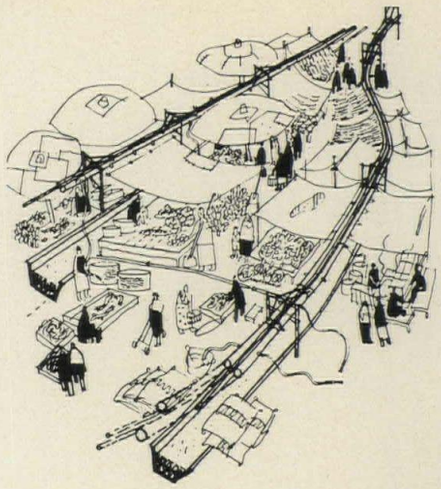


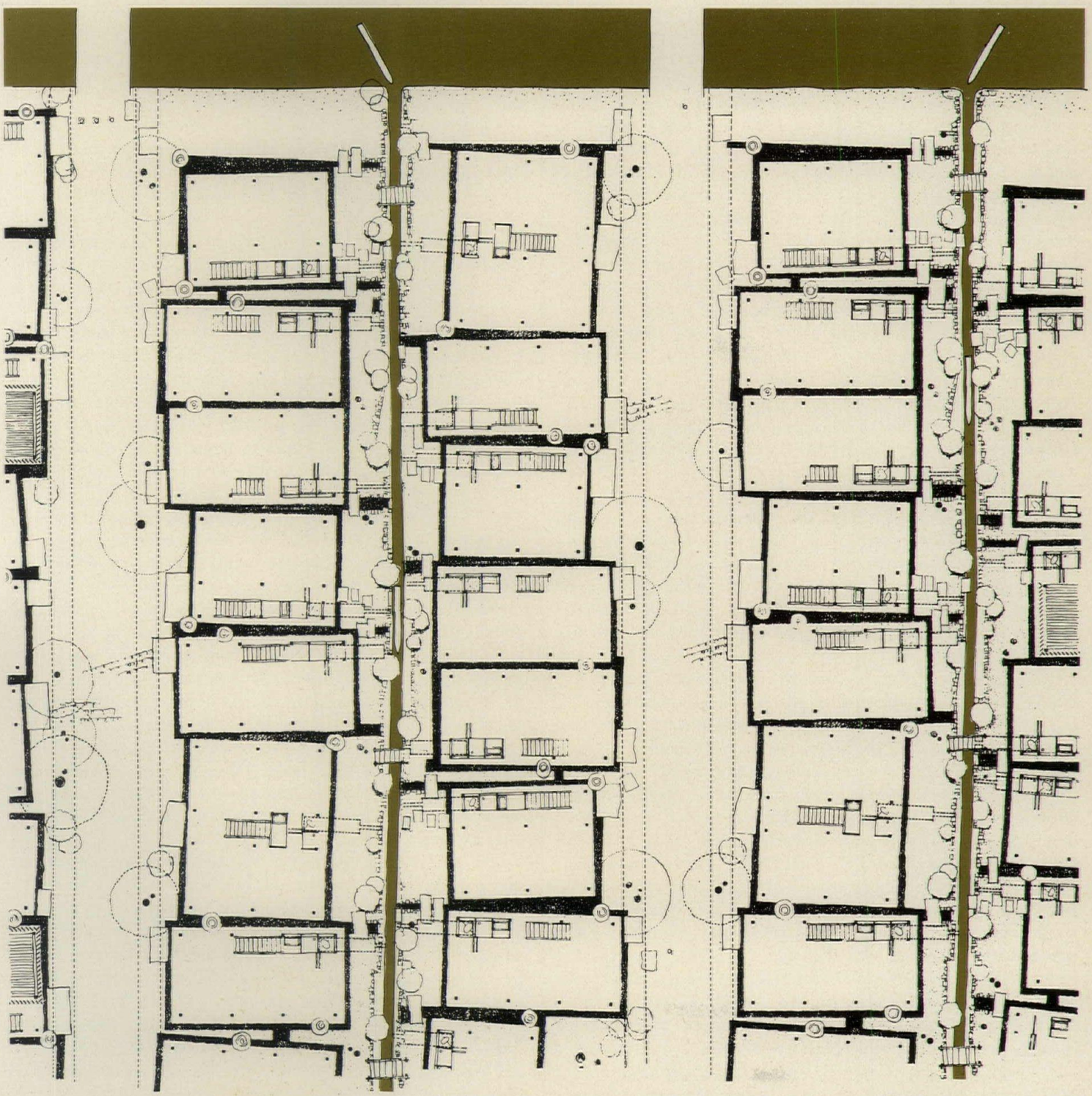


The plans at left show the various systems individually for an entire *barangay*. At the top, the main waterways are shown with heavy lines, broken to indicate bridge locations, and the lighter lines are the secondary canals (with stub feeders) between rows of houses. The middle plan shows elevated utility lines above the canals, and the bottom plan indicates the location of walkways between the canals. In the plan (opposite) the systems come together between the indicated ground-floor drains of the individual houses. Wide pedestrian streets alternate with the narrow utilitarian rear yards. The typical sanitary arrangement for a house is shown below.



(1) open drainage canal
(2) precast concrete drainage
(3) septic tank
(4) sewer pipe
(5) drinking water
(6) washing water
(7) sub utility line
(8) cooking
(9) washing,bath and toilet





A RECORD staff analysis of the results: The housing and community design input was excellent, but perhaps even more important was the thinking about how much technology is appropriate, how to finance the projects, and the best ways to help motivate people...

As careful study of the foregoing pages will indicate, the leading competitors in the IAF competition differed widely in the degree of technological sophistication proposed for the housing. At the extreme of zero technology, architects Holl, Tanner and Cropper suggest that the new inhabitants of the Dagat-Dagatan resettlement area build their dwellings as best they can, as they always have (pages 136-139). The government would construct an arcade, which, according to the architects, would be "essentially the construction of a line, defining public and private space." Beyond this, the government would provide a minimum of utilities for the biological life of the human community.

Among the competitors who called for moderate use of the processes of industrialization and prefabrication for the housing was the first prize winner, Ian Athfield (pages 114-123), who proposed that the coconut palm become the basic material for prefabricated panels and chip-based cement blocks. Many competitors, particularly the Japanese, proposed high-technology solutions predicated upon the assumption that the Government of the Philippines would invest in the plants and equipment necessary to manufacture the basic components. The second prize scheme by Tagaki Design Associates most fully realized the potential of this approach. Almost no competitors proposed prefabricated, lightweight plastic capsules as dwelling units. It can be assumed that the architectural and planning professions are now more aware of the drawbacks of such an approach.

The leading competitors paid careful attention to the problems of water supply, waste management and energy conservation. Most proposed systems of water collection, solar heating panels, and the use of converters to transform biological wastes into methane gas and/or fertilizer. The use of garbage as fertilizer was also widely recommended. The competitors showed a great interest in the use of windmills as an energy source.

The competition program urged the competitors to suggest ways in which the housing could be financed, and this request drew a wide response. Hector Giron de la Peña believes that the land should remain public property and be administered by the municipality. Individual tenants would be given 50-year leases, with a yearly or monthly payment which could be delayed until the building period was complete. He is against private ownership of the land which he considers an unstable solution for low-income people who may be forced to sell their property in the all-too-likely event that they become pressed for cash. He believes that the squatters should form a community housing association which would be legally constituted to borrow money for house construction. This organization would increase collective responsibility and minimize risk. Housing loans, in his opinion, should not be given directly to individuals. Monthly payments would be made by the inhabitants to their housing association, whose directors (from the community) would take into account the economic circumstances of each family and dispense the necessary penalties for non-payment.

Honorable mention winners J. Fong and R. F. Orwell, (pages 140-143), share with almost all of the other competitors, another point of view. They believe that self ownership of house and land by the inhabitant "would be good insurance for the success of the project. Whether it is achieved by contributed labor, by rent equity, or by some degree of subsidy, it is the one element that can generate the pride, responsibility and the upkeep which will make the project a credit to its owners, its city and its nation."

Competitor Iwao Onuma (page 153), believes that the inhabitant must be kept from selling his valuable new residence to outside landlords. He proposes that no owner with an outstanding mortgage be allowed to sell his property. He may, upon leaving the property, receive only the value credited to him. No mortgage holder would be allowed to obtain any form of refinancing or secure any loan using his property as collateral. In his proposal, all land, utilities, public facilities, and other development costs would be initially government financed. This public investment would be repaid by long-term, low-interest mortgages obtained by the settlers. Those unable to pay installments on their mortgages would contribute their labor to the project. The inhabitant would finance his own house through credits given for the value of his original property (assuming he had a legal right to it), through the contribution of his own labor, and through savings.

A number of competitors have proposed that the relocated families simply be given tenure and not be burdened with mortgage payments they cannot afford. Holl, Tanner and Cropper point out that "the ironic problem of government minimal housing is that the families that are the most needy, the ones with many small children, are often excluded from the housing because of inability to meet mortgage payments. Even when they are in occupancy the possibility of eviction undermines the family sense of security and has the effect of reducing enthusiasm to invest energy in developing the house."

Most of the leading competitors assumed that the best way to help the inhabitants to pay for their houses and to improve their economic life in general, was to incorporate labor intensive industries on the resettlement site. Several proposed that the production of building components for the housing and community facilities be one of these industries. Eventually these building product manufacturing plants could serve the wider metropolitan area. It was also proposed that the inhabitants increase their agricultural activity, providing food for the Manila region.

Finally and most importantly, in the best competitors' design submissions, the culture, tradition and basic human needs of the Philippine squatter were respected. Absent was the deplorable tendency to attribute low status to non-Western cultures and life styles, and conversely to assign high prestige values to the high technology of the developed world. Advanced technology, when proposed, was incorporated for its usefulness, rather than merely for its symbolic value.

Perhaps the most significant achievement of the IAF competition is the fact that for once attention has been paid to all of the complex and interrelated considerations which must be thought through if successful human settlements are to be achieved.—*M.F.S.*

The report of the Jury of Assessors for the International Design Competition for the Urban Environment of Developing Countries —Focused on Manila

The jury examined 476 projects. The jury was impressed by the effort, interest, commitment and energy demonstrated by the participants from all over the world.

The jury's deliberations were particularly affected by the stipulation of the competition that "the government of the Philippines has committed itself to commission the winning architect subject to Philippine law and to build the project."

This competition is unique inasmuch as it attempts to deal with one of the most complex and pressing of contemporary urban problems. It addresses itself to problems in the field of community organization, housing and self-help—construction methods, ecology, energy and resource conservation as well as urban design—under the most extreme economic constraints. While the competition was called to propose solutions to a particular site in Manila, the jury was conscious of the fact that the problems and solutions being examined can have relevance to situations in many parts of the world.

The jury began its deliberations on Sunday, February 1, 1976, and continued meeting every day until the final decision was made on the evening of Thursday, February 5, 1976.

The jury awarded first prize to Ian Athfield of Wellington, New Zealand. His project offers compelling concepts both at the scale of the family and its house, and the community as a whole *(barangay)*. At the scale of the house, the jury was seeking housing designs that maximize livability and the possibility of self-help and improvement. We believe that the winning design meets both these objectives.

The construction methods proposed in this scheme seemed to the jury to strike the right balance between traditional material and innovative methods. The proposed solution draws on the building vernacular of the Philippines, developing it at an effective level without introducing high technology and sophisticated methods which are beyond the capacity of the community.

The environmental characteristics that emerge are rich and varied and express a balance between the community's rural roots and its emerging urban life. The architect has demonstrated at every level, from house, to cluster, to *barangay,* his sensitivity to the culture and life style of the community and its aspirations.

One of the most courageous aspects of the proposal is making the workplace of the community a major element of the design. This is done in the form of industrial/commercial/agricultural uses that are articulated into a system of linear structures, which define the boundaries of the *barangays.* This proposal closely integrates living and work places, and by being placed along the community's major road network, it conceives them as being hubs of activity interconnecting the various *barangays.*

While the jury is impressed with this concept, it has some reservations about the scale and extent of these structures. We therefore suggest that careful study be undertaken in cooperation with the community and the government of the Philippines to phase the construction of these linear buildings in response to the community's needs.

The jury assumes that the proposed design will provide the basis for the beginning of a process of growth in which the community and the government of the Philippines will interact to effectively shape the final outcome.

The second prize, by Mikiro Takagi, Kunihiko Hayakawa and Keiichiro Takahashi of Tokyo, is a bold proposal. The architects have devised a system of arcades which define the major and minor routes in the *barangay,* creating a sense of order and effective open spaces, and integrating the community facilities in a manner that would arouse community pride.

This articulation between public and private construction provides an order within which the individual house can grow in various and random patterns.

Unfortunately the jury was disappointed to find that the housing patterns proposed are unnecessarily regimented and do not allow for an effective response to the varied needs of the people.

The third prize, by Sau Lai Chan of Manchester, England, is a well worked out cluster-grouping with all the benefits of this form of organization: a clear hierarchy of spaces from individual lots to common courtyards and main thoroughfares.

The competitor chose the windmill as an element which has both a functional purpose and forms a landmark for the clusters.

The jury particularly commends the waterfront treatment and the organization proposed for the over-all plan for the immediate adjacent community.

The commended designs were four in number. The proposal by Hector Giron De La Peña and his team from Mexico City proposes a repetitive housing type that attempts to bring about economy in the use of material and achieve unity through the use of this simple building form. The design by Steven Holl, James Tanner and John Cropper of San Francisco proposes a precast concrete arcade used as a unifying device defining the main public spaces and suggesting no government intervention in the construction of individual houses. The jury also commended its sensitive over-all plan. The project by Jim Fong and Robert F. Olwell, also of San Francisco, is based upon a well worked-out row-house system with a commendable network of public passages and spaces. Finally the proposal by Akira Kuryu of Tokyo develops a well-ordered relationship of roads and walkways organizing the buildings in a branching system. There are a number of interesting construction proposals and the presentation is well documented.

Eric Lyons, Chairman
Balkrishna V. Doshi
Moshe Safdie
Mildred F. Schmertz
General Gaudencio V. Tobias

World leaders in the struggle to improve conditions of human settlement around the world urge—in these comments—more planning and design input of the kind generated by the International Design Competition

Barbara Ward, noted author and economist:
The following is excerpted from "Human Settlements: Crisis and Opportunity," an unofficial report published by the Ministry of State for Urban Affairs, Ottawa, Canada. The report is based on a meeting of experts preparing for HABITAT.

The environment in human settlements is determined by a variety of factors—social, functional, spatial—but the most immediate, inescapable and profound influences are social influences exercised in the first instance in the home. Here the family survives as a biological unit; with the hope of adequate income, diet, shelter and privacy in accordance with the world's vast variety of climates and cultures. Here citizens receive their first educational formation. Here they learn—or do not learn—love, security and the sense of how to live with other human beings. The house is the core, the central place, the starting point of all life in human settlements, in short, of human life itself. The tragedy that follows from the world's record of blighted housing and decaying slums is that it can deprive the citizen of the very foundations of security and self-respect.

All societies are in need of research for new ideas and techniques in such critical fields as more productive building technology, the better use of materials and machinery, flexible and efficient means of mobilizing savings for use in settlements, particularly for low-cost housing. But the need for new concepts is much greater in developing areas. Much "advanced" technology—aimed as it is at capital-intensive, labor-saving methods—is quite out of place in economies in which a quarter of the labor force may be out of work. The prestige of "modern," often imported materials, has tended in many areas to reduce the use of local resources and to inhibit experiment in locally produced variants of roofs, piping, floor surfaces and so forth. Planners have also tended to neglect the degree to which group savings and cooperative schemes can be used to increase investment in housing without recourse to elaborate, often premature, individual mortgages. An uncritical cult of high technology and modernity has also often limited the very great possibilities inherent in self-help projects which set people to work in settlements not only to build their own homes, laundries, meeting halls, communal latrines and bath houses, but also to engage in communal programs to clean up and refurnish the whole rundown city environment.

The activity is, in fact, part of a much wider issue in the successful management of settlements—the involvement of the citizens themselves. Such planning often turns out to be paternalism—wise leaders at the top telling the little people at the bottom what to do. But the wisdom is not always so evident, whereas the experience of actually living in the settlements can stimulate the most lively ideas about what to do with and in them. Consultation before plans are made, a real effort to secure a *local* input, care to see that technical advice is available to the concerned citizens and, later on, an equal effort to involve people in the implementation of plans they have approved—these make up the essence of genuinely popular planning and can create a relationship between citizens, their leaders and the places in which they have to live which is stable, enjoyable and lively. By the same token, it may well cut down enormously on social costs since citizens who care are the best guardians of the settlements in which they live. Violence, apathy, aimless destruction, a busy police force and overcrowded penal institutions are all costs which need not be paid if citizens and their families feel, in the profoundest sense, that they are "at home."

Robert S. McNamara, president, World Bank Group:
The following is an excerpt from his September 1, 1975 address to the Board of Governors of the World Bank.

The deprivation suffered by the poor is nowhere more visible than in the matter of housing. Even the most hardened and unsentimental observer from the developed world is shocked by the squalid slums and ramshackle shantytowns that ring the periphery of every major city in the developing countires of the world.

But there is one thing worse than living in a slum or a squatter settlement—and that is having one's slum or settlement bulldozed away by a government which has no shelter of any sort whatever to offer in its place. When that happens—and it happens often—there remains only the pavement itself, or some rocky hillside or parched plain, where the poor can once again begin to build out of packing crates and signboards and scraps of sheet-metal and cardboard a tiny hovel in which to house their families.

Squatter settlements by definition—and by city ordinance—are illegal. Even the word squatter itself is vaguely obscene, as if somehow being penniless, landless, and homeless were deliberate sins against the canons of proper etiquette. But it is not squatters who are obscene. It is the economic circumstances that make squatter settlements necessary that are obscene.

Though the dynamics of poverty in the cities differ substantially from those in the countryside, the key to dealing with them both is fundamentally the same. What is required are policies and actions that will assist the poor to increase their productivity. Primarily, this calls for measures that will remove barriers to their earning opportunities and improve their access to public services such as transport, education, and health services. Realistic housing policies must be established and firmly implemented.

The fundamental consideration underlying such a program is the reassessment of the role of the cities in the development process. Urban poverty can be cured nowhere in the world unless cities are thought of as absorptive mechanisms for promoting productive employment for all those who need and seek it. In the past 25 years in the developing countries, some 200 to 300 million individuals have benefited at least marginally by migration, and since even at their unacceptably low levels of income they have been more productively employed in the cities than they would have been had they remained in the rural areas, the national economy itself has benefited in the long run.

This is not to make a case for wholesale migration from the rural areas. It is only to recognize that poverty will persist in the cities until governments determine to increase their capacity not simply to absorb the poor, but to promote their productivity by providing the employment opportunities, the infrastructure, and the services necessary for that pur-

pose. We must identify policies and actions to bring this about.

Enrique Peñalosa, Secretary-General HABITAT/United Nations Conference on Human Settlements:
Unplanned urbanization is the typical form of urban growth in the Third World. It will probably increase; as will the proportion of self-built shelter. This does not make professional planners unnecessary. Quite the contrary, since they are able to understand the phenomenon in depth, planners are already badly needed in the roles of interpreter and catalyst. Planners can explain the squatter problem and its real dimensions to the authorities, with a view to convincing them of the investment involved in these settlements, of the lack of immediate housing alternatives for the squatters, and therefore of the catastrophic consequences of demolition.

Planning professionals can persuade the authorities to provide those services and facilities which are technically, financially, and administratively impossible for the squatters to furnish themselves without help.

Planners can also help the squatters in their fight for security of tenure in order to legalize the settlements and relieve the squatters of the anxiety of illegality.

Finally, the professionals can persuade the authorities that, even for squatter settlements, long-term plans are possible and that the governments concerned should organize relevant legal, administrative, financial and technical mechanisms instead of constantly being taken by surprise.

Squatter settlements are inseparably part of human settlements and they must be accepted as such. They should neither be looked down upon in regard to their standards, technical sufficiency, or lack of infrastructure; nor as regards their differences with the organized city. Conversely, the ingenuity of the inhabitants need not be magnified nor their spontaneity exaggerated. The professional bodies must recognize and work with squatter settlements as they are.

It is in the improvement of the design and production of the elements and components of shelter that the professional bodies can contribute positively. This production must be geared to the economic capacity of the population both at the household and the national level. It is useless to introduce a technical solution outside the limits of family income or the traditions and aspirations of the country and its people.

J.G. van Putten, chairman, Non-Governmental Organization's committee for HABITAT:
The IAF International Design Competition has generated noteworthy ideas about the use of materials, the application of self-help elements, the conservation of natural resources and the safeguarding of valuable community characteristics.

The competition demonstrates that major technical problems can be solved. One can only be glad that the 17,000 families that will be resettled on the Dagat-Dagatan site will be able to profit from this effort. However, technical solutions are one thing; the possibility to apply them on a large scale, another.

A real solution of the squatter problem cannot be brought about without taking into consideration its economic and social context. Will the HABITAT conference have the courage to squarely face this reality and to act accordingly?

J.W. MacNeill, Commissioner General of HABITAT for Canada:
At the HABITAT conference, one of the most important elements in the search for solutions to low-income urban settlements will be the study of methods for the pre-planning of squatter settlements to meet minimum needs. In nations with low average incomes and minimal purchasing power, it is possible to help people to create decent livable communities with basic shelter, a safe water supply, sanitary waste disposal, transportation, and health and education services. Such pre-planning would represent a major step forward for millions of people.

I am therefore glad to welcome the IAF competition initiative in the conscious design of squatter settlements.

C. Eric Carlson, deputy director, Division of Financial and Technical Services, United Nations HABITAT and Human Settlements Foundation:
The results, meaning and impact, of the IAF International Design Competition speak for themselves. For the whole HABITAT exercise, they provide a lesson in participation—by having enlisted the interest, support and sponsorship of the private sector for broad public purposes, as well as by mobilizing the enthusiasm, experience and dedication of thousands of concerned professionals throughout the world. Looking ahead, we can see that future international design competitions will have real usefulness not only for the design of major national and international structures, which has been their role in the past, but for helping to provide solutions to the basic problems of whole communities, including low-income families. Similar competitions to this one for Manila should be held in the other developing regions.

The competition suggests that many universities and specialized faculties would do well to consider major modifications of their programs to take account of the "human settlements" thrust.

Helena Z. Benitez, president, III Governing Council, United Nations Environment Programme; and president, Philippine Women's University, Manila:
The exhibit of the leading entries of the IAF competition will be an outstanding contribution to the Vancouver HABITAT scene. Unfortunately, the resources of all United Nations agencies are now stretched thin, and there is little to spare for the more extensive effort for broad human settlements improvement which such a competition inspires.

To augment the UN Habitat and Human Settlements Foundation's efforts, new instruments should be created, perhaps involving much greater private sector participation. After all, human settlements improvement could be the world's greatest growth industry. The need is urgent, because people can and must acquire a stake in their habitat.

There should be more international design competitions for environmentally balanced communities in both the rural and urban areas of developing countries. From these efforts will emerge demonstration projects ready for incorporation into long-term economic, social and environmental programs based upon broadly conceived national strategies for human settlements location and development.

A final word: With the competition complete, what action could be taken to follow up? There are plenty of useful alternatives. The important idea is that the competition was only a beginning . . .

The International Architectural Foundation has, from the beginnings of its planning for the design competition, had five main goals:

Goal 1. "Alert architects and planners to the gravity of the accelerating urban crisis in developing countries." A few professionals have, of course, long been deeply involved in the problems of human settlements. But it is our hope that the earlier writing in RECORD—and most especially this issue—has brought the desperate gravity of the problems in urban slums around the world to the attention of *most* architects and planners.

Goal 2. "Increase the fund of talent and expertise available for planning human habitations." Surely that is a direct result of the competition. As noted earlier, over 2500 architects in 68 countries registered for the competition; and the 476 entrants from 46 countries who submitted work clearly made an enormous commitment of time and effort in increasing their personal "fund of talent and expertise." While there was not space in this issue to publish much of this work beyond the premiated designs, other work will be shown in *L'Architecture d'Aujourd'hui* and *Nikkei Architecture;* and the bulk of the work will be shown in a book on the competition planned by the IAF for publication early next year.

Goal 3. "Involve architects and planners in the design of a demonstration project in a major city of the developing world." That is now the unique and massive responsibility of the competition winner, Ian Athfield, and his staff and consultants; working with General Tobias and other officials of the Philippine government, and with the residents of the Tondo Foreshore who clearly stand ready to make their contribution of self-help.

Goal 4. "Contribute to the success of HABITAT." Over 2000 delegates from 140 countries—plus technicians and others from non-governmental organizations—will be gathered in Vancouver in May and June to formulate an international strategy to guide efforts in improving the conditions of the urban poor around the world. It is our hope that this issue, and the exhibit of the premiated designs sponsored by the IAF at the Vancouver Art Gallery, will make a modest contribution to that great and important meeting.

Goal 5. "Act as a catalyst for further contributions by individuals, institutions, organizations and governments to the solution of the problems of housing and the urban poor." There are several early opportunities for world leaders in housing and international aid and lending to implement new ideas. The governors of the World Bank meet in October to receive recommendations from HABITAT and decide what action or revision of their important programs they might make—perhaps including a greater role in the redevelopment of cities in the developing world (most of the Bank's activity has been in rural areas). The Inter-American Development Bank also might choose to implement recommendations of HABITAT—including those generated by the competition. And then there is the whole UNEP effort, which might be enlarged or redirected by the UN General Assembly as a result of HABITAT. Individual government officials around the world might see new directions for their programs of human settlement in the concepts and design ideas generated by the competition.

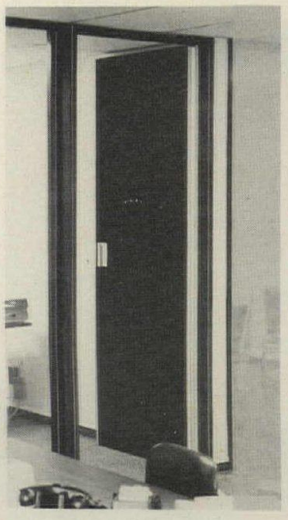
At any rate, the IAF competition has clearly generated some important new proposals for self-help, and a host of new and thoughtful and affordable and socially acceptable ways for governments to intervene constructively in the lives of the poor of their countries. And so—with the competition on which so many people labored so long behind us—we begin. —*W.W.*

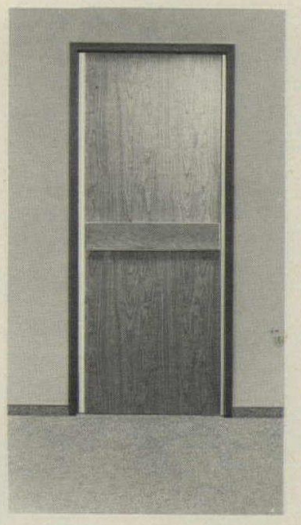
For more information, circle item numbers on Reader Service Inquiry Card, pages 247-248.

Grid ceiling system saves light and air

Synercon 60 gives designers of open plan office spaces great flexibility in the placement of lighting, variable volume air distribution troffers, and acoustical panels. The ceiling system is based on a 60- by 60-in. module hanging 5 ft on center. Runners and cross tees are slotted for air distribution; sprinklers can be placed at any point along grid lines. For open plan offices, *Silok* acoustical board may be specified. The basic lighting fixture is a 14- by 18-in. recessed troffer accommodating three lamps and a variety of return air combinations. The pendant fixture shown provides efficient task lighting, with either lens-louver or double lens control. ▪ Armstrong Cork Co., Lancaster, Pa.

Circle 300 on inquiry card

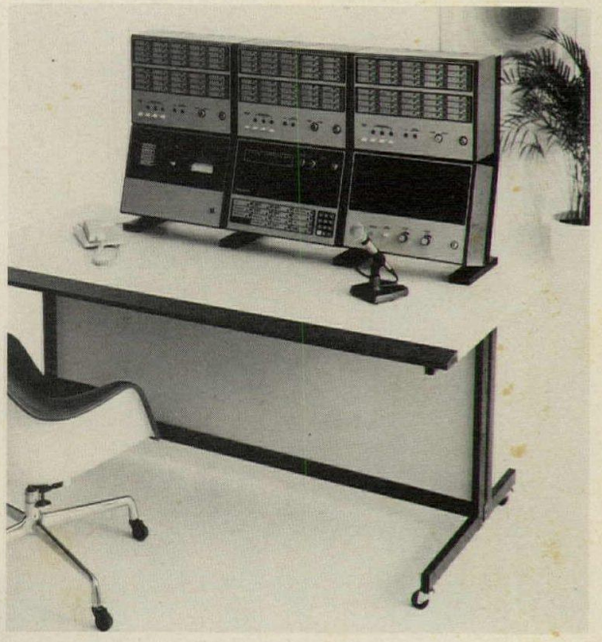




"Pick proof" door offers unique hinge assembly

The "Total Door" is a flush panel unit continuously supported on both the hinge and locking sides by a special hinge and locking channel. The hinge is a 14-gauge concealed metal pivot which permits 180 degree rotation of the door. The I-beam shaped locking channel provides a full-height, secure engagement of door to frame without bolts. The door itself consists of a rigid polystyrene foam core bonded to a steel face. ▪ Openings, Bloomfield Hills, Mich.

