
THE CAMPUS AS A UNIFIED CONCEPT: A SCHOOL OF TECHNOLOGY BY RUDOLPH

A NEW KIND OF TEAMWORK UPGRADES DESIGN AT SMITH, HINCHMAN & GRYLLS

PLANNING FOR EXPO 67

BUILDING TYPES STUDY: TRENDS IN HOSPITAL PLANNING

FULL CONTENTS ON PAGES 4 AND 5

# ARCHITECTURAL RECORD

OCTOBER 1966 **10** A McGRAW-HILL PUBLICATION TWO DOLLARS PER COPY

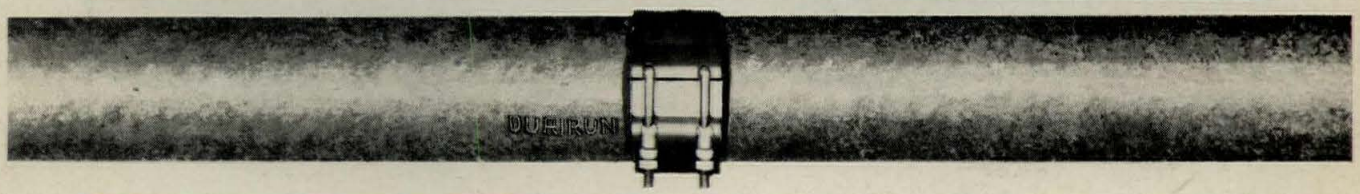
# look what ceramic tile is doing in this penthouse restaurant

Ceramic tile by American Olean for solid, practical jobs? Sure. For making surfaces fade-proof, stain-proof and easy to clean? Certainly. But that's not all. ■ In this inviting skyscraper restaurant, deep blue ceramic mosaics put the color of the midnight sky into the floor and make a rich setting for the flare of crimson tablecloths. Scored tiles and textured crystalline tiles in white and soft grays transform plain-jane structural columns into sprightly plaid accent areas. Bands of blue, white and black ceramic mosaics on the brazier hood repeat the major colors and integrate the serving area into the overall design. ■ Making interiors good to look at and easy to live in is what ceramic tile is all about. Write today for American Olean's booklet "Ceramic Tile in Architectural Design." It's filled with design ideas. American Olean Tile Company, 1014 Cannon Ave., Lansdale, Pa.

*For more data, circle 2 on inquiry card*

American Olean

# Between the walls, in the floors, or underground

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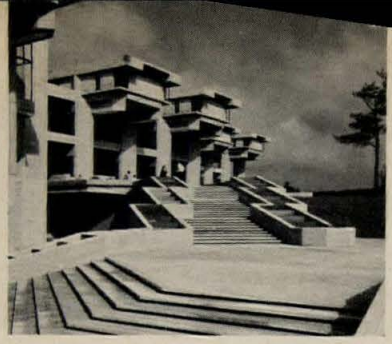
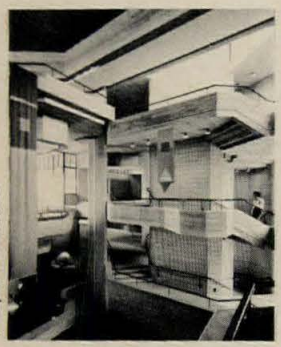
Illustrated, Britain's 4,000-year-old Stonehenge—"the place of the hanging stones."



Cover: Arts and Humanities Building
Southeastern Massachusetts Technological Institute
Architects: Desmond & Lord and Paul Rudolph
Photographer: Joseph W. Molitor

## FEATURES





Joseph W. Molitor



## BUILDING TYPES STUDY 363



Robert D. Harvey




ARCHITECTURAL RECORD, October 1966, Vol. 140, No. 4. Published monthly, except May, when semi-monthly, by McGraw-Hill, Inc., 330 West 42nd Street, New York, New York 10036. CORPORATE OFFICERS: Donald C. McGraw, Chairman of the Board; Shelton Fisher, President; John J. Cooke, Vice President and Secretary; John L. McGraw, Treasurer. SUBSCRIPTION RATE: for individuals in the field served $5.50 per year in U.S., U.S. possessions and Canada; single copies $2.00; further details on page 6. THIS ISSUE is published in national and separate editions. Additional pages of separate edition numbered or allowed for as follows: Western Section (including Western Architect and Engineer) 32-1, through 32-24. PUBLICATION OFFICE: 1500 Eckington Place, N.E., Washington, D.C. 20002. Second-class postage paid at Washington, D.C. POSTMASTER: Please send form 3579 to Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 430, Hightstown, N. J. 08520.

# ARCHITECTURAL RECORD

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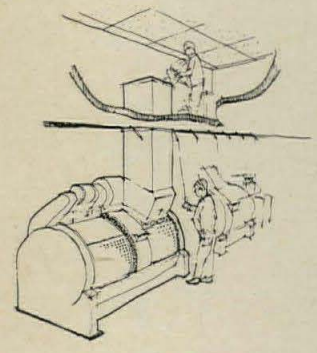



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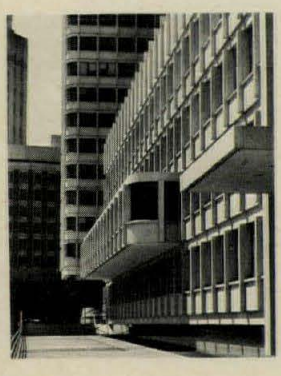

## COMING IN THE RECORD

### DOWNTOWN DEVELOPMENT AND THE OFFICE BUILDING

In big towns and small, the office building is these days more and more often related to redevelopment complexes which may include not only shops and stores and hotels but even apartments and schools. Next month's Building Types Study will consider the impact of such developments on office building design, with its implications for the design of the individual office building.

### HOW MUCH WORK FOR ARCHITECTS NEXT YEAR?

At a time when economic prognostications are even more hazardous—and at the same time more crucial—than even their hazardous norm, the annual F. W. Dodge forecast of construction activity for the year ahead will offer architects an analytical view of prospects in 1967 for all the major building types.


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EXECUTIVE, EDITORIAL, CIRCULATION AND ADVERTISING OFFICES: 330 West 42nd Street, New York, New York 10036. Western Editorial Office: 255 California Street, San Francisco, California 94111. PUBLICATION OFFICE: 1500 Eckington Place, N.E., Washington, D.C. 20002; second-class postage paid at Washington, D.C.

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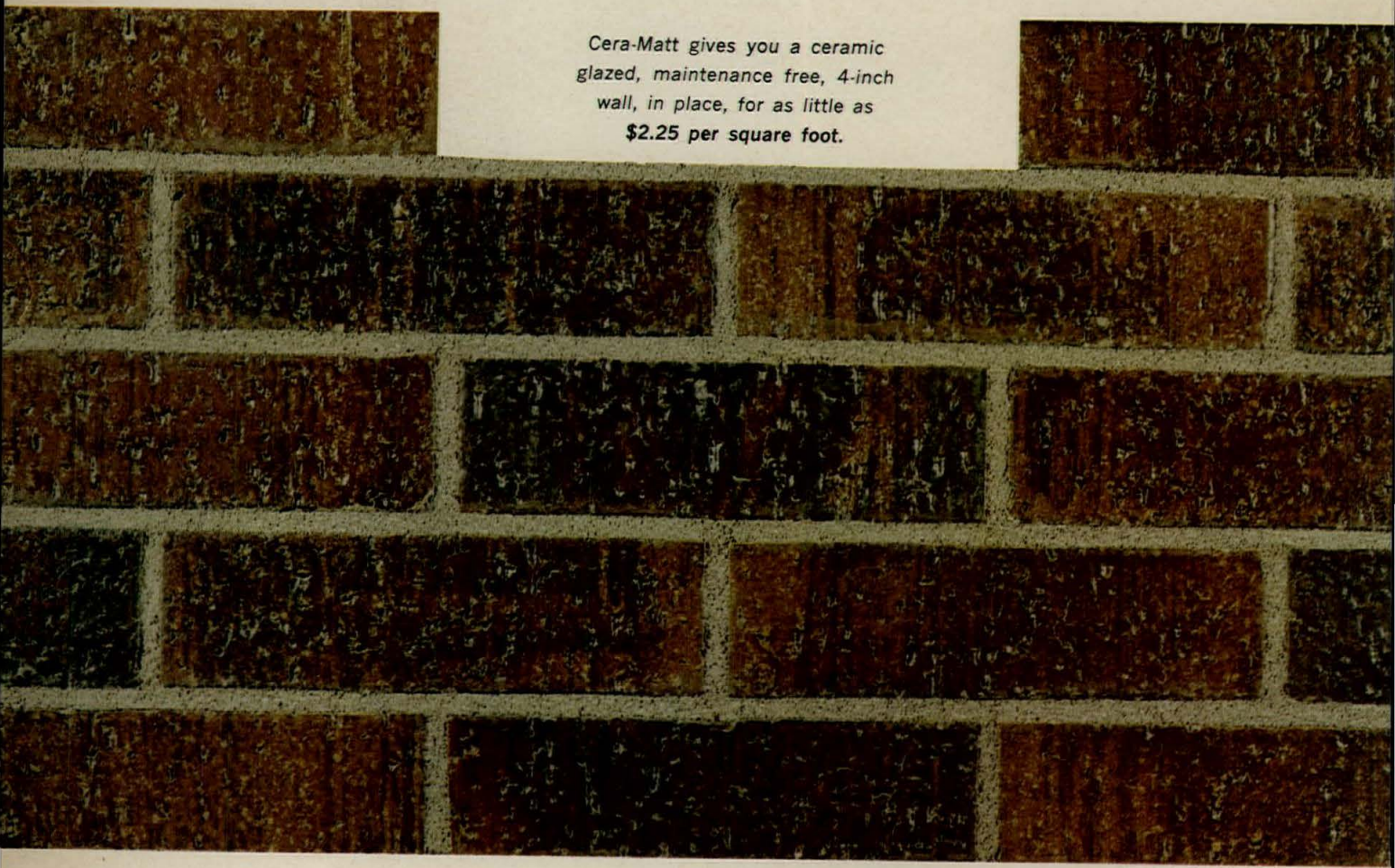

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# THE PRACTICAL PRESSURES PUSHING THE PROFESSION

"No one in the architectural profession can fail to be aware that powerful forces, from without and from within, are pressing for redefinition of the profession of architecture. Whether the architect agrees or disagrees with the direction of these forces is not as important as the logical acceptance and realization of the presence of these pressures."

This is a quotation from a speech by Robert F. Hastings, president of Smith, Hinchman & Grylls Associates, Inc., of Detroit. In this paper Hastings, friend and mentor to the RECORD, summed up those pressures, the same pressures we were talking about in devoting our July issue to "The New Age of Architecture; the New Role of the Architect."

"Courts are already ruling that the architect IS the responsible agent liable for ALL design decisions, cost estimating, building materials and equipment performance, and construction management. Architects are being sued by people who walk through glass partitions and walls; by owners of defective buildings admittedly not constructed to plans and specifications; by workmen injured in accidents caused by faulty construction and construction methods; by owners experiencing building product failures; and for numerous other reasons that seem to have little or no logic.

"Projects are becoming larger and more sophisticated. Even single building projects are designed within the framework of the surrounding community—taking into account neighboring buildings, traffic and road patterns, utilities, parks and other factors that contribute to the total environment. Multi-building projects must be designed within a similar framework—but on a much larger scale. In addition, the architect is expected to be more aware of social, psychological, spiritual and political factors that contribute to the creation of a satisfying environment.

"The intricacies of financing are becoming increasingly important in design problems.

"Contracting patterns and services have changed drastically in recent years. The general contractor has become more and more a broker as the work done by his forces has diminished. As building subtrades become larger and increasingly complex, the general contractor leans upon the architect more and more for technical co-ordination and inspection."

Hastings mentions also the pressures on architects resulting from development of new materials and products. He points out that many manufacturers, with new materials or systems, specifically disclaim responsibility for failures or poor results following use of their products. I might break into his discussion enough to remark that in our own observation many manufacturers are aware of a considerable gap between product development and use, and would welcome closer contact with architects and engineers to avoid misunderstandings, to improve product design, and to integrate the processes of manufacture and use of equipment, especially in some of the more complicated systems of air conditioning and the like.

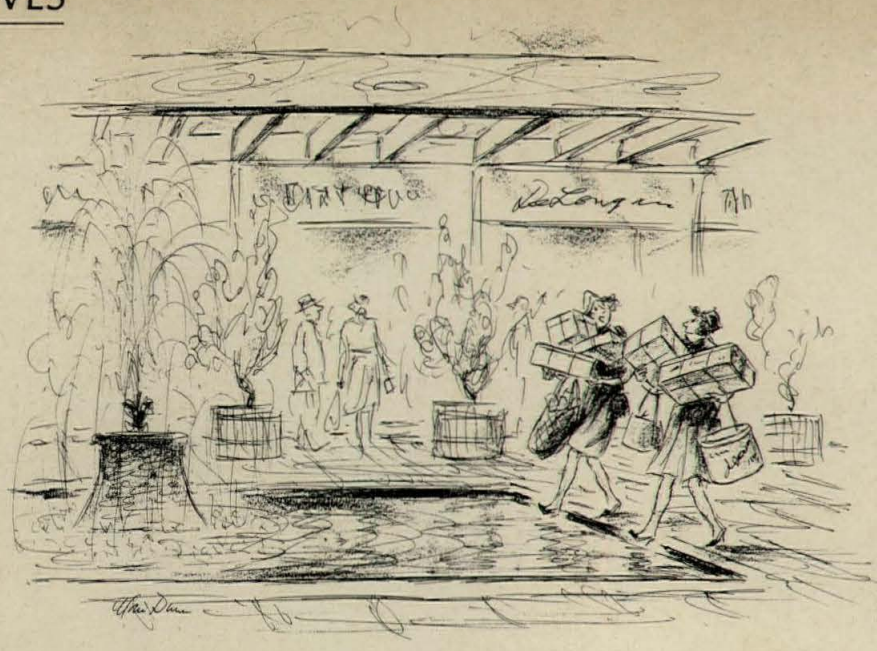
Back to Hastings: "Another external force comes from the field of professional education. No important changes have been made in curricula to develop skills in management, environmental conditioning, illumination, interior design, etc. Since engineering schools have forsaken the building design field for pursuits in basic education and research, space flight, and similar exotic fields, and since these same schools are discontinuing the teaching of applied engineering, *a rapidly increasing void in the knowledge required to creatively solve society's total environmental problems is emerging.*

"Since the architectural profession is the only profession solely concerned with the design of environmental structures, it has the greatest need for these almost non-existent skills."

Hastings' ardent advocacy of increased engineering education directed to building design has gotten him into many an argument, especially when he calls for increased status and recognition for technically trained designers, whatever you call them. And the architectural schools don't like to hear him go on about it. But let me add a voice to his plea that, even if they don't care for the direction of the forces, architects must recognize that they are there. They are complicating the practice of architecture, like it or not.

*—Emerson Goble*

Drawn for the RECORD by Alan Dunn



"What I love about these new shopping centers is their landscaping!"

## Postman spare that agora in Petersham, Mass.

There is a certain enthusiasm for new construction which seems to paralyze one's normal understanding of human responses. The culprit in this story is the Postmaster General (or at least some of his henchmen) who was (were) flabbergasted when his (their) offer to build a new post office in Petersham, Mass. was unenthusiastically received. The old post office, in the town office building, didn't even have washrooms, not even running water. Obviously it was time to do something better for old Petersham.

But how was some postal bigwig, in his big Washington office, to know that in Petersham, the old post office was a social center of the little village, a gossip corner, just as important to local folks as the agora of ancient Athens. And the old one in Petersham did not have the color of some little post offices which are part of general stores or newsstands. These little post-office counters, so we are told, are purposefully being replaced by the Post Office Department, which does not, of course, recognize any social obligations in the handling of the mail.

In any case, watch it in those megastructures—let's have a prefabricated gossip center ready to drop into the maze.

## Watch those contributions, you vicious architects

Our old friend Ty Rogers, no stranger to an editor's work, calls our attention to a bill, introduced in the Massachusetts state senate, to limit campaign contributions of architects, engineers or lawyers to $1,000 (instead of the present $3,000) to state legislators. One of the senators talking to the bill is quoted: "It's generally understood that in order to get a state contract, you have to be a contributor." Add that to things you did not learn in school.

## The engineers talk back re professional fees

It seems that A.I.A. President Charles M. Nes Jr. was quoted in Engineering News-Record to the effect that architects were having difficulty finding really good mechanical and electrical engineers for building-design assignments. In the Newsletter of the Consulting Engineers Council, President Samuel A. Bogen of the C.E.C. "dispels this myth . . ."

"There is no scarcity of mechanical engineers who are willing and able to provide competent, imaginative services to architects who show respect for the professions of architecture and engineering. This is how it's done.

- Turn down commissions that don't provide adequate fees for all design professionals.
- Pay the engineers in proportion to their part of the project, and not at the lowest price you can get away with.
- During the design of the job treat the engineer as a respected, responsible, equal member of the design team.
- Have some regard for the fact that the engineer is not a banker, any more than the architect is; neither one should be required to carry the owner.
- When you have found an engineer who performs to your satisfaction, be as loyal to him as you expect him to be to you; don't let outside pressures come between you.

"Until the practicing architect awakens to the need for this level of interprofessional conduct, he will continue to find himself offered only that quality of service of which he now complains."

## Yes, criticism does harm; it encourages artists

We have been known to deplore what is usually described as "criticism" in the arts, largely because I have a certain empathy for the general public, which usually misunderstands the whole deal.

Now, in the N. Y. Times (Hilton Kramer reporting), we have new evidence that criticism frequently gets so carried away that it transcends the art it is supposed to be criticizing. He has a piece about the boredom of "minimal" or "ABC" art, in which he remarks: ". . . it is a fact that art has become increasingly dependent upon criticism and esthetic theory, not only for its audience but for the whole conceptual framework on which it is based. In this respect the exponents of minimal art may only have carried to a further extreme the critical self-consciousness that characterizes nearly all of modern art, but the nature of the art in question—its surpassing visual simplicity and utter lack of expressive or symbolic elaboration—gives to its theoretical rationale an importance never before equalled in even the most theory-oriented styles of the past.

"The artists themselves have been more than ready to offer ambitious explanations for the simplest of their creations—to such an extent, indeed, that one wonders if there may not be a 'law' operating here to the effect that, the more minimal the art, the more maximum the explanation."

Just so you couldn't miss it, he closes with: "Like nature, art abhors a vacuum, and in that vast imaginative vacuum created by the new minimal art the critics and theorists are in the process of building a new intellectual empire."

—*E. G.*

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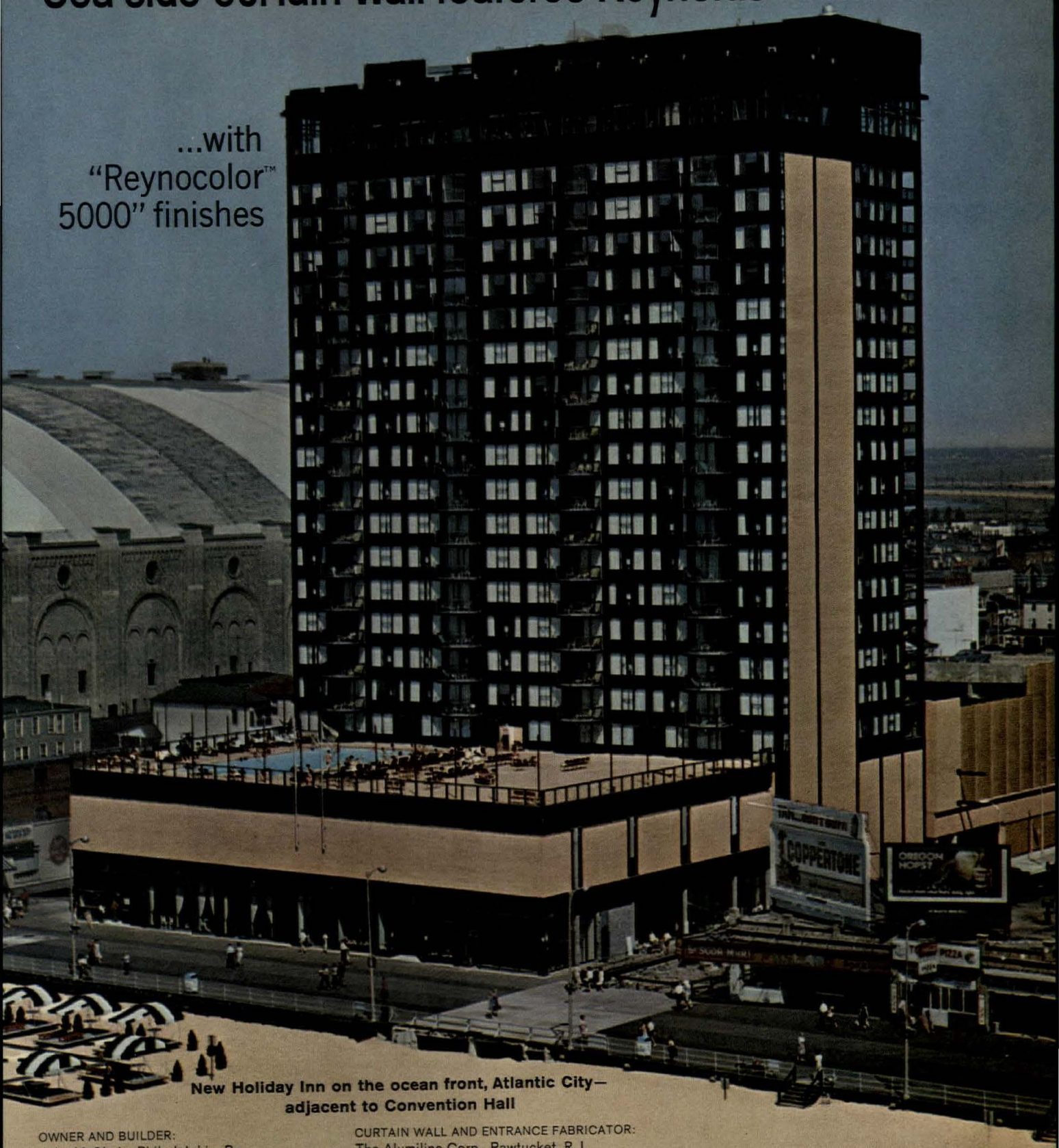
# Sea-side curtain wall features Reynolds Aluminum

...with
"Reynocolor™
5000" finishes




**New Holiday Inn on the ocean front, Atlantic City—adjacent to Convention Hall**

OWNER AND BUILDER:
John McShain, Philadelphia, Pa.
ARCHITECT:
Aaron Colish, Philadelphia, Pa.

CURTAIN WALL AND ENTRANCE FABRICATOR:
The Alumiline Corp., Pawtucket, R. I.
CURTAIN WALL ERECTOR:
Products Corp. of America, Philadelphia, Pa.

A 400-room inn right on the ocean front presents obvious attractions—and poses some problems. Notably, corrosion by salt-laden air and spray, and abrasion by wind-driven sand.

The beautiful solution to these problems—with a beauty that lasts and lasts—is Reynolds Aluminum extrusions in the Reynocolor 5000 series. "Light Bronze" is the hardcoat finish selected for Holiday Inn's curtain wall...for its mullions and panel frames, also coping and trim in pool and patio areas.

Reynolds offers a choice of Reynocolor finishes, ranging from "gold" to "the boldest black yet achieved." Write for booklet showing the other Reynocolor colors, plus information on all the finishes presently available for aluminum. Dept. AR-10.
Reynolds Metals Company, Richmond, Va. 23218.

REYNOLDS
*where new ideas take shape in*
ALUMINUM

The pre-assembled, aluminum framed panels, fabricated by Alumiline, are quickly and economically set in place.

# eloure –
# ne new concave,
# cid-etched Controlens
# om Holophane

**ecify Veloure wherever you want the warmth d true color-values of prismatically-controlled candescent illumination, plus the discreet od looks of truly recessed lighting.**

loure is Holophane's new family of round and square ss lenses for recessed ceiling lighting. Each lens is cision-engineered to deliver uniform, prismatically-ntrolled illumination with low brightness.

### Concave for recessed lighting

e concave design of each Veloure lens assures completely obtrusive illumination. The lens literally recesses itself to the ceiling. Concentric rings of prisms in the face of the ns distribute light evenly at all angles up to 60 degrees.

### Acid-etched for velvety beauty

the back surface of each lens, light-spreading flutes diate from the center to obscure the lamp and keep lens ightness low and comfortable. This back surface also s an acid-etched, velvet texture that gives each lens subtle, frosty look. This acid etching helps eliminate glare and "hot spots".

### Range of sizes

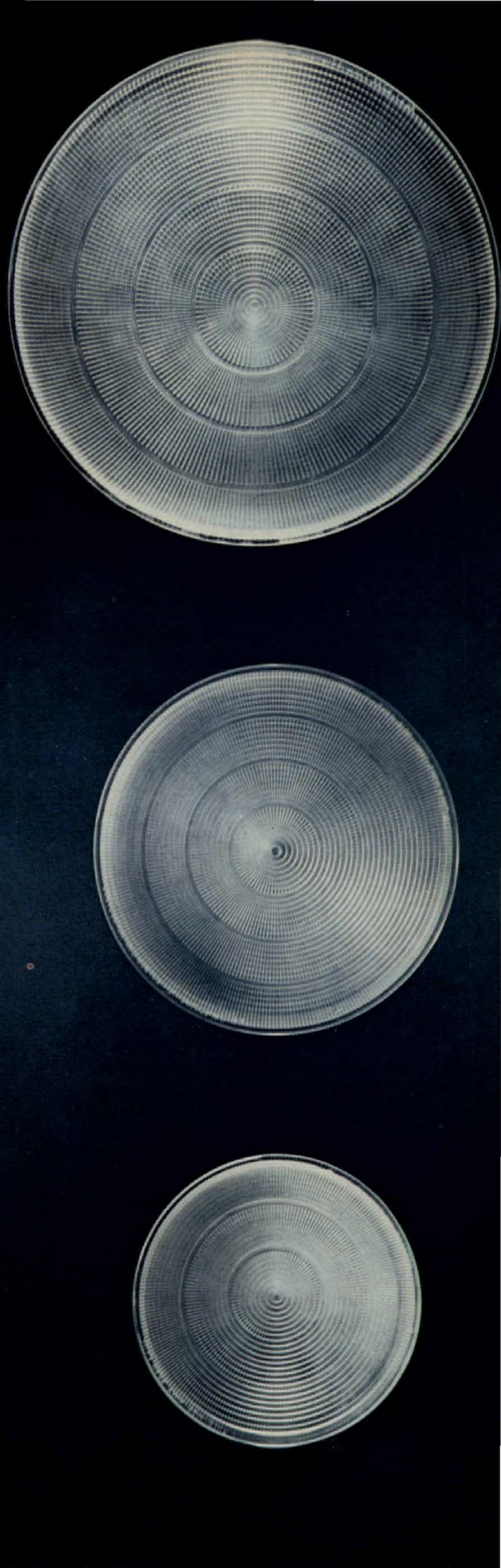
eloure lenses are available now in standard sizes nging from 6" to 11" in diameter, in luminaires roduced by Holophane and other leading manufacturers. eloure is the *perfect* lens for lighting banks, unges, restaurants, lobbies—wherever you want e finest in recessed incandescent lighting.

or additional information on Veloure lenses, including notometric reports, write: Dept. H-10, Holophane Company, c., 1120 Avenue of the Americas, New York, N. Y. 10036.

ank Lloyd Wright, Designer.

illiam Wesley Peters, Architect, Taliesin Associated Architects.

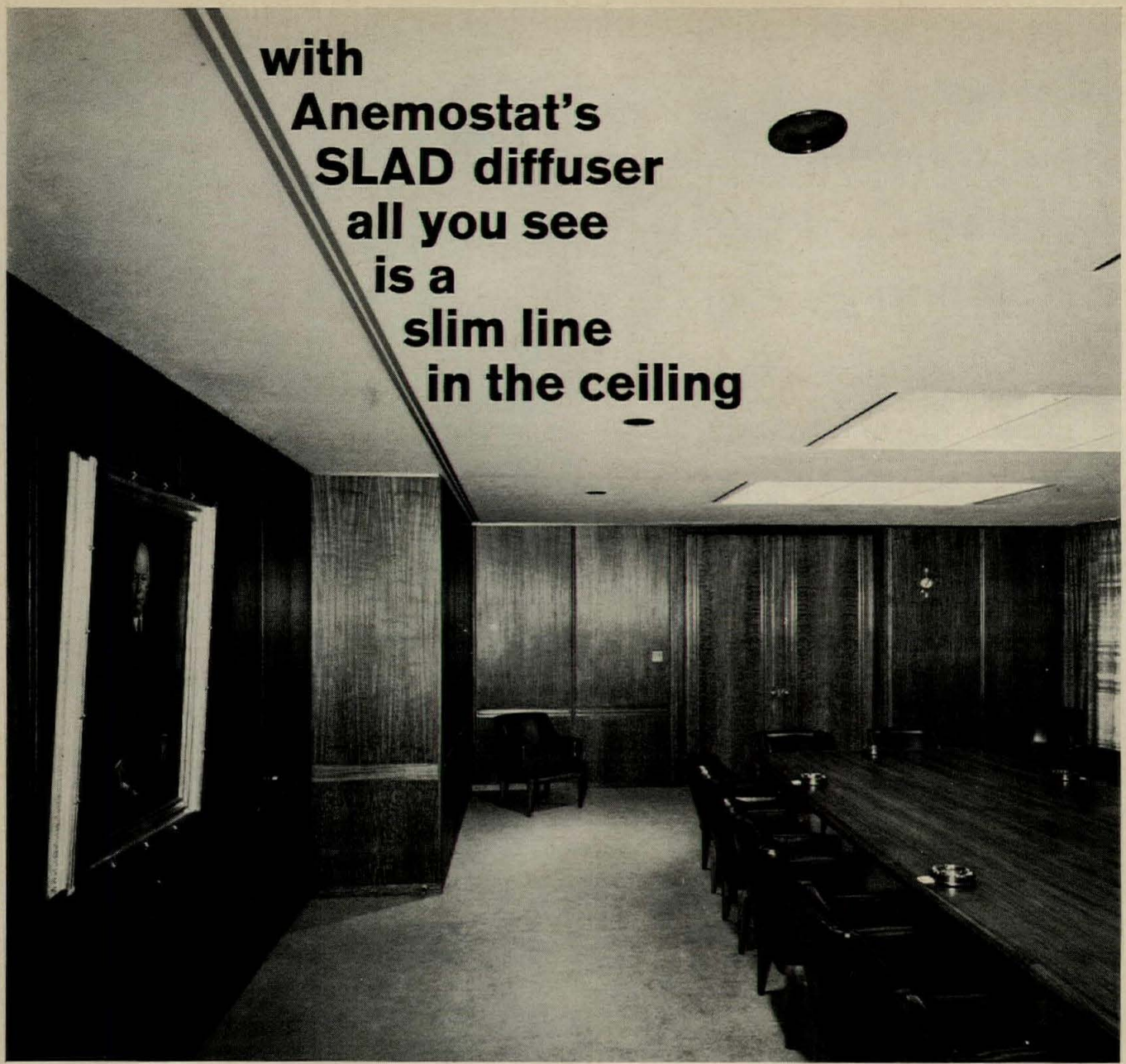
eloure Lenses in Marco Fixtures



*Veloure Controlens® by*

**HOLOPHANE**

*For more data, circle 14 on inquiry card*

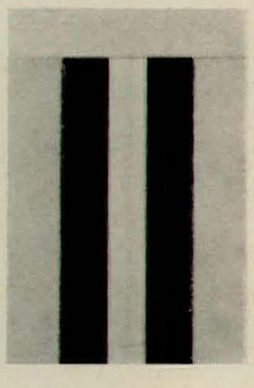



Two-slot SLAD installation in conference rooms of Irving Trust Company, 1 Wall Street, New York. Single-slot SLAD diffusers are used beside ceiling light panels at right.

## yet it's the most versatile linear diffuser you can specify

Anemostat's Straight Line Adjustable Diffuser (SLAD) mounts flush and clean without visible screws or fasteners. Whether installed in ceiling or side wall, or in the sill beneath windows, SLAD never intrudes on your design. Concealed key-ways and alignment clips let you mount the units end-to-end in a clean, unbroken line.

**Air handling flexibility.** SLAD's unique pattern control element lets you adjust volume and distribute air vertically, in either horizontal direction, or in *both* horizontal directions. SLAD serves as a supply unit, return unit or a combination supply-return, and is available with from one to eight slots. It's manufactured of attractively finished extruded aluminum, with natural-anodized face.



For full mechanical and performance data on this versatile linear diffuser, write for Catalog 66S, Anemostat Products Division, P.O. Box 1083, Scranton, Pa. 18501.

DCA

**ANEMOSTAT® PRODUCTS DIVISION**
**DYNAMICS CORPORATION OF AMERICA**

®

*For more data, circle 15 on inquiry card*

Terrazzo installation made with ATLAS WHITE portland cement. Westland Shopping Center, Detroit. **Architects:** Victor Gruen Associates, Los Angeles & New York; and Louis G. Redstone, Associate Architects, Detroit. **General Contractor:** Darin & Armstrong, Inc., Detroit. **Terrazzo Contractor:** Boston Tile & Terrazzo Co., Detroit.

# The world's most unusual shopping center has the flooring of a lifetime—terrazzo

Detroit's new Westland Shopping Center is totally enclosed. It has two great courts, a mall and space for 55 stores and services under one roof. It also has a fountain, flowers, exotic fish, songbirds—and restful green-and-white terrazzo flooring. This flooring is invitingly beautiful now. And it will remain just as beautiful for decades to come. Long, high-traffic use cannot fade the color and pattern of terrazzo. It will never lift, curl or wear thin. The first installation is the last. ■ When you plan distinctive terrazzo floors, wainscots, counters, stairs for a lifetime of service, specify a matrix of ATLAS WHITE portland cement.

Its uniform whiteness brings out the true color tones of aggregates and pigments. Ask your local terrazzo contractor. Or for an informative brochure containing actual-size color plates, write direct to Universal Atlas, Box 2969, Pittsburgh, Pa. 15230.

**Atlas**
WHITE CEMENTS

"USS" and "Atlas" are registered trademarks. WT—108

pca 50th year
MEMBER-PORTLAND CEMENT ASSOCIATION

**Universal Atlas Cement Division of United States Steel**

*For more data, circle 16 on inquiry card*

MODERN makes a low-cost movable wall system that's a real lemon.

(Color, that is!)

And if you don't like lemon, you have a choice of 33 other colors, 16 wood-grain finishes and 6 striking patterns!

# It's also crack, chip, peel, stain and fade resistant... because the surface panels are

## VIDENE by GOODYEAR

Modern's new Videne surfaced wall systems offer you beauty and color styling unlimited: 34 colors, 6 patterns and 16 wood grains all architecturally coordinated. Videne surfaces are exceptionally tough and durable. They cost little more than wet finishes, last infinitely longer. Finishes are low-gloss, easy to clean, unaffected by temperature changes, and are highly moisture resistant.

For style, beauty, quality and economy, Modern wall systems, surfaced with Videne paneling by Goodyear, are in a class by themselves. If you'd like to know more about them, just write us. We'll be happy to assist you in developing a custom-designed movable wall system for any project you may have in mind.

*The Videne wood-grain panels have realistic texture and figure... the natural beauty and feel of fine woods.*

### Here's some essential information about Modern movable walls with Videne surfaces.

Modern offers you four movable wall systems, to provide for the widest variety of styling, special requirement and budget situations.

**Colors and designs**—40 in all—have been styled to meet the most rigorous standards for architecturally oriented interiors. Special colors can be developed for larger projects.

**Color stability.** All colors are non-fading; color vibrance and intensity are assured for many years.

**Wood-grain finished panels** have a non-repetitive uniformity of pattern and grain that blend together without painstaking matching.

**Wearing qualities.** The Videne panel surfaces are tough and mar-resistant for long life, lasting beauty—up to three times as abrasion resistant as high-pressure laminates. Videne surfaces are dimensionally stable.

**Maintenance is minimal.** Smooth, low-gloss surfaces are easy to clean—shed dust and dirt. Highly resistant to stains. Surface abrasions and scratches can be removed, original luster restored, with ordinary cleansers.

**Installation is quick, simple, low-cost.** Panels are easy to saw, rout, joint, drill or shape with conventional tools. Extra-large, built-in raceways reduce wiring costs.

**Maximum flexibility.** Completely modular, non-progressive wall systems allow removal of any section without disturbing wiring or adjacent panels.

**Several sound cores available**—STC ratings from 30 to 43.

**Matching Videne panel system for fixed walls.** Complete with all moldings, match Modern movable partitions.

**Matching doors,** Videne surfaced, in a wide choice of styles.

**Custom treatments.** A choice of trim, and other special effects enable you to achieve individualized interiors.

**Quality control** of Modern movable walls is continuous throughout production. Extremely high standards of materials and workmanship eliminate costly on-site labor, assure life-long satisfaction.

SWEET'S CATALOG FILE NO. 22A/MO VIDENE,™ for paneling, doors and molding systems. The Goodyear Tire & Rubber Company, Akron, Ohio 44316

MODERN PARTITIONS, INC. **MODERN** HOLLAND, MICHIGAN 49423

For more data, circle 17 on inquiry card

For more data, circle 18 on inquiry card

*To see new ways for a building to say "welcome" to people through colors and forms and textures—this is the idea of* KALCOLOR® *aluminum. At Kaiser Aluminum, the idea is ideas.*

KALCOLOR was the first system to create architectural aluminum in a range of lightfast colors by using special alloys and a unique anodizing process. New advances continue to make KALCOLOR the most reliable system you can specify. Details? Ask our local sales office or 2137 Kaiser Center, Oakland, California 94604.

KAISER ALUMINUM

In corridors

In classrooms

In washrooms

*NO OTHER FIXTURES CLEAN SO MANY, SO WELL, FOR SO LITTLE!*

# BRADLEY WASHFOUNTAINS

What do you look for in wash fixtures? Space saving? Then look to Bradley. On an average, Washfountains save 25% on floor and wall space. That means, in a given area, they serve many more students than conventional lavatories.

Want sanitary fixtures? Washfountains are foot-operated. Hands touch only clean running water, never soiled faucets.

Looking to keep costs down? Washfountains serve as many as eight students with one set of plumbing connections, cutting installation costs as much as 80%. And they cut water consumption a whopping 40 to 80%!

You get a lot to like with Bradley Washfountains. No other wash fixtures clean so many so well, for so little! In 36 and 54-inch diameter circular and semi-circular models, popular two-person Duos, and counter-type fixtures.

*For details, see your Bradley representative. And write for latest literature. Bradley Washfountain Co., 9107 Fountain Drive, Menomonee Falls, Wis. 53055*

Bradley

# The next fifty years

"Optimum Environment with Man as the Measure": a large subject, but not one to daunt the serious minds of the American Institute of Planners who chose it for the theme of their two-part 50th anniversary celebration. Part I of this important discussion took place recently in Portland, Oregon; Part II will take place next year—the actual anniversary year—in Washington, D.C.

The planners were not only serious—they were humble in a rare and heartening way. If a highly generalized conclusion could be reached, based on the program and workshop sessions at Portland, it would be that the planners know that they do not have the answers, that they know that they do not even have a clear picture of the problem, but that they know that there is a problem and that they intend to bring to bear on it every means they can muster to find the best solution to it.

They started their investigation into the problem with the most basic element in planning: man himself. To find out about man they commissioned papers a year ago from representatives of various fields of science, from industry, architecture and planning. To the extent possible in the time allowed by the program, these eminent researchers covered man and his environment. And next year the program—with other speakers from still further fields of research—will explore the possibility of a "philosophy and a program suitable for the development of society and its individuals." In addition, to point up the seriousness with which the A.I.P. regards the problem and its need to accumulate knowledge about it, A.I.P. will hold six regional meetings following the 1967 conference.

If simple conclusions were not possible after the Portland conference, it is because man does not know much about man, especially in relation to his environment, and no wonder. The infinite variation of traits from man to man makes for a problem of almost infinite complexity. If a community could be made up of like individuals, then the action of forces on them and their reactions to those forces could be studied and patterns could be achieved. But communities don't work out that way and patterns so rigorously structured would be unacceptable to humankind.

The challenges of the future, as delineated at Portland, are as big as the problem and as stimulating. A science of environmental bio-medicine must be created, said Dr. Rene DuBos of the Rockefeller University, as an aid to predicting and even controlling man's responses to the environmental conditions in which he lives; city planners must participate, even if only marginally, in new scientific developments, according to John W. Dyckman of the University of California's Center for Planning and Development Research; and they must be "with the revolution" now under way which is "increasing the participation of people in shaping the social, economic and urban forms which determine the quality of their lives." They must orient themselves "toward power and the capacity to get things done, or the planning process will be a costly exercise in futility, self deception and other-deception." From William L. C. Wheaton, director of the University of California Institute of Urban and Regional Development, the planners got a glimpse of the city of the future: such changes in "life style" as redefinition of work and leisure, leading to new means of "keeping the individual out of the labor market but giving him an exhilarating sense of accomplishment."

It all added up to a lot of words and while it was an inescapable fact that planners are even talkier than architects, it had to be admitted that the talk and the millions of words were based in a thoughtful and serious consideration of a vast and pressing problem. If the landscape architects at their annual meeting, and the planners at theirs, are acutely conscious of a rapid increase in pace, can architects ignore their own part in this tremendous and immediate need? Once planners could be deliberate—their patience *in re* the implementation of plans is classic—but the increased pace of life implores a better life *now*. It will take all of these professionals at their best to bring this off. Old jealousies, traditional competitiveness, must be forgotten, and in their place must come mutual respect, understanding and a willingness to work together.

*—Elisabeth Kendall Thompson*

THIS MONTH'S WESTERN REPORTS

# WESTERN BUILDINGS IN THE NEWS

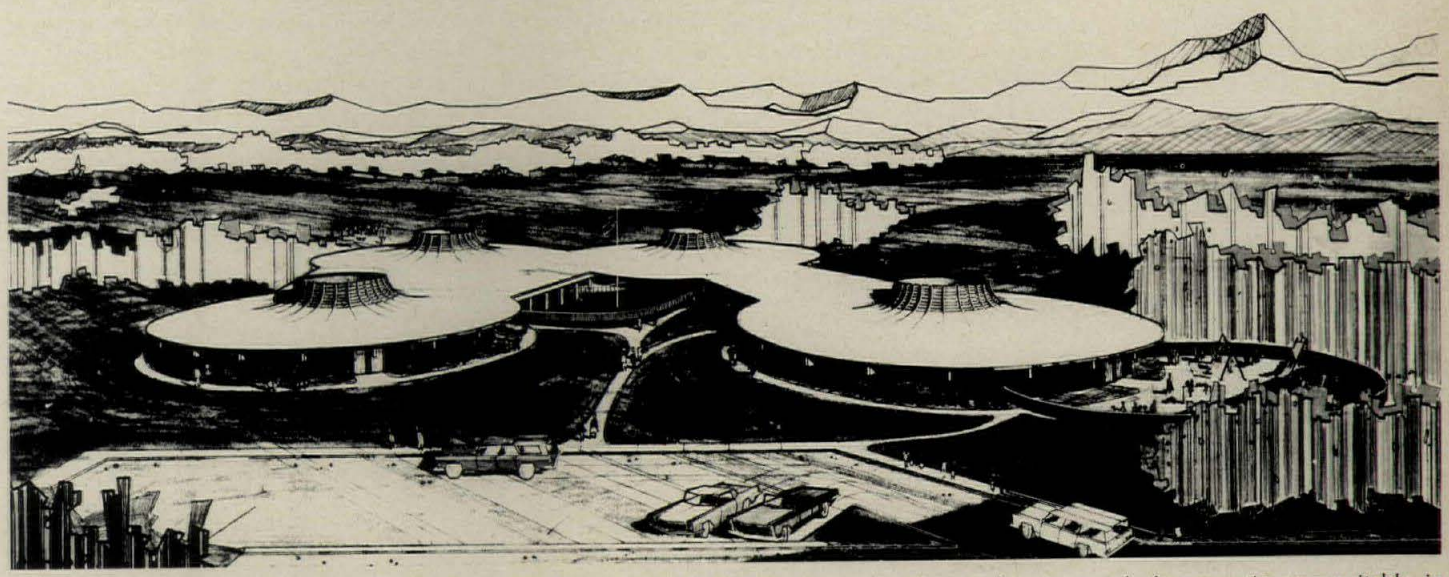
**"The biggest setback in the United States"**—315 feet from the property line, a contribution of open space to los Angeles' increasingly handsome appearance with an estimated value of $2.5 million—provides a landscaped plaza with an acre of lawn in front of the 11-story Beneficial Insurance Group on Wilshire Boulevard in downtown Los Angeles. The $16.7-million building, now 50 per cent complete, is being built of precast "shocked" concrete panels. Two of the T-shaped panels frame each window. Architects: Skidmore, Owings & Merrill; contractor: Dinwiddie Construction Company.

**A sunken plaza,** surrounded by restaurants and shops, will set off the $30-million, 32-story office building for the Southern California headquarters of the Equitable Life Assurance Society of the United States in Los Angeles. The building is to be located on the Chapman Park Hotel property on Wilshire Boulevard. The hotel will be modernized and a two-story cabana motel will be added. The office tower will rise from a podium reached by monumental stairways from the street level. The design will provide tenants with landscaped areas. Construction is to start in late 1966 with completion by mid-1968. Architects: Welton Becket & Associates.

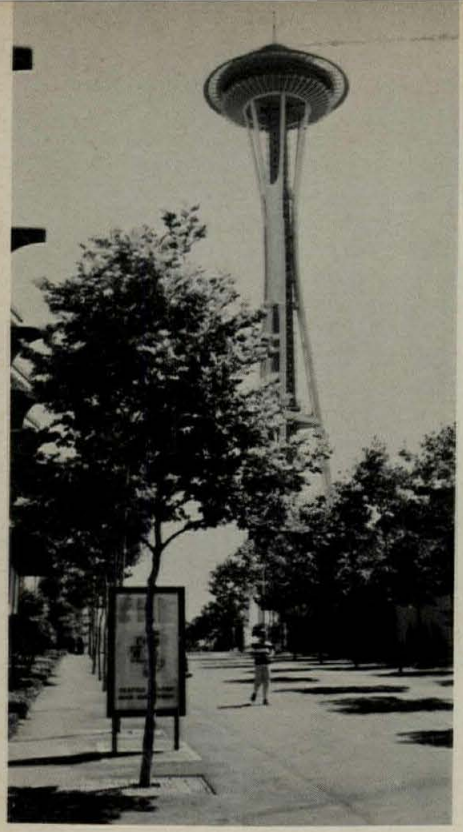
**Major entrances** at all four corners of this new classroom building at the University of Wyoming will shorten the travel time and distance to classrooms. The $1,624,075, two-story-and-penthouse building has a square base containing a basement with 20 classrooms, and the first floor with eight stepped-floor classrooms (four of which will seat 150 students). The circular second floor has four large 240-seat lecture rooms, encircled by a many-windowed corridor from which there are views of the mountains near Laramie. The building has been designed so that handicapped students can easily reach all classrooms. Native limestone and precast concrete will be used. Architects: Hitchcock & Hitchcock; contractors: Mead and Mount Construction Company.

**A combination apartment and office** condominium building, 37 stories high, is to be built in Honolulu—the city's first such building, and will be located adjacent to the Ala Moana shopping center. In addition to the 320 apartment units and 60,000 square feet of office space, the "Empress" will contain seven floors of large penthouses and six floors of parking. As designed, the building will provide its tenants with almost two acres of private decks and roof gardens. A restaurant and swimming pool will be located on the eighth floor. Architects: Wilkes and Steinbrueck and Associates, Los Angeles; structural engineer: Joseph Kinoshita.

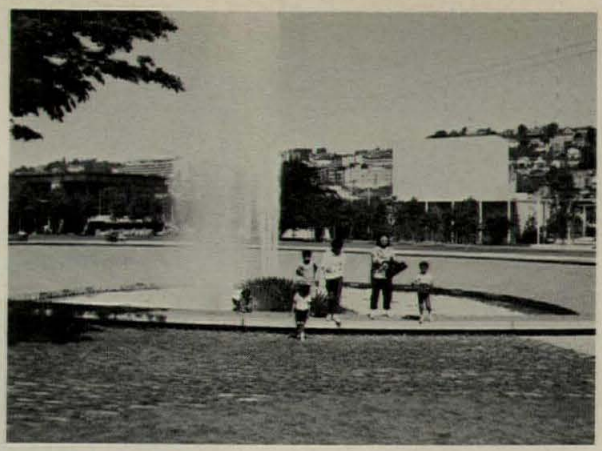
**Oregon's tallest commercial structure** will be the 356-foot-high Georgia-Pacific office building in Portland, scheduled for completion in September 1969. Located in the city's growing downtown district adjacent to the North Auditorium urban renewal area, its 28-stories will stand on a block-sized site and will rise from a plaza which opens off the street on one side but is one story above street level on the other. Georgia-Pacific expects to make the building a showplace for new forest and gypsum products which will be used in the building extensively. Construction is to start in September 1967. Architects: Skidmore, Owings & Merrill.



**A cluster of instructional pods** makes up the new Edenvale Elementary School for the Oak Grove, California School District. Three partition-less pods are contiguous to a library unit; the fourth is the kindergarten and multi-purpose building. Central to all is a landscaped open area. The buildings use masonry and open plank construction and deep overhanging roofs for a rustic area suitable in scale and character to the neighborhood. The school is air conditioned and carpeted throughout. Architect: Kal H. Porter.



The Space Needle still towers over the Center as it did over the Fair. John Graham and Company, architects and engineers.



International Fountain has been "improved" by additional jets, but it otherwise remains the same. Hideki Shimuzu and Kayazuki Matsushita, architects.

The monorail, "sold" to the Fair officials as a temporary part of the Fair, is permanent, a gift to the city from its builders, The Alweg Company, and provides ready, quick access to the Center from downtown.

## Seattle Center: A legacy with a big potential for the future

Seattle Center is like Tivoli Gardens on a monumental scale and without the fantasy, unity and assurance that 100 years of use and tradition can generate. It has something for almost everyone, nevertheless, from a playhouse and an opera house for the culture-minded to an amusement park, from a coliseum for sports events and convention meetings to a miniature golf course under cover, from science shows to dancing water jets, from open lawns and benches to sit on to the Space Needle's one-minute sightseeing elevator ride.

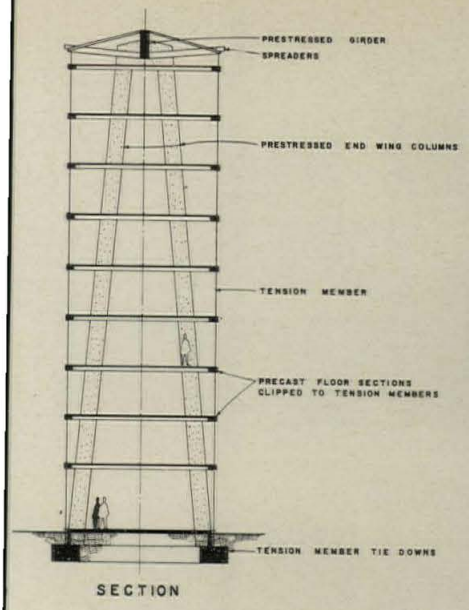
Seattle got the Center because foresight suggested that Century 21 Exposition might have some permanent buildings, as well as the usual temporary structures, which could act as the nucleus for a fine civic center. Now that the temporary buildings are gone, and the tawdry commercialism of the amusement area has been relegated to one corner of the site, the strength of the fair's basic plan (by Century 21's primary architect Paul Thiry) can be appreciated. The placement of the three major buildings—the Coliseum, the Federal Science Pavilion and the Playhouse and opera house squarely on axis of the city's street pattern gives clarity now, as it did less obviously during the fair, to a complex of diverse activities and facilities.

There have been changes. It comes as a shock to see the delightful IBM pavilion used as an indoor miniature golf course, and the "improvements" to the International Fountain have increased its success not one whit. There is still no sign of the handsome abstract plaza which the architects proposed in their winning design for the fountain. The interior of the Coliseum has been remodeled to provide permanent seating and the essential grandeur and simplicity of the building's concept is now mainly discernible on the exterior.

The Science Pavilion still looks as it did during the fair, its jets playing into the scallopped basins in the great pool, and the lacy arches still mark the entrance. The many small fountains which so distinguished the fair still add sound and motion to the Center. The Needle towers overs everything, as it did, and will. The monorail—"sold" to the city as a temporary exhibit—has become, as prophesied, a permanent part of the downtown district.

Exhibition building facing International Plaza retains its identity and is still used for exhibitions of products. Robert Billsbrough Price, architect.

Science Center, formerly Federal Science Pavilion. Minoru Yamasaki, architects.



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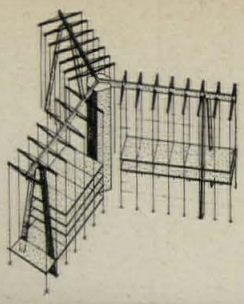
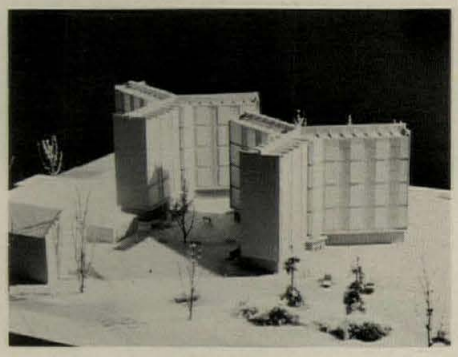




## Twin dormitories use suspended cable system

A suspended cable system is being used in construction of these twin dormitories at the Central Washington State College, Ellensburg, Washington. The cables are suspended from outriggers from a heavy concrete girder which spans from the massive central core column to two columns near the end of each wing. The cables are fixed at the ground. Precast concrete structural floors are clipped to the steel cables. Exterior wall panels, also precast, are welded to the floor panels. The buildings will house 250 men and 250 women, respectively, in single and double rooms. Automatic elevators will serve every other floor. Architect: Ralph Burkhard; structural engineers: Anderson, Birkeland and Anderson.

## WESTERN TOPICS

**Names in the news:** Hawaii's planning co-ordinator, architect Alfred Preis, has been named director of the Hawaii State Foundation of Culture and the Arts, an organization created by the 1965 legislature and charged with concern for "all matters of sensitivity and beauty". George Moriguchi, executive director of the Hawaii Land Use Commission, succeeds Preis as planning co-ordinator. Arthur Froelich, F.A.I.A., Los Angeles, has been appointed to a four-year term on the California State Board of Architectural Examiners. Dr. Chauncey Starr, vice president of North American Aviation, will take office as dean of the College of Engineering at the University of California, Los Angeles, next January. He succeeds the late L. M. K. Boelter. John Ely Burchard, dean emeritus of the School of Humanities and Social Sciences at M.I.T., has been appointed acting dean of the College of Environmental Design at the University of California, Berkeley.

**A $150,000 gamble** by the city of Berkeley, California—that border-to-border subway would not cost as much as engineers of the Bay Area Rapid Transit District had estimated—paid off when the bids came in late in July. The city had invested that much money in engineering drawings for an additional 3,700 feet of subway track. BART had already agreed to underground the line through the city's downtown district. When the bids came in, Berkeley was vindicated: the 3,700 feet could be built for $3.8 million, $2.4 million under BART estimates. Using this as a gauge, and adding $6 million for two additional underground stations, BART engineers came up with an $18-million estimate for border-to-border subway—$4 million under their own earlier estimate. If Berkeley voters okay a bond issue for an $11.8 million (cost over and above allocation from the District for a combination aerial-subway plan, minus $4.7-million Federal grant), the line will run underground through the city. If they okay only a $2.1-million bond issue, the line will be a combination of aerial and subway, but with more subway than originally proposed.

All of BART's costs have risen since the District was first formed. The total cost of the system is now estimated at $1,121,595,000. In 1962 it was $923,213,000. Operation of the Hayward-Richmond line will begin in 1969, but the whole system will not be completed until 1973, two years later than anticipated.

**A conference** on problems of urban growth will be held in Hawaii May 1-12, 1967 under join sponsorship of Governor John A. Burns, Secretary Robert Weaver of HUD, and William Gaud, administrator of the Agency for International Development. Participating in the conference will be policy-level representatives of countries in the Pacific area.

**Controversy over a convention center** site in Los Angeles has been quieted—at least temporarily—with the designation by the City Council of a site at Pico Boulevard and Figueroa Street, out from the downtown area and the Civic Center. Six other sites had been considered but only one other—in Bunker Hill redevelopment area—was a serious rival in recent months.

## WESTERN EVENTS

OCTOBER

**13-15** Annual convention, Structural Engineers Association of California Ahwahnee Hotel, Yosemite National Park, California.

**18-20** Western Motel Exposition, sponsored by California Motel Association. Sahara Hotel, Stateline, Nevada.

**23-27** "The Search for Total Architecture." Fifteenth annual conference, Northwest Region, American Institute of Architects. Benjamin Franklin Hotel, Seattle, Washington.

**25-28** Forty-third anniversary congress, Building Contractors Association of California. Hilton Hawaiian Village, Honolulu, Hawaii.

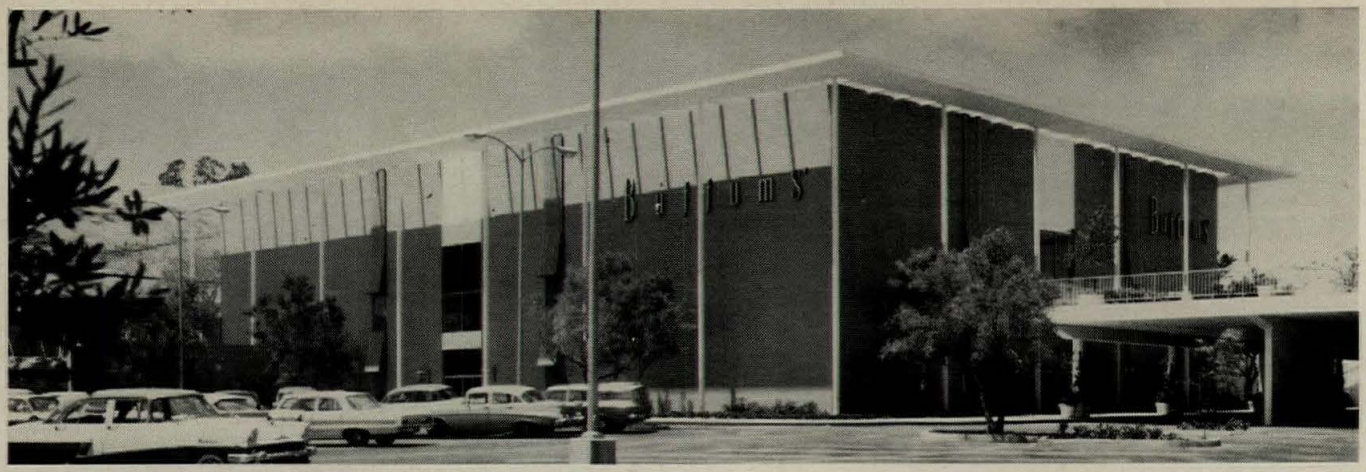
**27-December 25** Exhibition, work of Man Ray, 1910-. Los Angeles County Museum of Art, 5905 Wilshire Boulevard, Los Angeles.

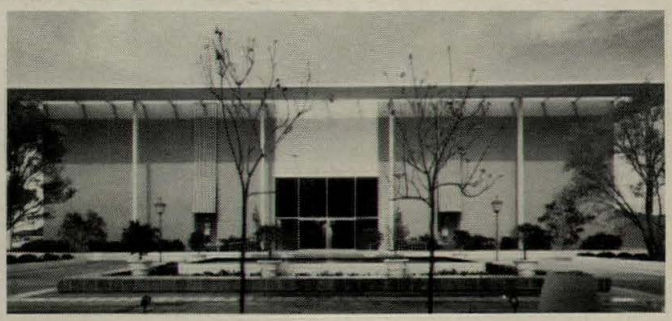
**29** "Competition for the Bay," Part II, regional conference on "Man and His Environment." Foothill College, Los Altos Hills, California.

NOVEMBER

**9** Honor Awards Banquet, Southern California Chapter, American Institute of Architects. California Club, Los Angeles.

**29-30** Annual workshop, Pacific Southwest Regional Council, National Association of Housing and Redevelopment Officials. Hilton Hotel, San Francisco.





ALL-ELECTRIC BUILDING AWARD

Buffums' Department Store
Peninsula Center
Palos Verdes Peninsula,
California

Architect:
Killingsworth, Brady
and Associate, A.I.A.

# Buffums' completes fourth (plans fifth) All-Electric building

In retailing and in building, Buffums' knows value; and they stay with it!

Buffums' new Palos Verdes store has won the All-Electric Building Award for their fourth all-electric department store. The fifth is on the drawing boards.

By going all-electric, Buffums' achieved a greater flexibility of design, permitting wide aisles and high ceilings that give a smart, modern appearance. Savings in space alone provided enough square feet for a complete shoe department.

Lighting, designed as a subtle tool for merchandising, also helps heat the store. High capacity heaters are not needed.

Like to hear more about all-electric building? Write Marketing Engineering, P.O. Box 62, Terminal Annex, Los Angeles 90051.

SCE

*Southern California Edison*

*For more data, circle 20 on inquiry card*

Fast-becoming the "western architect's metal" for design, diversity, dependability: the zinc-base alloy, TITANALOY. Practically-priced, considerably lower than copper. No streaks; no stain: weathers to a subtle grey/black beauty—a distinctive patina compatible with any building style, material. Highly corrosion-resistant to west coast environment. TITANALOY forms easily, solders and welds in the shop or on-site for the added dimension of economical installation. Specify TITANALOY—the titanium-copper-zinc alloy of unquestionable taste and test. Available in unlimited quantities for prompt delivery from west coast stocks.

**MATTHIESSEN & HEGELER ZINC COMPANY**
**La Salle, Illinois 61301**

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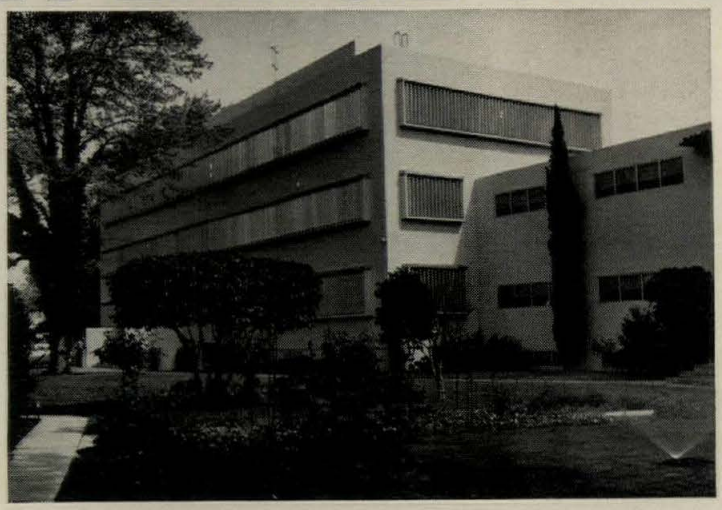
M&H


First Church of Religious Science, Glendale, California
Architect: Risley, Gould and Van Heuklyn

*For more data, circle 21 on inquiry card*

# GAS AIR CONDITIONING IS THE QUIETEST WAY TO KEEP A LARGE HOSPITAL COOL

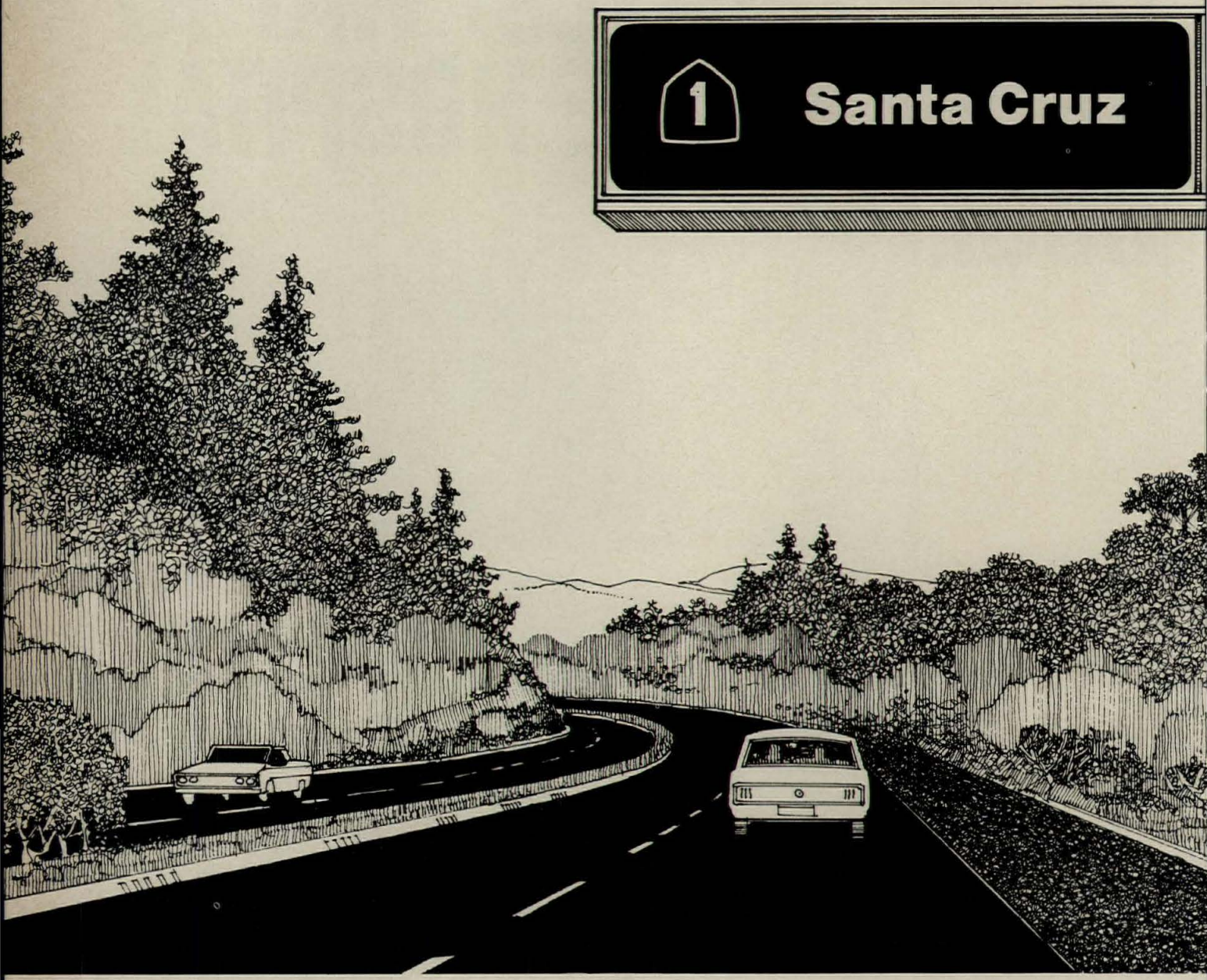


## (or a small motel)

Gas absorption air conditioning is the nicest thing that's happened to the climate inside of buildings since windows. Since it cools air with a minimum of moving parts, a gas system is quiet. Maintenance costs are low, too. And it's durable. A home gas cooling and heating system, for example, is estimated to last the mortgage life of the house. No wonder more and more homes, stores, motels and large buildings have *gas* air conditioning. More information is available from architects or engineers. Ask us for the free booklet, "Why Absorption Air Conditioning?"

PG and E
*Pacific Gas and Electric Company*

610PG-966




Drawing by Ernest E. Burden

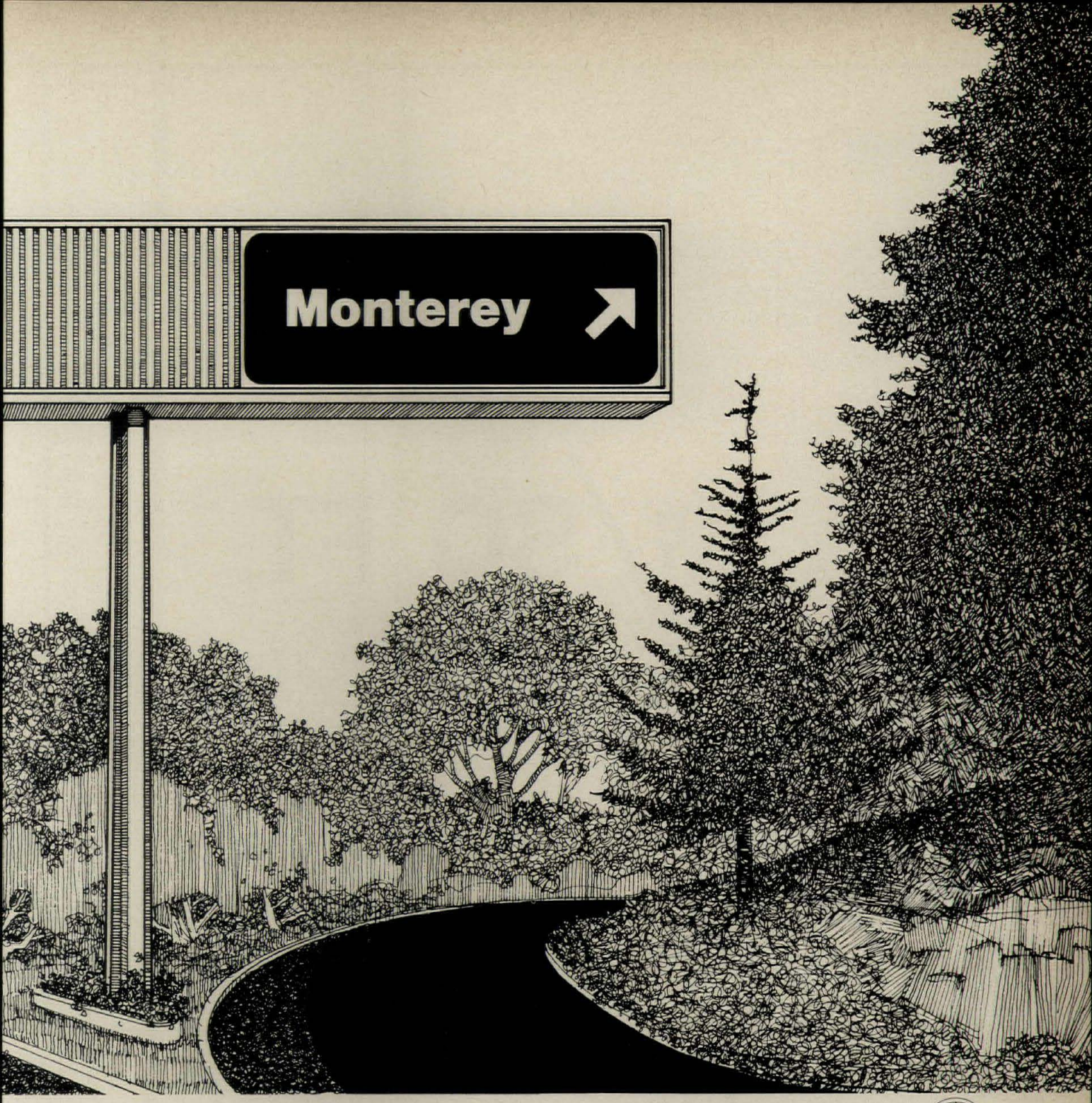
# Steel signs...strength and beauty made possible by corrugated web girder design

**DESIGNS OF THE TIMES... IN STEEL**

PROBLEM: Design a freeway sign that combines maximum readability for safety, new attractiveness for highway beautification, and low costs for production and maintenance economy.

SOLUTION: The California Division of Highways designed this new corrugated web girder sign. The structure is essentially a box girder using formed plate for top and bottom flanges and corrugated steel sheets as web member.

RESULT: A sign which—*by design*—is more attention-commanding for safety, yet more esthetic and economical, too! Utilizing attractive but low-cost corrugated sheet for integral stiffeners, the design already has been specified for a major new freeway.




New corrugated web girder freeway sign, designed by the California Division of Highways Bridge Department, is specified for use on a new freeway.

Steel

This original solution is another example of how imaginative use of steel can result in exciting answers to ordinary problems. The corrugated web girder principle suggests still more possibilities ... such as exposed spandrel beams in commercial building ... or even use in large bridge girders.

Could you use this corrugated web girder idea in one of your projects? Our Construction Marketing Department frequently helps steel users in the application of steel to designs like this. For detailed technical service, or just an answer to a question, write or call Construction Marketing Department, Kaiser Center, Oakland, California, 94604; telephone 415/271-2824.

**KAISER STEEL**

***ACTION* TO SERVE THE GROWING WEST**

*For more data, circle 24 on inquiry card*

# 11¢/SQ. FT.

## The annual operating cost of heating and cooling the Fontana City Hall electrically

Fontana City Hall
8353 Sierra Avenue
Fontana, California
**Architect**
Grover W. Taylor
**Engineers**
Tharaldson, Matthewson, Argebright and Doby, Consulting Mechanical Engineers;
Ted Stuhl, Consulting Electrical Engineer

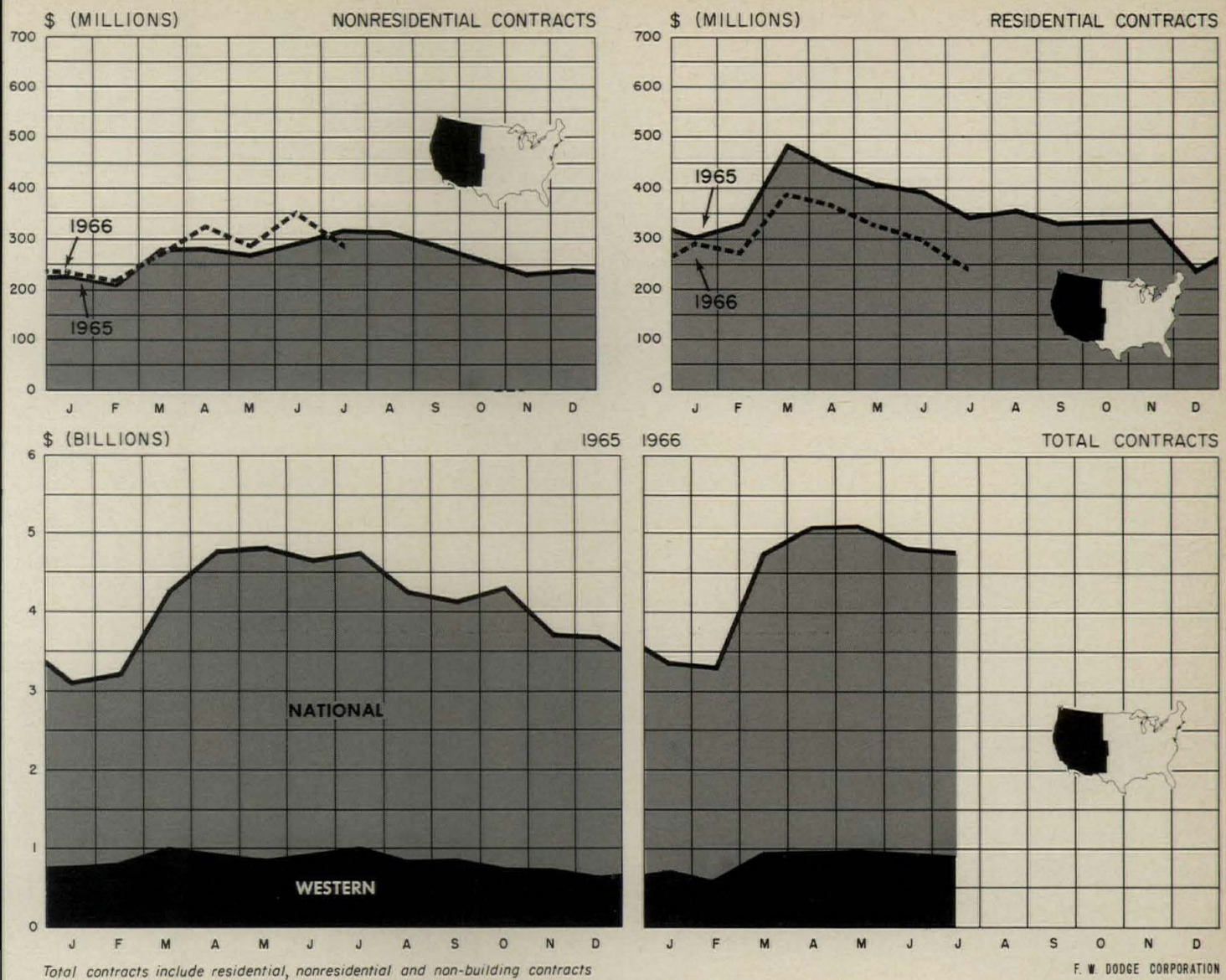
Only 11¢. And that's for both heating and cooling.

Electric space conditioning *is* economical. And it's practical. Only one source of power is needed.

Drop by an Edison office and see for yourself. We have records like this for hundreds of Southern California buildings.

*Southern California Edison* SCE

*For more data, circle 25 on inquiry card*




*Total contracts include residential, nonresidential and non-building contracts*

F. W. DODGE CORPORATION

## Western construction trends

FOR ANALYSIS OF CONSTRUCTION TRENDS NATIONWIDE SEE PAGE 44

The West's construction markets generated $963.7 million in contract value during the month of July, a figure 8 per cent below the year-ago amount. Declines were recorded in both the residential and nonresidential categories, while nonbuilding construction turned in its third successive large gain. At the end of seven months, construction activity in the Western region stands 6 per cent below the 1965 amount.

A string of consecutive gains averaging better than 15 per cent was cut short at three months, as the July figure for nonresidential building declined 8 per cent. The two best performers in the Western nonresidential category this year, manufacturing and hospital contracts, were the only standouts in the current month's figures. Manufacturing building—37 per cent in the black cumulatively—was more than double the 1965 amount during July. This component, responding to the buoyant state of Western business activity, appears destined to turn in the largest gain of any building component this year. It will be hard pressed by hospital building, however, another high flyer. This category recorded a 50 per cent increase in July.

Western residential building, as in the rest of the nation, experienced another large decline during July. Both single family and apartment contracts were off heavily in the West, as the credit squeeze bit further into a market already weakened by severe overbuilding. The cumulative figures pretty much sum up the state of Western housing in 1966. Starting from a figure 11 per cent below the 1965 amount in February, the gap got progressively larger. It now stands 19 per cent in the red at the end of seven months.

The nonbuilding category, however, has followed a somewhat different script over this period. Standing a full 39 per cent in the red in February, Western nonbuilding construction, with the help of several large projects along the way, has now pulled abreast of 1965's performance on a cumulative basis.

A $131-million dam contract recorded in Idaho's Clearwater county during July marked the *second* time this year that Western nonbuilding was swelled by an individual contract greater than $100 million. The last time *any* project greater than this amount reached the contract stage was in 1957.

A state-by-state analysis of total construction contract value reveals that, at the end of seven months, only four of the 11 Western states, Arizona, (+19 per cent), Colorado, (+9 per cent), Idaho, (+72 per cent) and Oregon, (+9 per cent), are showing gains over their respective 1965 performances. The remaining seven states are all trending below year-ago levels. And four of these, California, Nevada, New Mexico and Wyoming, are down more than 10 per cent.

*James E. Carlson, Associate Economist*
*F. W. Dodge Company*
*A Division of McGraw-Hill, Inc.*

# Estimator's Guide: Los Angeles and the Southwest

The Estimator's Guide alternates monthly among four Western areas. The prices at right are compiled from average quotations received by LeRoy Construction Services for commercial work of approximately $100,000-$250,000 total value. Except as otherwise noted, prices are for work installed including all labor, material, taxes, overhead and subcontractors' profit. Material prices include local delivery except as noted, but no state or local taxes.

## EXCAVATION

**COMMON GROUND MACHINE WORK IN**

Large basement .....CY .80-1.10
Small pits .....CY 1.40-1.90
Trenches .....CY 1.75-2.50

**HAND WORK IN COMMON GROUND**

Large pits & trenches. CY 8.00-12.00
Small pits & trimming CY 12.00-16.00
Hard clay or shale, 2 times above rates. Shoring, bracing & disposal of water not included.

## SEWER PIPE MATERIALS

**VITRIFIED**

Standard 4" .....LF .33
Standard 6" .....LF .67
Standard 8" .....LF .98
Standard 12" .....LF 2.15
Standard 24" .....LF 8.58

**CLAY DRAIN PIPE**

Standard 6" .....LF .34
Standard 8" .....LF .47

**Rate for 100 LF FOB Warehouse**

## CONCRETE & AGGREGATES

**GRAVEL, all sizes** .....TON 3.75
**TOP SAND** .....TON 4.00
**CONCRETE MIX** .....TON 4.10

**CRUSHED ROCK**

¼" to ¾" .....TON 4.00
¾" to 1½" .....TON 4.00
Expanded Shade .....CY 5.50
Expanded Perlite .....30# Sack 1.40
**ROOFING GRAVEL** .....TON 4.10
**SAND** (#1 & 2) .....TON 5.00

**CEMENT**

Common, all brands (paper sacks)
Small quantities ..Per Sack 1.40
Large quantities ..Per Bll 4.45
Atlas White .....Per Sack 3.80

**Concrete Mix**

6 sacks in 5-yd loads..Per Yd 15.50
Lightweight Concrete Mix
105# cy .....Per Yd 21.25

**CURING COMPOUND**

Clear, 5-gal drums ..Per Gal 1.45

## STEEL MATERIALS

**SHEETS**

Hot rolled .....LB .11
Cold rolled .....LB .13
Galvanized .....LB .13
**PLATE** .....LB .11
**STRIPS** .....LB .13
**STRUCTURAL SHAPES** .....LB .11

**BARS**

Hot rolled .....LB .11
Cold finished .....LB .145
Reinforcing .....LB .11

**REINFORCED MESH**

6 x 6" #10 x #10 .....SF .04
6 x 6" #6 x #6 .....SF .07

**2000# FOB Warehouse**

## STRUCTURAL STEEL

$385.00 and up per ton erected when out of mill.
$410.00 and up per ton erected when out of stock.