Circle 301 on inquiry card



Building control for energy, fire, security

Using standard components, the *Delta 1000* console can provide even smaller buildings with a very sophisticated, precise control of hvac, fire protection and security functions. Shown is a security center, from which one operator can open and close doors in any building within the system, providing access via coded cards. ▪ Honeywell Inc., Minneapolis, Minn.

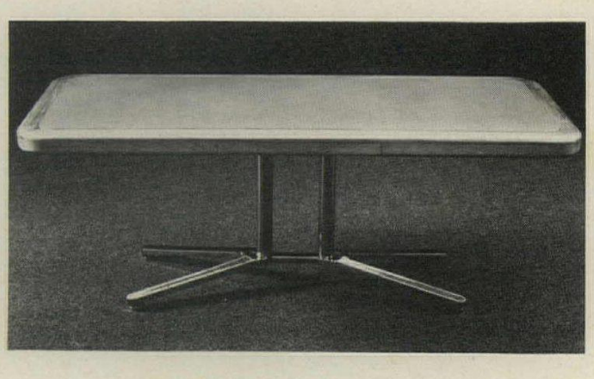
Circle 303 on inquiry card

more products on page 169

Conference table-desk in one unit

Available in a selection of woods and leathers, this conference table by Bob Becker contains a center drawer for use as a desk. The rounded-corner top comes in sizes from 60- by 30-in. to 72- by 36-in., and is set on a steel base. ▪ Helikon Furniture Co., Inc., New York City.

Circle 302 on inquiry card



About the only way to pick this lock is to select it.

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For more information circle item numbers on Reader Service Inquiry Card, pages 247-248.

ELECTRONIC AIR CLEANER / A six-page brochure explains the benefits of two models of electrostatic air cleaners, for use with central cooling and heating systems in either residential or office installations. Each unit is said to remove up to 95 per cent of airborne dust, pollen, odors and smoke. ▪ Lennox Industries Inc., Marshalltown, Iowa.

Circle 400 on inquiry card

REFRIGERATION SYSTEMS/COOLERS / A 28-page catalog presents the firm's line of prefabricated walk-in coolers and freezers; prefab refrigerated buildings; and refrigeration systems and accessories. Architectural specifications for both walk-ins and refrigerated buildings are included. ▪ Bally Case & Cooler, Inc., Bally, Pa.

Circle 401 on inquiry card

STEEL WATER PIPE / A technical bulletin states the advantages of "lightwall" steel pipe for fire sprinkler systems. This pipe, when used with special coupling devices, conforms to ASTM specification A-120 and is NFPA approved. Weight savings of up to 45 per cent are claimed. ▪ Berger Industries, Inc., Maspeth, N.Y.

Circle 402 on inquiry card

ELEVATOR DESIGN / A full-color brochure illustrates various standard and custom designs possible for elevator entrances. Colored enamel, stainless steel and bronze finishes are available; and all entrances meet ANSI code requirements. ▪ Otis Elevator Co., New York City.

Circle 403 on inquiry card

CONVEYORS / A fully-indexed 92-page book lists over 4500 material handling units. Five sections describe standard gravity, belt and live roller conveyors, supports and accessories. Tables list capacities, speeds, dimensions and ordering information. ▪ Rexnord Inc., Material Handling Div., Danville, Ky.

Circle 404 on inquiry card

AIR STRUCTURES / The proceedings of the International Conference on the Practical Application for Air Supported Structures, held in October, 1974, are now available in a 220-page illustrated text. Factual experience data on the use of air-supported structures and provisions for a model building code are included, as well as the results of fire tests. Copies, at $25 each, may be ordered from the organizers of the conference, the Canvas Products Association International, 350 Endicott Bldg., St. Paul, Minn. 55101.

PRECAST PANELS / Photos of actual installations are included in a full-color brochure describing *Ar-Lite* polymer concrete precast panels. Said to be both lightweight and strong, these panels are available in aggregate, textured or special finishes and can include integral poly-urethane or foamed glass insulation. ▪ Architectural Research Corp., Livonia, Mich.

Circle 405 on inquiry card

SOLAR ENERGY SYSTEMS / Economist Rosalie T. Ruegg, of the NBS, is the author of guidelines for evaluating the costs and benefits of solar heating and cooling systems. The 41-page report is intended to provide reliable procedures for comparing the economic merits of solar energy systems with conventional heating/cooling units. Publication COM-75-11070, priced at $3.75 (hardcover) and $2.25 (microfiche) may be ordered from the National Technical Information Service, Washington, D.C. 20234.

FLUORESCENT LIGHTING / Nearly 2800 items in 50 different lines of fluorescent lighting fixtures are described in this extensive catalog. Included are architectural fixtures for institutional, commercial and industrial installations. Information is given on such items as static, air-handling and heat-removal troffers; low-brightness fixtures for classroom lighting; and extra-heavy-duty units approved for use in hazardous or high-ambient-temperature locations. Every fixture is graded by specification rating. ▪ Keene Lighting, Union, N.J.

Circle 406 on inquiry card

LIBRARY SHELVING / A 12-page illustrated catalog presents data on library bookstacks, shelving, and coordinated media storage equipment. Featured are multi-tier bookstacks for accommodating expanding storage needs. ▪ Estey Corp., Red Bank, N.J.

Circle 407 on inquiry card

ARCHITECTURAL GLASS / An eight-page brochure provides the professional with information on such glass products as insulating tempered glass, laminated glazing and custom bent glass. Fabrication and performance data, and possible product variations and limitations are included. ▪ Viracon, Inc., Owatonna, Minn.

Circle 408 on inquiry card

AIR DOORS / The advantages of both heated and unheated models of air doors are given in an illustrated folder. These units, easily installed in stores, restaurants, cold storage entrances, etc., are said to provide protection against dust and insects while maintaining a low noise level ▪ Mars Air Doors, El Segundo, Calif.

Circle 409 on inquiry card

AUTOMATED LAUNDRY SYSTEMS / A detailed folder describes laundry equipment for hospitals, hotels, schools, commercial laundries, etc. Included are washer-extractor units of from 60- to 900-lb capacity and continuous wash and flatwork finishing systems. A new product is a fuel and water saver system for new or existing equipment, which recycles heat and rinse water. ▪ G.A. Braun Inc., Syracuse, N.Y.

Circle 410 on inquiry card

WALLCOVERINGS / A 100-page binder contains actual samples of vinyl and fabric wallcoverings for commercial and office installation. Samples are grouped according to applicable building standards. ▪ Boyd Architectural Wallcoverings, City of Industry, Calif.

Circle 411 on inquiry card

INDUSTRIAL DOORS / A new 28-page catalog covers the firm's full line of rolling service doors, security grilles, fire and counter doors, and side-coiling closures. New slat and grille sizes, designs and finishes are included, as well as *Power Position* motor operators. ▪ The Cookson Co., San Francisco, Calif.

Circle 412 on inquiry card

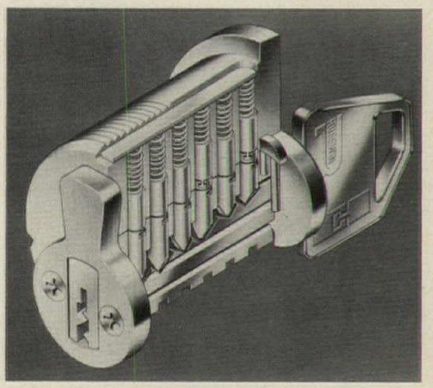
CEILING TILES / *Acousti-Clad* tiles are suitable for environments where cleanliness is critical, according to an eight-page brochure. Each tile is composed of a sound-absorbent core and aluminum cladding; three types of cores are available to meet specific criteria for sound attenuation, moisture resistance and fire protection. The cladding itself comes in various patterns and colors. ▪ Johns-Manville Sales Corp., Denver, Colo.

Circle 413 on inquiry card

more literature on page 185

About the only way to pick the New Emhart High Security Locking System is to select it.

When you specify a lockset incorporating the new Emhart High Security Locking System, you have the key to positive building protection in your pocket. The odds against a would-be intruder beating the system are astronomical!



It's designed so that angular cross-cuts in the key bit* rotate the multi-section tumbler pins a precise number of degrees. This lines up T-slots in their upper ends with mating projections in their upper sections to activate the cylinder. Considering the possible combinations of angles of rotation in the 6-pin cylinder, it's virtually impossible to operate without the key!

Russwin will custom build a high security package to your needs with a fine quality lock and the Emhart High Security Locking System. Emhart System keys can also operate other selected Russwin locks, permitting the use of conventional locksets for normal security plus Emhart System locks in critical areas, all operated with one key. The System's cylinders may also be imposed on new or qualified locking systems.

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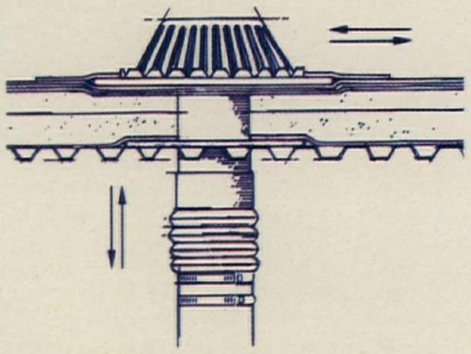
For more data, circle 58 on inquiry card

New J-M Flex-I-Drain... The only roof drainage system that adjusts in all directions to deck and pipe movement.

Traditional rigid drain systems may damage the integrity of the roofing system under the strain imposed by deck and pipe movement.

Unique Flex-I-Drain, the new, patented, *flexible* drain system from Johns-Manville, solves this problem.

Flex-I-Drain has a bellows-type neoprene body that *flexes* to automatically compensate for most deck and pipe motion—both laterally and vertically. So the drain and the roofing system remain functional under those conditions.



Flex-I-Drain offers installation versatility, too. Consisting of two parts, installation of the first part with its no-hub sleeve connection, in conjunction with vapor seal or fire barrier membrane, results in a waterproof installation. With installation of the second part, the Flex-I-Drain sleeve adapts to any thickness of insulation up to 3¼", plus normal roofing membrane, and firmly locks the roof membrane flashing against the roof membrane.

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For more information about this unique new roof drainage system, write for Flex-I-Drain brochure, BU-319A, Johns-Manville, Greenwood Plaza, Denver, Colorado 80217. Or call Don Korte, 303/770-1000.

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Philadelphia-Houston	$26.25
New York-Tampa	$26.25
Chicago-Orlando	$26.25
Detroit-Memphis	$21.00

For full details, call Delta reservations.

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For more data, circle 60 on inquiry card

PRODUCT REPORTS *continued from page 165*

URINAL CARRIER / A recently-introduced universal urinal carrier fits any of more than 30 different types of urinals currently available. Cast iron foot supports are attached to steel uprights and slotted support plates; models are available for both dry-wall and non-bearing-plate installations. ▪ Tyler Pipe, Tyler, Texas.

Circle 304 on inquiry card

HIGH-MAST LIGHTING / Ranging in height from 65 to 130 ft, these steel masts support low-glare lighting fixtures for airports, industrial parks, freight yards and similar open locations. Mast sections are made of galvanized steel; the fully-erected standard can withstand wind loads of 100 mph and a gust factor of 30. A vandalproof door in the mast base permits access to a double-drum, self-sustaining winch and the electrical terminals; these control the vertical motion of the luminaire ring by means of twin 6mm stainless steel cables, each pair capable of supporting the fixtures. ▪ GTE Sylvania, Inc., Stamford, Conn.

Circle 305 on inquiry card

PRE-ENGINEERED ELEVATORS / "GO-LINE" electric traction elevators meet HUD requirements for commercial, health care and residential buildings of up to 30 stories. In-car controls, telephone cabinets and emergency button have been lowered and rearranged for easier use by persons in wheelchairs. A rapid-response entrance system reverses closing doors promptly if a passenger is in the way; and the space between car and hoistway doors has been reduced. Entrances meet UL and BOCA fire-test safety requirements. ▪ Otis Elevator Co., New York City.

Circle 306 on inquiry card

VINYL WALLCOVERING / The *Korolite* line of medium-price commercial wallcovering has added six new patterns. These feature embossed textures ("Candice," a spatter and daub effect, is pictured) with tints and overlays in a range of colors. ▪ The B.F. Goodrich Co., Akron, Ohio.

Circle 307 on inquiry card

ELECTRIC HAND DRYERS / This line of warm-air hand and hair dryers features satin-finished stainless steel housings. The units are designed to be tamper-resistant and economical in operation. ▪ Electric-Aire Corp., South Holland, Ill.

Circle 308 on inquiry card

more products on page 171

THE Stemwinder

NEWS AND VIEWS ON HARDWOODS AND VENEERS

Richard K. Stem
President
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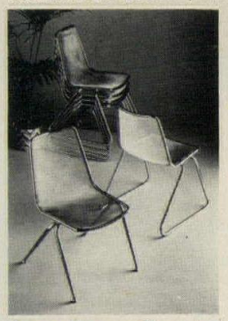
For more data, circle 65 on inquiry card

FIREPROOF CHAIR / *Astro* fireproof stack chairs are said to meet or exceed fire code requirements for institutions with mass seating facilities. The chairs are of all-metal construction with wire mesh seat and back; they stack 20-high for storage. Chrome or colored epoxy finishes, and either standard or sled legs are available. ▪ Fixtures Mfg. Corp., Kansas City, Mo.



Circle 309 on inquiry card

FLOOR BOX / Intended for use with service appliances, communication equipment, etc., this electrical floor box combines low- and high- voltage in the same fitting. UL listed as watertight, the box can be installed in exterior locations, and be locked in either up or down position. ▪ Maxicom Corp., Philadelphia, Pa.

Circle 310 on inquiry card

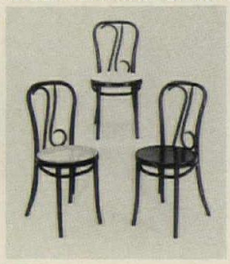
MOBILE STORAGE / These structural-steel-framed storage units are mounted on 5-in. diameter swivel casters for full mobility even when fully loaded. Designed for heavy-duty use in schools and institutions, the cabinets come in a variety of sizes and interior and exterior configurations. Plastic laminate finishes are available in solid colors and wood grains; and with tackboard, chalkboard, etc. applications. The frames carry a five-year guarantee against racking ▪ LSI Corp. of America, Inc., Minneapolis, Minn.

Circle 311 on inquiry card

OFFICE SEATING / This upholstered desk chair is included in the new "Skipper" collection of contemporary swivel, conference and arm chairs designed by Harley Luyk. Seams are deeply welted along both side and back, and the base, in either mirror chrome or bronze, harmonizes with the lines of the seat. The chairs have a hardwood frame, and upholstery of leather or fabric may be selected. ▪ Mueller Furniture Corp., Grand Rapids, Mich.

Circle 312 on inquiry card

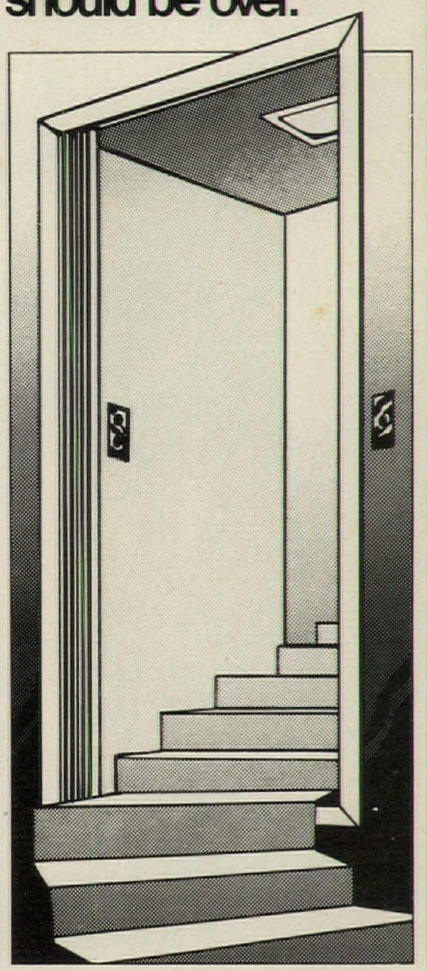
BICENTENNIAL CHAIR / This new version of the bentwood cafe chair incorporates a "76" in its back design. It is available with cane, upholstered or solid seat; the frame may be ordered in a wide range of wood finishes. ▪ Thonet Industries, Inc., York, Pa.



Circle 313 on inquiry card

more products on page 173

When you reach the top, the climbing should be over.



At Sedgwick, we believe that people who've made it to the top deserve certain rewards in life.

The Sedgwick Residence Elevator is one of them.

A specially designed personal elevator, it carries its passengers with an ease and assurance that no other kind of personal transportation can offer.

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Bally Walk-In Coolers and Freezers can be assembled in any size for indoor or outdoor use from standard panels insulated with four inches of foamed-in-place urethane. Choice of stainless steel, galvanized or patterned aluminum. Easy to enlarge . . . easy to relocate. Refrigeration systems from 35°F. cooling to minus 30°F. freezing. Subject to fast depreciation and investment tax credit. (Ask your accountant.) Write for 28-page book and urethane wall sample. Our 182-page *Working Data Catalog* is available to Architects and Specifiers at no charge. Also, see our catalog in Sweets, 11.24/Ba. **Bally Case & Cooler, Inc., Bally, Pennsylvania 19503.** Phone: (215) 845-2311.

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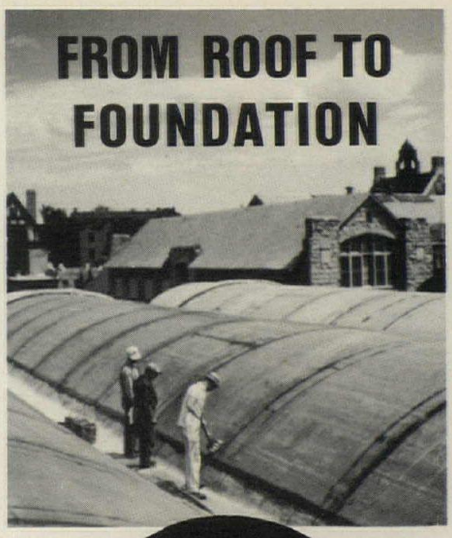

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Complex angles, awkward designs, and waterproofing problems are no mystery to Carlisle . . . whether it is roofing — liquid or sheet, sub-basement, or foundation waterproofing, subway or underground garage — it's Carlisle's business. Whenever containment or exclusion of liquid in any quantities is a problem . . . call Hugh Kenney at Carlisle . . . (717) 249-1000.

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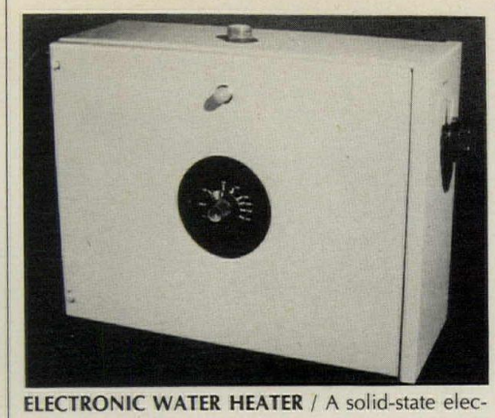
PRODUCT REPORTS *continued from page 171*



ELECTRONIC WATER HEATER / A solid-state electronic water heater, which fits into one cubic foot of space, will supply domestic hot water at flow rates of up to 100 gallons per minute. There is no boiler; the fluid passes between two electrodes and an ac charge is applied, with the electrical resistance of the water becoming the heating element. A sensor controls the precise water temperature, pre-selected up to 212 deg. F. Heating capacities from 3,000 Btu/hr to 3,000,000 Btu/hr can be supplied. ▪ Chronomite Labs, Inc., Carson, Calif.

Circle 314 on inquiry card

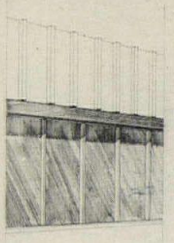
MOLDED PLYWOOD CHAIRS / Designed by Rudd Thygesen and Johnny Sorensen, the "Skandia Stacker" chairs stack six high in both side- and arm-chair versions. Two members of oak veneer molded plywood join as the front and back legs in a multiple-bend design. The plywood seat/back unit may be covered in a variety of fabrics and vinyls. ▪ Thonet Industries, Inc., York, Pa.

Circle 315 on inquiry card

PORTABLE FIRE EXTINGUISHER / Model "PE-25" fire extinguisher is a 2½-gal. hand-held unit charged with "Light Water" foam, a synthetic fluorochemical used in municipal and industrial fire departments. It may be used to combat both Class A fires (wood, fabric, paper) and Class B flammable liquid fires (oil, paints, solvents, etc.). The extinguisher is 24¾-in. high, and may be stored at temperatures ranging from 33 to 120 deg. F. ▪ 3M Co., St. Paul, Minn.

Circle 316 on inquiry card

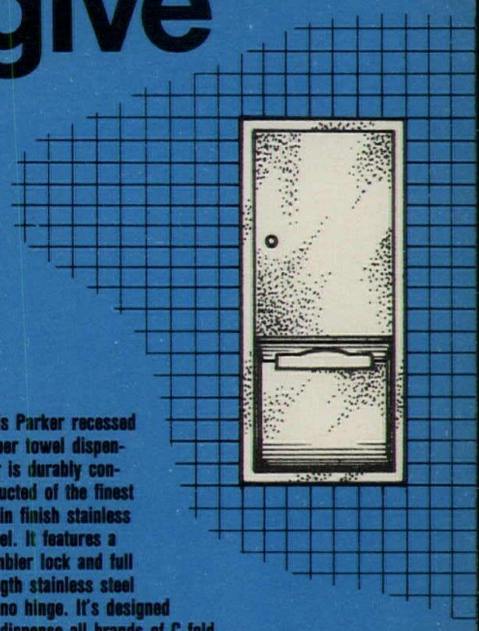
ROOFING PANELS / Mansard roofing panels are manufactured in either 12- or 18-in. widths, and in standard lengths of up to 40 ft. The panels, furnished with full factory-caulked joints, are of three types: plain or painted galvanized steel; plain, painted or embossed aluminum; and aluminized or weathering steel. An integral bottom strip permits installation with concealed fasteners. ▪ Crown Panels Co., West Hartford, Conn.



Circle 317 on inquiry card

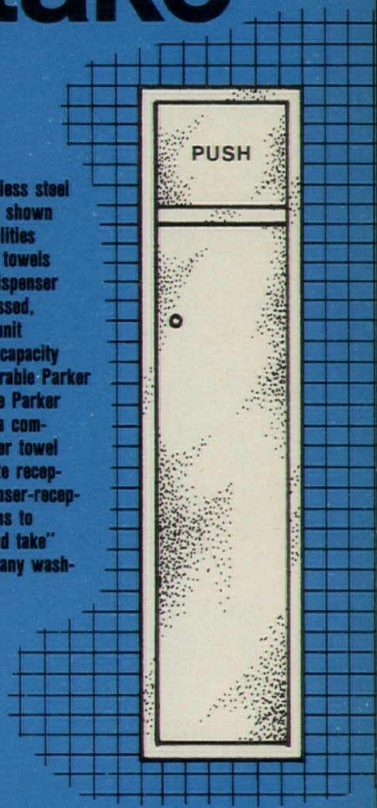
more products on page 175

give



This Parker recessed paper towel dispenser is durably constructed of the finest satin finish stainless steel. It features a tumbler lock and full length stainless steel piano hinge. It's designed to dispense all brands of C-fold, multi-fold or single fold paper towels.

& take



The Parker stainless steel waste receptacle shown provides the facilities to take back the towels that the above dispenser gives. This recessed, easy-to-service unit features a large capacity and the same durable Parker construction. The Parker Family includes a complete line of paper towel dispensers, waste receptacles and dispenser-receptacle combinations to provide "give and take" convenience for any washroom area.

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Rimrock Mall, Billings, Montana

Architect: Charles Kober Associates

Beautiful is expensive, right?

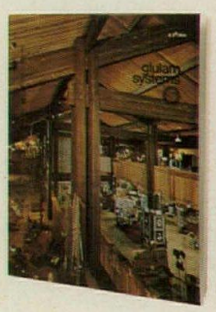
Wrong!

GLULAM—Structural Glued Laminated Timber—offers architects as much in cost efficiency appeal as it does in aesthetic qualities. And that's an established fact! Yet, some specifiers still aren't convinced that glulam can be both appealing and economical.

If you routinely think of certain structural materials as being for certain type projects, here's a different line of reasoning to consider:

- Glulam is a stress-rated structural framing material that's competitive for most types of construction projects
- Engineered glulam installation is fast and efficient
- Exposed glulam is creatively attractive and eliminates expensive drop ceilings
- And, the fact that glulam can be manufactured to virtually any size or shape presents you with design opportunities limited only by your creative imagination.

Cost efficient glulam?
Right!



AITC's comprehensive "Glulam Systems" catalog details glulam use in a variety of applications. Extensive technical design information will convince you that your recommended specifications should call for structural glued laminated timber—glulam.

Write for your copy.

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Call **800/525-1625**—Toll Free!

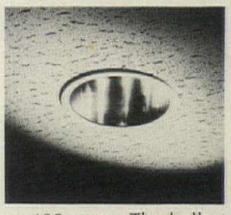
Sweet's Architectural and Industrial Construction Files/Spec Data: Prefabricated Structural Wood

For more data, circle 57 on inquiry card

FLOOR MATS / This foam backed, vinyl loop material prevents dirt from being tracked onto floors and carpeting where there is heavy foot traffic. The "Nomad" mats can be permanently "imprinted" with a company logo, etc. Maintained by vacuuming or hosing, the mats are available in 3- by 5-ft and 4- by 6-ft area mats and 20-ft-long rolls; in red, gold, beige or green. ▪ 3M Co., St. Paul, Minn.

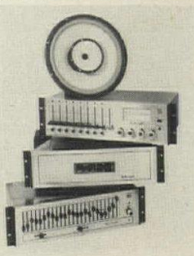
Circle 318 on inquiry card

DOWNLIGHT / The recessed downlight illustrated uses an *Alzak* reflector to lessen brightness while transmitting almost all of the lumens produced by the lamp. The fixture will take mercury vapor, metal halide or high-pressure sodium lamps of from 70 to 400 watts. The ballast is said to reduce vibration and noise. ▪ Markstone Lighting, Chicago, Ill.

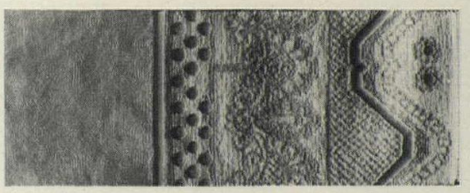


Circle 319 on inquiry card

AMPLIFICATION SYSTEM / The new "Tech-craft" series of audio products is designed to bring home-quality sound amplification to installations in auditoriums, airports, sports arenas, etc. Units include mixer-amplifiers, power amplifiers, equalizers, horns and speakers, all solid state and designed for mounting in standard 19-in. equipment racks. ▪ Bogen Div., Lear Siegler, Inc., Paramus, N.J.



Circle 320 on inquiry card



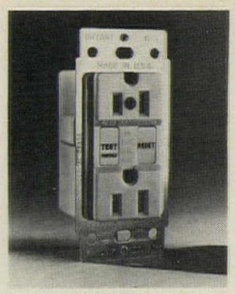
CARPET / "Puntilla" is an all-wool rug designed to reflect the homespun appearance of handmade Colonial-era bedspreads, according to the manufacturer. Accents of handtufted silk set off the worsted wool pile of the detail shown above. ▪ V'Soske, New York City.

Circle 321 on inquiry card

PORTABLE OFFICE / The "VersaCoustic Room" is a prebuilt galvanized enclosure, complete with ventilation, lighting and flooring, designed to serve as an office or work station on production floors. A noise reduction of 20-35 db is claimed for the units, which are 7 ft 6 in. high, and either 6 ft square or 7½ by 10 ft. ▪ Allforce Acoustics, Erie, Pa.

Circle 322 on inquiry card

GROUND FAULT RECEPTACLES / A new line of heavy-duty ground fault receptacles meets or exceeds all UL tests for "Hospital Grade," and conforms to existing Federal and 1975 NEC specifications. Continuously monitoring a circuit for ground faults, the *GFR* units protect against shock hazards of line-to-ground faults. The housing is impact-resistant thermoplastic, and may be installed flush in standard 2½-in.-deep wall boxes without adapter plates. The receptacles are two-pole, three-wire grounding; and either 15a/125v or 20a/125v. ▪ Bryant Electric Div., Westinghouse Electric Corp., Bridgeport, Conn.



Circle 323 on inquiry card

STEAM GENERATOR / Constructed to ASME requirements, the "Series 800 L-1" electric steam generators have steam outputs from 750 to 1,500 lb/hr, and kW ratings of from 252 to 504 kW. The units are intended for a variety of steam needs, including heating, humidifying and sterilizing. Immersion elements are Incoloy or stainless steel, and operate independently from the water supply's mineral content for smooth steam generation. ▪ Patterson-Kelley Co., East Stroudsburg, Pa.

Circle 324 on inquiry card

more products on page 177

pre-engineered or custom steel doors, frames---and hardware---all from one well-stocked local source.

Good news, because it means you can be flexible in your door and frame design without causing headaches on down the line. Curries Distributors are complete distributors. They carry almost everything required to fill an opening in the wall.

In addition to pre-engineered steel doors and frames of nearly every size, face width and jamb depth, they can also supply custom made doors and frames.

They carry finish hardware, too. They have fabrication shops. And, because they are stocking distributors (with a major manufacturer behind them) they can deliver material on time.

For details on our doors and frames, call your local Curries Distributor. He's in the Yellow Pages under "Doors" or "Doors-Metal".

Or see Sweets/8.2.

Or write: Curries Manufacturing, Inc., 251 9th St. S.E., Mason City, IA 50401. (515) 423-1334.

American Bicentennial 1776-1976

CURRIES THE METAL DOORMEN

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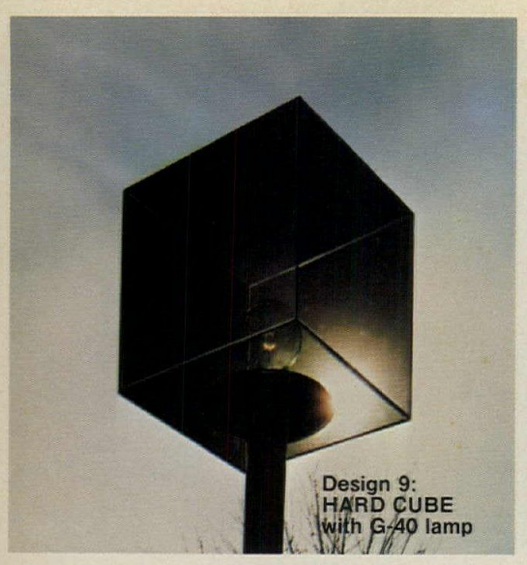
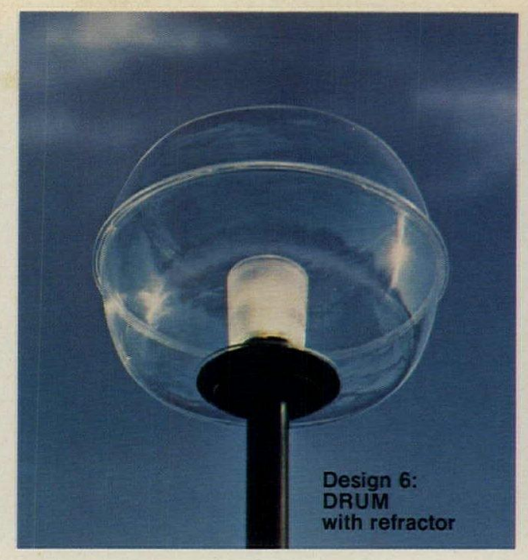
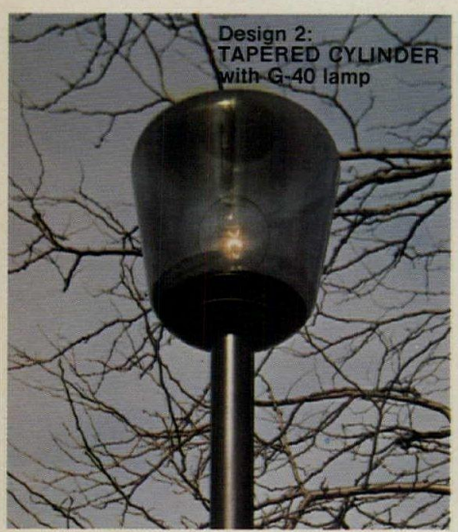
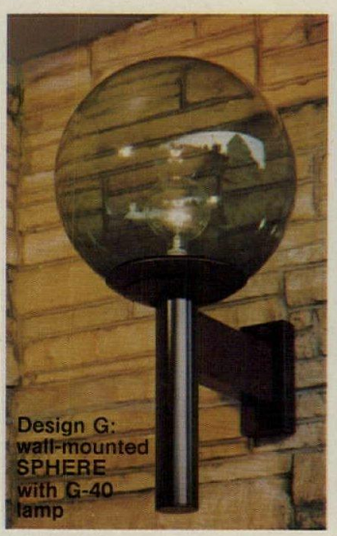


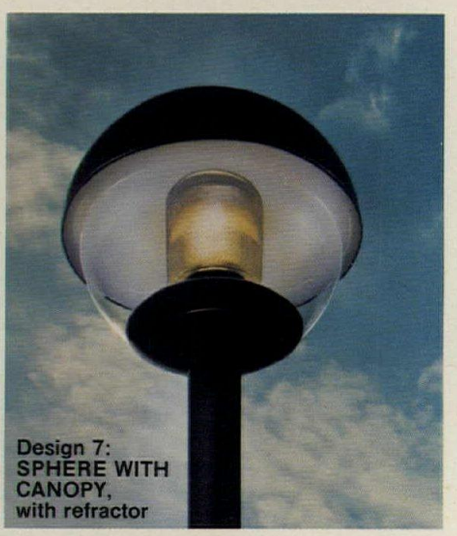


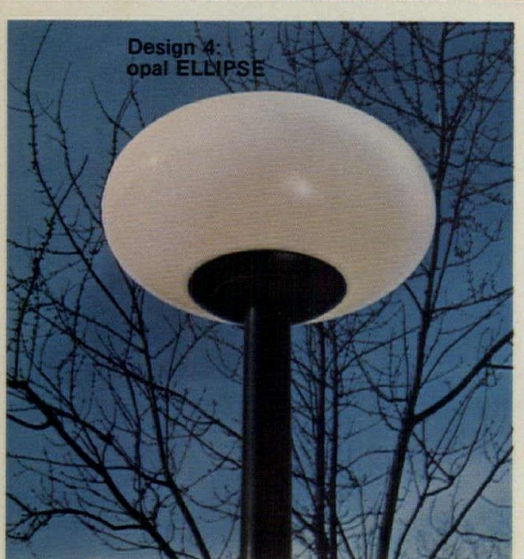
APPLETON GLO-METRICS™

Contemporary Outdoor Luminaires









Appleton Glo-Metrics offer ten contemporary diffuser shapes, for wall, poletop or cluster mounting, with matching poles. Opal-white or transparent diffusers, with or without refractors. Choice of light sources and lamp wattages, with "in-pole" ballasts. Write for Glo-Metrics catalog. Appleton Electric Co., 1701 Wellington Ave., Chicago, Ill. 60657.

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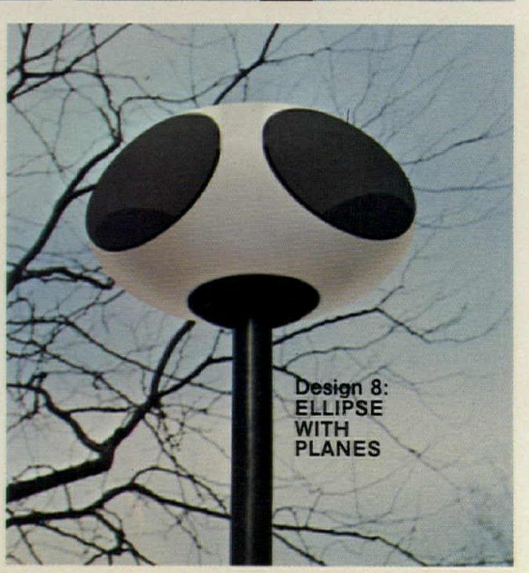
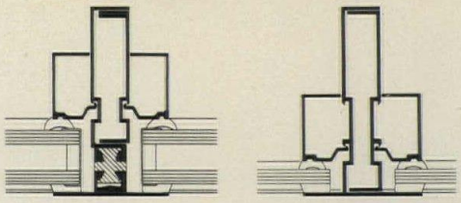


SEAMLESS MULLION FRAMING



THERMAL NON-THERMAL

GLASS FRAMING SYSTEMS / A *Seamless Mullion* is featured in three new glazing systems designed to lower installation costs and reduce energy consumption. The insulated "SM 350T" and "SM 425T" series have a PVC separator that breaks contact between exterior and interior aluminum, reducing heat transfer through the sash. "SM 350" is non-thermal; the 3½-in. mullion accepts either ½-in. glass or 1-in. insulating glass. All systems may be steel reinforced for greater wind loads, and can accommodate conventional vents. The framing is factory fabricated; installation and glazing is done from the building interior. ▪ Kawneer Architectural Products, Niles, Mich.

Circle 325 on inquiry card

DISPLAY PANELS / The *SHO-WALL* portable space division and display panels are now available in topical red, white and blue. A special nylon surface accepts *Velcro*-attached letters and graphics. Each panel is 8-ft wide, and either 6- or 7-ft high. ▪ The Brewster Corp., Old Saybrook, Conn.

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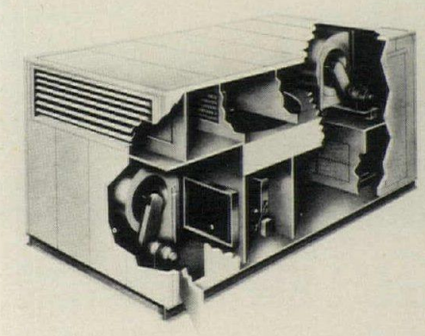

ENERGY RECOVERY SYSTEM / A new line of custom-designed heat recovery systems can be applied to any of these transfers: energy from a process to be used in the HVAC system; from process to preheat process use; and from hvac for re-use with comfort systems. Remote control and indicating capabilities are available. ▪ Barber-Colman Co., Rockford, Ill.

Circle 327 on inquiry card

more products on page 179

Haws makes it an EASY REACH!

Model HWCD-8 electric water cooler beckons to those in wheelchairs as well as the general public, promising the satisfaction of cool water for all, meeting the requirements of Public Law 90-480 and most state codes.

Dual, self-closing operating lever valves offer greatest user convenience; stainless steel exterior eases maintenance, assures permanent brilliance. Packaged water chiller is warranted; installs behind louvered panel.

Specify Haws Model HWCD-8 wall-mounted electric water coolers for schools, hospitals, office complexes, or any other projects where construction, leasing or financing involves federal funds. Get full facts on Model HWCD: contact Haws Drinking Faucet Co., 1441 Fourth St., Berkeley, CA 94710.

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WATER COOLERS

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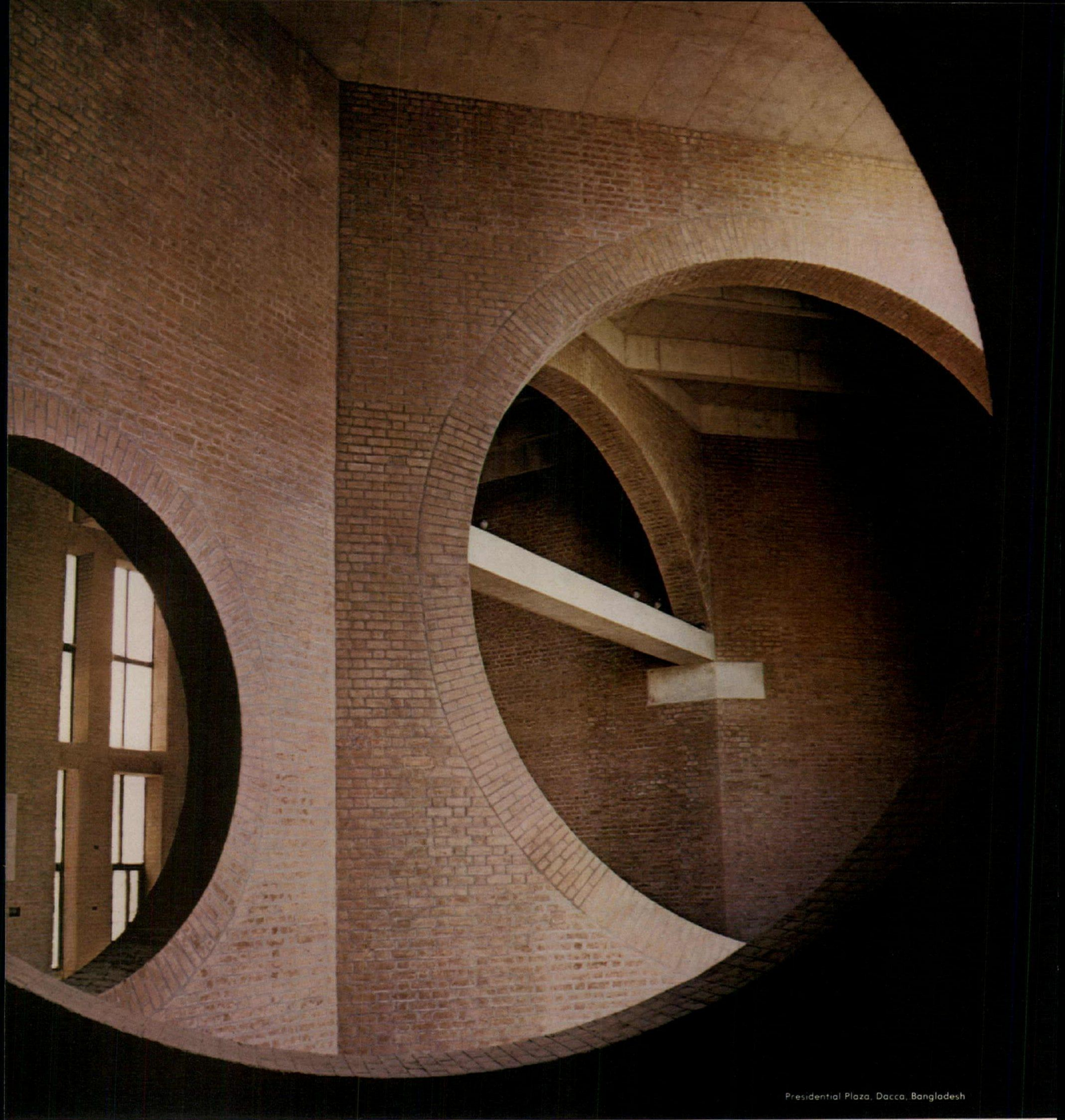

Presidential Plaza, Dacca, Bangladesh

"I asked the brick what it liked and the brick said, 'I like an arch.'"

Louis I. Kahn

Rumors that there is a more
expressive building system than masonry
are totally without foundation.

The International Masonry Institute

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"The truth of architecture has to be that it serves people well."

BERNINI IS DEAD?

Architecture and the Social Purpose

by John Burchard, former Dean, Humanities and Social Science, MIT. Fellow and past President, American Academy of Arts and Sciences. Acting Dean, College of Environmental Design, UC, Berkeley. Thomas Jefferson Medal in Architecture.

The brisk shower of ideas that pour from John Burchard are outspoken, candid, passionate, witty, thoughtful—the synthesis of a life dedicated to the tenet that there will not be great architecture which is not made for truly significant social purpose.

Certainly there are at least a handful of contemporary designers possessed of the mettle of a Bernini or a Borromini . . .

Our main problem is that our most talented architects do not engage themselves with the pressing needs of the day, which are not World Trade Centers or Hotels Fontainbleaux.

It is perhaps an indictment of our times that our great buildings are so seldom created for major social needs, but that does not mean we should settle for bland mediocrity at any level.

Developing this basic theme, Burchard presents a thorough survey of world architecture including masterpieces such as Hagia Sophia, the Great Pyramids, the Parthenon and Chartres since they are the greatest examples of their species. "It is absurd to ignore them for fear of being cliche ridden and to rush about the world seeking fascinating discoveries that no one has found before . . ."

While this profusely illustrated account makes stimulating reading, it is much more than just a first-rate history. It is, in fact, many books in one—handbook, guidebook, reference book and perhaps foremost, idea book.

In the great tradition of John Ruskin, Siegfried Giedlis and Lewis Mumford, this book will surely play a central role in developing our perceptions of architecture. Whatever your architectural politics here is a book to stir the blood and fire the imagination.

See for yourself. Examine BERNINI IS DEAD? for ten days. If you aren't convinced John Burchard's ideas should be part of your professional life, return it to us and we'll refund your money in full.

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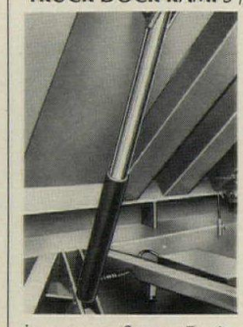
Examine the book for ten days and if not satisfied return it undamaged and we will refund your money in full.

PRODUCT REPORTS *continued from page 177*

TOILET SEAT LIFT / The *Samaritan* seat consists of a 4½-in. high hollow-core, closed front plastic lift with an open front solid plastic seat. This combination increases the height of a standard toilet unit for easier use by handicapped persons. When the seat is in an upright position, a built-in check prevents damage to tank or flush valve. ▪ Beneke Corp., Columbus, Miss.

Circle 328 on inquiry card

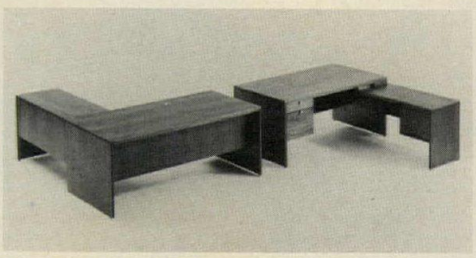
TRUCK DOCK RAMPS / This hydraulic ramp has an oversize chrome ram and cylinder to provide smooth performance. The entire docking operation is automatic: a push-button activates the motor raising the ramp; the lip extends and locks, then lowers until it rests on the truck bed. The ramp returns itself to a flush dock position when no longer in use. ▪ Serco Engineering Corp., London, Ontario, Canada



Circle 329 on inquiry card

BUILDING RESTORATION / Preservation and restoration of deteriorated and rapidly degenerating stone and brick material can now be accomplished by an impregnation technique capable of producing in-depth structural reinforcement. Missing and decomposed details are faithfully restored with composite material. The process has been used on significant structures, according to the company. ▪ Universal Restoration, Inc., Lancaster, Pa.

Circle 330 on inquiry card



OFFICE FURNITURE / The "Cubique" series of executive and secretarial desks offers recessed conference front or flush versions with a choice of credenzas. Drawer fronts are solid wood; kick plates and reveals are chrome or bronze. Oak or walnut finishes may be ordered. ▪ The Gunlocke Co., Wayland, N.Y.

Circle 331 on inquiry card

more products on page 181

Poly-Tite

Joint Sealant

Eliminates sealant failures be cause it does not rely on adhesio or cohesion. It seals by its in herent recovery force.

- Seals by compression in on operation.
- Requires only 50% compression.
- Can be installed in any weathe
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- Compatible with all building components.
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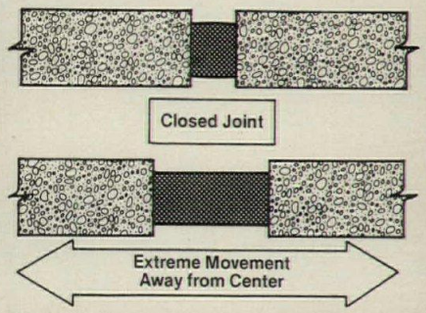
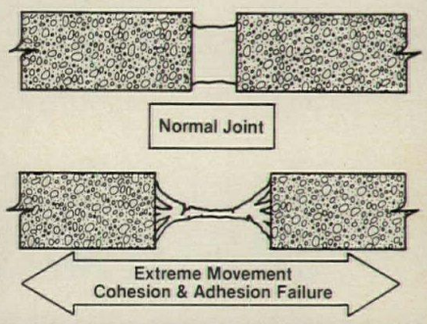
Poly-Tite –
Stays with the Joint



Conventional Caulking



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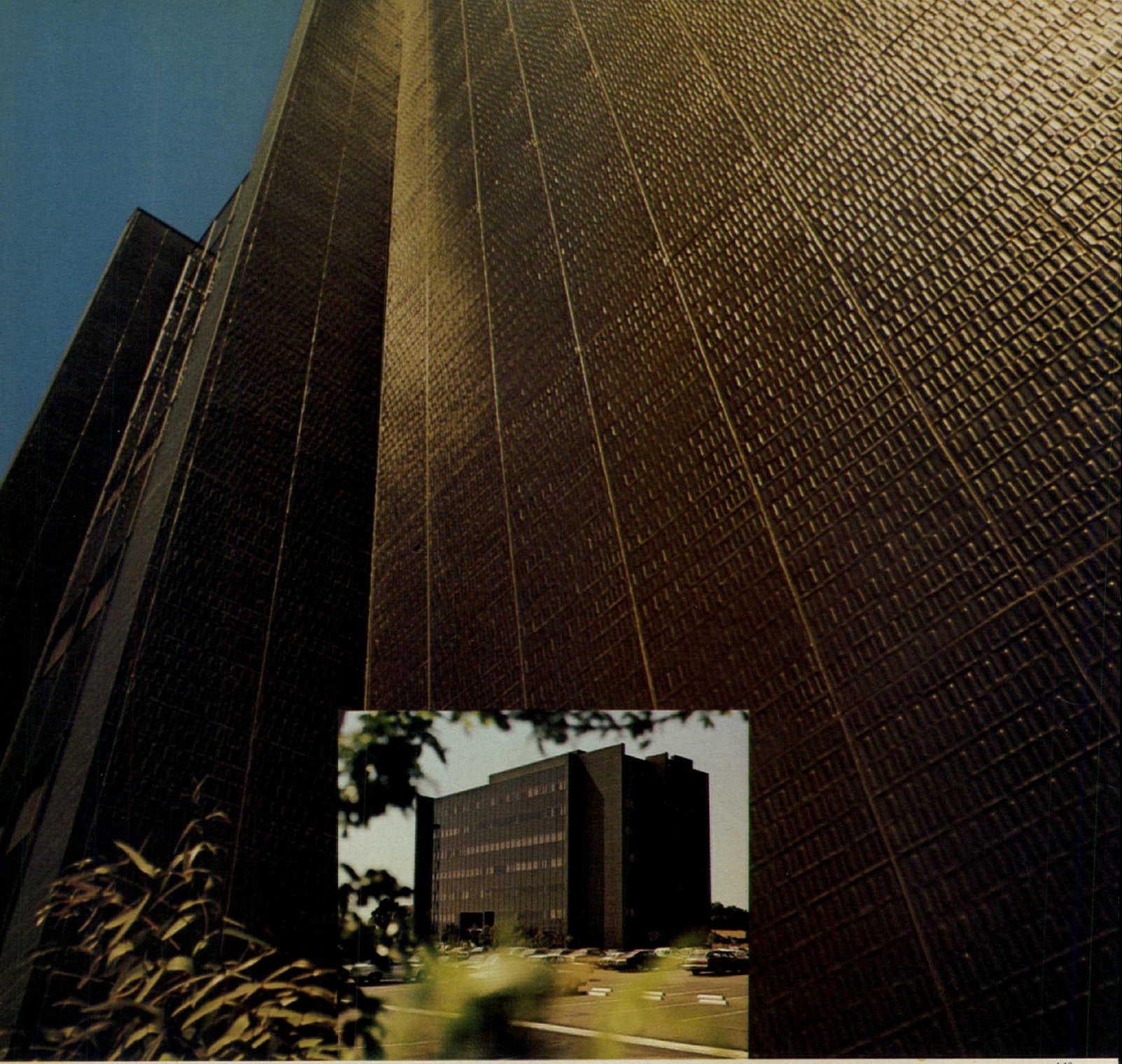
Massachusetts 02140 (617) 491-0540

For more data, circle 74 on inquiry card



Palm Harbor General Hospital, Garden Grove, California. **Architect:** Widom/Wein & Associates, Los Angeles, California. **Sculptured metal facade** by Warnel Corporation, South El Monte, California. **Coil Coater:** California Finished Metals, Inc., Cucamonga, California.

4-10

Just what the doctors' architect ordered: DURANAR 200® coatings from PPG.

The Palm Harbor General Hospital in Garden Grove, California, got a beautiful, durable exterior and still stayed within the budget. How? By incorporating a sculptured metal facade by Warnel Corporation, prefinished with a DURANAR 200 fluoropolymer coating from PPG.

Sculptured metal facades provide a fantastic array of truly beautiful textures and effects, while reducing the weight of exterior walls with commensurate savings in framing. And DURANAR 200 coatings give the metal the minimal-maintenance beauty and extended durability characteristic of other, more expensive fluoropolymer finishes.

The secret of DURANAR 200 coatings lies in PPG's patented combination of remarkably durable resins, together with pigmentation techniques that assure maximum color durability. It can give your medical center—or any building—a very healthy skin.

For information on DURANAR 200 coatings, see Sweet's Architectural or Industrial Construction Files 9.10/PPG or contact: Market Manager, Coil Coatings, PPG Industries, Inc., Dept. 4–10 , One Gateway Center, Pittsburgh, PA 15222.

PPG: a Concern for the Future®

Coil Coatings PPG INDUSTRIES

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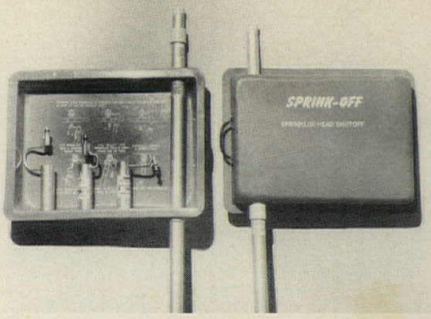
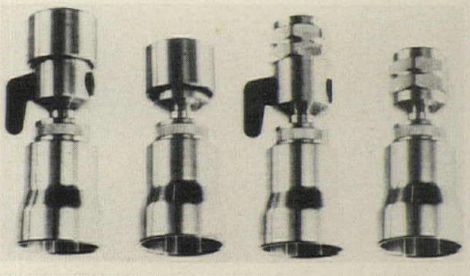


SPRINKLER SHUT OFFS / Available in a wall-hung kit containing at least three sprinkler head shut-off devices, "Sprink-offs" enable occupants to close accidently set off sprinkler heads before water damage occurs. ▪ Fire Sprinkler Control Co., Monrovia, Calif.

Circle 333 on inquiry card



SHOWERHEAD / The "321" showerhead for residential or institutional installation delivers less than two gallons of water per minute at any line pressure. This is only one-quarter of the water normally used for showering, and the reduced water use should result in large savings on heating costs, sewer fees, etc., according to the manufacturer. Four models are available, including one with a vandal-resistant slip ring. ▪ Merwin Mfg., Dunkirk, N.Y.

Circle 334 on inquiry card

LAMINATE FLOORING / "Kem-Tex" is a three-layer flooring which meets FDA and USDA standards for food processing installations. An iso-polyester resin is reinforced with a fiber glass mat, and finished with a chemically-resistant surface coating. The smooth, seamless floor is said to withstand heavy traffic and corrosive spills; "Kem-Tex" can be installed quickly over existing concrete floors and carries a five-year warranty. ▪ Kem-Tex Corp., Winona, Minn.

Circle 335 on inquiry card

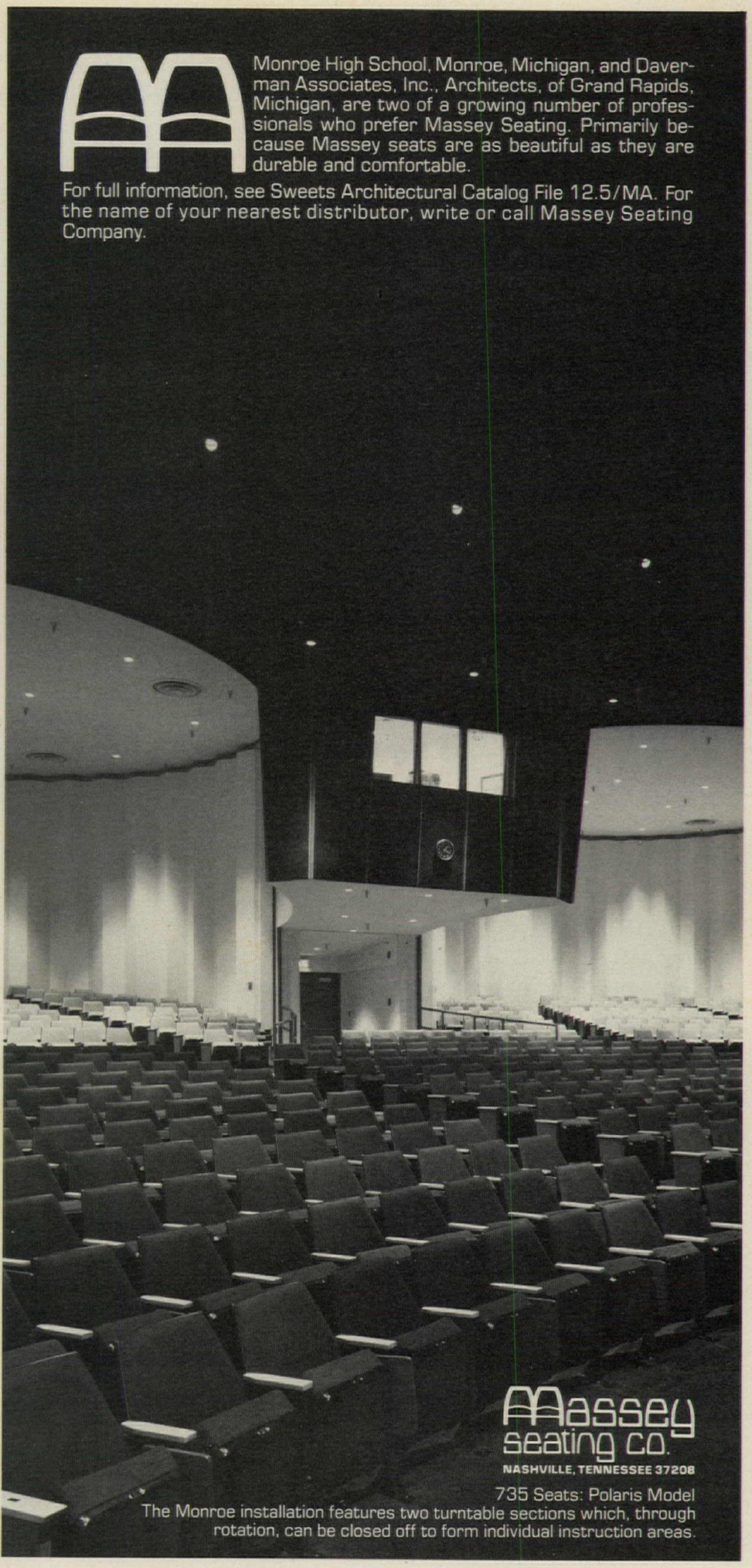
MERCHANDISE DISPLAY / The "Chrome Dimension" is an extensive line of coordinated chrome and glass towers, cubes, tables and pedestals for in-store displays. These flexible units are available in ½-in. round or square tubing; and ¾-, 1-, and 2-in. square tubing, in chrome-plate or colored finishes. The system includes a wide variety of standard or custom attachments and accessories, lighting fixtures, etc. ▪ Kason Hardware Corp., Binghamton, N.Y.