## BRICK & BLOCK

**All Prices—FOB Plant**

**BUILDING (COMMON) BRICK**

Standard 2½ x 3⅞ x 8¼" ..M 39.00
Oversize 3¼ x 3¼ x 10" ...M 47.50
Modular 3⅜ x 3 x 11⅜" ...M 57.50

**FACE BRICK**

Standard 2 3/16 x 3½ x 7½" M 85.00
Roman 1½ x 3½ x 11½" ..M 90.00
Norman 2 3/16 x 3½ x 11½" M 107.00
Economy
Norman 3⅛ x 3 x 11½" .M 121.00

**PAVING UNIT**

Brick 2¼ x 4 x 8⅜" .....M 90.00
Tile 1¼ x 4 x 8½" .....M 94.00
1½ x 3½ x 11½" .....M 132.00
Standard 2½ x 4½ x 9" ....M 120.00

**FIRE BRICK**

1¼ x 4½ x 9" .....M 120.00

**GLAZED STRUCTURAL UNITS**

2 x 6 x 12" Furring .....SF .60
4 x 6 x 12"–1 side .....SF .91
6 x 6 x 12"–1 side .....SF 1.32
4 x 6 x 12"–2 sides .....SF 1.00
**Add For Color** .....SF .25

**CONCRETE BLOCKS**

4 x 8 x 16" .....EA .23
6 x 8 x 16" .....EA .29
8 x 8 x 16" .....EA .34
12 x 8 x 16" .....EA .51
**Add for color** .....EA .02

## BRICKWORK & MASONRY

**Brick Walls, Common Bond, Unreinforced**

Building Brick Backup 4" ...SF 1.10
8" ...SF 2.35
Standard Face Brick 4" .....SF 2.00

**BRICK VENEER**

1" Veneer Units .....SF 1.90
4" Building Brick .....SF 1.55
4" Modular Brick .....SF 1.25
4" Roman Brick .....SF 2.40
4" Norman Brick .....SF 2.10

**Grouted Walls, Reinforced, Faced 1 Side**

Building & Standard
Facing 10" .....SF 3.65
Modular & Economy
Norman 8" .....SF 2.80

**CONCRETE BLOCK, reinforced**

6" Walls .....SF 1.70
8" Walls .....SF 1.85
12" Walls .....SF 2.35

## BUILDING PAPERS & FELTS

**BUILDING PAPER**

1 ply per 1,000-ft roll .....4.20
2 ply per 1,000-ft roll .....6.40
3 ply per 1,000-ft roll .....8.75
Sisalkraft, reinforced, 500-ft roll 9.50

**SHEATHING PAPERS**

Asphalt sheathing, 15-lb
324 SF roll .....2.17
30-lb 216 SF roll .....2.93
Dampcourse, 216-ft roll .....3.30

**FELT PAPERS**

Deadening felt, ¾-lb, 50 s.y. roll 3.00
1-lb, 50-s.y. roll .....3.50

**ROOFING PAPERS**

Standard grade, smooth surface
108-ft., 432 SF rolls
Light, 45-lb .....2.20
Medium, 55-lb .....2.63
Heavy, 65-lb .....2.85
Mineral surfaced 216 SF Roll ...3.50

## LUMBER

**DOUGLAS FIR**

Construction
2x4-2x10 MBM 98.00-105.00
Standard
2x4-2x10 MBM 94.00- 98.00
Utility 2x4-2x10 MBM 78.00- 83.00
Economy
2x4-2x10 MBM 59.00- 68.00
Clear, air dried .....MBM 210.00
Clear, kiln dried .....MBM 250.00

**REDWOOD**

Foundation grade .....MBM 140.00
Construction Heart ....MBM 125.00
A Grade .....MBM 220.00
Clear Heart .....MBM 240.00

**PLYWOOD (DOUGLAS FIR)** **MSF**

¼" AB .....MSF 90.00
¼" AD .....MSF 70.00
¼" Ext. waterproof .....MSF 77.00
⅜" AB .....MSF 105.00
⅜" AD .....MSF 95.00
⅜" CD .....MSF 70.00
½" AB .....MSF 140.00
½" AD .....MSF 120.00
½" CD .....MSF 91.00
⅝" AB .....MSF 156.00
⅝" AD .....MSF 136.00
⅝" CD .....MSF 102.00
¾" AB .....MSF 178.00
¾" AD .....MSF 158.00
¾" CD .....MSF 135.00
⅝" Plyform .....MSF 170.00

**SHINGLES** **Square**

Cedar #1 .....Square 16.50-19.00
Cedar #2 .....Square 14.50-17.00

**SHAKES**

Cedar
½" to ¾" butt ..Square 18.50-21.00
¾" to 1¼" butt .Square 21.00-24.00

## INSULATION & WALL BOARD

**FIBRE GLASS INSULATION**

**foil backed** **Per MSF**

1½" thick ..... 40.75
2¼" thick ..... 48.75
3⅝" full thick ..... 58.75

**SOFTBOARDS–wood fiber**

½" thick ..... 60.00
¾" thick .....128.50

**ALUMINUM INSULATION**

35# Kraft paper with alum. foil
1 side only ..... 24.00
2 sides ..... 30.00

**HARDBOARDS–wood fiber**

⅛" thick, sheathing ..... 58.00
3/16" thick, sheathing ..... 70.00
¼" thick, sheathing ..... 85.00
⅛" thick, tempered ..... 80.00
3/16" thick, tempered .....105.00
¼" thick, tempered .....130.00

**CEMENT ASBESTOS BOARD**

⅛" flat sheets .....143.00
3/16" flat sheets .....182.00
¼" flat sheets .....238.00

## ROUGH CARPENTRY

**FRAMING**

Floors .....BM .27-.32
Walls .....BM .33-.40
Ceilings .....BM .33-.40
Roofs .....BM .30-.38
Furring & blocking .....BM .45-.65

**Bolted framing, add 50%**

**SHEATHING**

1 x 8" straight .....BM .25-.30
1 x 8" diagonal .....BM .28-.33
5/16" plyscord .....SF .19-.24
⅝" plywood CC .....SF .27-.32

**SIDING**

1 x 8" bevel .....BM .45-.50
1 x4" V-rustic .....BM .55-.65

**Bolted framing, add 50%**

## DAMPPROOFING & WATERPROOFING

**MEMBRANE**

1 layer 50# felt .....SQ 10.00
4 layers dampcourse .....SQ 15.00
Hot coat walls .....SQ 9.00
Konset added to concrete
per gal. ..... 1.95
Anti-Hydro added to concrete
per gal. ..... 1.40

## ROOFING

**Asphalt & Gravel** **Per Sq**

4 ply .....17.00-22.00
5 ply .....19.50-25.00
White gravel finish—
Add ..... 2.00- 4.00
Asphalt compo. shingles 20.00-24.00
Cedar shingles .....24.00-28.00
Cedar shakes .....27.00-33.00
Clay tiles .....55.00-65.00
Concrete tiles .....45.00-55.00

## SHEET METAL

**ROOF FLASHINGS**

18 ga galv steel .....SF .80-1.20
22 ga galv steel .....SF .70-1.10
26 ga galv steel .....SF .60-1.00
18 ga aluminum .....SF 1.15-1.65
22 ga aluminum .....SF .95-1.45
26 ga aluminum .....SF .80-1.20
24 oz copper .....SF 2.20-2.70
20 oz copper .....SF 2.00-2.50
16 oz copper .....SF 1.80-2.30
**26 ga galv. steel**
4" OG gutter .....LF 1.10-1.35
Mitres and Drops .....EA 2.00-4.00
**22 ga galv. louvers**.....SF 3.25-4.50
**22 oz copper louvers** ...SF 5.50-6.50

## CHIMNEYS, PATENT

6" ..... LF 4.00
7" ..... LF 5.25
10" ..... LF 2.85

## MILLWORK

**All Prices FOB Mill**

D.F., clear, air dried S4S..MBM 240.00-280.00
D.F., kiln dried S4S ..... MBM 260.00-320.00

**DOOR FRAMES & TRIM**

Residential entrance ....17.00 & up
Interior room entrance .. 9.00 & up

**DOORS**

1⅜" hollow core ..... 8.00 & up
1¾" solid core .....19.00 & up
1⅜" Birch hollow core...10.00 & up
1¾" Birch solid core....22.00 & up

**WOOD SASH**

D/H in pairs (2 lts).....SF .55
Casement (1 lt).....SF .65

**WOOD CABINETS**

¾" D.F. plywood with ¼" plywood backs:
Wall hung .....LF 10.00-15.00
Counter .....LF 12.00-17.00
**Birch or maple, add 25%**

## FINISH CARPENTRY

**EXTERIOR TRIM**

Fascia and molds .....BM .60-.75

**ENTRANCE DOORS & FRAMES**

Single ..... 60.00 & up
Double .....100.00 & up

**INTERIOR DOORS & FRAMES**

Singles .....35.00 & up
Pocket sliding .....45.00 & up
Closet sliding (Pr.) .....50.00 & up

**WINDOWS**

D/H sash & frames ....SF 2.00 & up
Casement sash & frames .....SF 2.25 & up

**SHELVING**

1 x 12 S4S .....BM .30-.50
¾" plywood .....SF .40-.60

**STAIRS**

Oak steps, D.F. risers
Under 36" wide .....Riser 14.00
Under 60" wide .....Riser 19.00
**Newel posts and rail extra**

**WOOD CASES & CABINETS**

D.F. wall hung .....LF 15.00-22.00
D.F. counters .....LF 18.00-30.00

## HARDWOOD FLOORING MATERIALS

**OAK 5/16" x 2" STRIP**

Clear .....M 195.00
Select .....M 185.00
#1 Common .....M 180.00

**OAK 5/16" RANDOM PLANK**

Select & better .....M 285.00
#1 Common .....M 235.00

**OAK 25/32" x 2¼" T&G**

#1 Common .....M 250.00
Select .....M 250.00

**MAPLE 25/32" x 2¼" T&G**

#1 Grade .....M 305.00
#2 Grade .....M 280.00
#3 Grade .....M 230.00

**NAILS–1" FLOOR BRADS** KEG 18.00

## HARDWOOD FLOORS

**Select Oak**

Filled, sanded, stained and varnished
5/16" x 2¼" strip .....SF .50- .55
5/16" random plank .....SF .60- .65
25/32" x 2¼" T&G .....SF .70- .80
Maple, sanded, stained and varnished
25/32" x 2½" T&G .....SF .80- .90
**Wax finish, add .....SF .10**

## RESILIENT FLOORING MATERIALS

Linoleum, standard gage .....SY 2.75-2.95
Linoleum, battleship ...SY 3.10-3.30
⅛" Asphalt tile, dark ...SF .10- .12
⅛" Asphalt tile, light ...SF .14- .16
⅛" Rubber tile .....SF .40- .44
.080 Vinyl tile .....SF .55- .65
⅛" Vinyl tile .....SF .78- .82
1/16" Vinyl Asbestos Tile .....SF .16- .21
⅛" Vinyl Asbestos tile ..SF .23- .32
4" base, black .....LF .11- .18
4" base, colored .....LF .12- .16
Rubber treads .....LF 1.60-2.30
Linoleum paste .....GAL .75- .90

## FLOORS

⅛" Asphalt tile, dark colors .....SF .23- .26
⅛" Asphalt tile, light colors .....SF .27- .30
⅛" Rubber tile .....SF .60- .70
.080 Vinyl asbestos tile..SF .32- .38
⅛" Vinyl Asbestos tile..SF .39- .44
.080 Vinyl tile .....SF .75- .85
Linoleum, standard gage .....SY 3.75-4.25
Linoleum, battleship ...SY 5.25-5.75
4" Rubber base .....LF .25- .35
Rubber stair treads .....LF 2.25-2.75

## LATH & PLASTER MATERIALS

**METAL LATH**

Diamond 3.4# copper-bearing .....SY .49
Ribbed 3.4# copper-bearing..SY .53

**ROCK LATH**

⅜" thick .....SY .36

**METAL**

¾" Standard channel .....LF .038
1½" Standard channel .....LF .053
3¼" Steel studs .....LF .088
4" Steel studs .....LF .098
Stud shoes .....EA .03

**PLASTER**

Browning, hardwall .....Sack 1.55
Finish, hardwall .....Sack 1.70
Stucco .....Sack 2.50
Expanded Perlite ....30# Sack 1.30

## LATH & PLASTER WORK

**CHANNEL FURRING**

Suspended ceilings ....SY 3.00-3.30
Walls .....SY 2.90-3.25

**METAL STUD PARTITIONS**

3¼" studs .....SY 3.10-3.40
4" studs .....SY 3.25-3.55
Over 10-0 high, add ....SY .25- .35

**3.4# METAL LATH & PLASTER**

Ceilings .....SY 4.45-5.30
Walls .....SY 4.55-5.40
Keene's cement finish, add .....SY .45- .65

**ROCK LATH & PLASTER**

Ceilings .....SY 3.35-3.80
Walls .....SY 3.45-3.90

**WIRE MESH & ⅞" STUCCO**

Walls .....SY 4.60-5.80

**STUCCO ON CONCRETE**

Walls .....SY 3.40-3.90
Metal accessories .....LF .25- .55

## DRYWALL

**GYPSUM BOARD**

⅜" thick .....Per M SF 51.00
½" thick .....Per M SF 60.00
⅝" thick .....Per M SF 83.00

**METAL STUD PARTITIONS**

1⅝" studs ..... .34
2½" studs ..... .37
3⅝" studs ..... .42

**GYPSUM BOARD NAILED ON**

½" .....SF .125
⅝" .....SF .155

**GYPSUM BOARD SCREWED ON**

½" .....SF .145
⅝" .....SF .175
Taping .....SF .05
Gypsum Board and Thincoat Plaster .....SF .26

## TILE MATERIALS

**FOB Warehouse**

**CERAMIC TILE**

4¼ x 4¼" glazed .....SF .72
4¼ x 4¼" hard glazed .....SF .74
Random, unglazed .....SF .72
6 x 2" cap .....EA .79
6" cove base .....EA .31
¼" round bead .....LF .18

**QUARRY TILE**

6 x 6 x ½" red .....SF .51
6 x 6 x ¾" red .....SF .53
6 x 9 x ¾" red .....SF .65
6 x 6" cove base .....EA .23

## TILE & TERRAZZO WORK

**CERAMIC TILE, stock colors**

Floors ..... 1.85-2.25
Walls ..... 1.90-2.40
Cove base ..... 1.25-1.50

**QUARRY TILE**

6 x 6 x ½" floors .....SF 1.75-2.20
9 x 9 x ¾" floors .....SF 1.90-2.35

**TERRAZZO**

Terrazzo floors .....SF 2.15-2.65
Cond. Terrazzo floors...SF 2.30-2.80
Precast treads & risers ..LF 3.60-4.60
Precast landing slabs ...SF 3.00-4.10

## WINDOWS

**FOB Warehouse**

**STEEL SASH**

Under 10 SF .....SF 2.55 & up
Under 15 SF .....SF 2.10 & up
Under 20 SF .....SF 1.55 & up
Under 30 SF .....SF 1.05 & up

**ALUMINUM SASH**

Under 10 SF .....SF 2.80 & up
Under 15 SF .....SF 2.30 & up
Under 20 SF .....SF 1.85 & up
Under 30 SF .....SF 1.35 & up
**Above rates are for standard sections and stock sizes, FOB Warehouse**

## GLASS—CUT TO SIZE

**FOB Warehouse**

SSB Clear, aver 4 SF .....SF .17
DSB Clear, aver 7 SF .....SF .28
Crystal, aver 16 SF .....SF .35
¼" Polished plate, aver 50 SF .....SF .90
⅛" Obscure, aver 7 SF .....SF .55
⅛" Ribbed, aver 7 SF .....SF .68
⅛" Rough, aver 7 SF .....SF .68
¼" Wire plate, clear, aver 40 SF .....SF 1.90
¼" Wire plate, rough, aver 40 SF .....SF .90
⅛" Heat absorbing, aver 7 SF .....SF .90
¼" Tempered plate, aver 40 SF .....SF 3.60
½" Tempered plate, aver 40 SF .....SF 6.40

**GLASS BLOCKS**

6" .....EA .70
8" .....EA 1.15
12" .....EA 3.10

## GLASS & GLAZING

SSB Clear .....SF .60
DSB Clear .....SF .80
Crystal .....SF .95
¼" Plate .....SF 2.00
⅛" Obscure .....SF .80
⅛" Heat absorbing .....SF 1.35
¼" Tempered plate .....SF 4.75
½" Tempered plate .....SF 9.00
¼" Wire plate, clear .....SF 2.90
¼" Wire plate, rough .....SF 1.50

## PAINT MATERIALS

**All prices FOB Warehouse**

Thinners 5-100 gal .....Gal .63
Turpentine 5-100 gal .....Gal 1.59
Linseed oil, raw .....Gal 2.36
Linseed oil, boiled .....Gal 2.43
Primer-sealer .....Gal 3.12
Enamel undercoaters .....Gal 5.54
Enamel .....Gal 5.58
White lead in oil .....LB .36
Red lead in oil .....LB .36
Litherage .....LB .32

## PAINTING

**EXTERIOR**

Stucco wash,
1 coat .....SY .48
2 coats .....SY .80
Lead & Oil,
2 coats .....SY 1.20
3 coats .....SY 1.75

**INTERIOR**

Primer-sealer .....SY .50
Wall paint,
1 coat .....SY .60
2 coats .....SY 1.10
Enamel,
1 coat .....SY .70
2 coats .....SY 1.25
Doors & trim .....EA 14.00
Sash & trim .....EA 16.00
Base & molds .....LF .18
**Old work, add 15-30%**

## VENETIAN BLINDS

**RESIDENTIAL** .....SF .45 & up
**COMMERCIAL** .....SF .55 & up
**VERTICAL** .....SF 1.25 & up

## PLUMBING

Lavatories .....EA 260.00-330.00
Toilets .....EA 300.00-400.00
Bath tubs .....EA 370.00-430.00
Stall shower .....EA 210.00-250.00
Sinks .....EA 240.00-300.00
Laundry trays .....EA 130.00-200.00
Water heaters .....EA 130.00-400.00
**Prices based on average residential and commercial work. Special fixtures and excessive piping not included.**

## HEATING

**Furnaces—Gas-Fired, Average Job**

**FLOOR FURNACE**

25,000 BTU .....EA 150.00-175.00
35,000 BTU .....EA 160.00-185.00
45,000 BTU .....EA 180.00-215.00
Automatic control, add .....EA 30.00- 40.00

**DUAL WALL FURNACE**

25,000 BTU .....EA 160.00-185.00
35,000 BTU .....EA 182.00-210.00
50,000 BTU .....EA 190.00-215.00
Automatic control, add .....EA 55.00- 70.00

**FORCED AIR FURNACE**

80,000 BTU .....EA 260.00-360.00
100,000 BTU .....EA 290.00-380.00
125,000 BTU .....EA 320.00-410.00
Automatic control, add .....EA 38.00- 60.00

**HEAT REGISTERS**

Outlet .....20.00-50.00

## ELECTRIC WIRING

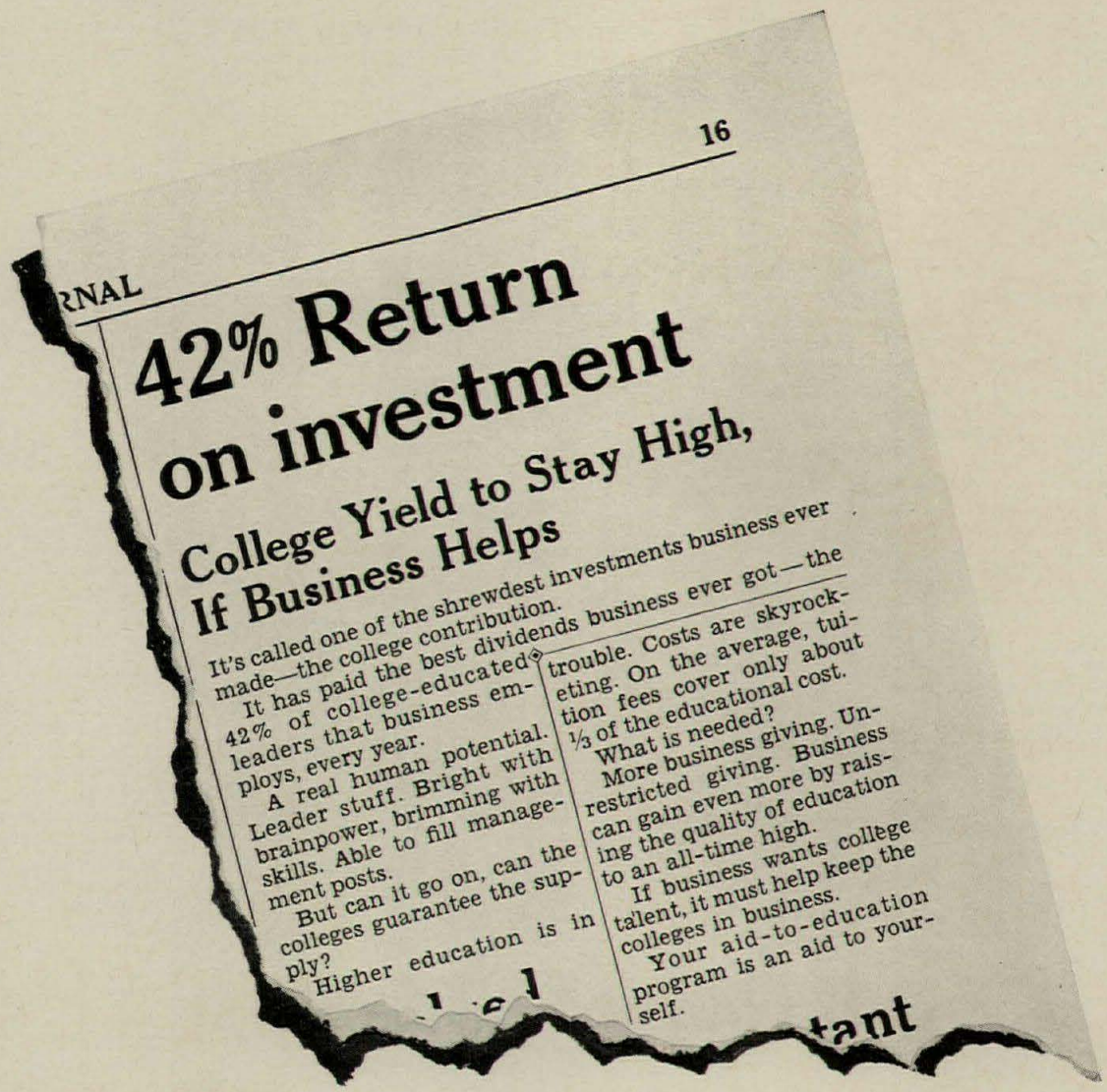
**Per Outlet**

Knob & Tube .....EA 12.00
Armor .....EA 20.00
Conduit .....EA 24.00
220-V Circuit Range.EA 89.00-125.00

## ELEVATORS & ESCALATORS

**Prices vary according to capacity, speed and type. Consult elevator companies. Slow speed apartment house elevators including doors and trim about $3,500 per floor.**

# Blue chip.



16

RNAL

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It has paid the best dividends business ever got—the 42% of college-educated leaders that business employs, every year.

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What is needed?

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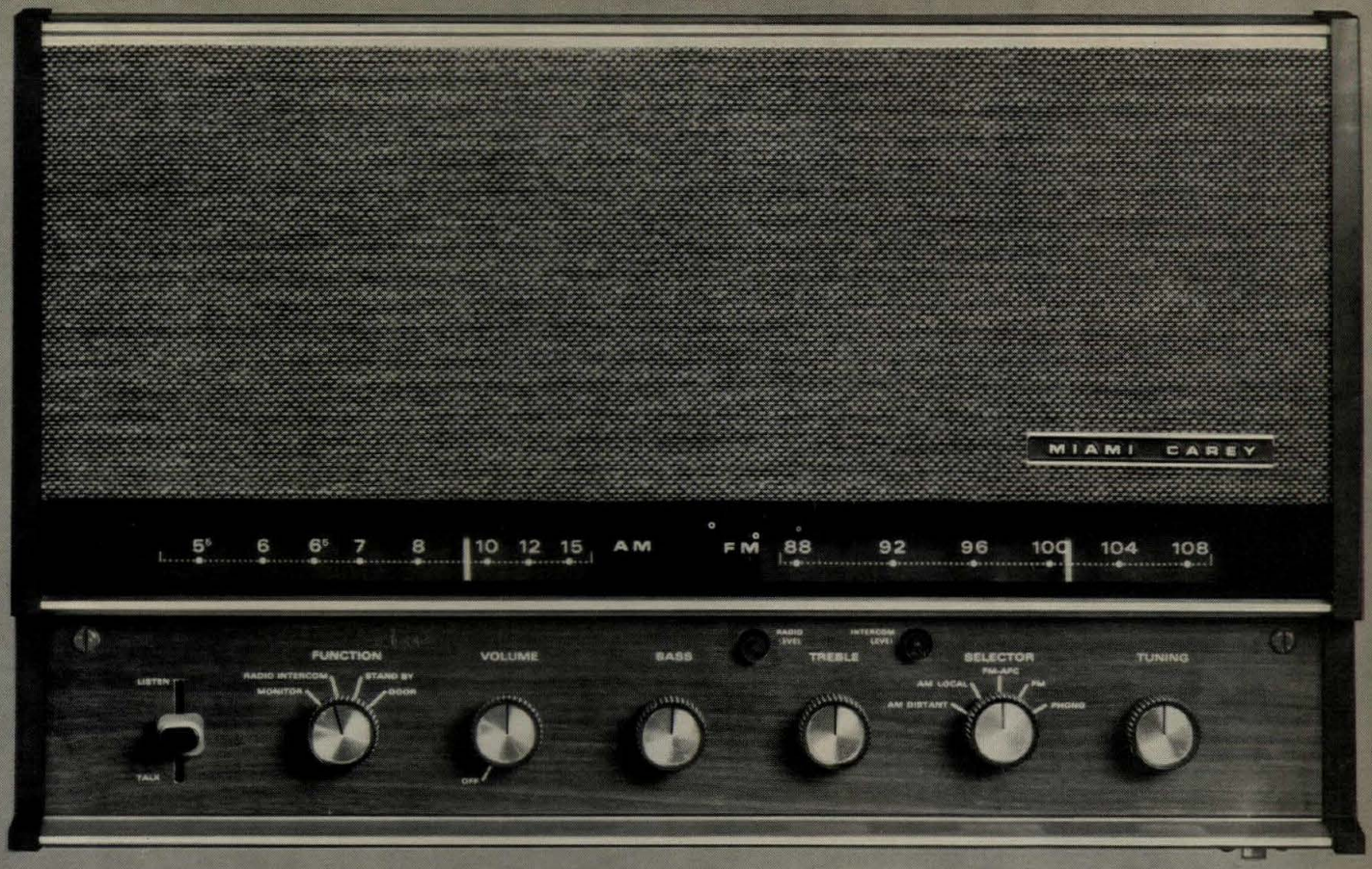


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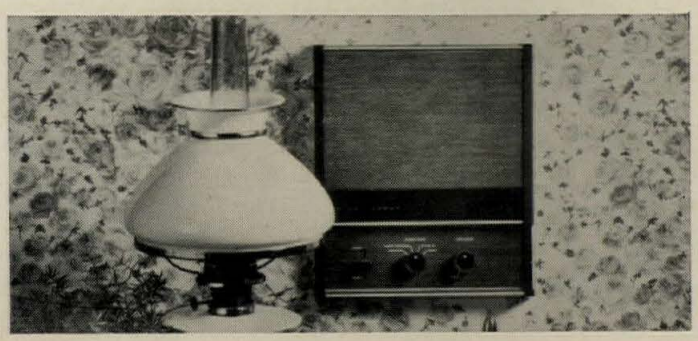
Turn it on.

The performance is surprising only when you know it costs no more than ordinary radio-intercom.

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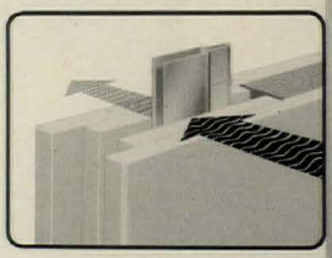

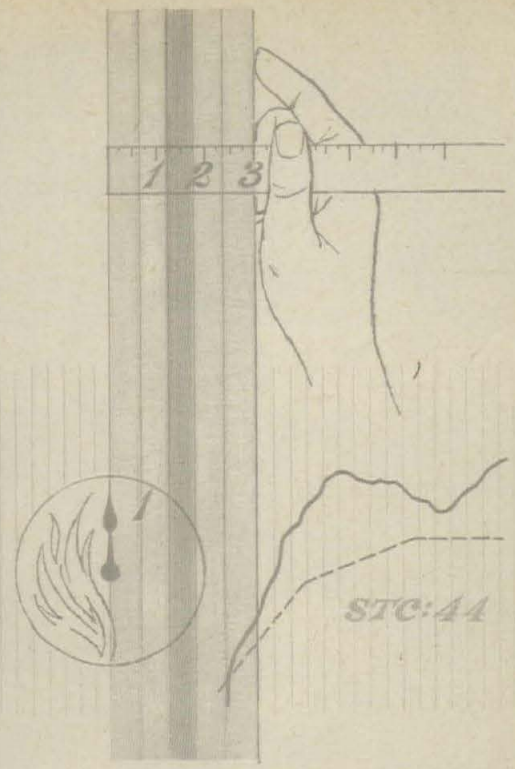


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As in all Vaughan Walls, USG gypsum panels are used exclusively, because USG can meet our high performance standards.

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Write us for the name of the Licensed Contractor near you.

*Patent pending

**VAUGHAN WALLS®, Inc.**
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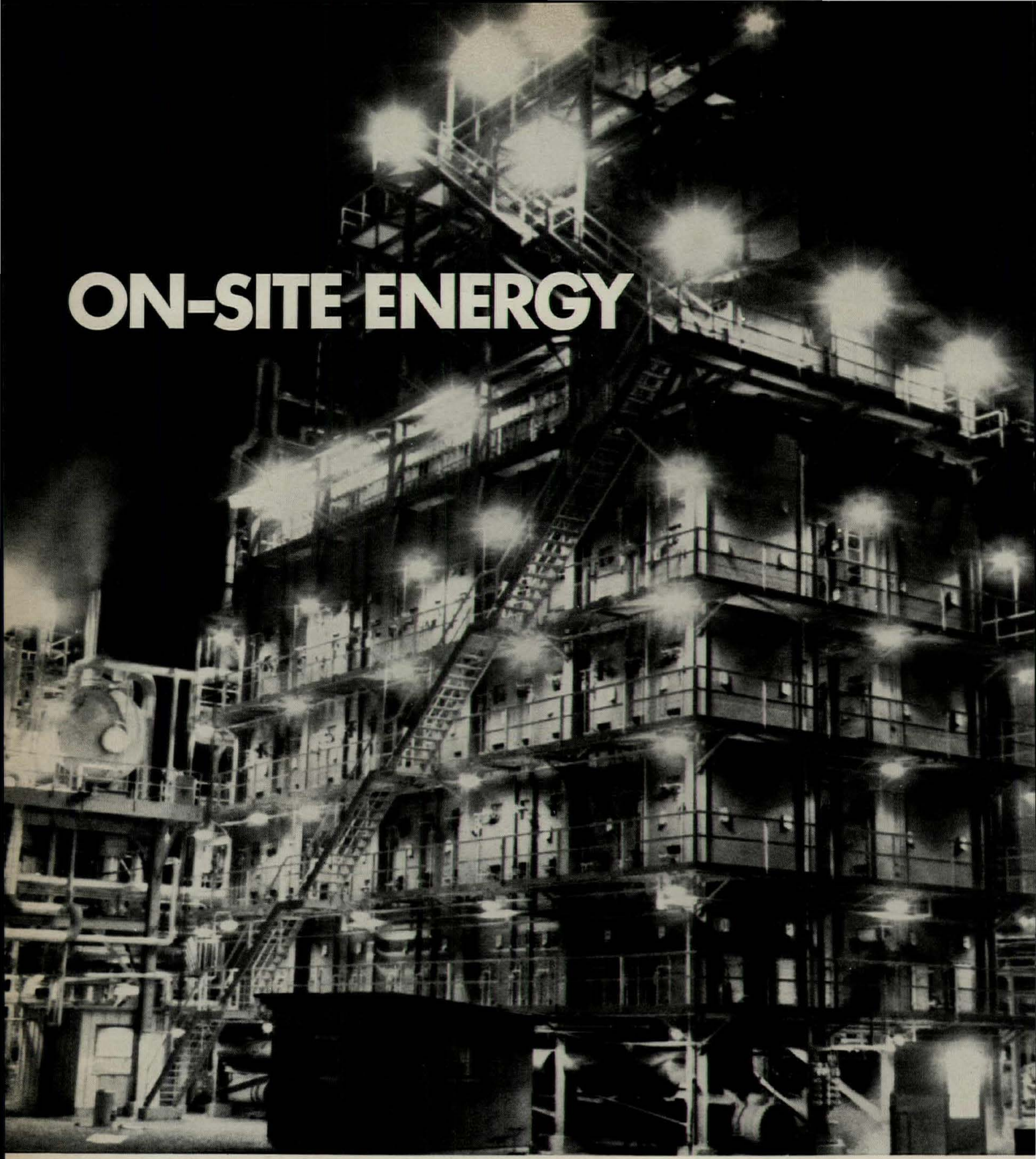


## No power lines enter this plant. Solar gas turbines produce the energy needs.

This is the Apple River Chemical Company's new plant near East Dubuque, Illinois, producing 600 tons per day of anhydrous ammonia for the Midwest fertilizer market. Natural gas is the raw material for the process and the source of energy for power. Two (2) 750 kw Solar SATURN® turbines provide a source of electrical and steam power.

Energy comes from both ends of the two SATURN units. Shaft power drives base-loaded generators. Turbine exhaust provides pre-heated combustion air to a 55,000 pound per hour boiler. The boiler supplies high pressure steam to a steam turbine generator and supplies process steam to the plant.

The use of Solar gas turbine units for continuous duty generation is growing, and for a very good reason. Exhaust heat utilization boosts total thermal efficiencies to 70%-90%. Better learn more. Call your local Gas Company. Or write: Solar Division of International Harvester Co., San Diego, California 92112, Dept. 0-700.

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## HUD presents seven honor awards in program for design excellence

Three projects serving low-income families and four urban renewal projects have been given First Honor Awards in an awards program administered by the Department of Housing and Urban Development. Pictured above are two of the winning projects: East Barnard Street Homes (low-income housing), West Chester, Pennsylvania (left) designed by Geddes, Brecher, Qualls and Cunningham, architects, with Edward Maurer, landscape architect; The Berel Company and Altman Brothers, Inc. as general contractor; and The Common (private housing), Chicago, designed by Ezra Gordon –Jack M. Levin and Associates. General contractor was S. N. Robbins Construction Company.

Commenting on the importance of the awards program, HUD Secretary Robert C. Weaver said: "The winning entries represent more than a happy combination of architectural skill, choice of materials, and manner of construction. They symbolize our aspirations for an environment that will uplift the spirit, broaden the vision, and help to enrich the lives of the people who live in the cities. The emphasis that the Department places on design excellence is equally important in projects for all income levels."

Twenty-two Awards of Merit will be presented at a later date by HUD Regional Administrators at ceremonies in the respective regional offices. Choosing the 29 winners from a field of 350 entries was a jury composed of: architect William J. Conklin, New York City; architect Vernon A. DeMars, Berkeley, California; planner William Edward Finley, Baltimore; landscape architect Hubert Bond Owens, Athens, Georgia; and chairman architect David A. Wallace, Philadelphia. George T. Rockrise, architect and Adviser for Design to the Secretary of HUD, served as professional adviser.

Other honor award winners included: Riis Houses Replanned Open Space (low-income housing), New York City (architect: Pomerance and Breines; landscape architect: M. Paul Friedberg and Associates; general contractor: W. J. Barney Corporation); Arena Stage (urban renewal), Washington, D.C. (architect: Harry Weese and Associates; general contractor: John Tester and Sons, Inc.); Society Hill Towers (private housing), Philadelphia (architect: I. M. Pei and Associates; landscape architect: Zion and Breen; general contractor: Paul Tishman Company, Inc.); Ridgeway Dormitories —Phase III (college housing), Western Washington State College, Bellingham (architect: Fred Bassetti and Company; landscape architect: Richard Haag, Associates; general contractor: Cawdrey and Vemo, Inc.); and Crawford Manor (low-income housing for the elderly), New Haven (architect: Paul Rudolph; contractor: Giordano Construction Company).

THE RECORD REPORTS ON:



## Ronald Beckman will direct Research and Design Institute

Industrial designer Ronald Beckman, a vice president of the George Nelson Company of New York, has been named director of the Research and Design Institute, Providence, Rhode Island, which began operations September 1. Mr. Beckman will continue his connection with the George Nelson Company as a consultant. The Institute was founded after a group of civic, business and education leaders hired a research organization to help find a service industry for Rhode Island. The result of this study is the Institute, a non-profit, independent research organization which will investigate de-

sign problems and their economic and social effects. The new organization will have a multi-disciplinary staff and will deal with problems related to transportation, education and urban planning.

## Academic appointment

James D. Gough Jr. has been appointed acting director of the School of Architecture at Montana State University, Bozeman. Mr. Gough joined the M.S.U. faculty in 1958 and was associate professor of architecture at the time of his appointment. He succeeds Harold C. Rose, who was named dean of professional schools at M.S.U. on January 1, and has served in a dual capacity since. Mr. Gough received a bachelor of architecture degree from the University of Washington in 1952 and a master of architecture degree from Cranbrook Academy of Art in 1957.

## Belluschi named consulting architect at Princeton

Pietro Belluschi has been named Consulting Architect to Princeton University, succeeding the late Douglas W. Orr who held the post for 12 years. Mr. Belluschi, the former dean of the School of Architecture and Planning at the Massachusetts Institute of Technology, will advise the University on questions bearing upon the relationship of buildings, new sites, landscaping, and the selection of architects. He will work closely with the University's Division of Physical Planning and the firm of Clarke and Rapuano, consulting landscape architects and engineers for Princeton.

## Setting goals for quality absorbs urban conference

The increasingly vociferous debate on how to establish appropriate social goals for the future of the city was constantly reflected in the deliberations of the major conference "Our Cities and Our People" sponsored by Urban America, Inc. at the Sheraton-Park Hotel in Washington, D.C. September 11-13.

A large roster of authoritative speakers addressed the plenary sessions on housing, the work environment, transportation and leisure; but the discussion groups that followed each session evoked again and again the current community challenge to the traditional authority of the public official and the professional in defining the goals of the planning process. If the community vision of social goals often seemed limited to a better vision of the status quo, the discussions certainly offered professional participants a significant affirmation of the critical need for developing new techniques of communication with the community "clients."

Some 800 delegates included public officials, architects, planners, landscape architects and representatives of community groups, industry, commerce, law, housing and education. They were received at the White House, where they were all presented to Mrs. Lyndon Baines Johnson and warmly praised by the First Lady for their efforts "to improve the quality of urban America".

## Professor Carroll Meeks of Yale dead at 59

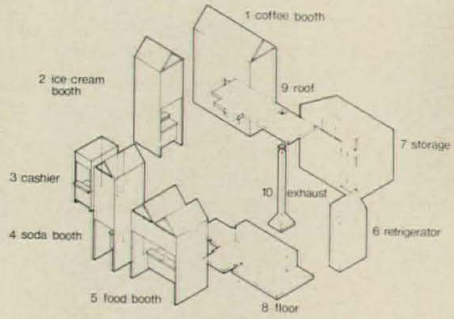
Carroll L. V. Meeks, a professor of architecture and art history at Yale University, died August 27 at the age of 59. Professor Meeks, an authority on the architecture of the 17th through 19th centuries, wrote articles for professional and scholarly journals and was the author of two books: "Italian Architecture, 1750-1914" and "The Railroad Station." He was a past president and a director of the Society of Architectural Historians and was chairman of the American Institute of Architects' Committee on the Preservation of Historic Buildings.

## New York Park Department emphasizes good design in implementing its programs

A limited competition for the design of a $5.7-million combined stable and police precinct house in New York's Central Park is but one manifestation of a growing emphasis on architecture and design in New York parks since Mayor John V. Lindsay came into office on January 1. One of Mayor Lindsay's first moves was to appoint, as Commissioner of Parks, 35-year-old Thomas P. F. Hoving, former curator of medieval art and the Cloisters of the Metropolitan Museum of Art. Mr. Hoving appointed as his design consultant architect Arthur Rosenblatt, and a series of new ideas and fresh approaches, all design-oriented, began to add new life and substance to Park Department programs.

▪ The competition for the police-public stable (limited by invitation to the firms of Edward Larrabee Barnes, Marcel Breuer & Associates, Kelly & Gruzen, Philip Johnson and Whittlesey, Conklin & Rossant) is financed by a grant from Urban America, Inc. Each entrant will receive $15,000, with the first prize winner receiving an additional $10,000 plus the commission. Each entrant will be assigned a financial adviser to insure that the schemes can be built within the alloted budget.

▪ The first architectural competition held under the new regime (and the first competition held by the Department of Parks since 1907) brought a $2,000 prize to architect William Maurer for the design of a relatively portable prototype refreshment kiosk (see isometric drawing below). The objectives of this competition,




according to Mr. Hoving, were "to bring to public notice fresh young talent such as Mr. Maurer," and "to create a certain tension or controversy about the elements of design so that the public becomes educated in the finer points of architecture and begins to demand better designs in their public spaces and buildings."

▪ Architect James Lamantia was commissioned to design the Fountain Cafe at Boathouse Lake in Central Park, which opened in August. The commission demanded—and got—great respect for the original design of the area opened in 1883 by Calvert Vaux and Jacob Wrey Mould. When the mechanical lines were laid to service the facility, the 19th-century terrace was disassembled and numbered, brick by brick, and replaced exactly as it was—just one example of the creative preservation and sensitivity in the design. The new cafe, which has been thronged since its opening, seats 150 people within a grand setting under umbrellas and striped awnings.

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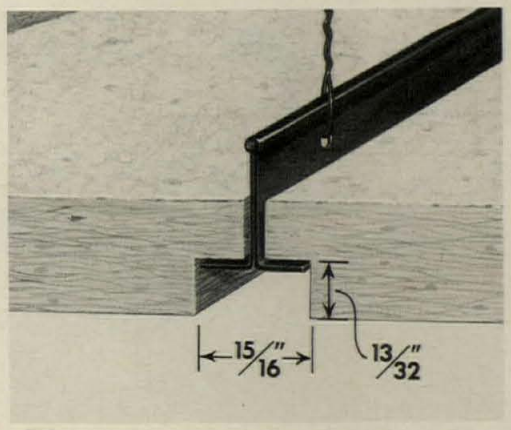
*continued on page 134*

# This distinctive ceiling adds a new dimension:




# dimension.

Armstrong Tegular Travertone™. An exposed grid ceiling with a new twist. Since the ceiling panels are rabbeted on all four sides, the grid is *recessed* into the surface of the ceiling. Hence the handsome, fissured Travertone emerges boldly three-dimensional. And the dimensional effect can be dramatically accentuated when the grid is painted a contrasting color. (As witness the black grid installation above.)

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Tegular Travertone is fabricated of noncombustible mineral fiber and carries the UL label with a Class I Flame Spread rating. Tegular Travertone Fire Guard is available with a 2-hour UL Time-Design rating for a floor-ceiling assembly (3-hour beam protection).

Acoustically efficient, Travertone's N.R.C. specification range is .60—.70. Average attenuation factor is in the range of 40 decibels (ceiling STC 37). Tegular Travertone's light-reflection coefficient is "a", and there is no unpleasant glare.

Available with or without ventilating perforations, Tegular Travertone comes in 24″ x 24″ x 3/4″ panels, for installation in the standard suspended grid. And the panels can be easily removed for access to wiring or plumbing above.

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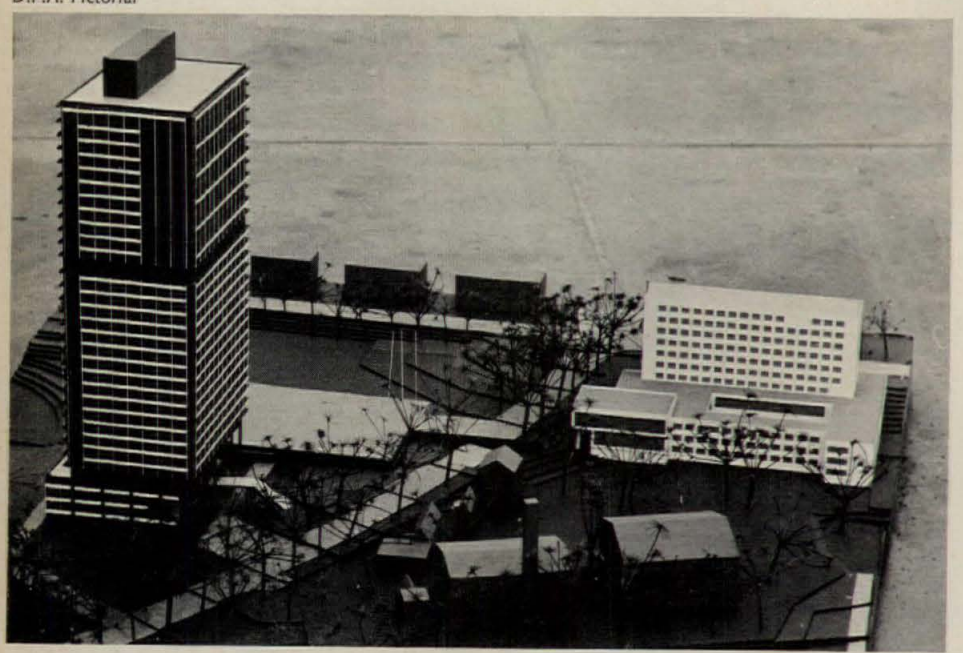
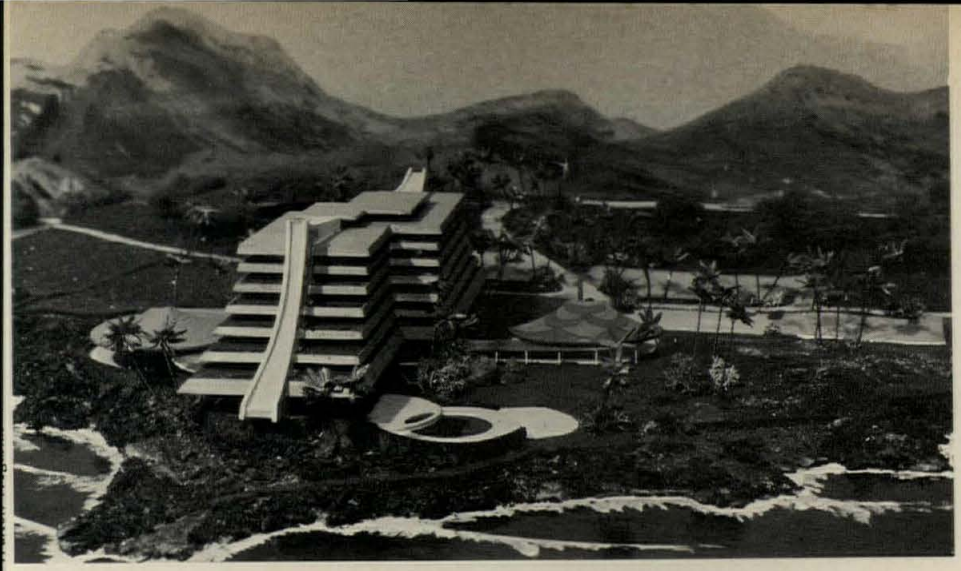
**The Whitney Museum of American Art** opened its new building on Madison Avenue at 75th Street, New York City, last month. The building, designed by Marcel Breuer & Associates, has an inverted pyramid shape to "receive the visitor before he actually enters the building," and is entered by a bridge which spans a sunken sculpture court. The building has a total gallery area of 26,700 square feet on five levels. Flexible exhibition space is provided by demountable panels set in specially designed rectangular ceiling grids which also provide lighting outlets at 2-foot intervals. Windows are angled to keep out direct sunlight. Contractor was HRH Construction Company.

D.P.A.-Pictorial



**The proposed German Parliament Building** in Bonn, designed by Egon Eiermann, is a 328-foot-high structure topped by a roof garden and cafeteria. The building will provide offices for each of the 420 members of the Bundestag, each office having approximately 200 square feet. Also provided will be 120 offices for other personnel, 20 committee rooms, an underground air-raid shelter, and underground parking for 300 cars.

**A shelter building** for Loft's Pond Park, Baldwin, Long Island, designed by James Stewart Polshek, has pyramidal walls of a single natural material—split-face granite paving blocks—as a conscious attempt to integrate the structure within a residential neighborhood. The $35,000 shelter, which is being built by Nassau County, will contain toilets, kitchenette and storage space. Doors on either end can be totally or partially open and are constructed and operated like barn doors.

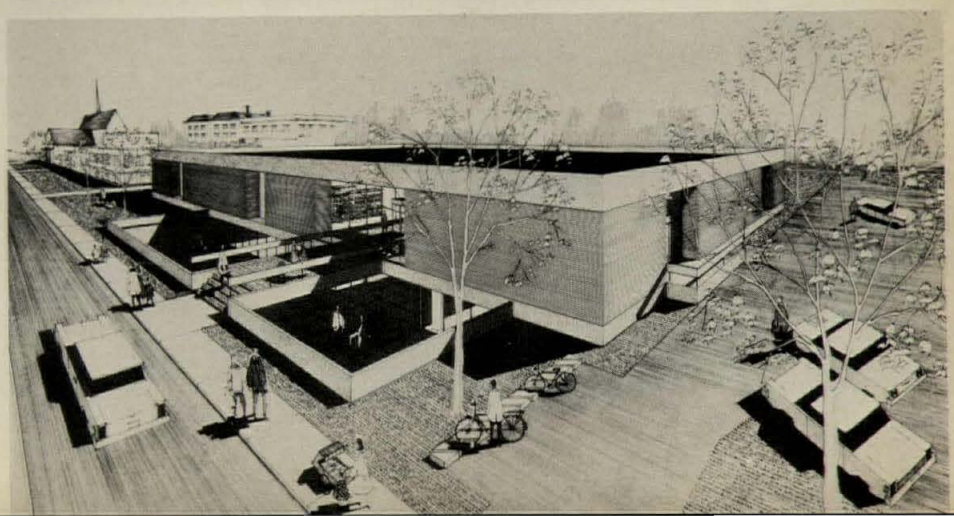


**The Kona Hilton,** Kona, Hawaii, designed by Wimberly, Whisenand, Allison & Tong, is a seven-story, $4-million structure with each ascending level set back on all sides. Purpose of the setbacks is to relate the building to its mountain setting. External stair towers serve either end of the structure. The hotel, of reinforced concrete construction, will contain 190 units. Completion is set for December, 1967. General contractor is Munro-Burns & Jackson Brothers.

**The McFarland Clinic,** Ames, Iowa, designed by Crites & McConnell, received the only First Honor Award in the first national awards program for medical clinics (designed for the group practice of at least seven physicians) sponsored by the American Institute of Architects and the American Association of Medical Clinics. Included on the jury, which also presented six awards of merit, were A.I.A. President Charles M. Nes Jr., chairman, and architect Francis D. Lethbridge.

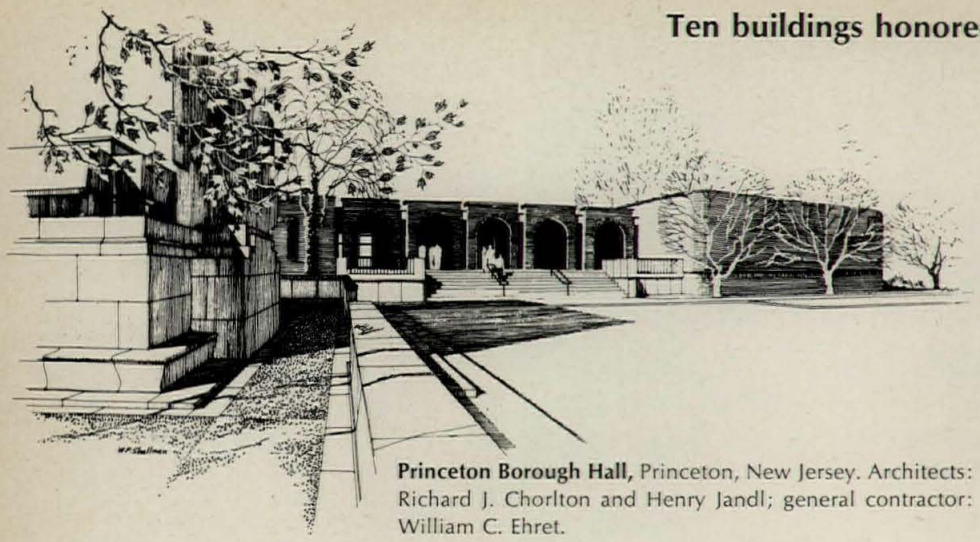
*Holmes*

**The John Fitzgerald Kennedy Federal Building,** designed by The Architects Collaborative, located in Boston's Government Center, consists of a 26-story tower and a four-story low building. The tower of the $24-million structure is split into halves with elevator stacks in between. The recently completed building provides a net usable area of 672,000 square feet. Flexibility of office space is achieved by use of a 4-foot-10-inch-square module which is also expressed on the exterior. Contractor was the J. W. Bateson Company.



**The Town of Mount Royal, Quebec's Municipal library,** designed by Donaldson, Drummond, Sankey, architects, has identical entry from two sides via an open concrete bridge which spans a lower exterior courtyard. The structure, which has exposed sand-blasted concrete and brick walls, will house 75,000 volumes in an area of about 18,000 square feet divided equally into two levels.

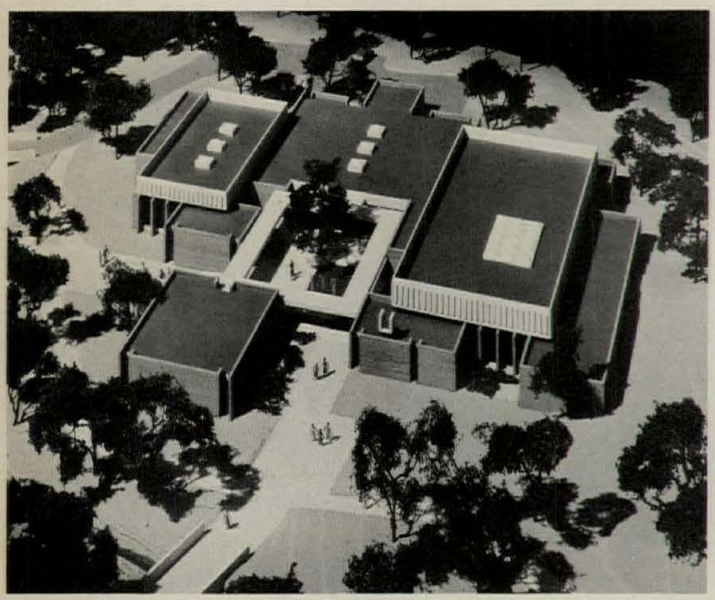
# Ten buildings honored in New Jersey awards program



**Princeton Borough Hall,** Princeton, New Jersey. Architects: Richard J. Chorlton and Henry Jandl; general contractor: William C. Ehret.

Five proposed buildings (shown on this page) and five completed projects (shown on the opposite page) have been cited for excellence during the 66th annual convention of the New Jersey Society of Architects held last month. Serving on the awards jury were architects Michael Radoslovich, New York; Charles DuBose, Hartford, and Lyle Boulware, Philadelphia.

The jury praised the high quality and number of submissions, saying that this interest contributes to the success of the program on a national as well as a state level "with the objective both of raising the standards of architectural design and of using the awards program as an educational tool in general."



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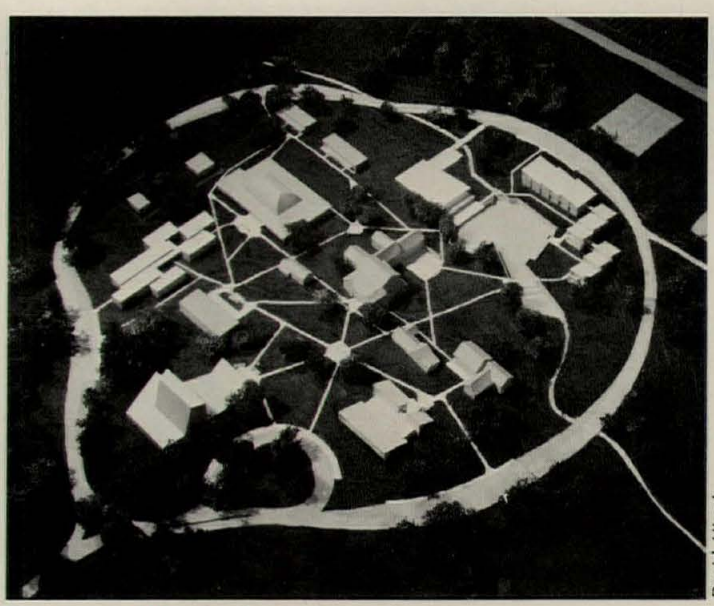
**Madison Public Library,** Madison, New Jersey. Architects: McDowell-Goldstein, associated architects.



David Hirsch

**Development Plan for the Solebury School,** New Hope, Pennsylvania. Architects: Gregory & Blauth.

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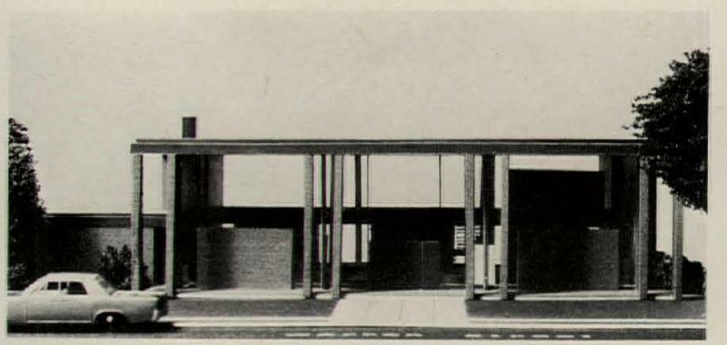

**Little Falls Library,** Township of Little Falls, New Jersey. Architects: Valk and Keown.

**Friends Meeting House,** Chatham Township, New Jersey. Architects: McDowell-Goldstein, associated architects.

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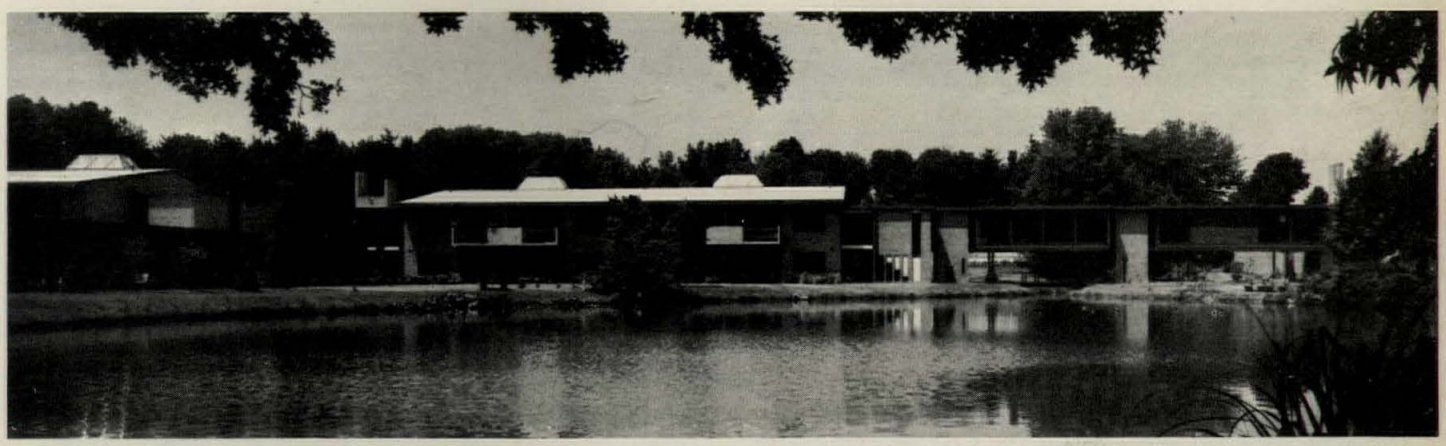
**New Jersey Cultural Center,** State Board of Education, Trenton. Architects: Frank Grad & Sons; general contractor: Belli Company.

**Glenside Nursing Home,** New Providence, New Jersey. Architects: Kuhn & Drake; and general contractor: Zwigard Construction Company.

Lawrence S. Williams, Inc.

**Faith Presbyterian Church,** Medford, New Jersey. Architects: Hassinger & Schwam; general contractor: A. G. Ritchie & Sons.

**Monmouth Regional High School addition,** New Shrewsbury, N.J. Architects: Kelly & Gruzen; contractor: Gumina Building & Construction Co.



**Meadow Lakes Village Presbyterian Homes,** Hightstown, New Jersey. Architect: Richard J. Chorlton; contractor: Masset Building Company.

# Building trends reflect nation's economic policies

With three-quarters of 1966 now history, it becomes increasingly clear that this is a year of sharp contrast. Depending on which part of the construction business you choose to focus on, 1966 has been either the best year ever, or the worst in almost a decade. At the very same time that most nonresidential building markets were booming ahead to new records, the credit-starved housing industry went into a tailspin.

Housing was the first (but not the only) casualty of 1966's overheated economy. The tightest credit conditions since the Twenties—resulting from a policy of monetary restraint in the face of extraordinary demand for funds from all quarters—left the mortgage market all but drained by mid-year. After a more or less normal first quarter rate of close to a million and a half new starts, residential building plummeted to barely a million units by the third quarter. That's a drop of well over 25 per cent in the space of half a year to a level that hasn't been seen since the early part of 1958 (and one that nobody ever expected to see again).

Other building and construction markets managed to weather the credit squeeze in better fashion. Nonresidential building eased off its blistering first quarter pace toward mid-1966, but was still going strong as both business-related and institutional building contracts were running substantially ahead of already buoyant 1965 values. And the nonbuilding group—paced by big gains in highway and utility construction contracts, was not only strong but was even gathering momentum at the middle of the year.

The developments in the first half of 1966 only partly reflected the impact that fast-moving economic events are having on construction markets. The credit crisis, and its strong influence on housing, was but the first in a series of actions and reactions that will govern the future of building activity well into 1967. Still to be felt are the effects of the President's recent order to cut Federal spending by at least $3 billion, and to suspend incentives to business capital expansion (the investment tax credit and accelerated depreciation on industrial and commercial buildings). And the possibility of a general income tax hike sometime after November represents still another variable that could greatly affect next year's building markets.

The economic problems associated with excess demand were only beginning to bear down fully on building markets as 1966 was drawing to a close. And some of the steps taken to deal with those conditions were noticeably retarding the growth of many building types during the second half. Many public construction programs which were able to go ahead in earlier months on the basis of appropriations that carried through the end of the *fiscal* year (June 30th) became vulnerable to cutbacks in the subsequent quarters. And business-related building, which provided so much of the expansion during all of 1965 and the first half of 1966, had come under new restraints.

In the year ahead, even more than in 1966, the measures taken to control the economy's inflationary tendencies will have considerable impact on construction activity.

George A. Christie, *Chief Economist*
F. W. Dodge Company
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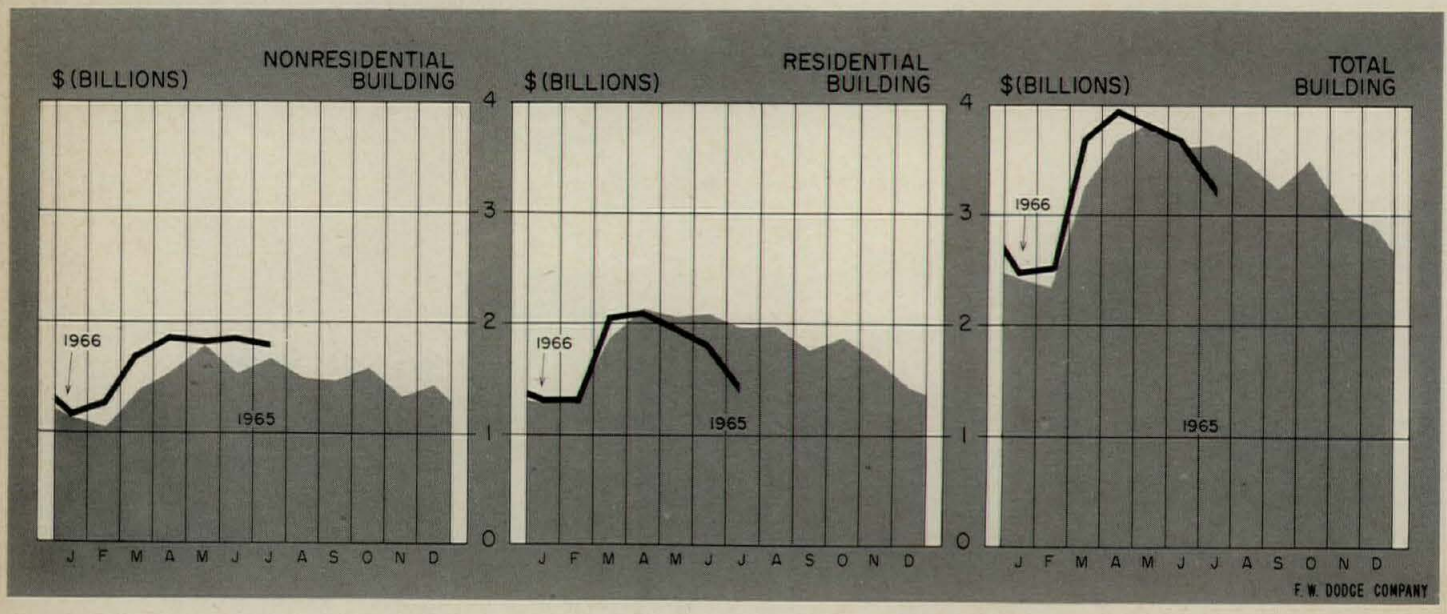
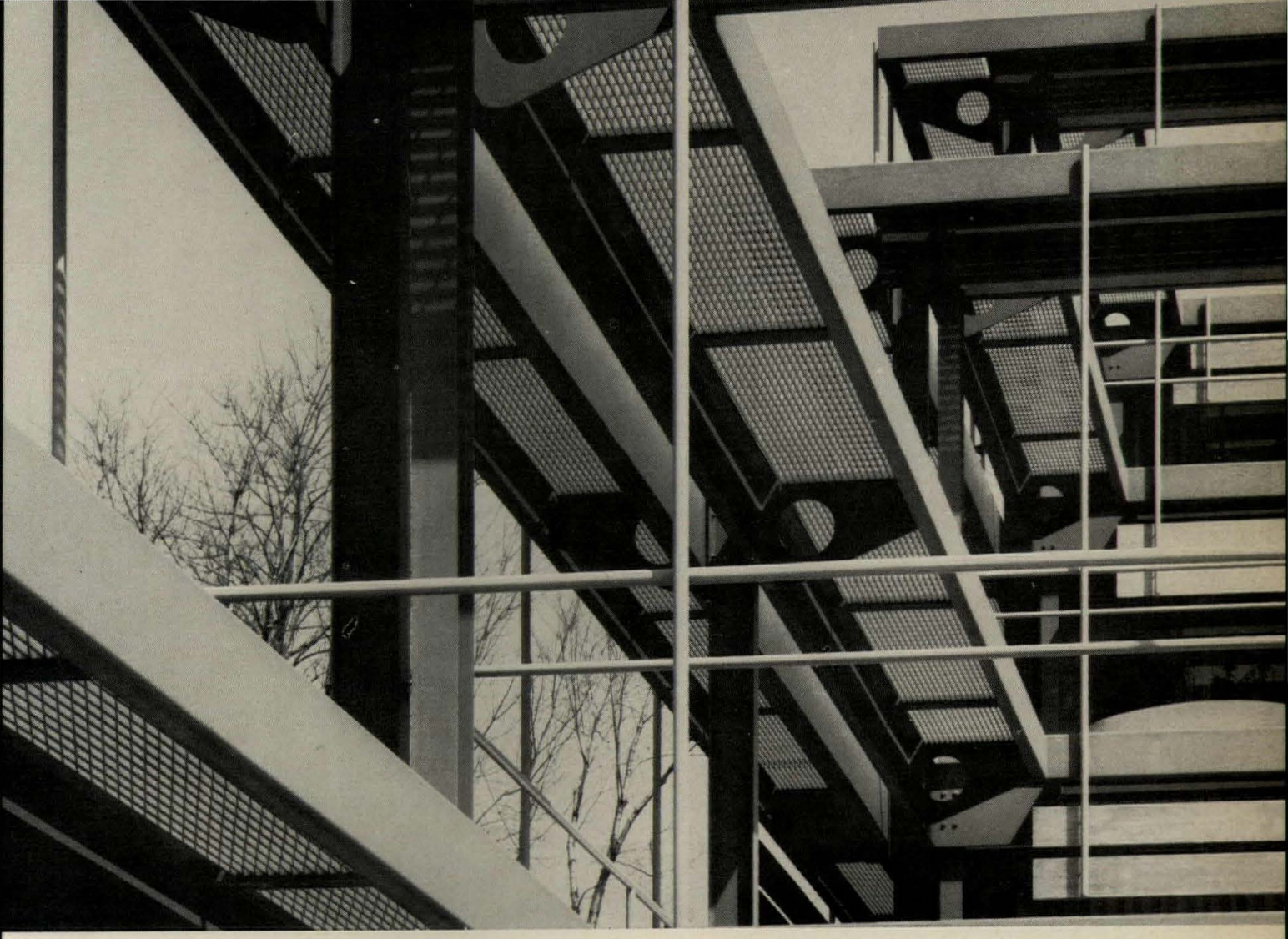
## Building activity: monthly contract tabulations





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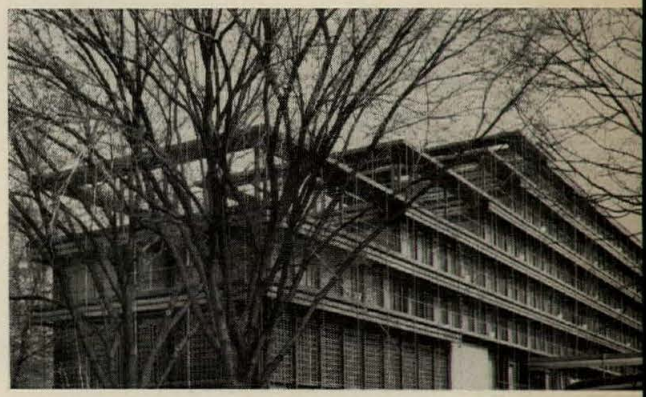


*For more data, circle 32 on inquiry card*

The information presented here indicates trends of building construction costs in 21 leading cities and their suburban areas (within a 25-mile radius). Information is included on past and present costs, and future costs can be projected by analysis of cost trends.

*William H. Edgerton*
*Manager-Editor, Dow Building Cost Calculator, an F. W. Dodge service*

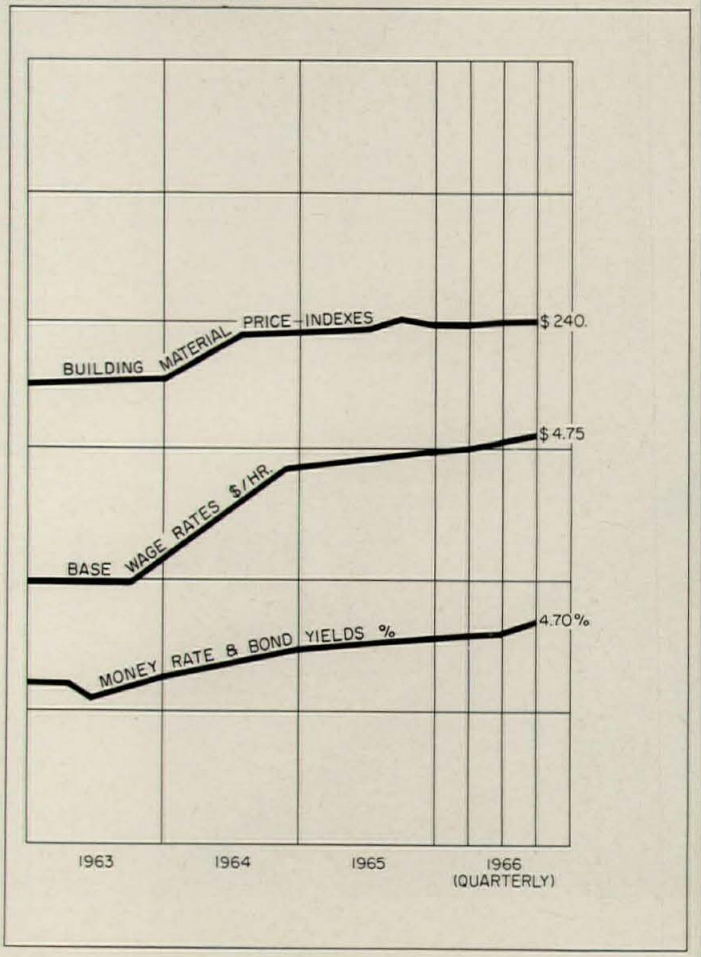
## OCTOBER 1966 BUILDING COST INDEXES

1941 averages for each city = 100.0

| Metropolitan area | Cost differential | Current Dow Index residential | Current Dow Index non-res. | % change year ago res. & non-res. |
|---|---|---|---|---|
| U.S. Average | 8.5 | 276.8 | 294.9 | +2.36 |
| Atlanta | 7.2 | 313.7 | 332.7 | +2.46 |
| Baltimore | 7.7 | 276.9 | 294.6 | +1.65 |
| Birmingham | 7.5 | 254.3 | 273.5 | +1.81 |
| Boston | 8.5 | 249.9 | 264.6 | +1.79 |
| Chicago | 8.9 | 307.7 | 323.7 | +2.80 |
| Cincinnati | 8.8 | 264.4 | 281.1 | +1.57 |
| Cleveland | 9.2 | 285.7 | 303.7 | +2.88 |
| Dallas | 7.7 | 259.9 | 268.4 | +2.42 |
| Denver | 8.3 | 282.4 | 300.2 | +1.33 |
| Detroit | 8.9 | 285.0 | 299.2 | +4.30 |
| Kansas City | 8.3 | 249.1 | 263.6 | +1.96 |
| Los Angeles | 8.3 | 282.0 | 308.5 | +1.96 |
| Miami | 8.4 | 273.0 | 286.6 | +2.27 |
| Minneapolis | 8.8 | 274.5 | 291.7 | +1.54 |
| New Orleans | 7.8 | 247.7 | 262.4 | +1.45 |
| New York | 10.0 | 288.3 | 310.1 | +2.29 |
| Philadelphia | 8.7 | 275.0 | 288.7 | +2.07 |
| Pittsburgh | 9.1 | 257.7 | 273.9 | +1.80 |
| St. Louis | 9.1 | 274.7 | 291.0 | +2.53 |
| San Francisco | 8.5 | 359.7 | 393.5 | +4.62 |
| Seattle | 8.4 | 251.7 | 281.3 | +2.27 |

Differences in costs between two cities may be compared by dividing the cost differential figure of one city by that of a second; if the cost differential of one city (10.0) divided by that of a second (8.0) equals 125%, then costs in the first city are 25% higher than costs in the second. Also, costs in the second city are 80% of those in the first (8.0÷10.00=80%) or they are 20% lower in the second city.

## ECONOMIC INDICATORS




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

1941 average for each city = 100.00

| Metropolitan area | 1952 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 (Quarterly) 1st | 1965 (Quarterly) 2nd | 1965 (Quarterly) 3rd | 1965 (Quarterly) 4th | 1966 (Quarterly) 1st | 1966 (Quarterly) 2nd | 1966 (Quarterly) 3rd | 1966 (Quarterly) 4th |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| U.S. Average | 213.5 | 255.0 | 259.2 | 264.6 | 266.8 | 273.4 | 279.3 | 279.5 | 281.0 | 288.7 | 284.9 | 286.3 | 287.3 | 290.4 | — |
| Atlanta | 223.5 | 283.3 | 289.0 | 294.7 | 298.2 | 305.7 | 313.7 | 313.9 | 317.9 | 320.6 | 321.5 | 322.2 | 323.3 | 328.5 | — |
| Baltimore | 213.3 | 264.5 | 272.6 | 269.9 | 271.8 | 275.5 | 280.6 | 280.5 | 281.0 | 284.7 | 285.7 | 288.6 | 289.6 | 289.4 | — |
| Birmingham | 208.1 | 233.2 | 240.2 | 249.9 | 250.0 | 256.3 | 260.9 | 261.2 | 264.1 | 264.9 | 265.6 | 267.1 | 268.1 | 269.7 | — |
| Boston | 199.0 | 230.5 | 232.8 | 237.5 | 239.8 | 244.1 | 252.1 | 251.7 | 252.6 | 256.3 | 257.8 | 258.5 | 259.6 | 260.9 | — |
| Chicago | 231.2 | 278.6 | 284.2 | 289.9 | 292.0 | 301.0 | 306.6 | 306.5 | 307.3 | 310.2 | 311.7 | 312.6 | 313.7 | 318.9 | — |
| Cincinnati | 207.7 | 250.0 | 255.0 | 257.6 | 258.8 | 263.9 | 269.5 | 269.4 | 270.2 | 272.9 | 274.0 | 274.7 | 275.7 | 277.2 | — |
| Cleveland | 220.7 | 260.5 | 263.1 | 265.7 | 268.5 | 275.8 | 283.0 | 282.3 | 283.4 | 290.8 | 292.3 | 293.0 | 294.1 | 299.2 | — |
| Dallas | 221.9 | 237.5 | 239.9 | 244.7 | 246.9 | 253.0 | 256.4 | 256.9 | 257.9 | 259.5 | 260.8 | 261.7 | 262.6 | 265.8 | — |
| Denver | 211.8 | 257.9 | 257.9 | 270.9 | 274.9 | 282.5 | 287.3 | 287.3 | 288.2 | 292.7 | 294.0 | 294.6 | 295.5 | 296.6 | — |
| Detroit | 197.8 | 249.4 | 259.5 | 264.7 | 265.9 | 272.2 | 277.7 | 277.7 | 279.3 | 283.5 | 284.7 | 285.5 | 286.5 | 295.7 | — |
| Kansas City | 213.3 | 239.6 | 237.1 | 237.1 | 240.1 | 247.8 | 250.5 | 251.2 | 252.0 | 255.0 | 256.4 | 257.3 | 258.2 | 260.0 | — |
| Los Angeles | 210.3 | 263.5 | 263.6 | 274.3 | 276.3 | 282.5 | 288.2 | 288.9 | 289.7 | 295.8 | 297.1 | 298.0 | 298.6 | 301.6 | — |
| Miami | 199.4 | 249.0 | 256.5 | 259.1 | 260.3 | 269.3 | 274.4 | 274.4 | 275.4 | 276.6 | 277.5 | 278.4 | 279.2 | 282.9 | — |
| Minneapolis | 213.5 | 254.9 | 260.0 | 267.9 | 269.0 | 275.3 | 282.4 | 283.4 | 283.6 | 283.9 | 285.0 | 285.7 | 286.6 | 288.3 | — |
| New Orleans | 207.1 | 237.5 | 242.3 | 244.7 | 245.1 | 248.3 | 249.9 | 250.5 | 253.1 | 255.1 | 256.3 | 257.1 | 258.0 | 258.8 | — |
| New York | 207.4 | 260.2 | 265.4 | 270.8 | 276.0 | 282.3 | 289.4 | 290.2 | 294.0 | 296.0 | 297.1 | 297.8 | 298.7 | 302.8 | — |
| Philadelphia | 228.3 | 262.8 | 262.8 | 265.4 | 265.2 | 271.2 | 275.2 | 275.5 | 276.4 | 279.5 | 280.8 | 281.7 | 282.6 | 285.3 | — |
| Pittsburgh | 204.0 | 241.1 | 243.5 | 250.9 | 251.8 | 258.2 | 263.8 | 264.0 | 264.9 | 265.9 | 267.0 | 268.9 | 270.1 | 270.7 | — |
| St. Louis | 213.1 | 246.9 | 251.9 | 256.9 | 255.4 | 263.4 | 272.1 | 272.9 | 276.1 | 279.9 | 280.9 | 282.2 | 283.2 | 287.0 | — |
| San Francisco | 266.4 | 321.1 | 327.5 | 337.4 | 343.3 | 352.4 | 365.4 | 366.6 | 366.9 | 367.7 | 368.6 | 376.2 | 377.7 | 384.7 | — |
| Seattle | 191.8 | 232.7 | 237.4 | 247.0 | 252.5 | 260.6 | 266.6 | 265.1 | 266.3 | 267.8 | 268.9 | 271.1 | 272.1 | 273.9 | — |

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.

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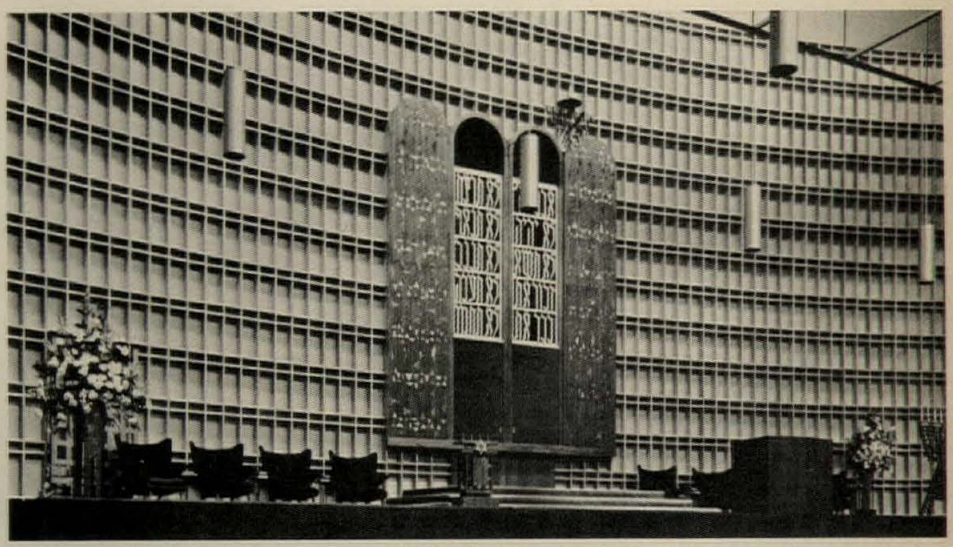
## The synagogue in the U.S.

CONTEMPORARY SYNAGOGUE ART, *Developments in the United States 1945-65. By Avram Kampf. Union of American Hebrew Congregations, 838 Fifth Ave., New York, N.Y. 276 pp., illus. $10.00.*

By Melvin H. Smith, A.I.A.*



Bimah, Temple Oheb Shalom, Baltimore. Walter Gropius, Architect.

As its title and sub-title clearly indicate, this book is about synagogue art—the elements used to ornament and furnish the interiors and exteriors of Jewish temples. Not much is said about architecture of the synagogue, and as such the book lacks interest as architectural history or criticism. But the author does concern himself briefly with the architect's role as co-ordinator and interpreter for the congregation, and he also discusses briefly the relationship of the arts to architecture, especially in the light of the architect's role as arbiter of taste.

He raises, again all too briefly, the interesting question of whether it is possible for an architect or an artist of a different religion or no religion at all to create a significant religious building that would not only fulfill functional requirements, but would also somehow be a deeply emotional religious experience. Mr. Kampf seems to believe that it is very difficult if not impossible to do; but in fairness he recognizes the difficulties inherent in the modern condition—not to mention the modern building committee. But he keeps harking back to the integrated congregation from whom the art work and architecture sprung in a cohesive fashion. It does, though, seem pointless to even discuss the 18th-century primitive Polish wooden synagogue except as history or art, not as method.

It might have been more to the point if Mr. Kampf had brought into his discussion other religions' buildings, for many fine pieces of religious architecture have been done by disbelievers or agnostics—Ronchamp and the Chapel of the Rosary at Vence, to mention two excellent examples.

The first chapters of the book are comprised of some serious and interesting essays on the origin and tradition of the synagogue, the problems posed by the second commandment ("Thou shalt not make unto thee a graven image nor any manner of likeness of anything that is in the heaven above, or that is in the earth beneath . . ."), and the special role of the Jew and his community in the American environment. These serve as an introduction to the subsequent chapters, which are essentially no more than a catalog of synagogue art. This is disappointing in the way that all picture and catalog books are disappointing. One craves stronger stuff.

However, the book is invaluable to anyone concerned with synagogues in America, their planning, their design and their use. They would do well to refer to the book, not only to see what has already been achieved, and by whom, but as a primer on what is functionally necessary in a synagogue.

* A New York City architect and an architectural design critic at the Pratt Institute School of Architecture

## Urban residential living

MULTISTORY HOUSING. *By Karl Wilhelm Schmitt. Frederick A. Praeger, Publishers, 111 Fourth Ave., New York, N.Y. 10003. 216 pp., illus. $18.50.*

This record of what has been done in high-density building around the world is a thoughtful analysis of factors that might be considered in the course of its improvement.

The author's collection of urban residential building extends as far back as 1930. He considers both structural and environmental factors: the history of various construction techniques—load-bearing longitudinal and crosswall systems, stanchion systems, suspended structures and prefabrication—and environmental necessities. His examples are arranged categorically: rectangular ground plans; staggered and terraced building volumes; the break away from parallel systems; urban units; and new towns.

The major international problems of slums, decentralization and the new "ribbon" cities are analyzed. Of slums the familiar is noted: "Perhaps the worst manifestation of monotony is the meth-

*continued on page 72*

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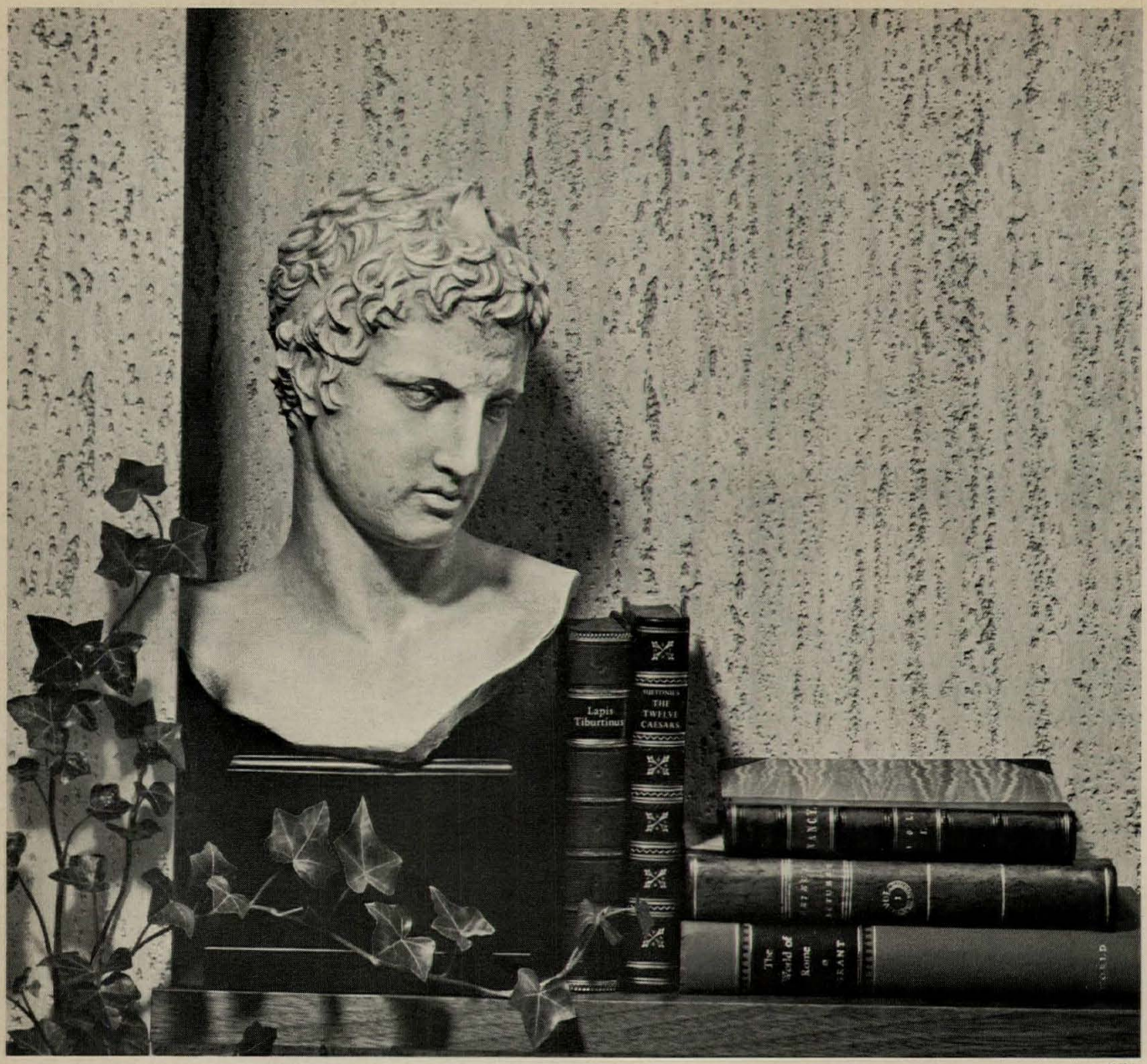


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The Brotherhood Mutual Life Insurance Company Building, Fort Wayne, Indiana. Architect: Orus Eash, Fort Wayne, Indiana.

Civic Auditorium, Jacksonville, Florida.
Architect: Kemp, Bunch & Jackson, Jacksonville.

The Chancery Building of the Archdiocese of St. Louis.
Architect: Charles Guariglia (Bank Building & Equipment Corporation), St. Louis.

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*continued from page 67*

od of slum clearance practiced in American cities. The principle of re-housing by income groups is reminiscent of the spontaneous class segregation in the Kaiser's Berlin and creates, in spite of hygienic improvements, an atmosphere of discrimination which poisons the thoughts of the population until they revolt. The buildings erected on the completely cleared sites are more akin to prisons than to homes and recall the attempts of those militarists who want to 'improve' civilians by subjecting them to barrack drill." He lays the blame to American landlords who permit overcrowding for the sake of high compensation in the event of slum clearance. The British conditions for urban renewal are better by contrast, he argues. Following the Germanic tradition that the value of the ground and the value of the house are different things, when the lease expires the buildings erected on the site accrue to the landlord without compensation. However, slums are created in the latter fraction of the leasehold period (leases are for 99 years) because the buildings won't provide compensation when the lease does expire.

The sections on urban units and new towns are probably the most valuable in the book. The unrealized project for Hook New Town (Britain), 1960/61 is the author's example of an urban development which shows most clearly the possible trend of development. (Hook, intended to be the last of the "New Towns," was planned between London and Southampton with good connection with traffic arteries leading westwards from London. Deliberately rejecting the radial system on the basis that it is no longer suitable for modern urban conditions, the plan provided for a linear city along a public open space in the west, and an oblong commercial center followed by residential zones with different densities.) Other town plans analyzed in this book are Bron-Parilly, Lyon, France; Park Hill, Sheffield, England; Le Mirail, Toulouse, France; "Villa Bernabò Brea," Genoa, Italy; LSM Slowacki, Lublin, Poland; and Siemensstadt, Berlin, Germany. Housing is discussed with its town planning implications and the author says, "To find a form of organization for the town space as a whole which will provide centers of gravity, yet avoid excessive centralization—this will be the task for the decades to come."