Circle 336 on inquiry card

more products on page 183

Monroe High School, Monroe, Michigan, and Daverman Associates, Inc., Architects, of Grand Rapids, Michigan, are two of a growing number of professionals who prefer Massey Seating. Primarily because Massey seats are as beautiful as they are durable and comfortable.

For full information, see Sweets Architectural Catalog File 12.5/MA. For the name of your nearest distributor, write or call Massey Seating Company.



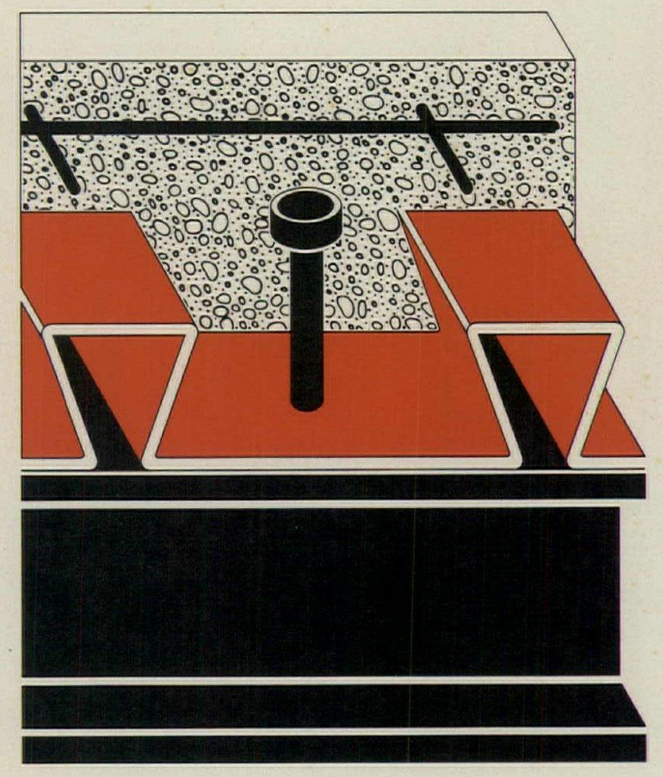
Massey seating co.
NASHVILLE, TENNESSEE 37208

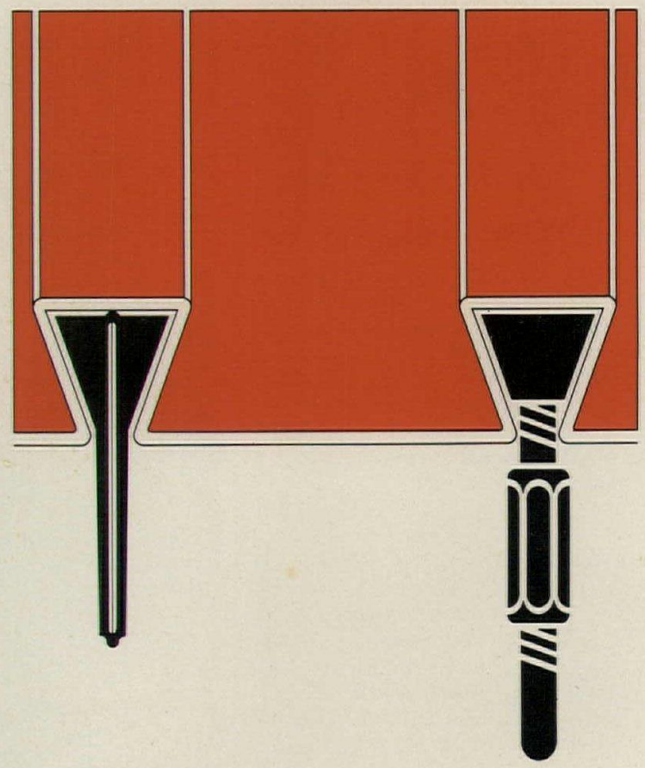
735 Seats: Polaris Model
The Monroe installation features two turntable sections which, through rotation, can be closed off to form individual instruction areas.

For more data, circle 72 on inquiry card

51 hospitals have been built with the EPICORE® Composite Floor System.

See one for yourself.





Visit an Epic hospital project. Take a close look at EPICORE's dovetail ribs. They're the key to a permanent integral hanging system and to an unmatched capacity for uniform heavy loading. Because of these two features, managing a hospital facility becomes much more efficient and much less expensive.

Adaptability is assured, principally by EPICORE's hanging system. Two hangers, a clip for loads up to 200 pounds and a wedge bolt for loads up to 1000 pounds can be installed as soon as the concrete slab is finished, and throughout the life of the building. Piping, ducts, mechanical, and medical support equipment can be suspended from the EPICORE Deck whenever it's necessary or convenient. Research, diagnostic, and treatment procedures can be revised or relocated with minimum interruption of normal routine.

Furthermore, EPICORE is engineered to meet the extreme variations in loading necessitated by frequent additions and changes. In composite beam assemblies, for example, full AISC shear connector values and solid slab design are applicable because of EPICORE's distinctive shape.

To visit an EPICORE hospital project, or to find out more about the system, call or write Bob Ault, Vice President - Engineering.

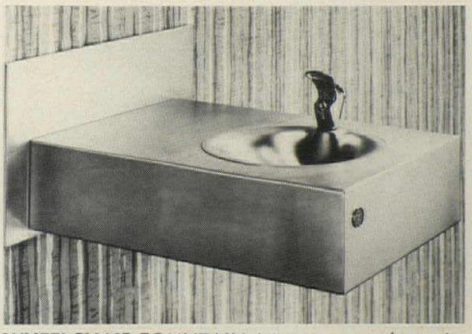
EPIC
METALS CORPORATION

Eleven Talbot Avenue
Rankin (Pittsburgh), Pa. 15104
(412) 351-3913

For more data, circle 73 on inquiry card

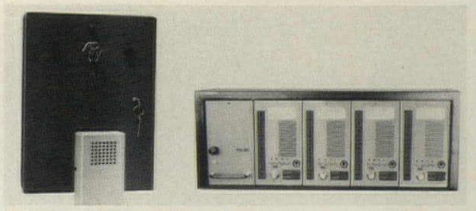
COMMERCIAL WALLCOVERING / Corporate logos or graphics can be thermoformed into *Kydex M-BOSS* (acrylic polyvinyl chloride alloy) sheet to produce a bas-relief pattern. The wallcovering comes in a number of colors, gauges and widths; and is said to resist tearing, abrasion, chemicals, and stains from food, ballpoint ink, etc. When applied with the proper contact cement over non-combustible substrates, the .028 gauge wallcovering meets most Class A interior finish requirements. ▪ Rohm and Haas Co., Philadelphia, Pa.

Circle 337 on inquiry card



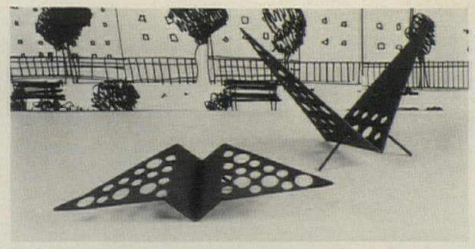
WHEELCHAIR FOUNTAIN / A new water fountain, designed for easy use by handicapped persons, measures 5-by-14-by-20-in. The chrome, punch-button bubbler with integral flow regulator can be mounted either front or side; the 10-in. diameter basin is stainless steel. ▪ White-Westinghouse Corp., Mansfield, Ohio.

Circle 338 on inquiry card



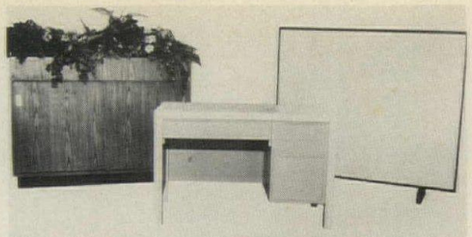
AUDIO SECURITY SYSTEM / The *Audio Sentry* audio detection device uses microwave and commercial-grade telephone lines for signal transmission, instead of voice-grade, leased or dedicated lines. This is said to permit a wider application of "listen-in" alarm systems. *Audio Sentry* offers a large range of channels, making more security options and equipment monitoring possible with a single system. ▪ Audio Sentry Corp., Roseville, Mich.

Circle 339 on inquiry card



PLAY CONSTRUCTIONS / Pictured are models of climbable sculptures for city lots and playgrounds, designed by Sheila Berkley. A recent exhibit presented the designer's series of "Play Proposals," intended to provide more attractive, creative and interesting structures for urban recreational spaces. ▪ Kornblee Gallery, New York City.

Circle 340 on inquiry card



OFFICE FURNITURE REFINISHING / Overnight refurbishing of entire offices—desks, file cabinets and chairs—is claimed, using an electro-static painting technique and *Textolite* laminates. Workers need only clear their desk tops; painting is done right in the office. New laminated desk tops are applied with clips and cement; chairs are reupholstered in vinyl or fabric. Savings over the purchase of new furniture are said to be substantial. ▪ Electro, Elmhurst, N.Y.

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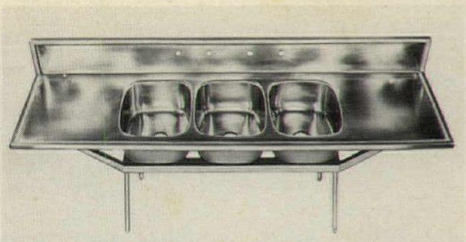

COMMERCIAL SINKS / Designed to meet NSF standards, this line of stainless steel sinks now includes many new models for commercial and institutional use. Units may be ordered in single-, double-, and triple-bowl configurations; manufactured from 18 or 20 gauge steel; and in freestanding, counter, or corner shapes. Cutting boards are available with many sinks. ▪ Jenson-Thorsen, Inc., Addison, Ill.

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PROBLEM:
Key Control

We at Medeco feel that your key control problems should not be a problem.

At Medeco we manufacture lock cylinders which have numerous advantages. The cylinder itself is virtually pickproof, and as an extra precaution hardened steel pins have been inserted into the face of the cylinder to resist drilling. Inside the cylinder the tumblers have been cut to a chisel point and as the key is inserted the tumblers have to match up with the angles cut on the key in order for the lock to operate. Combining tumbler elevation with rotation results in millions of non-interchangeable combinations.

The Medeco keys cannot be duplicated using conventional key cutting equipment. Medeco provides restricted key cylinders for which additional keys can only be obtained from the factory with your authorization. We will set up master key systems tailored to your specifications and maintain records for expansion of the system.

Medeco manufactures cylinders that can be interchanged into most locksets without changing the whole lock. This enables you to have a single key system despite the variety of locks you have or might add in the near future.

Security Locks, Inc.
medeco
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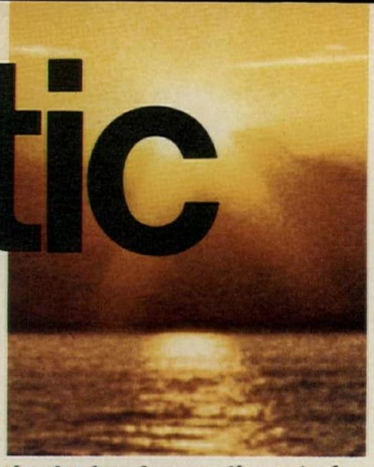
(703) 387-0481

For more data, circle 75 on inquiry card

Photokinetic



You'll make a striking design statement when you specify Wilson Art brand Metallics. With this brilliant new design medium, light adds the dynamic difference —always changing, always interesting. • Genuine aluminum and copper foils are laminated and embossed for a highlighting bas-relief effect, to make Metallics exciting decorative surfaces for luxurious interiors. Developed on the Continent and brought to the US by Wilson Art, Metallics' abstract motifs range from ancient to modern. • Magnificent, shimmering Metallics provide limitless opportunities for rich, bold accents in exclusive commercial or residential interiors. See the full line of handsome designs. Call your Wilson Art representative or distributor today.

NOTE: Metallics are protected by a hand-finished lacquer coating (except No. 6250). Swatches at right are one-third scale.

Tomorrow's design innovations today

WILSON ART™

WILSON ART BRAND LAMINATED PLASTIC

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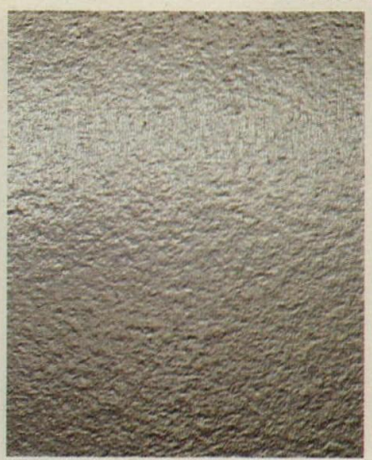
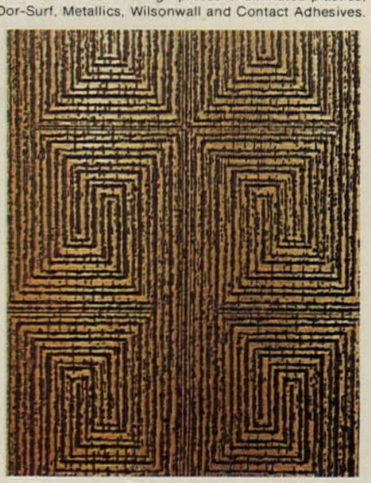
Wilson Art—manufacturers of Wilson Art high-pressure laminated plastics, Chem-Surf, Tuf-Surf, Dor-Surf, Metallics, Wilsonwall and Contact Adhesives.

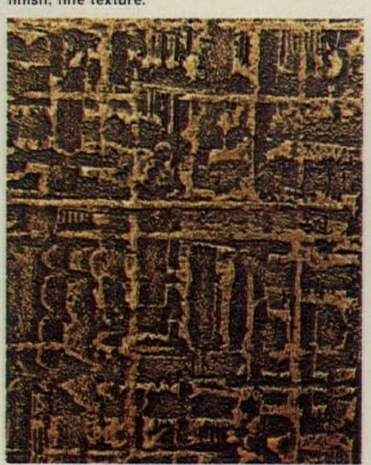
Pattern No. 6214
Copper Embossed



6252 aluminum Embossed shiny hammered finish, fine texture.



6230 copper Elaboration on the classic theme of Greek frets.

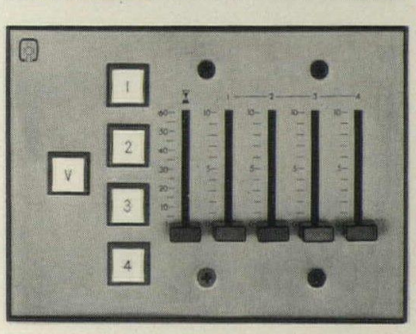


6240 copper Darker, heavily textured abstract with a bold appearance.

6250 aluminum Brushed finish. Surface not lacquered—this pattern is natural-color aluminum, anodized for protection.

RWP
WILSON ART
RALPH WILSON PLASTICS CO
DART INDUSTRIES INC

To us, this building is light con-struction.



Light is an architectural element. Just like stone, steel, concrete.

And like these elements, light can be subdued, controlled and designed to achieve fantastic lighting effects.

Our Environ® modular systems for custom lighting control are the brains behind some of the world's most beautiful architectural lighting. Silent, automatic, trouble-free, Environ® systems can save energy and add a whole new dimension to your building, inside and out.

Get all the details. Write or call our Architectural Sales Manager.

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STRAND CENTURY INC
A COMPANY WITHIN THE RANK ORGANISATION

For more data, circle 77 on inquiry card

OFFICE LITERATURE *continued from page 167*

PLUMBING FIXTURES / A new line of ¾-in. cast bronze plumbing fixtures designed for food preparation facilities is described in a catalog supplement. These faucets, fillers and spouts, finished in polished chrome, are said to deliver almost twice as much water as ½-in. diameter faucets. ▪ Fisher Mfg. Co., Los Angeles, Calif.

Circle 414 on inquiry card

FILING/STORAGE SYSTEMS / A four-page guide is offered to help in the design and specification of mobile filing and storage systems. Details of both manual and electric *SpaceSaver* units are given. Available in carriage lengths of from 3 to 68 ft, the system may be used to store accounting records, archives, computer tapes, etc. ▪ SpaceSaver Corp., Ft. Atkinson, Wisc.

Circle 415 on inquiry card

WATER-BASE PAINTS / Technical data on *Speedhide* semi-gloss and flat water-base paints, including spread rate, tinting, surface preparation necessary and drying time, are included in a new brochure. These "dry fog" paints facilitate coating of such ceiling members as beams, girders and trusses, as the overspray falls as a dust and can be swept away with a broom. ▪ PPG Industries, Pittsburgh, Pa.

Circle 416 on inquiry card

METAL STUDS / A brochure explains the advantages of this metal stud and concealed slotted standard system. When built into drywall partitions, the studs accommodate several sizes of brackets for shelves, coat racks, lamps, etc. (See RECORD, March 1976, page 143.) ▪ Garcy Corp., Chicago, Ill.

Circle 417 on inquiry card

INDUSTRIAL NOISE CONTROL / An illustrated brochure describes the firm's noise-abatement products, including an acoustical wall system, vertical ceiling baffles, individual and continuous wedge absorbers, screens, and vibration-damping tile and foam. ▪ Armstrong Architectural Ceiling Systems, Lancaster, Pa.

Circle 418 on inquiry card

WALL AND ROOF SYSTEMS / A 40-page catalog presents the manufacturer's complete line of metal wall and roof systems. New products include the "Varispan Panel System," deep-profile long-length "Dyna-Span" and "N-Wall" panels, and "Foamwall 24." Cutaway illustrations of exterior profiles, panel systems, dimensions, load span tables and architectural specifications are given. A color chart of available coatings is included. ▪ Elwin G. Smith Div., Cyclops Corp., Pittsburgh, Pa.

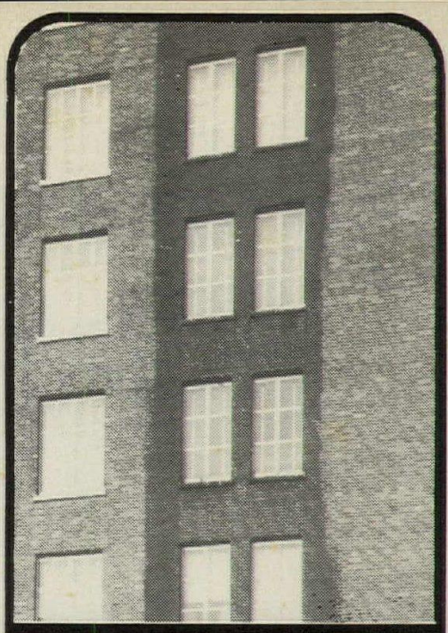
Circle 419 on inquiry card

PLUMBING FIXTURES / Wash fountains, showers and safety fixtures are described in a full color, 12-page catalog. Fountains of precast stone, polyester, stainless steel or enamel are illustrated, as well as column and stall showers, safety drench showers, eye-wash fountains and combination units. ▪ Bradley Corp., Menomonee Falls, Wis.

Circle 420 on inquiry card

STRUCTURAL FRAMING SYSTEMS / A 38-page booklet gives details on four framing designs available in pre-fabricated steel buildings. Span constants and work-point dimensions for over 1,000 standard sizes and loadings are included, along with typical construction and trim details. ▪ Cuckler Buildings Div., Lear Siegler, Inc., Monticello, Iowa.

Circle 421 on inquiry card



Only SURE-KLEAN

RESTORATION CLEANER

CLEANS and Restores Old Buildings so .....

☐ **Beautifully.** Sure Klean Restoration Cleaner brings back the original color and appearance; makes old buildings look like new again.

☐ **Easily.** What could be simpler? Just brush on, let stand, and rinse. Dirt and grime just flushes away.

☐ **Economically.** Sure Klean Restoration Cleaner saves up to 50% over costly steam cleaning and sand blasting.

SEND THE COUPON FOR FREE INFORMATION TODAY

For more data, circle 78 on inquiry card

ProSoCo, inc.
Box 4040
Kansas City, Ks. 66104

Sounds like just what we're looking for. Send me free information and test data.

NAME _____

FIRM NAME _____

ADDRESS _____

CITY _____

STATE _____

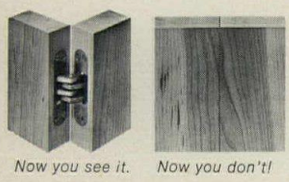
ZIP _____

For more data, circle 76 on inquiry card

The closest thing to no hinge at all.

FULL SIZE PHOTO OF HINGE MODEL 218 INSTALLED IN 1⅜" THICK SOLID WOOD DOOR AND JAMB.

The hinge that hides



Now you see it. *Now you don't!*

Some hinges are decorative. Some are functional. But only one is invisible.

So, when the best looking hinge would be no hinge at all, specify one of The Soss Invisibles.

Choose from 18 models and four finishes for use in wood, metal and even plastic. All models open 180° and disappear when closed.

The gap between door and jamb almost disappears, too. The *largest* gap is only 1/16″, or almost no gap at all.

When used with a touch latch instead of a knob or handle, Soss hinges let you create virtually invisible openings to rooms, TV or stereo, bars, files and storage areas.

The Invisible Hinges are secure, too. When closed they are tamper-proof.

For complete specifications, see our catalog in Sweet's. Or write to Soss Mfg. Co., Div. of SOS Consolidated Inc., P.O. Box 8200, Detroit, Mich. 48213.

the SOSS Invisibles

For more data, circle 79 on inquiry card

OFFICE NOTES

New offices, office changes

Norman Hoberman, formerly of Hoberman & Wasserman, New York City, has moved his architectural office to 98 Hunting Ridge Road, Greenwich, Connecticut.

John D. Ruf and Michael R. Wager, partners in the Tacoma firm of Team West Architects, have announced the change of the firm's name to **The Team West Partnership,** with offices at 707 Court A, Tacoma, Washington. August Gene Grulich has joined the firm as a partner.

Lawrence Marek Architect has opened an office specializing in design and construction management services, at 881 Seventh Avenue, New York City.

William L. Fletcher, FAIA, H. Curtis Finch, AIA and Dale A. Farr, AIA, have announced the formation of **Fletcher/Finch/Farr & Associates** with offices at 920 S. W. Thirteenth Avenue, Portland, Oregon.

The Fort Worth and Arlington, Texas firm of Preston M. Geren has announced a change in the firm's name to **Geren Associates.** The Fort Worth office has moved to 2100 Fort Worth National Bank Building, Fort Worth, Texas.

Gassner Nathan Browne, Architects Planners, Inc., have announced the resignation of Robert Lee Browne. The new name of the firm will be **Gassner Nathan & Partners, Architects Planners, Inc.**

J. Raymond Matz, AIA architect & planner has opened new offices at 99 Lafayette Avenue, White Plains, New York and 55 Kerry Lane, Chappaqua, New York.

Richard Peterson Associates have announced the opening of an office at 8048 Soquel Drive/Studio F, Aptos Village, California.

A new partnership, **Grim, Niemeyer & Stick** has been established, with offices at Plaza 16 East Lancaster Avenue, Ardmore, Pennsylvania.

Chase Architectural Associates, P.C. have moved into new offices at One Lincoln Center, Syracuse, New York.

Robert and Company Associates have opened a new general practice branch office at 118 North Ross Street, Suite 4, Auburn, Alabama.

Saur/Obrock Design Associates Inc. have moved to new offices at 301 Sovereign Court, Suite 200, St. Louis, Missouri.

Neil Astle & Associates have moved their offices to 533 North 86th Street, Omaha, Nebraska.

Promotions, new associates

J. N. Pease Associates, Charlotte, North Carolina, have added two staff associates and three directors to its firm. They are: **James J. Ewers** and **John C. Terry,** associates, and **Wyatt G. Bell, Thomas H. Tassos Jr.** and **Joel E. Stegall Jr.,** directors.

Rex M. Ball, AIA, AIP, has been elected president of Hudgins, Thompson, Ball & Associates, Oklahoma City, Oklahoma.

Howard Needles Tammen Bergendoff have announced the appointment of **Willis A. Waas** as project manager.

Continued on page 190

For more data, circle 80 on inquiry card

T-100

Auditorium seat
designed by Dave Woods.
Installed at the Guggenheim Auditorium,
The Institute of Man and Science,
Rensselaerville, New York.
Architects: Prentice & Chan, Ohlhausen.

JG Furniture Company Inc. 121 Park Avenue Quakertown, Pa. 18951

jg

The economical approach to hospital walls.

Series 3000 Modular Hospital Walls

For ICU/CCU, recovery or general patient care areas, Square D modular hospital walls offer these major advantages:

LOW INITIAL COST. The latest numerically controlled, high production techniques are used to assure the highest quality at the lowest price.

ADDITIONAL SAVINGS. Each modular wall is completely piped and wired at the factory to meet all existing codes. Therefore, installations may be completed in hours instead of days.

APPEARANCE. Available in a wide variety of attractive colors and wood tones, these walls are designed for long life and quality appearance.

USABILITY. Key components are strategically located and color-coded for easy component identification and use. New components adapt to the wall in a matter of minutes.

SERVICEABILITY. Vertical raceways are easily removable for service and essential electrical components are accessible from the hinged door service module.

For the best buy in modular hospital walls for new construction or renovation projects, contact your nearby Square D field office...there are 140 of them nationwide. You can also write or call us directly: Square D Company, Dept. SA, 3300 Medalist Drive, Oshkosh, WI 54901. (414) 426-1330.

SQUARE D COMPANY

Wherever Electricity is Distributed and Controlled

For more data, circle 81 on inquiry card

This relatively simple but superbly designed bank is a striking example of the manner in which Terne roofing can become an integral part of a total architectural concept.

Aesthetics aside however, Terne also has certain outstanding functional characteristics. Among these are great tensile strength combined with light weight and a low coefficient of expansion; exceptional resistance to corrosive attack, and a durability measured in generations rather than years.

Terne roofs are also relatively inexpensive when judged by the standards of those to whom ultimate performance is no less significant than initial cost.

Citizens' Bank, N.A., Readington Township, New Jersey
Finne · Lyman · Finne · Reese,
Architects-Engineers, Elizabeth, New Jersey
Roofer: J. Strober and Sons, Ringoes, New Jersey
Photographs by Otto Baitz

FOLLANSBEE
FOLLANSBEE STEEL CORPORATION • FOLLANSBEE, WEST VIRGINIA

WHAT PRICE FORM, COLOR, FUNCTION?

imagine a roof deck insulation this effective!

All-weather Crete saves energy — cuts fuel costs 1/3 to 1/2!

2 Hour UL fire rating!

FM UL BOCA

(See Sweets)

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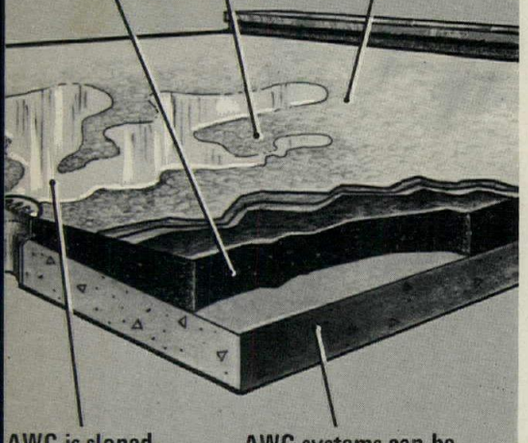

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OFFICE NOTES *continued from page 187*

Roy G. Schmidt has been promoted to vice president of William L. Pereira Associates, Los Angeles.

Frank E. Mosher, formerly of Welton Becket and Associates, has been named vice president of the Los Angeles office of Leo A. Daly, architects, engineers and planners.

Sherwood Alan Smith, AIA, formerly of Skidmore, Owings & Merrill, New York, has joined O'Dell/Hewlett & Luckenbach, Inc., Birmingham, Michigan.

The Hillier Group, Princeton, New Jersey, have added **John I. Pearce** to their staff.

William Teegarden has been named assistant director of design/store planning for the Los Angeles office of Welton Becket and Associates.

Wyatt C. Hedrick Architects and Engineers, Inc., Houston, have announced two new executive appointments. **William E. McLendon** has been named controller, and **John M. Jacob** has been promoted to operations manager.

Kenneth Balk and Associates, Inc. have announced that **Ronald J. Silber** has joined the firm as vice president.

The Atlanta firm of Thompson, Ventulett and Stainback, Inc. have announced the appointment of **Richard E. Stonis** as director of interior design.

RTKL Associates Inc. have announced the following appointments: **S. Thomas Wheatley III,** AIA has been elected to the board of directors; **Gary A. Bowden, AIA, Donald D. Potter, AIA** and **Dennis H. Still, AIA** are now associate principals and **Thomas Caisley, Warren D. Davis, AIA** and **John F. Dempsey** are now associates.

Dana Larson Roubal and Associates, have announced the election of these new associates: **Bryce Pearsall, Steven Dohring, Victor Failla, Ralph F. Nelson Jr., Gary Young, Dale Nielsen, Norman Plath, James Riskowski** and **Bartholomew Votava.**

Perkins & Will have announced the election of **Harry F. Anderson** as president and chief executive officer. **Alfred Steele** has joined the staff as its senior project engineer, plumbing.

Louis N. Maloof, AIA has been appointed president of Heery Associates, Inc. **W. Ennis Parker, Jr., AIA,** has been appointed chief operating officer and **Robert E. Eskew,** PE has been made a vice president, both of Heery & Heery, Inc. **George T. Heery, FAIA** continues as president and chairman of Heery & Heery, Inc. and chairman of Heery Associates, Inc.

Reece H. Wengenroth, P.E. has been appointed technical director for railroads and industrial facilities of Parsons Brinkerhoff Quade & Douglas, Inc.

Gregory-Grace and Associates, Inc., Bartlett, Tennessee, have announced that **Marion Dale Manning** and **James W. Dugan** have joined the firm as principals.

Wilson, Crain, Anderson and Reynolds, Houston, have announced the election of **Jerry G. Barner** as an associate.

David A. Marks has been named a principal of Loebl Schlossman Dart & Hackl, Chicago.

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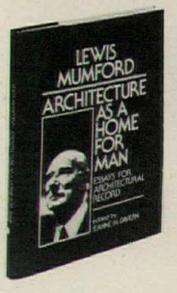

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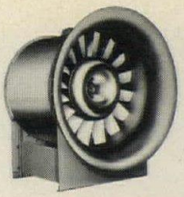

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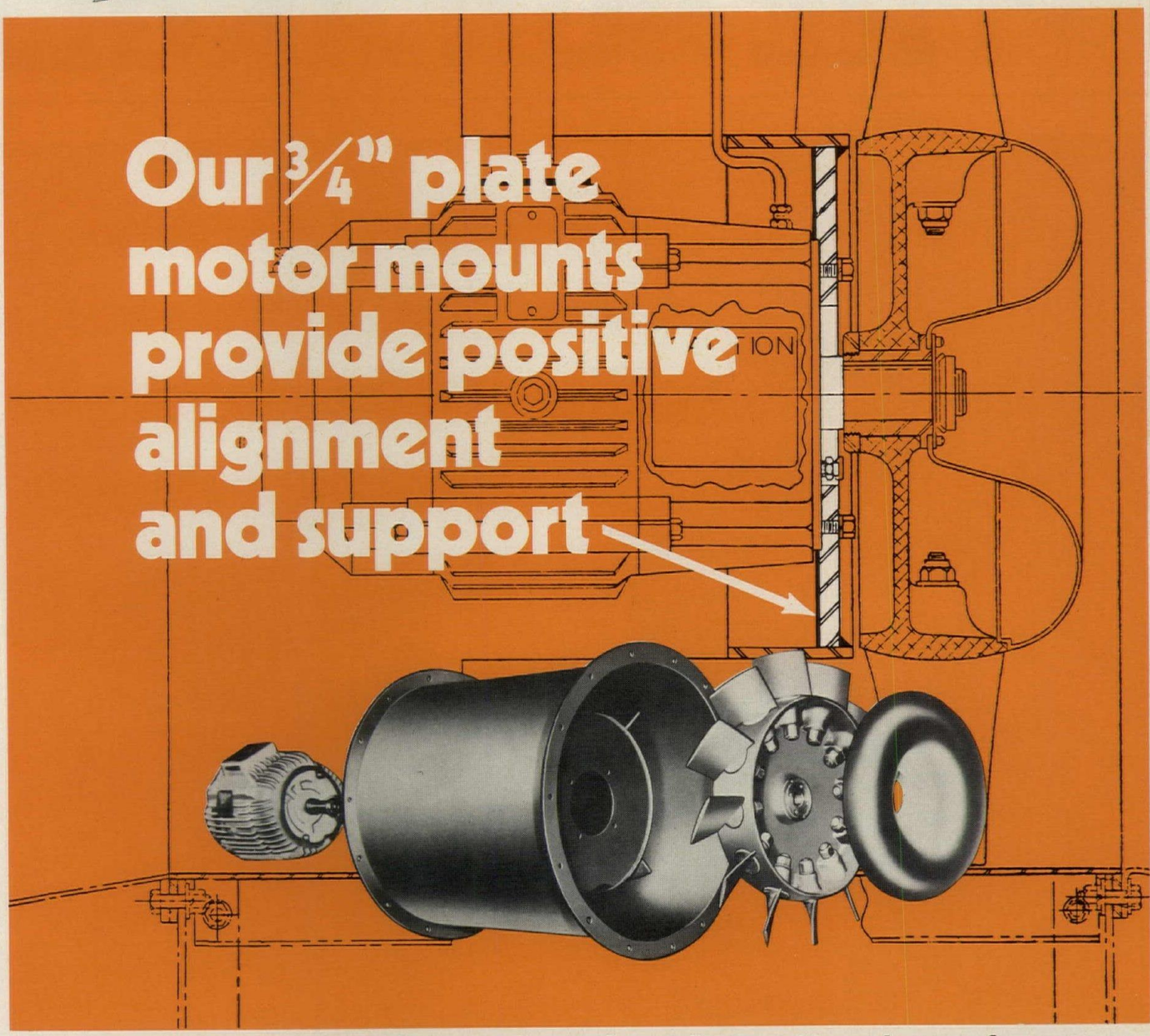

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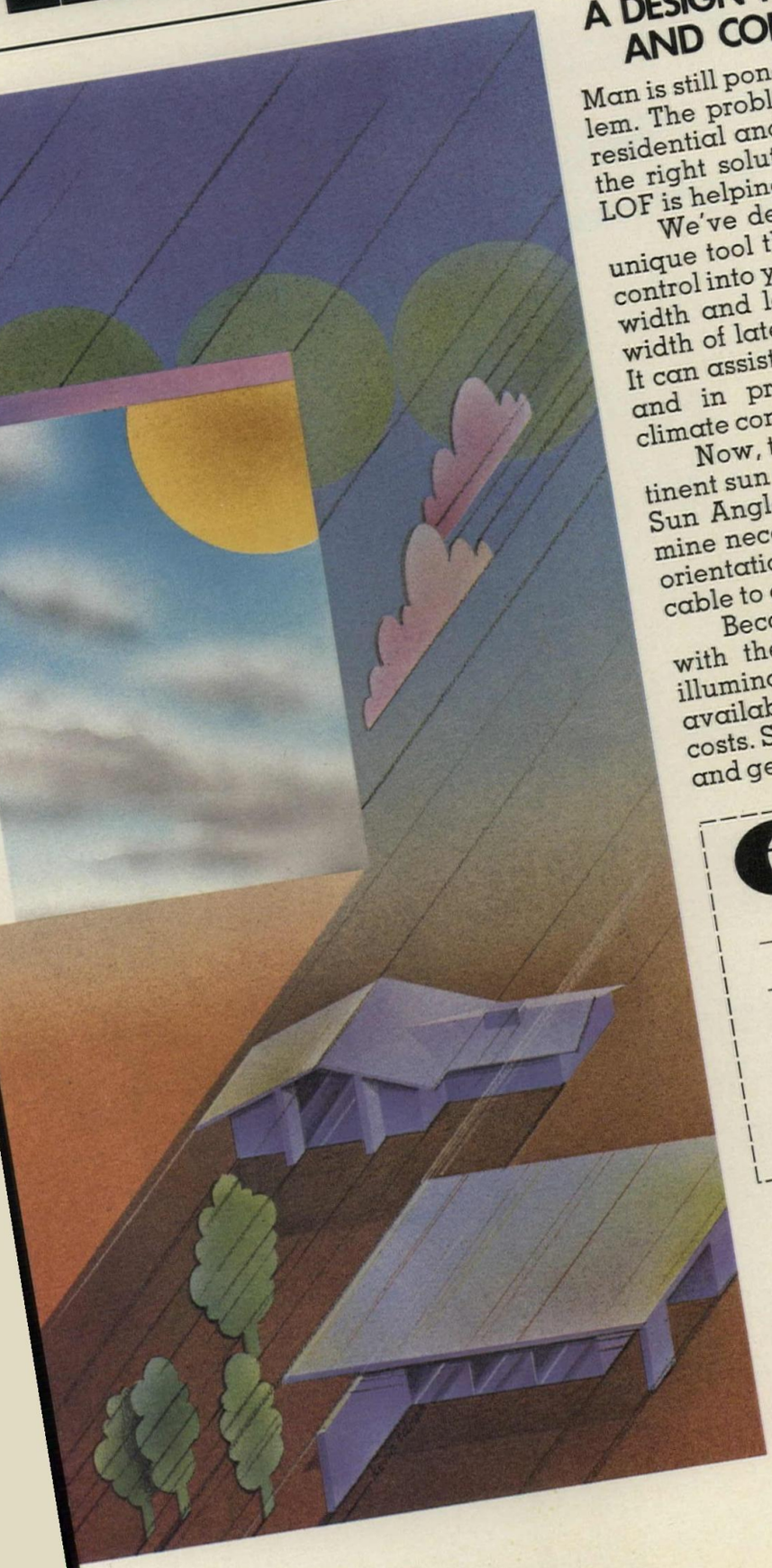

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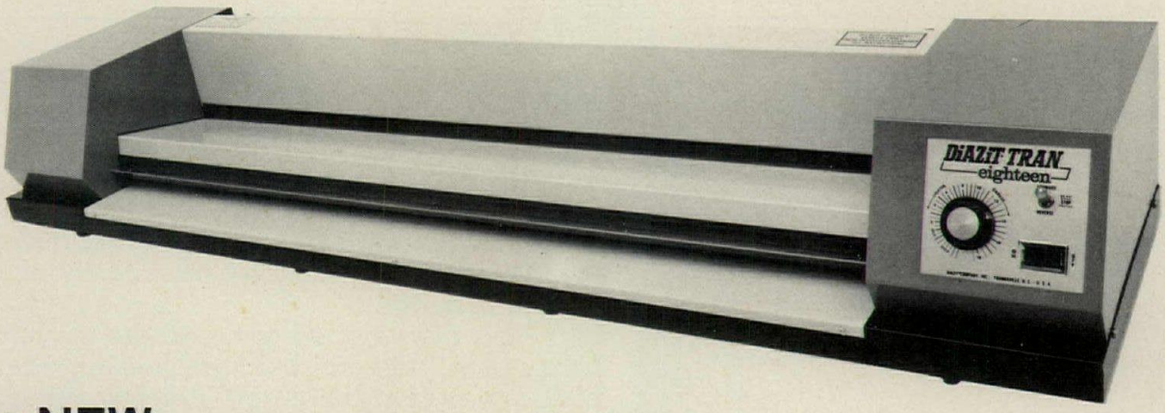

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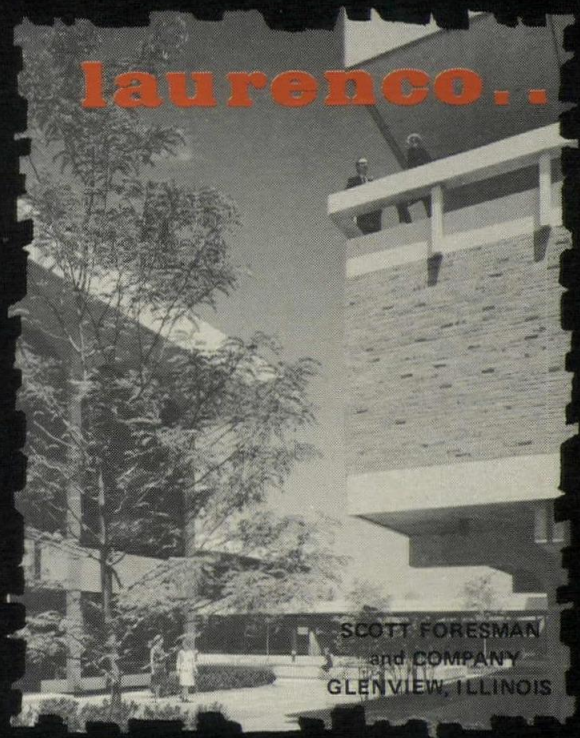

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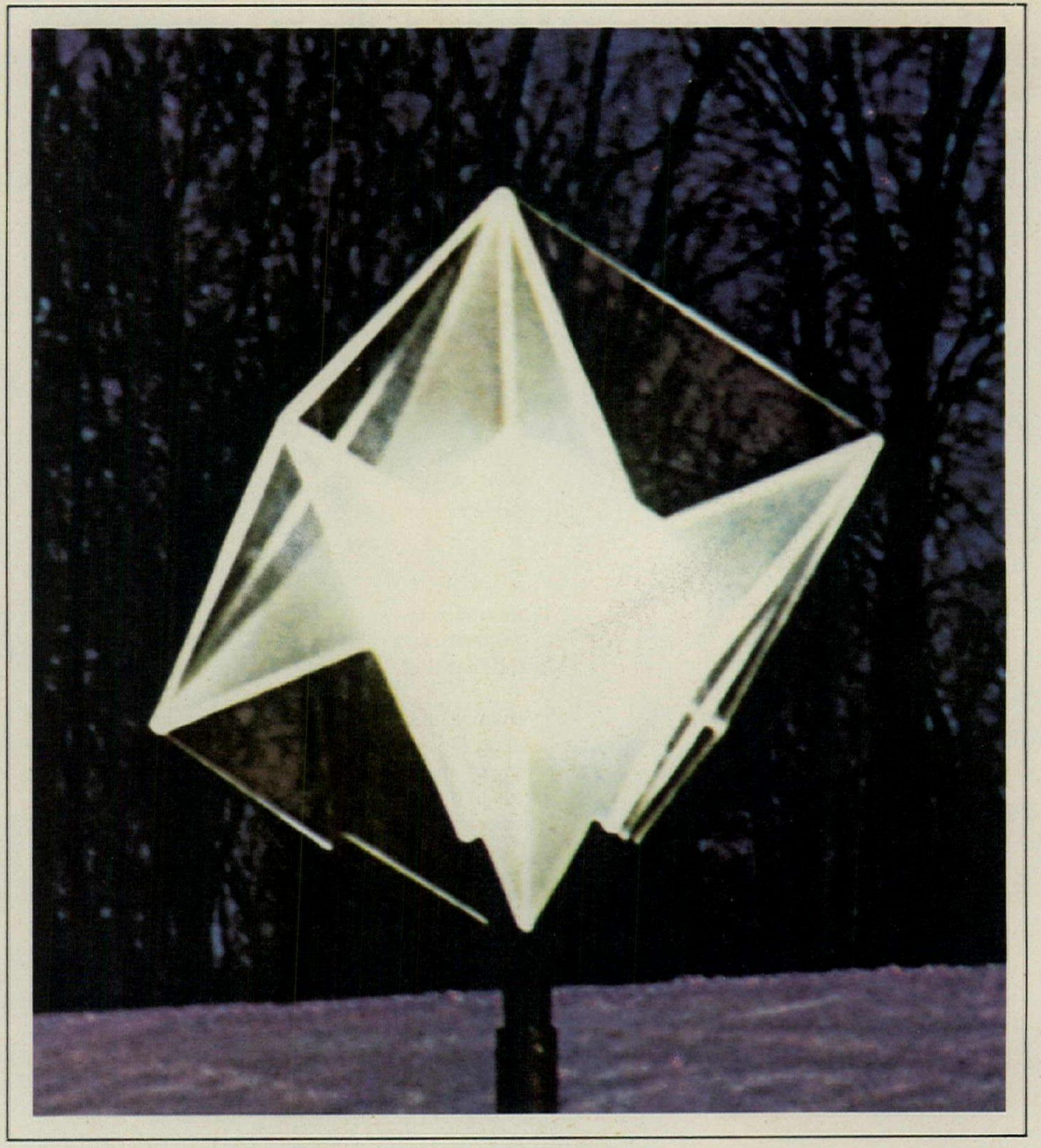

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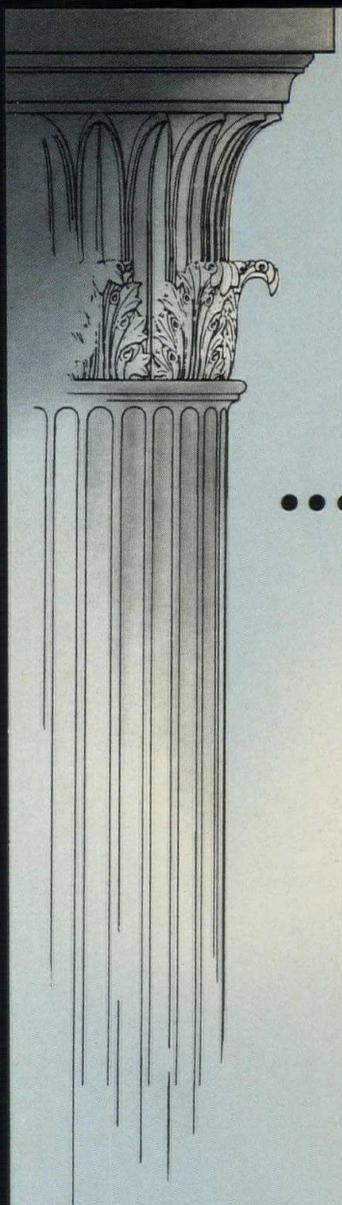

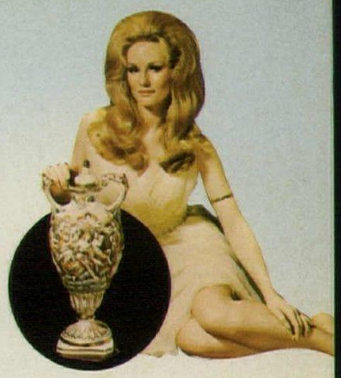

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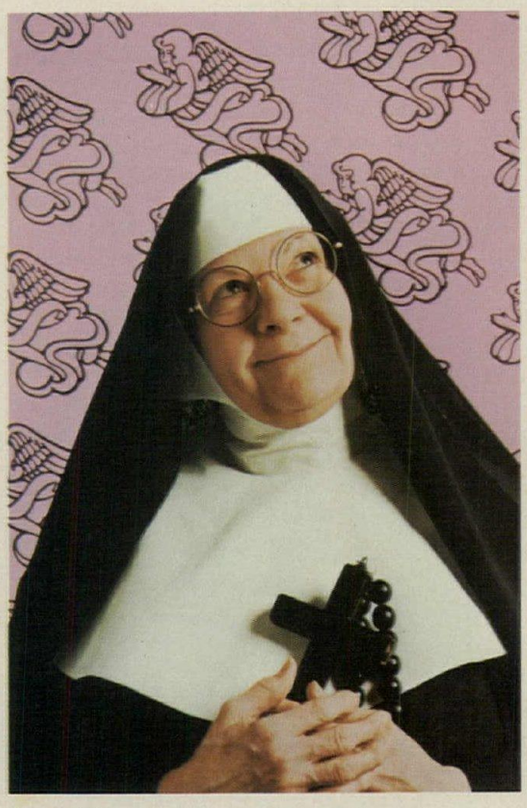

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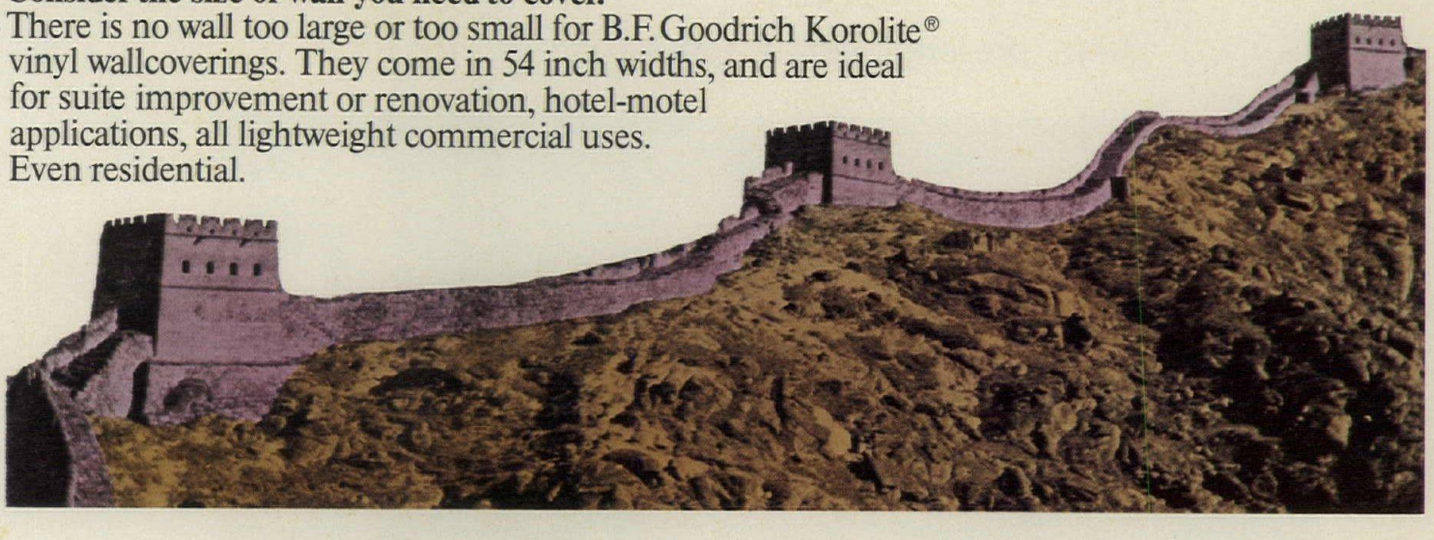

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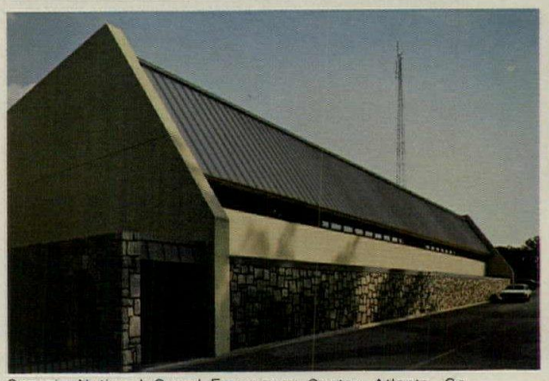

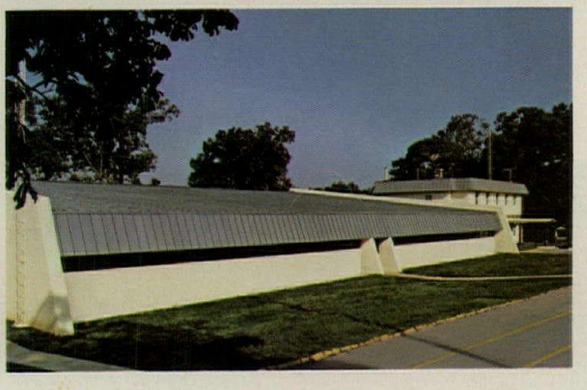

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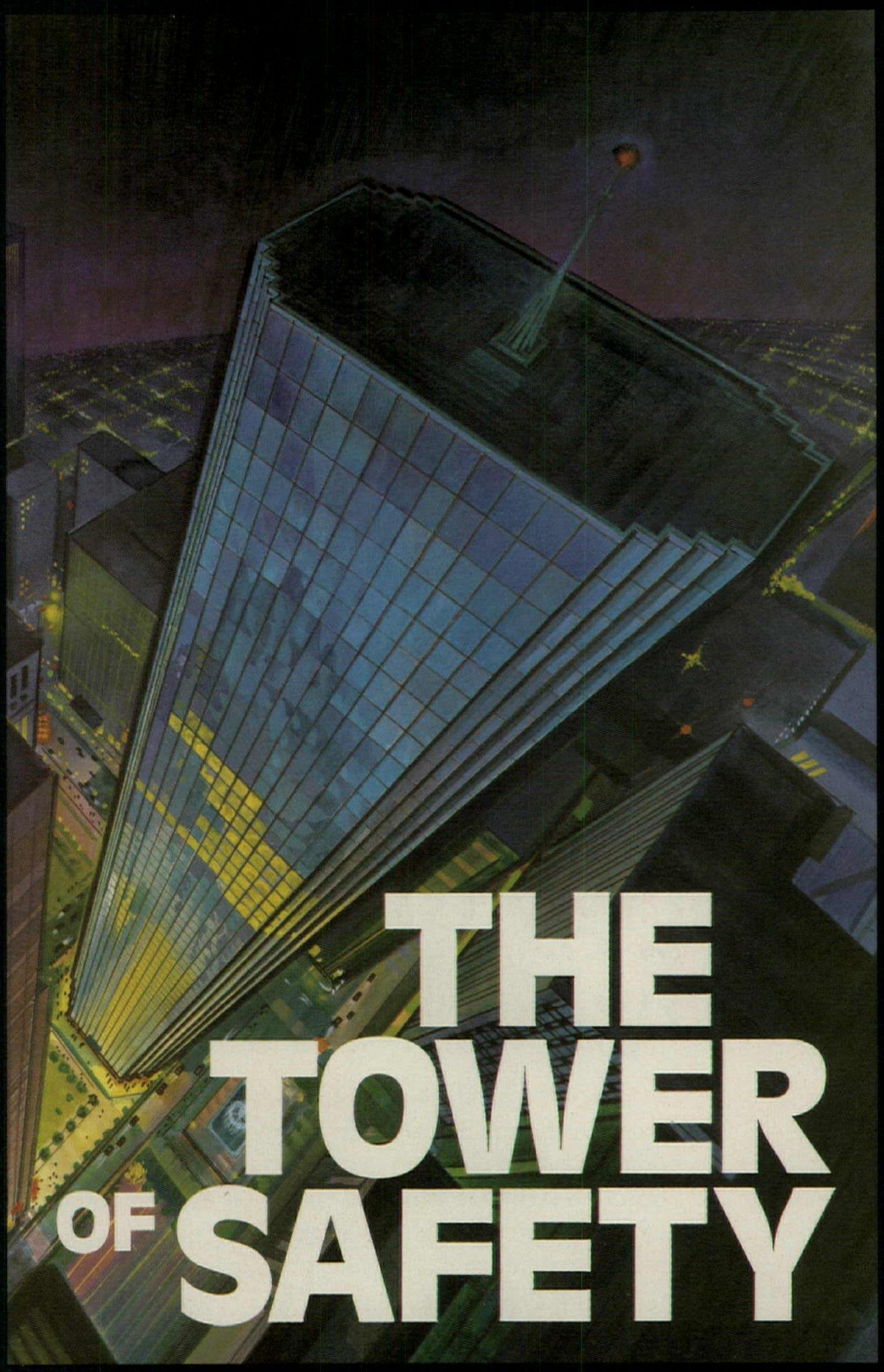

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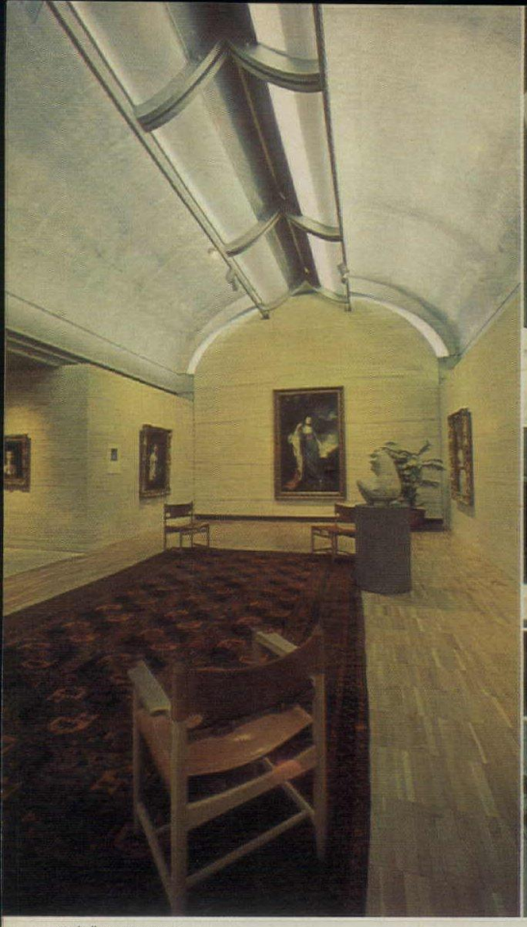

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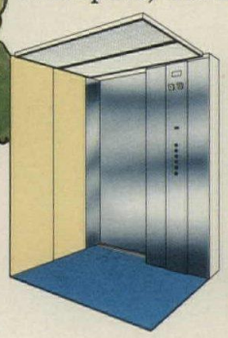

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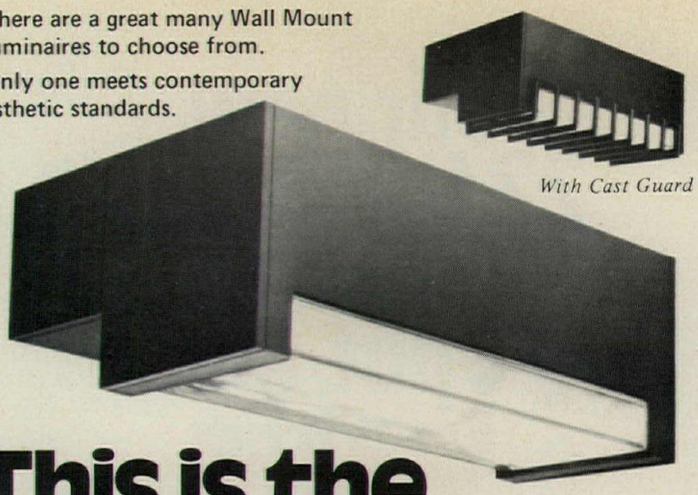

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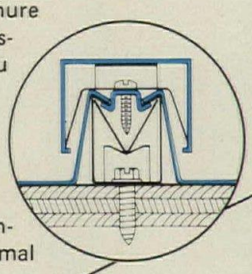

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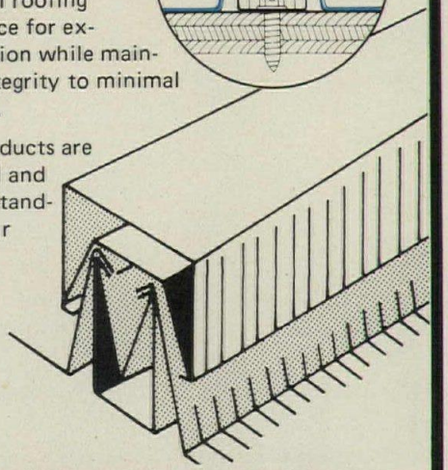

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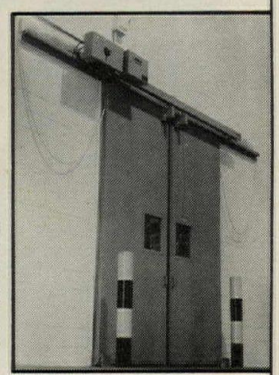

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Park Ridge Hospital prevents epidemic of slapped-up signs with integrated signage system.