The current focus on problems of the city makes the opportunities available to architects almost limitless—and makes this book timely.

*continued on page 76*

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When a client asks you to roll out the red rpet, think about Acrilan® acrylic fiber. Acrilan acrylic fiber gives the luxury u re looking for. The rich color. The ele- nt textures. In fact, it gives you every- ng you ever got from wool, and more sides.

The built-in resilience of the fiber means it a plushy pile stays plushy. The anhy- drous quality of the fiber means that stains are easier to get out. In other words, the elegance of the carpet lasts. And isn't that what you're after? Only the finest carpet mills offer carpets made with Acrilan.

If you have special requirements in colors, patterns, textures, contact them. Or us. Contract Carpet Merchandising, Chemstrand, 350 Fifth Ave., N.Y. 10001.

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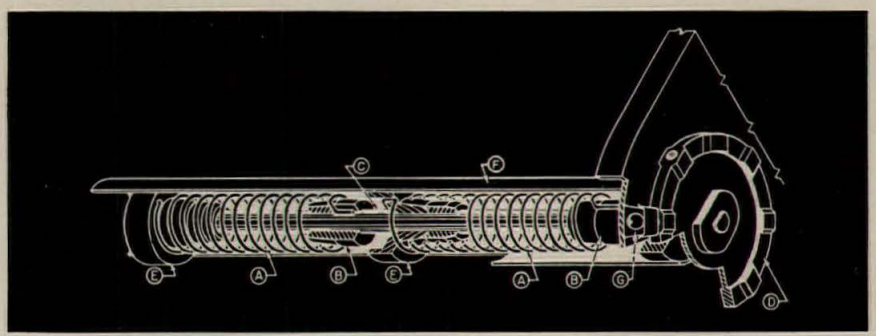
*What's Under The Hood Is Important.* Like an automobile, the power plant of a rolling door is under the hood—out-of-sight. And, likewise, its proven design and performance is equally essential to efficient, uninterrupted door service. It's for this reason that the ingenious design of Kinnear counterbalance mechanism—coupled with a policy of "quality-regardless-of-cost"—is one explanation for Kinnear Rolling Doors having enjoyed such a universal preference for the past 70 years.

## Engineered with reserve spring capacity and provision for easy, accessible adjustment,

# Kinnear Counterbalance

## insures more years of efficient rolling door operation.




The design of the Kinnear counterbalance mechanism—just one of Kinnear's many quality features—employs a unique method of spring adjustment, coupled with a reserve-power spring assembly. One that's readily accessible and simple to make—and one that can be readily repaired on the job anytime in case of accidental damage.

As diagramed above, one end of each spring (A) is fitted with a cast plug device (B) and attached directly to a single tension rod (C). The end of this tension rod has an adjusting wheel (D) accessibly located on the exterior of the door bracket. The other end of each spring is fitted with a cast plug device (E) that is anchored to the spring barrel (F). Thus, one end of each spring is attached to the same barrel and the other to the same tension rod.

With the curtain coiled, the required initial tension can be applied by turning the adjusting wheel properly and securing it to the bracket (G). When the adjusting wheel is turned, it turns one end of each spring in the same direction, thus applying the same torque simultaneously and uniformly to all springs.

With this arrangement—plus Kinnear's extra reserve spring capacity—the counterbalance can be increased or decreased, easily without disassembly, whenever the need requires. This insures more years of better door operation—greater all-around efficiency—when you specify and install a Kinnear Rolling Door. And it's only one of several of Kinnear quality originals. Let us tell you about them and at the same time discuss your current door needs.

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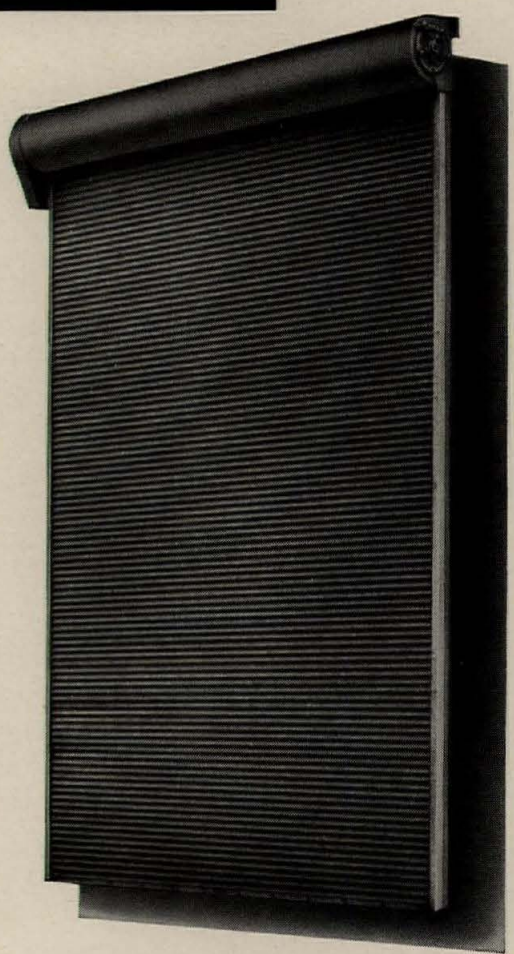

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Five-story Chesapeake Building provides nearly 90,000 sq ft of office space for the fast-growing community of Towson, Md. Bronze-colored steel wall panels and exposed mullions blend beautifully with heat-resistant glass windows.

# "Complete flexibility in arranging office spaces . . . steel framing proved most economical"

**C. W. Jackson, President, C. W. Jackson & Associates, Inc., Owner-builder, The Chesapeake Building, Towson, Md.**

"The Chesapeake Building is not only the largest office building in Towson, but surely the most flexible. The key to its flexibility is the use of steel in its construction.

"By framing the building with high-strength structural steel, our engineers were able to create the long, clear spans needed for flexibility . . . yet the floor framing members were kept shallow. This, in turn, held down the overall height of the building and resulted in significant savings.

"By using cellular steel decking for the floor system, we're able to locate electrical and telephone outlets to fit the ever-changing needs of our tenants. We just penetrate the floor covering and run wiring through the decking to a floor receptacle.

"Lightweight steel interior partitions also add to the building's flexibility. They're easy to move, and they're attractive and soundproof."

*Architect:* Smeallie, Orrick and Janka. *Structural Engineer:* Lamprecht Consultants. *Steelwork:* Dietrich Bros., Inc. All are Baltimore firms.

**BETHLEHEM STEEL**

*Bethlehem Steel Corporation, Bethlehem, Pa.*

BETHLEHEM STEEL

*For more data, circle 49 on inquiry card*

continued from page 72

## Mental health centers

PLANNING, PROGRAMING AND DESIGN FOR THE COMMUNITY MENTAL HEALTH CENTER. *Sponsored by the National Institute of Mental Health, U. S. Public Health Service, The Community Mental Health Facilities Branch, Bethesda, Md. Mental Health Materials Center, Inc., 104 E. 25th St., New York, N. Y. 106 pp., illus. $8.00.*

Architects working with mental health professionals can make unique contributions to the evolution of successful community mental health centers. This publication underlines the reasons why architects planning new community mental health centers must be among the initial planners of the programs and the facilities, and quite cogently indicates how the architect helps with the successful development of the center.

A basic programing method is described and, in case study analysis, an account of the experiences of the San Francisco Community Mental Health Center Planning Project is given. The community mental health center is a new kind of structure for a new kind of service. Insight to the answers of the questions an architect might normally ask in the design of such a structure is given.

Much remains to be accomplished in the design and planning of mental health programs and facilities. Working alliances must be formed to cope with the needs of mental health centers within the community—rather than in remote hospital settings. In this case-study example the design was restricted to new construction related to an existing general hospital. The design schemes did not become fully developed proposals. But the two programs—treatment and architectural—were developed simultaneously. Over-all architectural design objectives evolved as the patient treatment program progressed. Architects interviewed mental health personnel asking three types of questions: (1) what facilities and physical characteristics were effective or ineffective; (2) what physical features do the staff adapt unconsciously and which affect the treatment program, seriously or superficially; and (3) what operational modes and hypothetical new facilities would accommodate the mental health staff?

This publication clearly illustrates and discusses the various schematic approaches to the problems. Two further publications of the same institute will be devoted to the actual architecture of the community mental health center.

continued on page 98

# No ancient flaw will mar the beauty of this "stone" wall.

# It's Johns-Manville Colorvein®.

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Colorvein has the same distinctive appearance as natural stone . . . the same massive look and lustrous, smooth-polished surface.

But Johns-Manville adds one quality that's missing in quarried stone—controlled *uniformity*. In the Colorvein manufacturing process, finely dispersed asbestos fibers, chemically resistant pigments and cement are combined by water, pressure and heat into an architectural material of monolithic strength and beauty. Its swirling chiaroscuro patterns have a unique character. The patterns are available in dark swirls within a light background or light swirls within a dark background. The color combinations are black and white, green and black, brown and white.

Strength and density are consistent, too. There are no weak striations or cleavage planes. And Colorvein is easier to work with than stone. It cuts and machines easily—it can be erected by masonry methods or (an advantage over most stone materials) it can be erected by carpentry methods because of its strong screw-holding ability.

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# The best ideas are more exciting in CONCRETE

MONARCH MARKING SYSTEM COMPANY BUILDING, DAYTON, OHIO. ARCHITECT: YOUNT, SULLIVAN & LECKLIDER, DAYTON. STRUCTURAL ENGINEER: RICHARD SHELL, DAYTON. CONTRACTOR: MAXON CONSTRUCTION CO., INC., DAYTON

## 88 roofs in 1... inverted umbrellas of concrete bring beauty and efficiency at a saving

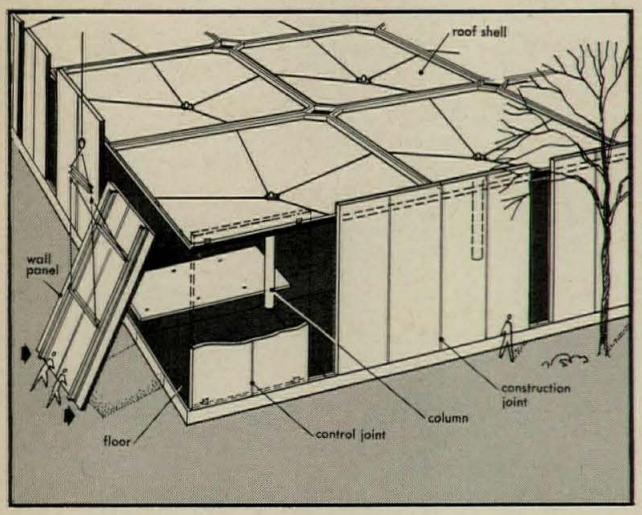
**The new office-plant structure of the Monarch Marking System Company near Dayton, Ohio, demonstrates the excitement concrete can bring to industrial buildings. To cover the plant area, architects created a single 3½-acre roof by joining 88 inverted concrete umbrellas 42 feet square, each one self-supporting.**

**□ The design produced a highly pleasing and efficient interior, as well as a substantial cost saving over other roof systems. It also saved some 5 feet of headroom by permitting air-conditioning units, fans, ducts, and other equipment to be tucked neatly into the ceiling arches. □ Wall requirements were simplified through use of large tilt-up concrete panels, 19 x 26 feet. For efficient plant expansion, vital to a growing company, panels can readily be detached and repositioned on newly constructed roof units. In buildings of every type, concrete is today's bright idea material.**

**Portland Cement Association**

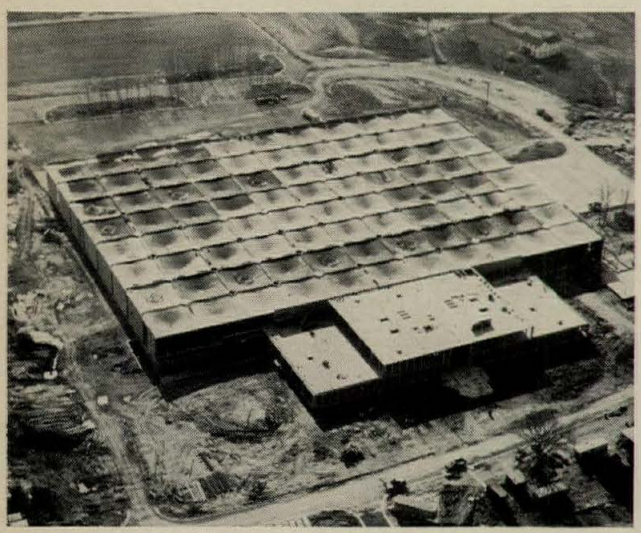
*For interesting design and construction highlights, see the 3 following pages*

## 4 basic concrete components give design simplicity to MMS Company plant



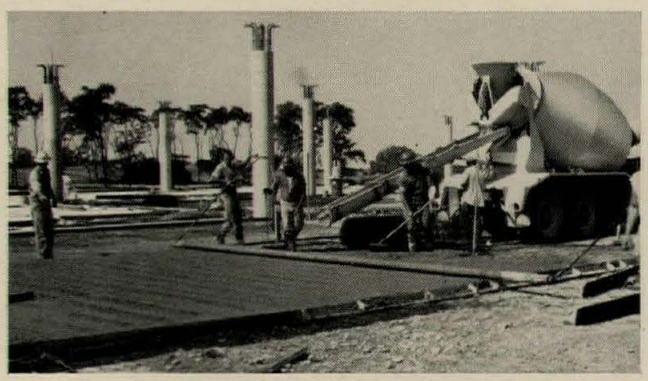

The Monarch Marking System Company, manufacturer of equipment and supplies for labeling and pricing merchandise, chose concrete for their new $3.5 million structure with good reason: the most building for the least money. The economy in the 155,000-sq.-ft. plant unit was achieved through a simplicity of design that permitted repetition of 4 basic concrete components: floor slabs, columns, roof shells and tilt-up wall panels. All were cast on the site using ready mixed concrete.

## Hyperbolic paraboloid shell roof offers special advantages



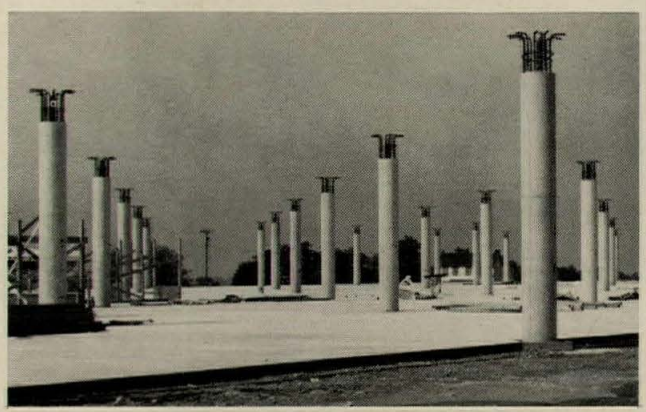
338 by 464 ft. of fully air-conditioned plant space, 65% of the facility's 243,000-sq.-ft. total, is roofed with 88 inverted concrete shells of hyperbolic paraboloid design. Each is 42 ft. sq., 3 in. thick, yet a single column supports it. This roof design offers valuable advantages not only in economy and appearance, but in spacious column-free bays, expanded headroom free of dust-gathering surfaces, improved drainage, along with superior fire resistance.

## Floor provided smooth surface for rolling forms and casting wall panels



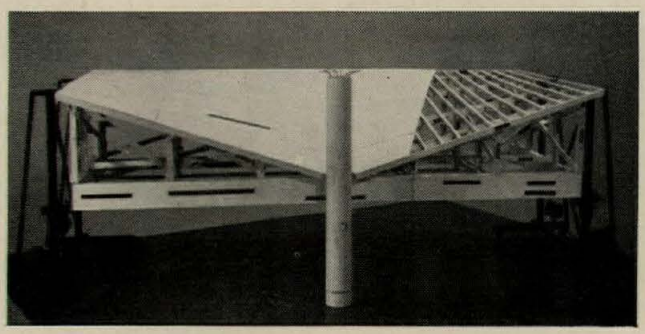
The 6-in. concrete slab-on-ground floor, cast by the checkerboard method, was constructed early in the building schedule. By providing the contractor with a smooth, hard work surface, this speeded moving and shoring of forms and casting of the roof shells. Doing double duty, the floor also served as a casting bed for fabricating of the tilt-up wall panels.

## 88 shell support columns carry utilities and drainage



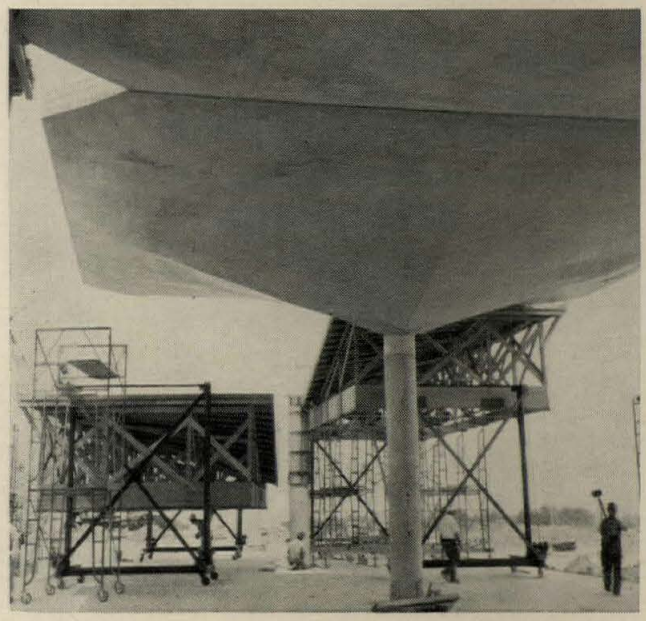
Reinforced concrete columns, 24 in. in diameter, were cast in steel forms using 4,000 psi air-entrained concrete. Designed into each column are electrical conduit and a 4-in.-diameter pipe to handle drainage for the 1,764 sq. ft. shell unit it supports.

## Assembly line casting achieved with 6 sets of movable forms



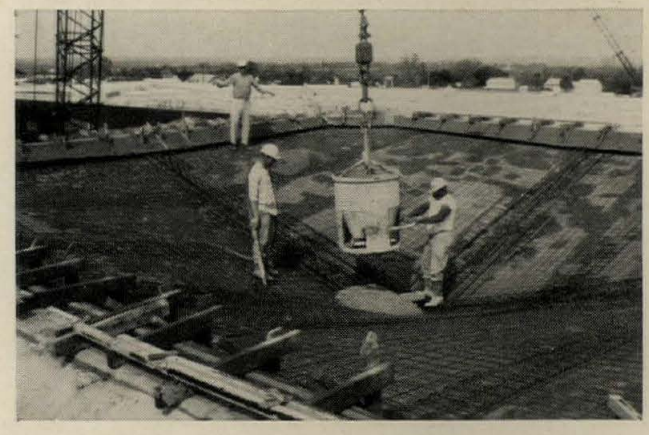
Special roof shell forms, designed and built by the contractor, gave efficient moving and maximum repeat use. 6 sets of forms, each in half-shell sections, were used to cast the entire 88-unit roof. Hyperbolic paraboloid formwork appears difficult to build, yet it is quite simple since the surface is defined by two intersecting systems of straight lines.

## Forms stripped and reset in 1 hour—or less



As soon as a completed concrete shell was cured to satisfactory strength, forms were lowered on mobile jacks, rolled to another bay, and raised into position so reinforcing steel could be placed for the next shell. Only 1 hour—often less—was needed to remove both halves of a form from a completed shell and snug them into place around the column at the next bay.

## Concrete placed at the rate of 2 shells per day



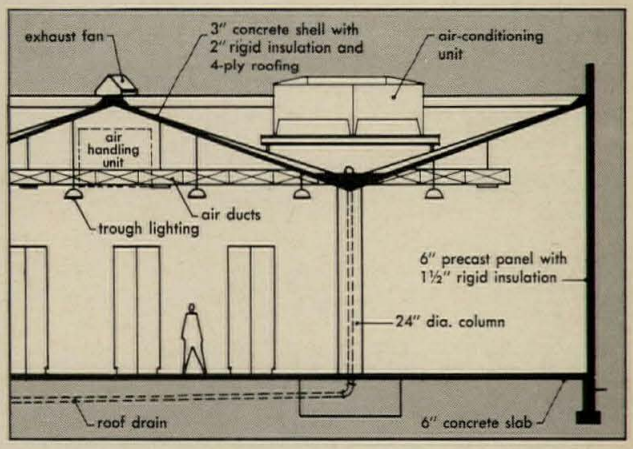
Through use of 4,000 psi high-early-strength concrete, shells were concreted at a 2-per-day rate. Before form removal, specifications required a strength of 3,200 psi, which occurred in 36 to 40 hours with the following mix proportions: Type III cement, 564 lb.; water, 267 lb.; sand, 1,300 lb.; ¾-in. aggregate, 1,890 lb.; entrained air, 6 percent.

## Shell construction schedule

| month | shells cast per day: sun. | mon. | tues. | wed. | thur. | fri. | sat. | shells cast per week | total |
|---|---|---|---|---|---|---|---|---|---|
| august | | | | | | Y* | | 1 | 1 |
| | | | | YY | | | | 2 | 3 |
| | | YY | Y | | YY | YY | | 7 | 10 |
| | | YY | YY | YY | Y | YY | | 9 | 19 |
| | | YY | | YY | YY | YY | | 8 | 27 |
| september | | | YY | YY | YY | YY | | 8 | 35 |
| | | YY | YY | YY | YY | YY | | 10 | 45 |
| | | YY | YY | YY | YY | YY | | 10 | 55 |
| | | YY | YY | YY | Y | YYY | | 10 | 65 |
| october | | YY | YY | YY | YY | YY | | 10 | 75 |
| | | YY | YY | YY | YY | Y | | 9 | 84 |
| | | YY | Y | Y | | | | 4 | 88 |

* first shell cast august 6th.

## Nestling mechanical/electrical equipment in shells means more room inside, more beauty outside

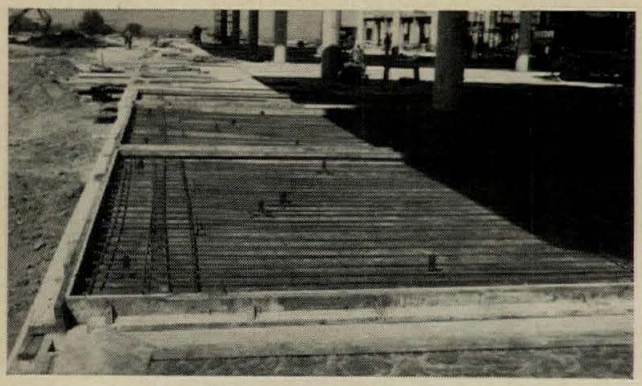



Design characteristics of the inverted umbrellas were fully exploited by fitting mechanical and electrical equipment into the cavities formed both on top and under the roof. This improved plant appearance on the outside. Inside, it saved 5 feet of headroom which would have been needed to house devices such as ductwork, fans, and air-conditioning units.

## Broad, open bays provide highly flexible space utilization

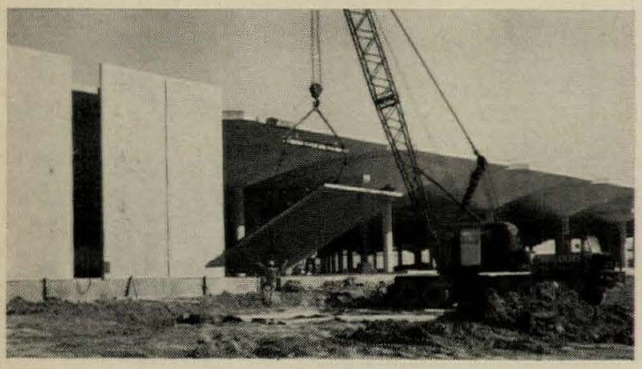
42-ft.-sq. column-free bays, required by Monarch for their many and varied production activities, provide a high degree of interior flexibility. Equipment and people can be freely shifted to accommodate new improved work flow patterns as they are developed. With the umbrella HP roof, 60-ft.-square bays are not uncommon.

## Wall panels fabricated on plant floor



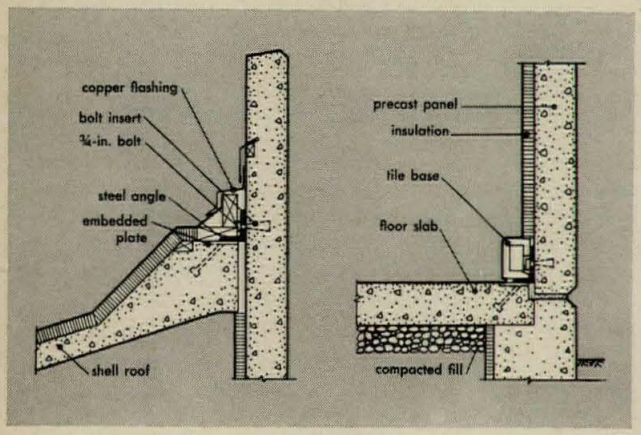
6-in. wall panels, each 26 ft. tall and 19 ft. wide, were conveniently cast right on the plant floor adjacent to their final positions in the wall. When tilted into place, the under side of the panel became the inside face of the wall. The top side, simply screeded and troweled, became the exterior face. 3,000 psi ready mixed concrete of the following mix proportions was used: Type I cement, 470 lb.; water, 240 lb.; sand, 1,465 lb.; ¾-in. aggregate, 1,921 lb.; entrained air, 5 percent.

## Wall panels positioned at 4-a-day rate



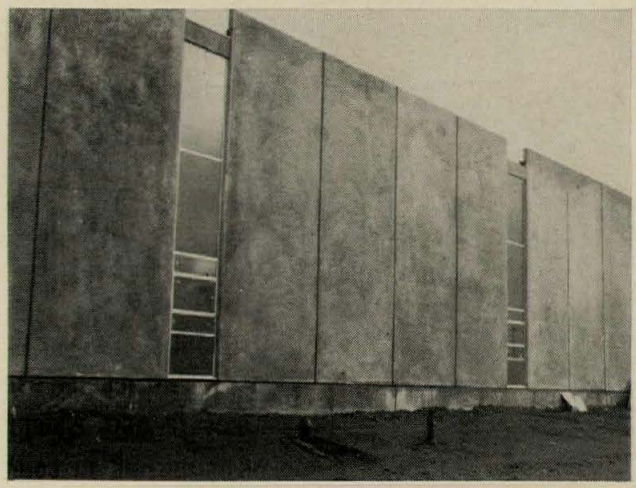
18-ton wall panels were tilted and positioned in as little as 2 hours each with a special telescoping steel strongback devised by the contractor. This was mounted to the panel's upper face and hooked to a crane. The strongback carried two removable jacks with wheels that reached beyond the inner (base) end of the panel, allowing it to roll outward as it was lifted. Once the panel cleared the roof, the wheels were dropped and the panel was turned 180 degrees and fitted to the wall.

## Attachment of panels simplified




Panels were fastened to roof edge beams and the floor by bolting to steel angles which were welded to embedded metal plates. Inserts to receive ¾-in. bolts were incorporated into panels before casting. This made connections simple and expedient. And panels can easily be detached and relocated whenever plant expansion is called for.

## Choice of concrete tilt-up walls based on numerous benefits provided



Tilt-up walls offered not only construction economy, but an efficient way to provide for future plant expansion. In addition, they permitted design harmony with the roof. Panel interiors have 1½-in. rigid insulation faced with cement-asbestos paneling. Exteriors are smooth-finished and painted white. Concrete's inherent resistance to fire, weather and abuse assures essential safety and low upkeep cost.

## FREE—instructive booklets on design of HP shells and use of concrete for industrial buildings

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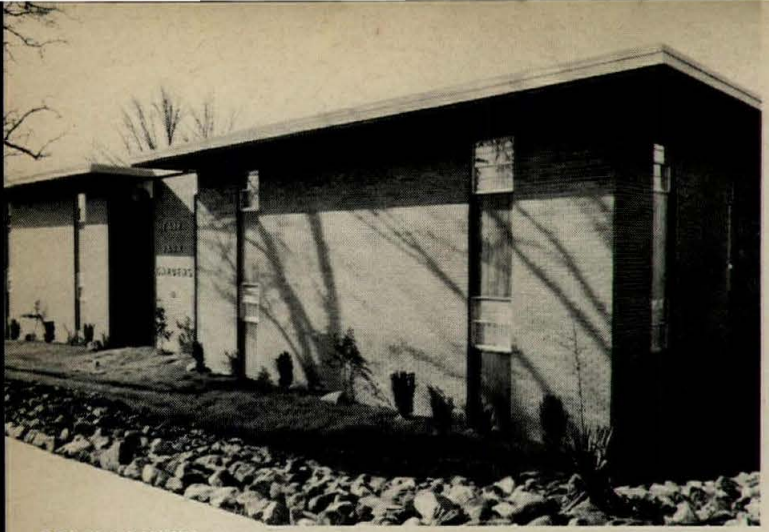
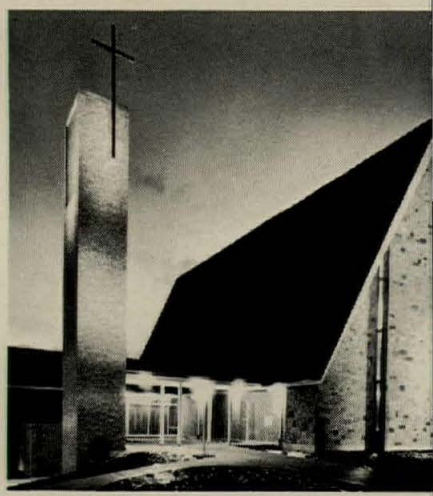


**$24,500 SAVING:** 35,400 sq. ft. Fair Park Gardens Apartments, Little Rock, Ark. *Architect:* Cowling and Roark, A.I.A., Little Rock, Ark. *Electrical Engineer:* George Ellefson. *Contractor:* Glenn Henry, Little Rock, Ark.

**$20,000 SAVING:** 19,000 sq. ft. Den-Mar Nursing Home, Rockport, Mass. *Architect:* Di Meo Associates, Stoneham, Mass. *Engineer:* Joseph Sestito & Associates, Malden, Mass. *Contractor:* Feldman Construction Co., Rockport, Mass

**$10,000 SAVING:** 5,200 sq. ft. Home Federal Savings and Loan Association of Cincinnati Building, Wilmington, Ohio. *Architect/Engineer:* Richard R. Grant, A.I.A., P.E., Wilmington, Ohio. *Contractor:* A. P. Eveland and Sons, Wilmington, Ohio.

**$13,700 SAVING:** 120,000 sq. ft. Wachovia Bank and Trust Co. Building, Raleigh, N.C. *Architect/Engineer:* A.G. Odell & Associates, Charlotte, N.C. *Contractor:* T. A. Loving Co., Goldsboro, N. C.



**$10,000 SAVING:** 18,500 sq. ft. Gloria D Lutheran Church, Forestville, Conn. *Architect:* Jeter & Cook, Hartford, Conn. *Engineer:* James S. Minges & Associates. *Contractor:* Wadhams and May Co.

**$63,000 SAVING:** 675-student, 60,000 sq. ft. Hampshire High School, Romney, W.Va. *Architect:* Robert J. Bennett, Morgantown, W. Va. *Engineer:* Ballard & Mayfield, Canton, Ohio. *Contractor:* Baker & Coombs, Inc., Morgantown, W. Va.


**$13,000 SAVING:** 32,000 sq. ft. stamping plant of McIntosh, I Berne, Ind. *Architect:* C. E. Notzel, Detroit, Mich. *Heating Engineer:* Berne Electric Co., Berne, Ind. *Contractor:* David P Construction Company, Warsaw, Ind.

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"Our initial design for One Center Plaza called for a framing material other than steel. However, we discovered that steel framing allowed us to offer prospective tenants office space uniquely suited to their particular needs. Modifications, such as additional stairways, increased floor load capabilities, and other space adaptations, could be incorporated *after* the main framework was completed.

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"The use of steel framing in the construction of One Center Plaza has been most advantageous for Beacon and its tenants, both in terms of construction features and cost savings."

**BETHLEHEM STEEL**

*Bethlehem Steel Corporation, Bethlehem, Pa.*

BETHLEHEM STEEL

This is how One Center Plaza, located in Boston's new Government Center, will look when completed. Its 8 floors provide 600,000 sq ft of floor space.

Steel

*Architect:* Welton Becket and Associates. *Consulting Engineer:* Wayman C. Wing. *Steel Fabricator:* West End Iron Works. Bethlehem is supplying about 5,000 tons of structural steel for this building.

*For more data, circle 67 on inquiry card*

**The place:**

The luxurious
Marina Manor,
Lake Minnetonka, Minnesota

**The men:**

(l to r) Dick Anderson, Owner, Anderson's House of Furniture; James Nelson, Manager, Marina Manor

**The carpets:**

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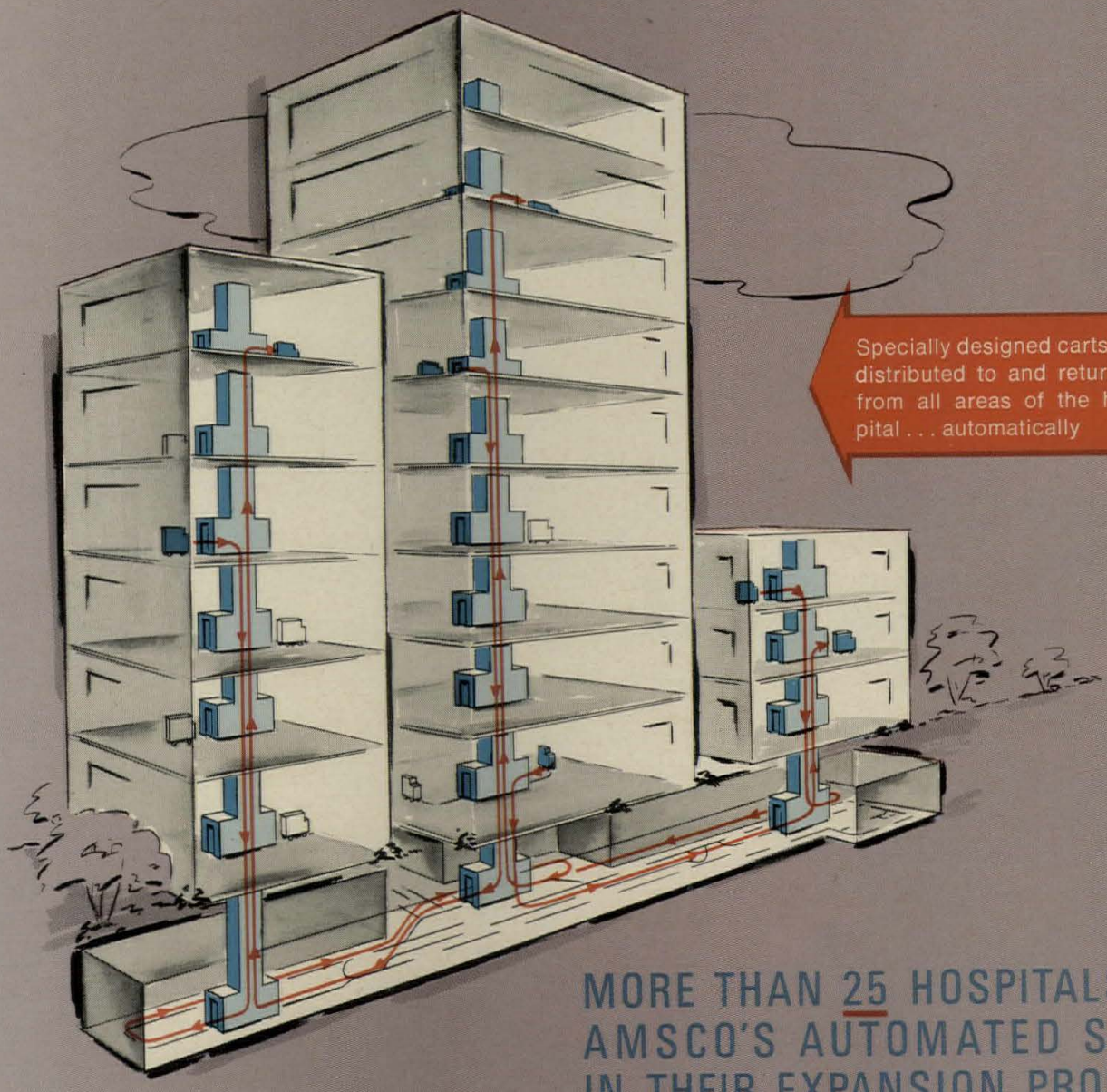


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*BEST TO STAY WITH!*

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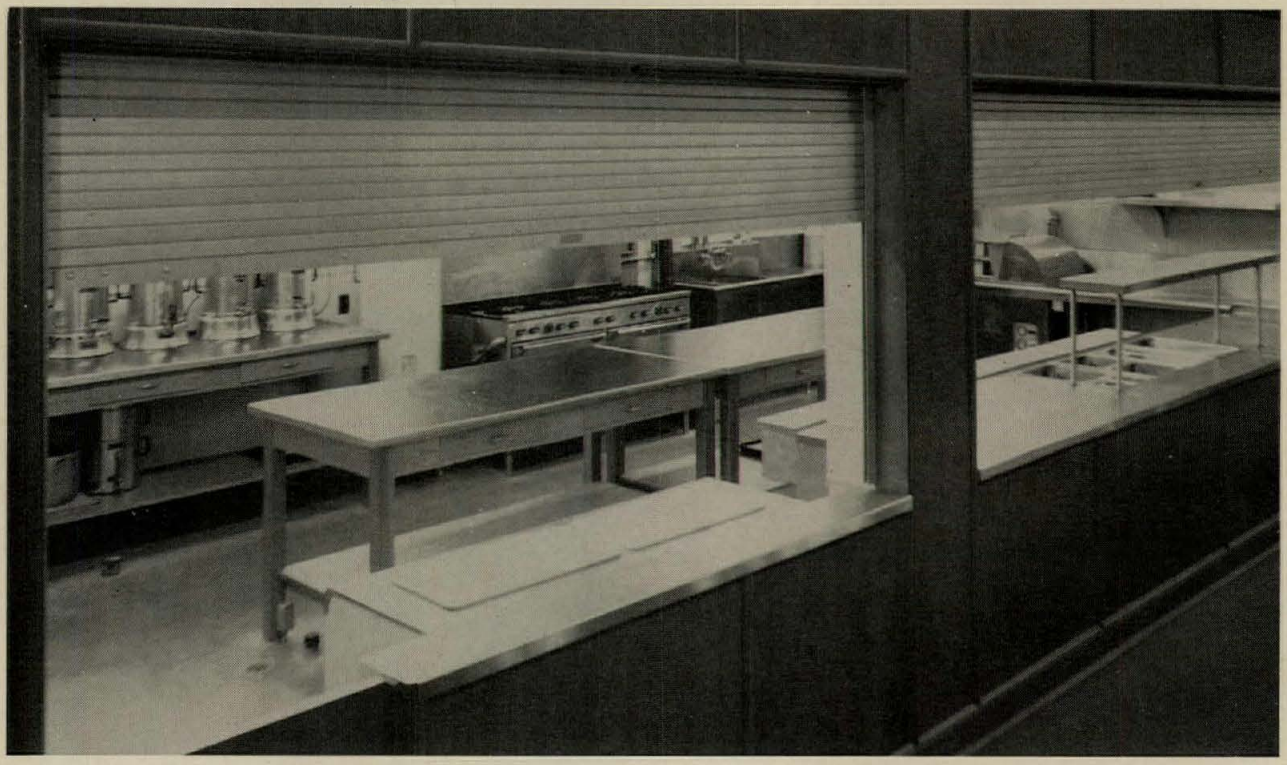

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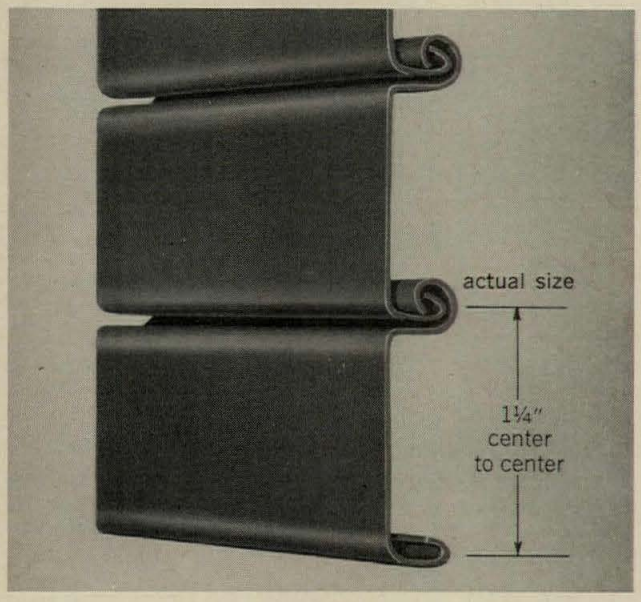


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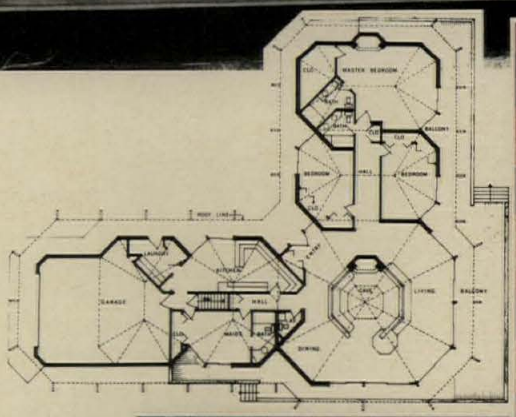
# rickson and Stevens enhance modern day "cave" in a sophisticated ountry home with ceramic tile.



he focus of this home located in a wooded of Winnetka, Illinois is the "cave"—a n within a room. It was designed to meet owner's requirement of an intimate yet isolated conversation area. The cave as as the surrounding entry, dining and g areas have ceramic tile floors.

he philosophy behind the design of this e is the use of a prismatic plan offering imum opportunity to capitalize on spec- lar views in all directions. At the same , privacy is accommodated by the adap- n of individual, adjoining living "cells," with its own roof.

hroughout the home, architects Erickson Stevens have made extensive use of mic tile for decorative as well as func- al values. Bathroom vanity tops, tub en- ures and walls are finished in random d ceramic mosaic tile with quarry tile s. In the kitchen, counter tops and back- shes are tiled for color harmony and bility.

you're looking for a material with limit- possibilities in combined decorative and functional use, look for ceramic tile made in U.S.A. and Quality Certified by the Tile Council of America. The triangular seal at ight is your assurance of glazed wall tile, ceramic mosaic tile and quarry tile that is ed to meet the most rigid government specifications. For more information about tified Quality tile, a material that can be used with confidence indoors and out, e: Tile Council of America, Inc., 800 Second Avenue, New York, N.Y. 10017.

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# LETTERS

**75th Anniversary Issue: vital . . .**

The July issue of ARCHITECTURAL RECORD is a vital publication in the existing era, since it covers every phase of the term "architecture" from school to practice. Perceptive elucidation on all problems in area planning, building design, contracting and engineering services, and exploration of new building products are in proper sequence.

The quality architectural practice—exemplified by good design and done by the masters in the profession—can only be achieved on a grand scale by practicing in the same vein that our brother professions practice. The time has come for all architects to master the contracts with clients and take the required time to design a building or plan a residential or industrial development. No utopia can be found in the statement "the plans and specifications must be ready in six months,"—only poor designing and contracting work can result.

Time is the road to quality planning and designing that is the only value to be considered when you ask the question, "What can we do after reading the New Age of Architecture?"

*Edward J. Kuntz, A.I.A.*
*Weehawken, New Jersey*

**. . . or not worth the effort?**

In reviewing the weighty July issue, I recall my original impression when it slipped through the mail slot. No matter how busy I think I am at the time, I always stop momentarily to rip off the brown cover and flip through to see briefly what is going on in the outside architectural world. Two items caught my eye, the Weyerhaeuser Company advertisement featuring Q. Jones' delightful school, and the excellent color plate in the Celotex ad. It was also refreshing to see the French Impressionist art somewhere in this issue. [*It was on page 237.*]

After my first glance through I mentally note whether to take the thing home later for more leisurely perusal. However, this issue seemed not worth the effort. Your recent issue on award homes was excellent and has been thoroughly enjoyed.

I'm amused by your impressive charts suggesting that an overwhelming majority of buildings are architect-engineer planned. I also chuckle when I see the typical detailed elaboration on some new wind bracing marvel like the SOM John Hancock Building in Chicago. This type of nonsense may impress the contemporary architect with his smattering of engineering background, but I personally tried for 10 years as a registered civil engineer to develop a logical solution to the art of designing and building buildings from the lowly hamburger hut to the 30- and 34-story high-rise. I finally gave up and joined the ranks of the typically confused architects who are in general trying to mix art with architecture. The University City at Urbino, Italy is what I call "engineered architecture." This structure fits the landscape like a Matisse landscape whereas DMJM let their computers take them off into the space age.

*Kinne Downs*
*Engineered Architecture*
*Redondo Beach, California*

**Thorny issues**

The July issue of ARCHITECTURAL RECORD was very impressive and credit should be given to those who did such a fine job. It is very satisfying to read all the accomplishments we architects have made and the bright future achitecture has for its practitioners. However, I think it would be more constructive to present some of the bad points of our profession and propose remedies to these problems. Some of the thorny issues are the following:

1. Since there are only 30,000 architects in the U. S. compared with a million engineers and 300,000 lawyers, why are architects so poorly paid? Few earn very high salaries and the majority are struggling.

2. How can architects get works that rightly belong to the architectural profession but are now done by less qualified people?

3. How can architects project a better image to the general public: an image that shows the architect is a necessity rather than a luxury, and that he is a technical man who understands both the sciences and the arts, and not a crackpot who opposes anything and is always on the losing side in a public issue?

4. How can we improve architectural education so that the architect is worth something when he comes out of college? Most of the architects have to educate themselves again after they get their degrees, and they do it the hard way. Some really think that the present architectural education is a waste of time. Stiff licensing examinations in most states verify this deficiency to a certain degree.

*Wallace D. Jeong*
*Wallace D. Jeong & Associates*
*Los Angeles*

**Something's gotta give**

May we express our enthusiasm for the July issue of your magazine? "The Changing Role of the Architect" so well expressed our thinking that we passed the issue around to all of our personnel. Every word of this issue was read by everyone in our organization, and much comment was generated, all of it favorable—ranging into the vehemently and exaggeratedly complimentary.

Ours is a very small firm, not equipped to deal with city planning, or with promotional activities. The difficulties of practicing in the old mold have therefore been terrific, and our dissatisfaction with the results of such practice is monumental. Something has to give!!

The foment your articles and analyses will arouse can only result in hastening the day when our profession will be able to practice in such a way as to take our place in today's world.

*Mansell Dexter, A.I.A.*
*Dexter, Stark and Hoff, Architects*
*Pismo Beach, California*

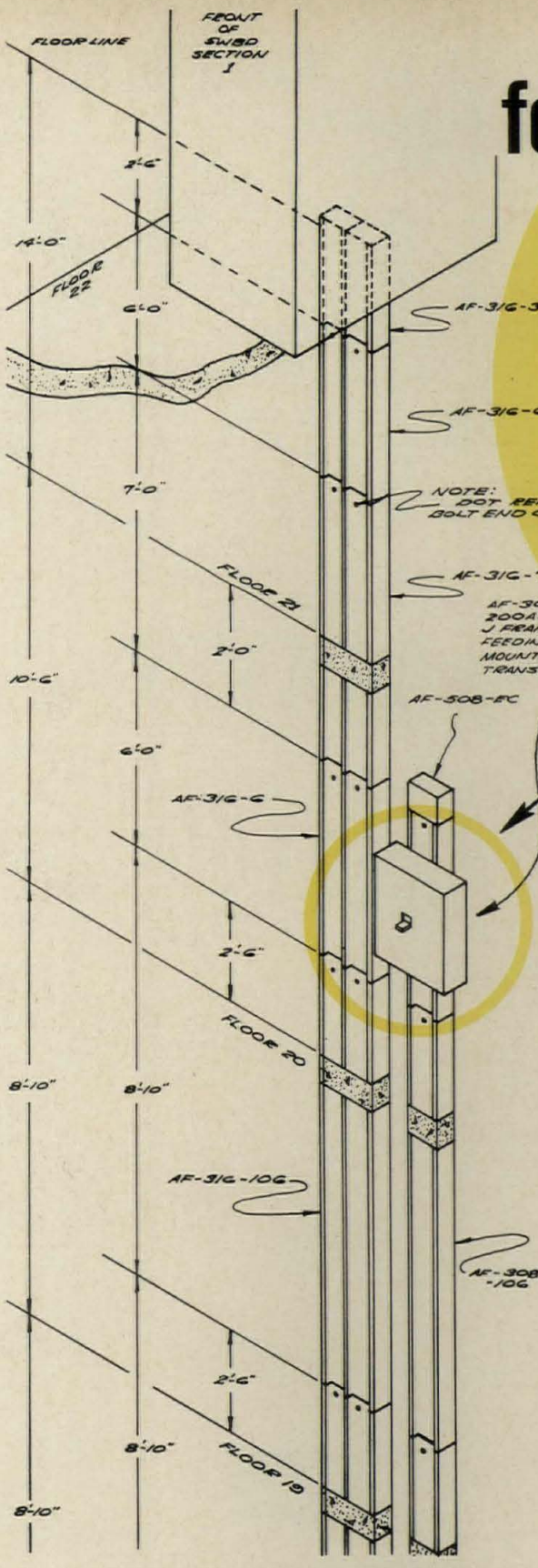
**Continuing education**

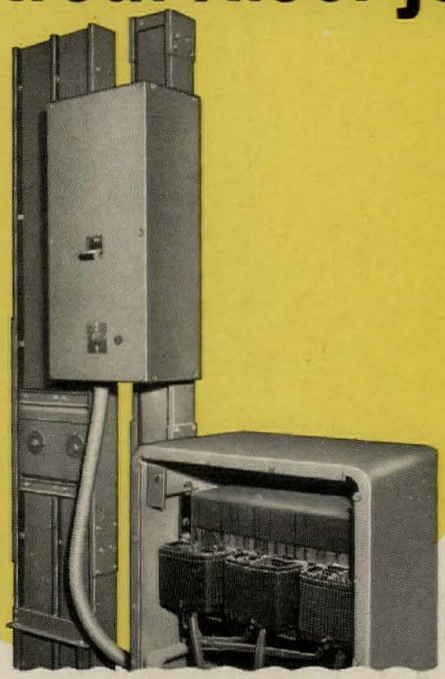
I appreciate Jonathan Barnett's remarks regarding such buildings as "Stornoway" (July). In a few words he has stated what I guess I was really after.

I think Mr. Barnett's final piece regarding schools of architecture needs further investigation. There are schools such as ours at the University of Illinois, Chicago Circle, that are attempting to do things that the profession does not quite understand—nor is inclined to keep up with. Of one thing I am sure: greater cooperation between the schools and the

*continued on page 116*

# for Vertical Riser jobs



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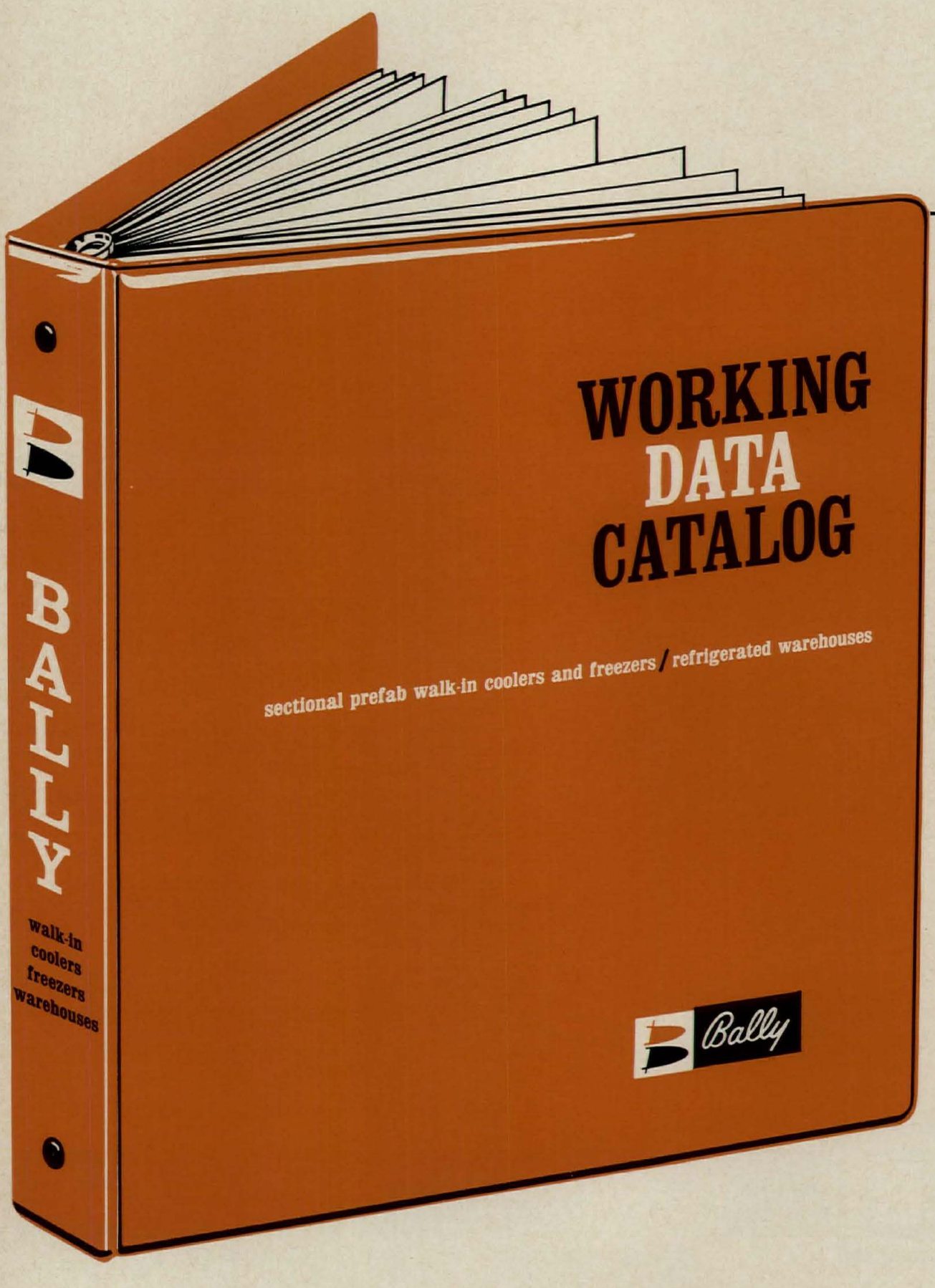
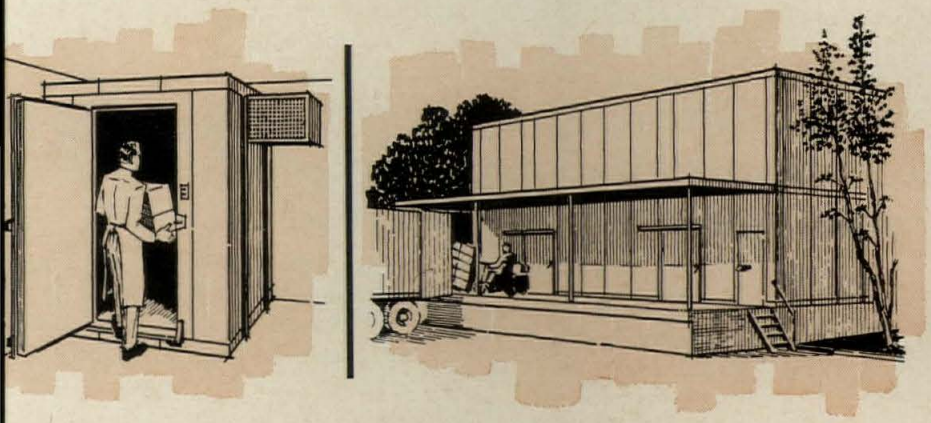


# n a new 100-page catalog!

## INDEX

**The most comprehensive data ever prepared about prefab Walk-In Coolers, Walk-In Freezers and Refrigerated Warehouses. Write for your copy.**



ll sizes, from small Walk-In Coolers and Freezers to Giant Warehouses can be assembled from Bally standard prefab sections.



**Bally Case and Cooler, Inc., Bally, Pennsylvania**
**Address all correspondence to Dept. AR-10.**

*continued from page 112*

profession is necessary. There are now mutual accusations of incompetency. There are no clear definitions of the duties and responsibilities of the architect. There is no definition of architecture, which makes it difficult to practice or teach it. On the other hand, this may well be healthy, for the searching must continue.

I agree totally with Mr. Barnett that continuing education for architects is very important. This is why I went to Denver—on both ASCA and AIA committees—to discuss this subject. Yes we *have* begun to discuss it, and at least in Chicago it has started to take shape. Personally, I feel the current Princeton study to be quite superficial.

*Winston Elting, F.A.I.A. Architect*
*Chicago*

### Architect vs. builder

In commenting on the 75th Anniversary Issue, which I think is great, I note on page 209 that the profession in 1909 had trouble with the "untrained draughtsman, the Builder-Architect and the duplicated plans" and even though these practices are more widespread today, no one discusses it or suggests a legal solution.

Today the so-called "Builder-Architect," who has access to ample funds and property, prostitutes hungry architects and engineers into his employ and then offers the public by full advertisements free planning and estimates if they let him handle their problems. Owners feel they shouldn't be required to pay an achitect a fee for preliminary planning when they can get it free from the speculative builder. We know they pay, but good; but how do we sell this to a prospective client?

I doubt if the large firms that you slant your articles to are in danger of being absorbed by these people, but what about the small offices who have to work hard for their commissions?

As long as the architectural profession remains marginal compared to the legal protections afforded the medical and legal professions, we will have everyone being an expert "designer," which word has gained large acceptance by the public as offering professional services, albeit with responsibility. This is fact without fantasy—look at the wealthy speculative contractors who have large offices of draftsmen and architects on their payrolls. They are actually practicing architecture as corporations.

*H. L. Percy, Jr., A.I.A.*
*Portland, Oregon*

### Useful nostalgia

I was most impressed with your current 75th Anniversary Issue of ARCHITECTURAL RECORD. If anything, it had a nostalgic quality which helped me to relive my last 35 years in architecture, and of course it had much impressive material which made it an interesting magazine for architects and laymen alike.

I was intrigued by the series of cartoons depicting the various "faces" of the architect and feel that, in addition to its humorous content, it may perform a more serious function and show to our clients the travails of the architect.

*Norman M. Dimen, A.I.A.*
*Great Neck, New York*

### Needed now: more analysis

The survey of changes in architecture over the past three-quarters of a century brings into clear relief the steps by which the profession has arrived at current practice and is therefore "must" reading

*continued on page 128*

*It's time someone butchered the sacred cows of air conditioning*

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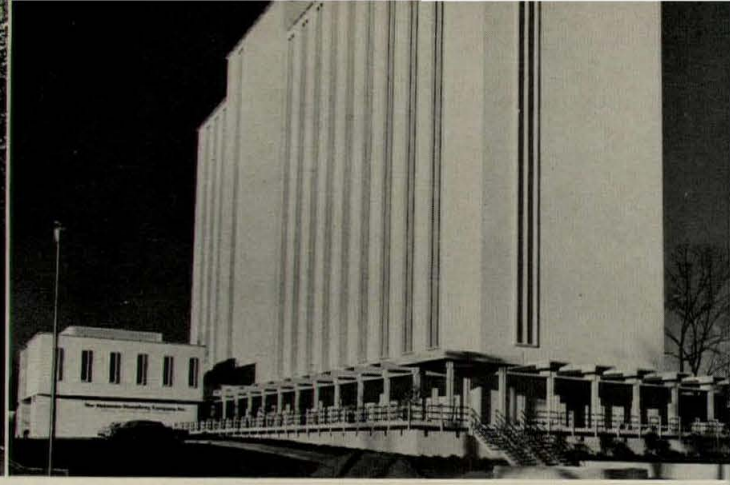

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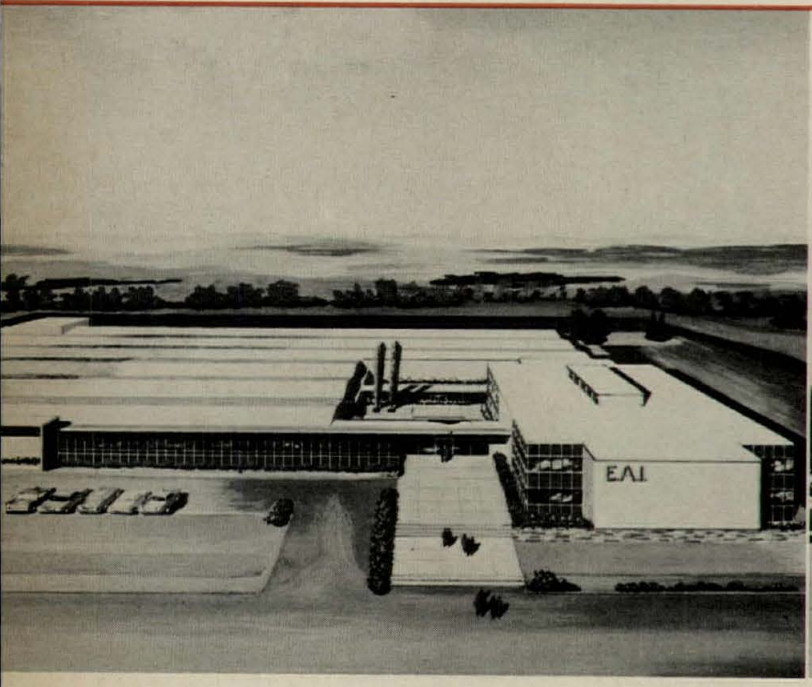

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. . . **Bernard Kellenyi**

Bryn Mawr Executive Mall; Chicago, Illinois
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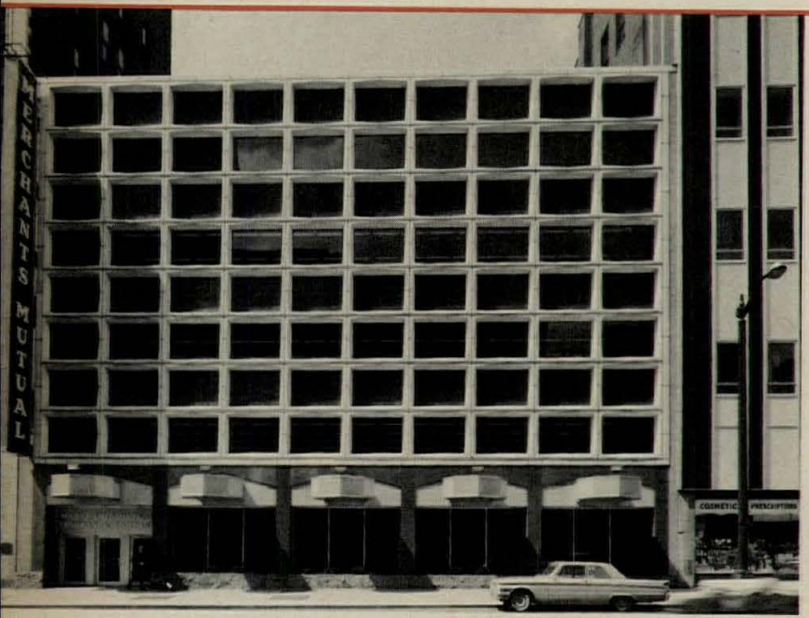


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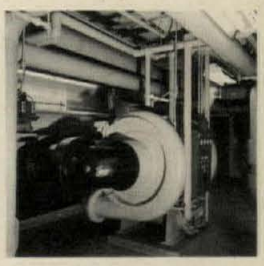

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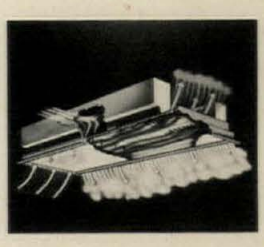

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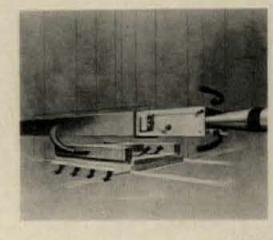

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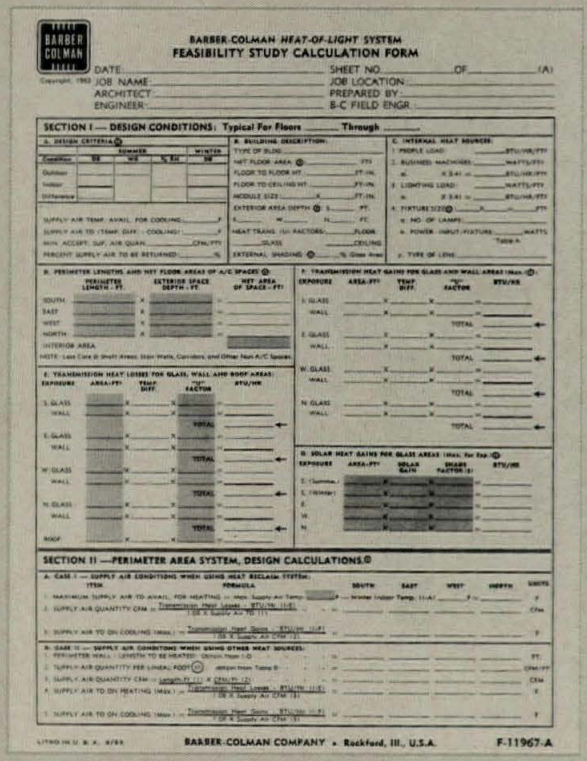

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| Indoor | | | | |
| Difference | | | | |

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SUPPLY AIR TO (TEMP. DIFF. - COOLING): ____ °F
MIN. ACCEPT. SUP. AIR QUAN. ____ CFM/FT²
PERCENT SUPPLY AIR TO BE RETURNED: ____ %

B. BUILDING DESCRIPTION:
TYPE OF BLDG.:
NET FLOOR AREA © ____ FT²
FLOOR TO FLOOR HT. ____ FT-IN.
FLOOR TO CEILING HT. ____ FT-IN.
MODULE SIZE: ____ X ____ FT-IN.
EXTERIOR AREA DEPTH © S. ____ FT.
E. ____ W. ____ N. ____ FT.
HEAT TRANS. (U) FACTORS: ____ FLOOR
____ GLASS ____ CEILING
EXTERNAL SHADING © ____ % Glass Area

C. INTERNAL HEAT SOURCES:
1. PEOPLE LOAD: ____ BTU/HR/FT²
2. BUSINESS MACHINES: ____ WATTS/FT²
a. ____ X 3.41 = ____ BTU/HR/FT²
3. LIGHTING LOAD: ____ WATTS/FT²
a. ____ X 3.41 = ____ BTU/HR/FT²
4. FIXTURES ©: ____ X ____ = ____ FT²
a. NO. OF LAMPS:
b. POWER INPUT/FIXTURE: ____ WATTS
Table A
c. TYPE OF LENS:

D. PERIMETER LENGTHS AND NET FLOOR AREAS OF A/C SPACES ©

| | PERIMETER LENGTH - FT. | | EXTERIOR SPACE DEPTH - FT. | | NET AREA OF SPACE - FT² |
|---|---|---|---|---|---|
| SOUTH | | X | | = | |
| EAST | | X | | = | |
| WEST | | X | | = | |
| NORTH | | X | | = | |
| INTERIOR AREA | | | | | |

NOTE: Less Core & Shaft Areas, Stair Wells, Corridors, and Other Non A/C Spaces.

E. TRANSMISSION HEAT LOSSES FOR GLASS, WALL AND ROOF AREAS:

| EXPOSURE | AREA-FT² | | TEMP. DIFF. | | "U" FACTOR | BTU/HR |
|---|---|---|---|---|---|---|
| S. GLASS | | X | | X | | |
| WALL | | X | | X | | |
| | | | | TOTAL | | |
| E. GLASS | | X | | X | | |
| WALL | | X | | X | | |
| | | | | TOTAL | | |
| W. GLASS | | X | | X | | |
| WALL | | X | | X | | |
| | | | | TOTAL | | |
| N. GLASS | | X | | X | | |
| WALL | | X | | X | | |
| | | | | TOTAL | | |
| ROOF | | X | | X | | |

F. TRANSMISSION HEAT GAINS FOR GLASS AND WALL AREAS (Max. ©):

| EXPOSURE | AREA-FT² | | TEMP. DIFF. | | "U" FACTOR | BTU/HR |
|---|---|---|---|---|---|---|
| S. GLASS | | X | | X | | |
| WALL | | X | | X | | |
| | | | | TOTAL | | |
| E. GLASS | | X | | X | | |
| WALL | | X | | X | | |
| | | | | TOTAL | | |
| W. GLASS | | X | | X | | |
| WALL | | X | | X | | |
| | | | | TOTAL | | |
| N. GLASS | | X | | X | | |
| WALL | | X | | X | | |
| | | | | TOTAL | | |

G. SOLAR HEAT GAINS FOR GLASS AREAS (Max. For Exp. ©)

| EXPOSURE | AREA-FT² | | SOLAR GAIN | | SHADE FACTOR (S) | BTU/HR |
|---|---|---|---|---|---|---|
| E. (Summer) | | X | | X | | |
| E. (Winter) | | X | | X | | |
| S. | | X | | X | | |
| W. | | X | | X | | |
| N. | | X | | X | | |

SECTION II — PERIMETER AREA SYSTEM, DESIGN CALCULATIONS ©

A. CASE I — SUPPLY AIR CONDITIONS WHEN USING HEAT RECLAIM SYSTEM:

| ITEM | FORMULA | SOUTH | EAST | WEST | NORTH | UNITS |
|---|---|---|---|---|---|---|
| 1. MAXIMUM SUPPLY AIR TO AVAIL. FOR HEATING = Max. Supply Air Temp. ____ − Winter Indoor Temp. (1-A) ____ = | | | | | | °F |
| 2. SUPPLY AIR QUANTITY CFM = | Transmission Heat Losses - BTU/Hr. (1-E) / (.08 X Supply Air TD (1)) | | | | | CFM |
| 3. SUPPLY AIR TO ON COOLING (Max.) = | Transmission Heat Gains - BTU/Hr. (1-F) / (.08 X Supply Air CFM (2)) | | | | | °F |

B. CASE II — SUPPLY AIR CONDITIONS WHEN USING OTHER HEAT SOURCES:

| | | | | | | |
|---|---|---|---|---|---|---|
| 1. PERIMETER WALL - LENGTH TO BE HEATED: Obtain from Table D | | | | | | FT. |
| 2. SUPPLY AIR QUANTITY PER LINEAL FOOT © | Obtain from Table D | | | | | CFM/FT |
| 3. SUPPLY AIR QUANTITY CFM = Length Ft. (1) X CFM/Ft. (2) | | | | | | CFM |
| 4. SUPPLY AIR TO ON HEATING (Max.) = | Transmission Heat Losses - BTU/Hr. (1-E) / (.08 X Supply Air CFM (3)) | | | | | °F |
| 5. SUPPLY AIR TO ON COOLING (Max.) = | Transmission Heat Gains - BTU/Hr. (1-F) / (.08 X Supply Air CFM (3)) | | | | | °F |

LITHO IN U. S. A. 4/65 BARBER-COLMAN COMPANY • Rockford, Ill., U.S.A. F-11967-A

## this simplified feasibility form...

## plus these people and their computer... help you determine how the Heat-of-Light system can best be adapted to your particular building

**"It's time someone devised an accurate way to evaluate an air conditioning system before it's installed"**

**WE DID!**

Two years ago. Since then, we have done several hundred feasibility studies . . . the results of a few are shown on the preceding pages. One result not shown is our improved and simplified feasibility study form . . . and the increased expertise of our design and computer people. Use this knowledge.

Here's what you get. An accurate evaluation of the Heat-of-Light system for your building . . . quickly and with no obligation. The computer impersonally studies each floor and evaluates the multitude of factors affecting an environmental system. It then calculates design parameters . . . like proper air temperatures for perimeter air systems . . . number of light fixtures required . . . the supply air quantity and temperature for interior areas . . . and primary air quantities.

You, like many of our customers and prospects, will find this service invaluable. This is all it involves: (1) the one-page feasibility study; (2) a brief discussion between one of our field men and your design engineer; (3) a few minutes' work for our computer.

Want more information? Write us.

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## New kind of glass keeps out noise: ACOUSTA-PANE®

When interior plans require offices near production lines, you can now provide full visibility plus effective sound control. Just specify ACOUSTA-PANE, the only *true acoustical* glass. Available in ratings high as STC 43, ACOUSTA-PANE reduces noise levels at all significant frequencies. It outperforms plate glass, and many "blind" materials, too. Yet ACOUSTA-PANE is a single glazing unit, installed as easily as plate glass in standard partition sections. (You can also use ACOUSTA-PANE for exteriors to shut out noise without cutting off the view.) ACOUSTA-PANE is produced clear and tinted—bronze or grey. Extra bonus: ACOUSTA-PANE is laminated safety glass and shatter-resistant. Find complete information in A.I.A. File No. 26-A-9, Sweets Architectural File. Or write to us.

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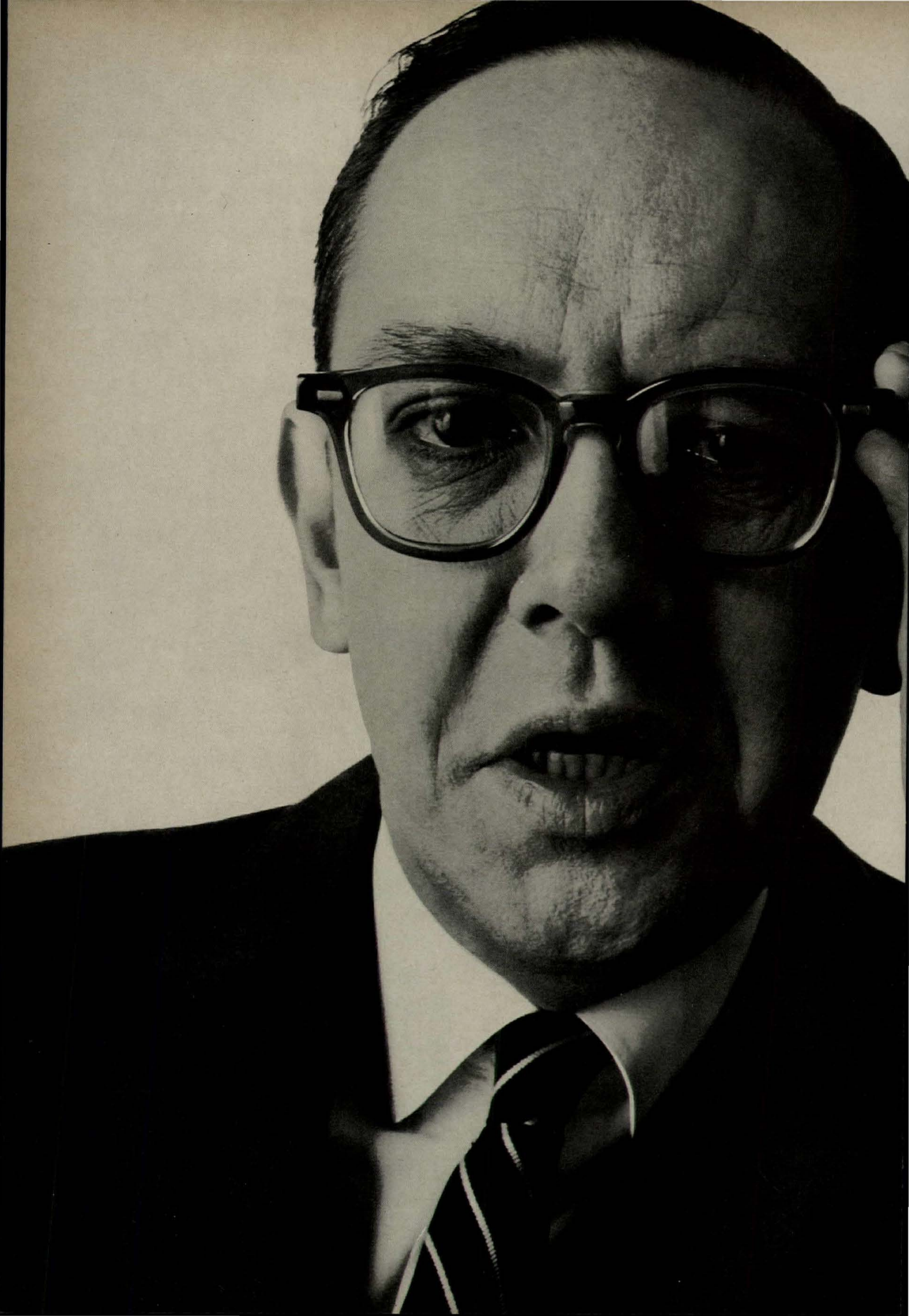

# Sam isn't much of a lunch date

He'll start talking shop before they bring the menu.

Give you a rundown on vinyls during the entree.

Warm up to epoxies while his coffee gets cold.

With Sam, a business lunch is all business. Because he knows you want facts.

Not folderol.

Facts about the flash point of a new wood sealer.

About a water-repellent coating for limestone.

About hardeners for concrete floors.

That's "table talk" to Sam. And Jesse. And Roy.

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They know you get enough of the glad hand.

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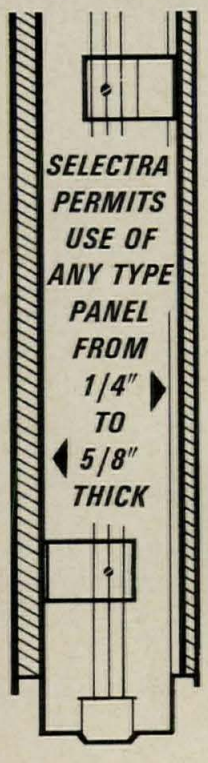


# LOOK AT THE INSIDE STORY

WORKWALL
SELECTRA
MOVABLE PARTITIONS

*offer plus benefits that add up to client satisfaction . . .*

- Installed cost as low as $1.50 per sq. ft.
- Controls noise . . . minimum sound transmission (up to 46.4 decibels)
- Choice of any paneling—¼" to ⅝" thick.
- Metal framing is assembled and wired before panels go on.
- Freedom of design with interchangeable parts.

***See us in Sweet's Architectural File 22a/Da or write for complete details.***

WORK WALL SELECTRA MOVABLE PARTITIONS

DIVISION OF L. A. DARLING COMPANY
Box 130, Bronson, Michigan

For more data, circle 78 on inquiry card

*Selectra installation in the offices of Kingston Products Corp. Vacuum Cleaner Division, Bronson, Michigan*

## LOOK AT THE INSIDE STORY...

the Kingston Products Corp. did – and found **Workwall Selectra movable partitions** gave them all the benefits they required and more.

***See us in Sweet's Architectural File 22a/Da or write for complete details.***

WORK WALL SELECTRA MOVABLE PARTITIONS

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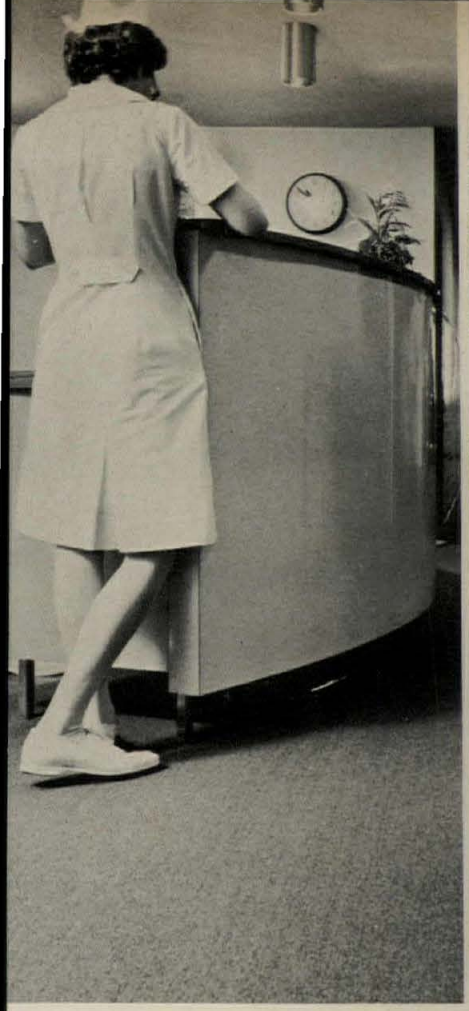

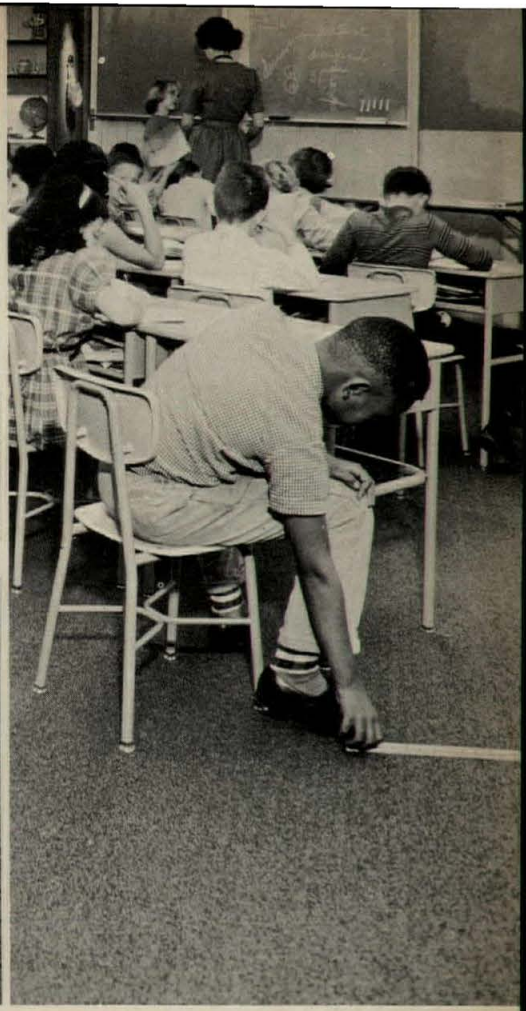

# Here's DENSYLON— the new floor covering that's obsoleted tile and carpet for high-traffic areas

## Engineered for commercial use with A.C.E.† nylon

Not only is our revolutionary new DENSYLON* different than any other kind of floor covering—it's *better.*

Better for *every* area of *every* kind of building—schools, hospitals, offices, restaurants (even restaurant kitchens!).

Easier maintenance is one reason. Dirt, grime, or soil can't penetrate DENSYLON's extra-tight-twist, high-density nylon pile. Any kind of spillage—fruit juice, honey, even hot grease—wipes right off with a damp sponge. DENSYLON vacuums clean as new with half the strokes required by carpet. And the savings on never having to scrub or wash or wax a bare floor will pay for a DENSYLON installation in just a few years!

Superb appearance is another reason. DENSYLON comes in a broad range of handsome colors and patterns. It has all the warmth and luxury of carpet—but none of its disadvantages. And, unlike tile, DENSYLON can't be marred, or scratched, or dented. Even by spike heels or heavy fixtures.

For comfort and quiet, DENSYLON is permanently and integrally bonded to a 3/16″ B. F. Goodrich sponge-rubber backing (note—that's *sponge,* not foam.) It carries a lifetime guarantee. DENSYLON can never ripple or buckle. *Big benefit:* when things (or people) fall, they land on a *cushion.*

Finally, there's wear. Or rather, *no wear.* Because *no* DENSYLON *installation has ever worn out.* Even at the G.E. World's Fair Exhibit where 15 million people trudged over DENSYLON. DENSYLON can be put in the heaviest traffic areas without showing "traffic lanes."

CCC is the world's largest exclusive manufacturer of commercial carpet. We make miles and miles of conventional carpet. Every fiber, every construction. For those areas that require conventional carpet, we recommend it. Now we're making miles and miles of DENSYLON. For where tile used to go. For where carpet never could.

We have the industry's largest staff of floor-covering specialists out in the field. One of them will be happy to explain why revolutionary new DENSYLON is making everything else obsolete. Or, we'll mail you the facts. Use the coupon. Now.

**CCC's trademark for its sponge-bonded, high-density nylon carpet*

**CCC**
**10 West 33rd Street**
**New York, New York 10001 Dept. AR-10.**
**Attention: Mr. Oliver A. Wyman**

☐ Send facts on revolutionary DENSYLON.
☐ Have representative give us estimate on approximately _____ square yards.

**Name** _____

**Title** _____ **Phone** _____

**Organization** _____

**Address** _____

**City** _____ **State** _____

†*Trademark: Allied Chemical Corporation*

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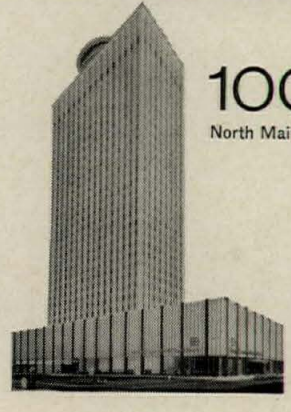

100

North Main Building, Memphis, Tennessee

Developer: Bloomfield Building Industries
Consulting Engineers: Ellers & Reaves

Architects: Robert Lee Hall & Associates
General Contractor: Southern Builders, Inc. of Tenn.

# Add New Dimension!

## to monolithic reinforced concrete construction

In monolithic reinforced concrete, the newest design dimension is building height. Helping architects to design for greater heights are new high strength reinforcing steels having 50% greater yield strength.

In Memphis, the 38-story 100 North Main Building set a new height record for reinforced concrete in the southeast. Soaring 440 feet over the downtown area, the designers used A432, one of the new reinforcing steels, as column reinforcement. Floor construction is flat plate with large spandrel beams. Shear walls in the centralized elevator cores, and in stair wells, aid in resisting wind loads.

On your next building, consider the advantages of monolithic reinforced concrete construction. There is nothing more economical, versatile, or creative for buildings high or low. 2-66

CRSI

CONCRETE REINFORCING STEEL INSTITUTE

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*continued from page 116*

for practitioner and student alike. Thanks to the altered format this procession of events in technology, in social perception and in professional responsibility is quite lucid. No doubt this 75th Anniversary Issue will be one of the most coveted by architects in years to come.

Yet I was disappointed that discussion of architectural education was relegated to the end and treated in summary fashion instead of including education as part of the evaluation of architecture itself. Perhaps a forthcoming issue will weave together the history of architectural education and styles to complete this survey of the past 75 years.

I further hope that the five areas explored in this issue will each be studied in greater depth in future issues.