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

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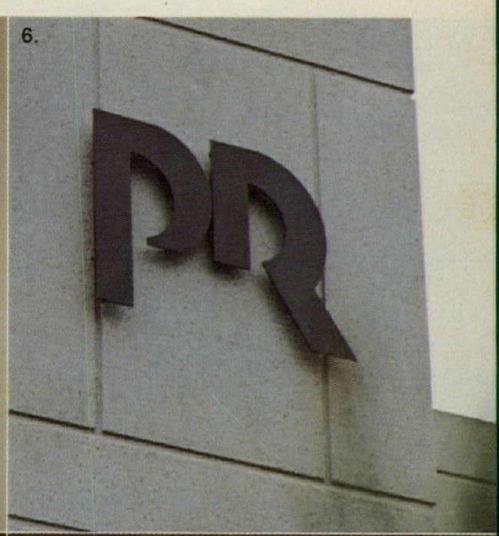
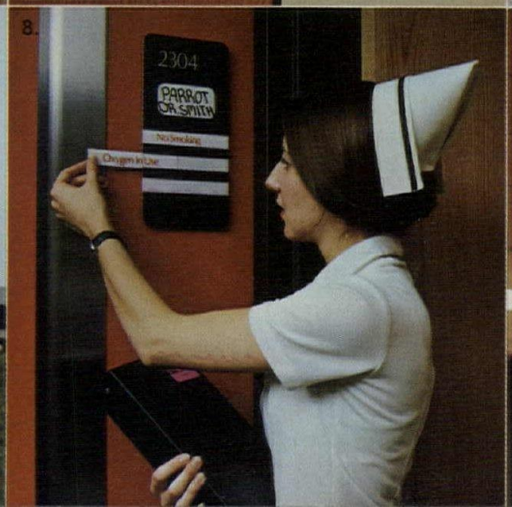
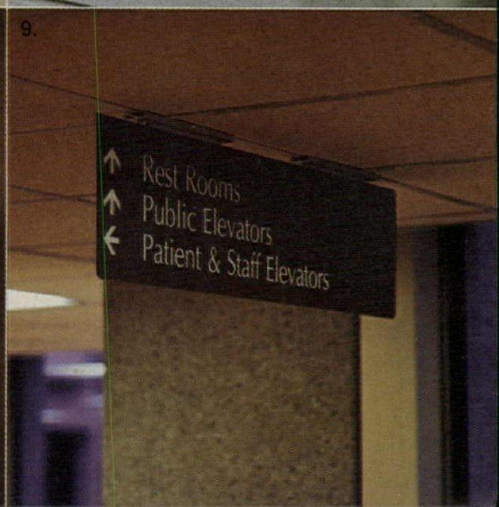
1., **2.**, **3.**, **4.**, **5.** and **9.** NOMAR with screened graphics embedded. **6.** Cutout aluminum logo. **7.** NOMAR post and panel assemblies with surface applied reflective pressure-sensitive legends. **8.** Reverse screen process on acrylic identifies patients' rooms. Slide-in cards and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







Exposed steel performs beautifully in new outdoor theater.

Owner: Concord Performing Arts Center Authority.
Architect: Frank O. Gehry & Associates, Santa Monica, Calif.
Structural Engineer: Garfinkel & Kurily Santa Monica, Calif.
Theater and Acoustic Designer: Jaffe Acoustics, Inc., Norwalk, Conn.
General Contractor: F.P. Lathrop Construction Co., Emeryville, Calif.
Fabricator and Erector: National Iron Works Subsidiary of Allied Engineering & Production Company, Alameda, Calif.

Nature set the scene for the creation of what has been called the world's most acoustically perfect amphitheater—the new 4.5 million dollar Concord Pavilion, located in Contra Costa County, 28 miles northeast of San Francisco.

Built in a natural bowl in the foothills of Mt. Diablo, it can seat 3,500 people under the roof, while 4,500 more can enjoy the sights and sounds from a grassy, gently sloping hill.

The 40,000 square foot, exposed steel roof deck is supported by two main trusses, each 200 feet long and 13 feet deep, weighing 50 tons each. Six intermediate roof trusses are 200 feet long, varying in weight from 15 to 25 tons. Both high-strength bolts and field welding were used for connections. The roof is supported by four columns of 14-inch wide flange structural steel shapes encased in concrete.

Three hundred fifty tons of structural steel went into the Concord Pavilion. Seventy per cent of the steel is U.S. Steel's USS EX-TEN (A572) high-strength low alloy steel; the remainder is A36. Fabrication and erection were completed in only 15 weeks.

Spectacular by day or night, the new Concord Pavilion represents an expression of contemporary architecture that blends to perfection with the environment. It is one more beautiful example of the imaginative use of exposed steel.

For further information, and for advice on the many uses of architectural steel, contact a USS Construction Representative through your nearest U.S. Steel Sales Office, or write: United States Steel, P.O. Box 86, (C575), Pittsburgh, Pa. 15230.

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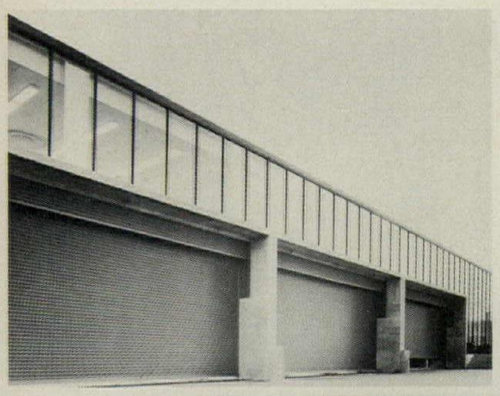
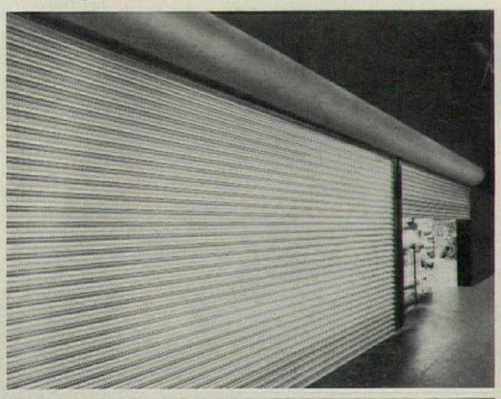


Rolling Fire Doors. U.L. listed, automatic closing by fusible link or electromagnetic release.



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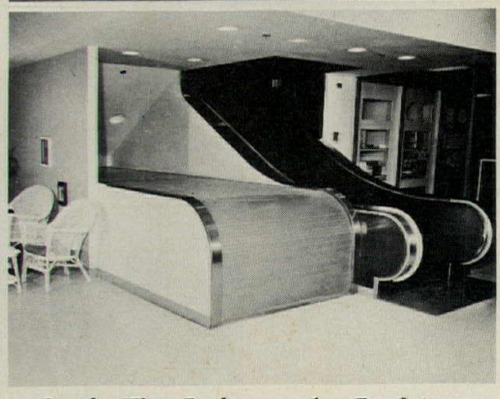

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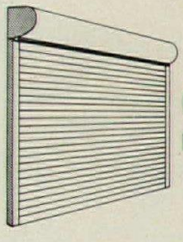

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Galvanized rebar protects the health and beauty of this health center

PHOTO BY LAWRENCE S. WILLIAMS, INC.

The Kling Partnership of Philadelphia prescribed galvanized rebar as "preventive medicine" against subsurface rust when they designed the University of Connecticut Health Center in Farmington, Conn.

The precast concrete panels which make up the beautiful, buff-colored, curvilinear facade all have hot dip galvanized reinforcing steel beneath their surface. In addition, The Kling Partnership specified galvanizing for tie wire, inserts and reglets that were required for the fabrication, transportation and erection of the panels.

By specifying galvanized steel, the architect has provided this building with the best proven protection against concrete cracking, spalling and staining caused by subsurface rust expansion. Proof of galvanizing's long-lasting protection is shown in the photo-micrograph of a rebar sample taken from the deck of the Longbird Bridge in Bermuda. After 22 years in this salty, moist environment, more than one-half of the zinc coating still remains to protect the steel against corrosion. **No other rebar protection has been time-proven like this.**

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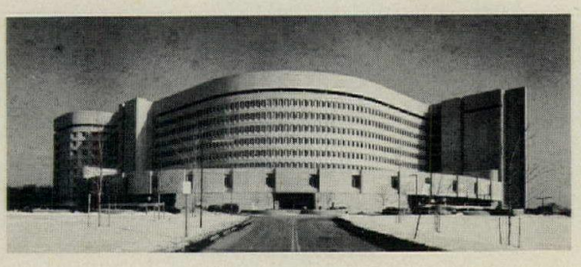

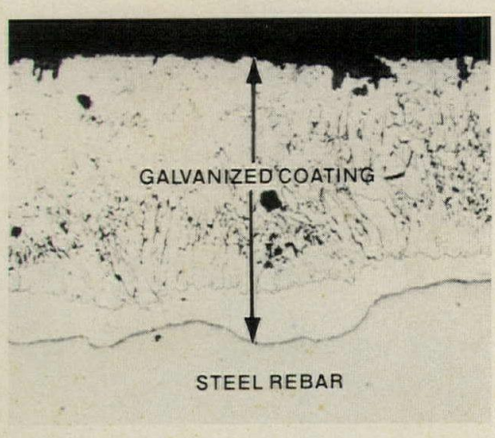

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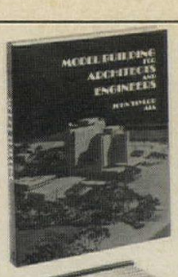

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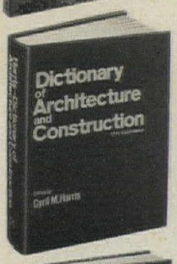

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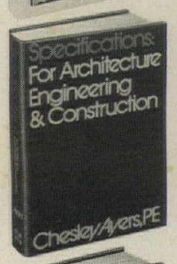

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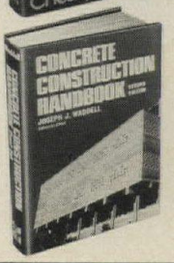

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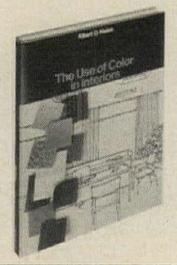

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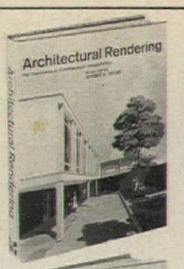

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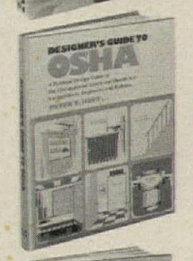

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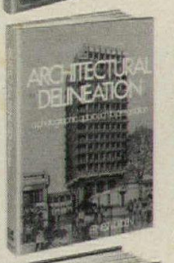

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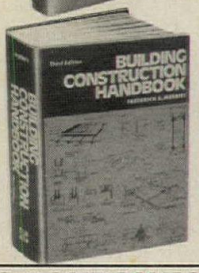

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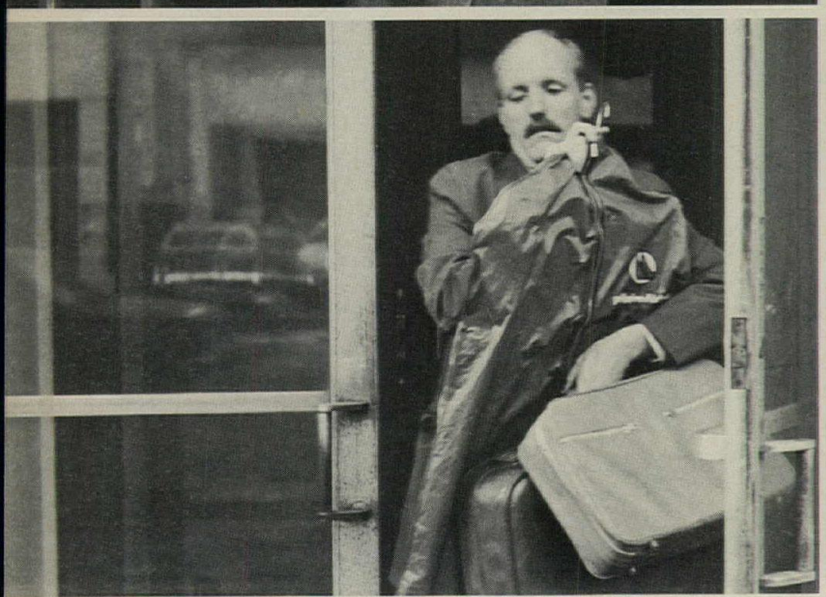

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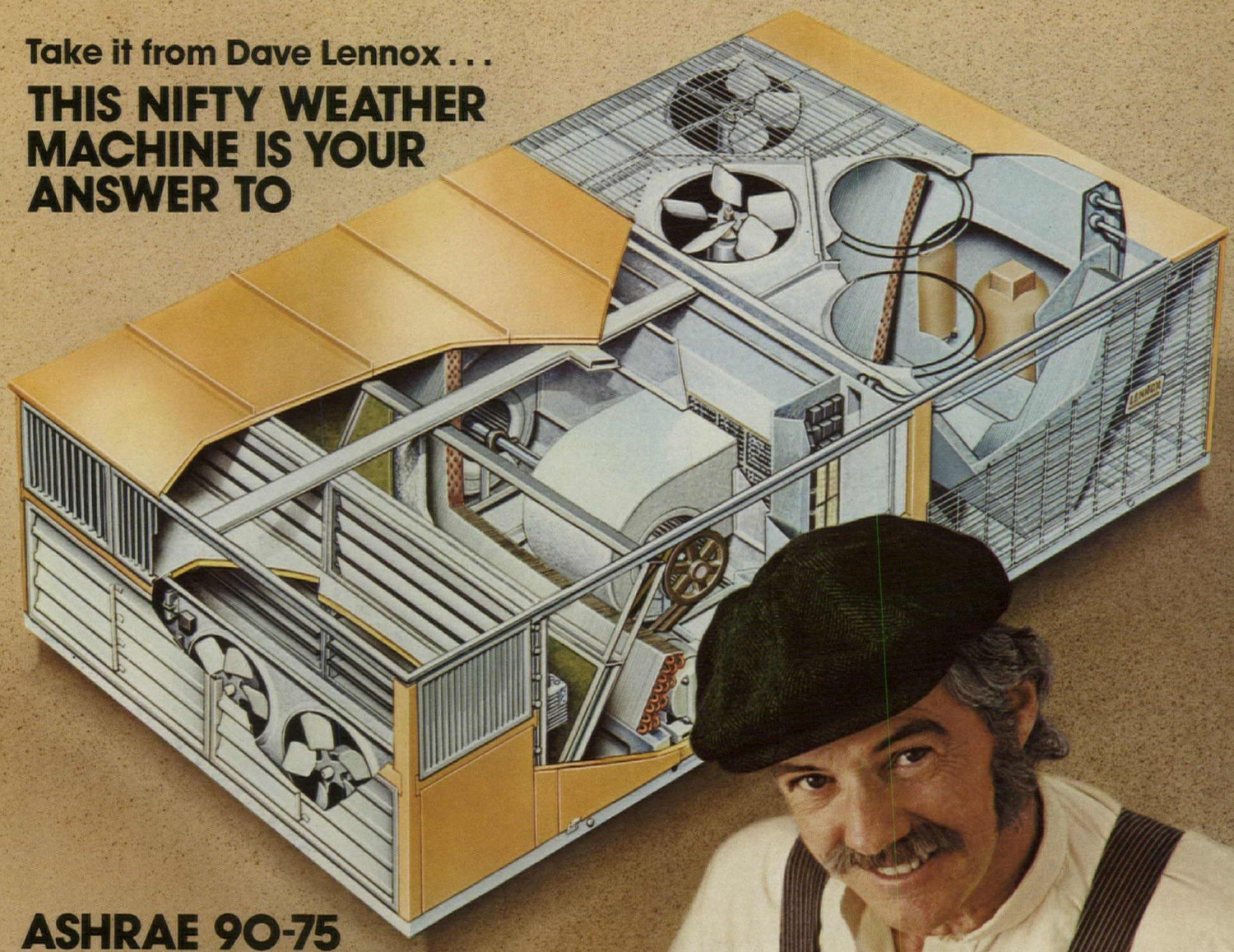

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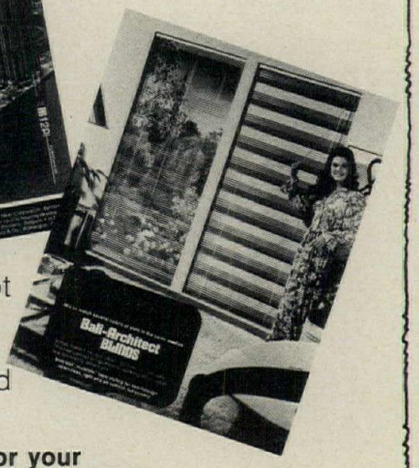

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MONTGOMERY WARD CORPORATE HEADQUARTERS Architect: Minoru Yamasaki & Associates; Interiors: Sydney Rodgers Associates; Electrical Consultant: Joseph R. Loring & Associates.

...like speech privacy!

In Open Plan interiors, lighting fixtures are an important part of the visual *and acoustical* environment. They must be low brightness, of course, in order to avoid intolerable glare and provide high visual comfort in the large open areas. But the fixtures must also inhibit the reflection of sound in order to assure speech privacy. Parabolume does both! Flat lenses reflect sound, much as a mirror reflects light. Voices or conversation may be directed away from the area intended. However, the complex baffle curves and contours which give Parabolume low brightness light control also serve as an effective sound baffle. Most of the sound entering the fixture is re-reflected internally and absorbed. Parabolume gives you the precise means of confining both light and conversation where they belong. Parabolume lighting: low brightness, high visual comfort and speech privacy!

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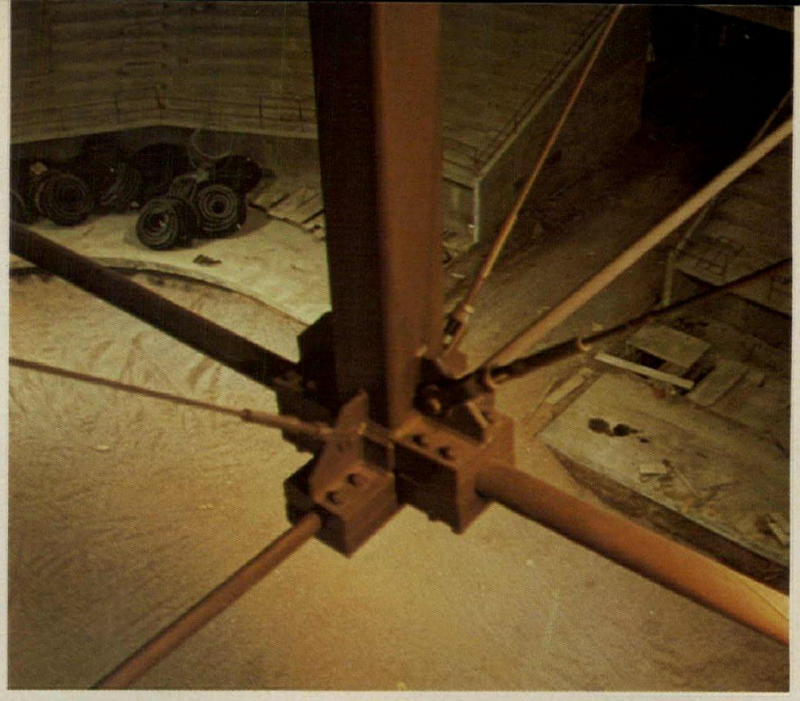
Coming in mid-August

Architectural Record's presentation of the year's most significant developments in engineering for buildings

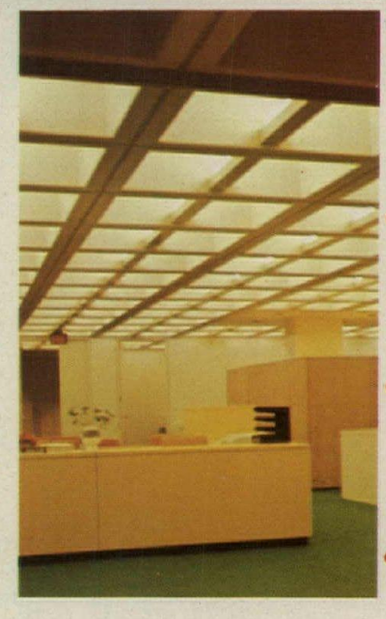
ENGINEERING FOR ARCHITECTURE



- Architectural Record's *Engineering for Architecture* issue is devoted in its entirety to a comprehensive annual survey and analysis of significant achievements and trends in engineering for buildings. It offers an exceptional advertising opportunity for manufacturers of building products because it provides . . .

- The largest paid architect and engineer subscriber audience ever made available to advertisers—some 45,000 architects and engineers.

- A unique all-building engineering issue that "wraps it up" for engineers in building and at the same time helps their clients (architects) gain maximum benefit from the technical expertise available to them.



- An editorial approach that attracts optimum engineer readership not only because of its informative features but also because of its advocacy of wider and wiser use of engineering capabilities.

- Outstanding coverage of the conceptual engineer in building—the engineer who works with the architect to make good design technically and financially feasible.

- High architect readership of an issue that provides, all in one place, a rundown of the most important developments in engineering for architecture—and architects.

- Bonus distribution to newly active Dodge-qualified engineers.

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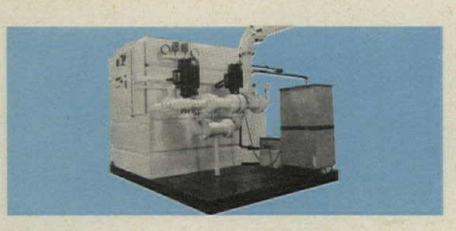

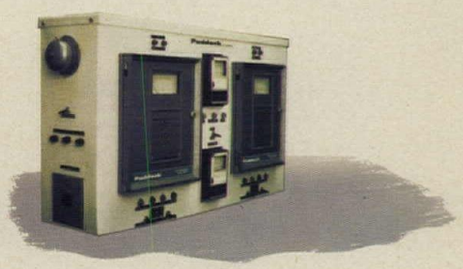

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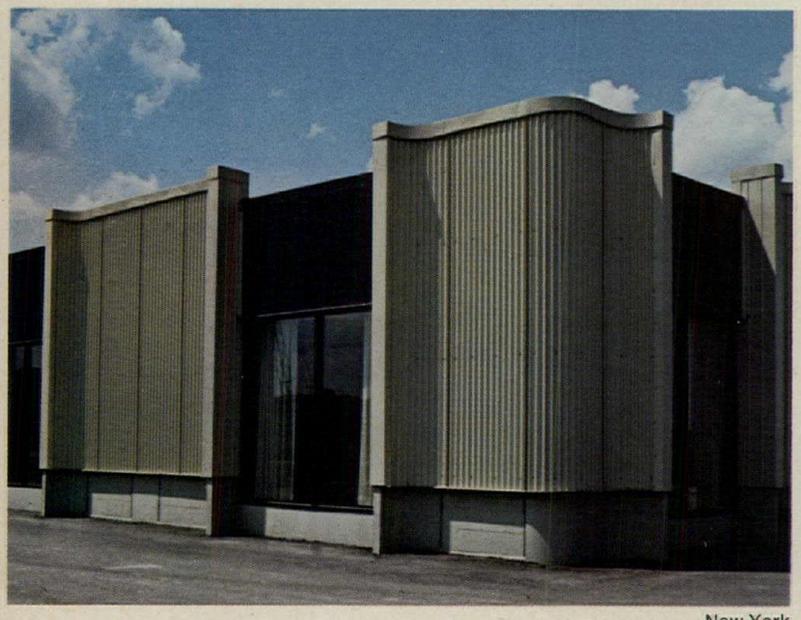

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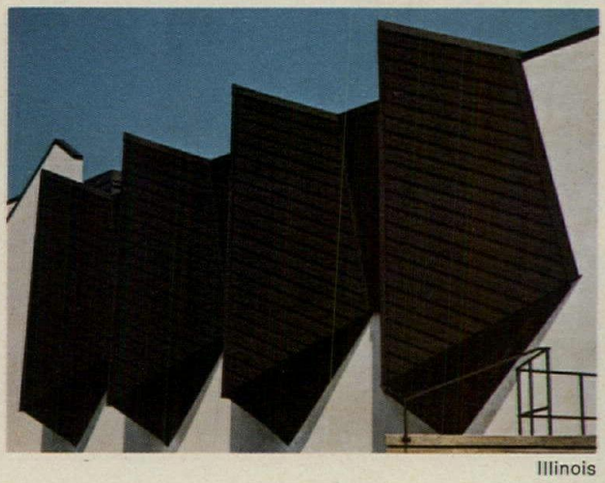

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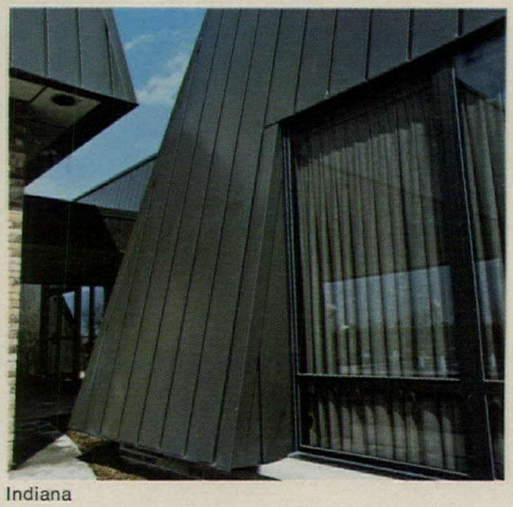

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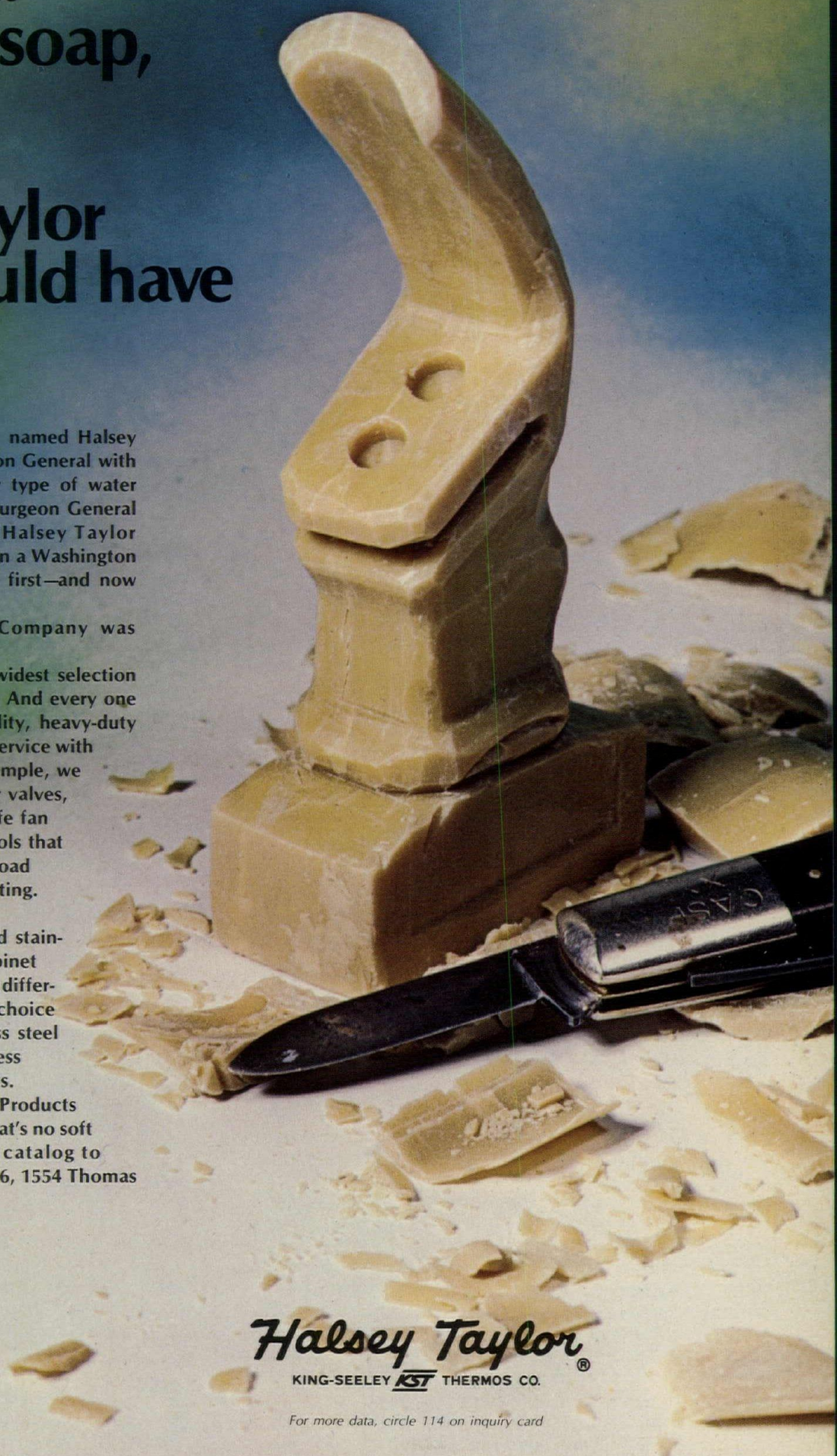

Just about 62 years ago, a man named Halsey Taylor called on the U.S. Surgeon General with sketches for an altogether new type of water fountain projector. When the Surgeon General insisted on an actual model, Halsey Taylor bought a bar of soap, sat down on a Washington park bench and carved out the first—and now famous—twin-stream projector.