*Olindo Grossi, Dean*
*Pratt Institute*
*Brooklyn, New York*

**A final word**

Every issue of ARCHITECTURAL RECORD since the January "rebirth" has been more eagerly awaited and the 75th Anniversary Issue has already become a collector's item.

I wish to thank you and your associates for the splendid coverage of our recent work in the August issue. Text, layout, and reproduction of the drawings is superb and it is needless to say the August RECORD has become another collector's item with us.

*Gunnar Birkerts, A.I.A.*
*Gunnar Birkerts and Associates*
*Birmingham, Michigan*

**Redwoods for Cape Kennedy**

Knowing that not an interesting word on the valuable pages of ARCHITECTURAL RECORD is wasted, I must assume you were half serious in using the Vertical Assembly Building cartoon (NASA's Cape Kennedy space center) on page 10 with your "Behind The Record . . ." editorial. The cartoon, as you will recall, showed two esthetically-minded men (probably architects) wondering how to landscape the world's largest enclosed structure. One suggested giant redwoods.

Since you *may* have a *personal* interest in this, I am enclosing a packet of redwood seeds for your use on this project. Follow the simple instructions and there will be an authentic redwood tree farm growing in perpetuity at Cape Kennedy. If this tree farm is properly managed along the lines set up by the industrial foresters of the redwood region, Cape Kennedy eventually will have all the recreational and economical advantages of an industrial forest in addition to unusual landscaping.

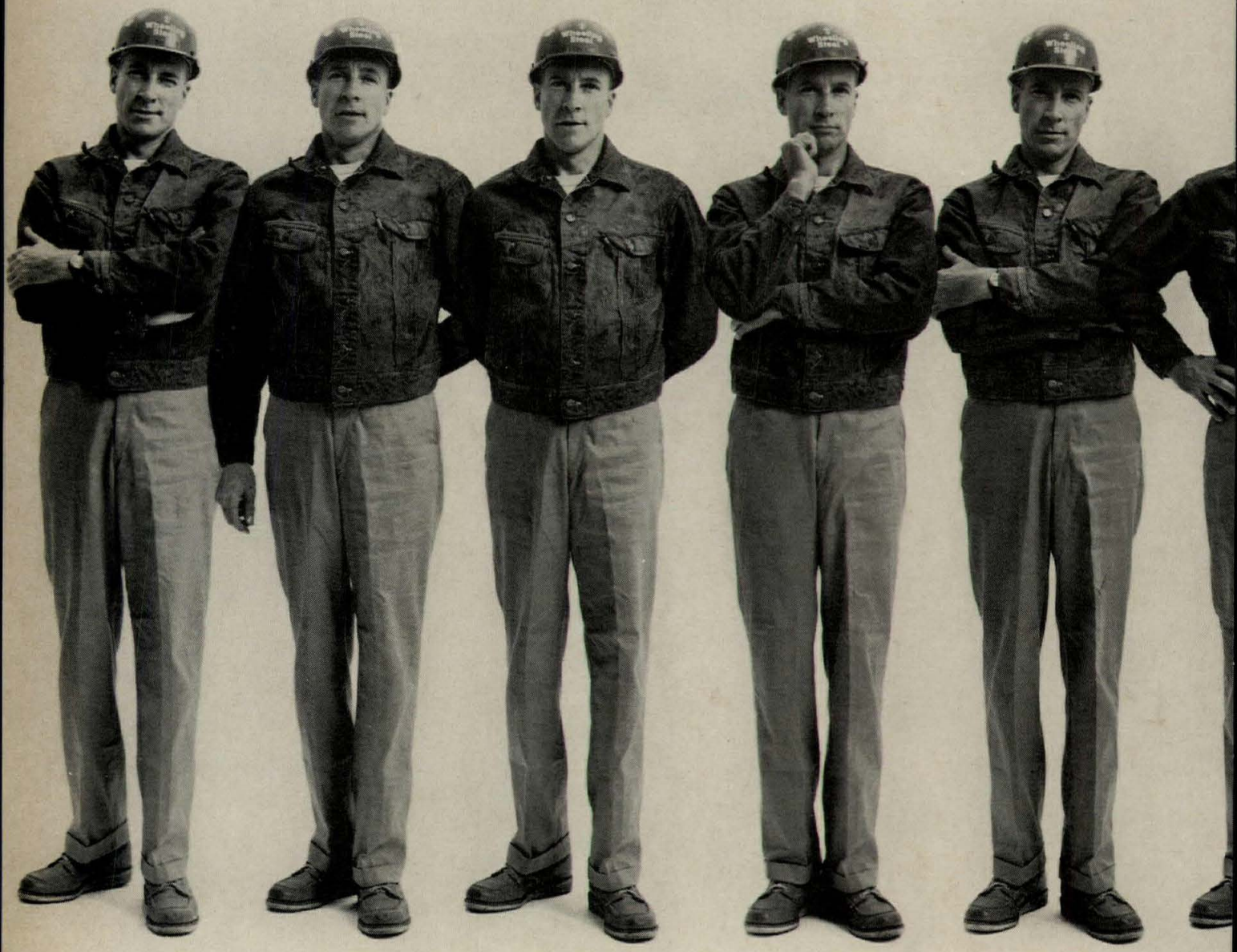
*Lamar Newkirk, Manager*
*Public Information*
*Georgia-Pacific Corporation*
*Portland, Oregon*

**Flushing Meadow: a race track?**

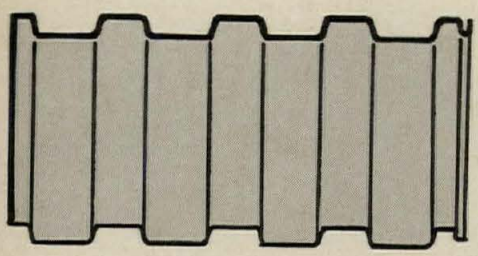
Watching the newspaper reports of Park Department activities, I am surprised that no one has thought of Flushing Meadow as a race track and sport park. The Port Authority building is a natural as an observation club house, and the New York State Pavilion could be an observation tower with grandstands stretched along the oval inbetween. Establishing such a race track facility could produce much needed revenue in New York.

The proposed zoo seems hopelessly out of scale and has no apparent relationship to the existing buildings. The Spanish Pavilion would have been a superb racing museum.

*James Edwards*
*New York, New York*



# It's hard to top Xerox when



But Wheeling has.

Eleven times. Eleven roofs of Super-Rib Roof Deck on eleven Xerox buildings in the past two years.

And every piece of that Super-Rib Roof Deck—all 651,436 sq. ft. of it—is an exact duplicate of every other piece. No variation.

If that's not duplication, what is?

For quality, nothing tops our Roof Deck. Why? For one reason, we have control over the whole business, from ingot to installation.

Our ribbed steel sections, when covered, form a permanent steel roof. Sections are made from structural Grade

# it comes to duplication.

"C" steel.

Comes in up to 50 foot lengths.

Comes galvanized, painted with a primer coat, and non-galvanized primer-painted.

For normal to extra-heavy weight loads.

In gauges from 16 to 22.

And we even make a sound-absorbing roof deck.

So if you'd like to buy a few million square feet of our Roof Deck (like the few inches shown to your left) let us know.

We'll be happy to start duplicating our Xerox record for you.

**Have you looked at Wheeling lately?**

**Wheeling**

Wheeling Corrugating Co. Div. Wheeling Steel Corp., Wheeling, West Virginia

*For more data, circle 83 on inquiry card*

Key: (1) In-patient care center; (2) central diagnostic and treatment complex; (3) biomedical research institute; (4) patient, parent and visitor reception; (5) lecture halls and auditoria; (6) staff residence; (7) chapel; (8) parking and traffic concourse below; (9) children's outdoor recreation area; and (10) auxiliary treatment building (parent-child residence).

## Hospital will have direct vehicular access

This $34.5-million children's medical center for a 16-acre site in Nassau County, New York will contain a multi-level, ramp-equipped garage which affords direct vehicular access to any level of the main hospital building. Another unusual feature of the design is an auxiliary treatment building which will be a parent-child residence. Inpatient facilities will include 329 beds, expandable in the future to 550 beds. Outpatient services will represent the major part of the clinic's total services. Architect is Morris Lapidus.

## Professional building has minimum fenestration

A professional building, now under construction in Silver Spring, Maryland, and scheduled for occupancy in early 1967, will provide 28,250 square feet of space on four levels. The building was designed by Collins and Kronstadt-Leahy-Hogan-Collins, and the firm will occupy the fourth floor of the new building. The building will have a minimum of glass for privacy, and will have a naturally lighted landscaped interior court. The exterior will be of brown brick with white precast concrete trim and small bronze tinted windows. A concrete ramp entrance will be provided for invalids. General contractor for the $500,000 structure is Stevens and Kehoe.

*continued on page 344*

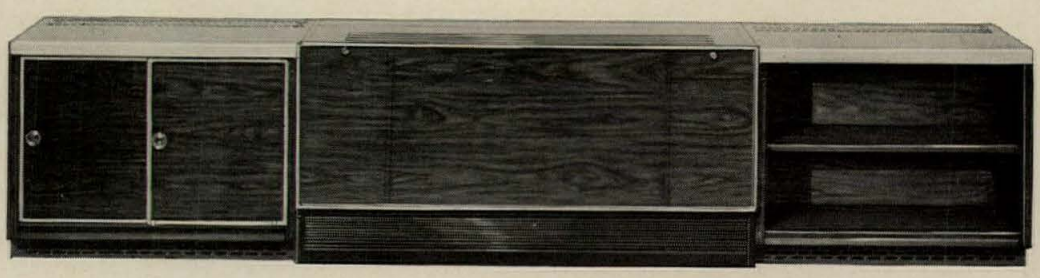

There's more to a Mahon floor than meets the eye. For example, peel back a layer and you'll be amazed at what Mahon design permits architects to install in a mere 7½ inches of depth. Things like air ducts, phone, power and signal raceways.

A major advantage of such cellular flooring is the availability of electrical outlets where desired. Also, Mahon's factory-fabricated floors are installed as an integral part of the building framework. Thus, as each story goes up, basic distribution systems are in place ready for completion. Small wonder, indeed, that from coast to coast more than 6,200,000 square feet of Mahon Electrified Cellular Steel floors have been installed in buildings such as those shown above.

Mahon is ideas in building equipment. When you have a flooring problem take it to Mahon for an idea that may save you space, time and money. For more information write The R. C. Mahon Company, 6565 East Eight Mile Road, Detroit, Michigan 48234.

*For more data, circle 85 on inquiry card*

# One scratching pencil makes more noise



*Valedictorian and accessories come in decorator-color enamel and vinyl finishes. Very attractive, yet not as costly as you might think. Ask for Bulletin V-1264.*

# than a Modine unit ventilator

Ever notice how some unit ventilators whistle and hiss?

We did, too. And that's when we decided to make Modine's Valedictorian the *quietest.*

Our engineers made it happen. With slow, smooth-running motors cushioned by resilient mountings. With blowers that gently circulate fresh air. And with thick, sound-deadening insulation.

As a result, Modine's Valedictorian performs the full air-conditioning function—or any part of it—*with hardly a whisper.*

A built-in "weather center" controls Modine's unique full-damper system. It stays sensitively alert to classroom needs and responds with fresh, filtered air at the right temperature.

You can enjoy full-season air-conditioned comfort now—or later, *without spending a dime to convert Valedictorian when cooling is added.*

Call your Modine Representative or write us at 1510 DeKoven Ave., Racine, Wis., 53401.

V1541

MODINE

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# the cost of your "omission"

No architect or engineer would *knowingly* force his client to pay the price of his "omissions."

Ask yourself this: Do we appreciate the enormous amount of money our client will be *forced* to spend on paper or cloth towels when we fail to provide the wiring for and specify electric hand dryers?

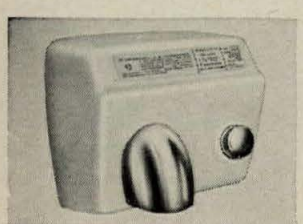
The facts: Your client will spend *nine times more* for paper or cloth towel drying than for electric drying.

Equally important, he will be *forced* to use methods of drying that are obsolete, inconvenient and (by medical documentation) dangerous to health.

When you provide the space, the wiring and specify the name and features of a *good* electric dryer, you save your client the cost, time, the trouble of "after the fact" installation—which he is usually ill equipped to do . . . and rarely does.

A little thing? Is it not this attention to "little things" that makes the difference between an architect who considers the result of his "omissions" as diligently as those of his "commissions" in answering the *total* requirements of his client.

*Specify the world's most respected dryer....*



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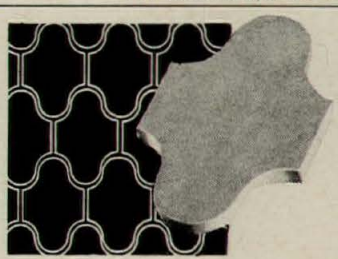
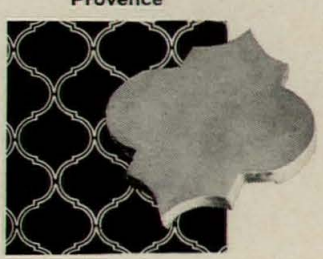
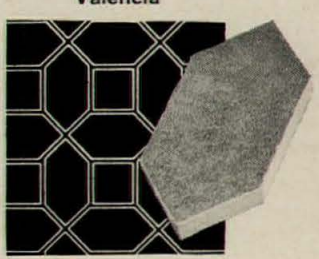


Provence



Valencia



Renaissance

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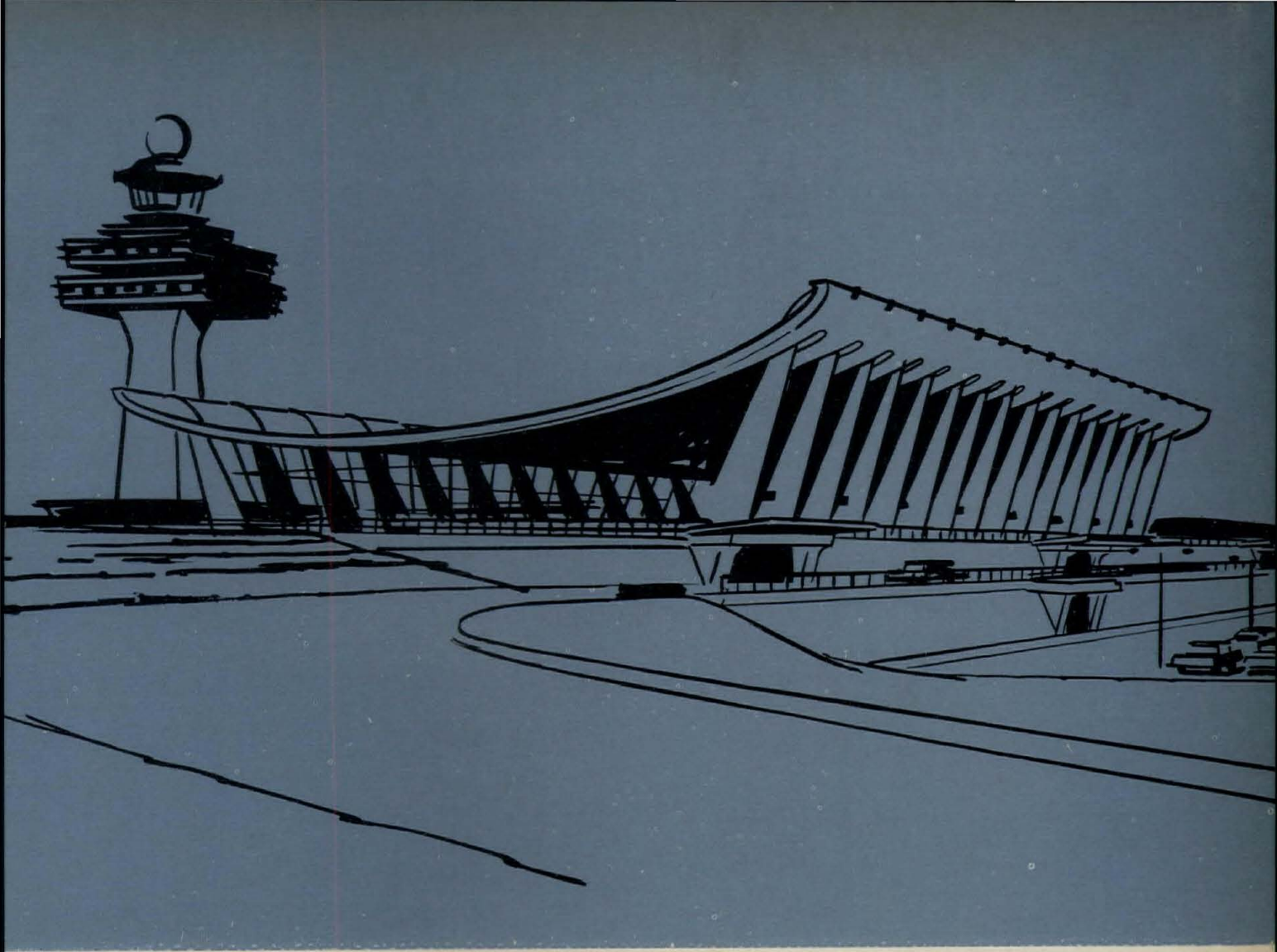

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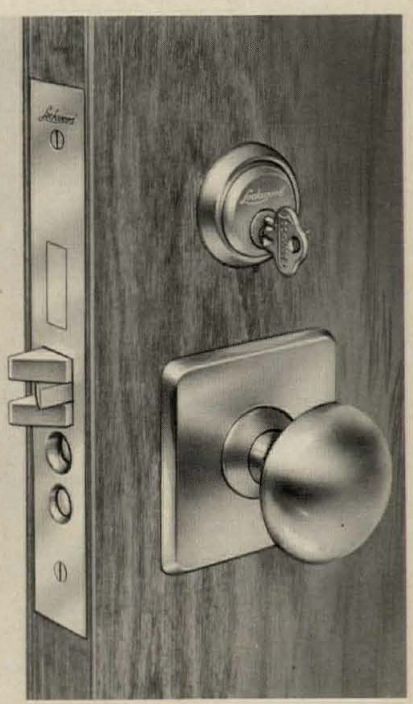

*Architect:* Eero Saarinen & Associates
*Contractor:* Humphreys & Harding
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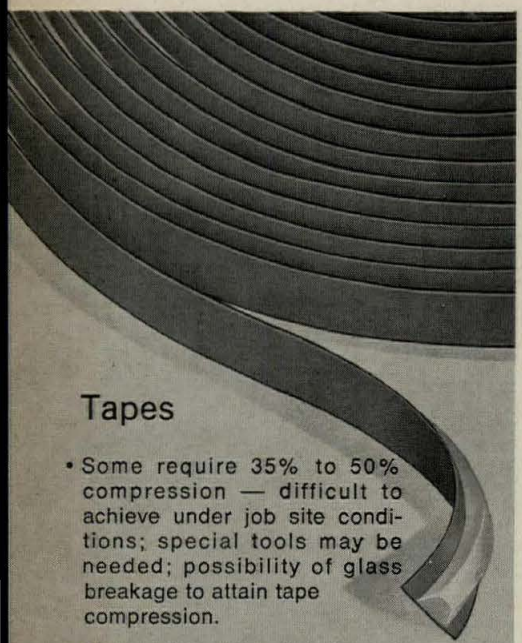
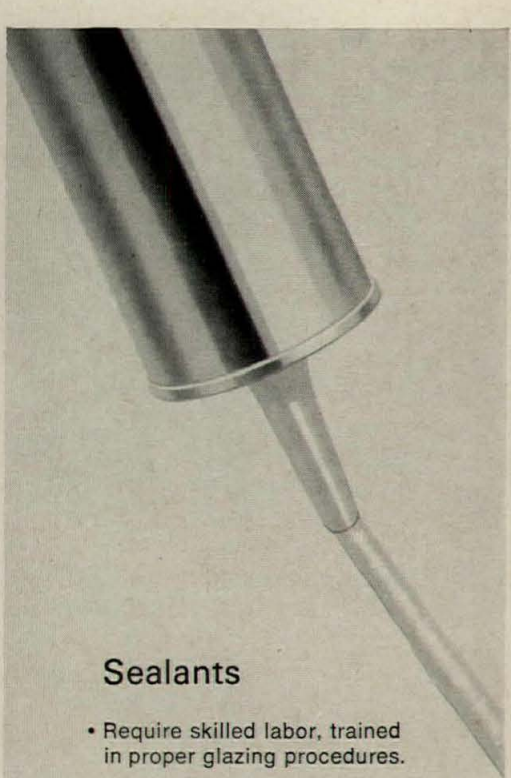
# These glazing products do the job <u>most</u> of the time, but...



## Tapes

- Some require 35% to 50% compression — difficult to achieve under job site conditions; special tools may be needed; possibility of glass breakage to attain tape compression.
- Most call for shims (interior and exterior) — improperly placed shims or missing shims cause leaks.
- Many demand careful placement — butting of tapes is critical. Corners of sash are vulnerable to leaks.
- Most present problems in controlling squeeze-out — which leads to excessive dirt collection.

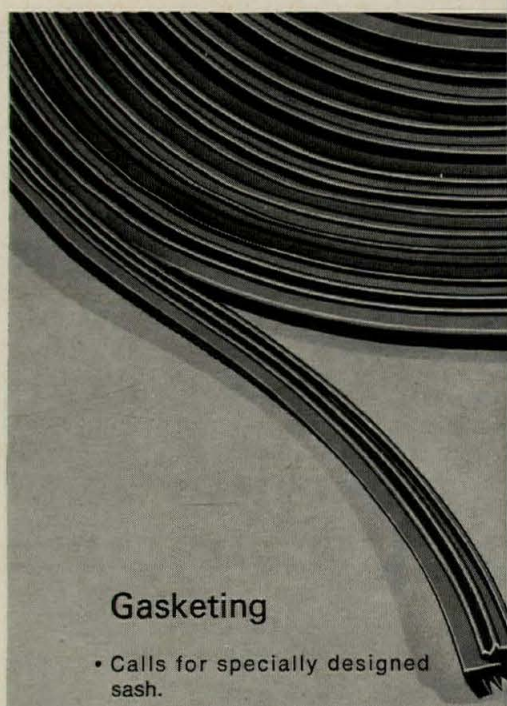
*However, tapes do eliminate costly scaffolding.*



## Sealants

- Require skilled labor, trained in proper glazing procedures.
- Involve use of costly scaffolding.
- Necessitate careful placement of spacers and shims, or sealants can be "pumped out".
- Call for cut-off of the bead and clean-up.

*However, sealants overcome the weakness of varying tolerances in glass and sash.*



## Gasketing

- Calls for specially designed sash.
- Demands close tolerances of glass, sash and the gasketing itself to achieve a weathertight seal.
- Often relies on a supplementary sealant to leak-proof joints.
- Not readily available in a wide variety of sizes, colors and shapes.

*However, gasketing provides a clean, attractive appearance.*

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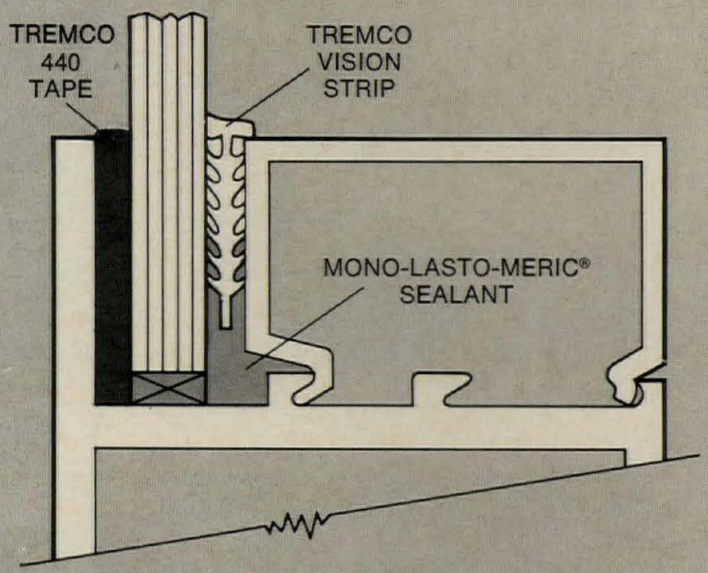


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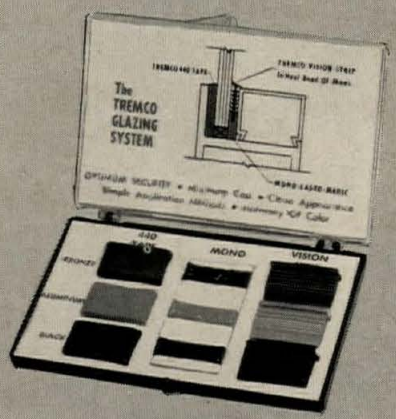


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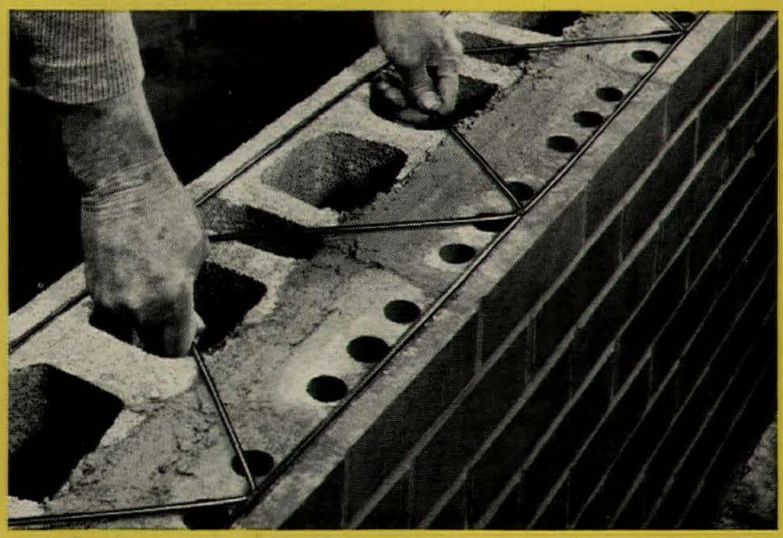

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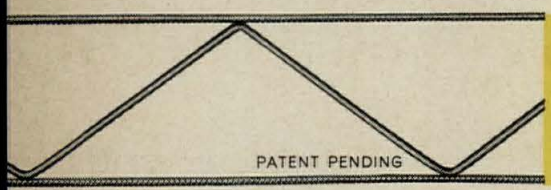


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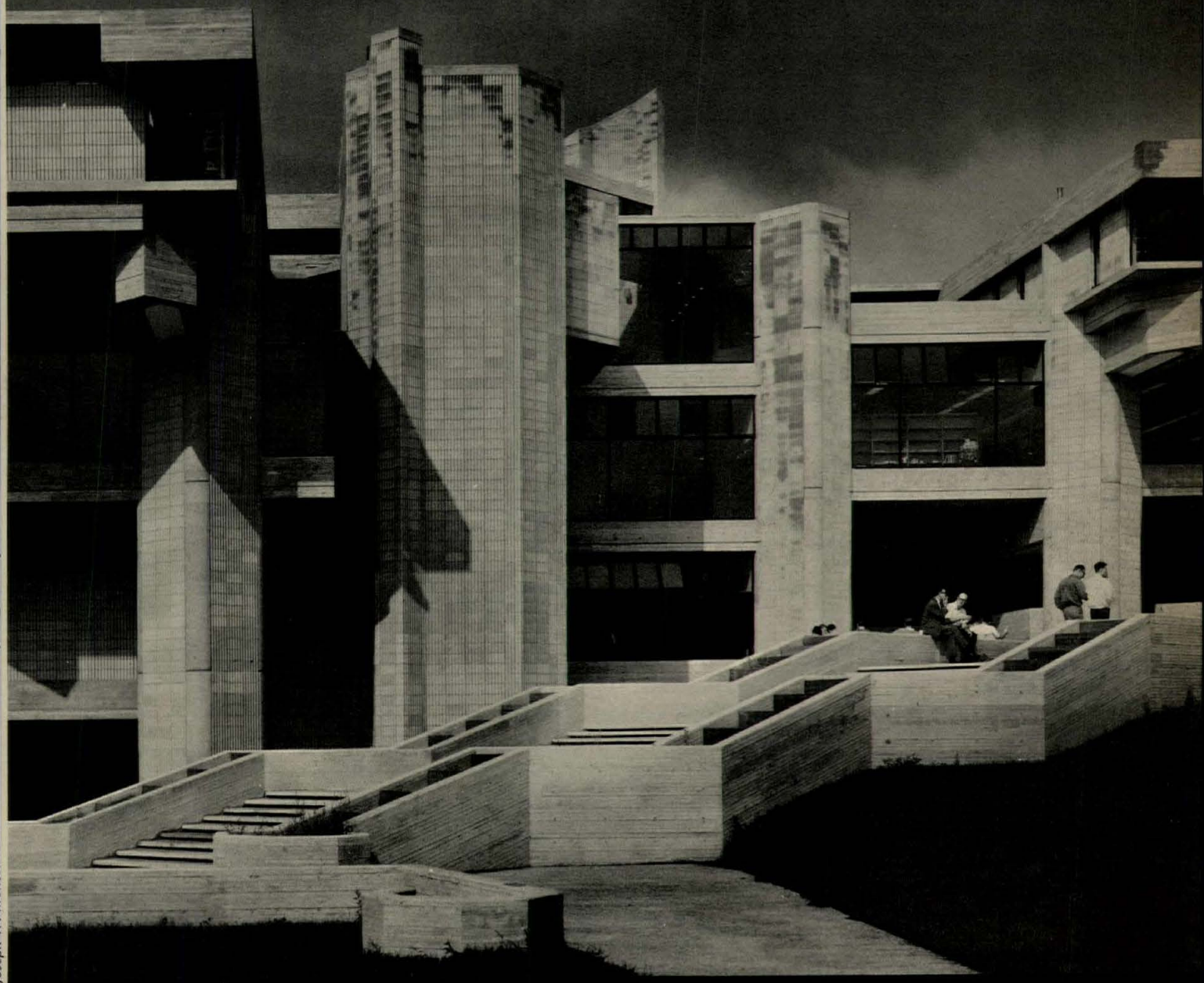
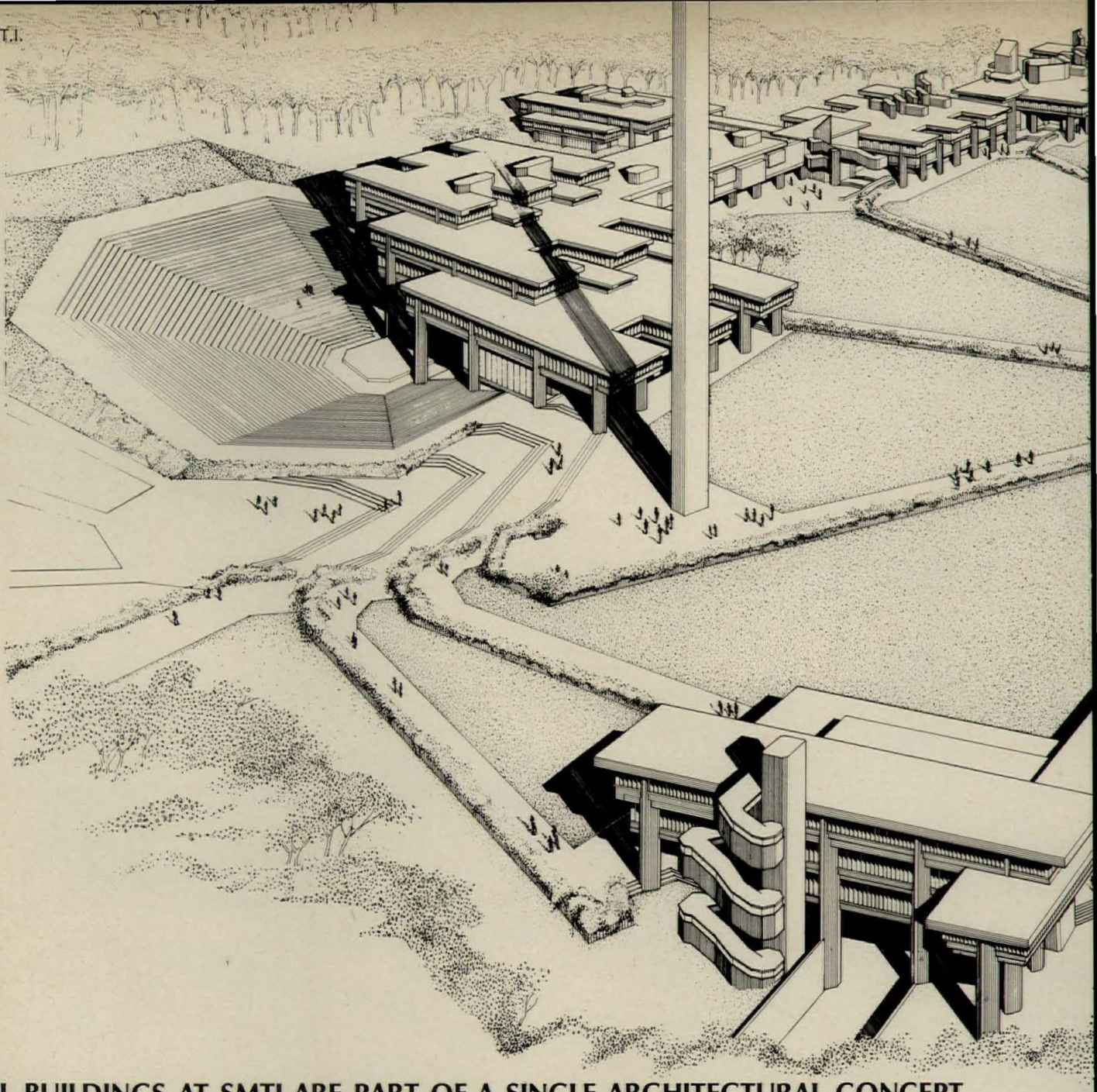
ARCHITECTURAL RECORD

OCTOBER 1966



# ARCHITECTURE THAT GIVES A CAMPUS THE UNITY OF A SINGLE BUILDING

S.M.T.I.



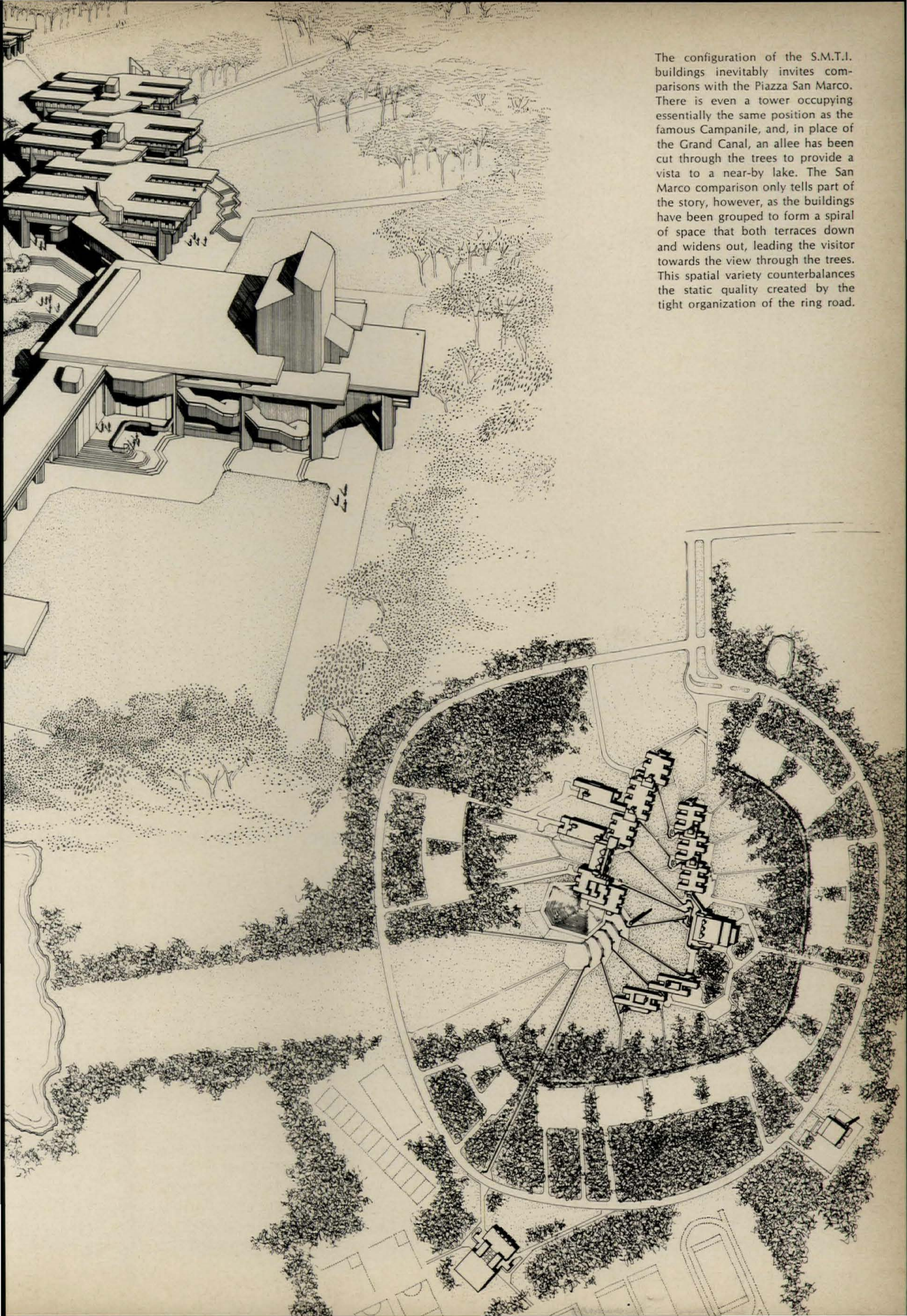
## ALL BUILDINGS AT SMTI ARE PART OF A SINGLE ARCHITECTURAL CONCEPT

The Southeastern Massachusetts Technological Institute has something that is very rare among today's college and university buildings—a single architectural concept strong enough to control the design of a whole campus. Most colleges, even when they are built all at once, remain collections of buildings which may be more or less related to each other but are still essentially separate and distinct. S.M.T.I., on the other hand, is capable of truly unified growth, almost as if the campus were contained in a single structure. Its designer, Paul Rudolph, serving as a consultant to the Boston firm of Desmond and Lord, based his concept on three principal elements: a direct and very simple site plan, an over-all structural grid, and a series of strongly modeled elevations. The result has been a further development of Rudolph's distinctive approach to architectural design, at a scale where it is particularly appropriate.

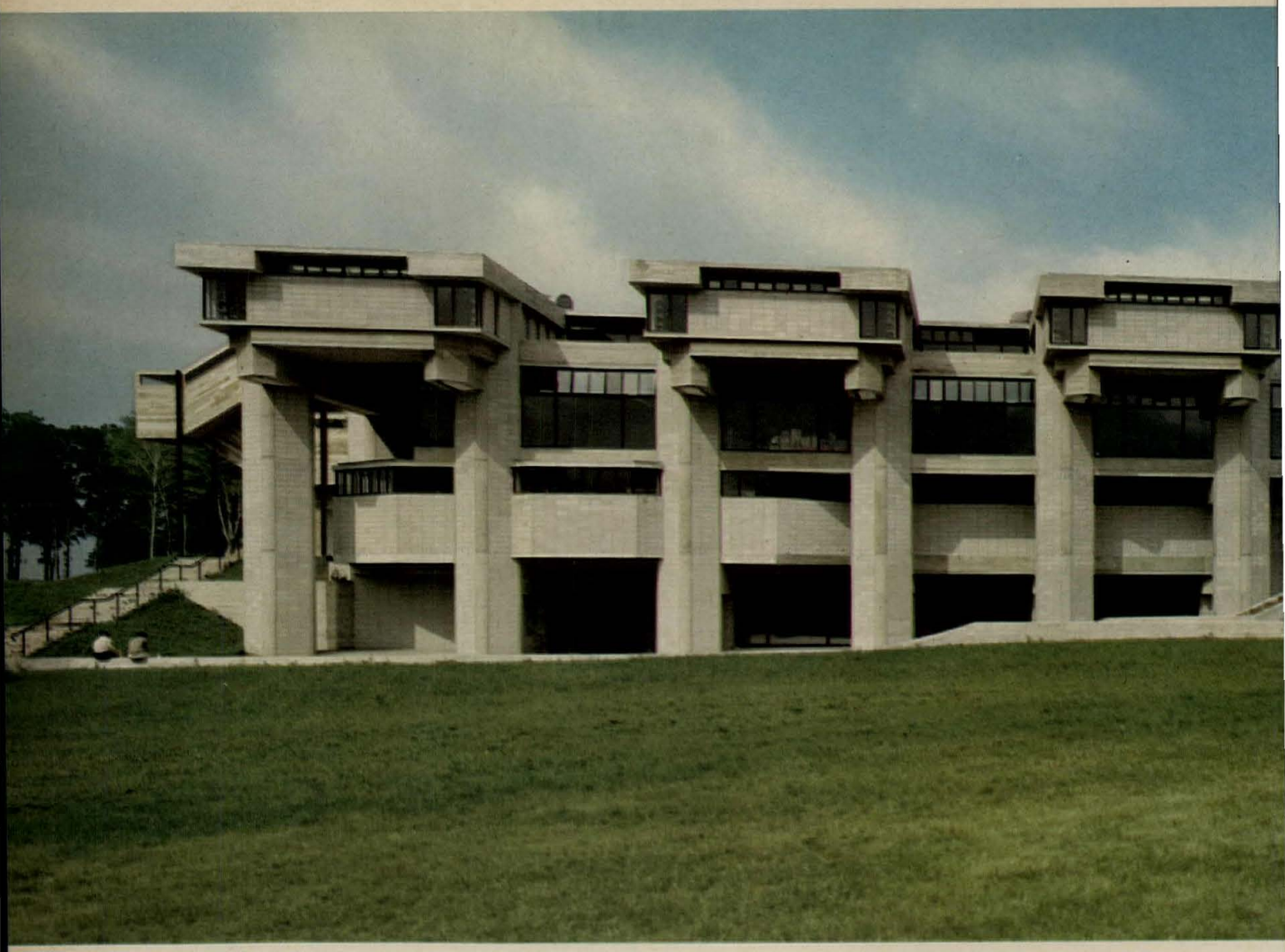
**The site plan brings together circulation, topography and a sequence of visual experiences.** As S.M.T.I. is a "commuter college," a very high percentage of the students arrive every day by car. Immediately inside the main entrance all traffic is diverted to a ring road from which the student can select the parking field nearest to his destination. The parked cars are screened from the campus by earth mounds and planting, making them virtually invisible from inside the buildings. The space of the campus itself continues from the entrance in a spiral movement that both terraces down and widens out, until the viewer is confronted with a vista through the trees to a near-by lake—a dynamic opposition to the static form of the road.

**A repetitive structural grid incorporates much of the mechanical system.** A pattern of evenly spaced column clusters, connected by infill walls to form hollow, polygonal piers, provides a discipline that continues through the campus. The piers contain piping and risers for the mechanical system, are service chases in the laboratory buildings, and provide space for projection booths, janitor's closets and the like.

**Strongly modeled elevations remain in scale in a variety of situations.** The piers support alternating projecting elements at the top of the buildings, and the ground floor is always deeply recessed. The result is to make each bay an independent composition, at the same time creating a rhythm that is strong enough to remain significant along a 300-foot-long elevation.



The configuration of the S.M.T.I. buildings inevitably invites comparisons with the Piazza San Marco. There is even a tower occupying essentially the same position as the famous Campanile, and, in place of the Grand Canal, an allee has been cut through the trees to provide a vista to a near-by lake. The San Marco comparison only tells part of the story, however, as the buildings have been grouped to form a spiral of space that both terraces down and widens out, leading the visitor towards the view through the trees. This spatial variety counterbalances the static quality created by the tight organization of the ring road.

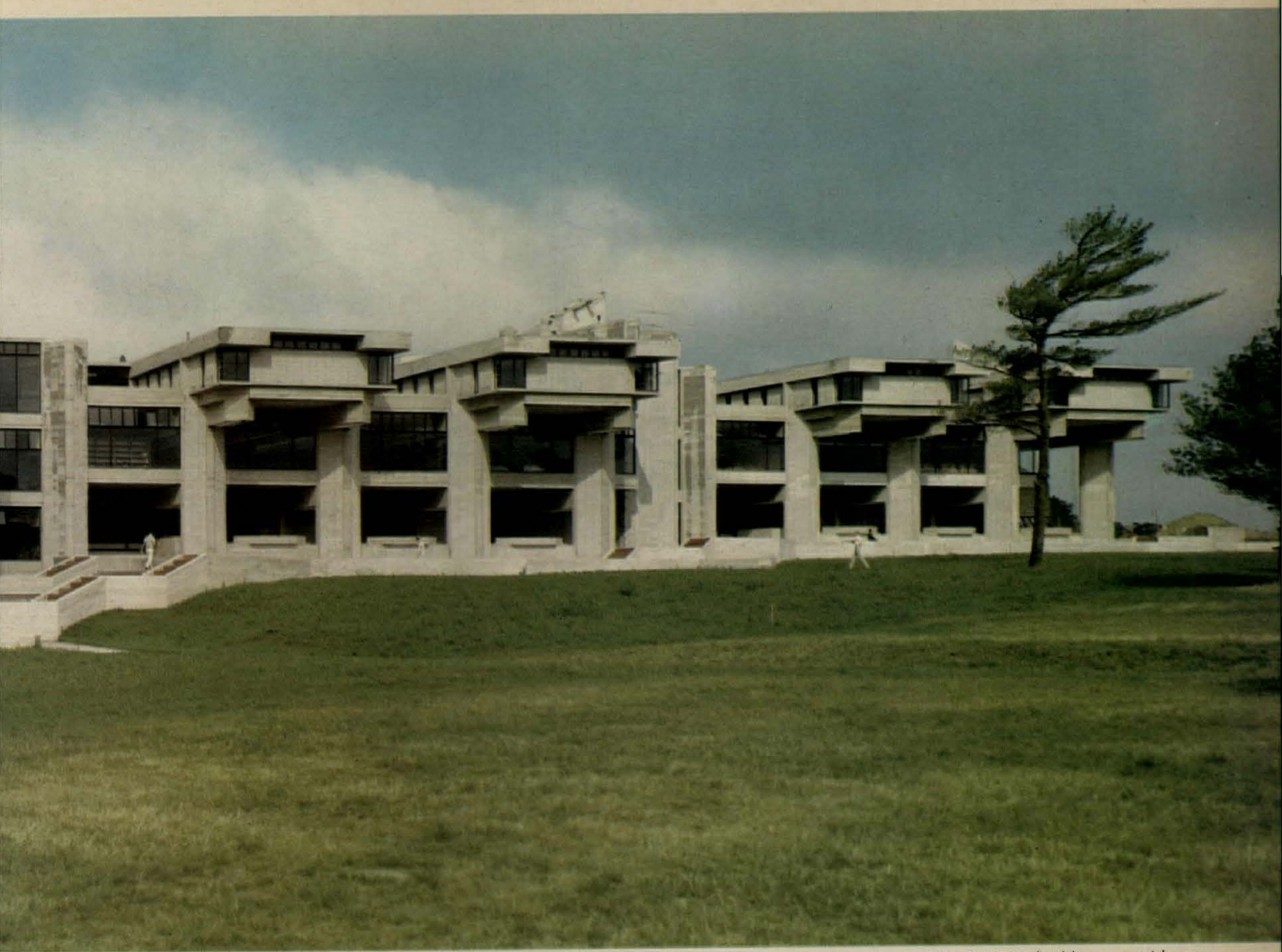


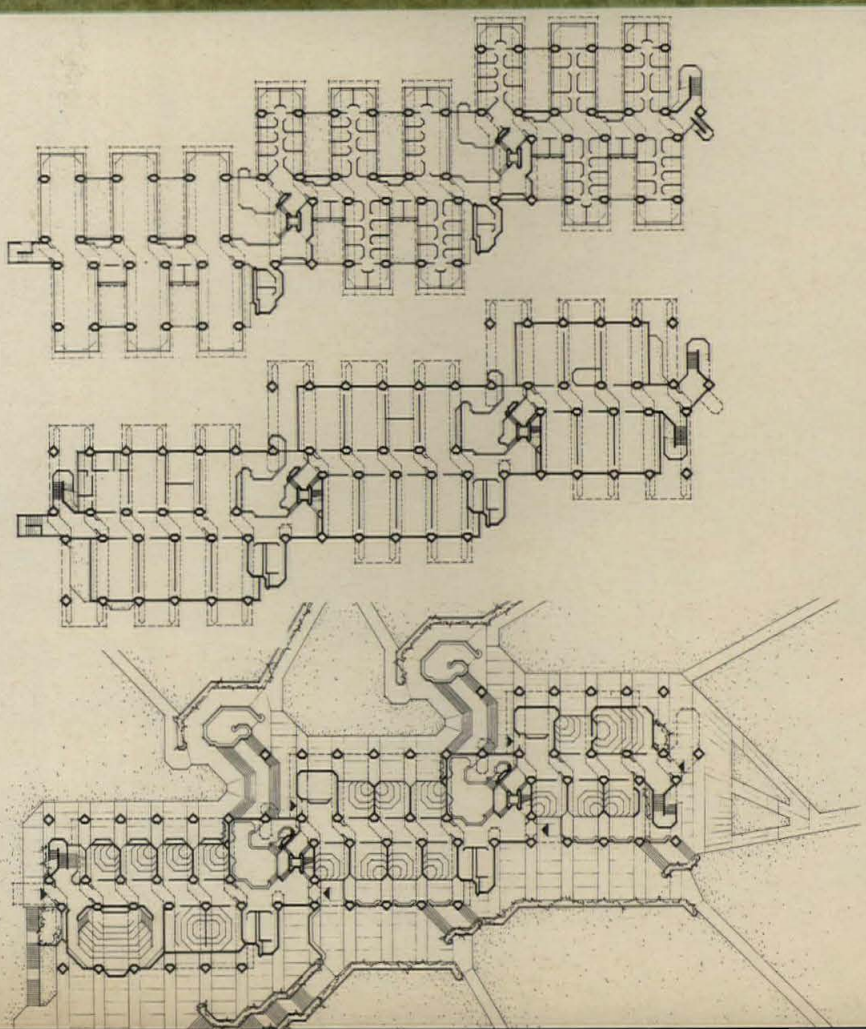
## THE COMPLETED FIRST STAGE GIVES A GOOD PREVIEW OF THE FINAL EFFECT

The long elevation of the Arts and Humanities Building gives quite a substantial impression of the architectural character that the S.M.T.I. campus should have upon completion. The top floor is devoted to offices, with double-loaded corridors of office space running at 90 degrees to the main corridor, forming alternate bridge-like projections and recessed terraces. The floor below is devoted to special-purpose classrooms such as art studios; the recessed ground floor to lecture halls, classrooms and seminar space. The lowest level is essentially for service, except for a cafeteria, which has been placed to take advantage of the drop in grade. Its windows are visible in the lower left-hand portion of the photograph above. (See section and interior photographs, pages 154-155.)

**The real function of all the projection and recession is to create the architectural variety and interest** without which such a large building could become overpoweringly dull and lifeless, although, no doubt, the articulation of the elevation is useful in controlling sun and glare. The construction contract for stage 1 was let at $3,171,598, which works out to a square-foot cost of $26, including built-in furniture and a substantial amount of site work, figures that would seem to indicate that the articulation, while it clearly cost something, had not added extravagantly to the total. The special corrugated concrete block, which is used throughout, turned out to be almost identical in cost to ordinary block in the quantities used.

**The building is also articulated in plan.** The pier system is offset across the main corridor, so that, every six bays, when the outer row of piers is set back to line up with the corridor columns of the next portion of the building, the two corridors can be joined diagonally. These diagonal links, which are also the points where vertical circulation takes place, are the occasion for a highly elaborated series of balconies surrounding a central space that extends through the full height of the building, creating a series of lounges and meeting places (see the photographs on pages 152-153). Both these indoor balconies and the outdoor terraces, benches and steps are heavily utilized. They serve an important purpose by providing places for informal conversation and small meetings, have found unexpected uses as well. One of the large interior circulation spaces was recently the scene of an opera workshop performance.

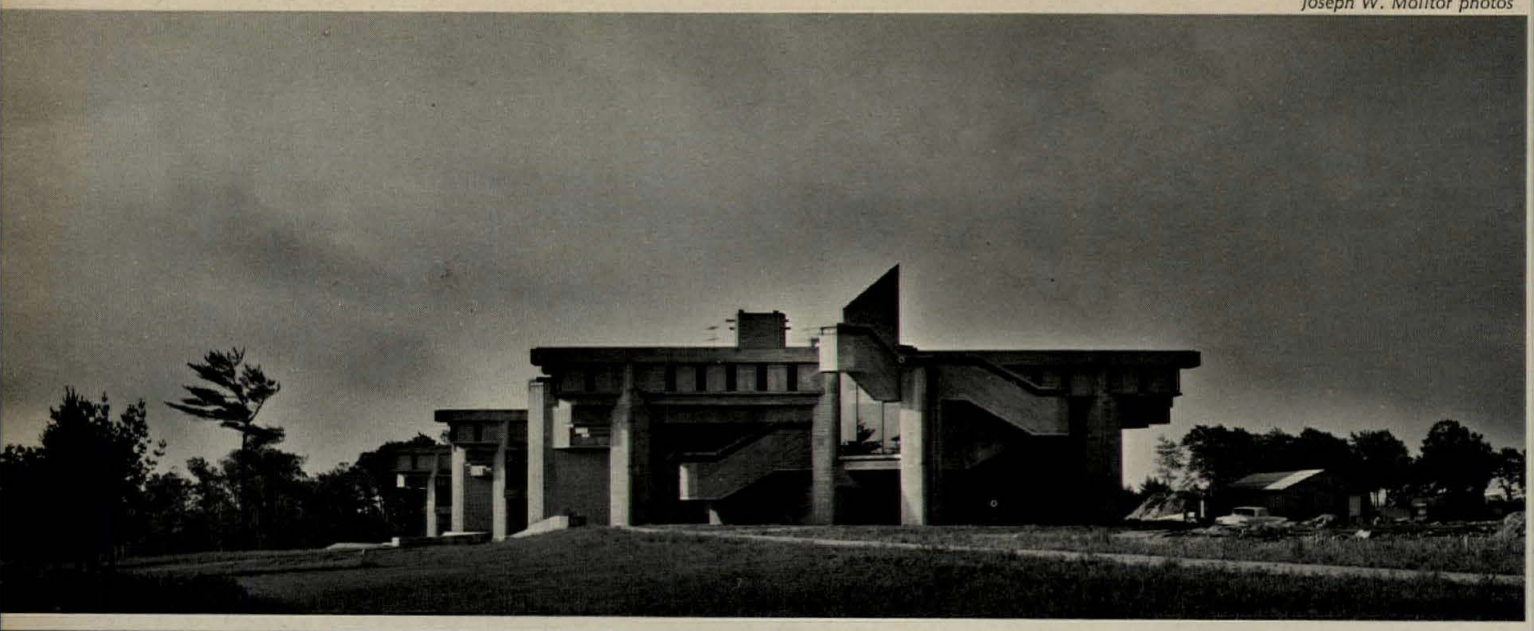




The S.M.T.I. buildings provide numerous opportunities for those who enjoy making architectural comparisons. It is clear that Rudolph continues to take an interest in the intricate, almost Japanese, joinery that is developed in many buildings by Frank Lloyd Wright. The section can be compared with some of those studied by Le Corbusier, the column clusters with Louis Kahn's "servant and served spaces," the glazing divisions with those of Mies. In addition, there are reminiscences of the academic tradition of column and cornice, and of Baroque stairways.

Comparisons, however, should not obscure the fact that Rudolph has synthesized these diverse elements into an original expressive vocabulary.

*Joseph W. Molitor photos*



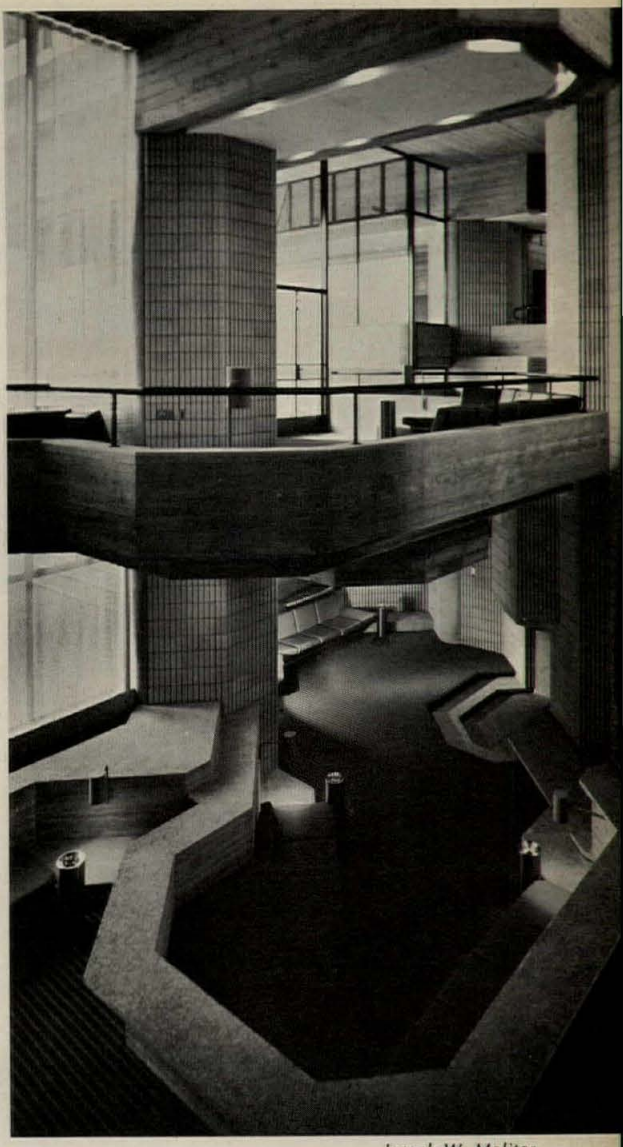
Joseph W. Molitor

Joseph W. Molitor

The end elevation of the Arts and Humanities Building, above left, looking a little like an aircraft carrier, is the first element visible as one enters the campus. Earth mounds and planting screen the parking lots, above. The complexity of the building unfolds as one comes nearer, revealing flights of stairs seemingly supported on glass, and an intricate interplay of interior and exterior space. Corrugated surfaces on both exterior and interior are ribbed concrete block.

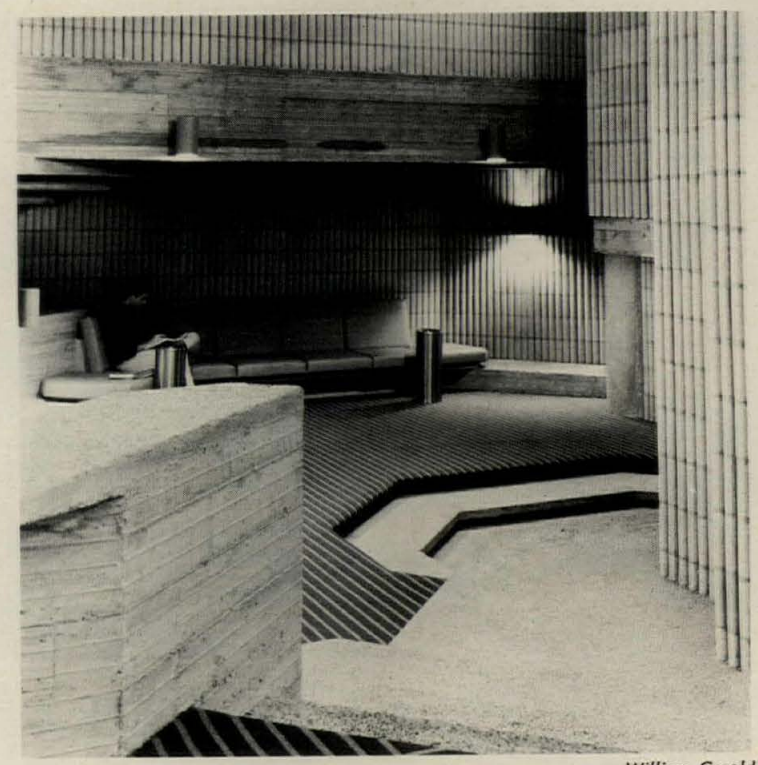
William Gerold

*William Gerold*

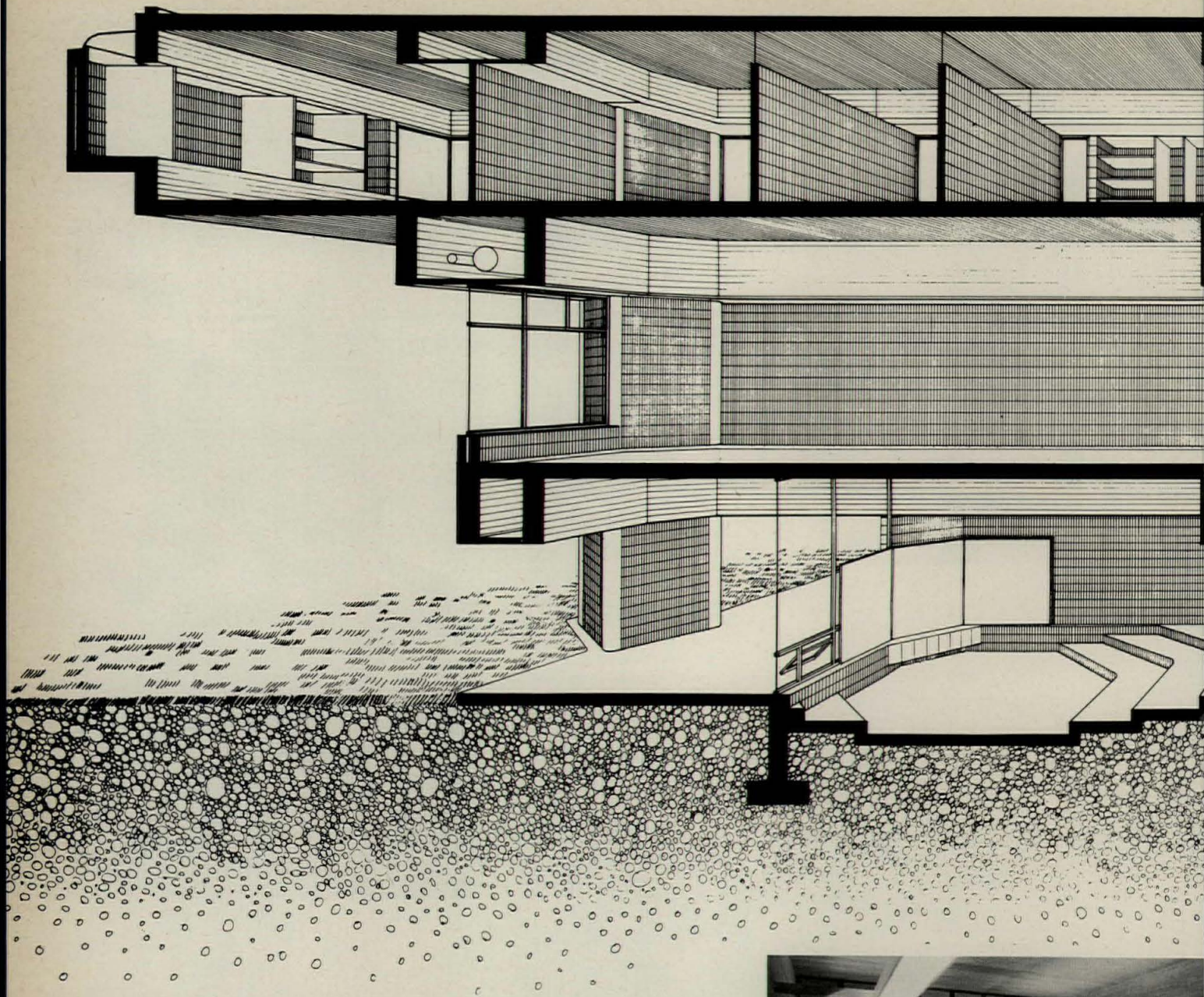


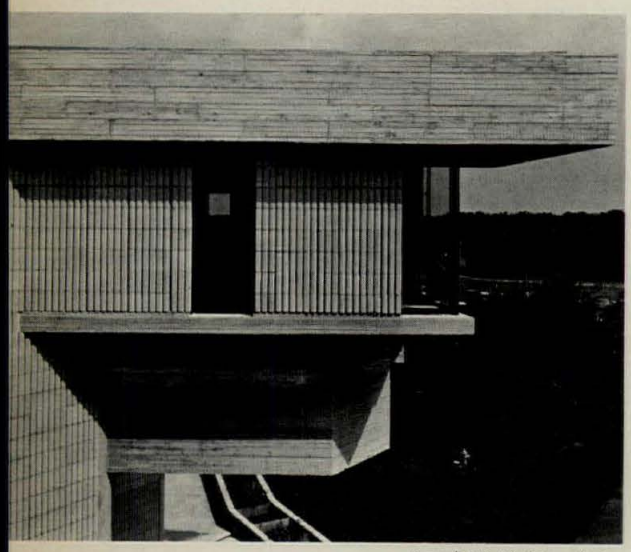
*Joseph W. Molitor*

Large banners and an orange carpet bring color and warm reflected light to one of the major circulation spaces. Topmost balcony is a faculty lounge, other seating areas are for students. Curtains are steel mesh. Seating areas are popular and the space has also been used for an opera workshop performance.



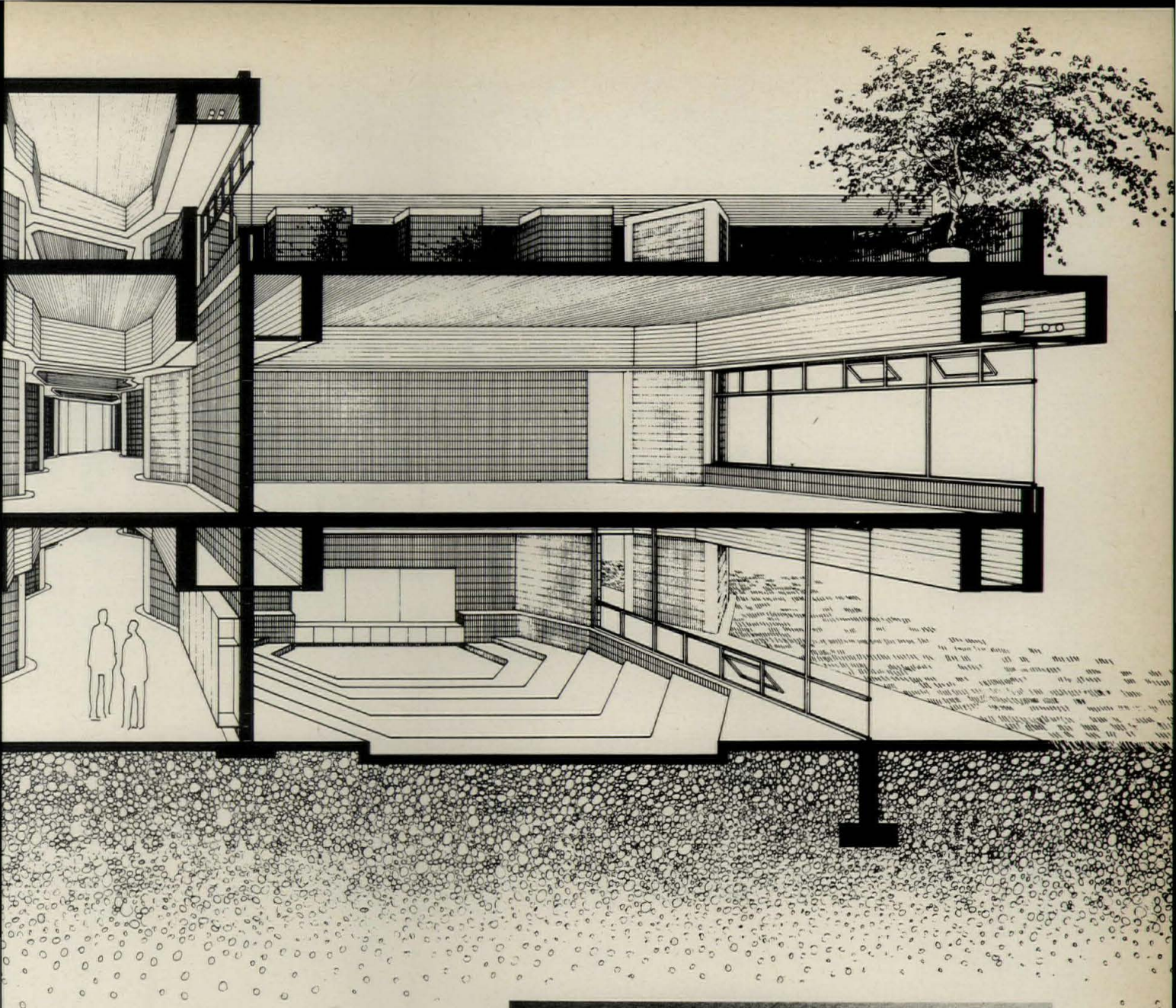
*William Gerold*



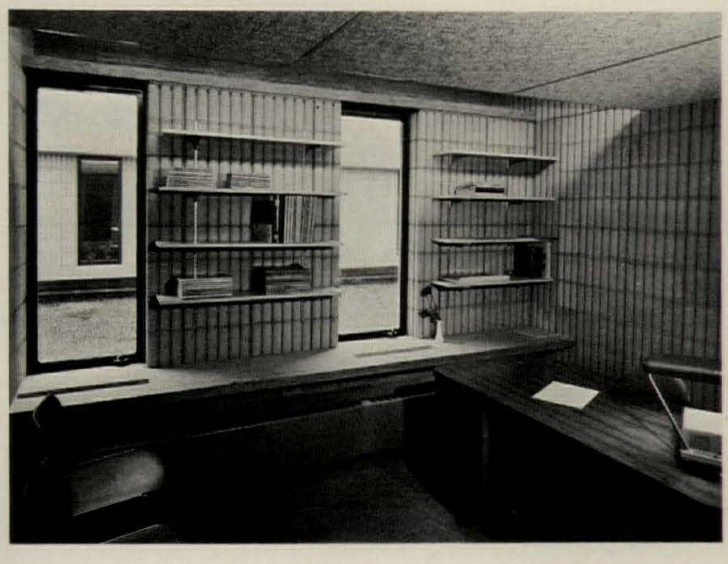


*Joseph W. Molitor photos*

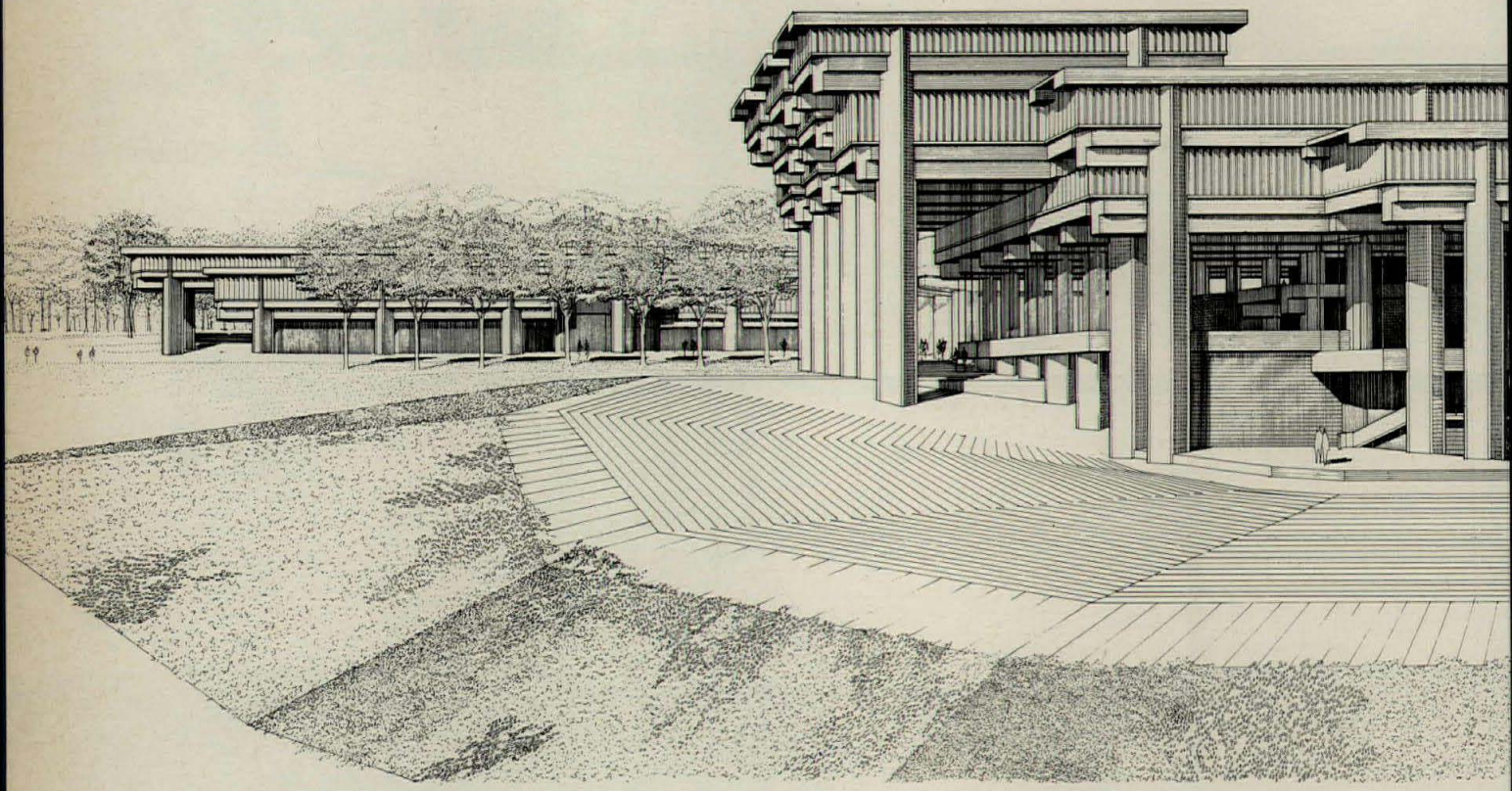
The horizontal concrete slab, expressed on the exterior as the floor of the office space, is actually at sill height, accentuating the role of the offices as a cornice at the top of the building.



THEASTERN MASSACHUSETTS TECHNOLOGICAL INSTITUTE
S AND HUMANITIES (GROUP 1) BUILDING
TH DARTMOUTH, MASSACHUSETTS
OCIATED ARCHITECTS: *Desmond & Lord, Inc. and Paul Rudolph—*
*captain: Grattan Gill; architectural supervisor:*
*inick Scarfo*
UCTURAL ENGINEER: *Congdon, Gurney and Towle, Inc.*
UCTURAL CONSULTANT: *Sepp Firnkas*
ITARY ENGINEER: *Robert W. Sullivan, Inc.*
TING ENGINEER: *Francis Associates*
TRICAL ENGINEER: *McCarron and Hufnagle*
RIORS CONSULTANT: *Bill Bagnall Associates, Inc.*
ERAL CONTRACTOR: *Franchi Construction Company*



The section perspective at top clearly shows the interior organization and the relationships of the various kinds of space. Interior photographs, from left to right, show the space that is being used as the president's office until the administration building is completed, a typical classroom, the large lecture hall, and a typical faculty office.



## WILL RUDOLPH'S VISION OF THE SMTI CAMPUS BE FULLY REALIZED?

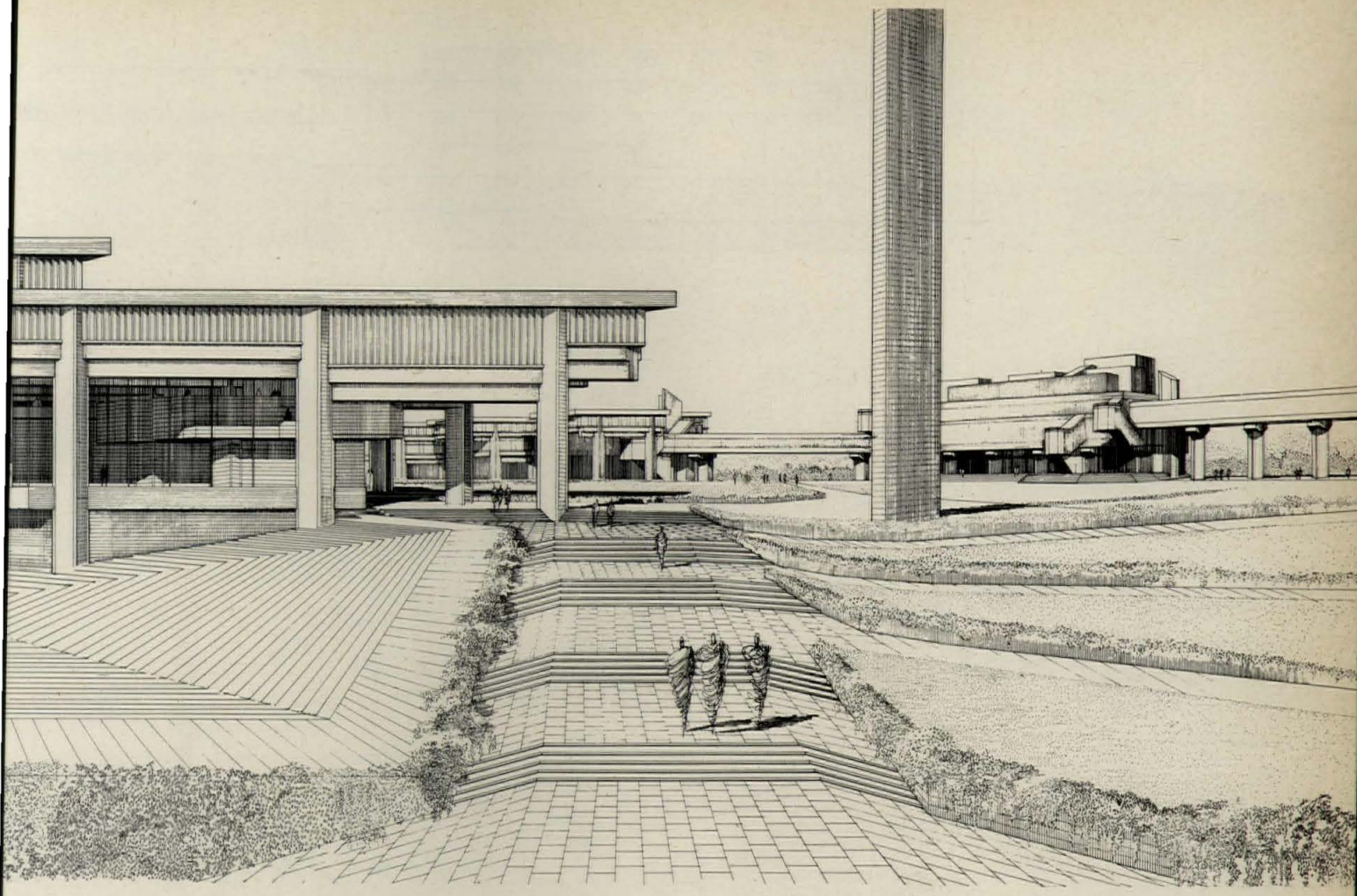
Paul Rudolph's rendering shows the library and entire south end of the S.M.T.I. campus as he envisages it—but whether this view will ever become a reality is now a question. The problem is the cost, and the issues involved are fundamental to the role of government as an architectural client.

As noted before, the square-foot cost for the now completed Arts and Humanities Building was $26. This figure undoubtedly reflects the fact that the structure is more elaborate than is usually required, the glass areas larger, and the position of mechanical equipment more strictly delimited. On the other side of the ledger, the cost also reflects the relatively inexpensive concrete block that is used as a finish material inside and out, the concrete floors, and the exposed ceiling structure. In any event, whatever the relation of the cost to more conventional buildings, it does not seem to have been considered excessive at the time the contract was let.

The second-stage building, however, has been another story. When the bids were opened, its cost turned out to be on the order of $34 a square foot, and a supplementary appropriation of funds was needed. In the resulting outcry, accusations of extravagance flew back and forth, most of them directed at the architects. A point that seems to have become lost in the confusion is that the second stage is a fully air-conditioned laboratory building. In those areas where stages 1 and 2 are directly comparable, their construction costs seem to be essentially the same, the difference being almost all in the mechanical equipment and laboratory fittings.

The architects seem to have made a strategic error in not fully preparing their clients for the cost implication of complete air conditioning, but the real operative factor seems to be that the buildings *look* extravagant, especially now that stage 1 is completed and visible in reality instead of in the necessarily somewhat complex drawings.

The Massachusetts Bureau of Building Construction is responsible for all state university buildings and its reaction has been an austerity program that has involved the simplification of some of the buildings that are still to be built; and, while Desmond and Lord remain the architects for the major buildings of the main campus, Paul Rudolph's active participation in the design development is apparently at an end.



Paul Rudolph's rendering of the S.M.T.I. campus shows the library in the foreground with the Textile Technology building in the background to the left, and the administration building and theater in the distance on the right. A detailed plan of the campus and two sections follow on the next page.

President Joseph L. Driscoll of S.M.T.I. is strongly in favor of the Rudolph design and thinks that the money to build it would be well spent: "I think Rudolph has given us a brilliant architectural response to our educational requirements. I'm extremely happy that all the major buildings but one are by Rudolph, and, to have a truly integrated campus, the library, which is the most prominent building, ought to be by Rudolph also. The board of trustees is very disappointed that this may not be the case; I guess we all are.

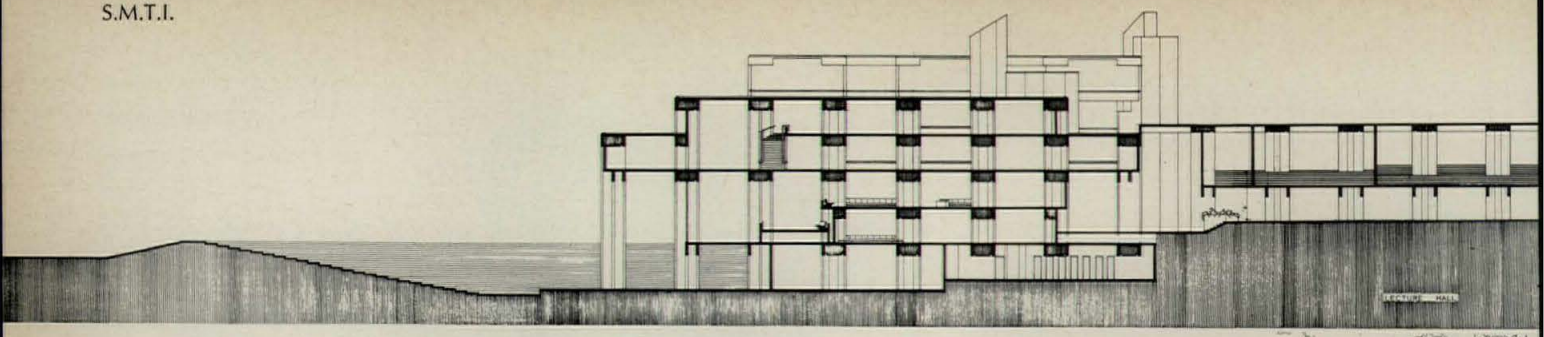
"People forget that buildings do more than keep the rain off the students. I think this first building is already doing a lot for education: the students are delighted with it, the faculty is delighted with it; and, really, dollar for dollar, we are getting our money's worth and then some. I won't argue that we can't build it cheaper; but we wouldn't be getting the same thing."

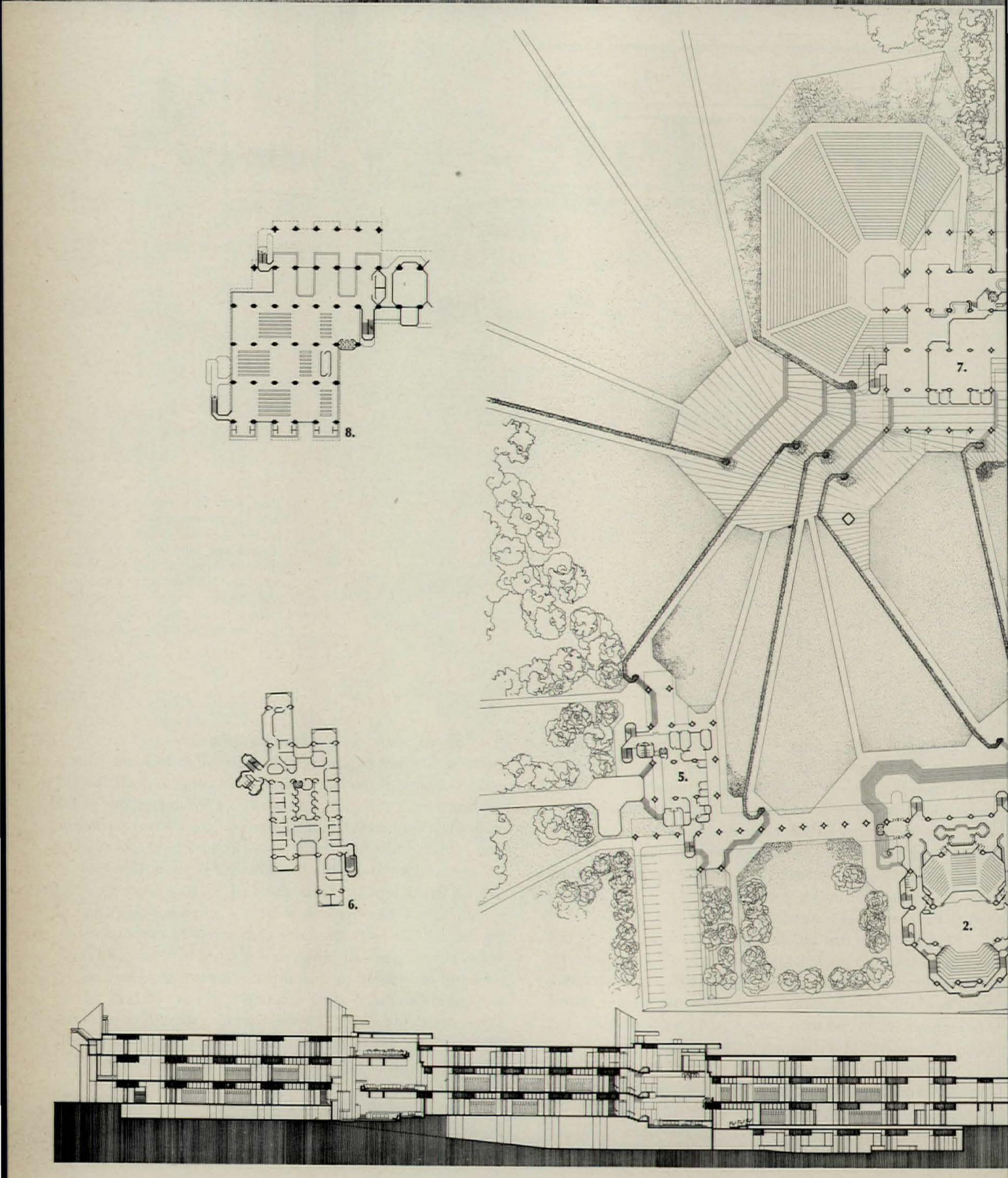
It is possible to sympathize with the State Bureau of Building Construction, trying to allocate a budget that does not begin to equal the demands being made on it by various Massachusetts educational institutions, and always liable to have to answer accusations of bad judgment or mismanagement.

The real issue goes deeper than the individual case. The question is whether government is obligated to build educational buildings at the least possible cost consistent with sound construction. If not, how and when are the exceptions to be made? Is it legitimate to spend more money on certain prominent "focal" buildings? Such seems to be the *de facto* policy on certain campuses, but it rules out designs like that of S.M.T.I. which seek to create a unified building complex.

Why was the extra cost of S.M.T.I.'s first building (assuming that it did in fact represent a premium over a more conventional design) justified, while similar costs in the second stage were not considered so? Is it that it is legitimate to have architectural elaboration, or air conditioning, but not both at the same time? And, when policies change, should government officials, who may or may not be architects, make what are in effect design decisions about buildings solely on the basis of estimated cost?

The answer to all of these questions lies in the definition of what really constitutes the public interest in regard to the buildings constructed by governments. —*Jonathan Barnett*

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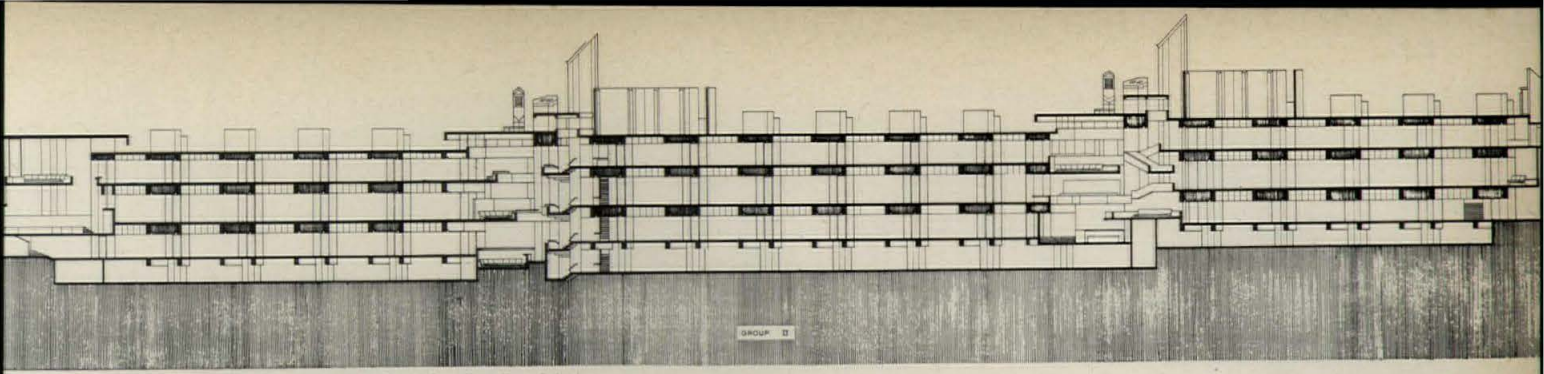
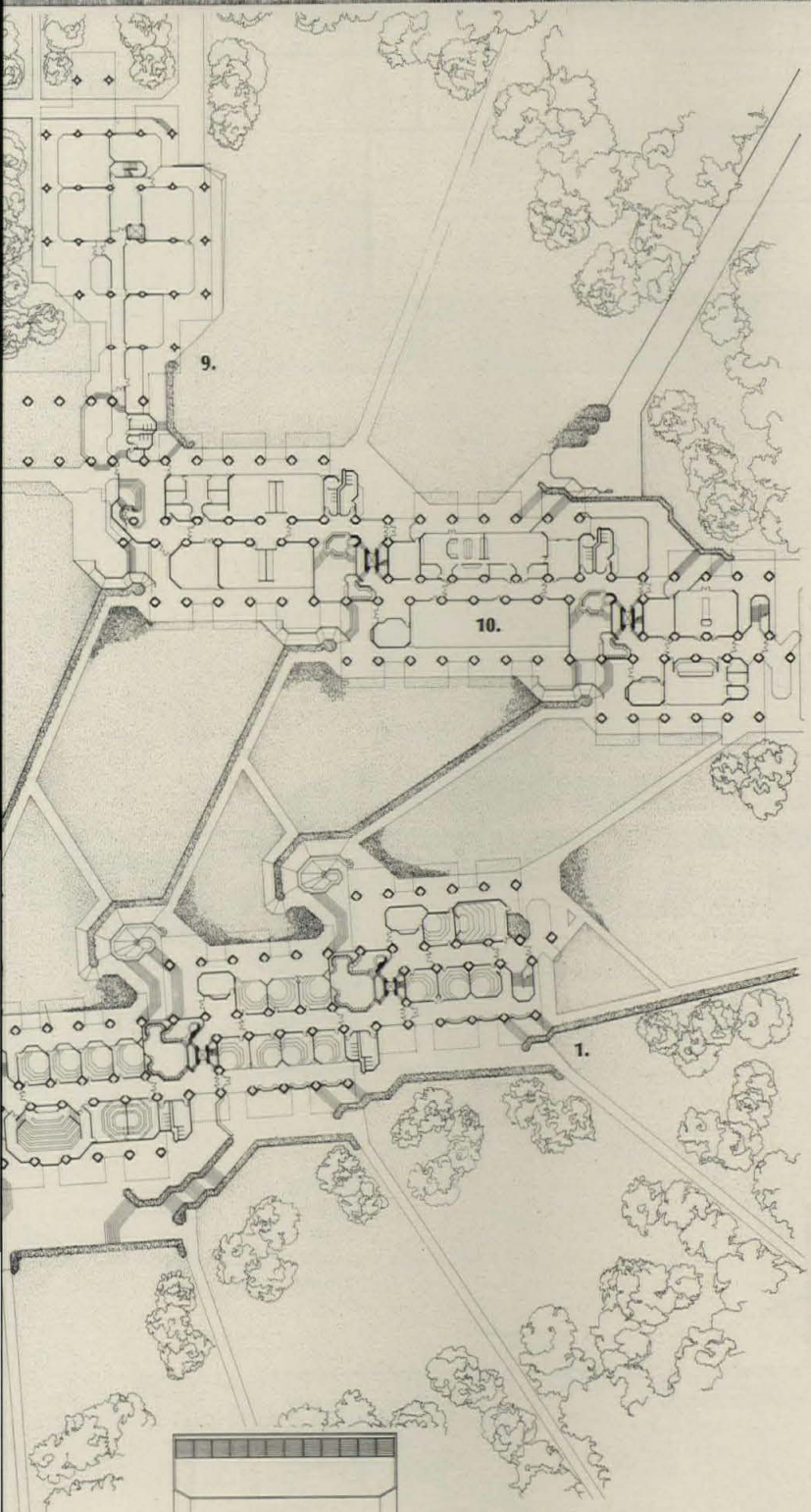
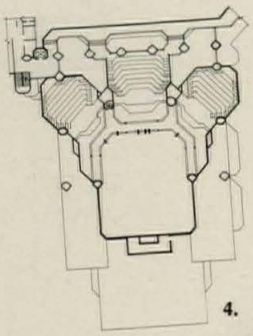
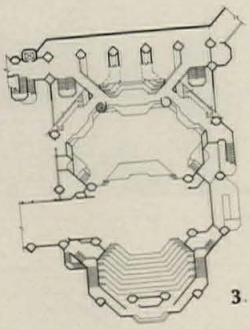
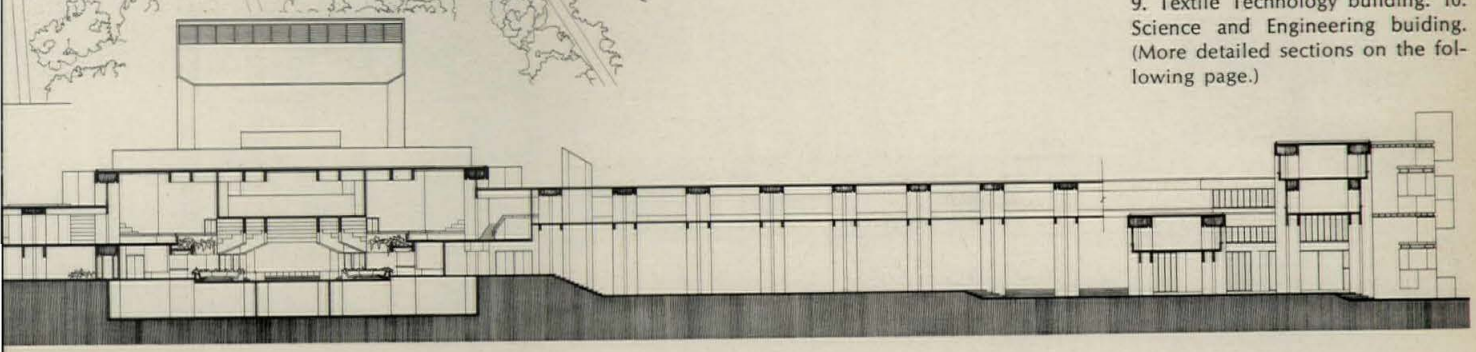





1. Arts and Humanities Building (now completed). 2. Lecture hall complex in which individual lecture rooms can be combined to form a full size theater. 3 and 4. Upper-level plans of theater. 5. Administration building. 6. Top floor of administration building. 7. Library. 8. Typical floor of library. 9. Textile Technology building. 10. Science and Engineering buiding. (More detailed sections on the following page.)



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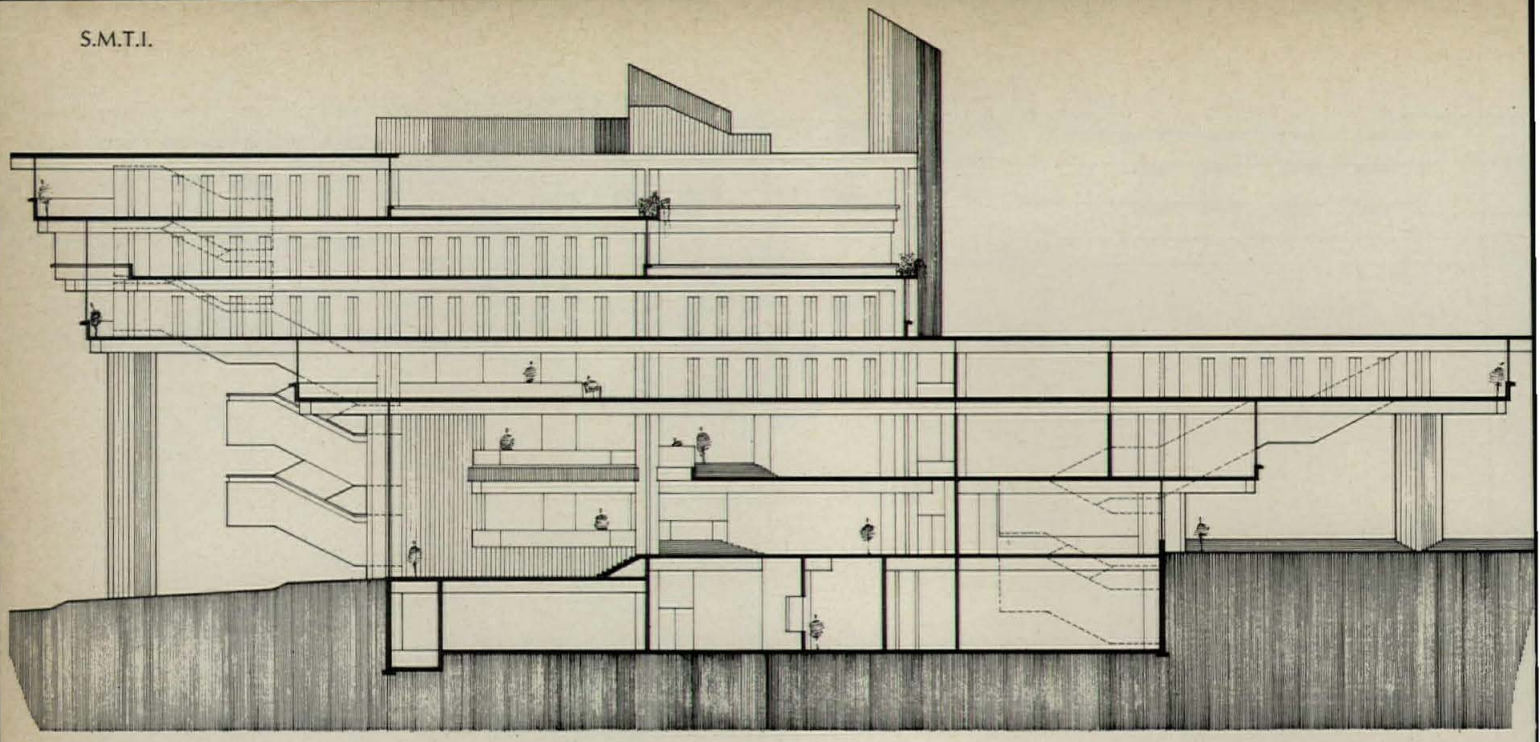
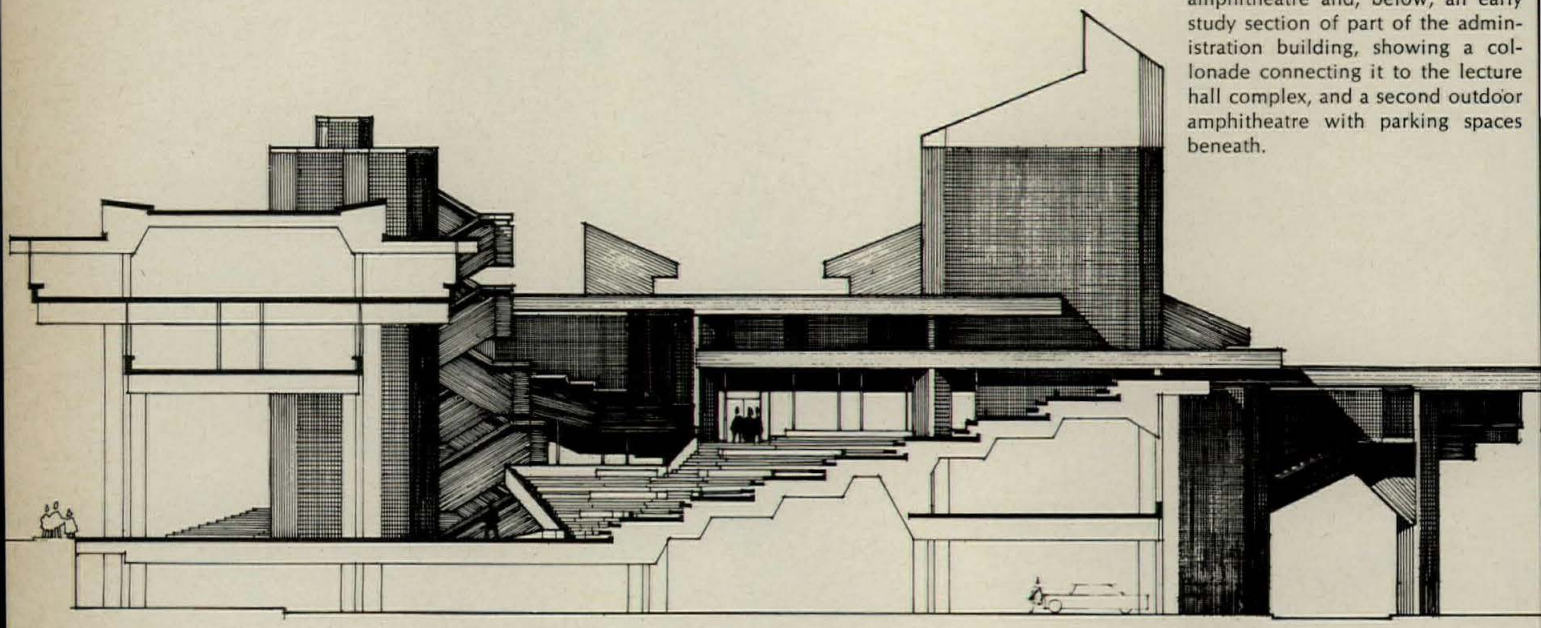
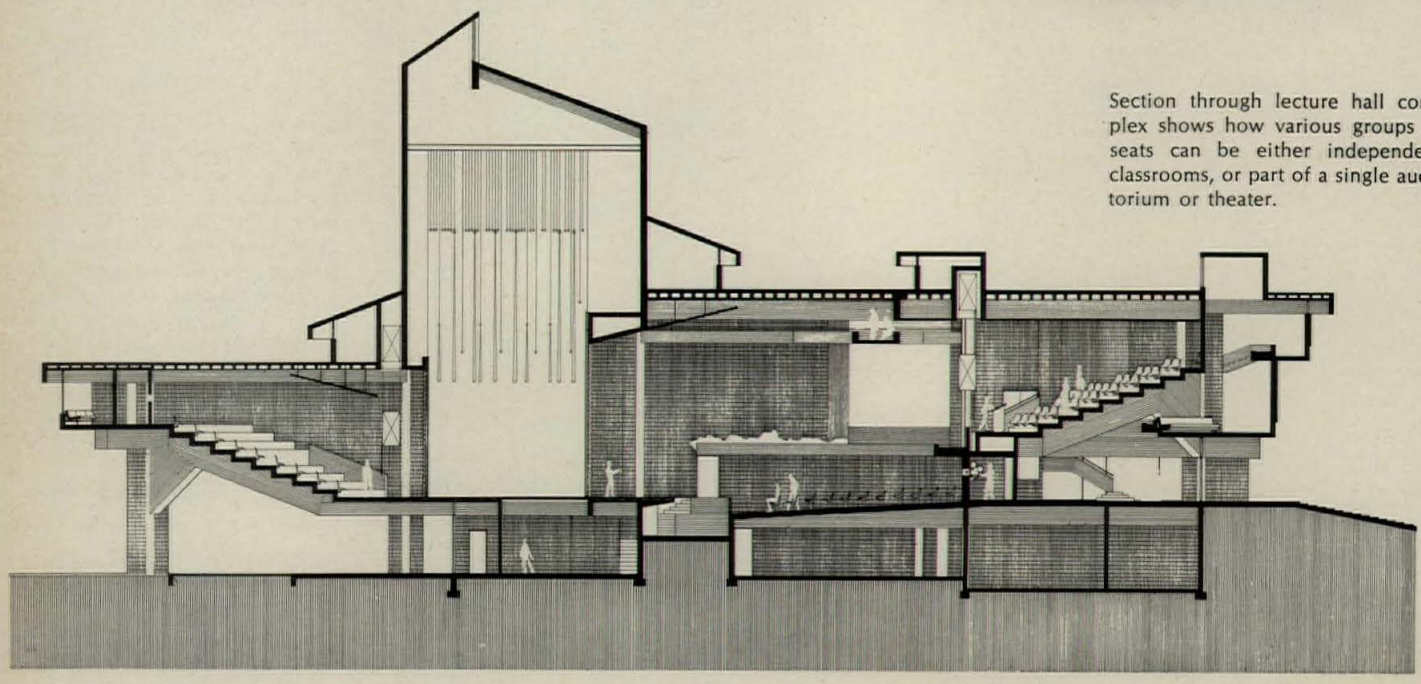




Above: a section through the library, showing its relation to the amphitheatre and, below, an early study section of part of the administration building, showing a collonade connecting it to the lecture hall complex, and a second outdoor amphitheatre with parking spaces beneath.

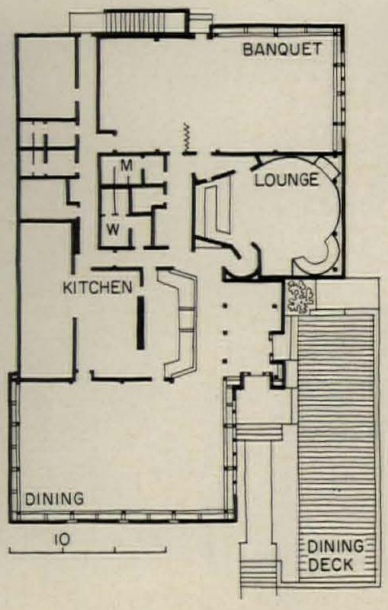


Section through lecture hall complex shows how various groups of seats can be either independent classrooms, or part of a single auditorium or theater.

# 5 RESTAURANTS

Each of the five restaurants shown here makes the point that, even on a busy highway, good design can compete successfully without "googie" forms and garish signs, and that it can increase the pleasure of dining out as well as the efficiency of restaurant operation. Each also shows respectful recognition of its neighborhood by its scale, materials, siting and character.


RESTAURANT 1




## A SHINGLED BUILDING SET BACK FROM THE STREET

The quiet residential character of this low shingled building, set back from the street like its neighbors, reflects the immediate area and preserves it, at least temporarily, from radical change due to spot zoning. Discreetly narrow windows in the main dining room minimize views of heavy arterial traffic and are augmented at floor level by a continuous band of amber glass. Capacity is 90, plus 50 in cocktail lounge, 50 on outdoor deck and up to 100 for banquets.

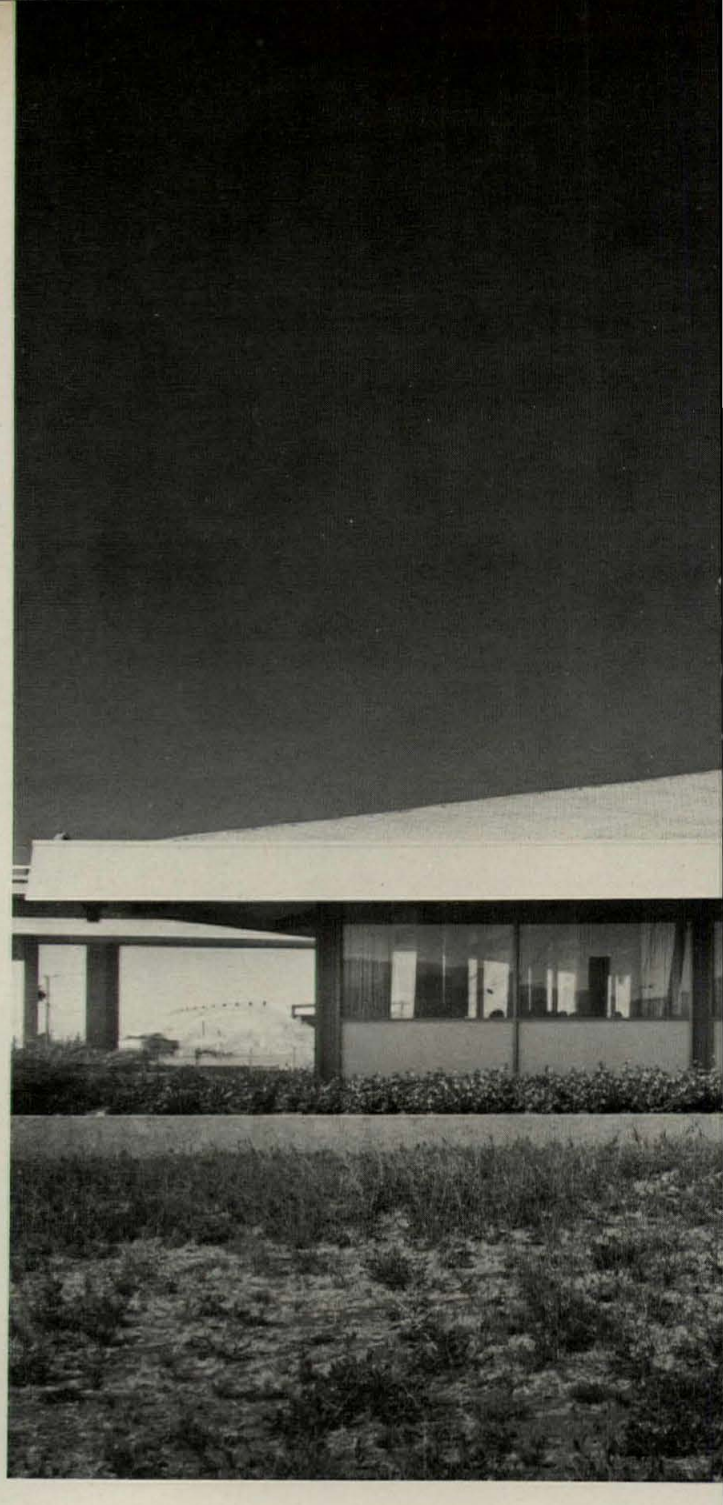
CECCANTI'S RESTAURANT, Tacoma, Washington. Architects: *William Hocking/Robert Moriarty;* structural engineer: *H. V. Sargent;* mechanical engineer: *Norris Pearson;* landscape architect: *David De Moulin;* interiors: *Thomas Jensen;* graphics: *Larry Larsen;* artists: *Thomas Wilson, Robert Flynn;* contractor: *Strom Construction Company, Inc.*

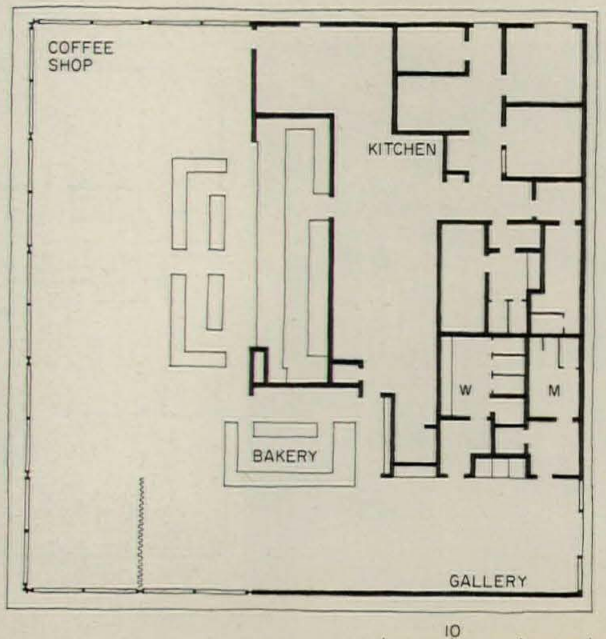
## ROOF FORM AND INTEGRAL SIGN ATTRACT HIGHWAY TRAVELLERS

The stark simplicity of the curved roof line of the Coffee Tree restaurant, and its handsome integral identification sign sharply delineated against the sky, effectively answer the problem of attracting highway customers without falling into the trap of "googie" architecture. The building is located on the heavily travelled highway between the San Francisco Bay area and Sacramento, the state capital, and is almost directly across from the long-established Nut Tree restaurant, operated by the same owners. Although the Coffee Tree is a quick-service, lower-priced restaurant intended to complement the Nut Tree, its design was required to be equal in quality to that of the earlier unit (for which Dreyfuss and Blackford designed an addition)—and this extended to all details including graphics inside and outside the building (on which the architects worked closely with the restaurant's design director) and the pleasantly landscaped parking area.

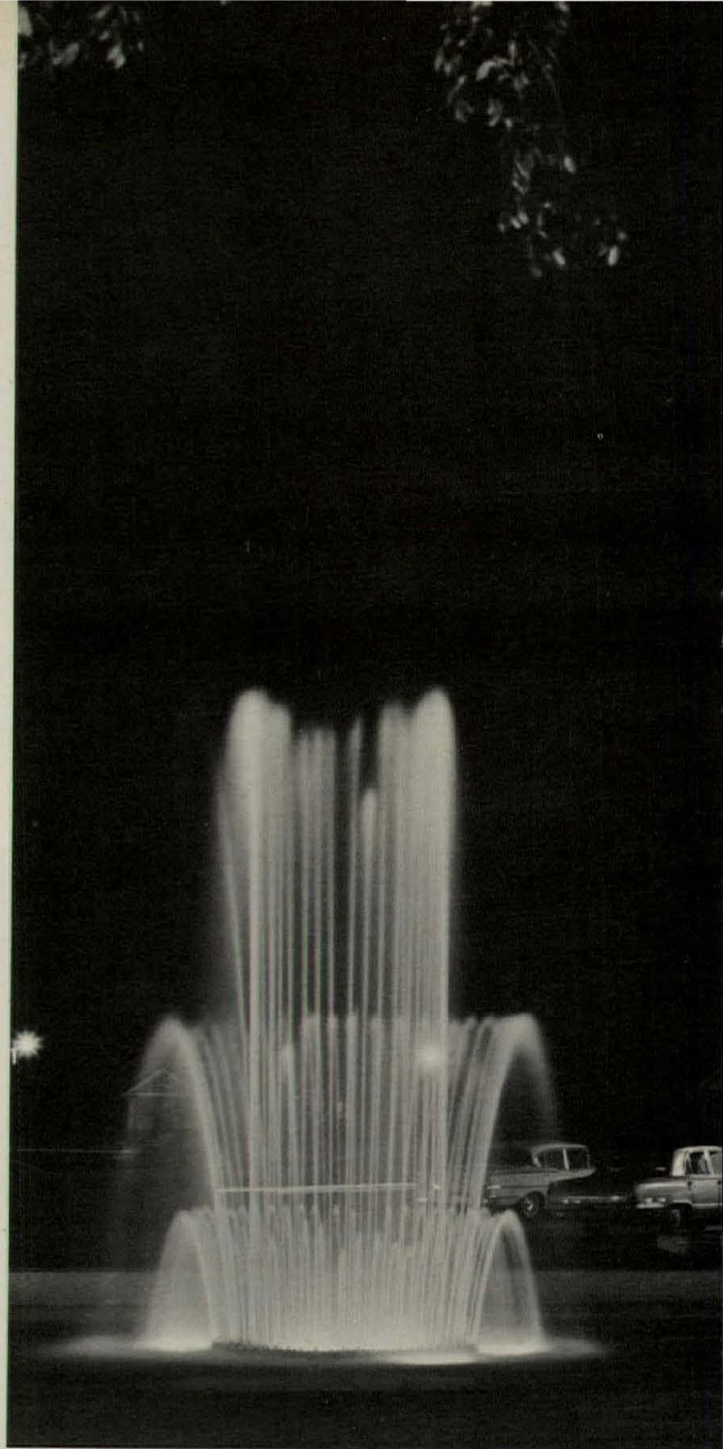
THE COFFEE TREE, Nut Tree, California. Architects: *Dreyfuss & Blackford;* structural engineers: *Buehler & Buehler;* mechanical engineer: *Dan Yoshpe;* electrical engineers: *McPherson & Norberg;* landscape architect: *Jerome Brown;* kitchen consultants: *Fred Schmid Associates;* graphics: *Don Birrell;* contractor: *Vaca Construction, Inc.*

*Photos by Bill Courtney—Sirlin Studios*




Glued laminated beams frame the roof and permit the open tent-like ceiling. Above the service counter is a mural made up of paintings by Edward Diffenderfer and Earl Thollander, photos and cut-outs depicting landmarks and products of the countryside. At the entrance to the dining area is a sales counter for bakery products. The dining area seats 140 in booths and at counter.



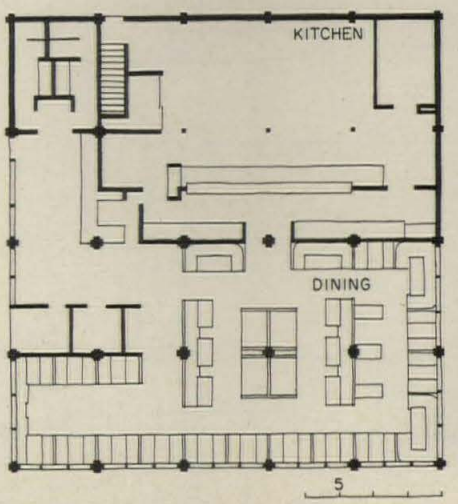
## SPECIALTY RESTAURANT SERVES A NEW SHOPPING CENTER

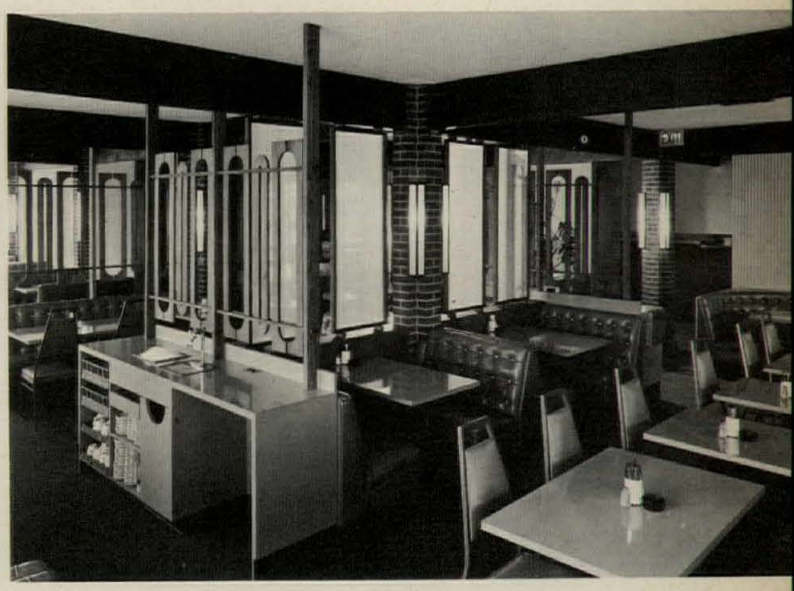
Designed to look festive by night as well as by day, this restaurant is located in the Avondale Shopping Center, part of Denver's big new redevelopment area. Its owners, operators of a chain of pizza restaurants in Denver, wanted to expand the service in this restaurant to include other Italian foods without full restaurant service, since they did not want to diminish the original pizza operation. The plan provides for approximately 140 seats in the dining room plus a carry-out sales counter with its separate entrance. The building is designed to harmonize with the rest of the shopping center (designed by the same architect), using heavy brick piers, cross-shaped in plan, and heavy timber beams for its structure, painted brick for its exterior walls. Glass panels over the arched windows are of red cathedral glass. In addition to the main floor, there is a 1,500-square-foot basement for storage. The unusually tight budget provided $66,000 for the building.

PIZZA OVEN RESTAURANT, Avondale Shopping Center, Denver, Colorado. Architects: *Donald R. Roark;* structural engineers: *Johnson & Voiland;* electrical engineers: *Sol Flax & Associates;* contractor: *Al Cohen Construction Company.*

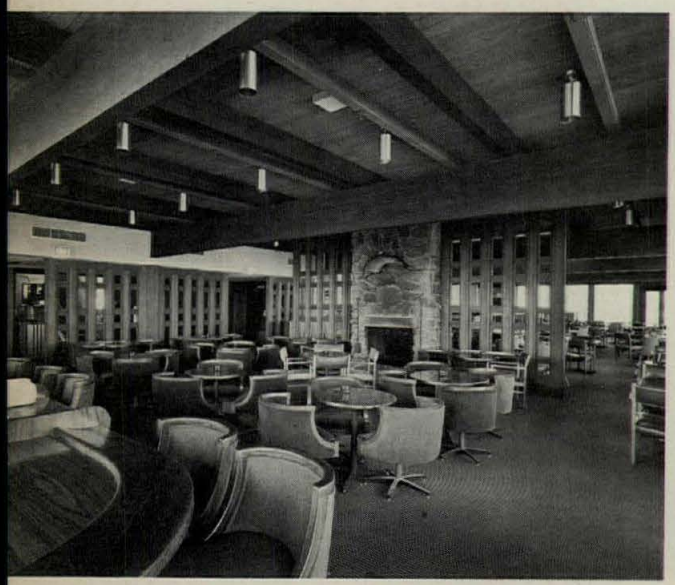

*Photos by Winter Prather*

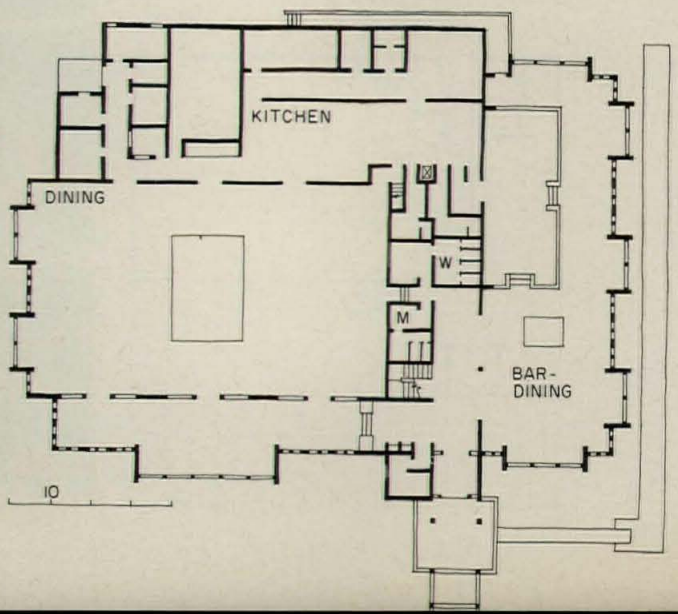
All interior furnishings, including incandescent lighting fixtures mounted on piers, were designed by the architect. All millwork is of red oak.



The bridge makes a dramatic means of entering the restaurant. Public dining rooms and bar are at left; private-party rooms and bar right.



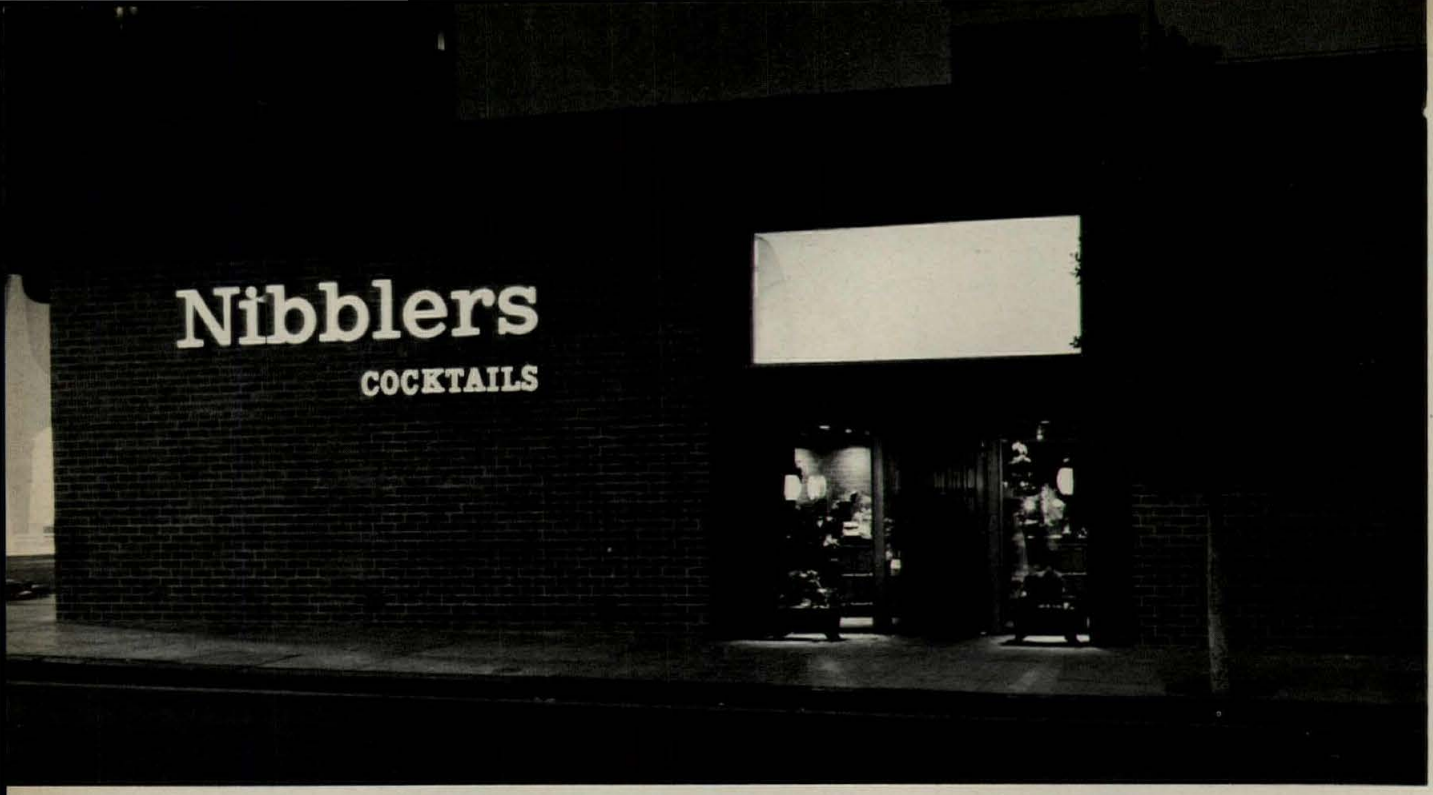


## OVER-WATER RESTAURANT CATERS TO MARINA AND PUBLIC

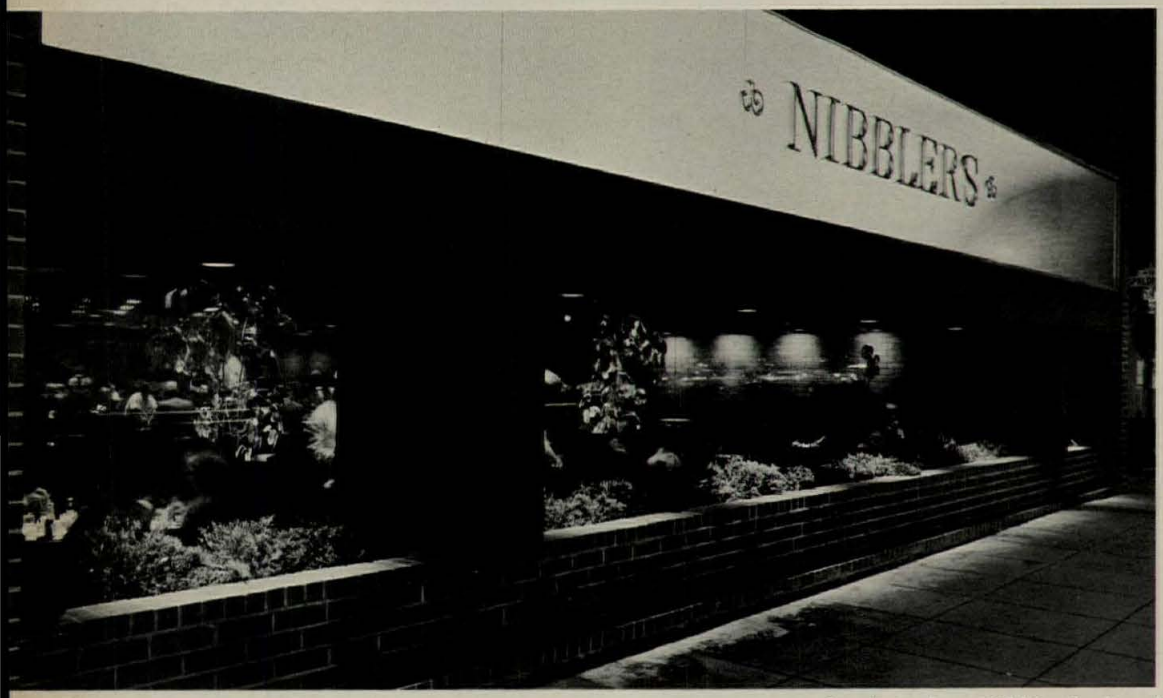
The low lines and almost residential scale of this all-wood restaurant are deceptive, for the building can serve up to 800 people at a time in its public and private dining rooms and bars. To serve so many efficiently is a complex operation, but the complexities have been organized in a simple and effective plan which puts all service circulation on one side of the building (where deliveries are facilitated by easy access to the road) and all public circulation on the other. Further, all public dining and bar areas are on one side of the building, all private-party facilities on the other. Different ceiling heights and a two-level dining room add interest to interior spaces; on the exterior raised roof panels, bay windows and alternating wide and narrow openings vary the form. The over-water site, the treated wood supports for the building, and the extensive use of wood are appropriate to the location at a marina on San Francisco Bay.

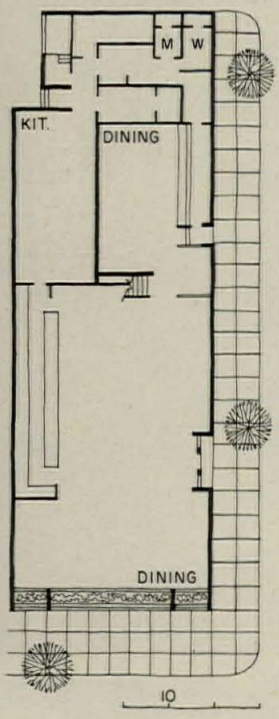
BLUE DOLPHIN RESTAURANT, Marina, San Leandro, California. Architects: *Jens Hansen & Associates;* structural engineers: *W. B. Clausen;* mechanical engineers: *Charles & Braun;* electrical engineers: *Mazzetti & Parish;* interior consultants: *Brand-Worth;* contractor: *George Samson.*

*Photos by Ricco-Mazzuchi*




Photos by Jordan Lagman




Simplicity keys Wilshire Boulevard exterior: base is brick; behind illuminated clear-glass panel with raised gold letters is curved redwood panel.

RESTAURANT 5

## FOR A CORNER SITE, SIDE ENTRY OPENS FRONT TO VIEW

Designed for a variety of food services, and providing for each a particular atmosphere—counter for quick hamburger, high-vaulted ceiling over booths, low-ceilinged intimacy for cocktails-and-dinner—this restaurant makes the most of its narrow (45 feet) frontage on a major street. A full-width window invites views of the brick and redwood interior, and the entrance is on the side street, closer to parking.

NIBBLERS RESTAURANT, Beverly Hills, California. Architects: *Daniel L. Dworsky & Associates;* structural engineers: *L. Reiss & Brown, Richard L. Brown,* structural engineer; mechanical engineers: *Hellman & Lober;* electrical engineers: *Norman Levenson & Associates;* interior decorators: *Paul Bennett & Associates;* restaurant consultant: *IRS, Inc.;* contractor: *Feldman Construction Company.*

# expo67

## an experiment in the development of urban space

The site under construction, top, with the City of Montreal in the background, was created by landfill from small islands, above.

At Expo 67, the world's fair that will open in Montreal next April, concepts in urban planning and high-density land use that planners and architects have talked about for years will be given concrete expression. It is too early to predict whether they will succeed, and whether what works at the fair has validity at larger scale—city-scale, or regional-scale. But nonetheless, this exhibition, unlike most, has been designed by architects and planners and is important to the profession as an experiment or prototype. The design of the fair is based on a hierarchy of ideas: the transportation system forms the backbone of the plan; the major pavilions are focal points of areas defined by the transport system; design of street furniture, lighting and graphics further reinforces the intent of the comprehensive plan; and the whole is given a single essential character (yet no sense of uniformity) by design restrictions on individual exhibitors.

## Transportation system forms the backbone of the plan

The transportation system is three-dimensionally organized to orient the spectator with the vast, complex site, giving him a variety of vistas and experiences at different heights and speeds. All means of transportation are separated from one another and from pedestrian traffic. The primary system, the Expo Express, the use of which will be free with the admission charge, will connect the four main areas of the exhibition at high speed. The slower secondary systems, available at a small additional cost, provide transportation within each of the main areas and are located to relate to the primary system. The secondary systems include three minirail loops with a total length of over five miles, two trackless trailer trains, canal traffic, and a skyride.

- The land-use plan locates—adjacent to the Expo Express stations—the theme pavilions—focal points for the areas alloted for national, private and industrial exhibits. The pavilion areas were carefully planned so there would be varied and continuous points of interest and—learning from the recent New York World's Fair—no "dead spots": largest pavilions were located at the extremities of the sites leading the spectator through the smaller pavilions; the smaller pavilions were grouped geographically on a national basis where possible; landscaping was used to establish pavilion groupings and specific alignments; and national, private and industrial exhibits were intermingled.
- The design of street furniture, lighting and graphics, each conceived as a modular system of urban validity, reinforce the circulation determined by the transportation systems (see page 172).
- The master plan design intent, in a series of restrictions, sought to bring each pavilion into the character established by the master plan (see page 174). These restrictions included: a minimum of 40 per cent and a maximum of 60 per cent lot coverage; height limitations on smaller interior pavilions; and various regulations on individual use of lighting, graphics, color, and landscaping.

The Department of Installations at Expo, which is responsible for all aspects of planning and architectural design, has as its chief architect Edouard Fiset. Assistants to Mr. Fiset include architects Steven Staples, in charge of planning, and Rudolph Papanek, in charge of architectural structures.


The site, on a series of islands in the Sainte-Lawrence River, a mile and one half from central city Montreal, was chosen not only for its proximity to the city, but for its unique potential to utilize the water. The 745-acre tract (nearly 1,000 acres including parking areas for 21,000 cars) was created by a landfill operation from 286 acres.

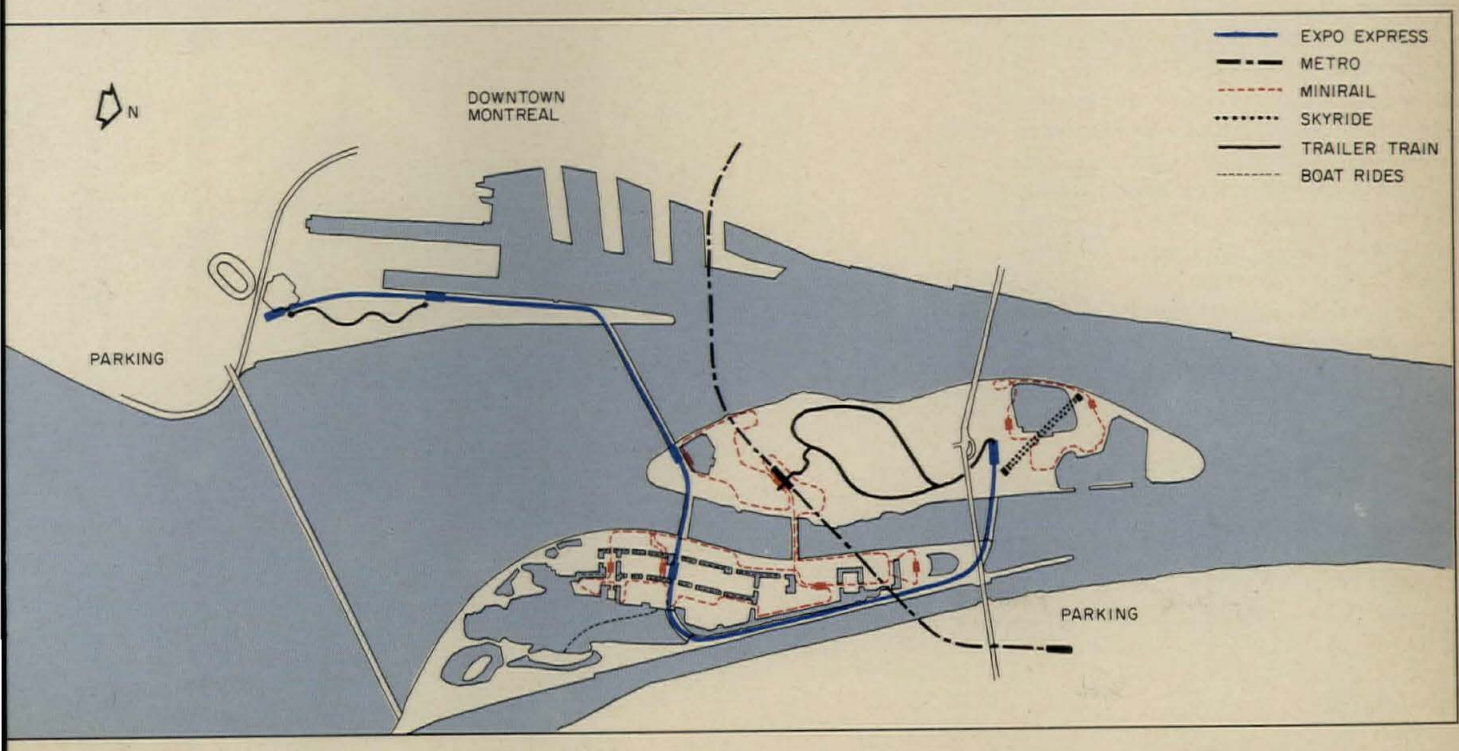
The original site had but one access from Montreal, a bridge to the city park. There are now four means of access to three main entrances: the Champlain Bridge-University Extension Parkway from center city to the base of Cite du Havre; the new Montreal metro, connecting the city to Ile Sainte-Helene to the Jacques-Cartier parking lot; a 245-boat marina at La Ronde; and the Jacques-Cartier Bridge to La Ronde.

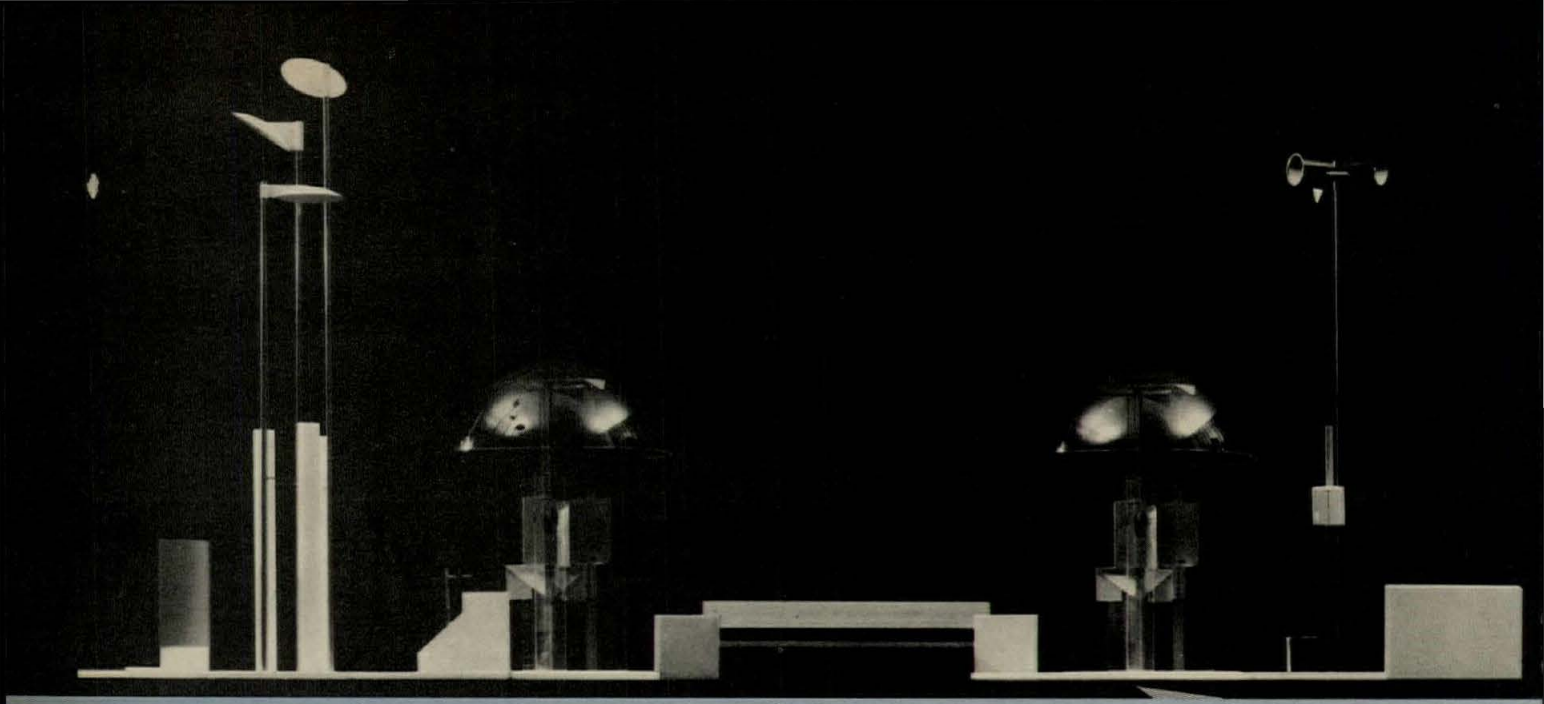
The Universal and International Exhibition of 1967, as Expo 67 is formally called, which will be held next year from April 28 to October 27 in Montreal, will celebrate Canada's Centennial as a confederation and the 325th anniversary of the founding of Montreal.

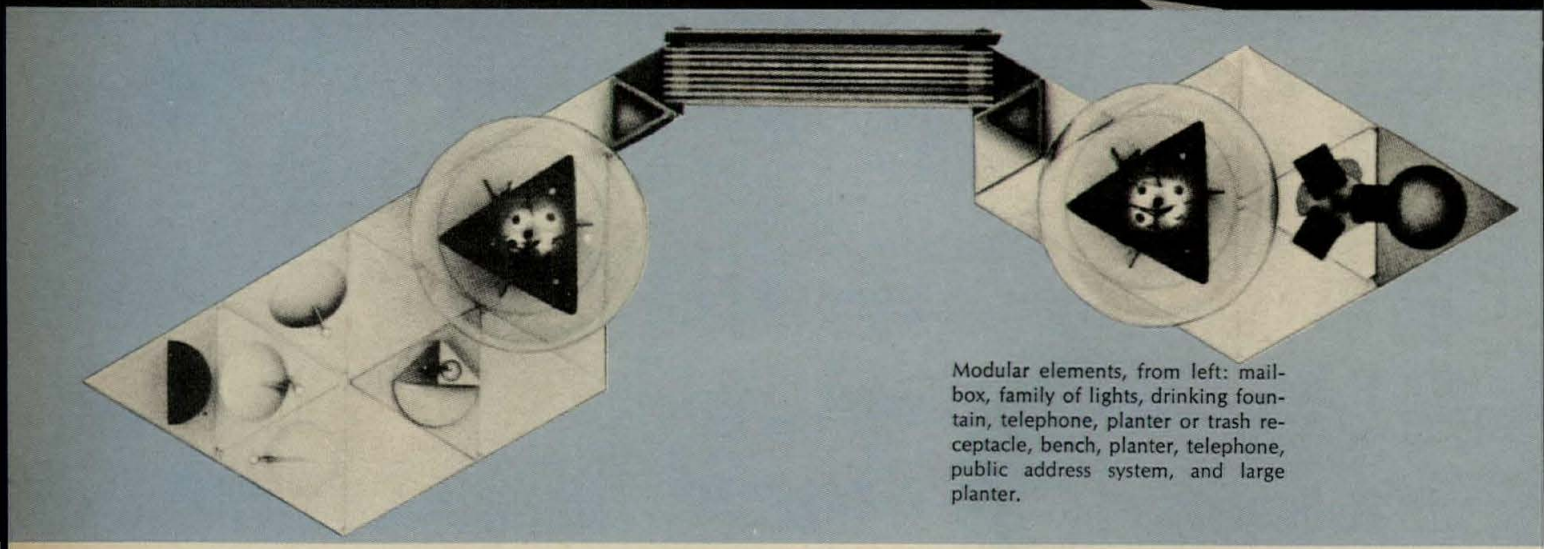
The Canadian Corporation fo the 1967 World Exhibition, which was established in December, 1962 to organize and run Expo, wil spend about $333 million on the fair, the cost to be shared by the government of Canada—50 per cent the Province of Quebec—37½ pe cent, and the City of Montreal—12½ per cent.

Expo will be the largest exhibit of its type ever held. Nearly 7( countries (Brussels had 42) will construct their own pavilions. The theme of Expo 67, "Man and His World," was inspired by the title o Antoine de Saint-Exupery's book "Terre des Hommes" (the title in English is "Wind, Sand and Stars"). The philosophy of the theme is summed up in Saint-Exupery's words "To be a man is to feel that through one's own contribution one helps to build the world". There will be more than 20 acres devoted to theme pavilions.


JACQUES-CARTIER BRIDGE
ILE SAINTE-HÉLÈNE
LA RONDE
HÉLÈNE DE CHAMPLAIN PARK
TRE-DAME
PARKING
PARKING


EXPO EXPRESS
METRO
MINIRAIL
SKYRIDE
TRAILER TRAIN
BOAT RIDES
N
DOWNTOWN MONTREAL
PARKING
PARKING

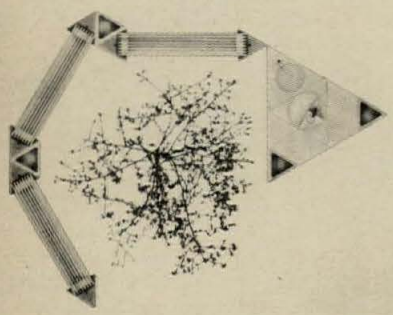




Modular elements, from left: mailbox, family of lights, drinking fountain, telephone, planter or trash receptacle, bench, planter, telephone, public address system, and large planter.

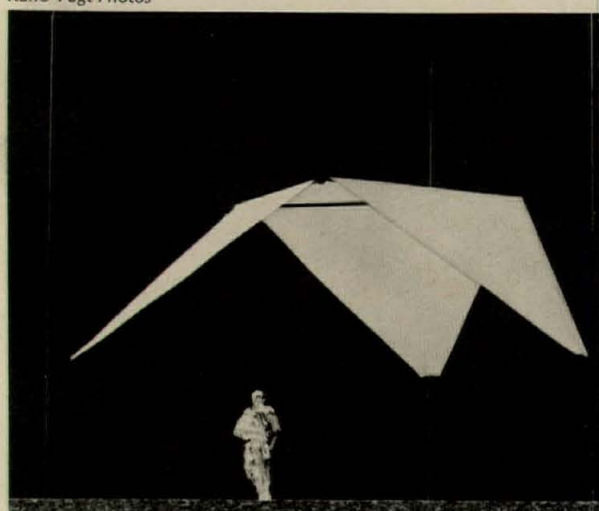
## Lighting and street furniture establish a sense of order and reinforce the plan

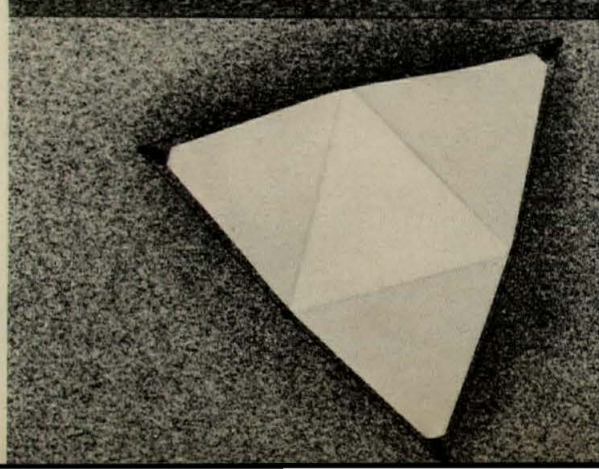
Components of the flexible system of lighting and street furniture, designed by Luis F. Villa/Frank Macioge Associates, can be used separately or combined in various groupings to emphasize axes and circulation routes or to create rest areas (see below). The use of common materials and basic geometric forms relates the elements visually as well as physically. "The design of outdoor unifying elements," says Norman Hay, in charge of industrial design for Expo, "was intended to be played down, serving as a visual link, but not a *tour de force*."

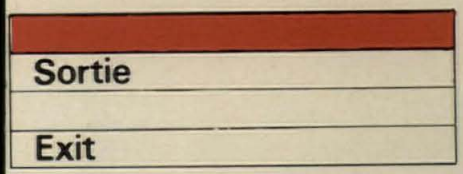


At right is an information booth with three 24-foot-high steel supports connected by steel cables forming a rigid triangular frame over which a white translucent synthetic material is stretched. Underneath, white precast concrete prisms and flat slabs form storage and counter space for communications equipment used in booth. At left, another arrangement of the modular elements defines a rest area.

*Kuno Vogt Photos*

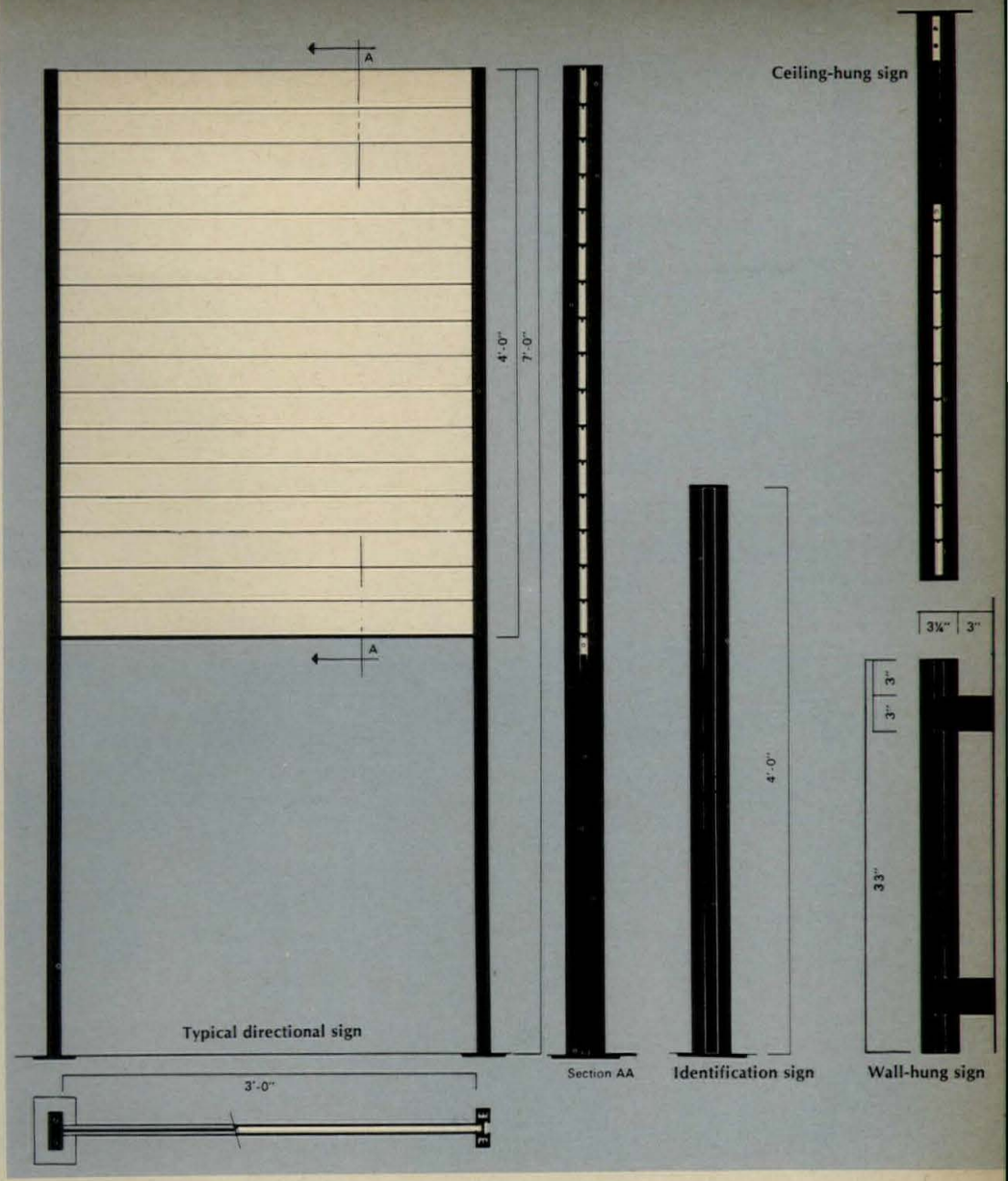




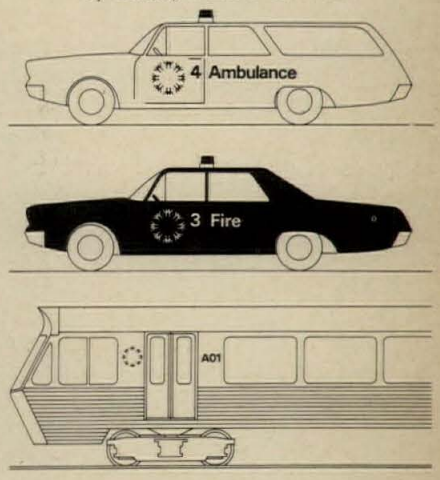

## The graphics further clarify the system

The modular system of graphics, designed by Paul Arthur & Associates, is another tool used to visually unify the site. The graphics will be used for all Expo services and buildings and their use by private exhibitors is encouraged. Each of the four main areas will be color-coded, this color to appear as a strip on directional and other signs. Pictographs (below) will be used in preference to typographic messages.

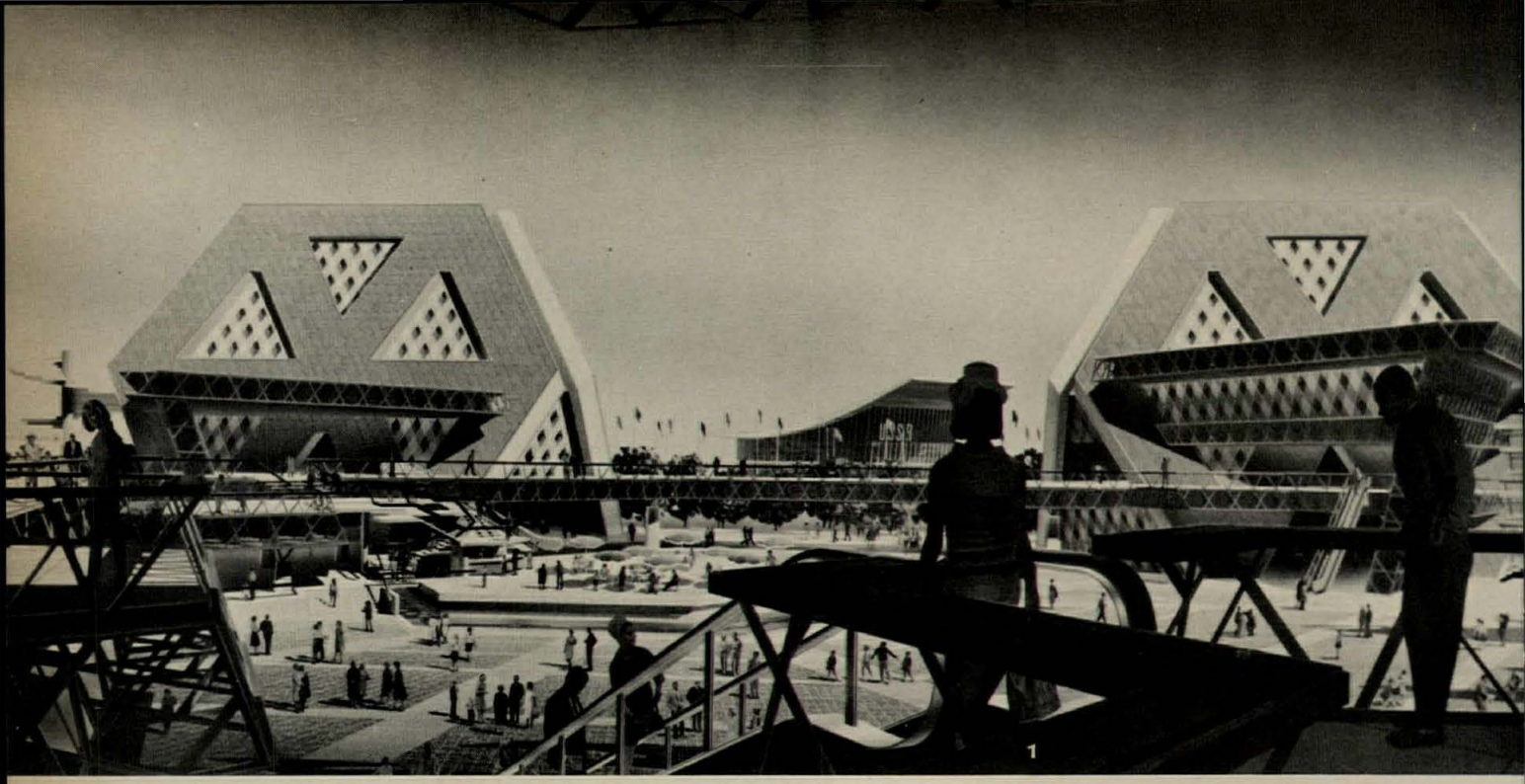


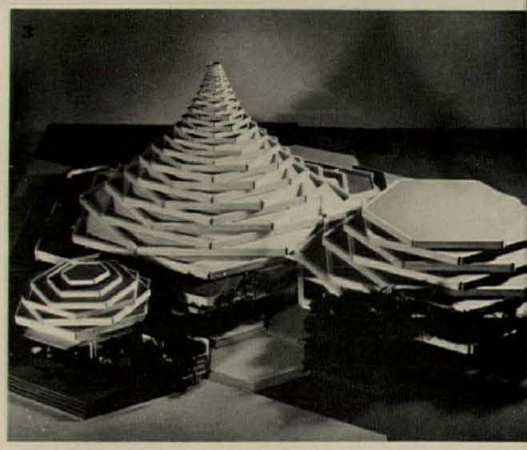

The basic module of the sign system is three inches deep by three feet wide. Other strips are one-half inch, one inch or two inches deep by nine inches or 18 inches wide. When strips are not used, as in maps, the three-foot module will still apply. The signs will be assembled with extruded aluminum supports designed by Girard, Bruce & Carbadien.

1 Entrance
2 Exit
3 No fire
4 Don't touch
5 Electricity
6 No admission
7 No standing
8 No sitting
9 Anti-littering
10 Telephone
11 Hospital
12 First-aid
13 Lost-Found
14 Handicapped
15 Women's WC
16 Men's WC
17 Restaurant
18 Coffee Shop
19 Bus Station
20 Marina
21 Ferry Dock
22 Locker
23 Cloakroom

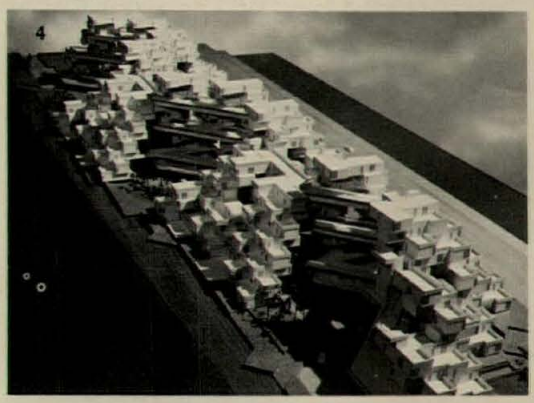



Service vehicles and the Expo Express display the official Expo symbol, designed by Julien Hébert. The emblem is based on ancient drawings of the human form. Linked as they are, they represent brotherhood throughout the world.

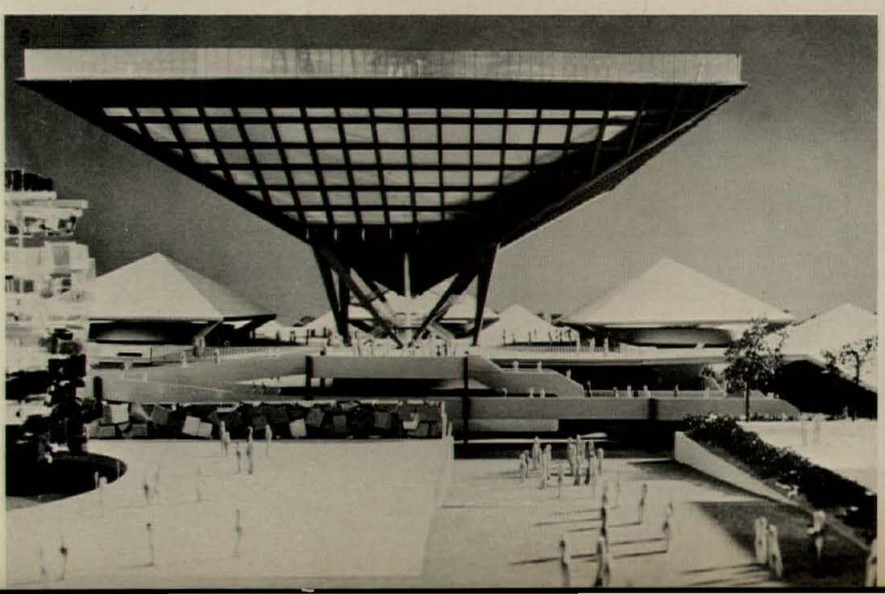




**1.** Three truncated tetrahedrons on Ile Sainte-Helene make up the theme pavilion "Man the Explorer," designed by Affleck, Desbarats, Dimakopoulos, Lebensold, Sise. **2.** The "Man the Provider" theme pavilion on Ile Notre Dame, designed by Longpre, Marchand, Goudreau, Dobush, Stewart, Bourke, is the largest theme exhibit at Expo, covering seven and one-half acres. Nine buildings will surround a circular "sun acre" where different crops will be raised. **3.** "Man and His Community," the theme pavilion located on Cite du Havre, designed by Erickson & Massey, is a series of diminishing hexagons.

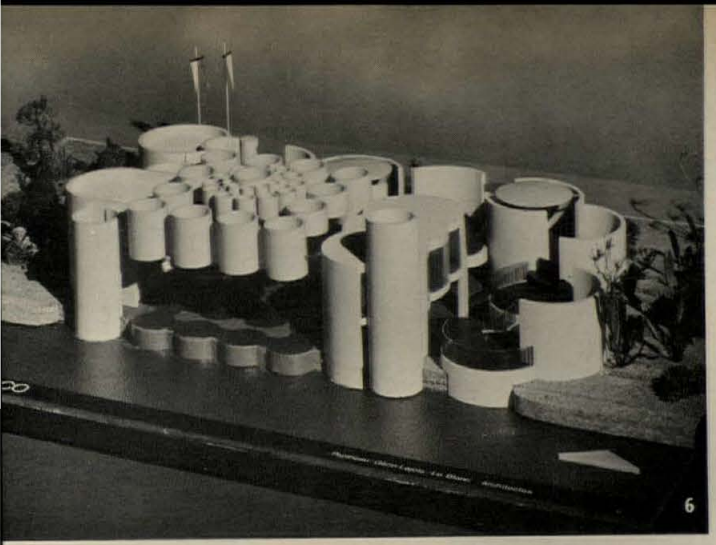


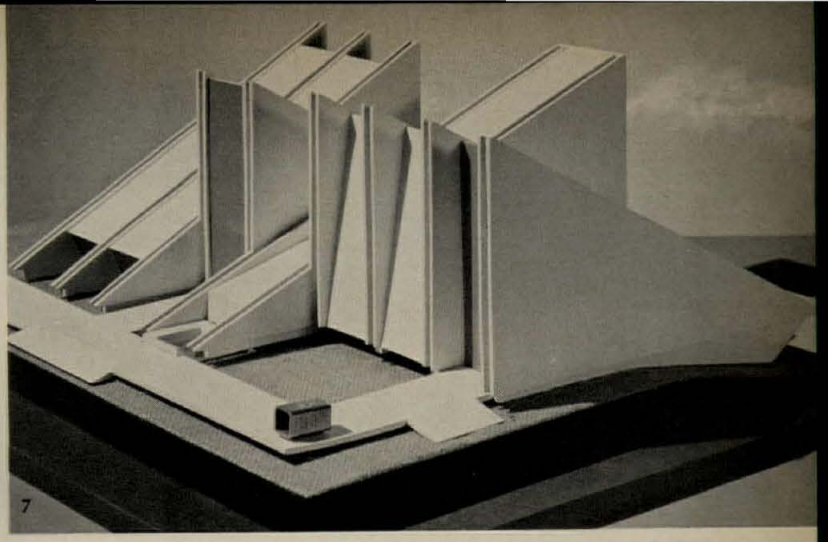
**4.** Habitat '67 on Cite du Havre, designed by Moshe Safdie & David, Barott, Boulva, is 354 precast modular construction units making up 158 dwelling units. The houses vary in size from a one-bedroom 600-square-foot dwelling to a four-bedroom 1,700-square-foot unit. **5.** The Pavilion of Canada on Ile Notre Dame, designed by Ashworth, Robbie, Vaughan and Williams and Schoeler and Barkham, Z. Matthew, with Erickson & Massey as consulting architects, is dominated by a 108-foot-high structure called a Katimavik, or gathering place.

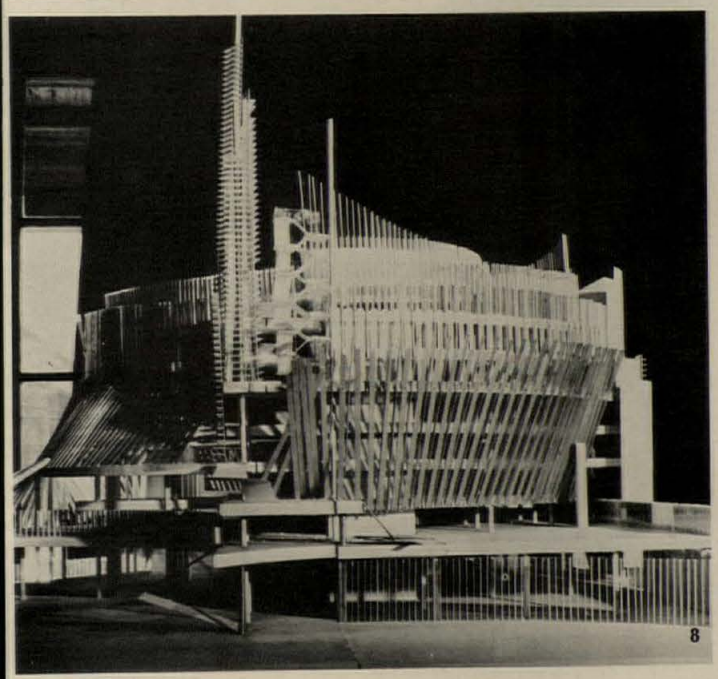


## Diverse designs fit well within the basic framework

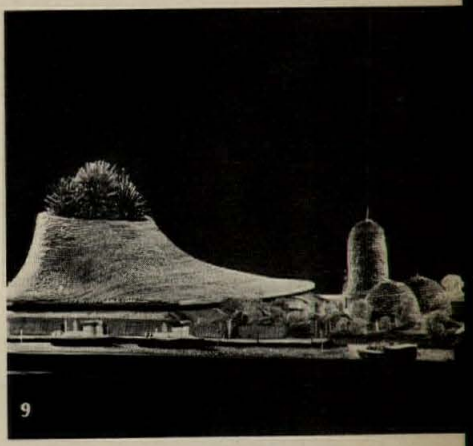
The pavilion designs seem to conform to suggestions for design unity set forth in the "master-plan design-intent" document. The document states: "As practically all of the buildings are to be temporary, probably constructed of light prefabricated elements, it is believed that they should appear to be so constructed and might well have a light and nonpermanent character. Architects are, therefore, asked to . . . explore the possibilities of web or film-like materials stretched over bold frames or the frank assembly of mass-produced components fastened together in patternful ways. . . . [If this is done] the buildings will more likely have an interesting, complex and fragile quality rather than appearing to be merely big, smooth and jointless." The success of the design intent seems assured, but the completed pavilions in their settings will tell the final story.

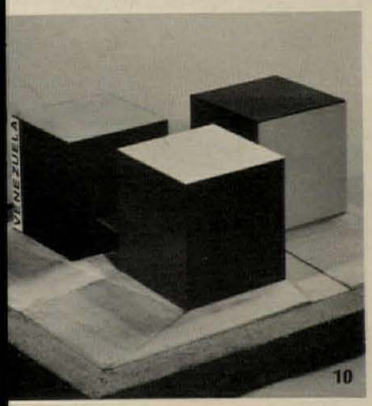


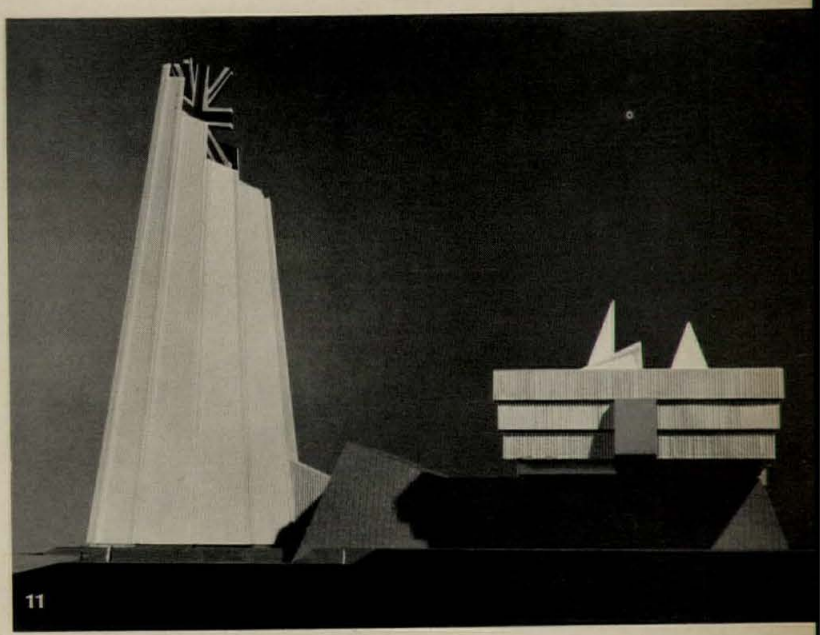




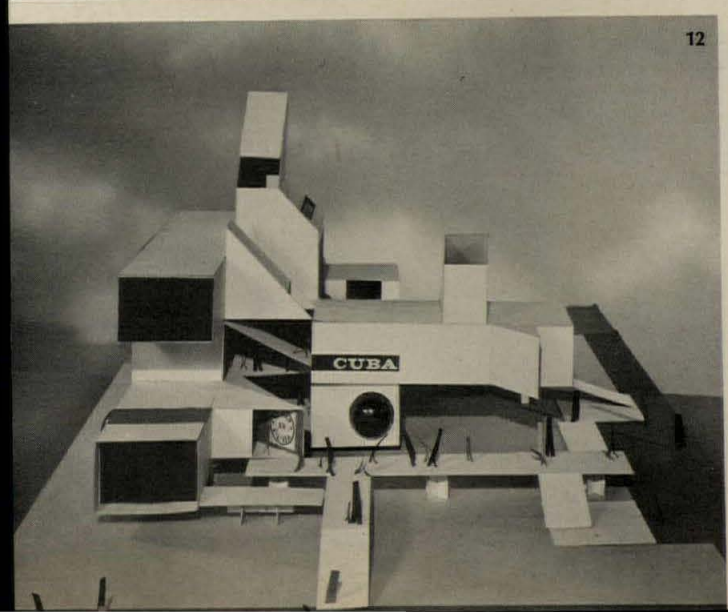
**6.** The pavilion of Monaco, designed by Papineau, Gerin-Lajoie, Leblanc, consists of 10 stucco cylinders to be covered by a parasol. **7.** The pavilion of Yugoslavia, designed by Miroslav Pesic, consists of seven prismatic sections twice as long as they are high, set side by side. **8.** The pavilion of France, designed by J. Faugeron, is a steel structure supporting seven circular stories. **9.** The pavilion of the Western Provinces of Canada, designed by Beatson, Stevens & Associates, symbolizes the plains joining the mountains in the various provinces of Western Canada.