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Halsey Taylor water coolers. Products you can honestly rely on. And that's no soft soap. Write for a copy of our catalog to Halsey Taylor Division, Dept. 176, 1554 Thomas Road, Warren, OH 44481.

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KING-SEELEY KST THERMOS CO.

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Onan extends to the original purchaser of goods for use, the following warranty covering goods manufactured or supplied by Onan, subject to the qualifications indicated.

1. Onan warrants to original purchaser for the periods set forth below that goods manufactured or supplied by it will be free from defects in workmanship and material, provided such goods are installed, operated, and maintained in accordance with Onan's written instructions, and further provided, that installation inspection and start-up on commercial-industrial stationary standby generator set and systems installations are conducted by an Onan Authorized Distributor or its designated service representative. **Product Application:** Commercial-industrial, standby power systems installed in the U.S. or Canada (must include Onan supplied generator sets, Automatic Transfer Switch, exerciser and running time meter). Five (5) years or 1500 hours, whichever occurs first from the date of first use. Labor allowance for the first two (2) years or 1500 hours, whichever occurs first from the date of first use. *

2. There is no other express warranty. Implied warranties including merchantability and fitness for a particular purpose, are limited to periods of warranty set forth above and to the extent permitted by law, any and all implied warranties are excluded. In no event is Onan liable for incidental or consequential damages.

3. All claims must be brought to the attention of Onan or an Authorized Distributor or its designated service representative within thirty (30) days after discovery that goods or parts fail to perform as warranted.

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(b) Failures due to normal wear, accident, misuse, abuse, negligence or improper installation.

(c) Failure of goods caused by defects in the system or application in which the goods are installed.

(d) Telephone, telegraph, teletype or other communication expenses.

(e) Living and travel expenses of persons performing service, except as specifically included in Section 1.

(f) Rental equipment used while warranty repairs are being performed.

(g) Overtime labor requested by purchaser.

(h) Starting batteries.

5. No person is authorized to give any other warranties or to assume any other liabilities on Onan's behalf, unless made or assumed in writing by an officer of Onan, and no person is authorized to give any warranties or assume any other liability on behalf of Seller unless made or assumed in writing by Seller.

*Must be registered on Form No. 23C065

Overengineering is no vice.

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"You never know where a standby power system will go — maybe in a hospital or civil defense place — so it's got to be good."

We can't improve on that statement as an explanation of why we're so super-fussy about engineering reliability into our products.

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Because we don't think overtesting is a vice, either.

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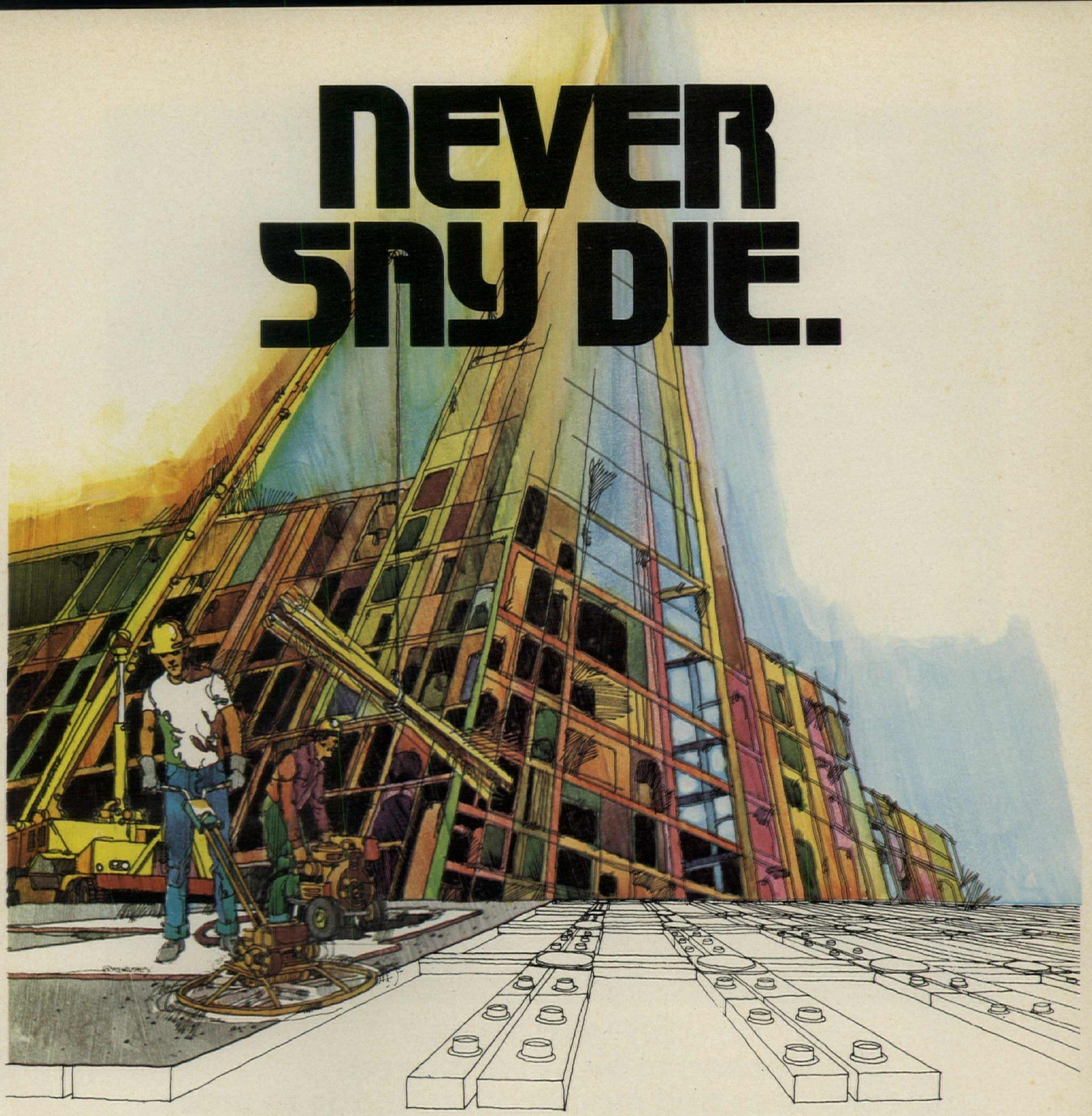

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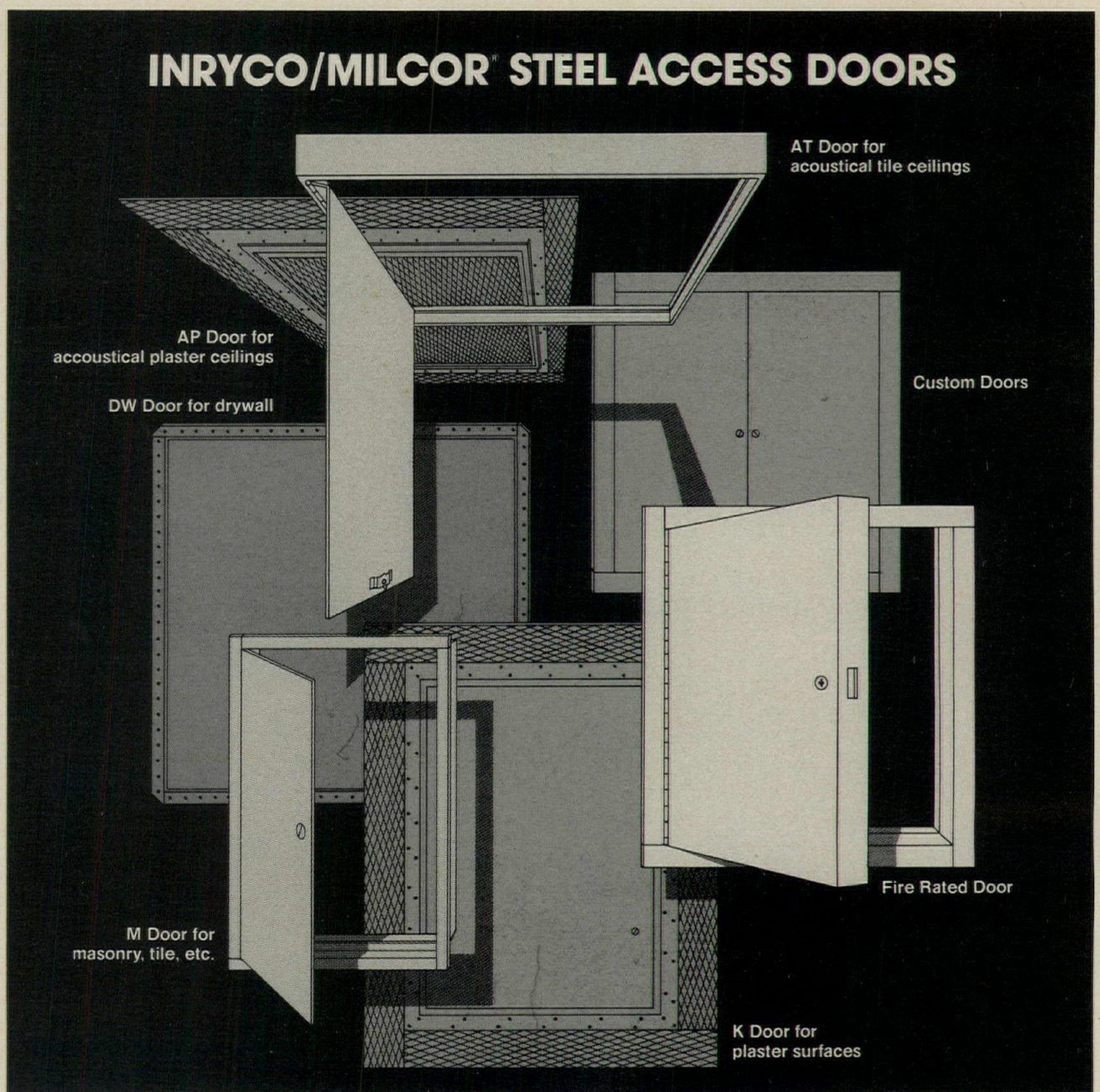

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There are 58 standard units to choose from—most of them readily available at one of our nationwide stocking locations near you. And each year we produce thousands of doors in non-standard sizes and modified designs to satisfy special needs.

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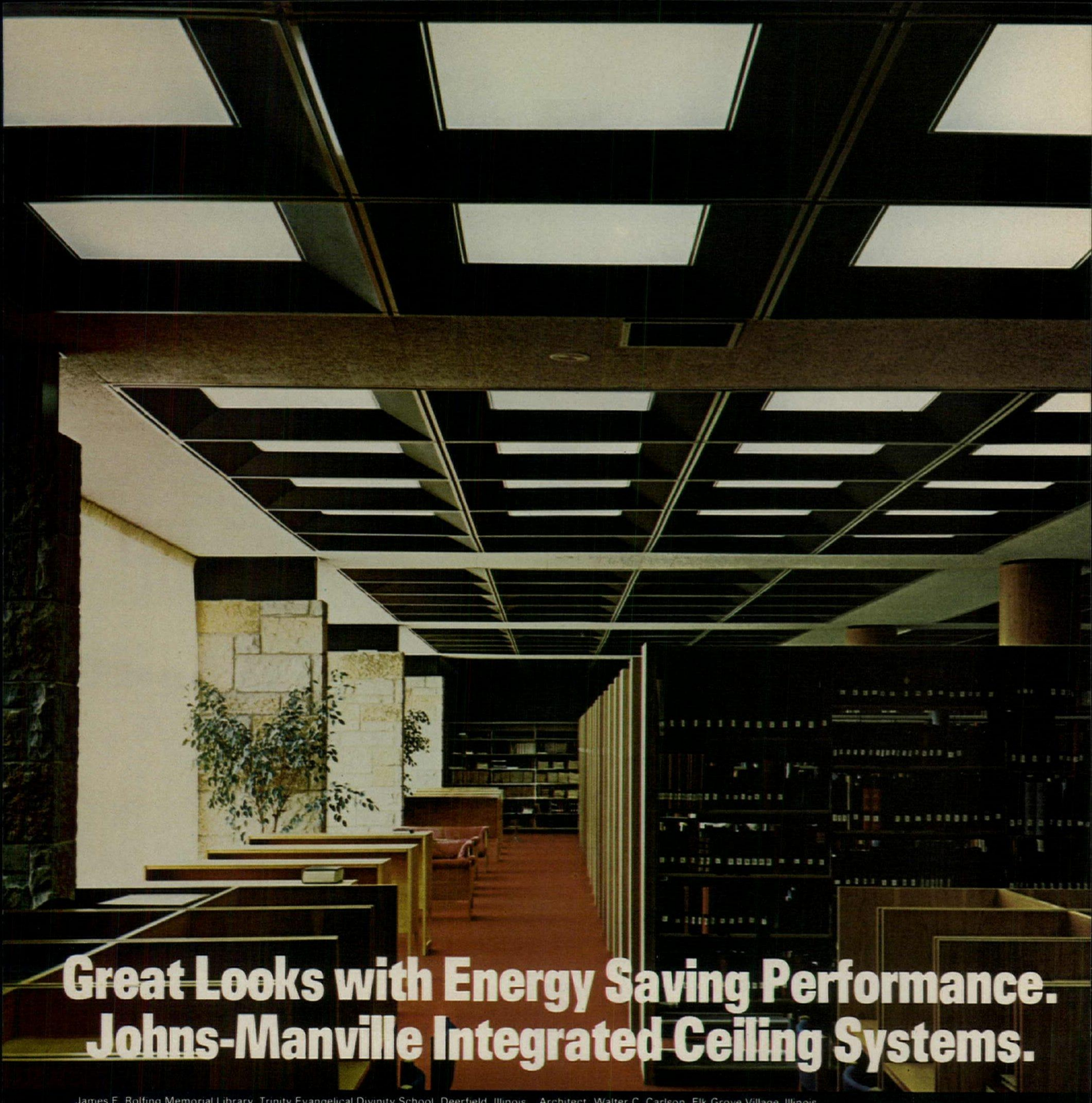

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- ☐ Monokote protects steel columns, beams and decks, which can buckle and fail at 1100° F, and minimizes the chance of costly structural steel repairs.
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Monokote is a proven product, backed by the long and extensive fireproofing experience of W. R. Grace & Co. For complete information on fireproofing that is as basic as the steel it protects, contact your local Zonolite Monokote representative or write Construction Products Division, W.R. Grace & Co., 62 Whittemore Avenue, Cambridge, Massachusetts 02140. In Canada, 66 Hymus Road, Scarborough, Ontario M1L 2C8.

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We've added a safety clutch to our Magic Wand tilter...to protect your blinds from damage caused by "overturning." This is just one of many reasons why your window treatment specs should read: Levolor Riviera. Send for our complete manual. Levolor Lorentzen, Inc., 720 Monroe St., Hoboken, N.J. 07030.

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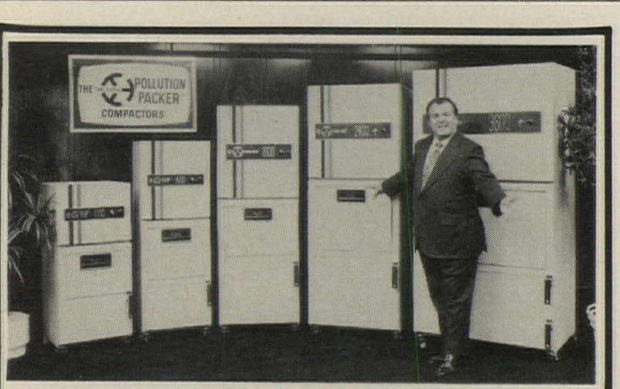

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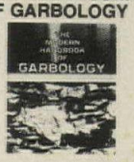

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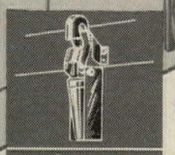

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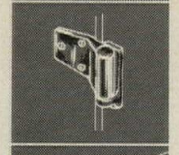

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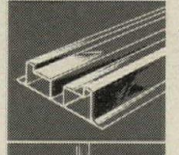

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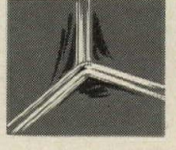

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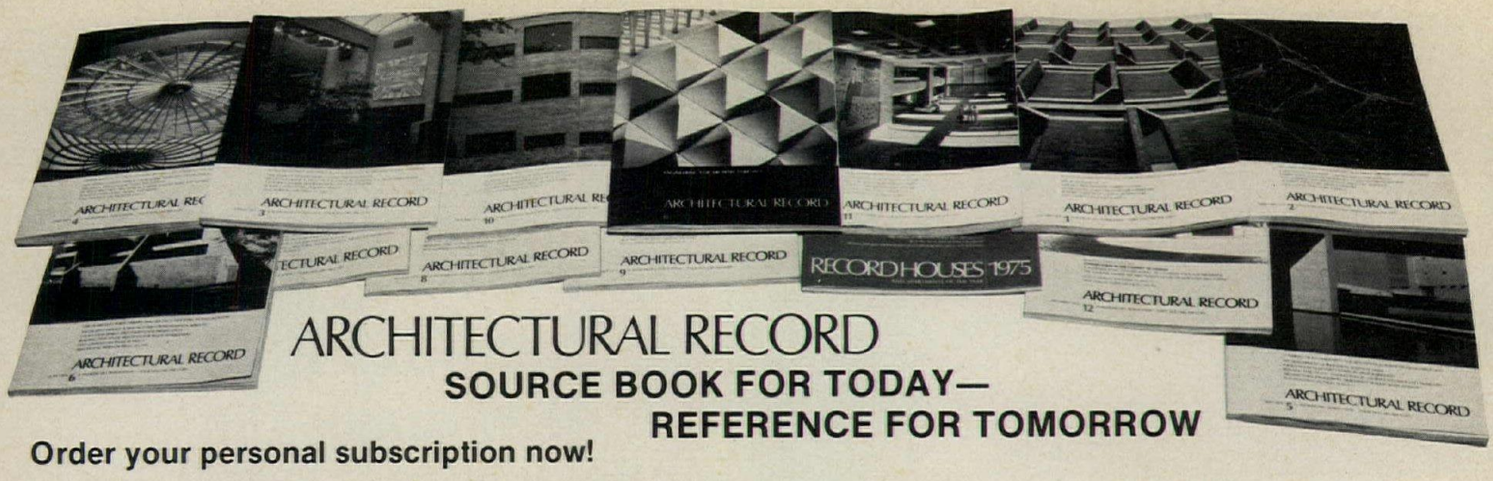

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1974	(Building Types Study)
January	Record Interiors of 1974, Design for Ski Resorts
February	Industrial building
March	High Rise Office Buildings; Housing in Europe
April	Stores and shops
May	Convention Hotels
June	Public Administration Buildings;
July	Community Colleges; New Life For Old Buildings
mid-August	Engineering for Architecture (spotlight issue)
September	Religious Buildings; 4 Interiors
October	Museums;
mid-October	Product Reports (spotlight issue)
November	Airports; Houses in San Francisco
December	Conservation in the Context of Change

1975	(Building Types Study)
January	Campus Architecture; Record Interiors of 1975
February	Medical Facilities; Correctional Institutions
March	Housing Design
April	Stores and Shops; High Rise Apartment Design
mid-May	Record Houses and Apartments of 1975 (spotlight issue)
June	Buildings for Waste Managements
July	Conservation and Reuse of Buildings
August	Bank Design
mid-August	Engineering for Architecture, (spotlight issue)
October	Multi-family Housing
mid-October	Product Reports (spotlight issue)
November	Recreation
December	Search for Better Buildings at Lower Cost

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When the Golden State Warriors or California Golden Seals play at home in the Oakland Arena, hot dog and beer sales go way up. As soon as the Cookson counter doors go up. And when the Oakland A's or Raiders play next door at the Coliseum, the same thing happens.

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They're easy to roll up and down because they're counter-balanced and equipped with lubricated ball bearings.

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Cookson Rolling Doors
Best way to close an opening.

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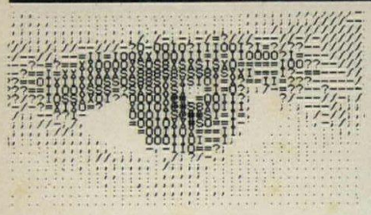
International Design Conference in Aspen



Exploring Change
June 13-18

Theme
Designers work at the frontier of change. It is our stock in trade, and ultimately our reason for being. This means far more than simply the refusal to let well enough alone. Restoration is a change back to what has been, and paradoxically, maintaining the status quo is itself a matter of change—a shift from the rule that change is constant and inevitable.

Subject
This conference is concerned with probing change as it relates to design in both the natural and built environments. There will be particular emphasis on how our changing concepts of time affect, and are affected by, developments in education, in recreation, in the performing arts, in graphics, in food, and in fashion.

Approach
The approach is exploratory, as an operation or a safari. We are setting out to survey the landscape of change in the belief that a clear view of the surface is the prelude to discovering what lies beneath. Designers cannot all be original theorists, but we had all bettter be advance scouts.

People
Tom Wolfe, critic and commentator, author of *The Electric Kool-Aid Acid Test, The Painted Word,* and *The Pumphouse Gang,* will keynote the Conference.

Founder and President of Marimekko, Inc., **Armi Ratia** is Finland's pioneer in the design of screen printed fabrics and apparel in which unique functional design is the unchanging theme. She will be accompanied by key members of her design staff who will demonstrate her concept of the relationship between work environments, sex roles, and fashion products.

Extraterrestrial resources are the basis for appraising the economic feasibility of space colonies. **Gerard K. O'Neill,** Professor of Physics at Princeton University and Director of N.A.S.A.'s Special Study on Space Colonization, will give us an illustrated presentation of his work in exploring outer space.

Iranian architect and planner **Nader Ardalan** will discuss the potential integration of traditional values and design resolutions with contemporary needs and opportunities, particularly in the rapidly developing nations of the Middle East.

A. S. Clausi, General Foods' Vice President and Director of Technical Research, will discuss the role of the consumer in respect to convenience foods and their impact on American social patterns.

Gordon Davidson is Artistic Director of the Mark Taper Forum. He won an Obie award for his direction of "The Trial of the Catonsville 9", and directed its film version. His staging of Leonard Bernstein's "Mass" opened the Kennedy Center in Washington, D.C. He and **Arthur Kopit,** author of "Oh Dad, Poor Dad, Mamma's Hung You in the Closet and I'm Feelin' So Sad" and "Indians," will examine the changing role of the performing arts, by exploring how space and participation alter the dramatic experience.

One of America's most renowned fashion designers, **Rudi Gernreich** was responsible for the contemporary desertion of "ladylike" fashion and the revolt against traditional Paris styles. He will provide a personal view of how the forces of technology and changing social values affect the fashion marketplace.

Brendan Gill is Broadway Drama Critic of The New Yorker. His books include *Here at the New Yorker, The Trouble of One House,* and *Ways of Loving.* He is also a noted architectural historian.

Landscape architect, educator at the University of California and editor of Landscape Magazine, **John B. Jackson** will view how our love affair with the road has been instrumental in changing the physical and social landscape.

Ian McHarg, landscape architect, regional planner, professor, and author of *Design With Nature* (one of the influential treatises in the ecology movement), will explore how changing demands on the world's natural resources affect our future.

Robert McKay is President of the Legal Aid Society of New York City and Chairman of the American Bar Association's Commission on Correctional Facilities and Services. He was Chairman of the New York State Special Committee on Attica and Director of the Aspen Institute for Humanistic Studies' program on Justice, Society and the Individual. He will present an overview of "Change and the Law."

Food critic and columnist for Natural History Magazine, author of *Great Recipes from the New York Times* and *The Saucier's Apprentice,* **Raymond Sokolov** invites us to witness the collision of traditional methods of food preparation with new technologies.

Media poet **Gerd Stern** is an author, producer and director of major multi-media presentations, "The Six Minute Day" and "Imagimotion." He recently produced "This is Federal Design," 200 years of stamps, emblems, money, posters, for the Federal Design Assembly. Gerd will examine the impact of microtechnology on our society in a talk called "Flip-Flop."

Brian Sutton-Smith will examine the increasingly symbolic world which children inhabit and the role to be performed by the arts in their development. Program Head in Developmental Psychology, Columbia University, he is best known for his research and prolific writings on child development through play, games and artistic media.

Gene Youngblood is an authority on the social implications and uses of electronic communications media and author of *Expanded Cinema.* He will share his personal views on communication as a revolutionary force, or how shifts in communications systems radically alter basic institutions of our society.

Other Participants Include: Raquel Ramati, Cedric Price, John Platt, Dorothea Elman, Samuel Kaplan, Gilles de Bure, Heinz Edelmann, Jan Sawka, Shigeo Fukuda, Mario Bellini, Bohumila Milena Lamarova, Marc Berthier and Eric Staller.

- A display environment designed by **Niels Diffrient** will be the showcase for designs brought to Aspen by the conferees.

- There will be a continuous slide showing of recent and past award-winning designs.

- Graffiti walls equipped with washable markers will be on hand for those of us with more immediate graphic and calligraphic needs.

- Our traditional barbecue will be followed by an authentic western rodeo and a late evening dance.