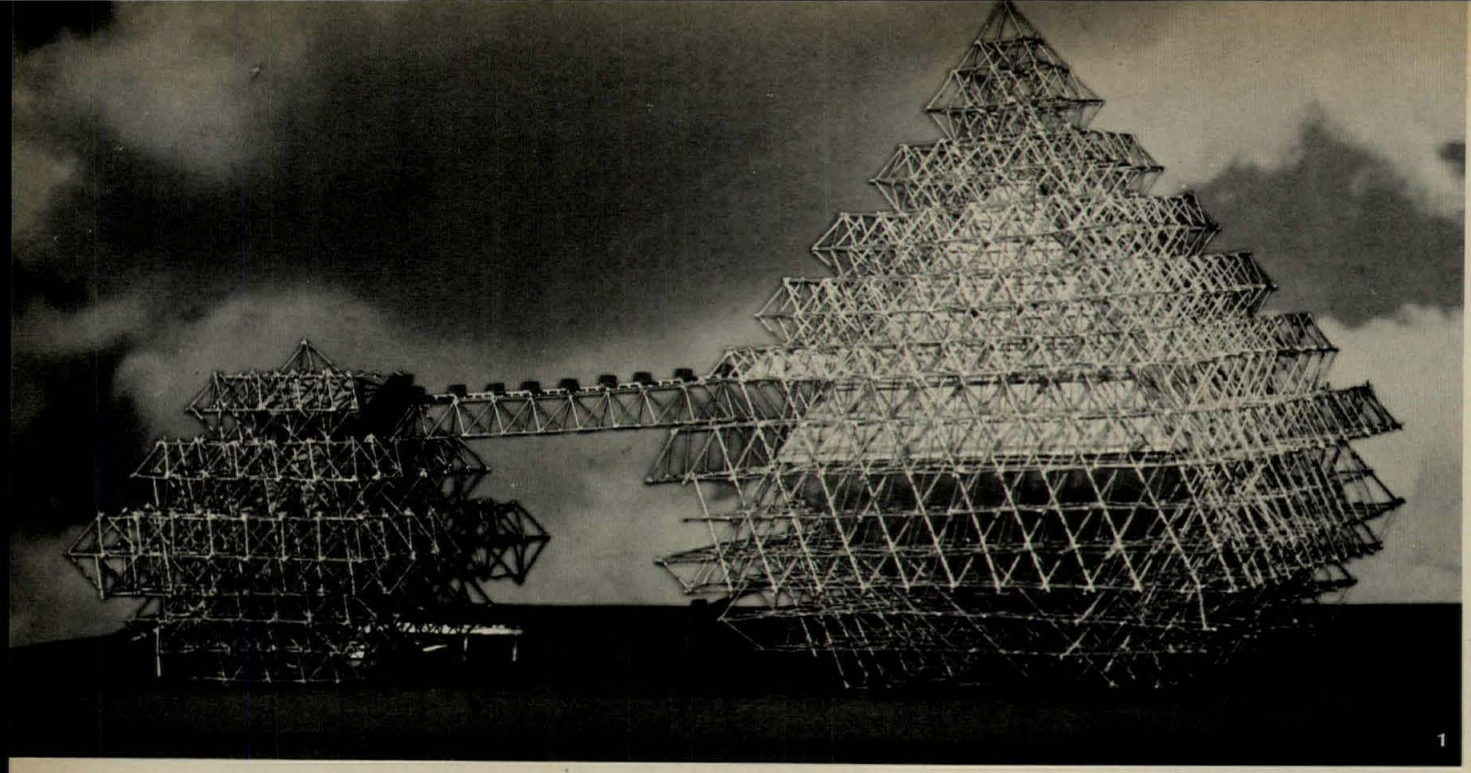






**10.** The pavilion of Venezuela, designed by Carlos Villanueva, is made up of three cubes, 45 feet on each side. **11.** The pavilion of Great Britain, designed by Sir Basil Spence, Bonnington & Collins, is dominated by a conical tower almost 200 feet high. **12.** The pavilion of Cuba, designed by G. Baroni and Vittorio Garatiis, is a series of interlocking rectangular forms. **13.** The pavilion of Israel, designed by A. Sharon, D. Reznik and E. Sharon, has crystalline-patterned walls of fiber glass. Note: all pavilions on this page are located on Ile Notre Dame.



## La Ronde amusement area—a caricature of architecture

The $25-million amusement area at the north tip of Ile Sainte-Helene, most of which will be retained at the close of Expo, is meant to be an area of gaiety and fun counterbalancing educational and intellectual experiences offered elsewhere. Andrew Hoffman, Expo's architect for the area, developed the plan after a one-year study, using consultants from Disneyland, Los Angeles, and the Tivoli Gardens, Copenhagen. "In amusement parks," says Mr. Hoffman, "you can get rid of inhibitions—just be silly for the sake of silliness. They are caricatures of ourselves and of architecture." The area is organized thematically ("man and his fun," says Mr. Hoffman) into 11 enclaves, related to one another by landscaping which is being designed by Sasaki, Strong & Associates.

**1.** Gyrotron thrill ride, 215 feet high, designed by Sean Kenny. **2.** Arrival area designed by Issalys & Gareau—Lalonde & Pauer Associates. **3.** The Youth Pavilion designed by Francois Lamy & Associates. **4.** The bazaar area, designed by Rosen, Caruso, Vecsei & Martin.

# REORGANIZATION FOR BETTER DESIGN

Smith, Hinchman & Grylls, one of the country's largest and most prosperous firms, is exploring some fresh ideas—the organization of the design team. Here are the basic concepts—and a portfolio of the effective results.

Robert F. Hastings, president of SH & G, explains: "Some years ago, we came to the realization that we were doing sound, substantial, useful—and undistinguished—buildings. We therefore decided that improving the quality of our design was to be our number one objective, and embarked on a program to do so.

▪ "We looked for, and found, a man to head up our design group, but were aware that this was not enough—that our entire organization must be design oriented, and a climate sympathetic to design must be built up. To this end, we reorganized certain departments, shifted personnel and responsibilities about.

▪ "Growing out of the concept that creative thinking is not the exclusive province of architects, we selected key individuals from SH & G's architectural, structural, mechanical, and electrical departments and brought them together into a new design department.

"Assembling creative-minded specialists in the various disciplines physically into a closely-knit working relationship brought about a team spirit and broadened the base of the design process to accord with the growing complexity of today's buildings. Sigmund F. Blum, director of design, has organized the group so he and other senior members of the design staff are freed from routine, and can devote their major energy to creative work.

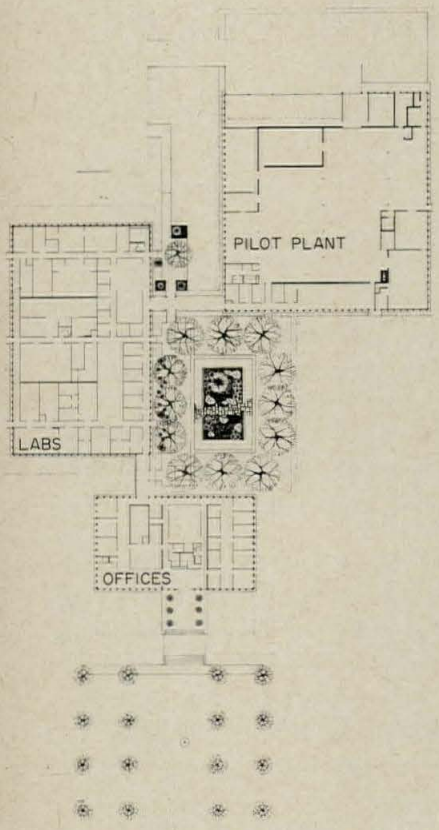
▪ "The 'pre-design team,' another SH & G innovation, swings into action at the beginning of every new project and deals with program development. It will—when appropriate—advise clients on site selection, financial feasibility and planning, and other preliminary considerations. This team is composed of the design director, the firm sponsor [a principal], the project director [a specialist on a particular building type], and a senior architectural designer.

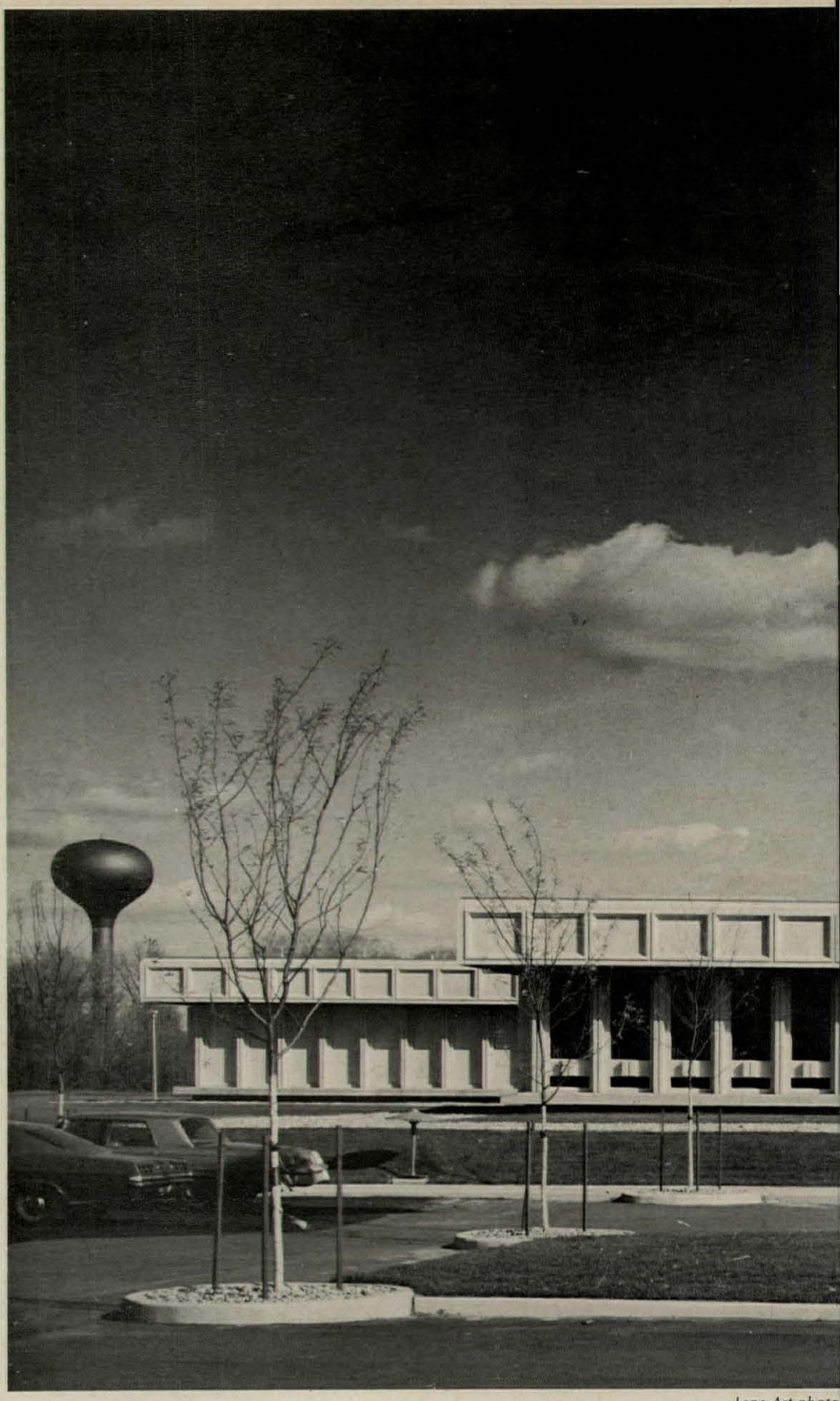
▪ "We have begun, and will continue, a series of seminars on the interrelationship of the various disciplines as they affect environmental design. Outside speakers—recognized authorities in their specialties—conduct these meetings, which are set up for key members of the firm. These meetings are held late in the afternoon—usually from four to six—ending with dinner.

▪ "We have started acquiring an art collection, which will continue to grow, and we hope continue to inspire and intrigue our people. The first item is a Lipschitz sculpture.

"We also hope to have our own building some day; designed so that the importance of design as a central, combining force is expressed by the actual physical interrelationship of the departments."

▪ Sigmund F. Blum, director of design, adds, "The young architect finds his energies and talents spread so thin over the multiple facets of a small practice that the quality of his design suffers. Having the support of a strong, effective management in a larger firm makes it possible for the designer to concentrate on design, with resultant better quality."



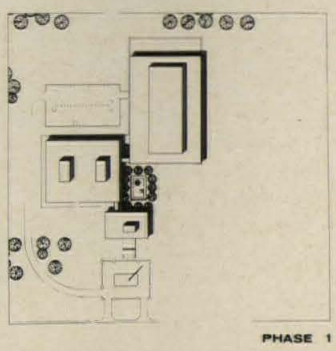
Lens-Art photo

## THREE BUILDINGS FOR INDUSTRIAL RESEARCH

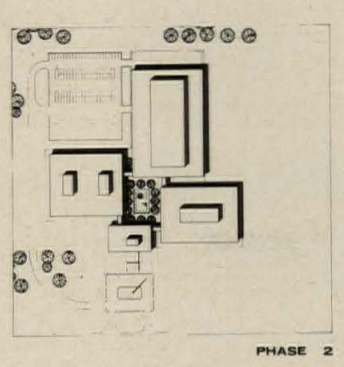
grouped about a central, landscaped courtyard comprise the first stage of this center near Ann Arbor, Michigan. These completed units are arranged on the plot to make the most of the site—a generous tract in the pleasant, rolling countryside. The buildings are placed on a raised platform to give them visual prominence; future construction and site development will provide a pattern of transitional levels in keeping with the character of the site.

RESEARCH FACILITIES, Climax Molybdenum Company of Michigan, Ann Arbor, Michigan. Architects and engineers: *Smith, Hinchman & Grylls Associates;* landscape architects: *Johnson, Johnson & Roy;* contractor: *Spence Brothers*

Plans for the three completed buildings—administrative offices, laboratory, and technical operations—are shown at left; future development plans at right. The first expansion will enlarge laboratory and office elements; the next will provide additional area for technical operations; the need for additional laboratory area will be met by the construction of a fourth building. Provision has been made for additional related elements on the site.



PHASE 1



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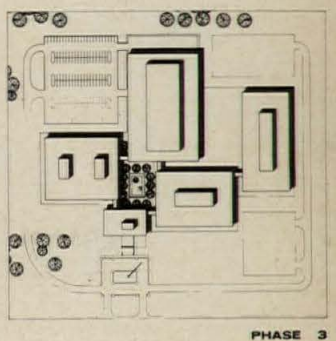


PHASE 3

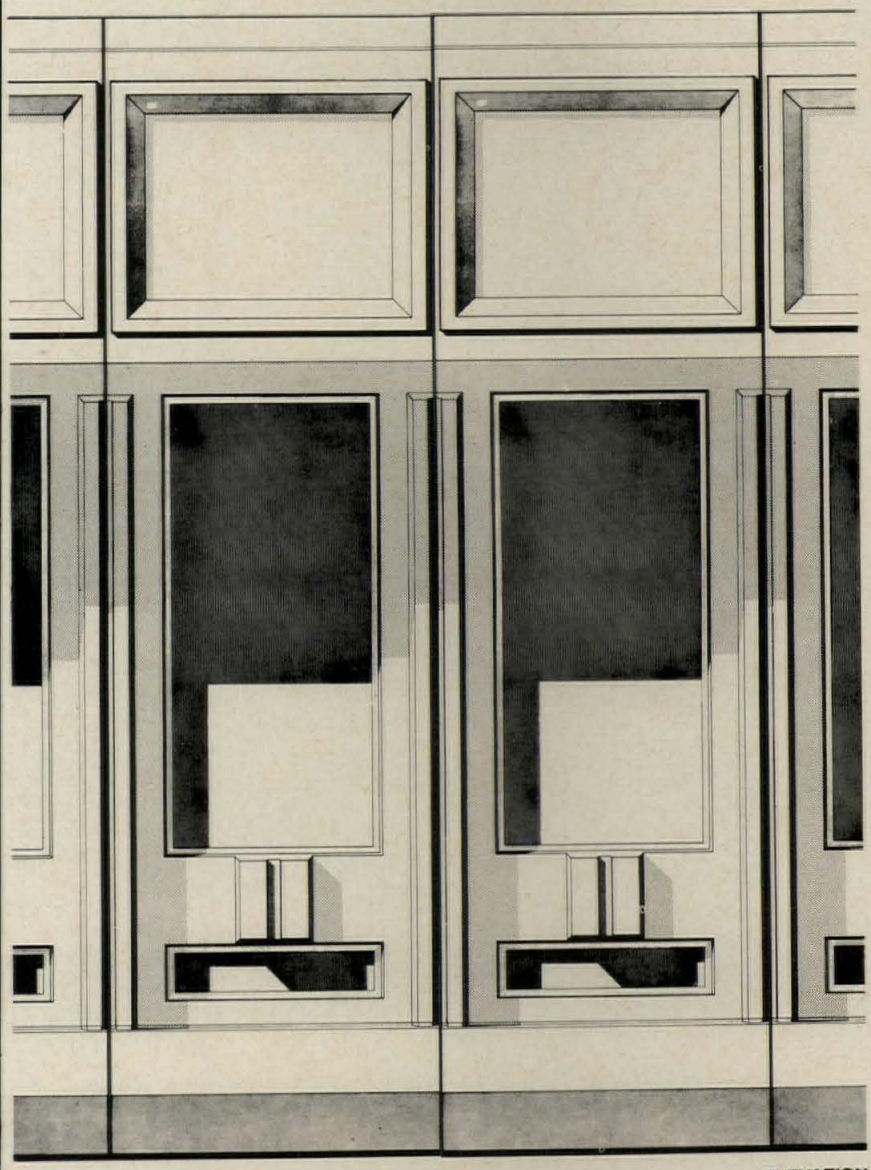
Balthazar Korab

Balthazar Korab

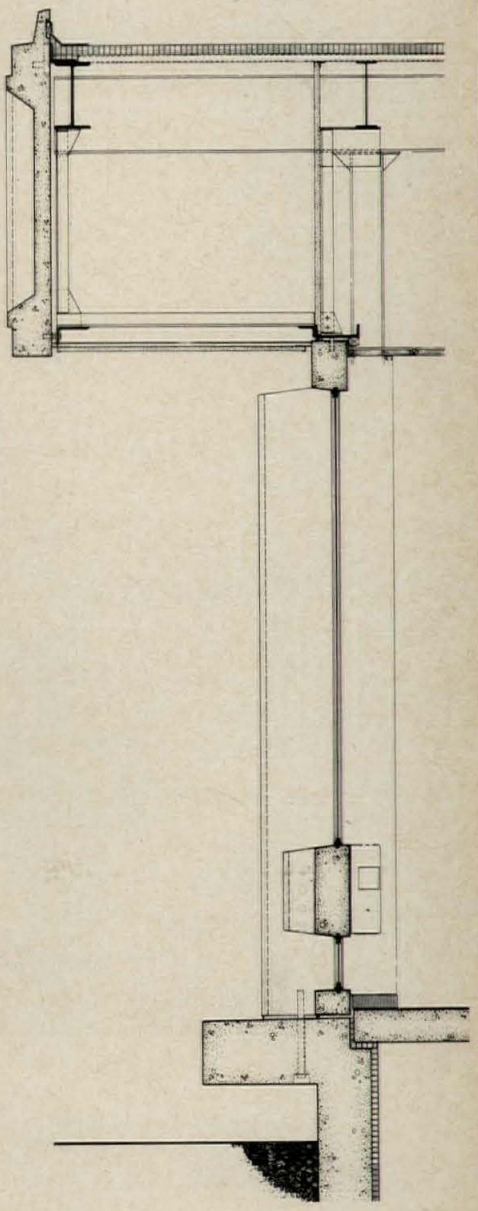
Lens-Art

The three lower photos show the exterior and interior relationships of buildings and site; the details at top right explain the construction. The steel-framed buildings are infilled with precast concrete cornice-fascia and wall units. These fascias—deeper than usual—express the roof and ceiling lines, mark the space used for mechanical and electrical distribution systems, and terminate the outlookers that serve for sun control. The precast wall units—which serve also as interior finish—are designed to receive either glazing or solid panels, as function dictates.

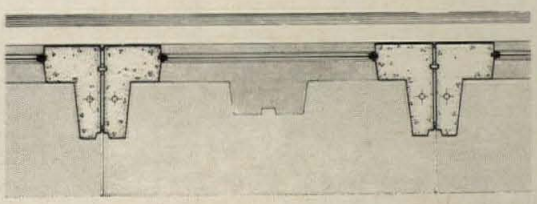
Smith, Hinchman & Grylls' services for the project included predesign studies of requirements; location and site acquisition studies; preparation of charts and maps to demonstrate both the economic and operational advantages of constructing the new research center.



ELEVATION



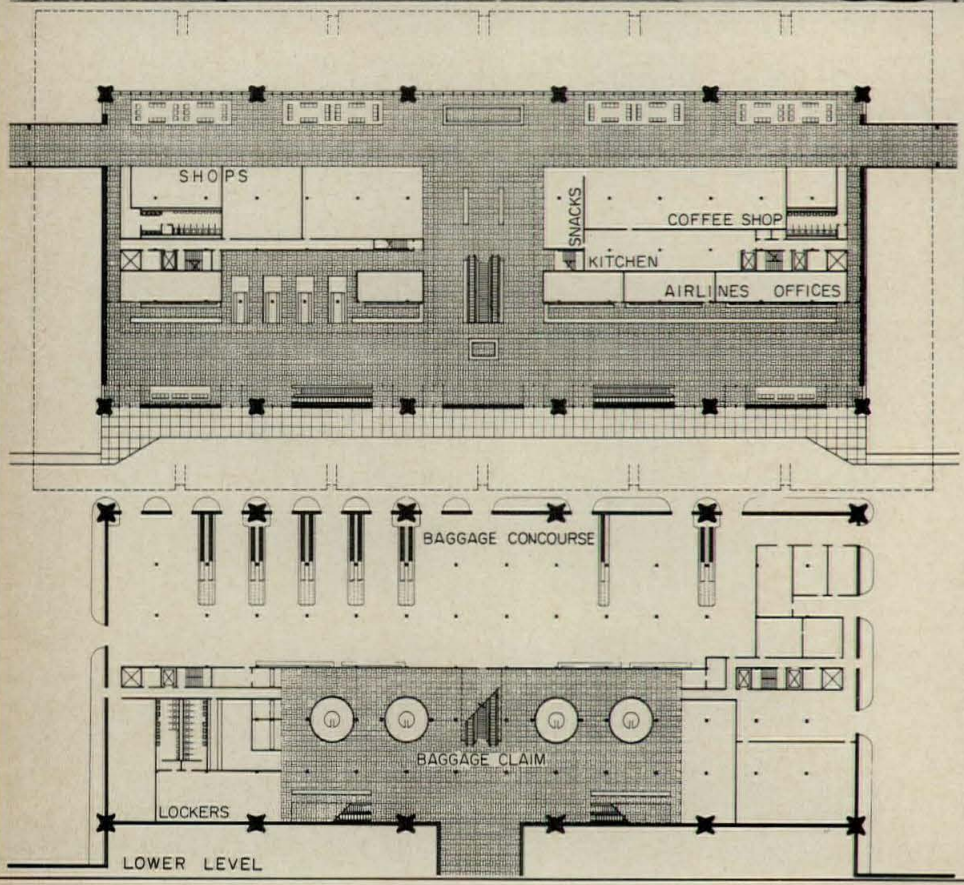
SECTION



PLAN

*Lens-Art*

Bob Wallace




**AIRPORT TERMINAL** for Detroit is 300 feet long, 150 feet wide, and 67 feet high, with a hovering roof that cantilevers 35 feet beyond the non-structural enclosing walls. The building is designed in the beefy concrete idiom, and has a pleasingly monumental scale appropriate to its purpose and situation.

The general plan of the airport was set in 1956, and is of the "finger" type. Within the limitations thus set up, the new terminal comes off exceedingly well.

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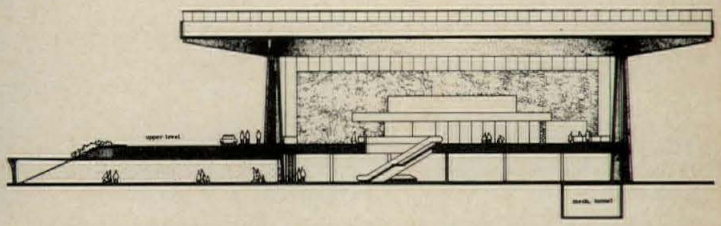
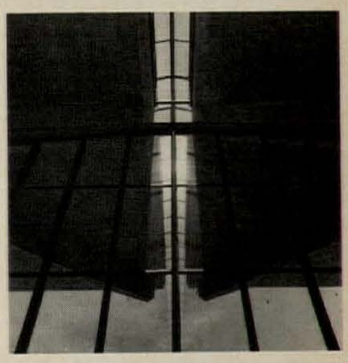
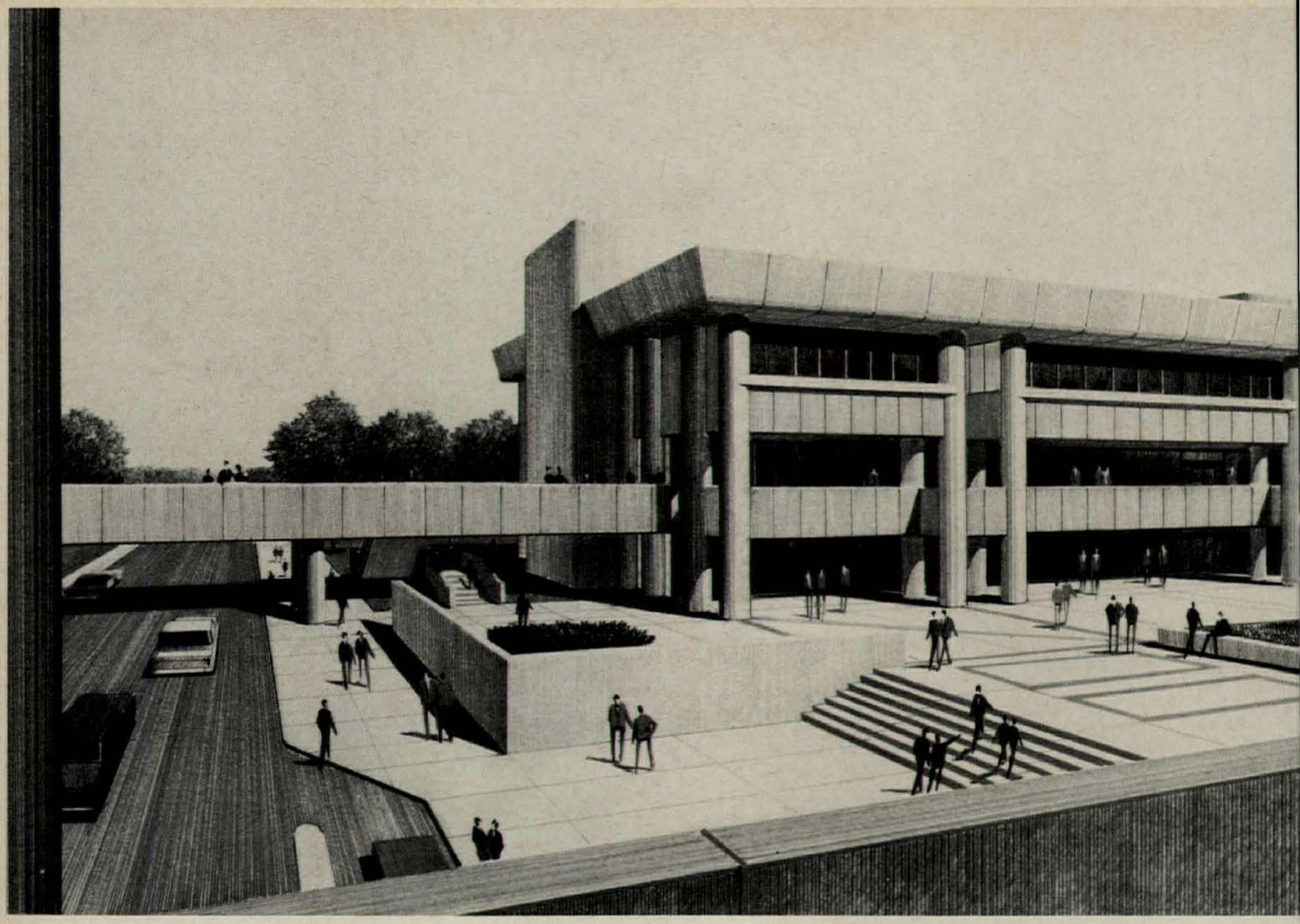
NORTH TERMINAL BUILDING, Detroit Metropolitan Wayne County Airport, Romulus, Michigan. Architects and engineers: *Smith, Hinchman & Grylls Associates;* structural consultants: *T. Y. Lin & Associates;* acoustical consultant: *Lyle Yerges;* general contractor: *A. J. Etkin Company.*



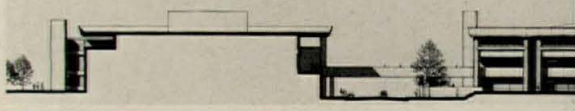
The structural system of the terminal—of post-tensioned concrete—consists of five flat roof panels, each 230 by 75 feet, separated by skylights of gray glass. Each panel rests on two curved longitudinal beams and a pattern of crossbeams which are, in turn, supported by two tapered columns (see model photo above). This construction furnishes a clear interior span of 150 feet, and in addition provides a built-in decorative ceiling and soffit pattern in natural concrete, poured in place.

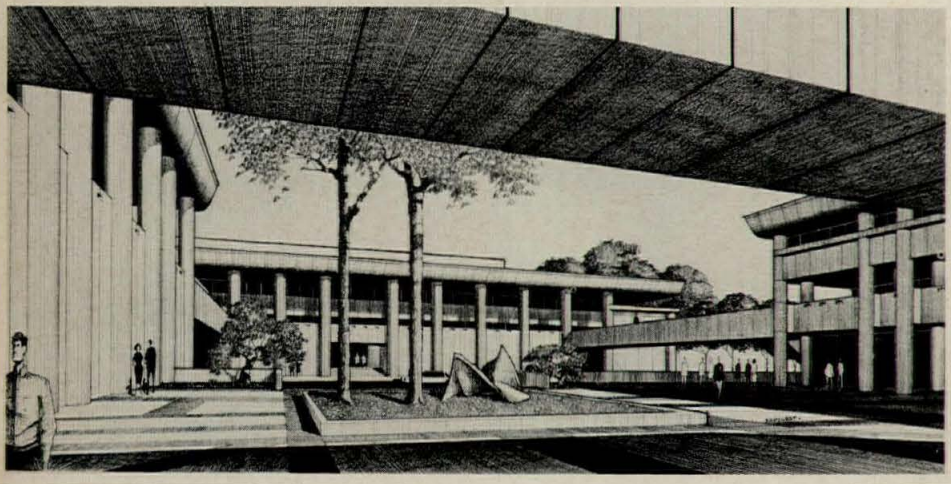


Balthazar Korab photos



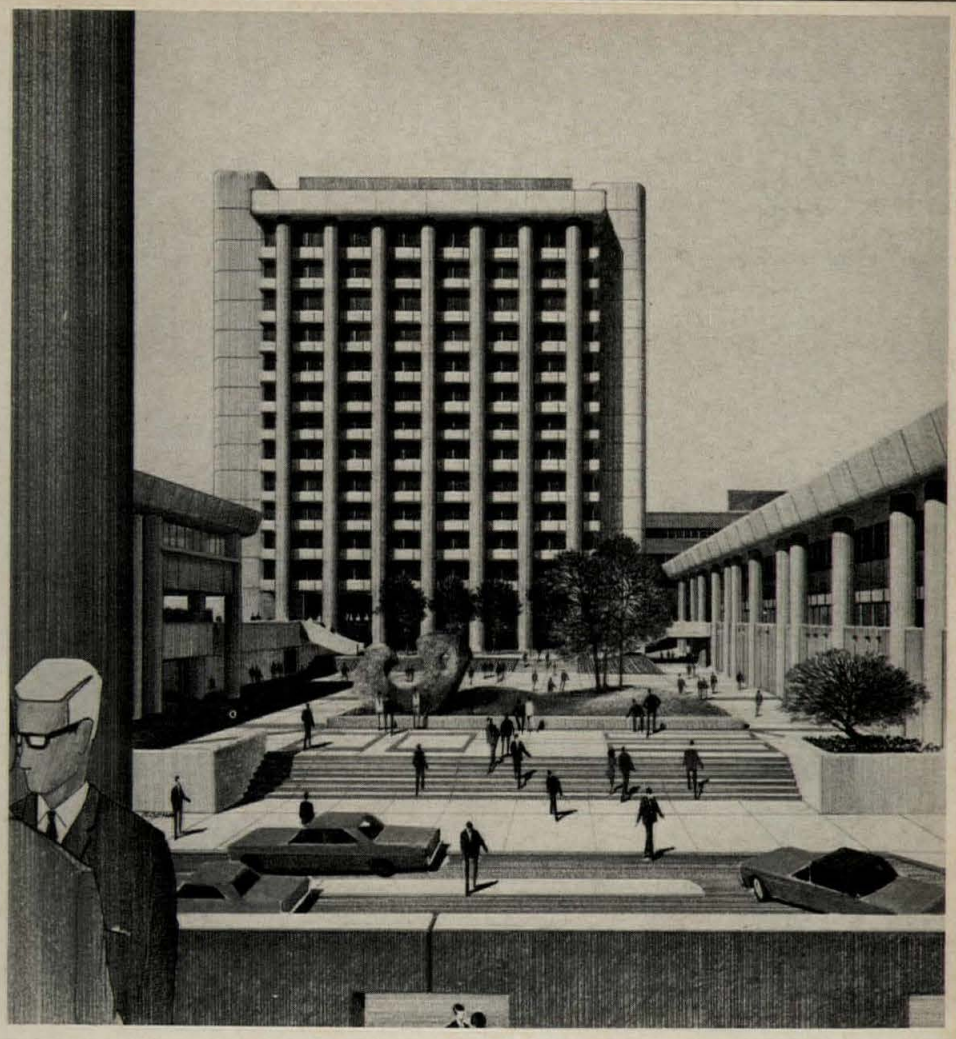
The four buildings that will make up the new complex are shown on the plot plan: a medical research laboratory, a library and commons building, a medical teaching building, and a dental teaching building. These structures will be grouped about a landscaped plaza which will be developed as a major outdoor gathering place for students and faculty.

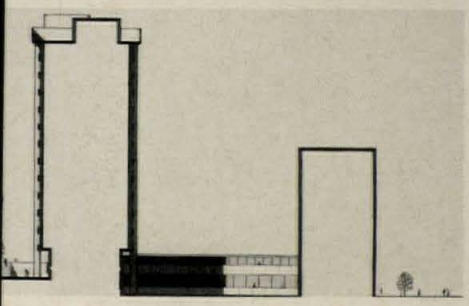




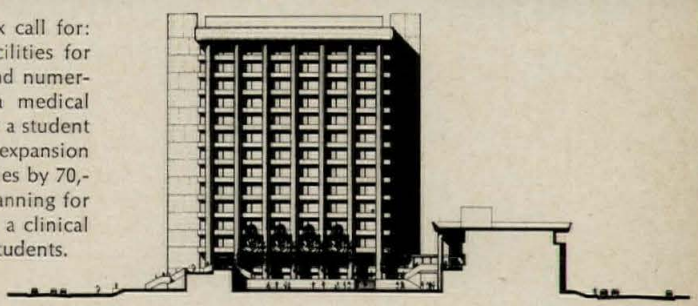
**MEDICAL COMPLEX** for the University of Louisville will be constructed in a downtown urban renewal area. Thus, a part of the problem was to relate this four-building group to the master plan for the entire area, and the adjacent medical center.

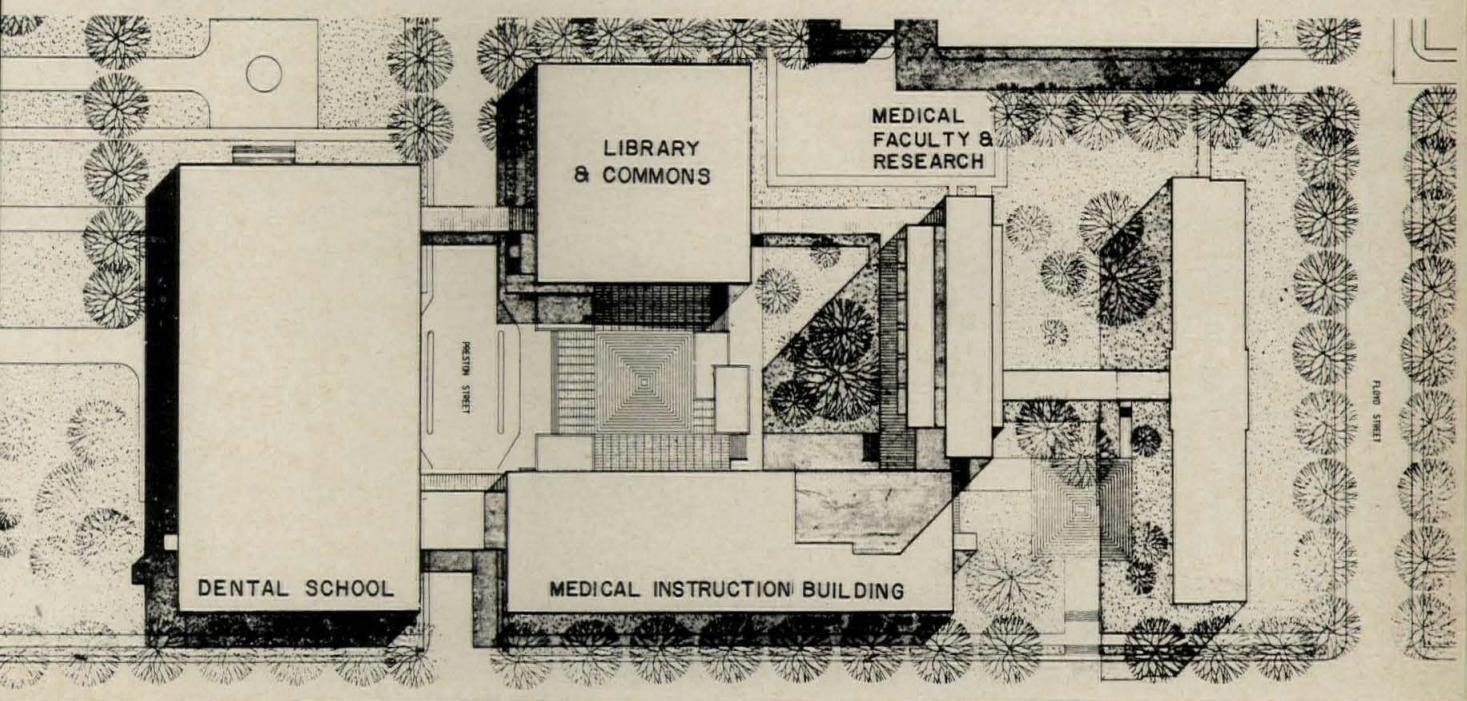
Since a busy street bisects this parcel, it was necessary to locate one building—the dental school—across that street and provide pedestrian bridge connections to it. This led to the development of a continuous pedestrian concourse at second-floor level to link all the buildings together. As a visual expression of this idea, each building will be "cut out" to receive the concourse as it comes along. Poured-in-place concrete will be used for the construction; the round, exposed columns and in-slanting fascias will serve as repeated, unifying architectural motifs.



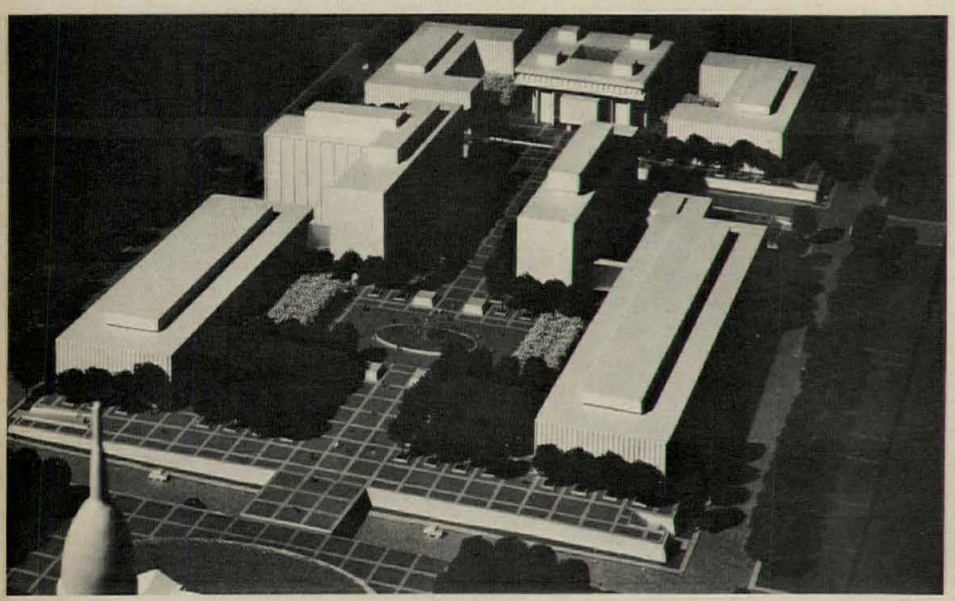


Plans for the complex call for: basic science teaching facilities for 128 medical, 80 dental, and numerous graduate students; a medical library of 130,000 volumes; a student commons and cafeteria; expansion of medical research facilities by 70,000 square feet; master planning for a future teaching hospital, a clinical center, and housing for students.

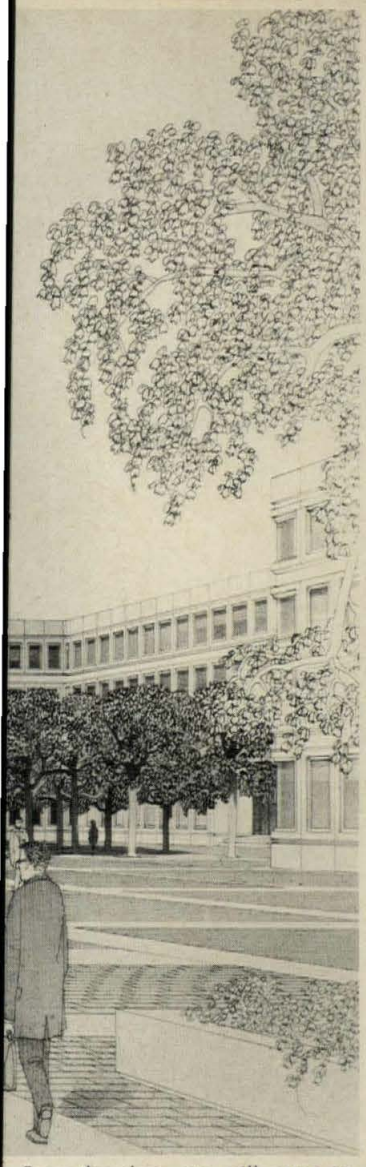




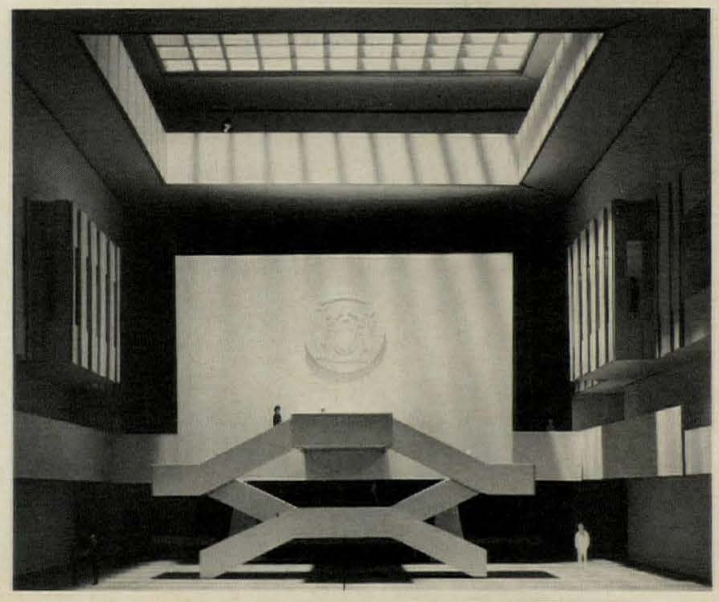
THE SUPREME COURT BUILDING FOR THE STATE OF MICHIGAN will be a focal point in the State Capitol Development in Lansing; a group of government buildings surrounding a landscaped pedestrian plaza, raised six feet above grade, that surmounts a two-story parking structure for 4,000 cars. The existing Capitol Building will terminate the axial plaza at one end; the new Supreme Court Building at the other.

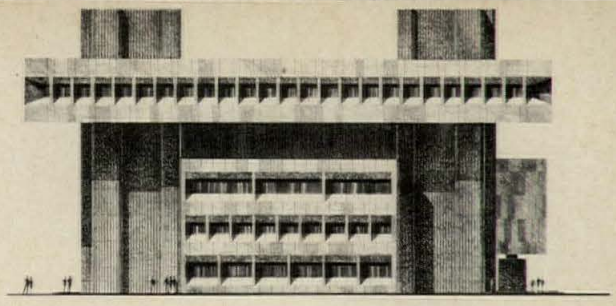


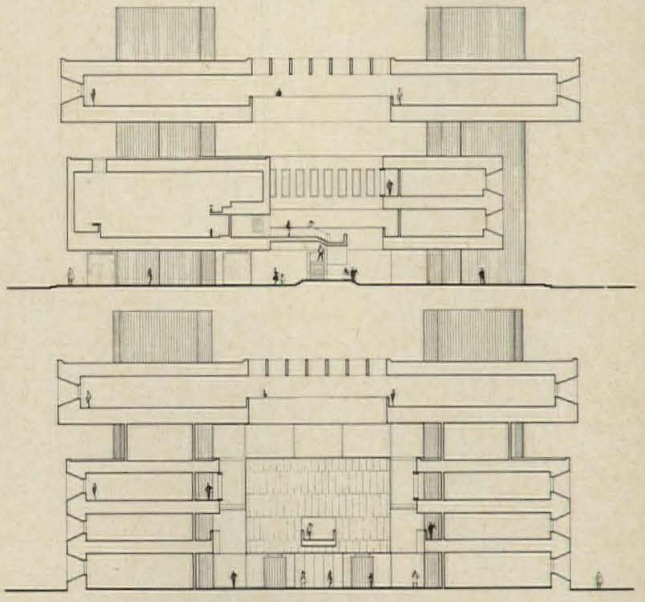
The building design emphasizes the courtroom proper, which appears as a two-story, windowless element, separated from—but sheltered by—the remainder of the building, which will house related functions (refer to rendering above). The cantilevered top floor will be occupied by the State Law Library; the corner piers will house stairs, elevators, and ancillary services. The building will be entirely sheathed in granite; split-face on corner piers and courtroom supporting columns, polished on all other surfaces.



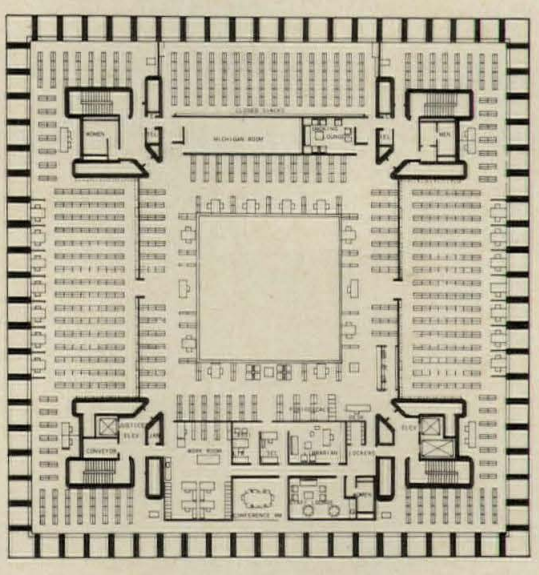
From the plaza, one will enter under the courtroom into a memorial gallery extending the entire height of the building to skylighting at roof level. At each floor, balconies will overlook the gallery. The monumental stair, shown in the model photo below, will serve as principal approach to the blank-walled, two-story courtroom, reached otherwise by bridges from two of the towers.

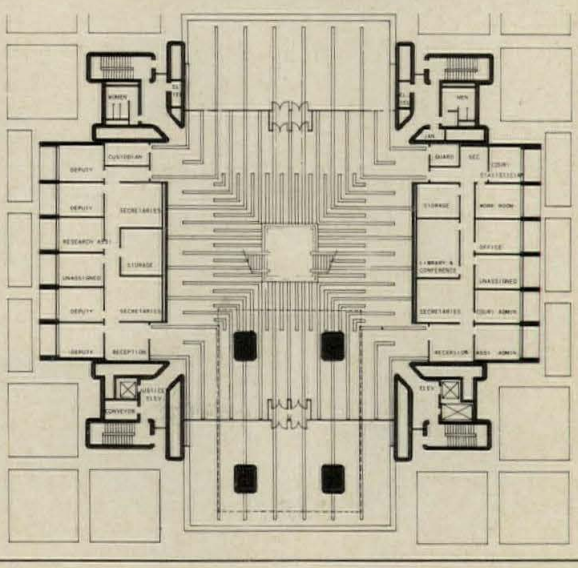


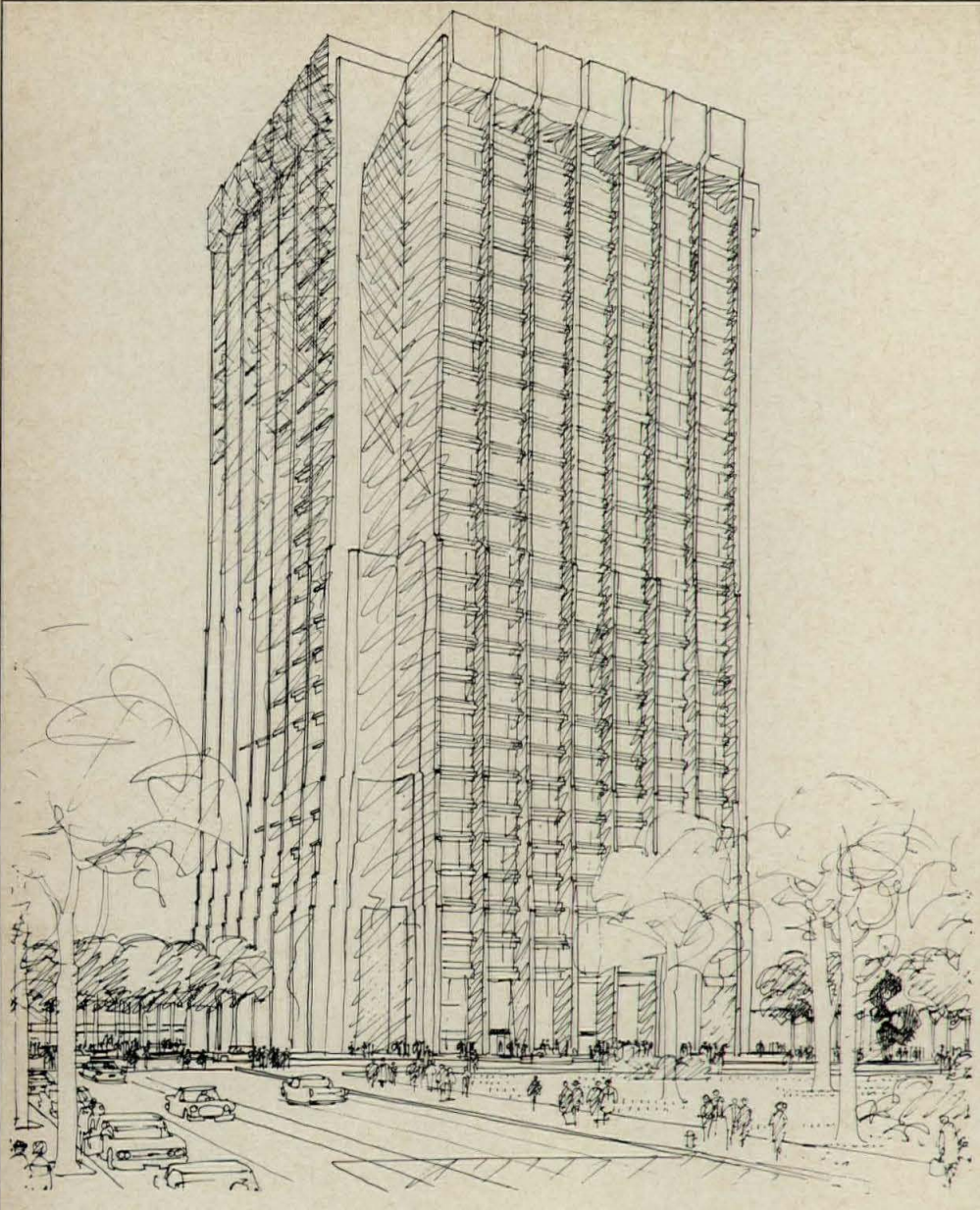




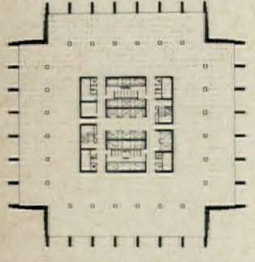


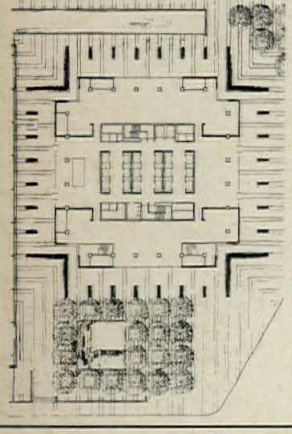






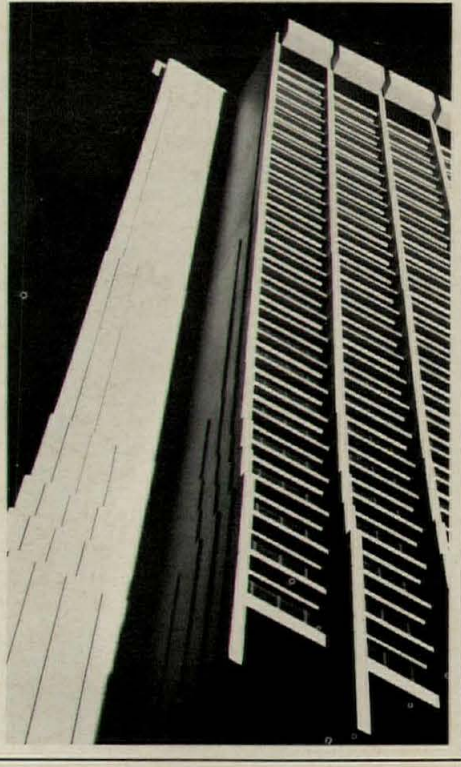
## NEW FEDERAL OFFICE BUILDING in Detroit—





a design for GSA that will make a strong structural statement, will have a configuration and scale appropriate to that of neighboring buildings, and will permit maximum plaza and park area development at ground level.

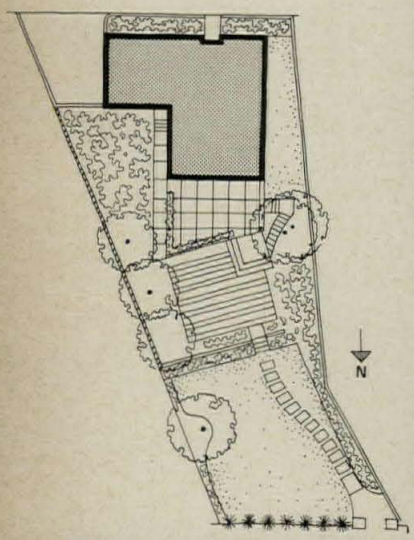
A multi-story structure was required in order to meet program requirements for gross and net areas, but the necessary tower in ordinary parallelopiped form appeared stubby; set up an awkward proportion. Thus, to make a more graceful and interesting tower form, the corners were cut in. Then, for lateral stability and wind-bracing, the re-entrant concrete walls were conceived as structural shear walls, and the stepped design of the peripheral columns and shear walls—expressive of their changing sections—was developed.



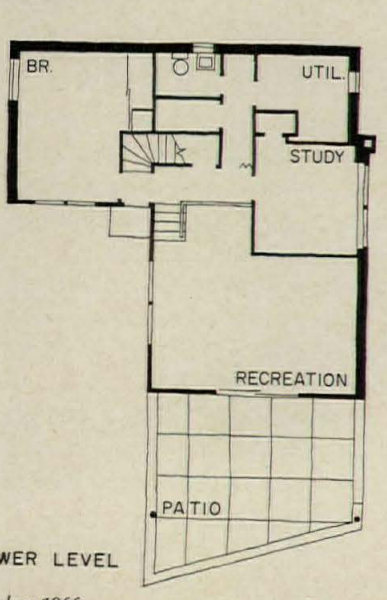
# Architect achieves drama and economy in her own house

A narrow, sloping site with a condemned three-story building already on it was bought by Mr. and Mrs. Brandes mainly for its magnificent view over Long Island Sound to the opposite shore of Westchester County. After careful consideration of the problems and advantages of the site, it was decided to pull down the old structure and to erect a completely new house using the old stone foundation, which was in good condition and located at the higher end of the plot. This left the rest of the site free for a terraced garden and enabled the new building to be oriented toward the view.

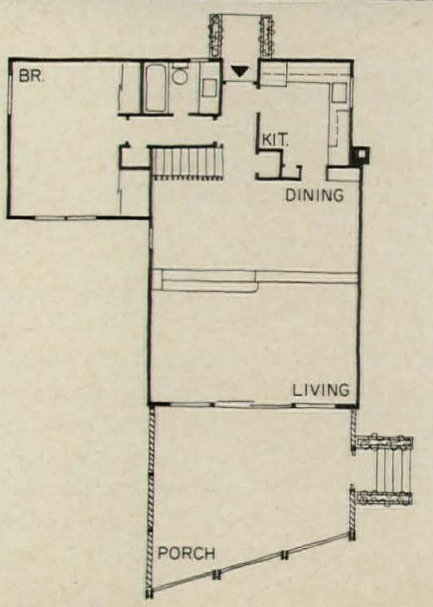
Sea Cliff is an attractive, traditional North Shore town and is characterized by large, old houses sheltered by trees and well-kept gardens. The erection of a frankly contempo-




Describing the way in which the scheme developed, Gina Brandes said: "The difference in site elevations caused the house to be one floor high at one street and two floors high at the other. There is a gradual transition from house to patio to garden, following the natural slope of the terrain. The main floor is on the higher level and there are steps—inside the house and out again—following the sloping ground."




LOWER LEVEL




UPPER LEVEL

5

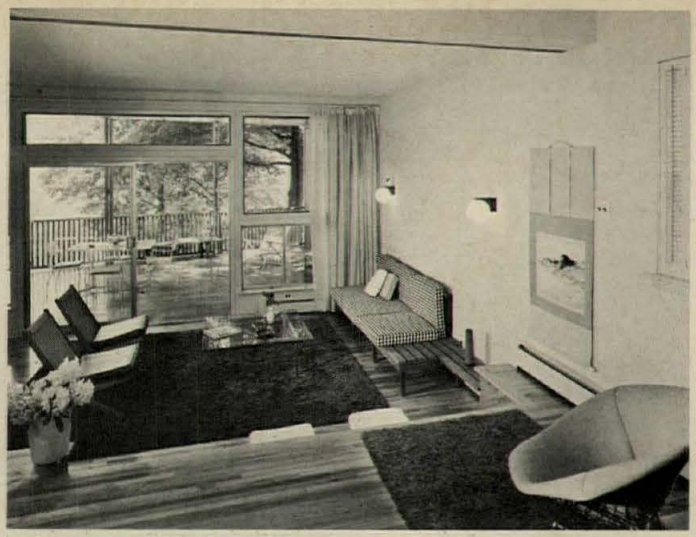
The open planning of the main floor with its close relationship to the outdoors gives a very spacious feeling to what is really quite a small house. Some nice detailing such as the redwood screen near the stairs to the lower level, the wood framing between dining and living area, the sitting-steps and storage arrangement in the living room, serve to offset the essentially simple, uncluttered interiors. The dappled shadows thrown by the overhanging trees make sitting on the balcony an unusually pleasant experience.

*Joseph W. Molitor photos*

rary house in this neighborhood was something of an innovation for the town, and while the Brandes house was in construction there were doubts in many quarters as to the wisdom of the decision to let it go up. However, now that it is completed the town as a whole seems proud of the house.

In order to take full advantage of the view, and to shut out the two large houses on either side, Gina Brandes used as few windows as possible, relying mainly on the glass wall at the north overlooking the Sound, and a plastic bubble skylight in the dining area. One or two small windows are included to give adequate cross ventilation. The living room leads directly onto a lightly supported, screened deck, which is angled away from the nearest neighboring house and toward the view. Redwood louvers at the sides of the balcony let in air and breeze, but effectively hide the other houses.

The main floor is really a self-contained apartment with



entry, master bedroom, kitchen and dining area on one level, and steps leading down to the living room and sundeck beyond. As soon as you enter the house you are aware of the view and the whole design seems to draw you towards it. The lower level consists of guest room, study, washroom and a large play area, which is used for summer visitors and can be closed off during winter when the upper floor is heated. Glass doors from the recreation room lead out to a patio.

Structure of the house is wood frame with redwood exterior walls and redwood balcony-screen and trellis. Interiors are kept simple with white-painted plasterboard walls and ceilings, oak floors in the living area and ceramic tile in the bathroom. Construction cost was approximately $23,000.

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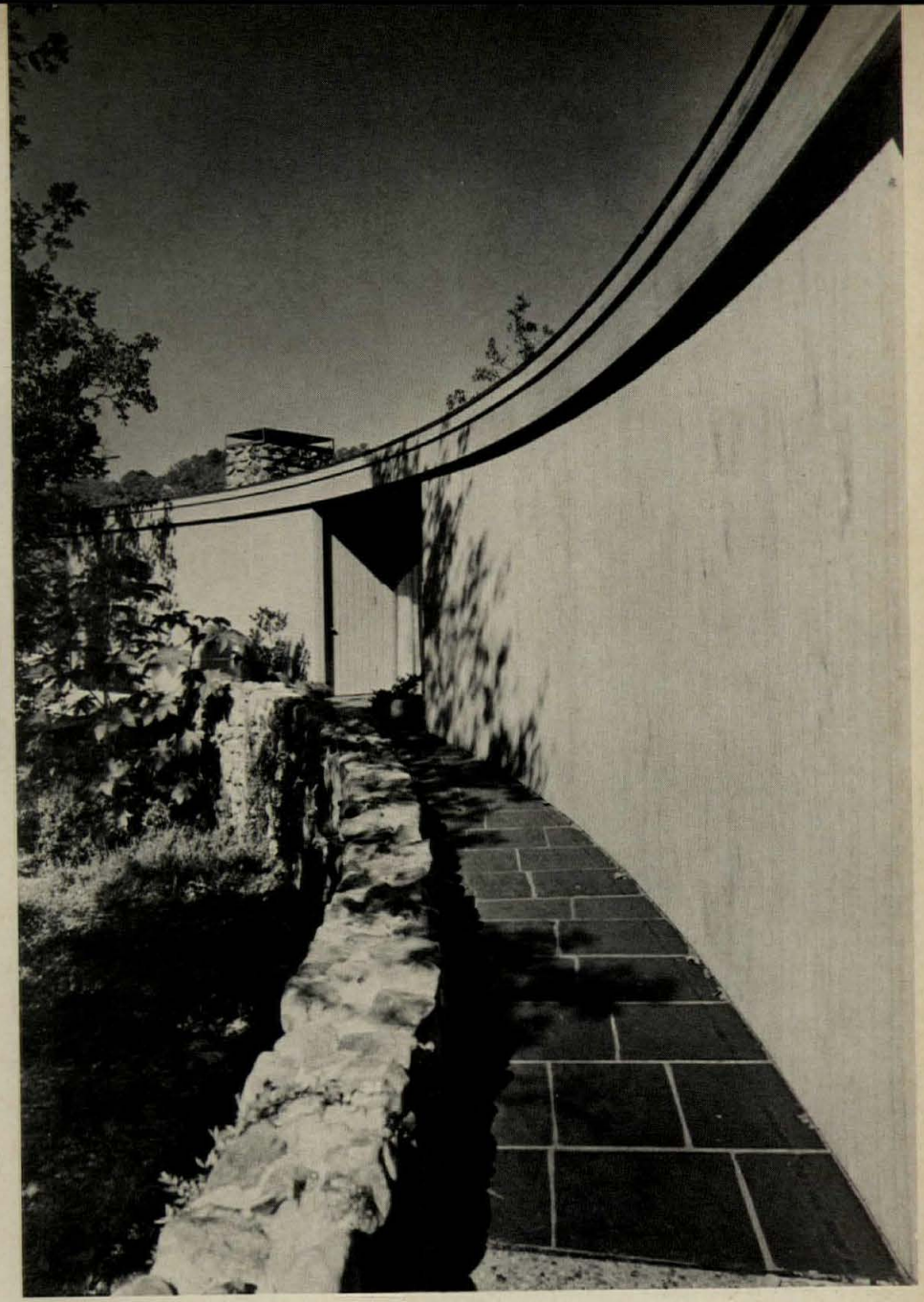
RESIDENCE for Leon and Gina Brandes, Sea Cliff, Long Island. Architect: *Gina Brandes;* contractor: *Commercial Construction Corporation.*

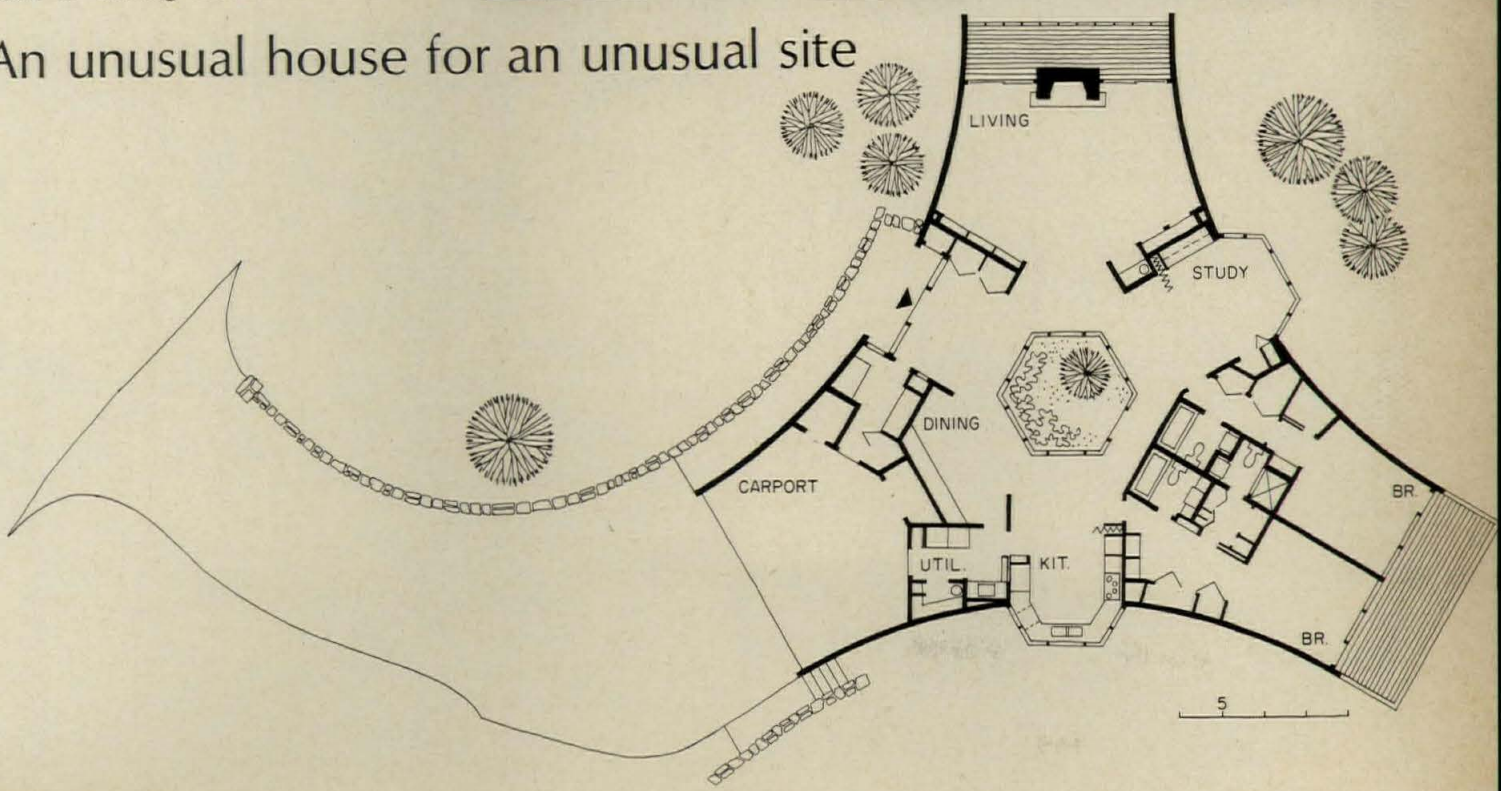


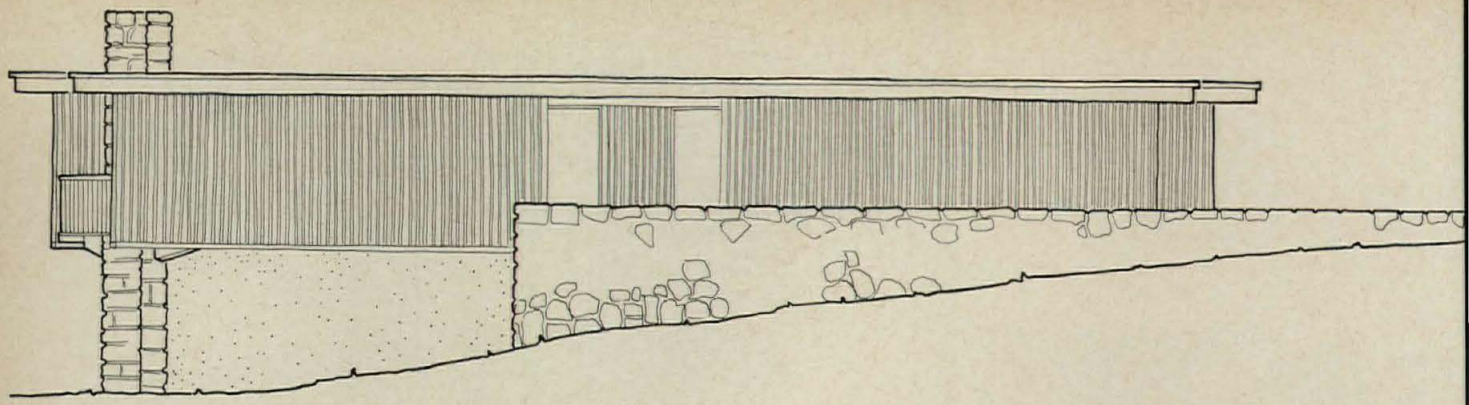
# An unusual house for an unusual site

The shape and plan of this house—with its gently curved facades and hexagonal "doughnut hole" in the middle—are in fact a quite logical development from site and program considerations.

The site—a pleasantly wooded one on a curved residential street—is divided diagonally by a natural watercourse. The program required a stimulating living environment for a young couple without children and the provision of large, flexible entertaining space.

The architect explains the solution this way: "In attempting to develop a facade which would reflect the curving character of the street, and which would relate to existing residences on either





side, the gently arced line was chosen. This in turn suggested the development of the additional curved facades. The first floor was elevated to allow the water to flow under the house, and the open-floored atrium was introduced to open up the house and give pleasant views of the watercourse and various plants and trees." The grouping of the living areas around the atrium answered the requirement for flexible entertaining space, and the Browns have enjoyed giving some unusual "sidewalk cafe parties" with small tables placed on the slate floor around the open space.

The three wings of the house leading off from the atrium area contain carport; living room; master bedroom suite and large guest room. Both bedrooms and the living room have their own secluded decks, which are sheltered by the roof overhang. Most of the interior surfaces have been painted white to form a good background for art, but this is relieved by paneling in the dining area and den, and by the natural stone fireplace in the living room. The line of the slate joints in the floor around the atrium is balanced by the mitered tongue-and-groove redwood boards on the ceiling, which are designed to accentuate the hexagonal shape of the opening.

The structure of the house is wood frame on concrete and natural stone piers, with a rubble stone retaining wall. Exterior walls are stain-finished, textured plywood and the roof is built-up tar and gravel. Ceilings are white plasterboard.

RESIDENCE for Mr. and Mrs. Stephen Brown, Little Rock, Arkansas. Architects: *Erhart, Eichenbaum, Rauch and Blass;* engineer: *E. K. Riddick, Jr.;* contractor: *Fred Parrott;* landscape designers: *Landscape Associates.*

*R. H. 'PAT' Hayes*

The glass-walled atrium, in addition to providing a dramatic focus for the house, also has the effect of giving a great deal of light and sunshine to all the main living areas. This allows the exterior facades to be relatively closed to ensure privacy from neighboring houses and from the street.

*Frank Lotz Miller photos*

The interiors make excellent use of natural materials, the birch cabinets in the kitchen, top, were chosen to balance the paneling and doors used elsewhere in the house, particularly in the den, left. Since no servants were contemplated, the kitchen was made an integral part of the total living area. Glass doors on either side of the stone fireplace in the living room, above, lead out to a small balcony which gives a pleasant view over adjoining rooftops.

# HOSPITALS: TRENDS IN PLANNING

*are shown in hospitals large and small: the effects of computerized management and automation; the emergence of light-care and ambulant-care spaces; on-site expansion in cities; and the deeper effects of expanding knowledge as underscored in the article on this and the following page by hospital consultant Joseph Blumenkranz*

The revolution in expanding medical knowledge raises many new hospital design problems, since we have to discard a great deal of what we have learned in the past and be prepared to accept much new knowledge. The implications of this new knowledge, considering the vast increase in the fragmentation and specialization of tasks, must jolt us into a greater awareness of the need for a revolutionary change in medical building design concepts.

The boundaries between traditional medical disciplines are being blurred by new knowledge of the life process. As a result, there is a greater exchange of ideas among related disciplines. *Teamwork* is the *essence* of health care today. It is essential that the clinician, the teacher, the researcher, the nurse, the technician, the geneticist, the psychologist, the physicist, the computer-engineer and all other members of a comprehensive team work together constantly under the umbrella of the totally co-ordinated bio-medical center.

The phenomenal growth of knowledge has not yet been accompanied by a significant increase in our life span, so that there is relatively much less time available for absorption of this exploding wealth of knowledge. It is therefore imperative that we counteract this lack of time by increasing the effectiveness of our short supply of manpower for health. We can do this only by (1) designing new types of structures and (2) introducing automated and electronic equipment.

With these challenges before us, let us examine some of the present trends and future possibilities. Although the influence of such well-proved, classic concepts as the race-track corridor system still prevails and continues to develop, one of the most significant new developments is the universal re-orientation of medicine towards prevention, treatment and rehabilitation, which is beginning to be reflected in a tendency toward larger centers concerned with treating the whole man. Even mental patients are now being admitted to general hospitals.

With the pressing demand for rapid growth of manpower supply for health, the teaching hospital is also becoming of paramount importance. At the same time, there is an increasing pressure for a more satisfying design esthetic and a more culturally and visually attractive environment at work as well as at leisure. As a result, planners are demanding and getting budget allowances for more generous landscaping, the introduction of painting and sculpture and for a greater effort to create better and more humane designs.

Manpower shortages and steeply rising labor costs are pushing toward centralization of services for groups of health facilities in larger urban centers. It is no longer necessary nor economical to do most sterilization, laundry, meal preparation, heating and cooling, storing of records and purchasing at the local level. Advanced methods of production, transportation and distribution make regional centralization of these services more efficient; at the same time such methods conserve manpower and help to release skilled nursing personnel from non-nursing chores.

Dr. Cameron Weymes of the Victoria Infirmary in Glasgow reported to the recent XIV Congress of the International Hospital Federation in Stockholm that "group central sterile supply service is possible and practicable . . . and . . . should be instituted in preference to individual hospital central sterile supply departments." In the Western Region of Scotland it serves 19,000 acute hospital beds and delivers sterile supplies over distances of up to 100 miles.

The experience of Stockholm with the regionalized food service for 10 hospitals (Nacka System of pre-packaged meals)

led to the estimate that "there would appear to be opportunities for large savings through this type of food preparation and delivery. To this may be added that a smaller staff is required which may be given better working hours. This, in turn, facilitates recruitment in these days of skilled labor shortage."

In New York, the multi-corridor plan for the new Bellevue Hospital (April 1964, pages 194-197), which is now under construction, was based on the fact that air conditioning opens up new vistas of planning and that the thin, slab-shaped hospital plan that evolved from the quest for light and ventilation can now be converted to a block-shaped plan.

Even more significantly, this plan, by providing nursing units, diagnostic facilities, clinicians' offices, teaching facilities, and research laboratories on each floor in close relationship to each other, is aimed at bringing together the already merging disciplines, avoiding their physical separation in isolated empires to the detriment of patient care and medical progress.

A current proposal for the replacement of the multi-pavilion hospital of Kings County in New York is for a single, high-rise building to house more than 2,000 patients, where the merging disciplines will be in close proximity to each other, thus counteracting the traditional but unnatural tendency of researchers to isolate themselves from the clinical aspects of medicine. The same philosophy guided the development of the plans for the new Mount Sinai Medical School and Hospital in New York. In Vienna, the tremendous complex of buildings of the University Hospital now sprawling over several blocks is being replanned in a single building, and this same trend is decisively evident in German hospital planning.

Thus, compactness and the bringing together under one roof, and in close contiguity, of the many facets of activities in health are emerging as a distinct trend of current large-scale planning in many countries.

Increasing automation may lead to a decrease in space needs and to a better utilization of space and personnel. For example, automatic chemical analyzers recently developed in both Sweden and the United States can do the work of many technicians by performing hundreds of chemical analyses an hour, and can store and transmit findings via computers and teleprinters. The space required for their total operation is only a fraction of the laboratory space required by equivalent technicians. Space and personnel required for medical records may also be conserved by electronic devices which already can store 4,000 case records on one reel of magnetic tape.

Two distinct features characterize the present trend in planning physical facilities for versatility and convertibility:
1) Large unobstructed floor areas which will facilitate a great variety of plan arrangements. The previously common module between vertical structural supports and utility shafts of some 25 feet is being replaced by two and three times that span.
2) Versatility in service utilities. Here we are dealing with accommodating mazes of duct work, vents, waste lines, steam, gas, oxygen, suction, various kinds of water lines, high- and low-tension electrical conduits. Currently, these utilities consume about 50 per cent of the construction budget and their cost continues to soar. These expensive installations demand frequent access for maintenance, modifications, replacement and additions. Yet we cram them into the tightest possible spaces, usually above the ceiling line and hugging the underside of the structural slab above without chance for access with proper tools, making trouble inevitable as soon as the first leak occurs or as soon as the first modifications become necessary.

We will never find out how much of a penalty we pay in first cost for overcrowding the installation process so that the various mechanics have to fight each other for priority—or for placing, then ripping out and replacing in a different manner of installation. But we do know that this happens and, inevitably, construction bids reflect these hidden costs.

At long last we are witnessing a rude awakening. With the emergence of the need for long span, to get large unobstructed floor area, we are also witnessing the introduction of a new floor-construction system, finding expression in the sandwich or double story. In this sandwich, the lower part is for functional use by people while the upper part, above the ceiling, is a utility space accommodating, with walk-in access, all mechanical and electrical installations—initially and for the future. From this utility floor, connections to functional-floor use areas above or below can be made without interfering with the occupants.

The introduction on an increasing scale of advanced industrial techniques to health facilities is now also taking place. The transport of clean and soiled material within the hospital can be successfully mechanized. Large-diameter, pneumatic pipe systems which transport waste and laundry over great distances directly to their final destinations can eliminate most of the current manual handling.

Another practice more highly developed abroad than here to save manpower and to improve sanitation is the use of disposables in nursing, housekeeping, surgeries and feeding. Similarly wide application of electronic aids in education will change facility designs and reduce manpower needs for education. The need for infection control is having a great impact on the organization and clarification of flow lines in the planning process and on the design of mechanical systems, on choice of interior finishes and on the design of sanitary housekeeping methods.

But what of the future? First, we must break the shackles of preconceived notions of capital costs. Before establishing a budget, we must first design the kind of facility we need, and afterwards use this design to estimate its probable cost. Perhaps the resulting structural system will follow the nature of a tree or of a suspension bridge. If we design it on the principle of the tree trunk supporting its branches, we might be able to design for an ultimate future, but construct increments only as they are needed. If we design a suspension system similar to a long-span bridge, we might be able to span long stretches and provide suspended transportation systems linking the component structures.

In recent years, in almost every major city of the world, we find towers capped by revolving restaurants; and in ports around the world, huge cranes, which are capable of horizontal and vertical movement for servicing nearby ships. These time-tested devices have yet to be applied to buildings in general. Perhaps we can place structures on tracks or suspension cables and change their inter-relationships to suit changing needs.

When budgets for health approach the amounts they should be, we shall be able to utilize brainpower for research and explore the possibilities consistent with our ingenuity and technology to develop facilities that will better answer the needs of humanity.

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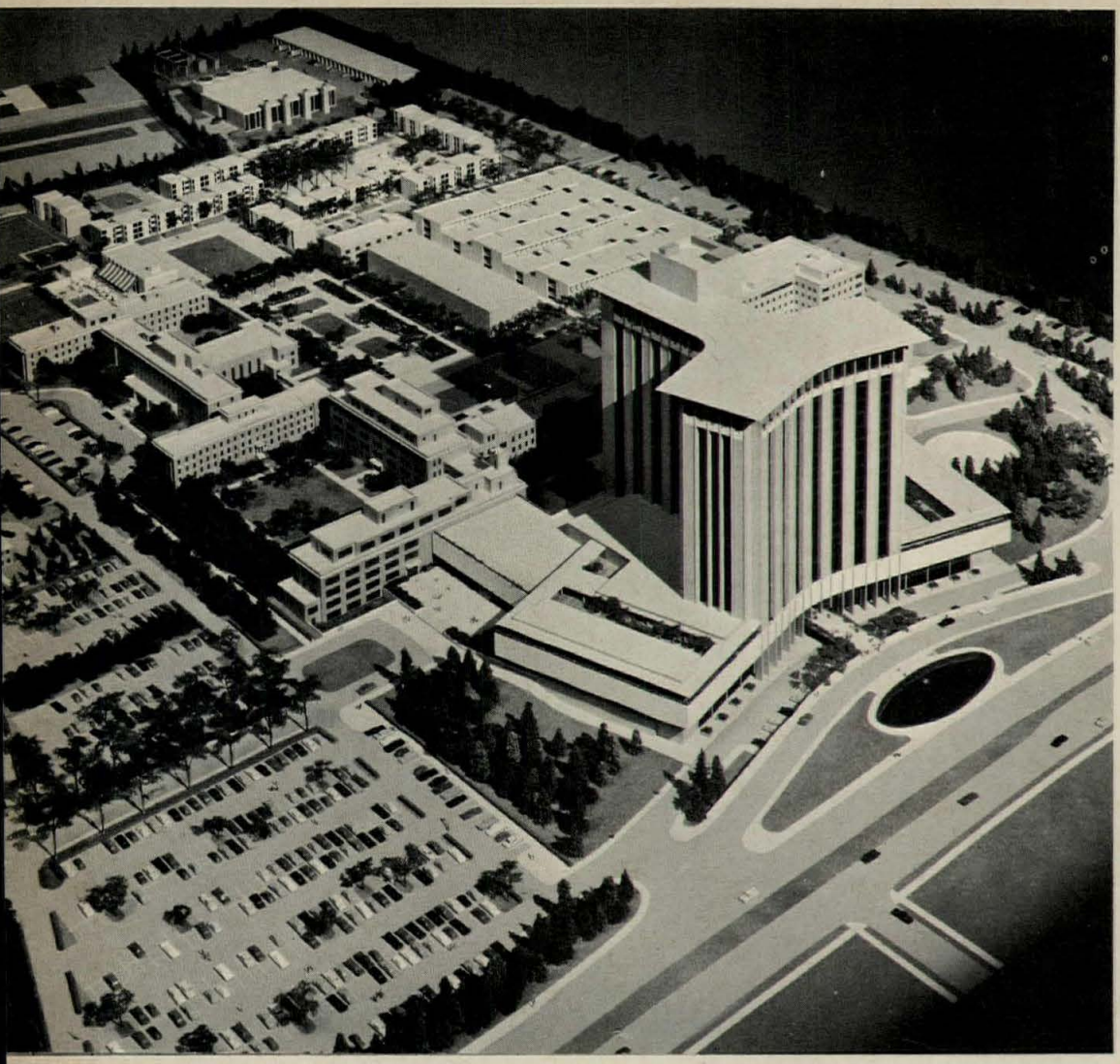
Joseph Blumenkranz is a hospital consultant and member of the firm of Katz Waismann Weber Strauss, Architects and Engineers/Joseph Blumenkranz, Consultant. This article is extracted from a paper presented at the annual meeting of the American Public Health Association in Chicago, October 1965.

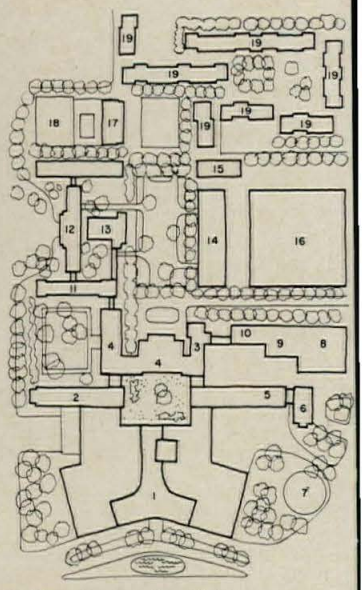
## FROM SITE PLAN TO SUTURES: PLANNING THE COMPUTERIZED HOSPITAL

The commission to The Office of Max O. Urbahn, Architects—for additions to and alteration and selective demolition of the Nassau County (New York) Public General Hospital, familiarly known as Meadowbrook Hospital—covered the redesign and co-ordination of a physical plant which had grown from 200 beds to 615 beds in a 25-year period. It also included all programing, selection of the most advanced automated and computerized operational systems, selection and specification of all classifications of fixed and moveable equipment, including coding this equipment for its placement in a computer memory core. In short, the architects were responsible for everything from the site plan to surgical sutures, according to a report by Robert Hegardt, hospital planner of the Urbahn firm.

Planning Meadowbrook began with a 1962 study by the architects of all health-oriented buildings in Nassau County; demographic surveys and population projections through 1980; a definition of Meadowbrook's role not only in the medical care program but also in education, research and special services such as physical medicine and rehabilitation; and the interrelationships between Meadowbrook and various other county health facilities.

Upon completion of these studies, basic general recommendations were made. The hospital complex was divided into two sections: (1) the new high-rise dynamic-care building, which is a short-term, acute-intensive-care unit; and (2) the existing hospital, which will be developed into a continued-care center, acute-intensive psychiatric unit, home-care facility and certain shared hospital-community facilities.





1. New Dynamic Care Building
2. Altered, public health
3. Existing, psychiatric
4. Altered to psychiatric
5. Altered to chronic & tumor
6. Existing, radiation therapy
7. New heliport
8. Existing, county medical examiner
9. Altered, research
10. Existing animal laboratory
11. Existing nurses home
12. Altered to apartments
13. Existing auditorium
14. Future hospital expansion
15. Altered, male employes' residence
16. New ramp garage
17. New activities complex
18. New tennis courts
19. New staff housing

Note: Roof adopted is as rendered on previous page.

Since the dynamic-care building was to be a highly automated and computerized "hospital of tomorrow," there was detailed attention not only to advanced systems for materials handling and communication, but also to a review of the specific work activities in the various departments, re-grouping them as necessary in order to achieve a better alignment of similar work duties. This was done primarily to effect maximum conservation of nursing personnel, and also because it was apparent that the introduction of various systems of automation, including computers, would have an extremely heavy impact on the operation of the hospital.

Upon completion of preliminary discussions and the newly determined re-alignment of job classification and work flow, the architects were able to recommend the following management re-structuring:

1. A Department of Hotel Services was established to be totally responsible for housekeeping, dietary and plant services, including routine maintenance and groundskeeping.

2. A Department of Supply Services will be totally responsible for central warehousing; decontamination of reusable ware and laundry; central packaging; the various issue warehouses including sundries, drugs, sterile and clean items; exchange-cart makeup and distribution; and material recovery and actuarial reconciliation.

Central packaging involved the architects in an unusual industrial situation involving the computerized distribution of drugs. It turned out that although the consultants in this field, Paramed, Inc., had computer-coded some 3,300 drugs and had devised a method of distribution, the drug industry in general does not package drugs to fit the system. The architects elected to set up packaging and dispensing machinery such that unit doses could be packaged and labeled with the name of the drug and the patient for whom it is intended.

3. A Department of Data Processing will be totally responsible for biomedical, paramedical, administrative and operational computer systems. In this connection it should be noted that there is no legal precedent for handling drug-dispensing and medical records by computer. The requirement for signed prescriptions for drugs and the confidential nature of medical records inject complications that limit the full implementation of the computer system. Hence there is an interim phase of operation at Meadowbrook whereby computer operation is interrupted at key points by injection of a personal operation which may, in the future, be eliminated as legal problems are resolved.

**Plan follows function**

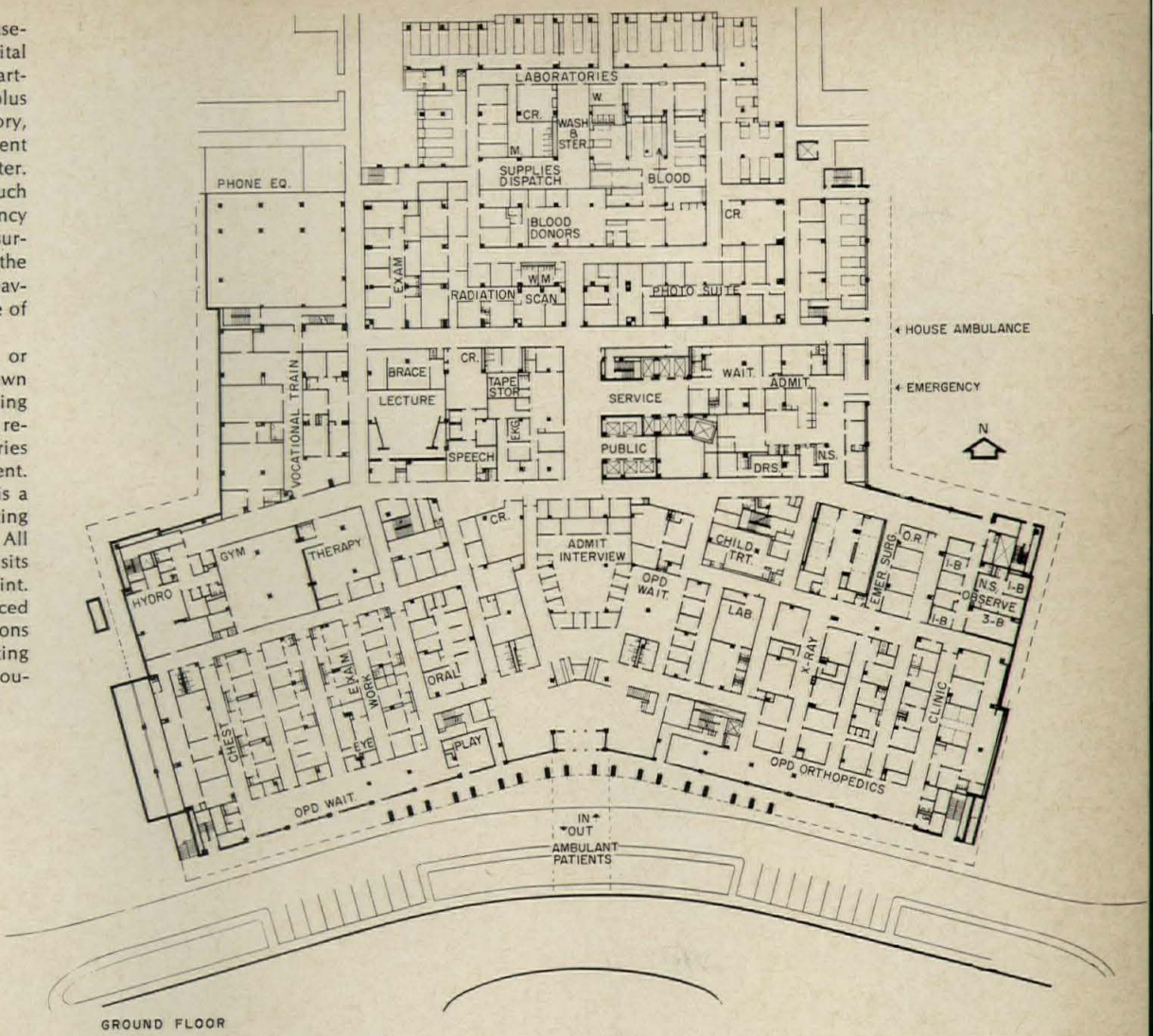
From an architect's viewpoint, says the architect's report, the plan of the hospital is essentially the resolution of a highly complex problem of logistics. That is, the receipt, processing and distribution of various categories of supplies, emergency patients, visitors and personnel through the building must all be accomplished in a properly functioning physical environment without interfering with each other's paths of travel. As a general statement it might be said that the floor plan is an accurate graphic representation of the procedures that are to be

**The ground floor** matches the basement level of the existing hospital complex and contains the department of ambulant medicine plus the blood bank, clinical laboratory, medical photography and patient admissions and disposition center.

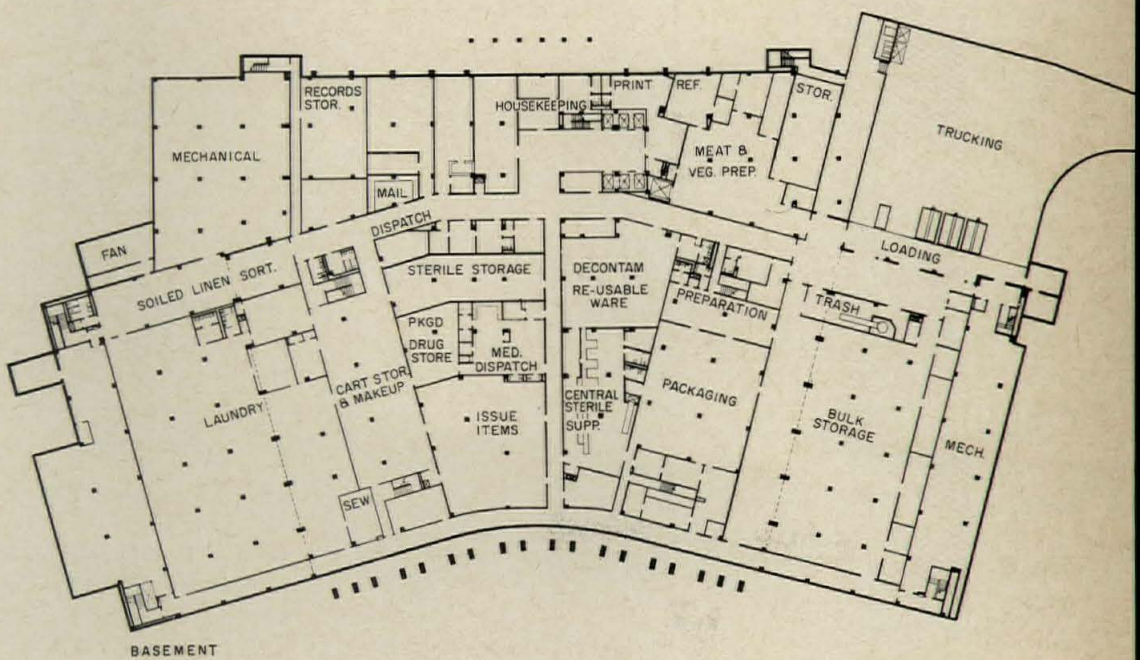
The plan configuration is such that, during peak loads, emergency patients can be moved into the surgical and orthopedic sections of the outpatient department without having the waiting outpatients aware of their presence.

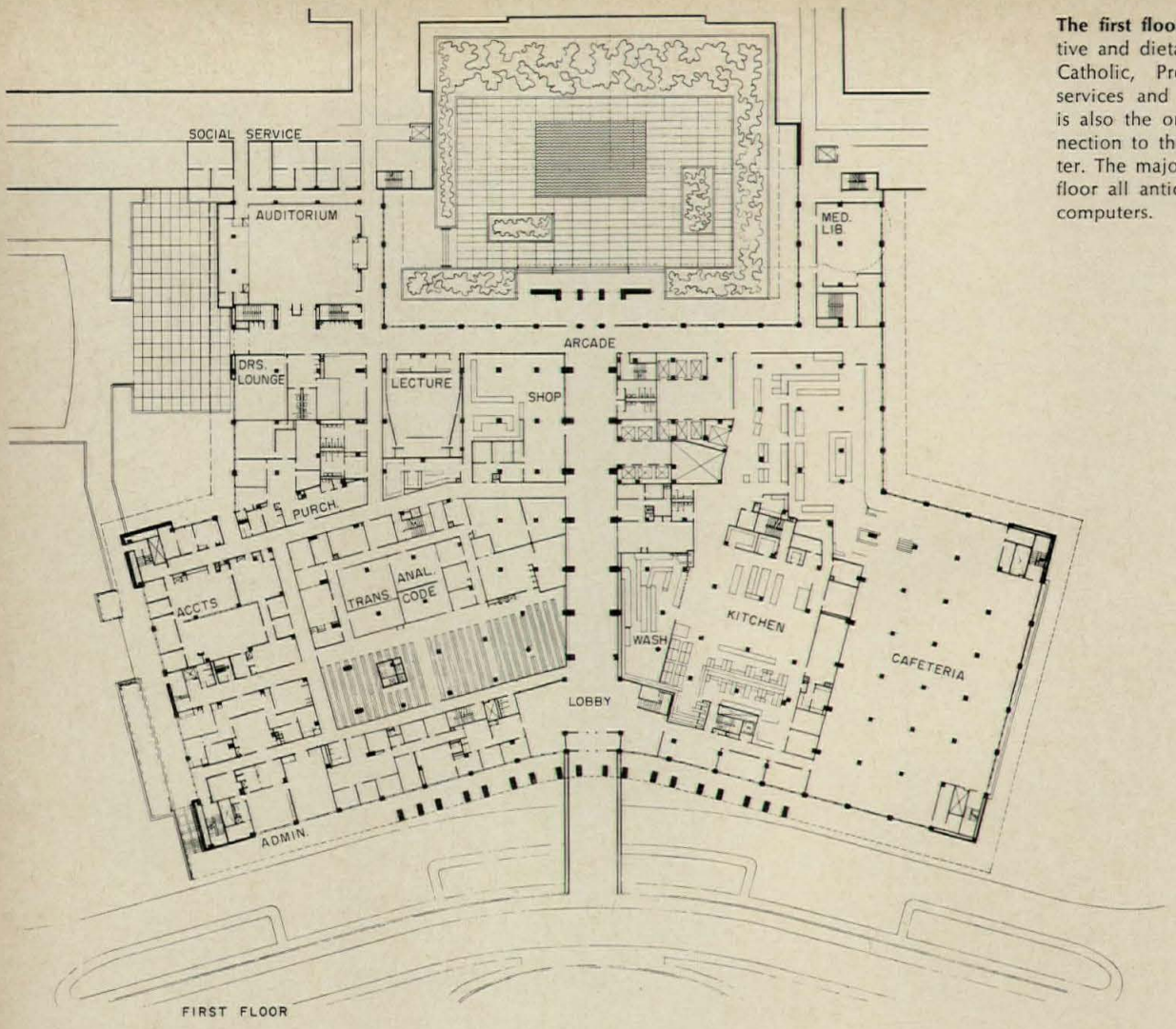
Each sub-specialty has one or more nurses' stations, with its own computer terminal for inspecting schedules, ordering materials, receiving medical records summaries from previous visits by the patient.

At the head of each clinic is a receptionist with a sub-waiting room and a computer terminal. All outpatients scheduling return visits will be scheduled at this point. Computer terminals are also placed in the admissions and dispositions center for the purpose of initiating the medical record, recording routine histories, etc.




**The basement floor** was developed as a co-ordinated industrial facility. The *bulk storage warehouse* uses the space-saving "random access" technique made possible by computerized locater files. *Central packaging service* machine-packs individual units-of-use, of such items as pharmaceuticals, and hand-packs surgical and treatment kits. *Soiled linens* are received in the sorting area through 16-inch-diameter pneumatic tubes directly from the areas of use. From *cart makeup* all nursing and diagnostic treatment areas are supplied by inventoried carts which are replaced on a fixed schedule. The *central dispatcher's office* is a prime communications center including computers and a messenger pool. Surgical supplies are dispatched by vertical conveyor. *Trash* is removed as: combustible wastes transported by 16-inch pneumatic tubes directly from the floors to the incinerator; pulpable wastes trucked to the incinerator; non-combustible waste crushed and trucked to a dumping area.






**The first floor** contains administrative and dietary areas, quarters for Catholic, Protestant and Jewish services and teaching facilities. It is also the only direct public connection to the continued-care center. The major departments on this floor all anticipate a heavy use of computers.

followed and the administrative structure which directs them.

The various entrances and prime internal arteries of traffic then become of primary concern. Separation of entrances was accomplished in Meadowbrook in the following manner: (1) merchandise is received at an underground dock adjacent to the industrial facility in the basement; (2) ambulant and ambulance patient entrances are achieved by depressed ramps at grade on the south and east sides of the building respectively (these entrances connect to a central admissions and disposition center on the ground floor); (3) the visitors' entrance is achieved by a raised ramp and bridge to the first floor directly over the ambulant patient entrance on the south side of the building; (4) the medical staff entrance is at first floor level at the west side of the building; (5) employees' entrance is achieved by a stairway leading to the basement at the extreme north end of the complex adjacent to their parking garage.

By virtue of these widely separated entrances, internal traffic is not mixed until it merges in the elevators and, in the case of visitor and hospital traffic, is not mixed until the components arrive at the floor of use. The various departments were located within the envelope with particular emphasis on their interrelationship and the possibilities of flexibility of use.

One of the most difficult problems encountered in large hospitals is that the arriving patient is not sure which of the various entrances he is expected to use. The addition of the admissions and dispositions center on the ground floor between the ambulant-patient entrance, the ambulance-patient entrance and the hospital elevators will eliminate some of the confusion. As a part of this center, both the outpatient department and the emergency department have their own screening clinic. Should a person presenting himself at the outpatient entrance be found to be in a serious condition, he will be immediately transferred to the emergency department or admitted as an in-patient.

The therapy areas were placed on the ground floor adjacent to the hospital elevators and in direct line with the ambulance entrance so that they can conveniently handle outpatients, inpatients and patients from the home for the aged for which this hospital is a service organization.

The first stage of planning of the dynamic-care building had actually to do with the typical nursing floor in context with the existing position of the continued-care center and physical limitations of the site between the existing complex and major traffic arteries. It was determined that maximum utilization of the space available could best be obtained with a nursing floor in the form of a "Y," so that area for the service core remained at a workable size. Use of the exchange-cart system permitted the placement of two nurse supply positions at the center of each half of the "Y" form, while taking advantage of a single location for a double nurses' station.

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NASSAU COUNTY PUBLIC GENERAL HOSPITAL (Meadowbrook), East Meadow, Long Island, New York. Architects: *The Office of Max O. Urbahn, Architects;* structural engineers: *Fraioli-Blum-Yesselman;* mechanical engineers: *V. L. Falotico & Associates;* plumbing and electrical engineer: *Frank J. Sullivan;* Civil engineers: *Staunton & Freeman;* landscape architects: *Sasaki, Dawson and DeMay Associates.*

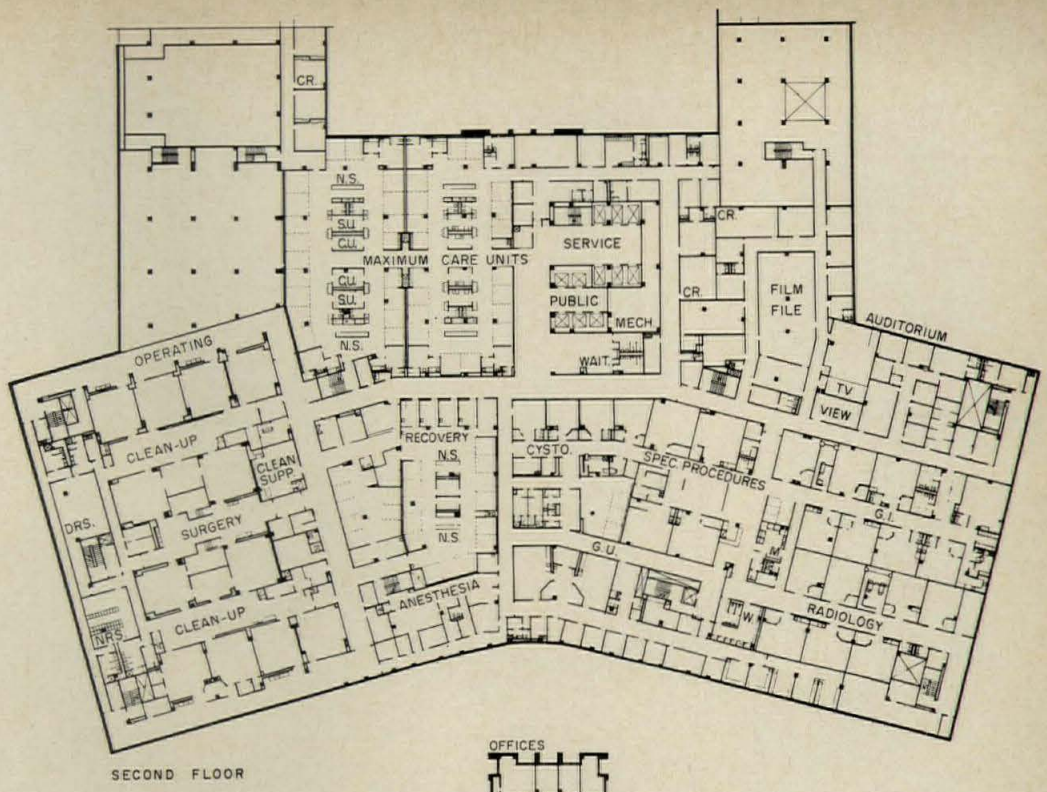
**The second floor** contains the following departments: radiology, cystoscopy, cardiopulmonary surgery including recovery, anesthesia, and the maximum-care unit.

The department of radiology, which will handle about 125,000 pieces of film per year, was planned as a series of suites: gastrointestinal, intravenous, general, special procedures and cystoscopy. Each suite contains its own film handling and developing station.

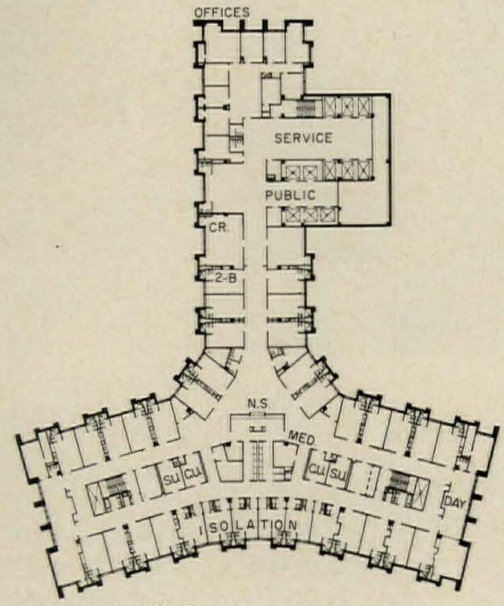
The department was located on this floor to be readily accessible for inpatients and adjacent to surgery. Outpatients have access to this department by special elevator from the outpatient department.

The cardiopulmonary laboratory consists of two catheterization rooms, laboratories and general examining and administrative areas. It is adjacent to radiology so that, although the cardiologists retain autonomy, various aspects of the work will be done by technicians from radiology. This same practice will hold true for cystoscopy and surgery in relation to radiology.

The surgical suite is developed with peripheral and internal corridors. Personnel gain access by separate stairs and elevators from the first floor near the surgeons' entrance. Patients arrive by hospital elevators. Surgical packs arrive on the clean side by way of vertical conveyors.




SECOND FLOOR

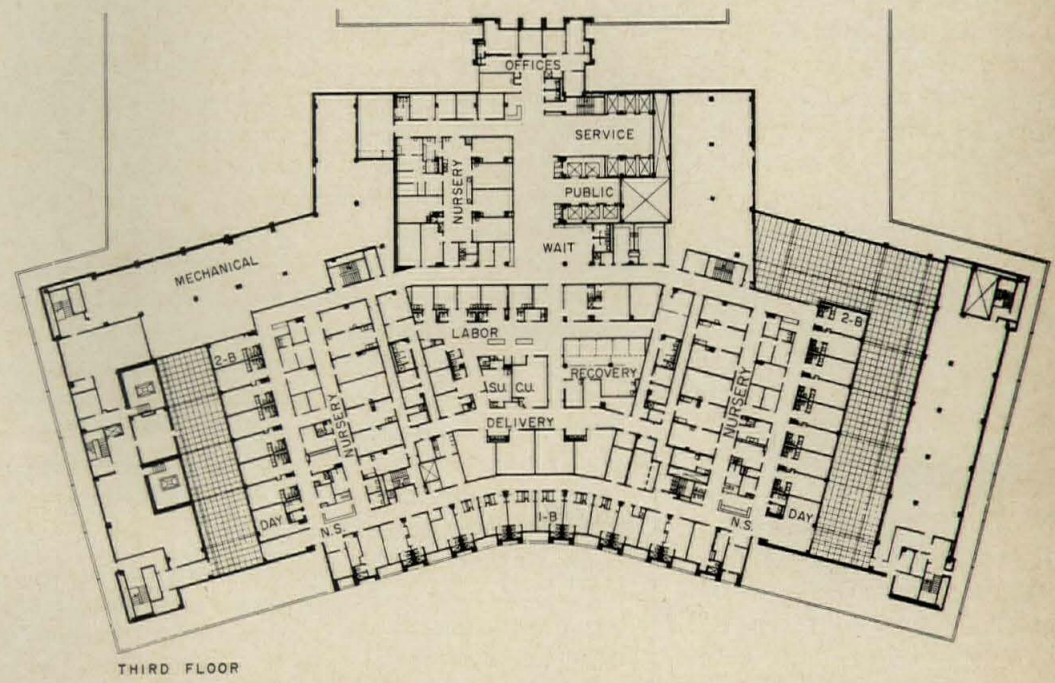



TYPICAL FLOOR

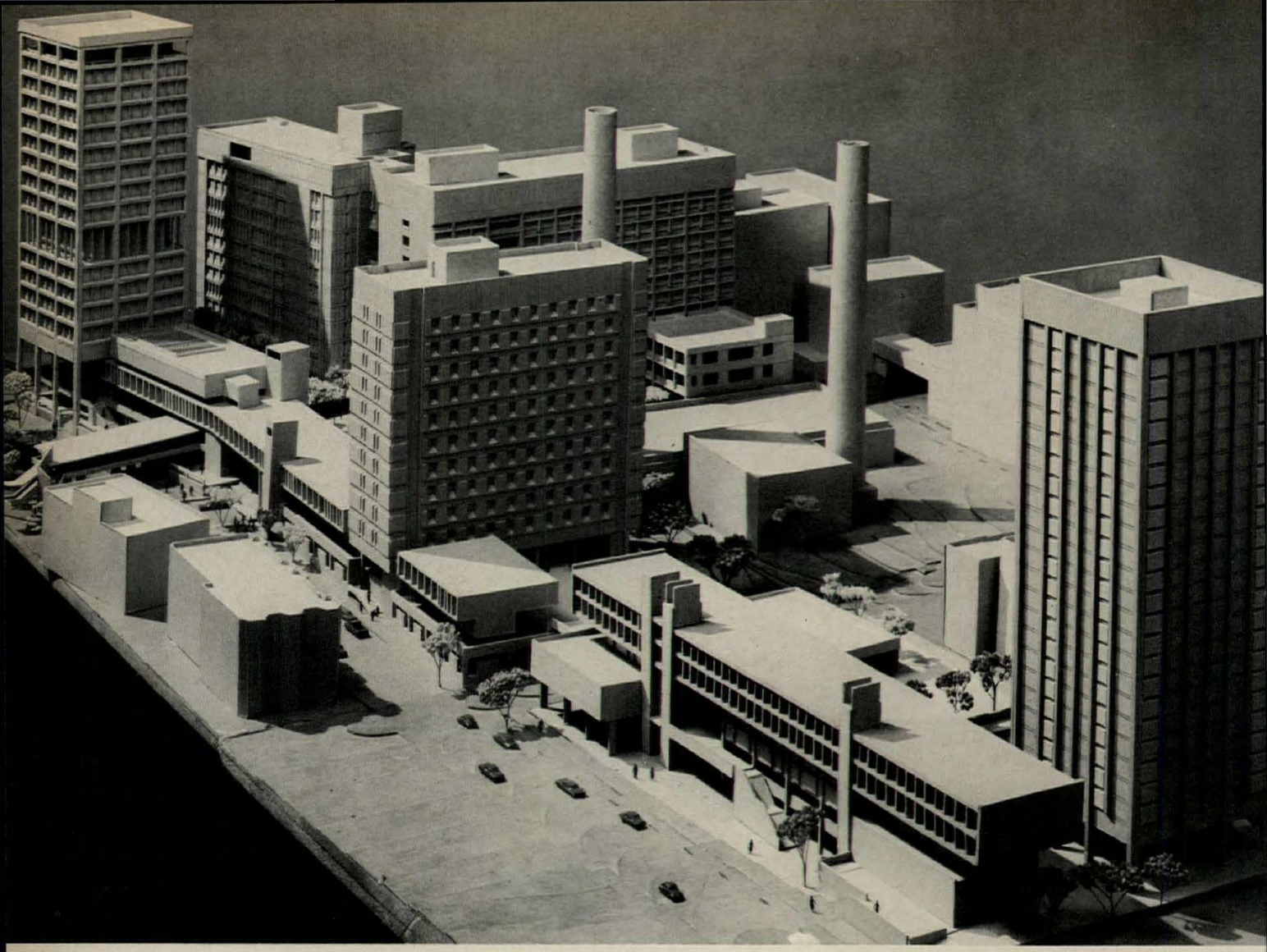
**The third floor** is devoted to obstetrics and post-natal care. The total unit is sized to accommodate approximately 3,000 births per year.

The delivery suite, located at the center of the floor, consists of a receiving, exam and prep area, eight labor rooms, four delivery rooms, six recovery rooms, the utility core, a room for exchange transfusions and the nurses' station. Doctors' and nurses' lounges and lockers are immediately adjacent on either side of the delivery suite.

In common with the medical-surgical nursing units, this floor is self-contained in that offices for medical staff, nursing staff and various members of the middle-management teams are maintained on the floor at the north end of the building. Again, as on the typical floors, each nursing station is equipped with computer terminals, pneumatic tube stations, pneumatic linen and trash chutes, clean and soiled utility rooms, conference rooms, treatment rooms etc.




THIRD FLOOR



*Robert D. Harvey Studio photo*

## REDEVELOPMENT OF CHILDREN'S CENTER PROVIDES CLINICAL, RESEARCH AND RESIDENTIAL SPACES

A $50-million development program, most of it to be completed by 1969, will make of Boston's Children's Hospital Medical Center one of the largest pediatrics centers in the world. Replacing outmoded buildings of the institution, the complex will span three blocks on Longwood Avenue from Harvard Medical School to Brookline Avenue. Construction and demolition will proceed in three or more phases, of which phase 2, shaded buildings in the diagram at right, is now under construction. Already completed in phase 1 are the huge underground spaces, mostly non-medical, which comprise the mechanical and industrial bases supporting today's complex hospital functions. Also completed is a 450-car self-parking structure shown at the bottom of the diagram.

A 22-story residential tower, at right in the photo, is being built in the current phase 2. It will contain 156 apartments for married internes, resident physicians and nurses. The low structure along the avenue in front of the apartment tower contains motel accommodations for visiting patients and for ambulant patients accompanied by parents during examination or light-care phases of hospitalization. This is intended to reduce the cost of the hospital stay and to free hospital beds for more acute care. Since the residential complex is mixed, non-profit and commercial, a lump-sum tax arrangement has been worked out with the city of Boston.

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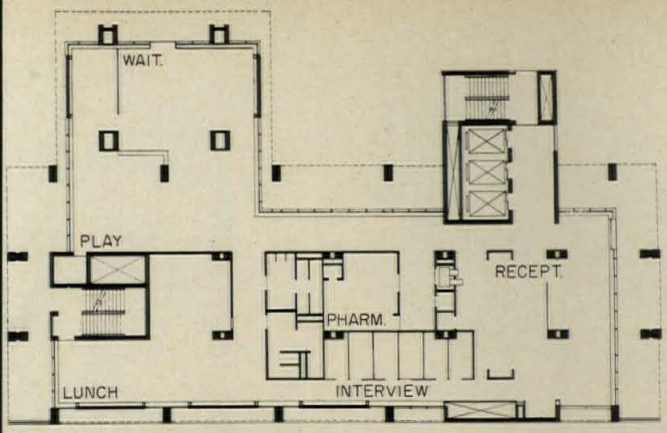
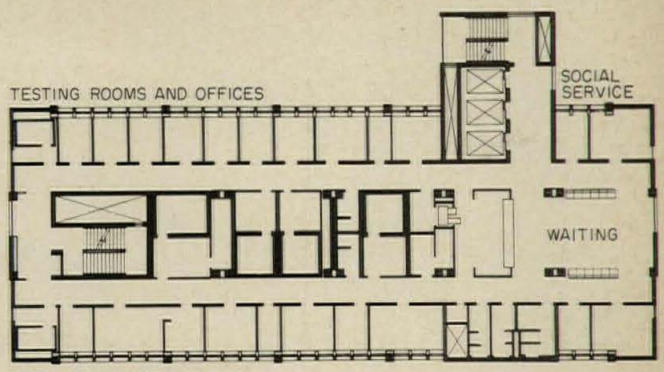
CHILDREN'S HOSPITAL MEDICAL CENTER, Boston, Massachusetts. Architects: *The Architects Collaborative, John C. Harkness, partner in charge;* structural engineers: *Souza & True;* mechanical engineers: *Metcalf & Eddy;* electrical engineers: *Engineers Inc.*




BLDG. NO. 1 PLAZA FLOOR-RECEPTION
CLINICS AND DIAGNOSTIC

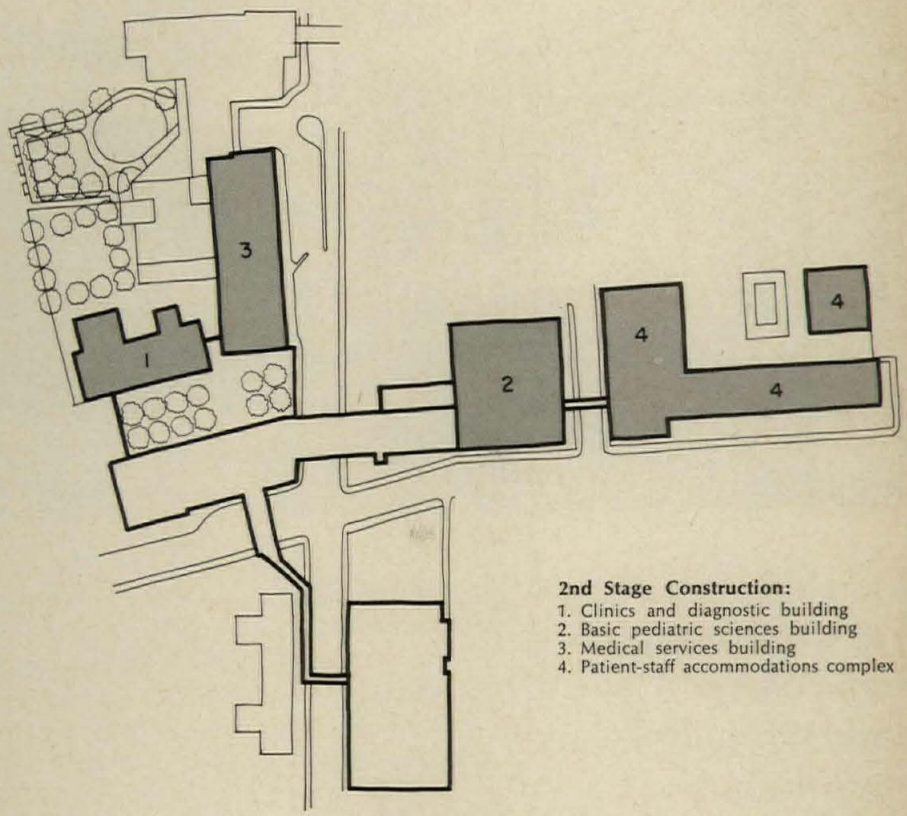



BLDG. NO. 1 NINTH FLOOR
RETARDATION COMMUNICATION

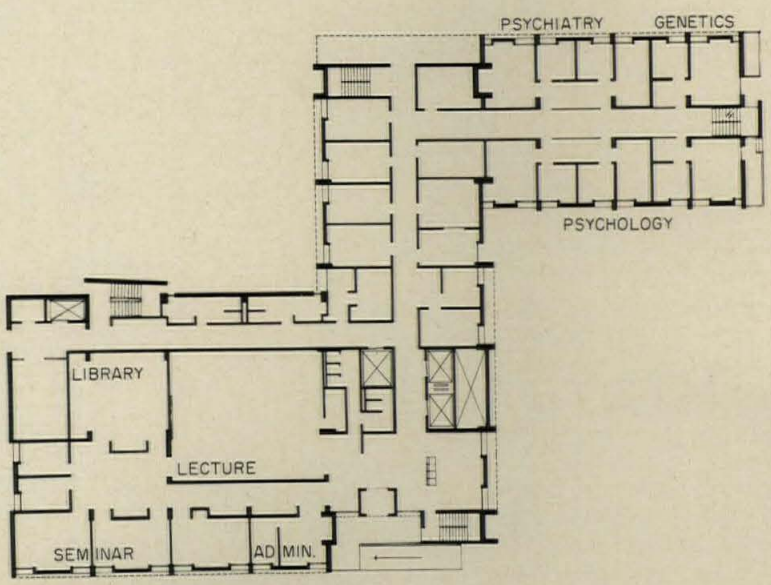
Building 1 is an 11-floor clinics and diagnostic building with the first or plaza floor designed to sort out and direct a considerable traffic to the specialized out-patient floors above. Each floor handles a different category of patient such as, in ascending order, orthopedic, surgical, eye and ear, general examination, medical, psychological, psychiatric, etc. Floors are basically similar in layout to the ninth floor shown. The central core contains whatever special instrumentation or test spaces are appropriate to its specialty, such as the audiometric testing rooms shown here. The top three floors of this building are devoted to the mentally retarded.

The basic sciences building has two below-grade floors housing radiology and animal research facilities. Above the ground floor is a plaza entrance floor providing covered dining and play areas with access to stairways and elevators. The 10 upper floors are similar in plan to the second floor shown and are assigned to research in such special fields as neuropharmacology, biochemistry, immunology, etc.

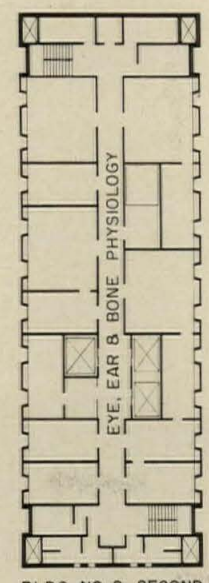
An administration building, tower at the left in the model photo, is planned for a future phase.



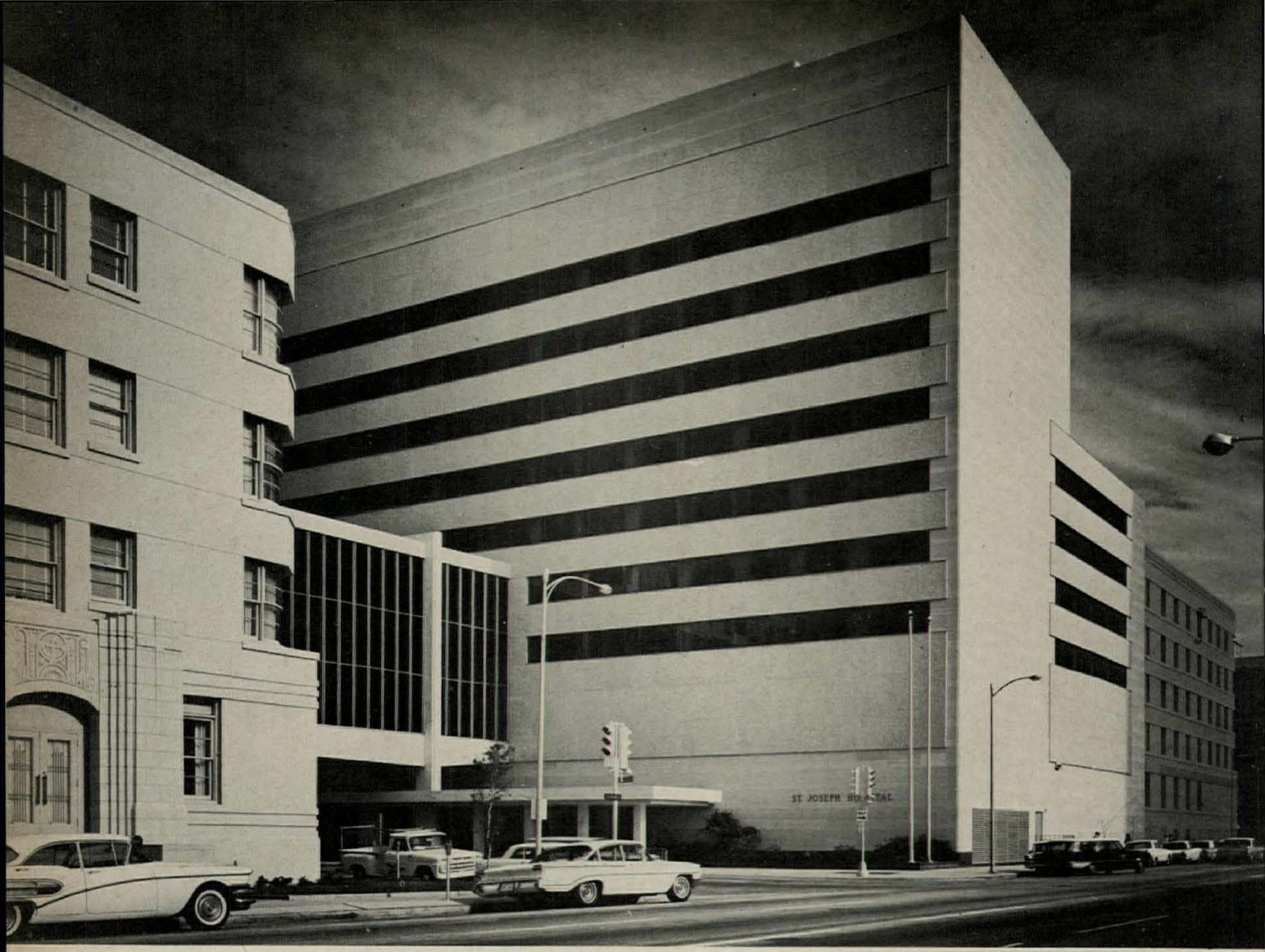

**2nd Stage Construction:**
1. Clinics and diagnostic building
2. Basic pediatric sciences building
3. Medical services building
4. Patient-staff accommodations complex




BLDG. NO. 2 GROUND FLOOR
BEHAVIORAL SCIENCES




BLDG. NO. 2 SECOND FLOOR
CHILD DEVELOPMENT RESEARCH



Robert Murray photo

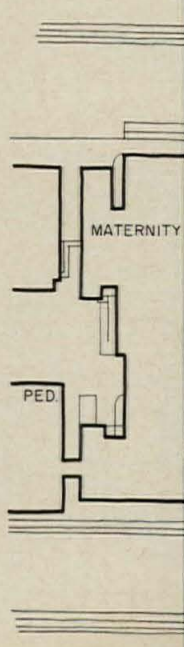
## ST. JOSEPH'S GROWS ON A CROWDED URBAN SITE WHILE SERVICES CONTINUE

The problem of updating and enlarging a rambling, decentralized general hospital, with all the attendant complications of running existing amenities during new facilities construction, has been successfully solved without relocation in the case of St. Joseph's, a large urban hospital which sprawls over three city blocks in the heart of Houston.

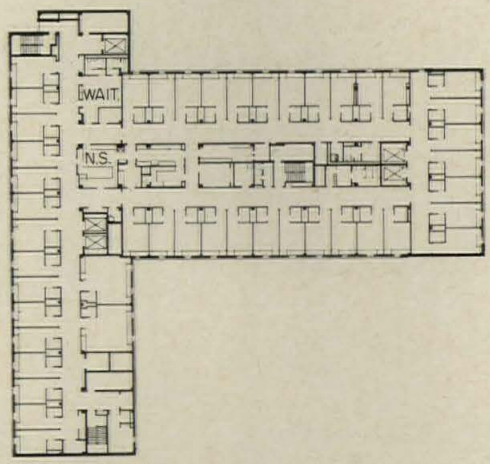
The essence of the solution was the erection of a centralized high-rise building to house all the main functions of the hospital, the modernization of ancillary buildings, the establishment of good communication between different buildings and the provision of a central air-conditioning system to serve the entire complex.

The original administration building had to be demolished before construction of the new building, and this meant that a temporary steel-framed structure had to be erected to provide the necessary contact between the two main wings of the existing hospital, until the new facilities were complete. Now that the major addition is built, the old "north wing" of the hospital has been demolished and rebuilding has started.

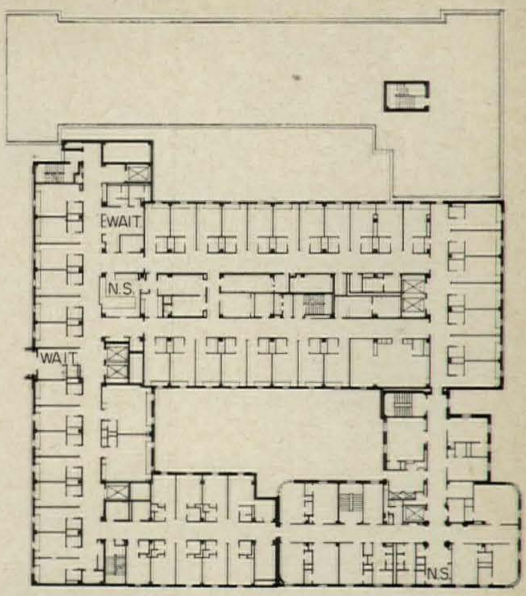
A three-level bridge was constructed to connect the new building with the maternity unit across La Branch Street to the west, and service tunnels interconnect all buildings with primary services from the central boiler facility.




ST. JOSEPH HOSPITAL of the Sisters of Charity of the Incarnate Word, Houston, Texas. Architects: *Golemon & Rolfe; Ernest L. Youens, partner in charge;* structural engineer: *Walter P. Moore;* engineers: *Bernard Johnson Engineers, Inc.;* contractor: *Manhattan Construction Company;* landscape architects: *Bishop & Walker.*



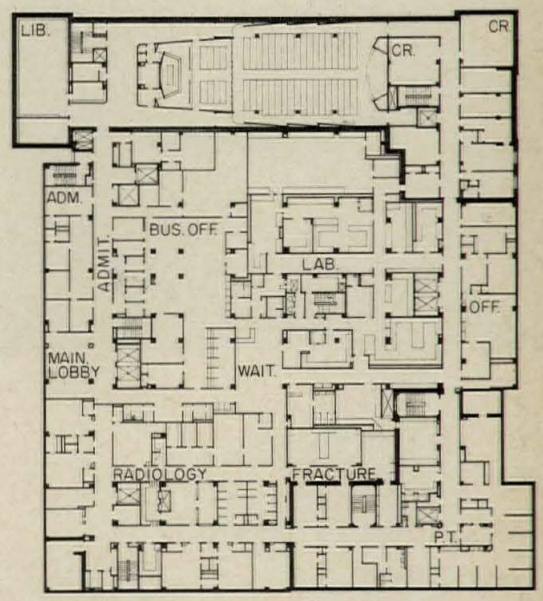

SEVENTH FLOOR



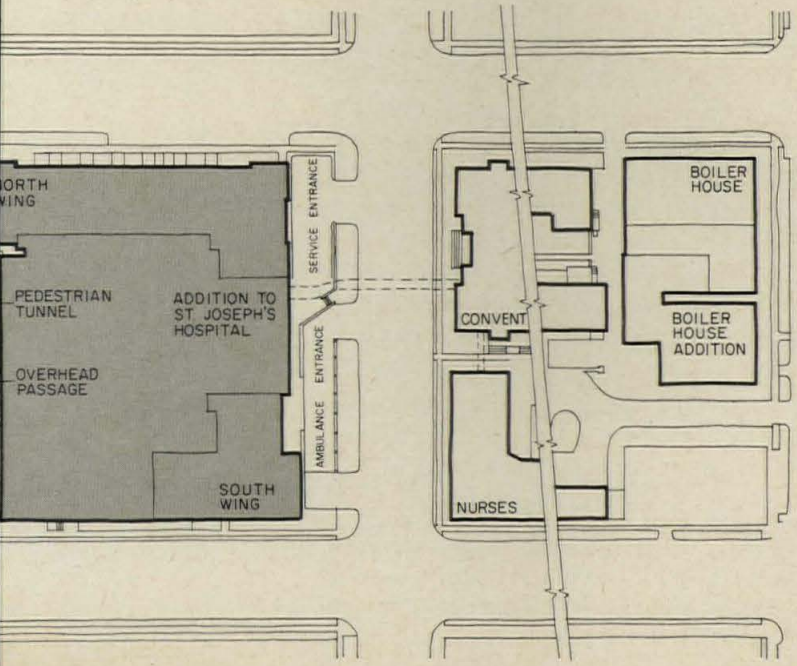

FOURTH FLOOR

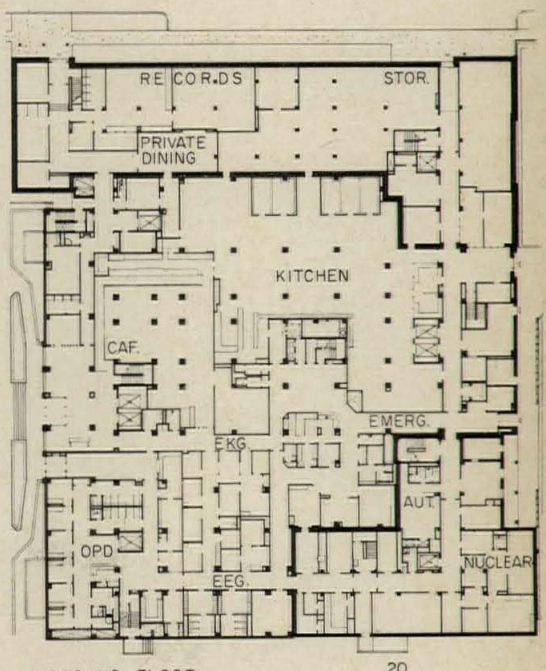
During reconstruction, St. Joseph's consists of a number of buildings of different style and character, but with a fundamentally horizontal design expression and a certain amount of color continuity. The new building, though considerably larger and more dominant than any of the existing buildings, has a strong horizontal emphasis, which ties it in with the rest of the hospital (particularly the south wing which directly adjoins the new building) and in fact creates a greater unity of design throughout the complex than was previously the case. Building materials, concrete, stucco and granite were chosen with the color of the other buildings in mind. All the concrete surfaces of the older buildings were repainted to match the basic shade of the new masonry materials.

The original 480-bed capacity will be increased to 1,000 when the rebuilding is complete.




FIRST FLOOR




GROUND FLOOR 20

## RURAL HOSPITAL IS DESIGNED TO GROW OUTWARD AND UPWARD

An example of a rural community hospital that must look to a near future of rather rapid expansion while tailoring the initial budget ($3.5 million) to long-term economy is the Watsonville (California) Community Hospital. Architects Stone, Marraccini and Patterson were able to organize basic requirements of the staff-owned-and-operated facility into a nucleus of diverse services that, while at first limited in scope to a 102-bed, nonteaching, general institution, were nevertheless internally flexible and externally expansible. Ultimate capacity will be 218 beds, as projected by the current program.

Expansion can occur both horizontally at the broad pedestal first-floor base, or vertically as the set-back block of nursing services is built up. Fourth floor (18,000 square feet) of this block will be built in the initial phase but left as a shell to be equipped and occupied by 58 beds as needed. Foundations and columns are designed for future addition of a fifth floor.

All mechanical, outpatient and support services are on the first floor. Those services that have to do with supply of nursing services are grouped around a central core in which both elevators for food-cart service and mechanical tray conveyors for medications and sterile supplies are located. Outpatient and emergency services, while having separate entrances, share certain examination and treatment facilities. Traffic flow is controlled at key points.

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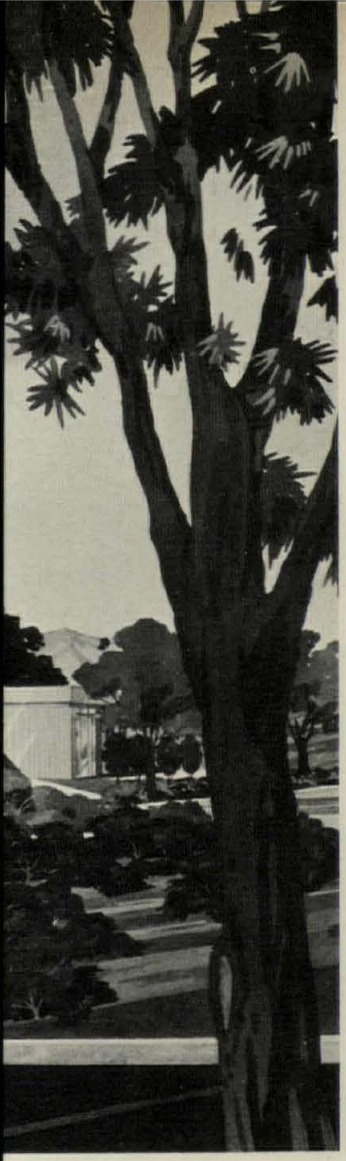
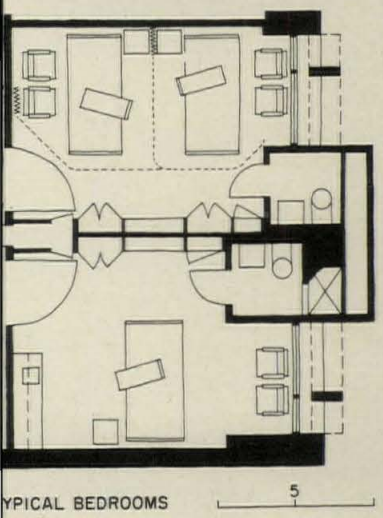
WATSONVILLE COMMUNITY HOSPITAL, Watsonville, California. Architects: *Stone, Marraccini and Patterson;* structural engineers: *Butzbach • Bar-Din;* electrical engineer: *Mel Cammisa;* mechanical engineers: *J. Marion Thomas and Associates.*



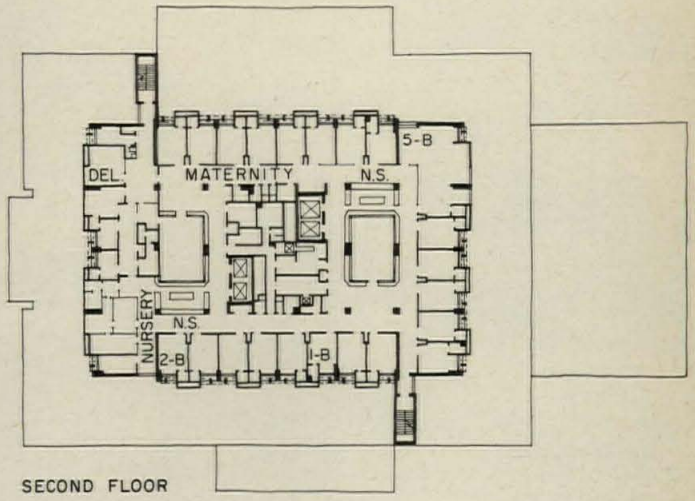


YPICAL BEDROOMS

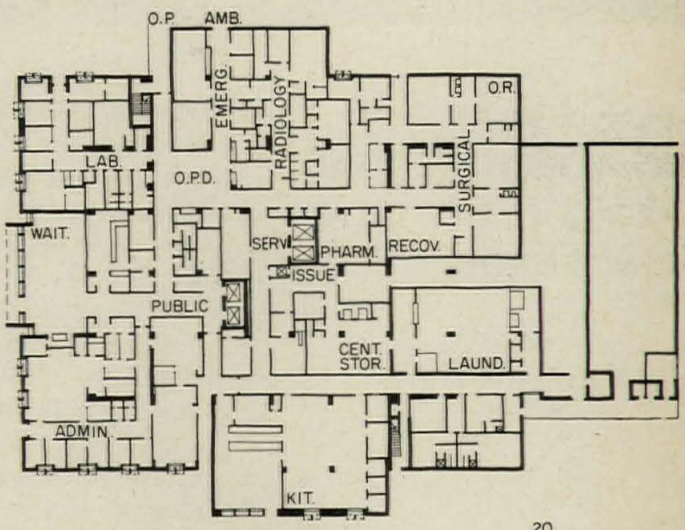
5

Internal flexibility of nursing floors is illustrated in the plan of the second floor, right, which shows maternity and medical-surgical nursing units so arranged that some of the bedrooms on the perimeter of the floor can be assigned to either of the diagonally opposed nurses stations. The service core is similarly convenient to both stations. Service elevators for stretcher (as well as food-cart) transport properly face the surgical station which is also convenient to the extensive-care unit. Public elevators open to the more ambulant and more frequently visited maternity section.

Similarly, on the first floor, the public elevators face the main entrance lobby from the end of a short corridor which separates the administrative areas from outpatient and laboratory areas. Administration and laboratory areas, flanking the lobby but each with separate entrances, can expand forward toward the east leaving the main entrance recessed. Other key areas on the first floor (kitchen, outpatient, surgery, radiology) can expand north and south as required without disturbing the basic traffic pattern.

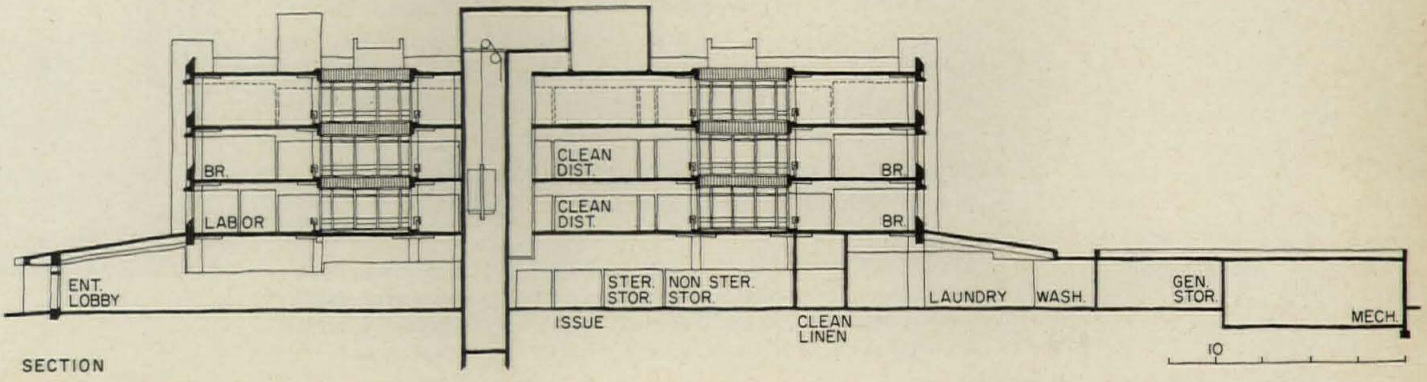



SECOND FLOOR




FIRST FLOOR

20




SECTION

10

## PLAN FOR AN AIR FORCE HOSPITAL PROVIDES LIGHT-CARE INNOVATION

The inclusion of a light-care unit in this $5-million Air Force medical center is something of an innovation in military-hospital design, but it may well become an accepted feature of both military and civilian medical facilities. Situated in the north wing of the T-shaped ground floor plan, the light-care unit has 50 beds—all but two of which are in two-bed rooms—grouped on either side of a central patio in a self-contained unit that is attached to the main lobby by a solarium. The provision of this facility is intended to relieve some of the pressure on nursing staff and speed up availability of acute beds.

Clinical functions are placed in the east wing of the ground floor and are completely separate from administration and food-service facilities in the west wing. Each ground-floor wing contains an open garden-patio, which provides light, fresh-air intake for the air-conditioning system and a pleasant place for relaxation.

One hundred fifty inpatient beds and a maternity suite are accommodated in the tower block, whose fifth floor carries the surgical suite, central sterile supply and an intensive-care unit. A neuropsychiatric unit on the second floor contains three four-bed rooms and four single-bed rooms for the care of disturbed patients. Nursing stations are centrally located opposite elevators on each floor. Fourth floor is the maternity suite.

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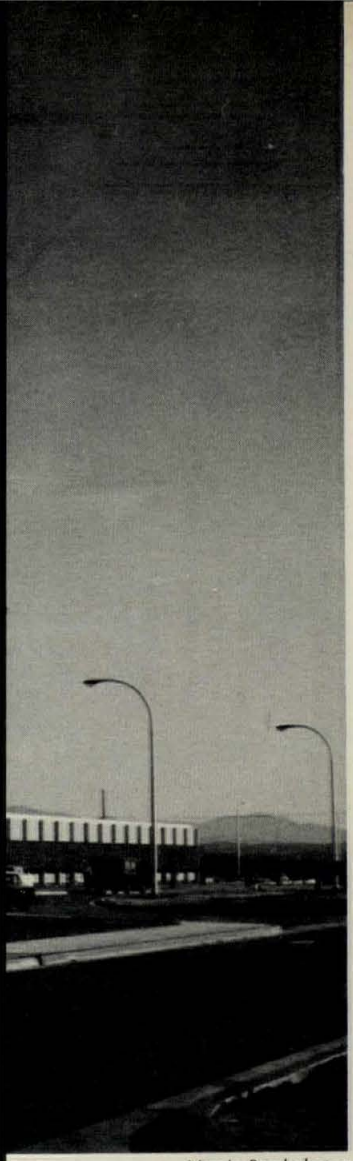
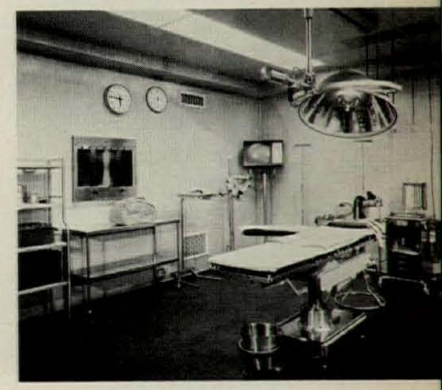
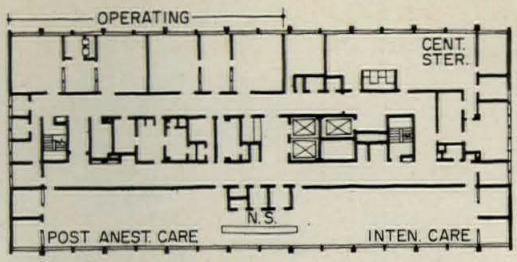
COMPOSITE MEDICAL FACILITY, MARCH AIR FORCE BASE, Riverside, California. Architects and engineers: *Welton Becket and Associates;* structural engineers: *Stacy and Meadville;* landscape architect: *Robert Herrick Carter;* contractor: *Crown Construction Company.*



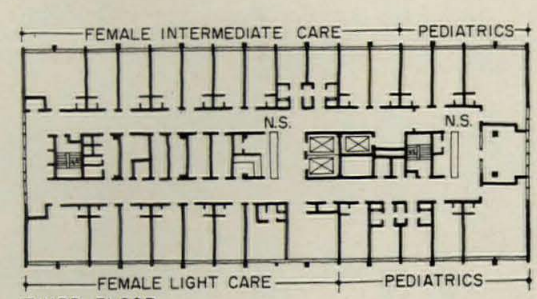
*Marvin Rand photos*



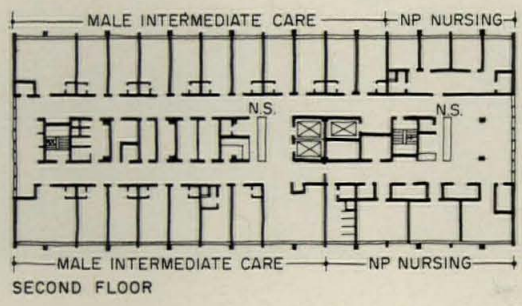
The building, which was constructed under the supervision of the U.S. Army Corps of Engineers, is of reinforced concrete with spandrels of anodized aluminum alternating with window bands that are spaced by charcoal-gray aluminum mullions. White-concrete sunshades provide sun control on the south side of the tower, while especially designed aluminum grilles control solar heat at both ends and around the base of the building. Exterior columns free the interior spaces.



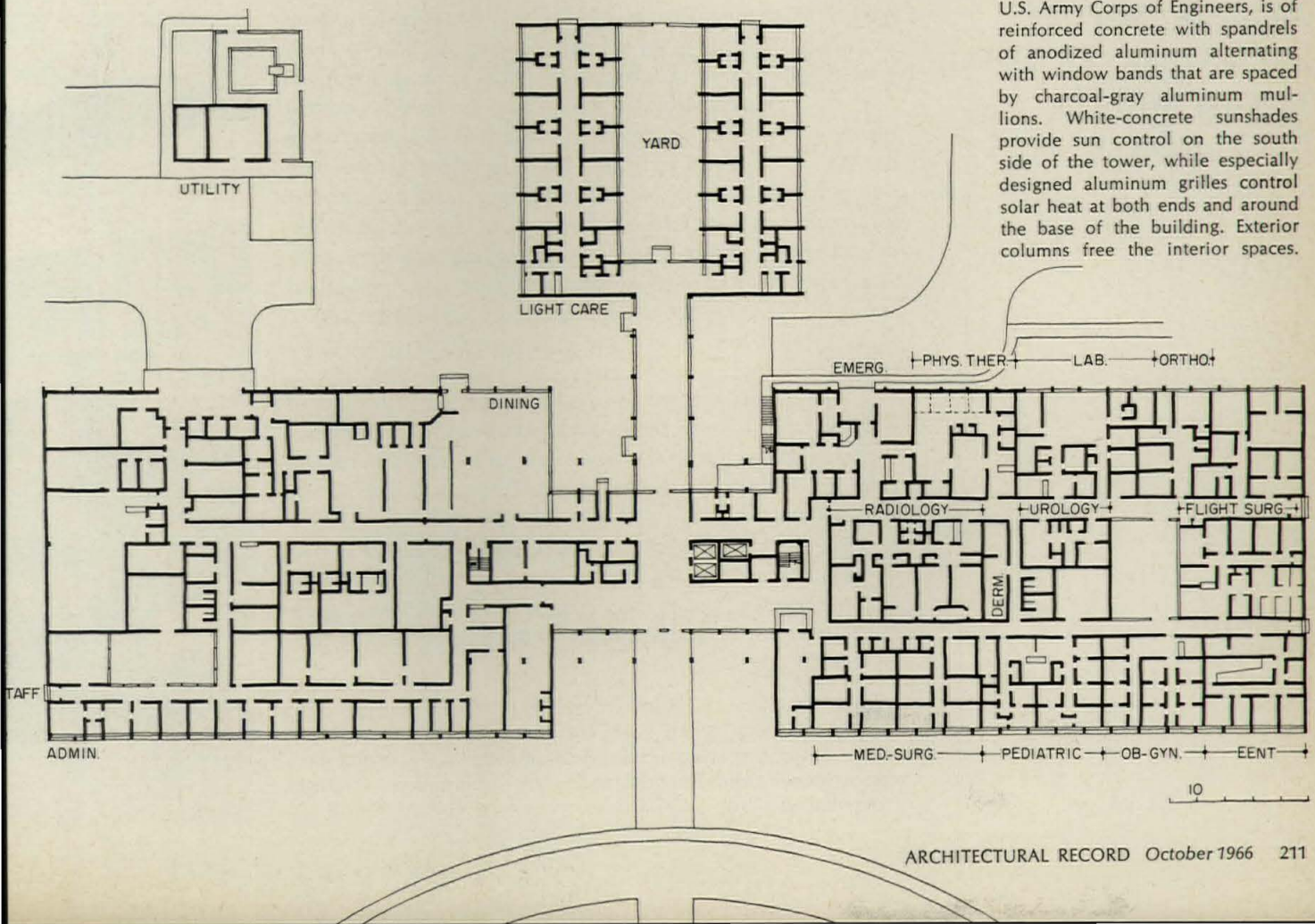

FIFTH FLOOR

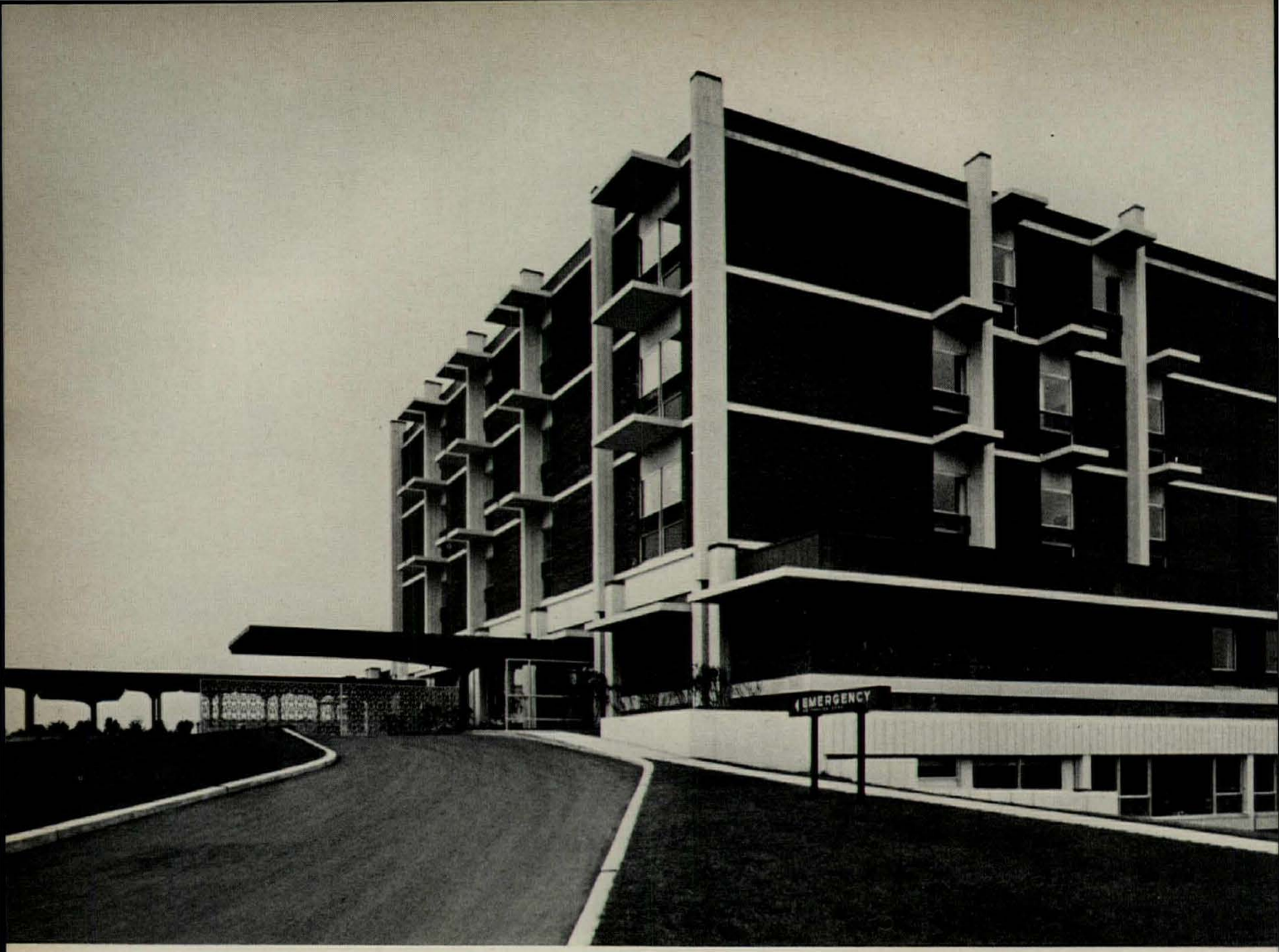



THIRD FLOOR




SECOND FLOOR





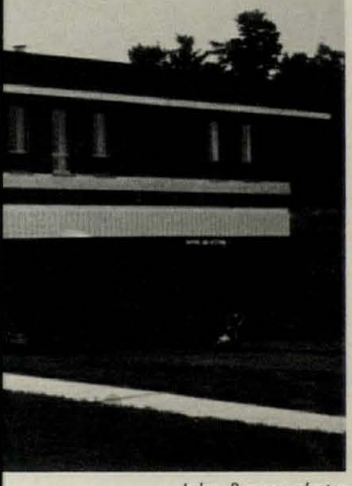

## FIRST-PHASE PLAN OF ONTARIO HOSPITAL LOOKS AHEAD TO REGIONAL NEEDS

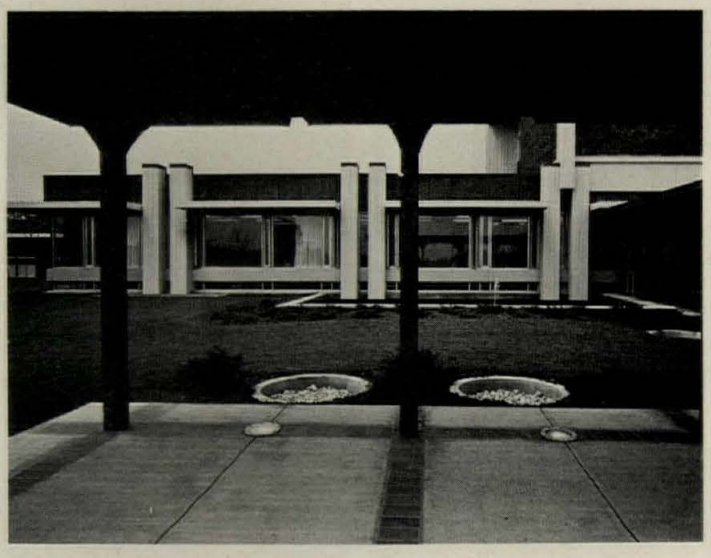
Ajax and Pickering General Hospital was designed for expansion from 100 beds to an ultimate capacity of 500. To allow growth without destruction of the services built for the initial stage the architects separated service and nursing units, so that service will expand horizontally from a two-level base while nursing units expand vertically. The lower level of the base houses non-patient services; the upper level is for patient services, as well as main entrance, lounge and elevator lobby. All departments in the base will expand separately. In the upper level, outpatient facilities—emergency, radiology, physiotherapy and laboratory—are arranged along an outpatient corridor, while private corridors serve the inpatient departments—surgical and obstetrical.

What is now a three-floor tower containing nursing units will ultimately have six floors, each with two units of 35 beds, and each connecting to the service base through a central elevator core. Expansion of the tower will first add units to the standing floors and later add three new floors.

The sloping site permits cafeteria and kitchen to connect directly to an outdoor terrace. Use of the site will expand along with the building, and so the plan provides for continued separate traffic routes from the outside for doctors, staff, emergency and public.

AJAX & PICKERING GENERAL HOSPITAL, Harwood Avenue, Ajax, Ontario. Architects: *Craig, Zeidler & Strong;* mechanical engineer: *W. Hardy Craig;* structural engineers: *G. Dowdell & Associates;* electrical engineer: *Donald Emmett;* hospital consultant: *Agnew Peckham & Associates.*



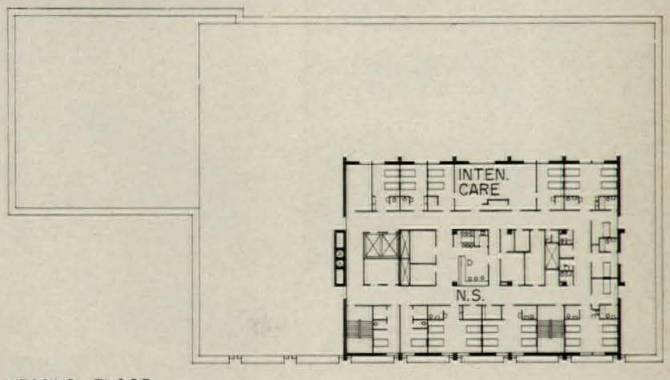


*John Reeves photos*

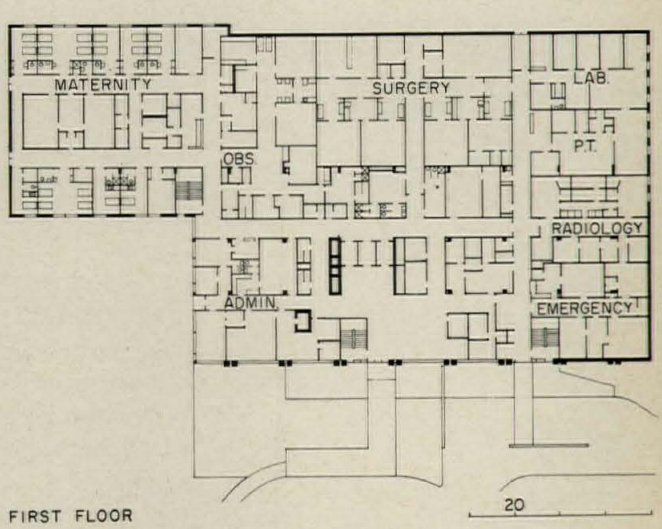
The architects' handling of interior design included special furniture for the lobby and an adjacent quiet room that serves as a chapel. A sculptured fountain by Bruce Watson is a focal point in the lobby.

Public and internal traffic are divided by the corridor and elevator arrangements of the first floor, and a separate maternity and obstetrical wing removes a good deal of traffic from general circulation.

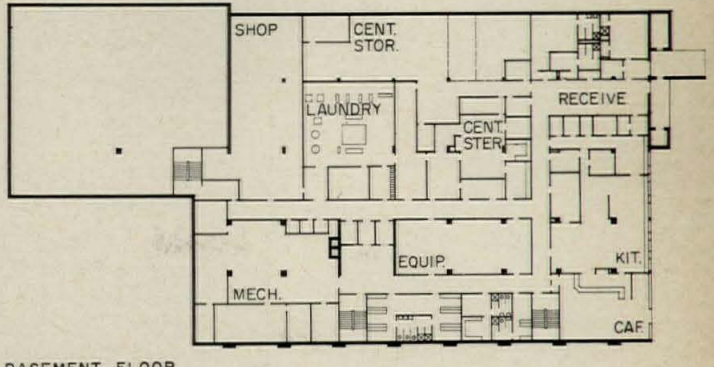
At the final stage of expansion, added elevators will service the new floors while the old elevators are extended, thus minimizing interference with daily operations.




SECOND FLOOR




FIRST FLOOR




BASEMENT FLOOR

## DIAGNOSTIC TOWER HAS CONVERTIBLE SELF-CARE, OFFICE AND NURSING FLOORS

The concept of light-care or self-care spaces for ambulatory patients is developed to a high degree in Barnes Hospital's Queeny Tower. Patients, not requiring intensive nursing care, coming to St. Louis for diagnosis or treatment can drive into a three-level, ramped, 192-car garage; check into self-care quarters on one of the seven upper floors; consult with physicians in their office and examination spaces on any of the five lower floors; eat in diversified food-service areas on the top floor; take whatever diagnostic tests are prescribed, supported by in-house laboratory and X-ray facilities; transfer, if necessary, to acute or intensive nursing service on one of three conventional hospital floors. These acute floors and doctors' office floors are connected by passageway at each level with the adjacent Rand-Johnson Memorial hospital section of the Washington University Medical Center, so that an interchange of staff, services and teaching functions is facilitated. The Queeny Tower replaces a former private pavilion.

Entrance to both garage and lobby is from a city-closed lane of the highway on the south side of the site and is protected by a covered promenade. Five round skylights in the roof of the promenade improve daylighting of entrances. The structure is reinforced concrete.

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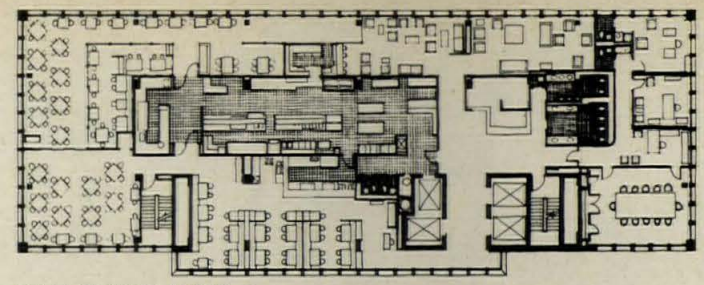
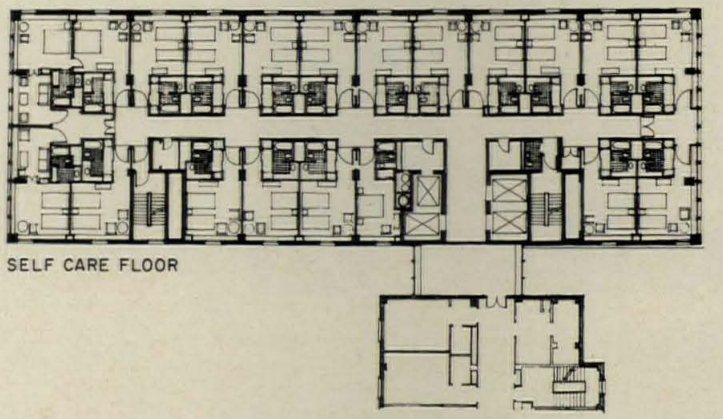
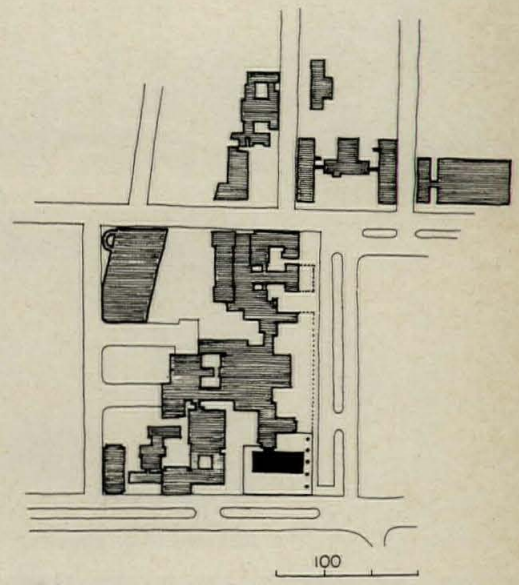
QUEENY TOWER of the Barnes Hospital, St. Louis, Missouri. Architects: *Murphy and Mackey, Inc., Eugene J. Mackey partner in charge;* structural engineer: *William C. E. Becker;* mechanical and electrical engineers: *Paul Londe & Associates;* general contractor: *McCarthy Brothers Construction Company.*

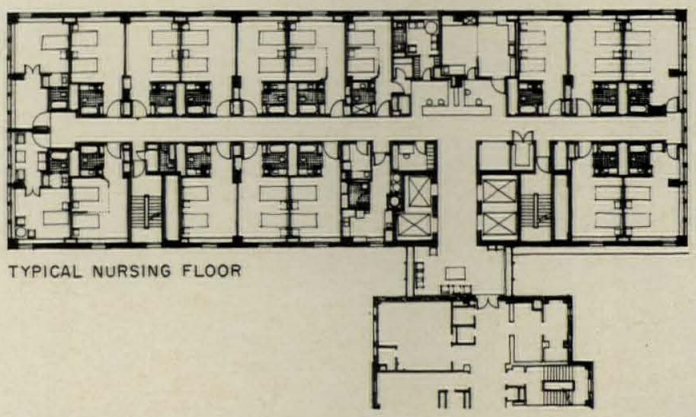


FOOD SERVICE FLOOR



SELF CARE FLOOR

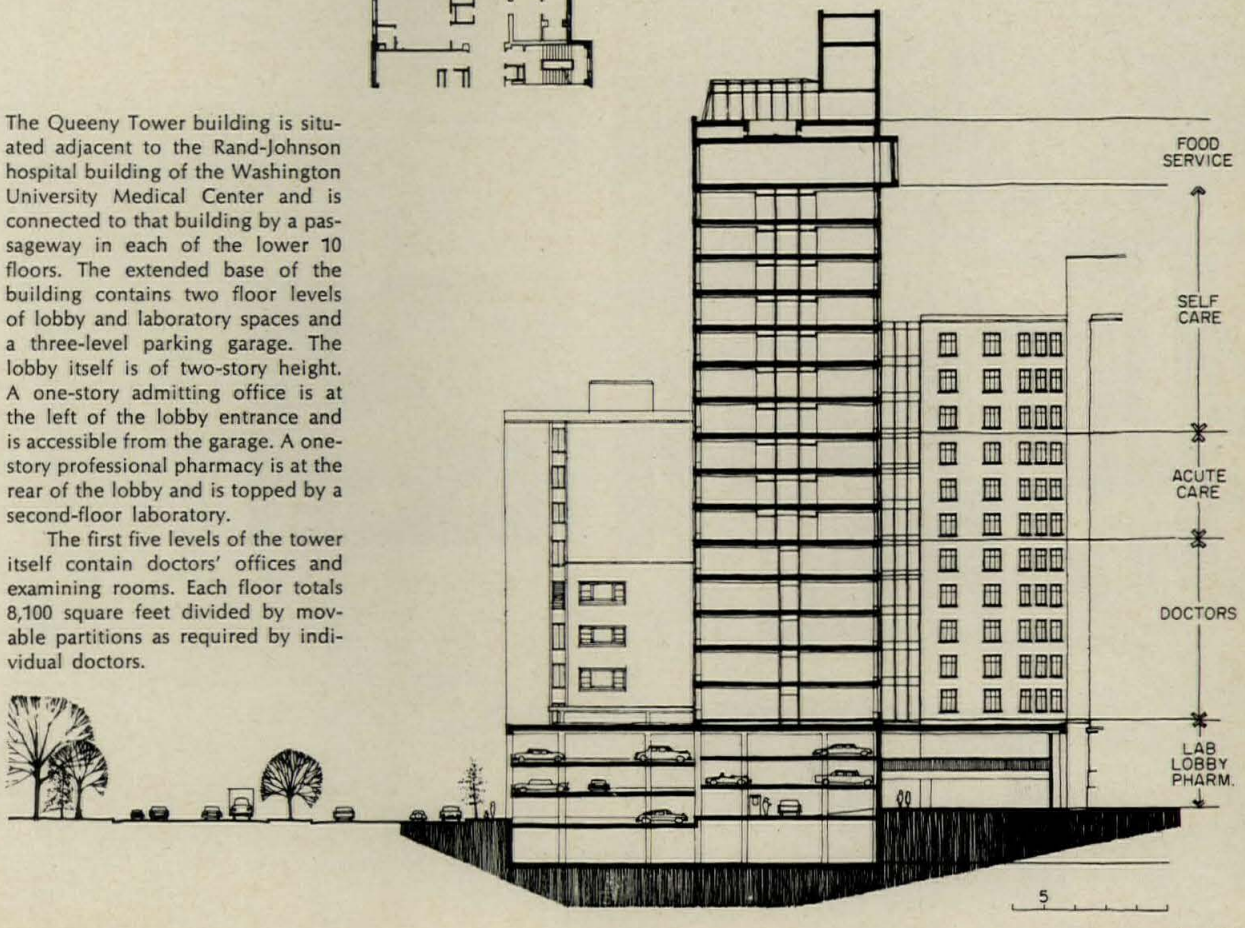


TYPICAL NURSING FLOOR

The Queeny Tower building is situated adjacent to the Rand-Johnson hospital building of the Washington University Medical Center and is connected to that building by a passageway in each of the lower 10 floors. The extended base of the building contains two floor levels of lobby and laboratory spaces and a three-level parking garage. The lobby itself is of two-story height. A one-story admitting office is at the left of the lobby entrance and is accessible from the garage. A one-story professional pharmacy is at the rear of the lobby and is topped by a second-floor laboratory.