Participation
Conferees at IDCA have long demanded a greater opportunity to participate in the program of the conference. By means of a wide variety of mechanisms the conferees will have the chance to explore how participation can be a meaningful and enjoyable experience.

Films
The National Film Board of Canada will present the premiere of a major film produced by the Board, as well as nightly and afternoon screenings of traditional and experimental films.

Throughout the week there will be showings of other films and experimental video tape productions, such as the prize winning films from the First International Craft Film Festival: *Hands,* by James Beveridge; *Pedro Linares—Folk Artist,* by Judith Bronowski and Robert Grant; *The Violin Maker,* a Zagreb film produced in Yugoslavia.

Children's Program
The children's program will be orchestrated by **Rita de Lisi,** former director of Project, Inc., an experimental visual art center in Cambridge, Mass. Rita would enjoy corresponding with the children before the opening of the conference, and requests that each child send a letter and a picture to: Ms. Rita de Lisi, 319 North Clinton, Lindenhurst, New York.

Exhibits, Events, Entertainment
- A multi-media event (created by **Eric Staller** and **Jivan Tabibian**) will document the views of William Kunstler, Isaac Asimov, William Rusher, Herbert Gans, Thomas Hoving, Louis Harris, Richard Sennett, Philip Johnson and Edward Logue. The presentation will deal with questions such as, Why are we so fascinated with change? What is changing around us, and why? How are we affected by the impacts of change?

- Workshops will be held by the participants and Members of the Board. Case studies will include such topics as the natural and built environments, education and recreation, performing and visual art, food, fashion, and furnishings.

- **Don Miles,** Director of Urban Design, Office of Midtown Planning, New York City, will present time lapse film studies of how people interact in urban places.

- Laser beam images will be projected onto the mountains and clouds surrounding Aspen, creating a stunning visual effect.

- The U.S. Parachute Association has offered to demonstrate a choreographed free-fall jump. Hang gliding events are also planned.

- Inflatable tubes will provide opportunities for the development of personalized seating and play environments.

Aspen
Aspen, Colorado, scene of the annual International Design Conference since 1951, is located in a beautiful valley high in the Rocky Mountains. It has an abundance of excellent hotels, lodges, and restaurants with a wide range of summer rates. There are many outstanding campsites. It is renowned as an outdoor sports center, and boasts such cultural resources as the Aspen Music Festival and Music School, the Physics Institute, and the Institute for Humanistic Studies.

In June, daytime temperatures in Aspen range from pleasantly cool to warm. Because Aspen is about 8000 feet above sea level, the evenings are often quite chilly and heavy sweaters and jackets are recommended. Dress is informal and casual throughout the week.

For accommodations write or phone:

Aspen Reservations, Inc.
P.O. Box 4546
Aspen, Colorado 81611
(303) 925-4000

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Program Assistant: Eva M. Doman

Registration
Reservations are by mail only. Your check will be your receipt. Deadline is May 29 or cutoff number, whichever comes first. Checks received after May 29 must include a $15 surcharge.

Registration fees are immediately refundable, less $15 for handling, upon written notice no later than June 30, 1976. Refunds will be issued through IDCA, P.O. Box 664, Aspen, Colorado 81611.

All conferees must be pre-registered due to limitations of conference facilities.

$150	Registration fee
$100	Companion
$ 75	Student (proof requested)
$ 50	Children's Program (per child, 6-12 years)

Fee covers access to all conference programs and literature (does not include food or drinks)

Make checks payable to IDCA and mail with coupon below to:

IDCA
c/o The Bank of Aspen
P.O. Box "O"
Aspen, Colorado 81611

Conference literature will be distributed on Sunday, June 13. The program will begin that evening.

Please fill in and return:

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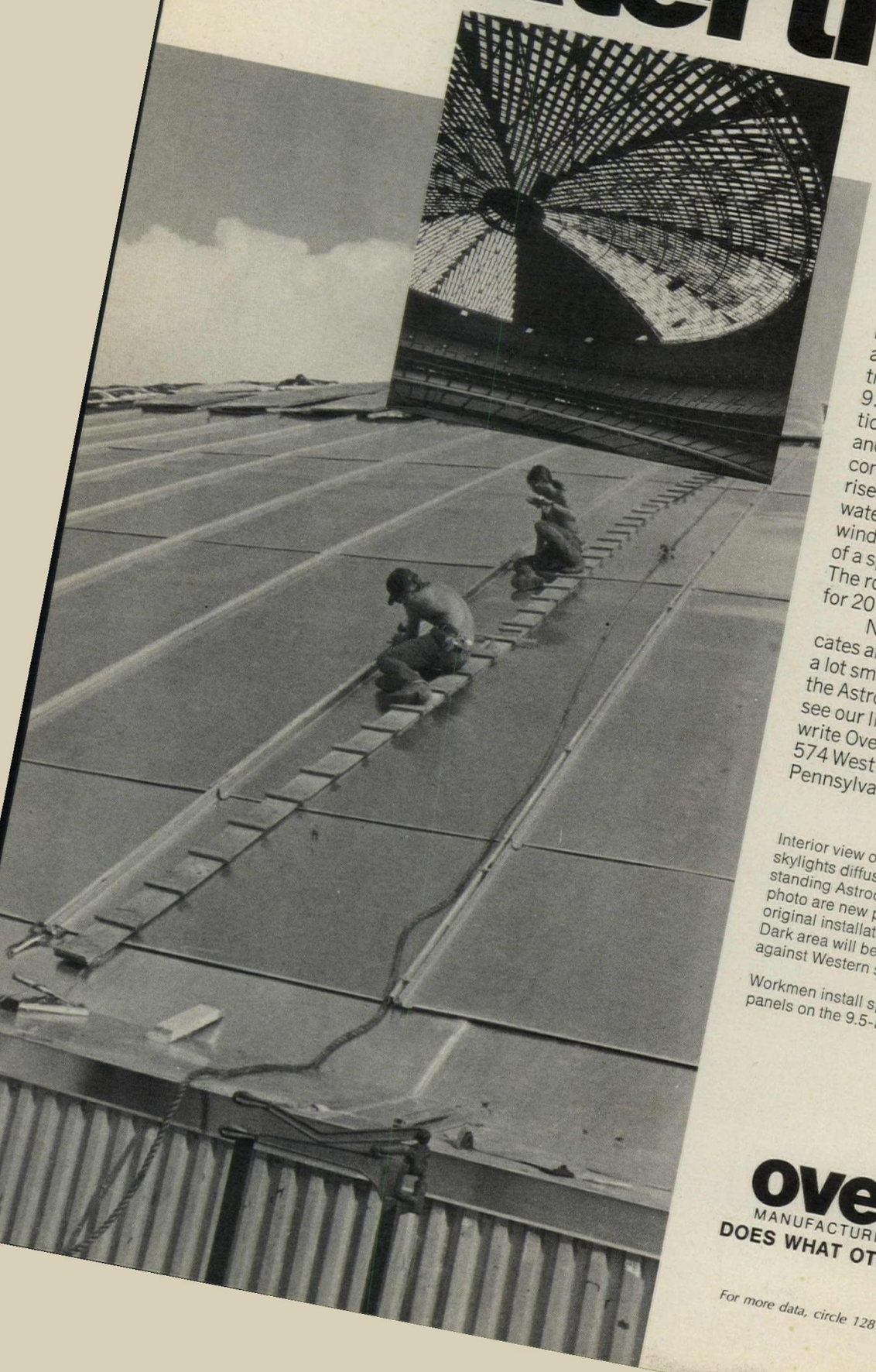

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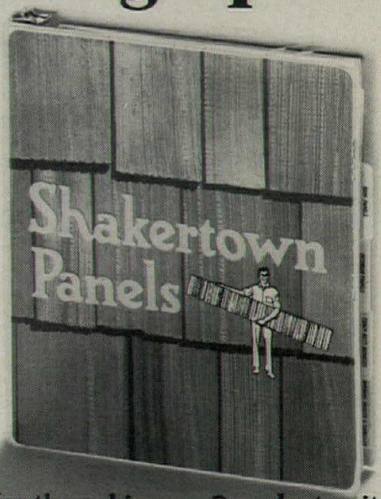

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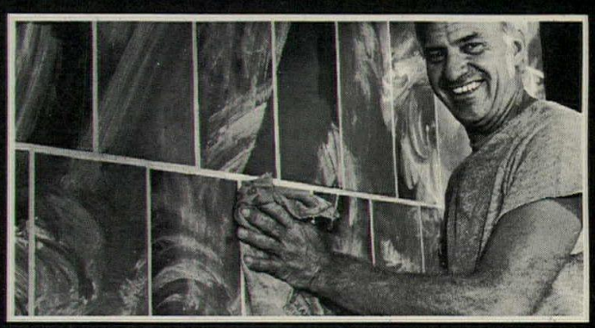

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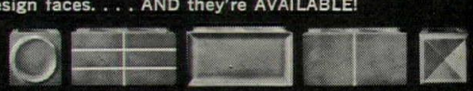

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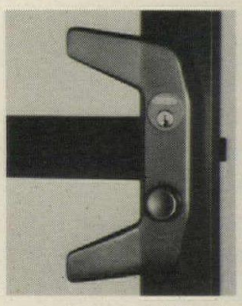

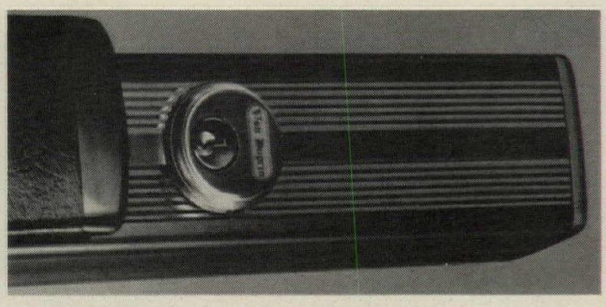

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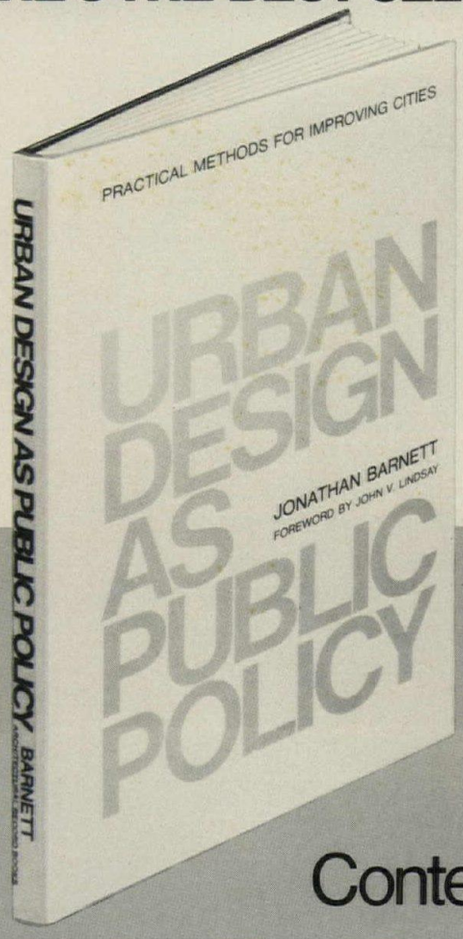

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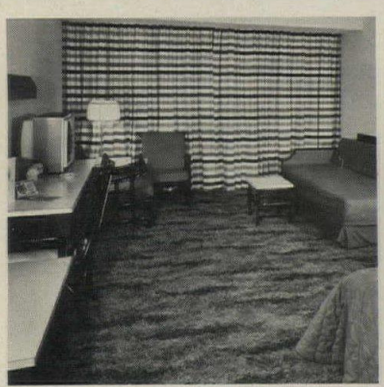

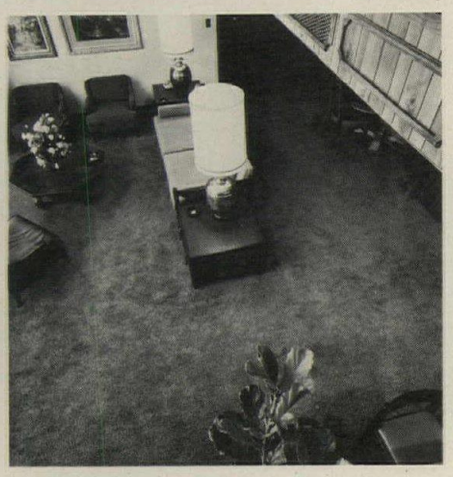

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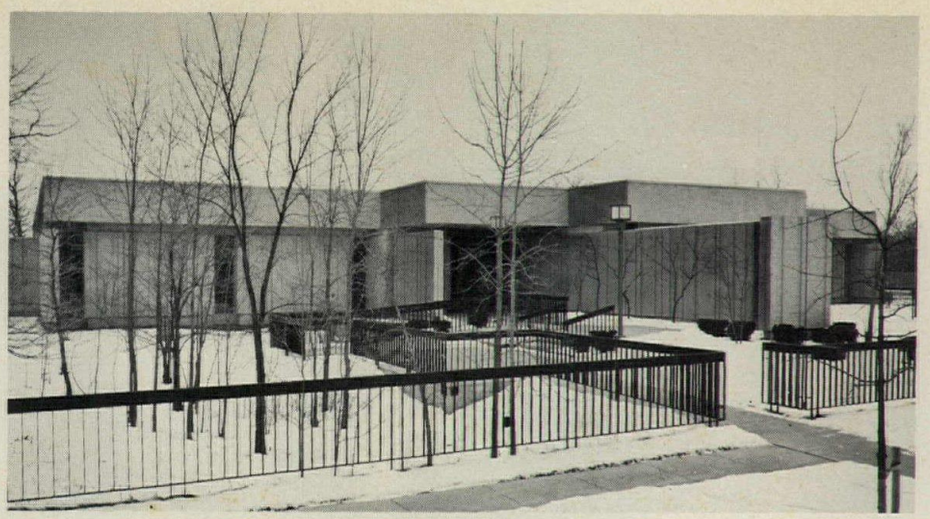

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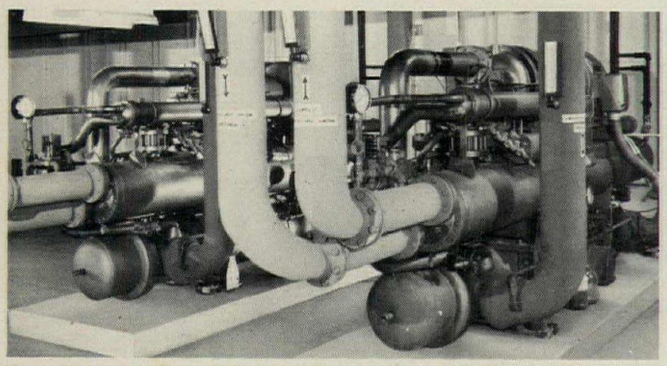

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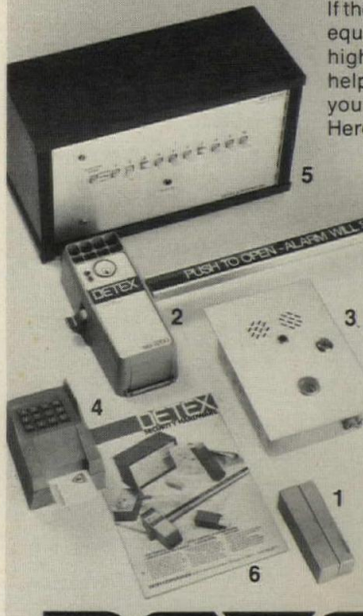

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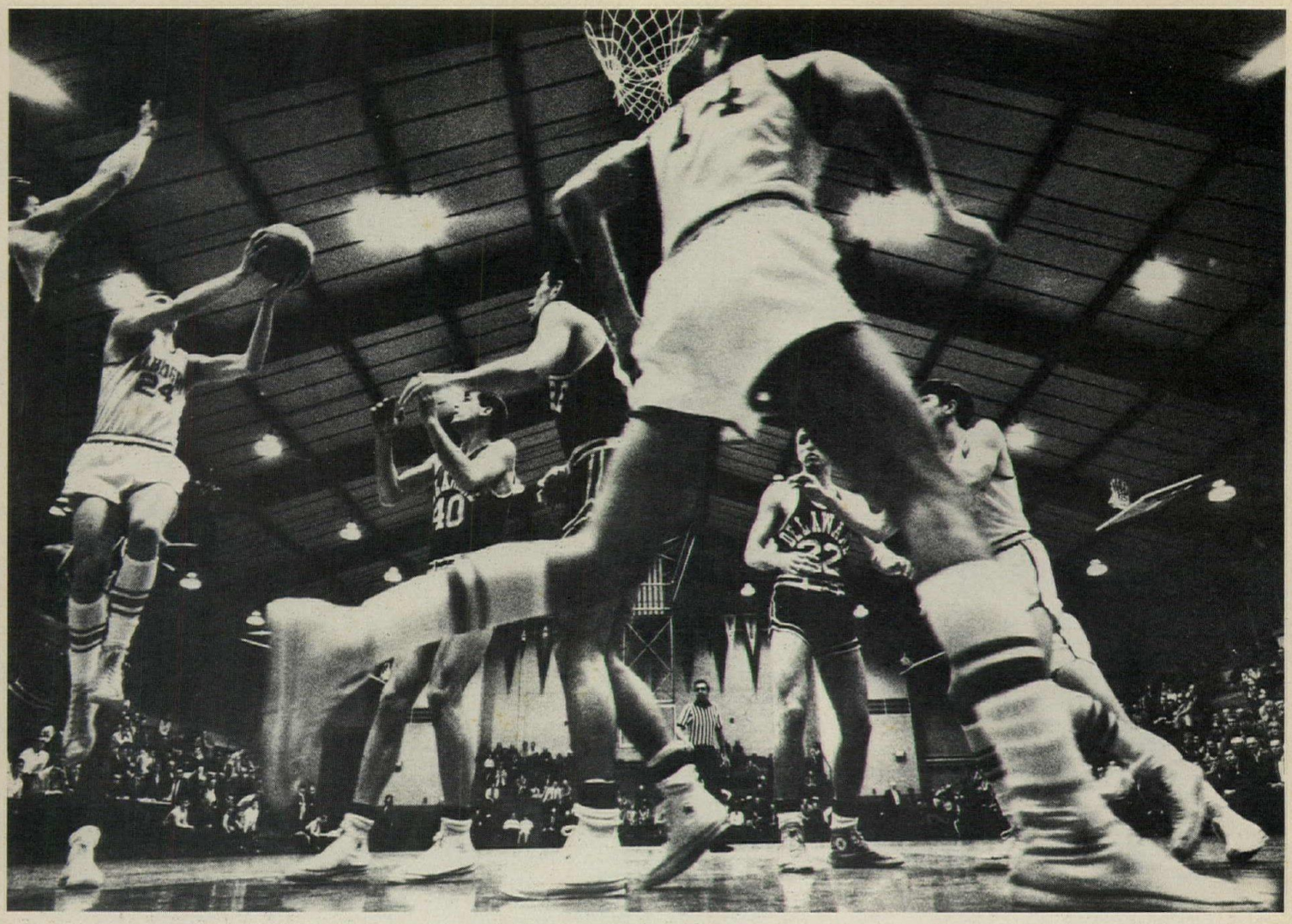

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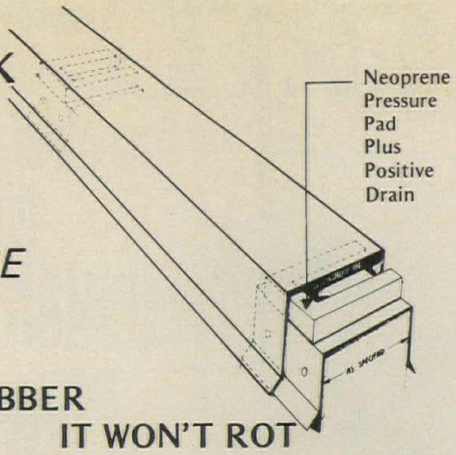

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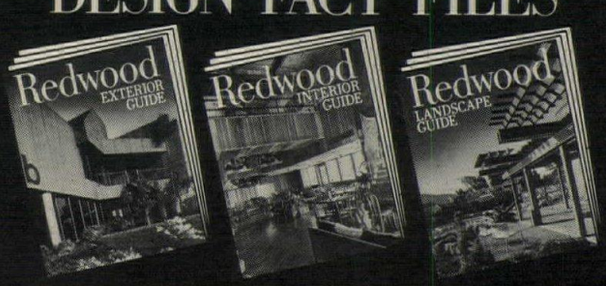

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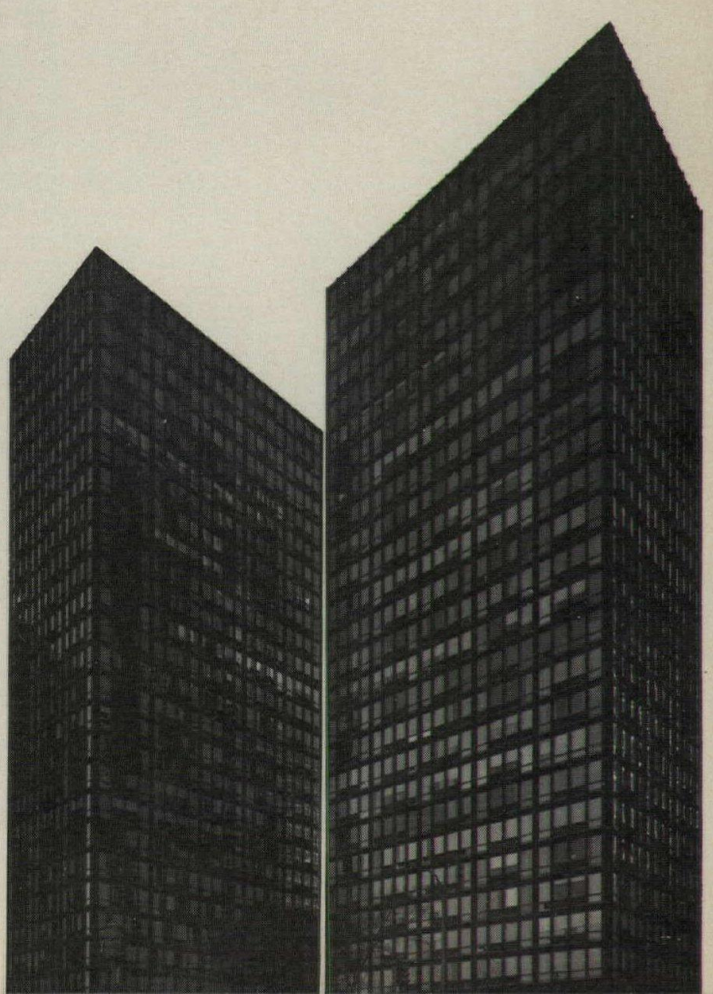

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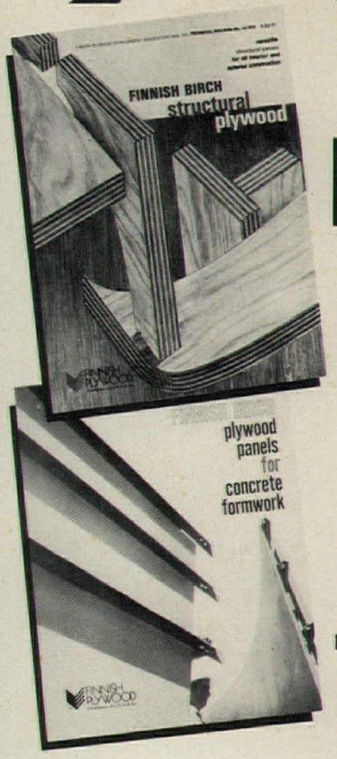

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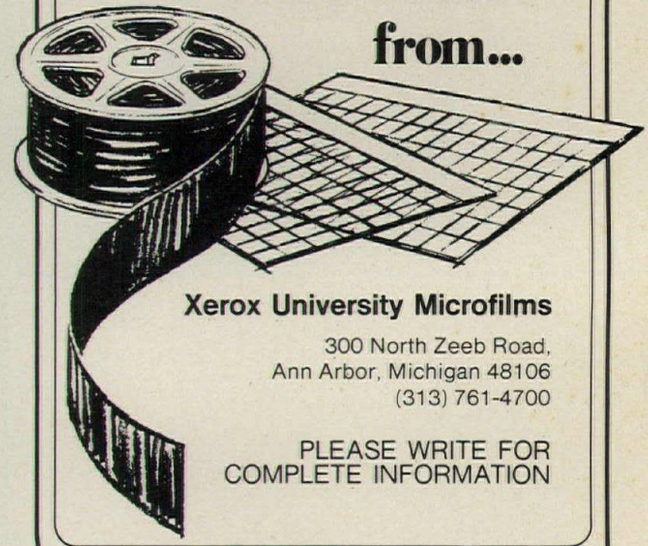

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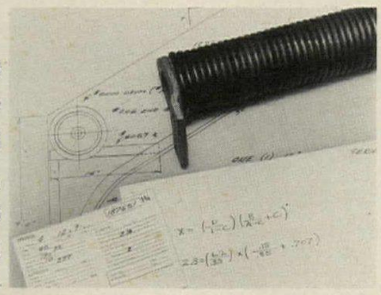

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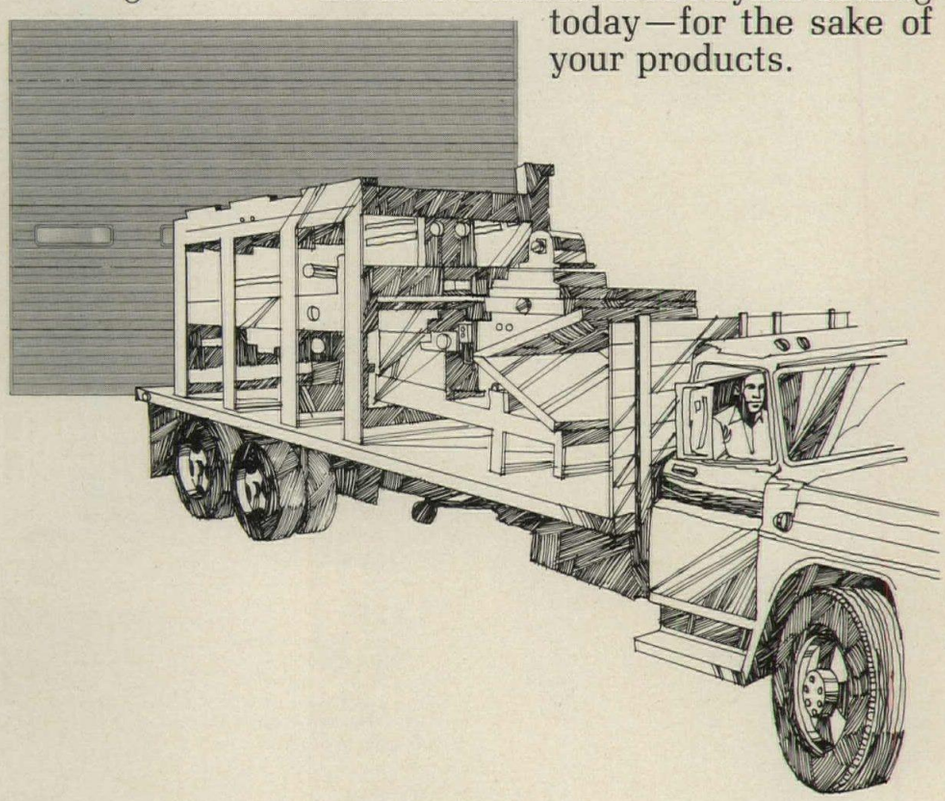

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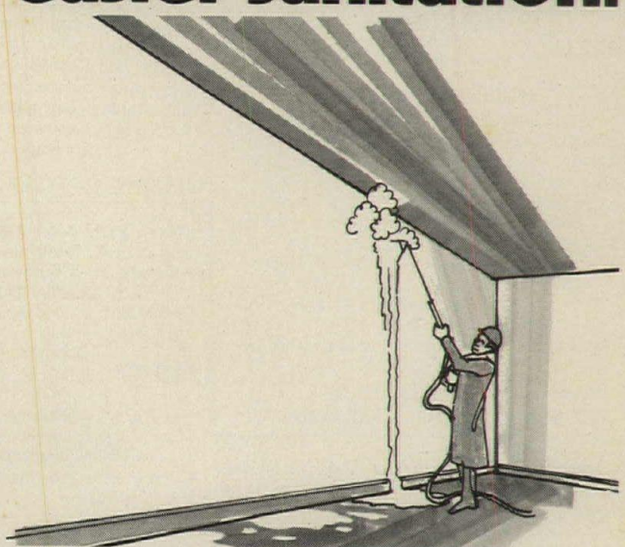

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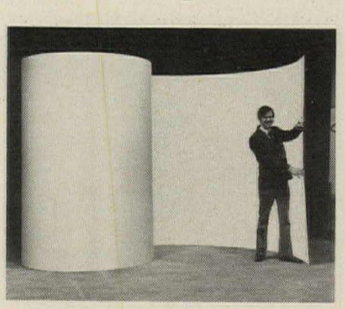

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