The first five levels of the tower itself contain doctors' offices and examining rooms. Each floor totals 8,100 square feet divided by movable partitions as required by individual doctors.



*Hedrich Blessing photos*

The sixth, seventh and eighth tower floors are devoted to conventional nursing care. Each of these floors has two private suites and 15 rooms adaptable for either private or semi-private use. Rooms adjacent to the nursing station can be used for intensive care.

Self-care floors are similar in plan to the nursing floors, and, by the addition of a nursing station, would be adaptable for nursing use as required. These self-care floors do not have direct access to the adjacent hospital, but the structure for such access exists in the three lower self-care floors.

The food-service floor contains a variety of restaurant, cafeteria, dining room and lounge spaces. Special food services can be provided from this floor to nursing floors. A glass-enclosed swimming pool is provided on the roof deck.

Interiors of the lobby and nursing floors are designed by John Barlow. Self-care and food-service interiors are by Aloyse B. Heisse.

# ARCHITECTURAL ENGINEERING

## Wind load requirements for curtain walls revised

A revised document on wind loadings for curtain-wall design will be released shortly by the curtain-wall committee of the National Association of Architectural Metal Manufacturers. Proposed are design wind loads which in most cases will be less than those required by present standards for all buildings up to 50 stories in height. For tall buildings located in the open country or along shorelines, the loads required will be greater than the "inward" but less than the "total" loads specified in the current N.A.A.M.M. standard, except in hurricane areas, where loadings will be increased.

Other principal changes are:

- Use of updated and more comprehensive weather bureau data on maximum wind velocities throughout the country;
- Classification of buildings and their corresponding design wind loads according to their location and surroundings (urban, suburban, rural and shoreline). This approach apparently follows proposals of Davenport of Canada who has suggested that the maximum wind velocities measured at open-country weather stations be multiplied by a terrain factor which accounts for the relative roughness (or smoothness) of the terrain: obviously the wind is slowed down by rough terrain. What this approach still leaves unanswered, structural engineers point out, are the wind conditions peculiar to various areas of large cities, where the particular surroundings of a given building greatly affect what sort of wind conditions it will experience.
- A proportional increase in negative loadings, with special attention to the areas near the corner and tops of buildings. This change is no doubt based on numerous model studies by the Europeans who have incorporated their work on positive and negative wind coefficients in building code documents.
- A revised method of providing for gust effects.

## Improving dwelling doors as barriers to fire and smoke

Conventional wood-panel door and frame assemblies commonly used in apartment dwellings and houses cannot be expected to act as effective fire barriers for more than about five minutes, according to a recent study by Institute for Applied Technology, National Bureau of Standards. But some modifications can increase this effectiveness from 16 to over 40 minutes. For example, tests showed that a panel door that had been coated with a fire-retardant paint reinforced with glass fiber served as an effective barrier for 16 minutes. Door assemblies with the panel spaces filled out and with noncombustible faces of asbestos-cement board or sheet steel added acted as effective fire barriers for periods ranging from 17 to 41½ minutes. A door faced on both sides with woven-glass fiber roving and a fire-retardant coating was effective against fires for over 36 minutes.

None of the tests indicated an effective means of preventing the transmission of smoke around the edges of the doors, even for those rated as good fire barriers. The use of intumescent materials on door and frame edges to form a seal in the event of fire appears to offer some possibilities, but will require the development of substances reacting at lower temperatures than those now available. Bureau scientists suggest that the smoke problem could be mitigated by venting corridors so that the smoke would not tend to be forced into living areas by the higher pressure of gases in the fire area. The report, "Doors as Barriers to Fire and Smoke," is available for 15 cents from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

THIS MONTH'S AE SECTION



## Los Angeles may permit taller concrete buildings

If the city council approves proposed revisions to the Los Angeles Building Code made by a committee of six structural engineers, the present height limitation (160 feet) on reinforced concrete frames will be lifted. Several factors apparently have contributed to this move: For one thing, the concrete industry has, for some time, been pressing for removal of this restriction, and has made tests to substantiate the ductility of reinforced concrete frames for resisting earthquake forces. A study published in 1961 by the Portland Cement Association was undertaken to show that adequate ductility and energy absorption were possible by under-reinforcement and confinement techniques of reinforced concrete. Since some engineers felt the test data in this study was not adequate or conclusive, P.C.A. conducted further tests last year. Beyond this engineers were able to learn much about the behavior of reinforced concrete frames subjected to earthquake forces from the damage which occurred

during the Good Friday earthquake in the area of Anchorage, Alaska.

The High-Rise Construction Committee, headed by engineer Steve B. Barnes, stated that there is still much to be learned about the interaction of concrete moment-resisting frames with other components such as floor elements and shear walls. (The proposed code revisions are based on the premise that the structures will be ductile moment-resisting frames, since design of structures to resist earthquake forces within the elastic range would unduly increase costs.) One question raised by use of tall concrete frames is how much effect slab or joist reinforcement has on the ductility of the frame. Another is what effect torsion of girders normal to the frame taking earthquake load will have on ductility. The engineers bring out that as yet there is no adequate test data providing evidence that shear walls can be made ductile.

The Alaskan earthquake, the committee reports, demonstrated deleterious interaction of shear walls and frames. Many cases were found in which shear walls had cracked and these cracks carried through the frame elements to such an extent that the frame elements failed. This would be particularly hazardous, the committee stated, where failure of a shear wall continued through a column, causing the column to collapse. The committee pointed out that where shear walls are used and serious cracking of the shear wall may be anticipated, such shear-wall failure must not interfere with the vertical- or lateral-load capabilities of the moment-resisting frames. While this may be difficult to do, the committee suggested as one possibility the use of a vertical "X" bracing system which would permit angular rotation of the joints of the moment-resisting frame. Anchorage of such a bracing system at the joints of a frame may be difficult particularly in concrete, the engineers said in their report, and the stiffening effect of concrete elements must be considered.

## Stimulating creative engineering education

The art of creative engineering has been largely neglected in the engineering schools: Such is one of the findings of a National Conference on Creative Engineering Education recently published in a booklet by the Department of Commerce. While this conclusion is hardly surprising, some of the recommendations resulting from the conference contain rather interesting proposals. For example, one states that critical skills and areas of knowledge concerning innovative and entrepreneurial processes should be taught to engineering students—or at least brought to their attention through demonstration. The student should thus be exposed to problems encountered in such areas as: the entrepreneurship of new technologically-based enterprises; the acquisition of venture capital; the analysis of markets; the management of the innovative process in a corporation; working within the constraints of such Federal policies as those stemming from tax, antitrust, patent and regulatory laws; the allocation of Federal funds for research and development; the long-term planning of corporate goals.

It is interesting to note that one of the recommendations states that, "Consideration should be given to adopting some of the techniques used to train architects—most particularly, those techniques involving the design and critical evaluation of structures . . ." Presumably structures here is intended, in its broadest sense, to mean complete buildings.

Copies of the booklet are available from: O. I. & I. Engineering Design Program, Institute for Applied Technology, National Bureau of Standards, Washington, D. C. 20234.

## Some specialist views on museum security

Occasionally, architects are confronted with the task of designing an environment conducive to the preservation of valuable books, paintings, sculpture and other art objects. But only when they start searching for background information on desired environmental conditions do they find, to their amazement, what a scarcity of printed information is available. Thus they should find it useful to glean points of view, and advice, from a new booklet, "A Primer on Museum Security," published by the New York Historical Association. The booklet stemmed from a seminar on the subject conducted by the Association. It covered physical security, insurance, environmental security, light and its effect on museum objects, and other security factors. Speakers included a retired member of the F.B.I. who was a specialist in security problems of fine art institutions; an insurance agent and an insurance underwriter; a representative from the National Gallery of Canada; and an expert in conservation of paintings.

The reader will probably wish there were more extensive discussion and data on the thermal-humidity environment. The specialist on this subject discusses mainly the harmful effects of an uncontrolled environment. On lighting, however, he is more detailed, suggesting, for example, that the ultraviolet content of fluorescent lamps be screened out by acrylic filters. The booklet is available for $1.95 plus 25 cents handling charge from The Farmers' Museum Shop, Cooperstown, New York 13326.

## John F. Kennedy Center to be all-electric

The all-electric internal environmental system, plus other power-consuming equipment in the John F. Kennedy Center being designed by Edward D. Stone, will require more electrical feeders than any other building in Washington, according to the Potomac Electric Power Company. The electrical load will require approximately 38,000 kva in transformer capacity and six 13,200-volt feeders from a nearby sub-station. Consulting mechanical and electrical engineers are Syska & Hennessy. Consultant to the utility on electric heating and cooling was Robert G. Werden and Associates.

## John Hancock Building to have aluminum-glass skin

The 100-story John Hancock Center, now under construction in Chicago, will have completed the world's largest aluminum and glass curtain wall. The exterior wall, however, is unique in that columns, girders and diagonal members—all exposed—are the sole wind-resisting elements of the structure. This exterior frame will be clad in black aluminum. Contrasting with the frame will be bronze-colored aluminum window frames and bronze-colored glass. The aluminum will be given a hard anodic finish (Alcoa Duranodic) which provides an integral colored oxide coating. Of the total 300,000 square feet of glass in the building, the 100,00 square feet enclosing the all-electric apartments will be insulating double glass.

## Fill turns amusement park into apartment house site

Twelve feet of hydraulic fill is being dumped on the former 300-acre site of Freedomland park in Bronx, New York to ward off extreme tides from the high-rise structures that are to be erected, providing a total of 15,500 apartments. The four-million cubic yards of hydraulic fill is being obtained by ship from Gravesend Bay off Brooklyn and is discharged into a pipeline that runs three miles to the site in a rather tortuous path. First it is submerged beneath an Olympic rowing channel, tunneled under a road and railroad track, and run above the ground a bit before burrowing under a parkway.

The fill, which must contain less than 5 per cent shells and be predominately fine-grain sand, is under continual inspection by the project's consulting engineers, Farkas & Barron.

# NEW CONCEPTS IN HOSPITAL LAUNDRY DESIGN

## Planning and engineering guidelines from a forthcoming Public Health Service report

The continuing search for techniques to improve hospital asepsis has recently turned to a more careful examination of hospital laundry design. For studies have revealed contamination of clean linen can best be minimized by attention to such planning factors as the layout of the laundry facility, the arrangement of equipment within the laundry, and ventilation for proper air movement and exhaust of vitiated air. Other architectural factors—such as selection of room finishes and design of mechanical services—will influence not just sanitation but the operating efficiency of the hospital laundry as well.

Both new plan arrangements and new types of equipment are being used for hospital laundries in order to minimize bacterial contamination of clean linen in the processing areas.

Bacteriological studies have shown that the process of sorting hospital linen can result in enormous numbers of bacteria being thrown into the air. Thus, if the sorting area is in the same area as washing, ironing and folding areas, the bacteria are eventually redeposited on the clean materials.

For this reason, it is now accepted practice in laundry design to isolate the sorting procedure in a separate room. This separation will materially reduce the amount of bacterial contamination. But sorted soiled linen still has to be loaded into washers in the processing area, and there is some possibility of dissemination of bacteria. With careful handling of this operation, however, contamination should be minimal.

The recently developed double-door, pass-through washer-extractor provides another means of controlling this spread of contamination. These washer-extractors are intended for installation in a wall between the contaminated and clean operations—with the equipment and loading door of the washer-extractor located in the contaminated area and the unloading door located on the opposite side of the wall in the clean area. Use of this type of washer along with the planning concept of a separate sorting room appears to provide the ultimate in separation of the clean and the contaminated processes.

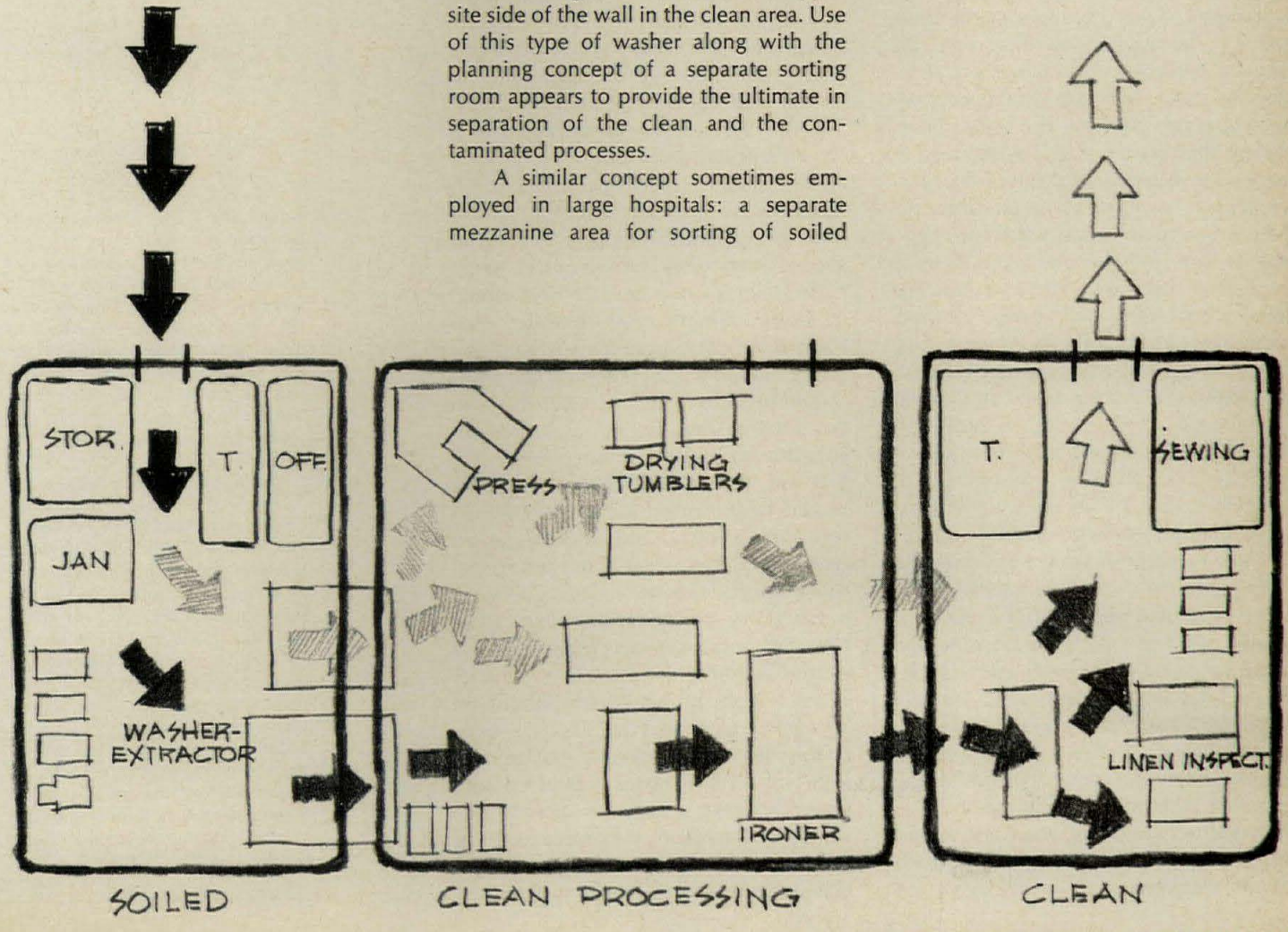
A similar concept sometimes employed in large hospitals: a separate mezzanine area for sorting of soiled linens, which, after sorting, are chuted into the washer-extractor machines.

The single-door washer and separate extractor, and more recently a single-door combination washer-extractor, are being used successfully in hospitals. However, the use of this type of equipment in the same room with the clean-linen processing is contrary to the emerging concept of complete separation of clean and soiled functions throughout the hospital and may require additional training and administrative supervision to minimize the possibility of recontamination of the finished product by airborne micro-organisms.

*The physical planning of the hospital laundry includes several major items of design which must be considered to produce a low-cost, efficient operation:*

### Location of laundry

Whether the laundry is in the main building of the hospital, in a separate building, or with one or more of the hospital's operational services, it should be located



convenient to the using units. The soiled-linen receiving room and clean-linen distribution room should always be physically separated, with separate entrances.

Wherever the laundry is located, the route of the soiled linen from the using units should be planned to minimize the possibility of contamination of clean linen, loss of linen, and personnel frustration.

The arrangement of the equipment and related areas should result in a straight work flow, so that criss-crossing and back-tracking from one operation to the other can be avoided. For full utilization of this area, it should be free of columns and obstructions and future expansion should be considered.

The laundry should be divided into separate and specific areas such as: soiled-linen receiving, sorting, and washer-loading; clean-linen processing; clean-linen disbursing; office; supply storage; and toilets.

**Laundry space requirements and basic work techniques**

- The soiled-linen receiving, sorting, and washer-loading room should be separated from the other areas of the laundry by walls with hermetically sealed vision panels, floors, and ceilings having a fire-resistance rating of not less than one hour. Openings to this room should be protected by approved Class B, one-hour fire doors. Soiled linen from all using units is transported to this room via chutes, mechanical or pneumatic conveyors, carts, or trucks. If the prewash sorting system is used, the soiled linen, except that identified as having been in contact with a patient diagnosed or suspected of having a communicable disease, is sorted and classified according to source, type, degree of soil, and washing formula to be used. Trucks or movable bins, lightweight and easily cleaned, should be used in the soiled-linen sorting room. These trucks should not be used for clean-linen transportation and should be cleaned at the end of each day. After sorting and classification, the linen should be weighed and the weight of each linen load, minus the weight of the transportation vehicle, should be recorded. A platform scale flush with the floor is preferable for this activity.

The double-door washer-extractor is loaded with as nearly as possible the same classification of linen, such as flatwork, tumbler, and presswork, because different washing formulas may be required for each load.

- Clean-linen processing room. After the required cycle has been completed, the linen in the washer-extractor is emptied into laundry trucks in the clean-linen processing room.

The clean linen should be put into lightweight, easily cleaned linen trucks or on conveyors. From this point, the linen is transferred to the ironer, the tumblers, or to the presses, according to the finishing process to be done. Flatwork such as sheets and pillow cases is sent to the ironer; fluff dry, such as bath towels is sent to the tumbler; and presswork such as uniforms is sent to the presses.

This area should be large enough to receive and hold all necessary equipment and accessories incidental to the laundry technique or procedure used. There should be ample space on all sides of each piece of equipment to allow for the passage of personnel and mobile equipment and for ease of maintenance. Linen carts, trucks, or conveyors may be used for the transportation of finished linen from the tumblers and the presses to the clean-linen and pack-preparation room.

- The clean-linen and pack-preparation room is the space for assembly of clean linen and its arrangement for issue according to the distribution system.

If the preparation of any linen packs to be sterilized is the responsibility of the linen service, the linen should be inspected over a transilluminated inspection table and the packs prepared in this room or in a separate room assigned specifically for this activity.

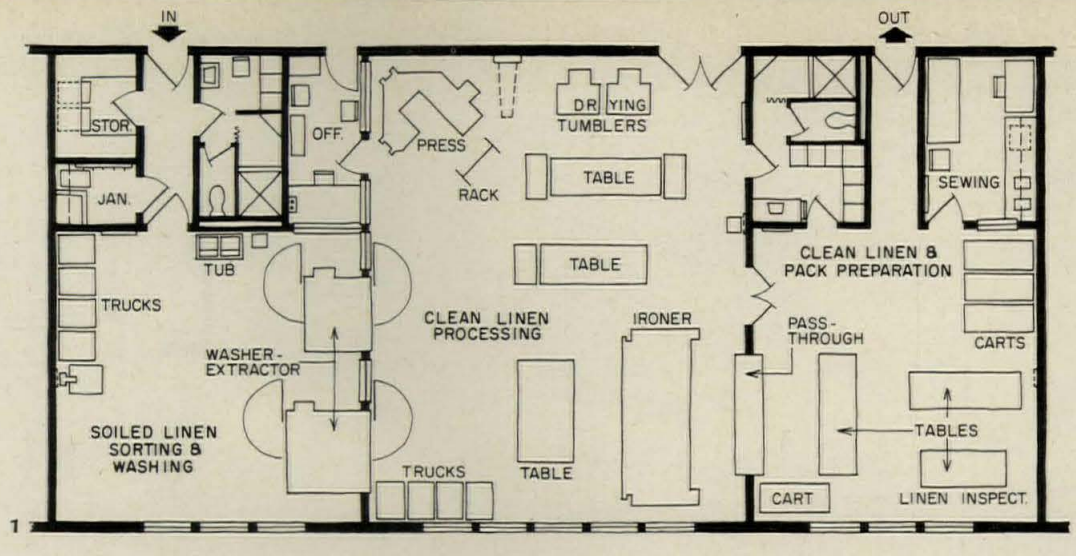
This area should be the only route out for the finished product and should be adjacent and readily accessible to the entire clean-linen processing area. It should also be directly adjacent to the flatwork ironer because the flatwork is the bulk of the workload.

- Sewing room. Linen repairing or manufacturing of such items as wrappers, surgical or obstetrical drapes, and other special linen items is done in this room.
- The laundry manager's office should be located as centrally as possible so that the manager may properly supervise the entire laundry operation. The walls should include large vision panels to allow for full view of each area, particularly the isolated soiled-linen area.
- Toilet, locker, and shower facilities should be provided in the soiled-linen receiving, sorting, and washer-loading room, and the clean-linen processing room. In smaller hospitals it may be more practical for personnel working in the clean-linen processing room to use nearby facilities.
- The supply storage room should be adjacent and connected to the soiled-linen receiving, sorting and washer-loading room. Ample space should be provided for the storage of one week's supply of detergents, bleaches and sours. Bulk items should be stored in the general storeroom.

**1.** Laundry for a 75-bed hospital illustrates the new concept of completely separating the operations of soiled-linen sorting and washing and clean-linen processing. By using the recently developed double-door, pass-through washer-extractor, there is no need for direct passage between the two areas. Vision is provided between the two rooms by means of hermetically sealed windows.

**2.** The recommended layout for the laundry which uses single-door washer-extractors is shown here. The principal difference between this plan and the one above is the provision of separate rooms for soiled-linen sorting and for washing. The soiled-linen room should be under negative pressure relative to washing room and clean-linen processing room to minimize potential contamination.

**3.** Laundry for a 200- to 300-bed hospital using double-door washer-extractors. Note the use of multiple units in two sizes to accommodate varying loads and the need for using various washing formulas.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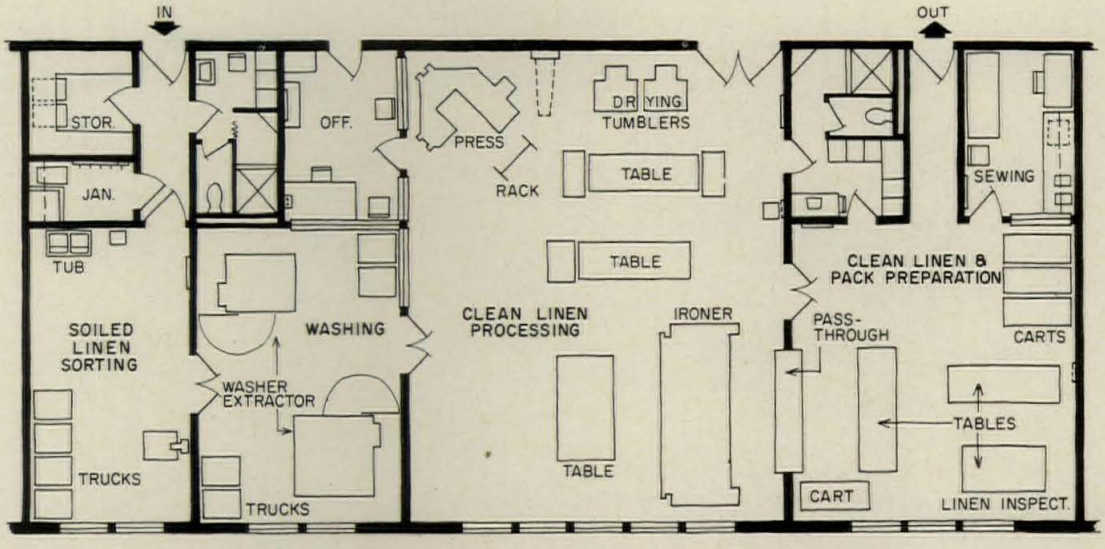
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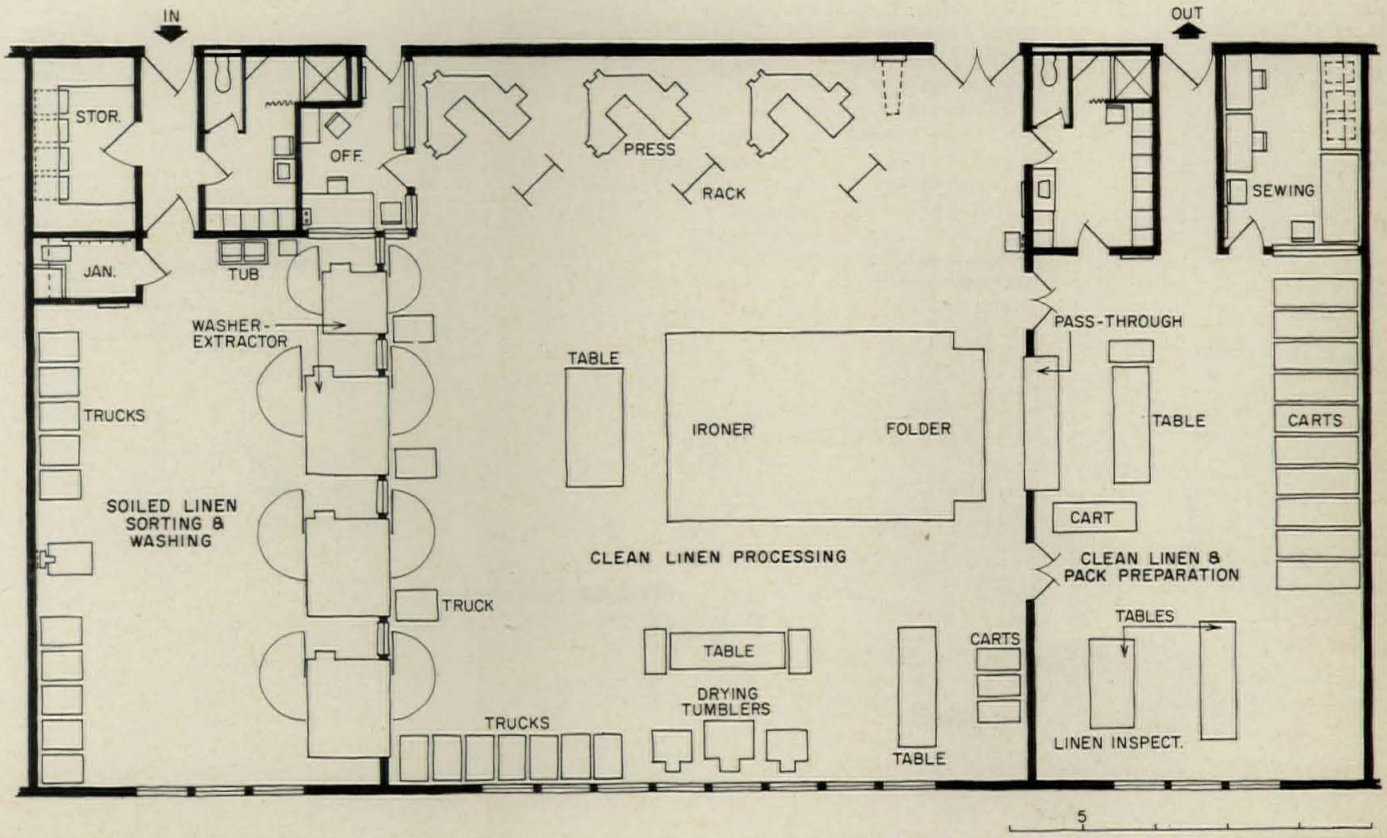
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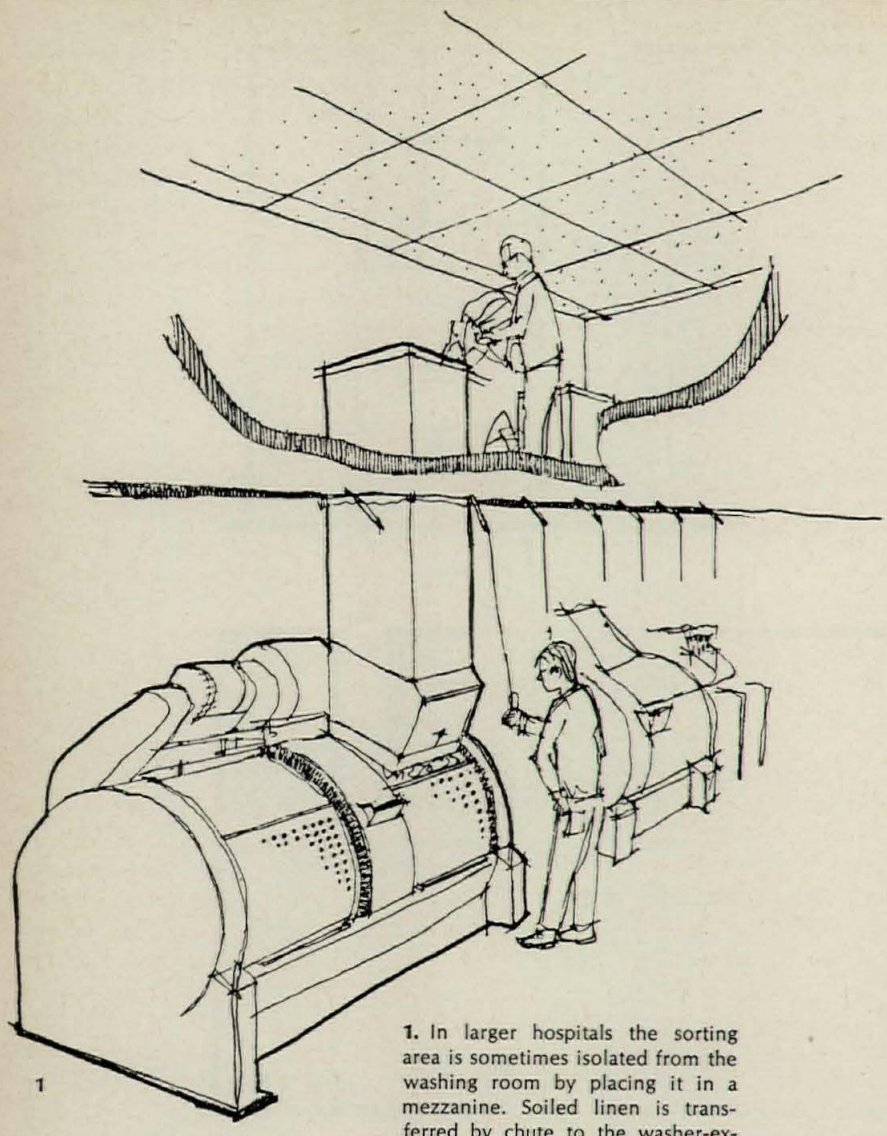

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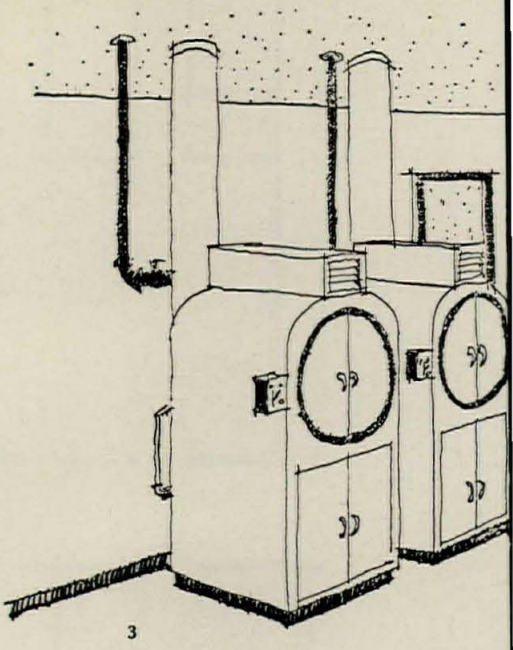

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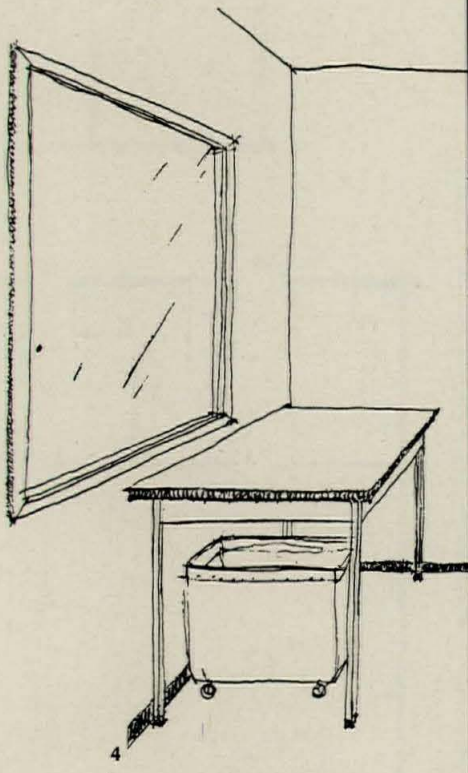
**1.** In larger hospitals the sorting area is sometimes isolated from the washing room by placing it in a mezzanine. Soiled linen is transferred by chute to the washer-extractor.

**2.** The largest portion of laundered linen involves flatwork. This sketch shows a flatwork ironer which has a canopy overhead for removal of heat and moisture at the source.

**3.** Linen such as towels which do not require pressing are fluff dried in tumbler driers. Lint filters are required on the tumbler exhaust.

**4.** Equipment in the sewing room in addition to a sewing machine will include a marking machine and a patching machine. A glazed area gives a view into the packing room.



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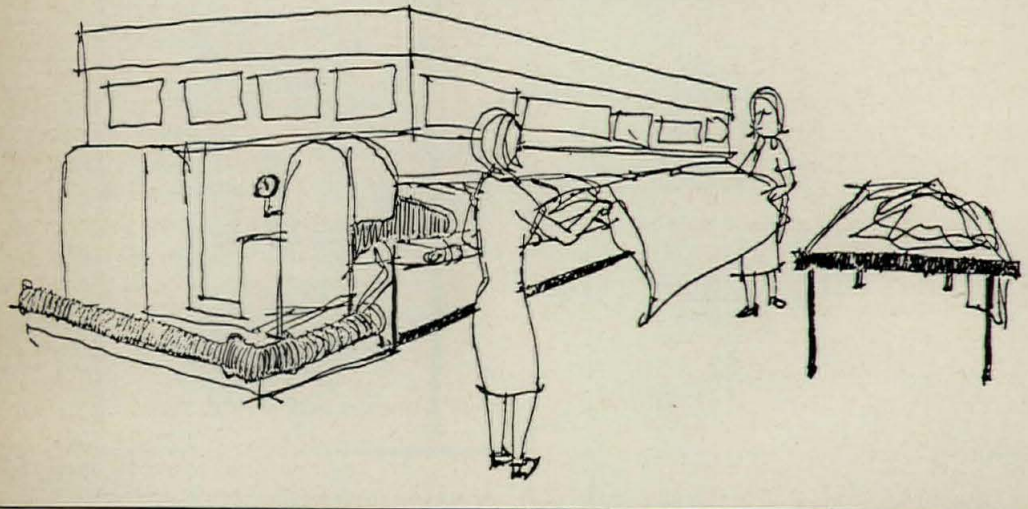

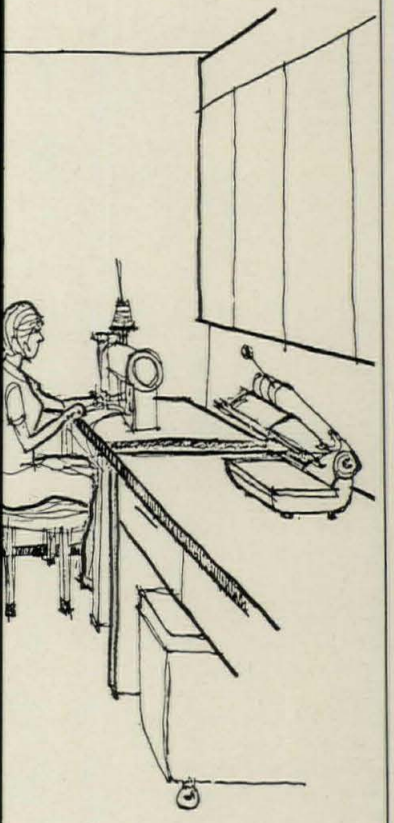

**Finish materials**

The floor should have a smooth, slip-resistant, waterproof surface; the walls should have a smooth, washable surface free from all unnecessary corners, edges, or projections which could become a maintenance problem; the ceiling should be a smooth, washable surface high enough to allow for the installation and repair of all equipment, with a minimum of 11 ft. This height will provide sufficient clearance for the installation of conveyors or other ceiling mounted equipment. All piping and ductwork should be concealed.

**Mechanical services**

All utility services including piping and electrical wiring should be designed and sized with proper consideration for future expansion of the laundry. Alterations or replacement of the systems at a later date to increase their capacity to serve additional or larger equipment will be costly and cause major disruption of service.

▪ The importance of proper design of the process steam system for the laundry cannot be too strongly emphasized. For efficient operation of the laundry equipment, the steam supply system must deliver steam to the equipment in the quantities and at the temperatures required, and the return-piping system must expedite the removal of condensate from the equipment. The maximum steam demand must be predicated upon the simultaneous use of the various types and sizes of equipment with proper consideration for future expansion of the laundry to include additional equipment.

The principal uses for steam will be in the operation of presses, tumblers, and flatwork ironers. Here the temperature of the steam becomes a critical factor affecting both the economy of operation and the quality of the finished product. This is of particular significance in the operation of the flatwork ironer and presses, which perform the dual role of ironing and of drying the linens. Too low a temperature in flatwork ironer chests will result in surface friction, sticking of the materials to the rolls, and insufficient drying—which requires a second pass through the ironer. Too high a temperature results in a breakdown of the textiles used for padding the rolls, and also reduces tensile strength and life of the processed linen. A temperature of 338F obtained from steam at 100 psi should be the minimum temperature delivered to the equipment. A temperature of 353F obtained from steam at 125 psi should be the maximum temperature delivered to the equipment.

▪ The design of the water-distribution system to ensure an adequate supply at the equipment throughout the day is of extreme importance for an efficient processing procedure. The system's pressure and the demand upon the hot-water system by the many hospital departments at various times of the day must be taken into account in sizing water heaters, distribution piping, and hot-water storage facilities. Approximately three gallons of hot water and one gallon of cold water will be required per pound of linen processed.

▪ The hot-water supply may be piped to the laundry at the temperature required directly from the boiler room; it may also be piped at a lower temperature and raised to the final required temperature in the laundry by means of indirect water heaters served by steam piped from the boiler room. The use of direct-fired heaters within the laundry is not recommended.

Hot water should be available at a temperature of approximately 180F with accurate control devices to assure the proper water temperatures required for the various processes. If experience data is not available, an analysis of the characteristics of the local water supply should be obtained to determine whether water softening is needed. The upper limit of acceptable water is considered to be 3 to 4 grains of hardness. In most areas of the United States some water treatment will be required.

▪ Compressed air will be required for the operation of equipment such as presses and may be utilized for cleaning exhaust-duct systems and for control of the heating and ventilation equipment.

In most instances, because compressed air is used for other purposes throughout the hospital, a central compressed-air system may be installed which will also serve the laundry. If a separate compressed-air system is used, the compressor should not be installed in the laundry processing area. The compressor should be equipped with air dryers, oil separators, and condensers.

▪ The lavatories in toilet facilities should be equipped with blade handles, so that faucets can be operated by elbow action.

▪ The separation of the washing process area from the drying, pressing, and ironing process area limits the need for floor drains to the sorting and washing area. The trench drain under the washers will, in most instances, suffice for wet cleanup of this area. The trench and drain sump should be sized to accommodate the quick drainage of the washers with proper consideration for possible future expansion which may require an additional washer. To extend the drainage trench at a future date may be very costly. The drain should be equipped with a proper sediment and lint trap.

▪ The ventilation system must serve a twofold function. First, it must provide a comfortable year-round environment for personnel. In many geographical areas this will require cooling of the air during the summer season and heating in winter. Second, it must provide safety for personnel and contribute to the quality of the finished product by the removal of airborne contamination.

Separate mechanically operated supply and exhaust systems are required. The outdoor-air supply intake should be as far removed as possible from any exhaust outlets, incinerators, and boiler stacks. The outdoors air-exhaust outlets should also be carefully located so that their effluent will not re-enter the laundry or other hospital areas or create an annoyance. Under certain circumstances it may be desirable to filter the air being exhausted from the soiled-linen sorting room. The air-supply system should be equipped with filters with an efficiency of 80 per cent according to the National Bureau of Standards' Dust Spot Test Method on atmospheric dust. A manometer should be installed across each filter bed to indicate the need for filter cleaning or replacement.

Ventilation supply and exhaust fans should be electrically interlocked so that failure of one will stop the other.

Heat can be removed at its source by the use of a canopy over the flatwork ironer and by locating the other exhaust-air outlets in the vicinity of the washers, presses, and tumblers.

The location of air-supply inlets and exhaust-air outlets must be carefully planned to secure a suitable air-movement pattern through the processing areas. The air-supply inlets should be located so as to provide a movement of fresh air toward the heat-producing equipment for exhaust where this equipment is located.

Exhaust ductwork should be fabricated with cleanout openings at approximately 20-ft intervals to facilitate removal of lint and other particulates. Glazed cleanout openings will permit visual inspection of the ductwork which will eliminate the necessity of opening the systems to observe their condition. Lint filters will be required on the tumbler exhaust system in addition to the filters supplied with the equipment, and this type of filter should be considered for all exhaust systems.

The ventilation rates for the processing area will, in most instances, be determined by the quantity of air required to remove the heat and humidity produced by the equipment in these areas. However, under no circumstances should the ventilation rate of these areas be less than 10 air changes per hour.

The ventilation system should be designed to provide air pressures in the various areas in a descending order from clean areas to the more contaminated.

The soiled-linen sorting room will require a minimum of 10 air changes per hour to remove the airborne bacteriological contamination that comes from linen handling. This room, being highly contaminated, should be maintained at a negative air pressure relative to any adjoining areas which open into it. Air from the linen processing rooms may be used as makeup air for this room.

The clean-linen processing room, if adjoining but not a part of the washroom, should be maintained at a positive air pressure relative to the air pressure of the washroom.

The office, sewing, and clean-linen rooms should be ventilated at a rate of four air changes per hour. These rooms should be maintained at a positive air pressure relative to the air pressure of the linen processing areas to reduce to a minimum the infiltration of warmer air from the processing areas.

The locker rooms and toilets should be ventilated at a rate of 10 air changes per hour, and be maintained at a negative air pressure.

### Electrical service

The power supply to the laundry is usually 120/208 volts, 3-phase, 4-wire alternating current. The distribution panel must be readily accessible, preferably located near the load center, away from the path of escaping steam or vapor.

Convenience outlets should be installed where required not more than 20-ft apart around the periphery of the room, mounted approximately 4-ft above the floor, and/or where they are convenient for specific uses.

If it is necessary to make a preliminary estimate of power requirements for determining feeder sizes, the following values are suggested:

For operation of motorized equipment: 3 kwhr per 100 pounds of dry laundry. For lighting: 3.0 watts per square foot of floor space.

### Fire safety factors

Fire extinguishers should be located throughout the laundry. Class A type fire extinguishers should be placed convenient to soiled- and clean-linen holding areas as well as convenient to processing areas. Class C type fire extinguishers should be placed convenient to the location of electrical components.

A sprinkler system should be installed in the soiled-linen room, and if linen chutes are used, sprinklers should be installed at the top and alternate floors.

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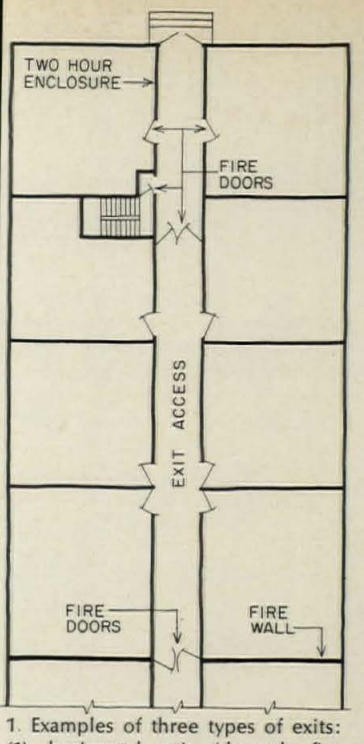
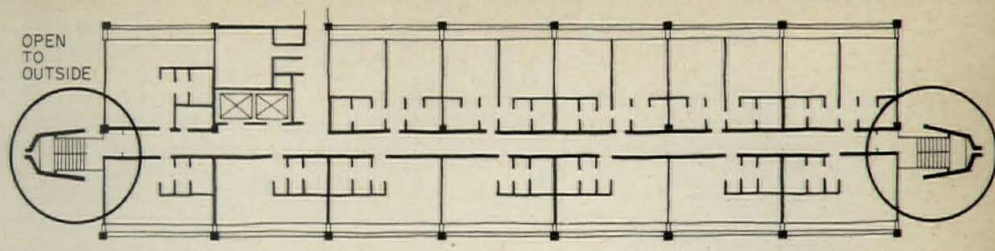
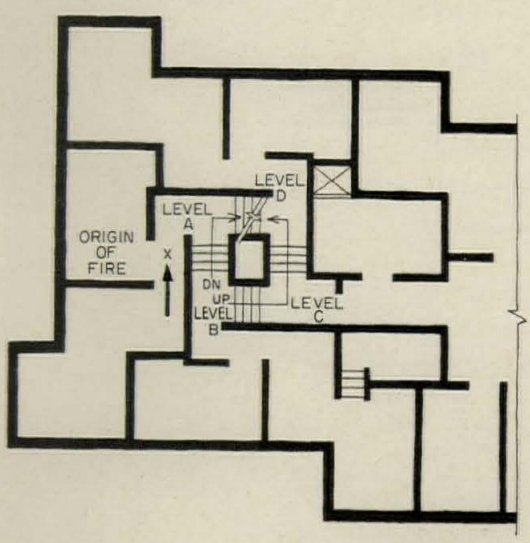
This article has been excerpted from a new publication "The Hospital Laundry," prepared by the Architectural, Engineering, and Equipment Branch, Division of Hospital and Medical Facilities, Public Health Service. The recommendations apply to hospitals ranging in size from 75 to 300 beds. Authors of the study are: *Mary S. Sim*, medical facilities equipment advisor; *Luther H. Flouton*, architect; and *Richard P. Gaulin*, supervisory mechanical engineer. The sketches are by *Richard Pranulis*, architect and the plans are by *Ervin M. Arata*, architect.



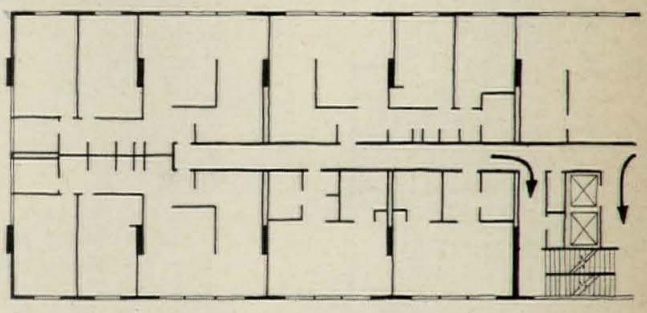

1. Examples of three types of exits: (1) horizontal exit (through fire doors at bottom of plan); (2) stairway and exit passageway with protected openings; and (3) exterior door discharging to the outside not over three steps above grade.




2. In this apartment building the architect designed the stairways so that they would qualify as smoke-proof towers. This technique is more commonly used on the West Coast than elsewhere. The tower must be of continuous fire-resistive construction and connected to the building by means of balconies open to the outdoors.




3. Even though there is a duplicate exit at the opposite end of this dormitory building, the exits may not work. Occupants of bedrooms surrounding stairways could be trapped if fire occurred in one bedroom and the door were open. Occupants might not be able to reach the second exit if fire blocked passage.



4. While there are two exits in this plan they are located in the same area and are not remote.

# PLANNING BUILDING EXITS THAT WORK

**By Richard E. Stevens,** *Assistant Technical Secretary, National Fire Protection Association*

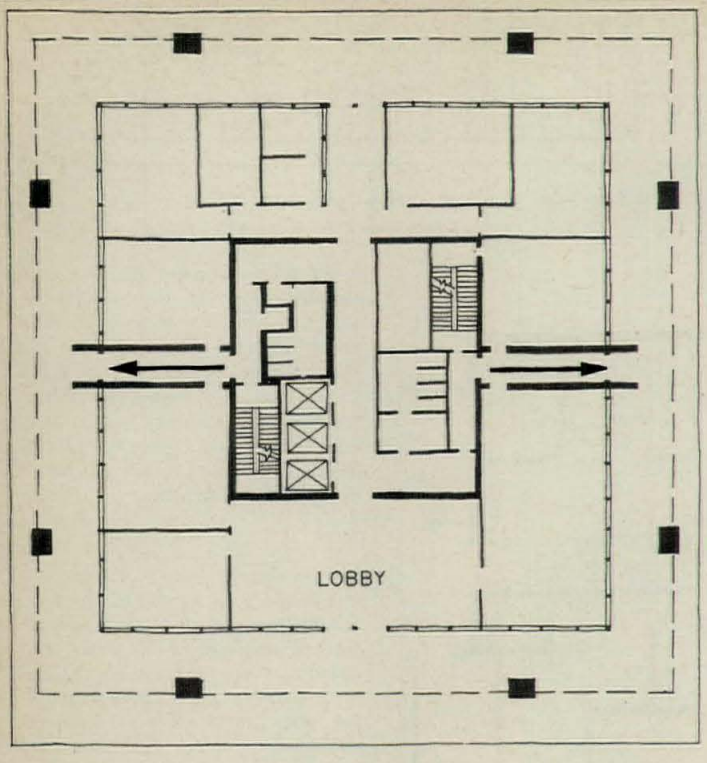
Occasionally a building may be designed according to the letter of the code regarding building exits, but miss the code's intent entirely. Such is the case when, for example, there are two exists from a building but both are located in the same area. While the total exit width may comply with code requirements for the type of occupancy involved, this arrangement violates one of the fundamental principles of building exit design —that the two exits should be located remote from each other. (An occupant should be able to travel in either of two opposite directions to an exit.)

Actually, there probably is some confusion as to what is meant by an exit —not regarding its basic purpose, but what it comprises and how it should work functionally. By definition, an exit is that portion of a means of egress which is separated from the area of the building from which escape is sought, by means of walls, floors, ceilings and doors of a specified fire resistance. Once in an exit, the occupant should have a safe passage to the outdoors at ground level. The path to the exit is called the "exit access." The door at ground level is the "exit discharge." Thus the main entrance to an interior room and the corridor adjacent are not necessarily exits, although the corridor is probably an access to an exit. Figure 1 shows three types of exits: (1) a horizontal exit through a firewall; (2) a stairway and exit passageway with protected openings; and (3) an exterior door discharging not over three risers above grade.

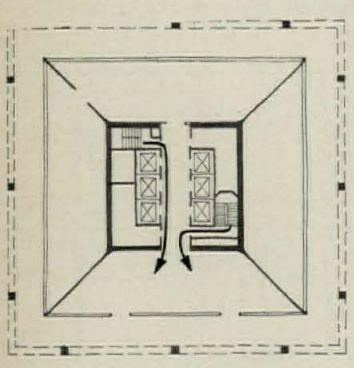
A horizontal exit is a way of passage from one building to an area of refuge in another building at approximately the same level, or through or around a fire wall or partition to an area of refuge in the same building.

What is the procedure for determining the size and number of exits required? Generally, there should be at least two separate exits, and these exits should be no less than 44 in. wide. But beyond this the widths and numbers of exits will be governed by the number of persons occupying a particular floor and the type of building. Exits are measured in *units of exit width,* with the unit being set at 22 in.—where 22 in. represents the average width of a man at shoulder height. This method of rating the capacities of exits has been in use since 1914, having been originated by the Safety to Life Committee of N.F.P.A. The unit width number is checked periodically against dimensions of the human figure. Access to exits should be no less than 28-in. wide.

As just implied, the capacity in number of persons for a unit of exit width varies with building type. For example, in N.F.P.A.'s "Code for Safety to Life from Fire in Buildings and Structures," capacity varies from 30 persons per unit of exit width for hospitals to 100 persons per unit of exit width for office buildings and public assembly-type buildings. For stairways, the figures vary from 15 persons

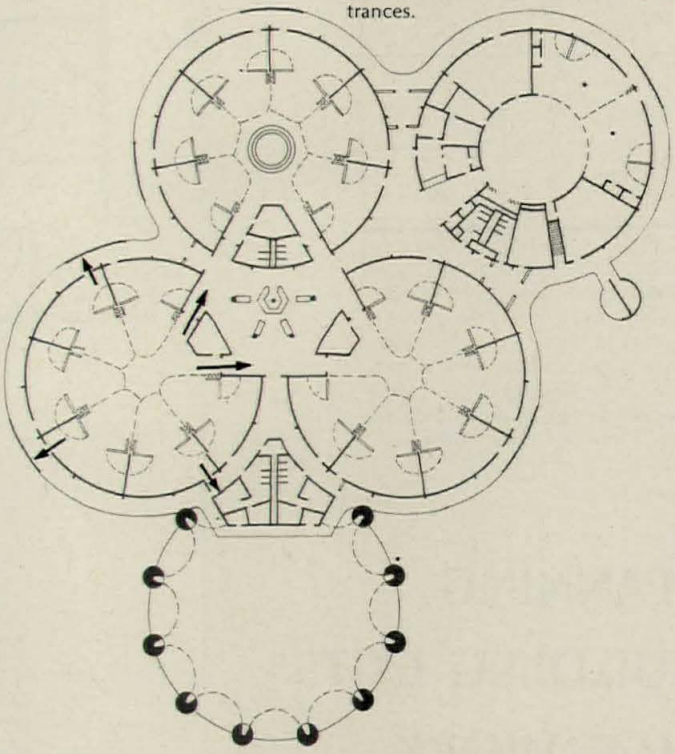



5. Multistory buildings with central cores for stairways, elevators and toilets sometimes present problems in exit design, particularly in terms of discharge. In this plan, the discharge meets recommended practice because the ground-floor-to-outdoors passageway is enclosed by fire-resistive construction.



6. In this plan both stairway exits discharge into the same lobby; thus there is only one way to reach the outdoors.

7. All of the spaces in this school have easy access to the outdoors for exiting. Those rooms—offices and the administration area—which do not have exterior doors are immediately adjacent to the main entrances.



per unit of exit width in hospitals to 75 persons per unit in places of assembly.

Figures for determining the occupant load of buildings have been established by actual account in various buildings. The N.F.P.A. life safety code, for example, takes one person per 20 sq ft for school classroom areas and one person per 50 sq ft in vocational areas. These and similar figures in the code have been termed "maximum averages."

Another factor which affects the number and location of exits is travel distance to an exit, which, on the average, should be no more than 100 ft. but this varies with occupancy. In a building protected by an automatic sprinkler system, this distance can be increased to 150 ft.

Still another factor that will determine exit location is the matter of dead-ended corridors. Ideally they shouldn't be allowed by code—if a person enters a smoke-filled corridor, and, because of poor visibility misses the exit somewhere along the way, he may be trapped at the end. Practically, however, such rulings would impose considerable hardship on designers. Thus some allowable dead-end figures have been selected, averaging about 30 feet, which allow some latitude in the placement of exits so as to not unduly restrict design or space utilization.

An exit, by definition, provides a safe place for an occupant to reach outdoors at grade level. Thus if exits discharge into lobbies, or onto the roof of an adjoining building, or into the basement, they obviously do not meet the intent of the code. For example, take a core-type multi-story office building which has both stairways discharging into the same lobby (see Figure 6). If fire occurs in the lobby, the lobby could become untenable from smoke and heat. The problem can be avoided by arranging the stairways so that they discharge directly to the street as in Figure 5.

Beyond the items just cited, there are three important "don'ts" involving violations of fundamental exit concepts:

1. Don't create a situation in which access to an exit must be through another exit. As shown in Figure 3, if a fire occurred in one of the bedrooms surrounding the stairways and the occupant had his door open, the occupants of the other bedrooms would not be able to reach the second exit because they would have to pass through the exit immediately available to them which is part of the fire area.
2. Don't make a particular room part of an exit. The room through which the exit passes may be the room of fire origin. There are exceptions to this don't—for example, school classrooms which have doors opening directly to the outdoors provide satisfactory exiting.
3. Don't tack on other spaces to the exit such as lounges and storage rooms, since these spaces, themselves, may be sources of fire origin. If it is necessary to have rooms along the exit passageway, then these rooms must be closed off by fire doors.

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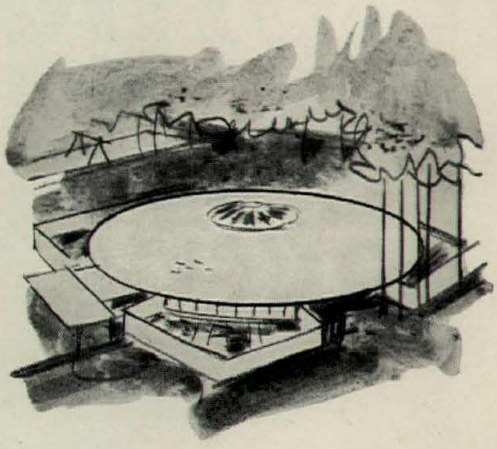

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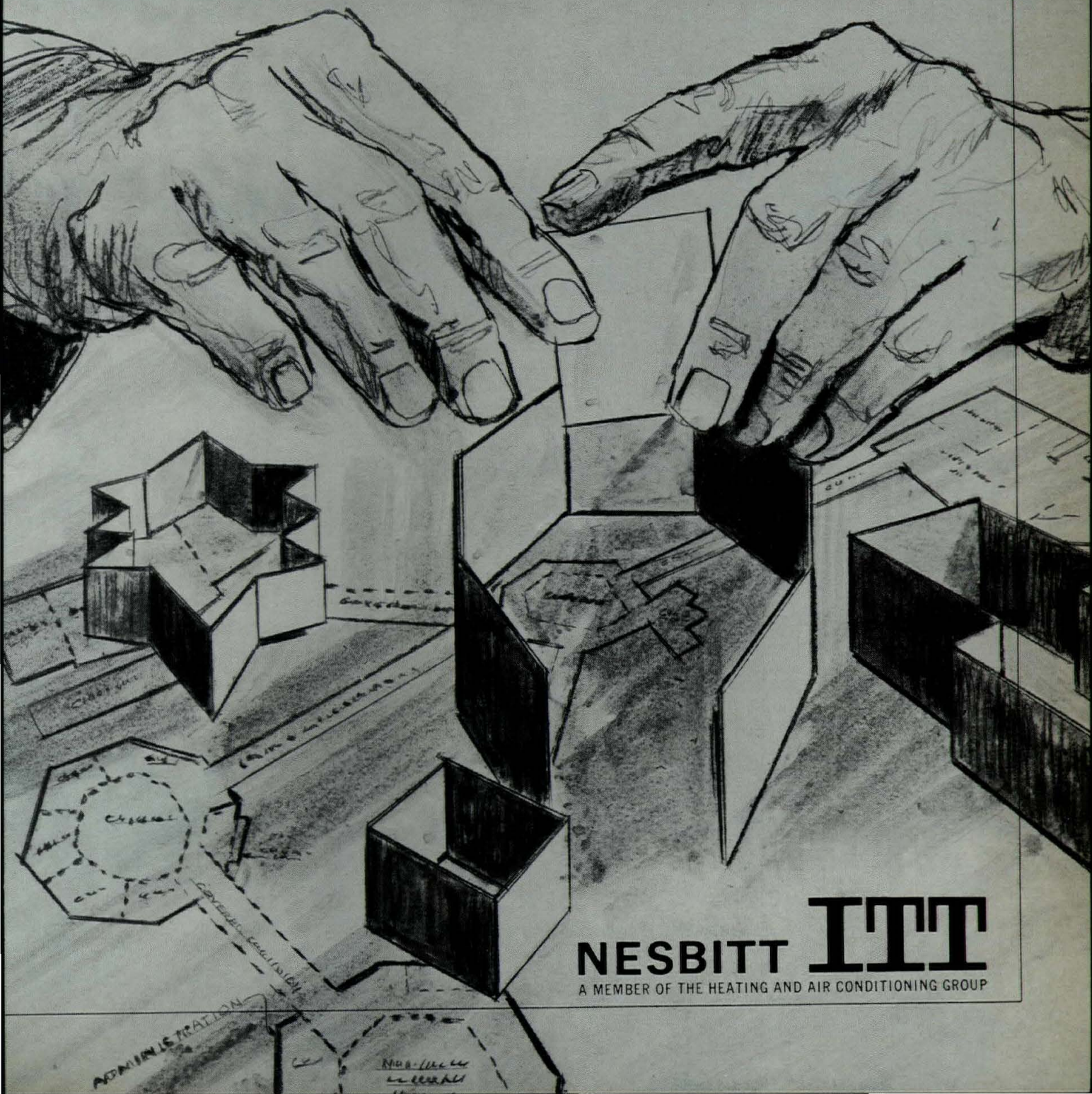

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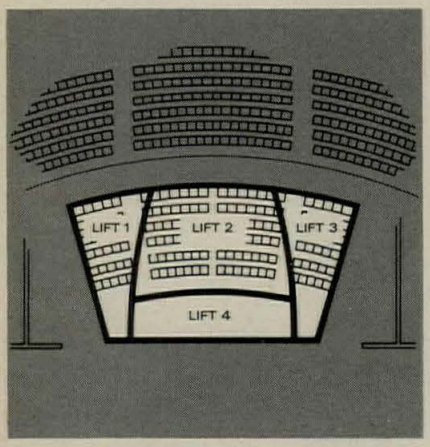
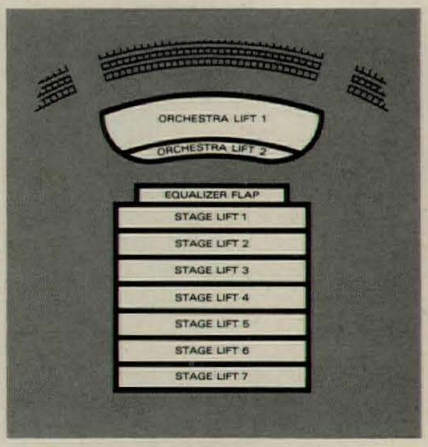
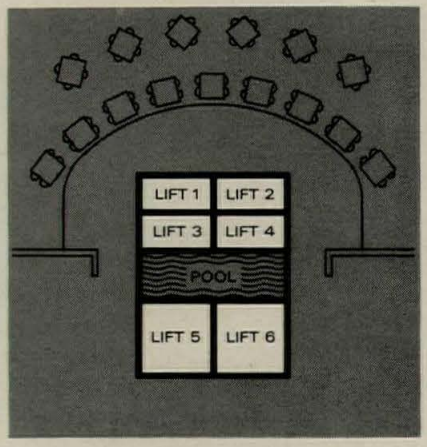
# DOVER STAGE LIFTS




**Loeb Drama Center, Harvard University**—Four Dover Stage Lifts are used to create a theatre that easily converts for three different kinds of staging.




**Metropolitan Opera House, New York City**—The new home of the Metropolitan is equipped for fabulous stage effects with seven Dover Lifts on stage and two in the Orchestra.




**Stardust Hotel, Las Vegas**—Six Dover Stage Lifts, operating in combination or independently, bring performers and sets into view from below stage level.

These diagrams illustrate three of the more than 100 entertainment centers equipped for flexibility with Dover Stage Lifts. Dependable, smooth-running Dover hydraulic lifts produce elaborate theatrical effects, save valuable floor space, and help in the design of multi-use halls. There are practically no limitations on platform size, lifting capacity and systems for controlling combinations of lifts. For theatres, concert halls, opera houses, auditoriums, night clubs, wherever you need a rising stage, specify Dover Stage Lifts. Send your preliminary requirements for analysis and recommendation.

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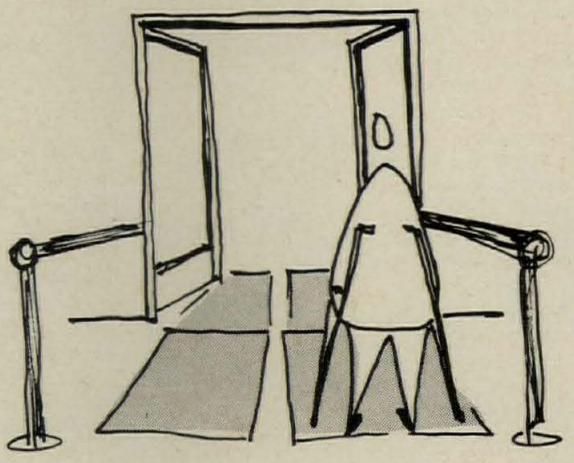
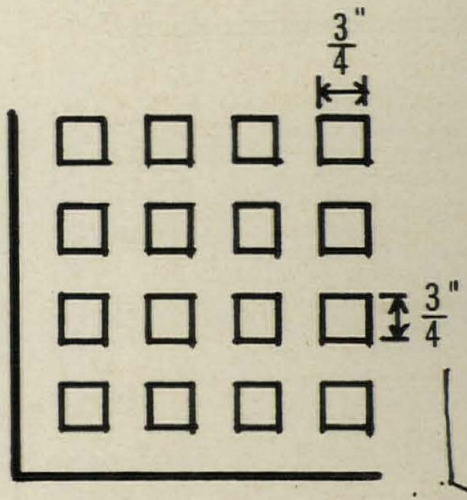
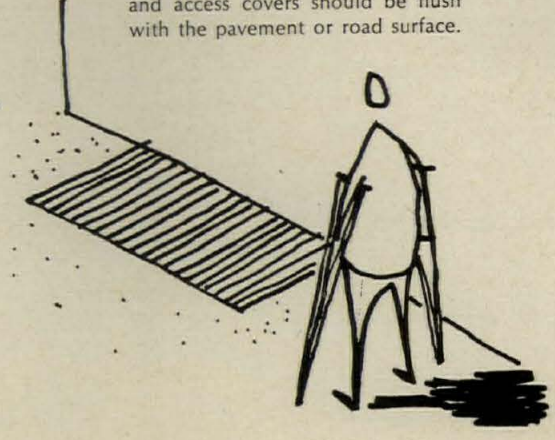
# Notes on components for use by the handicapped

**EXTERIOR DOORS.** All entrances used by the handicapped must have a minimum clear opening of 3 ft. Entrance doors are to be either manual or power-assisted balanced doors with a maximum closing tension of 8 lb. Power-assisted doors can be electrically, hydraulically or pneumatically operated; triggered by a photocell or a mat-contact sensing device, by foot or hand pressure, pendant switch, pressure switch or push button. All power-assisted doors must operate within the acceptable closing tension limits if power fails. The automatic contact mat, which holds the doors open as long as the area on either side is occupied, is the most suitable, but this should operate even when pressure is uneven, as with crutch users. Time-delay devices are hazardous for many handicapped, and should be avoided.






**GRATINGS AND MANHOLES.** Should be designed for minimum inconvenience to stick, crutch and wheelchair users. Gratings of parallel metal bars, if unavoidable, should have bars at right angles to the direction of travel. Cast iron and similar gratings should not have openings larger than ¾-in. sq. Manhole and access covers should be flush with the pavement or road surface.



Increasing attention is being paid to designing all kinds of buildings so that they are more suitable for the handicapped.

In the course of developing performance criteria for the State University Construction Fund of the State of New York, high on the list was developing information on making facilities accessible to the physically handicapped. Indeed, since June 1961, all New York State buildings are required to be designed, constructed and, where necessary, modified to facilitate their use by the handicapped.

Some of the special features required for building components such as doors, gratings, elevators, hardware, showers and toilet rooms are included in this article to indicate how conventional components must be modified to work properly for handicapped people with different disabilities.

There are a number of reasons why architects should familiarize themselves more with these designs, among these being the fact that statistics of the National Safety Council indicate a yearly increase in the number of persons becoming disabled due to accidents of various kinds.

Since the handicapped should share the total campus environment as equally as possible with those not handicapped, it is imperative that all facilities be able to accommodate and serve not only physically handicapped students but also University staff and visitors with permanent or temporary handicaps or sight, hearing, cardiac or respiratory disabilities. Those with permanent disabilities are taught, during a period of intensive rehabilitation, to overcome major obstacles. Those receiving temporary handicaps from non-critical accidents or illnesses present a special problem because usually by the time they have learned to live successfully with their handicap, they have recovered from it. But, as far as the use of facilities is concerned, during the period of their disability they are more "handicapped" than those permanently disabled.

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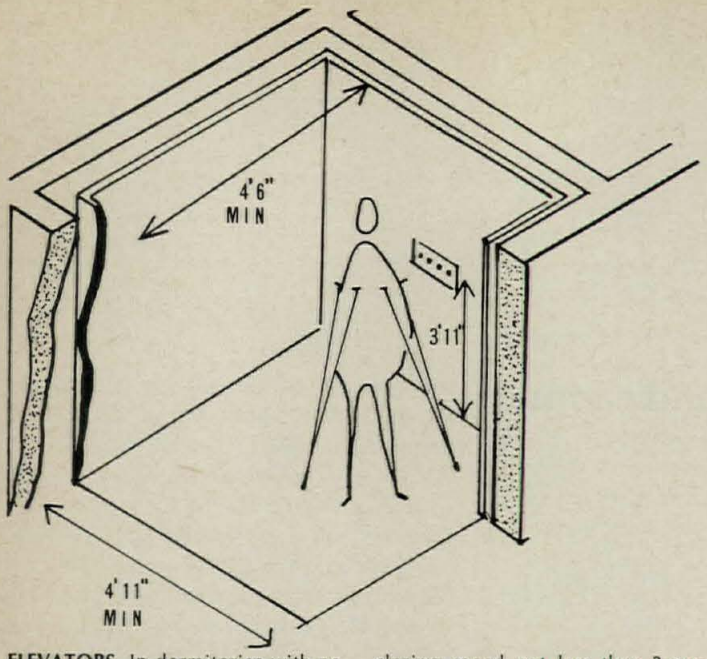
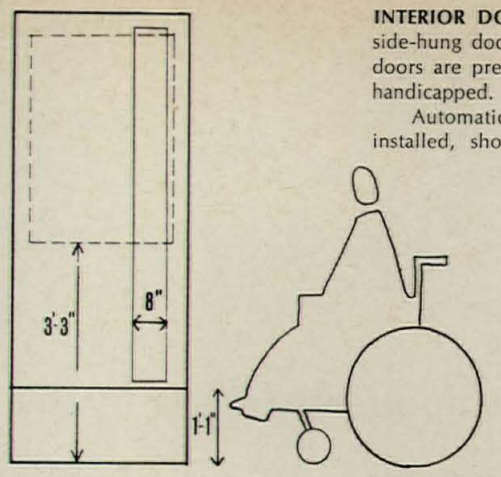
This article contains excerpts from performance criteria being prepared in collaboration with several authorities in rehabilitation by the State University Construction Fund of the State University of New York.




**ELEVATORS.** In dormitories with no student rooms on the ground floor, and in all multi-level academic buildings, at least one elevator should be usable by the physically handicapped at entrance level. Internal dimensions of the elevator should be at least 5-ft 1-in. deep by 5-ft 6-in. wide in order that a wheelchair may be turned about inside. At ground level where traffic is heaviest, an unobstructed area at least 5-ft square should be provided in front of the elevator door. Elevators must be self-leveling so that they stop precisely at floor level. Automatic doors should have a sensitive or safety edge and photoelectric cell to stop and re-open both doors when closing is obstructed. Such doors should remain open for a minimum of 8 seconds, with a closing speed not less than 3 seconds (preferred minimum: 3½ seconds).

Control buttons must be accessible and easy to operate; preferably placed horizontally across the panel. Where specific allowance must be made for wheel-chair users, control buttons, call buttons or switches should not be located more than 3 ft 11 in. above floor level. An emergency-call push button no more than 3 ft 11 in. from the floor should be included in the control panel of the cab. Elevator controls placed on the side wall and not beside the door are more convenient for wheelchair users. Horizontal grip rails on the side walls about 3 ft 3 in. above the floor may be helpful. Wall surfaces should be resistant to damage by wheelchairs.

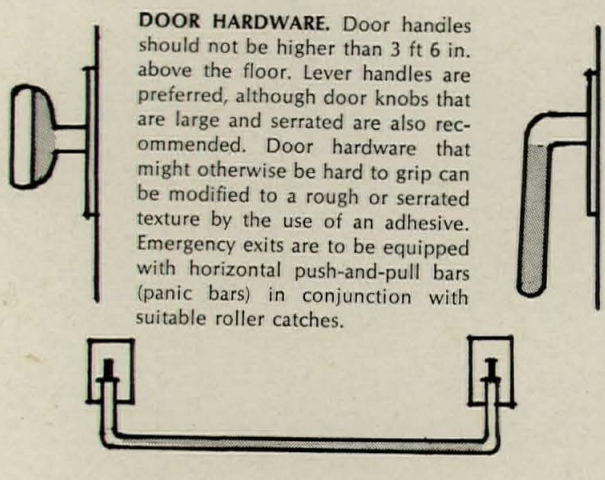



**INTERIOR DOORS.** In most cases, side-hung doors rather than sliding doors are preferred for use by the handicapped.

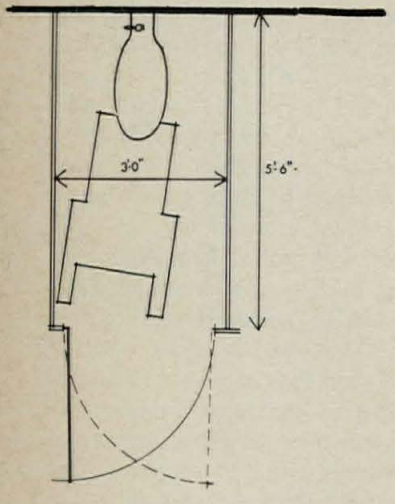
Automatic door closers, where installed, should provide at least 4-to-6 second delays; although longer time delays are preferred.

Double-action swinging doors, either single or double leaf, should be avoided if possible. When used they should be glazed to minimize accident risk. To provide visibility for wheelchair users, the base of the glazing should not be higher than 3 ft 3 in. above floor level. A vertical strip of safety glass 6-in. to 8-in. wide inserted in the door as shown represents a satisfactory solution.

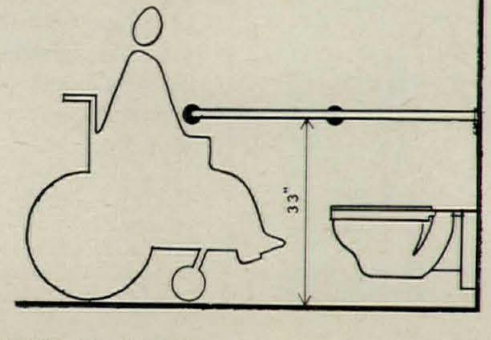
The single-leaf straight sliding door is the most easily operated sliding door. Where there is insufficient in-wall recessed space for a single-leaf door, bi-parting doors that operate sympathetically on a single track are available.



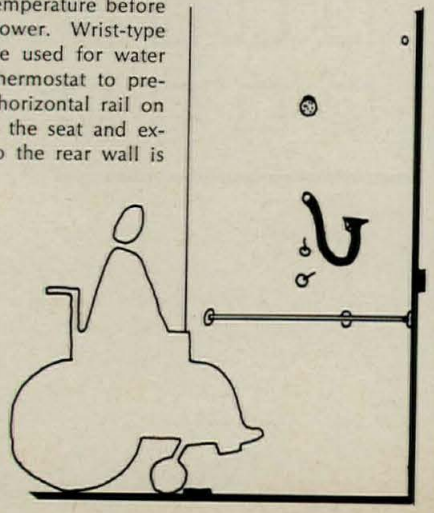
**DOOR HARDWARE.** Door handles should not be higher than 3 ft 6 in. above the floor. Lever handles are preferred, although door knobs that are large and serrated are also recommended. Door hardware that might otherwise be hard to grip can be modified to a rough or serrated texture by the use of an adhesive. Emergency exits are to be equipped with horizontal push-and-pull bars (panic bars) in conjunction with suitable roller catches.



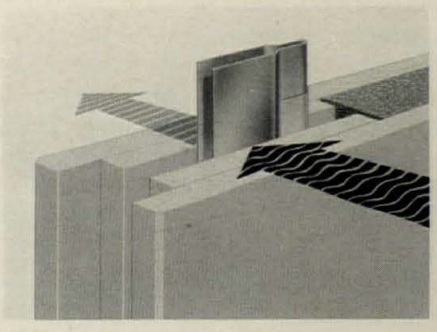

**TOILET ENCLOSURES.** At least one specially designed enclosure should be provided on the floor most easily accessible to the handicapped, preferably in the area of the rest rooms farthest from the entrance doors. Minimum size of the toilet compartment should be 3-ft wide and 4-ft 10-in. to 5-ft 6-in. deep, with the toilet centered in the rear. The stall door should be 32-in. wide, swinging outward. Assist bars should be placed horizontally on each side of the stall, 33 in. off the floor. A wall-hung toilet is preferred, as it permits closer frontal approach. A lever handle or pull knob handle that is easy to operate is preferred as a flushing device.




**SHOWERS.** There should be two specially designed shower cubicles 3-ft deep by 3-ft wide in every shower room used by the handicapped, with a folding seat located on the left wall of one shower and on the right wall of the other. A flexible shower spray will permit adjusting water temperature before entering the shower. Wrist-type handles should be used for water control, with a thermostat to prevent scalding. A horizontal rail on the wall opposite the seat and extending around to the rear wall is convenient.



*For more information circle selected item numbers on Reader Service Inquiry Card, pages 365-366*



**SPACE-SAVING SOUND WALL**/A modified design of Vaughan Walls incorporates "a sound attenuation spacer" into the 3-in. movable partition to improve sound isolation. The wall has an STC rating of 44 and a 1-hr. fire rating. It may have modular V-joints or a smooth, continuous surface and may be finished in vinyl, wood, or paint. ▪ Vaughan Walls, Inc., Los Angeles.

*Circle 300 on inquiry card*

**MULTICOLORED CEMENT FLOORS** / A new paint resin base makes possible multicolored paint for interior masonry floors. With the new base individual paint droplets retain their separate colors within the pattern. Estimated cost of the multicolored floor paint is less than 10 cents per square foot, including application by a professional paint contractor. The enamel coating is washable, skid-resistant and does not show dirt or scuff marks. ▪ United Lacquer Manufacturing Corp., Linden, New Jersey.

*Circle 301 on inquiry card*

**COLOR EVALUATION LIGHT** / A new fluorescent lamp permits a comprehensive evaluation of color intensity, value and hue across the entire spectrum and is especially useful where delicate shading or fine gradation of colors is critical. Reds, which present a special problem, may be evaluated in their natural intensity. The lamp provides a visual simulation of natural high-noon sunlight said to be so exact "that the human eye cannot detect any appreciable difference." ▪ Verd-A-Ray Corp., Toledo, Ohio.

*Circle 302 on inquiry card*

**FIREPLACE** / The simple styling of this unit fits a variety of interior decorating schemes. The fireplace may be used as a free-standing floor unit or with wall brackets for mid-wall suspension. Models may have top-mounted vertical chimneys or hidden back flues and, although listed by Underwriters' Laboratories as solid fuel units, are adaptable to gas-log conversion with hearth openings to 40 in. ▪ Condon-King Company, Inc., Lynnwood, Wash.

*Circle 303 on inquiry card*

**LOW CEILING LIGHTING** / A luminous lighting system needs a minimum of 8-in. plenum and assures even ceiling brightness with lamp spacings up to 64 in. The system completely hides the light source to allow for the use of opal prismatic or open louver lighting panels. ▪ J. A. Wilson, Lighting, Erie, Pa.

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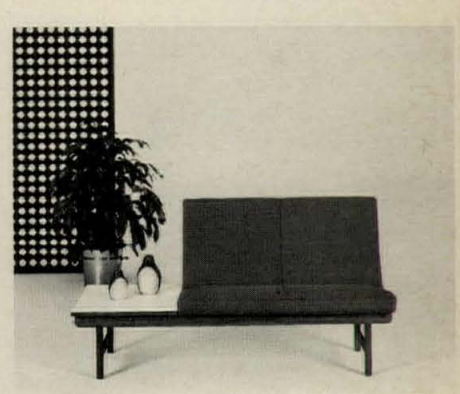


**SEATING FOR RECEPTION AREAS** / This seating and table unit has an exposed-wood frame of genuine walnut, or as an alternate, walnut stretcher with mirror chrome legs. The two-seater section has latex foam rubber cushions in plain or block tufted. The table top is white plastic. Parts are available in various combinations of one, two, or three seats, with different table tops and corner tables. ▪ Myrtle Desk Company, Seating Division, High Point, N. C.

*Circle 305 on inquiry card*

**DRINKING FOUNTAIN** / A new wall model has an architectural bronze receptor that is finished in a medium satin color on the outer bowl and a natural satin on the inner bowl. The bubbler head and waste strainer match the natural bronze color of the receptor. The valve is satin chrome plated, and like the fountain head, is vandal-proof locked to the receptor. ▪ Haws Drinking Faucet Company, Berkeley, Calif.

*Circle 306 on inquiry card*

*more products on page 237*

# OFFICE LITERATURE

*For more information circle selected item numbers on Reader Service Inquiry Card, pages 365-366*

**FIRE RESISTANT CONSTRUCTION ASSEMBLIES** / A design manual of 42 pages provides a wide selection of tested assemblies with tables throughout for quick check of relative performance characteristics. The tables are arranged according to fire resistance hourly ratings, fire test reference numbers, and construction details. Also included are sound transmission loss ratings, thickness, and weight of the construction assemblies. ▪ Gypsum Association, Chicago.

*Circle 400 on inquiry card*

**ROOF INSULATION** / A 6-page folder focuses on the comparative properties of different roof insulation materials and the values of common roof constructions. A dew-point graph points up how much insulation should be used to prevent condensation on the underside of the roof deck ▪ The Flintkote Company, East Rutherford, N.J.*

*Circle 401 on inquiry card*

**DRY WALL ACCESSORIES** / A 4-page reference catalog describes corners, jambs, tape, and cement. Both cement-on and nail-on dry wall accessories, complete with dimensions and suggested uses, are illustrated. ▪ BeadeX Manufacturing Company, Seattle.

*Circle 402 on inquiry card*

**PEDESTRIAN BRIDGES** / An information folder and sketch book on pre-engineered, pre-fabricated and pre-assembled bridges. Typical applications: over roadway or railroad track, in an industrial plant, or in a park. ▪ Guardian Engineering & Development Company, Pittsburgh.

*Circle 403 on inquiry card*

**CURBING AIR POLLUTION**/ A smokeless method of compressing wastes to 25 per cent of volume for hygienic handling is the subject of an 8-page brochure. The booklet mentions a number of installations in new high-rise buildings. ▪ Auto-Pak Company, Washington.

*Circle 404 on inquiry card*

**STAIRS** / A 12-page catalog, illustrated with photographs and diagrams, describes pre-fabricated steel-stair forms welded into rigid one-piece units for concrete or terrazzo stairs. The catalog contains technical information on components and the combination of component parts to permit versatility of design. ▪ Stairbuilders, McCook, Ill.

*Circle 405 on inquiry card*

**FIREPROOF STEEL COLUMNS** / An 8-page color illustrated architectural catalog on Fire-Trol fireproof columns contains specification and design information, cross-section drawings and case history studies on pre-fabricated, load-bearing, fireproof steel columns. ▪ Pacific Column Company, Alameda, Calif.

*Circle 406 on inquiry card*

**LIGHTING** / A 24-page color catalog introduces 22 new units in a total of 84 recessed, surface- and wall-mounted fixtures with over 611 possible combinations of fronts and trim styles. The fixtures covered are applicable for industrial, commercial, institutional or residential use. ▪ Emerson Electric, St. Louis, Mo.

*Circle 407 on inquiry card*

**TILE FLOORS** / "New Freedom With Floors" is a beautifully illustrated 28-page color brochure that suggests the effects and moods possible in living rooms, bedrooms, kitchens, foyers, playrooms and other living areas. Reproductions show new tile designs in solid vinyl, asbestos, asphalt and cork. The brochure is available for 25 cents. ▪ Kentile Floors Inc., 58 Second Avenue, Brooklyn, N.Y.*

**THERMOELECTRIC COOLING** / A 6-page brochure describes and pictures a number of air conditioners and other cooling devices operating on the Peltier effect—the cooling of the junction of two dissimilar elements or alloys by the passage of electric current. Units have no moving parts and no fluids. ▪ Frigistors Ltd., Montreal.

*Circle 408 on inquiry card*

**CONTROLS FOR ELECTRIC HEATING** / An 8-page illustrated brochure covers the new solid-state modulating controls for electric heating systems in commercial buildings.The brochure shows how the modulating electric-heat controller can be used with terminal reheat, unit ventilators, fan-coil units, single-zone reheat, multizone units and high-velocity mixing boxes. ▪ Honeywell Commercial Division, Minneapolis.

*Circle 409 on inquiry card*

**SAUNA**/A plan book shows how to build complete Sauna rooms and gives detailed description of proper installation of equipment. The guide also presents a complete line of prefabricated Sauna rooms, heaters and accessories. ▪ Normandy Products Company, Pittsburgh.

*Circle 410 on inquiry card*

**CONCRETE BLOCK WALLS** / Now in its fourth edition, the revised and enlarged *Concrete Block Walls* is a guide to the wide range of concrete blocks available for use in the construction of load-bearing and non-loadbearing walls. The booklet also describes techniques of block wall construction and design considerations involved. The booklet is divided into two main parts: "Common Blockwork", concerned with blocks intended to receive an applied surface finish; and "Facing Blockwork", which describes and illustrates numerous designs of special blocks produced for special design effects. The booklet is available at a cost of 7s. 6d ($1.05) per copy. ▪ Cement and Concrete Association, 52 Grosvenor Gardens, London SW1, England.

**EXPANSION JOINTS** / A 4-page technical bulletin features four models for large duct systems handling high-temperature, low-pressure gases. The bulletin reports that the joints are said to compensate for thermal duct movement, muffle sound, dampen vibration, retain heat, and conserve space without adaptors. ▪ Johns-Manville, New York City.*

*Circle 411 on inquiry card*

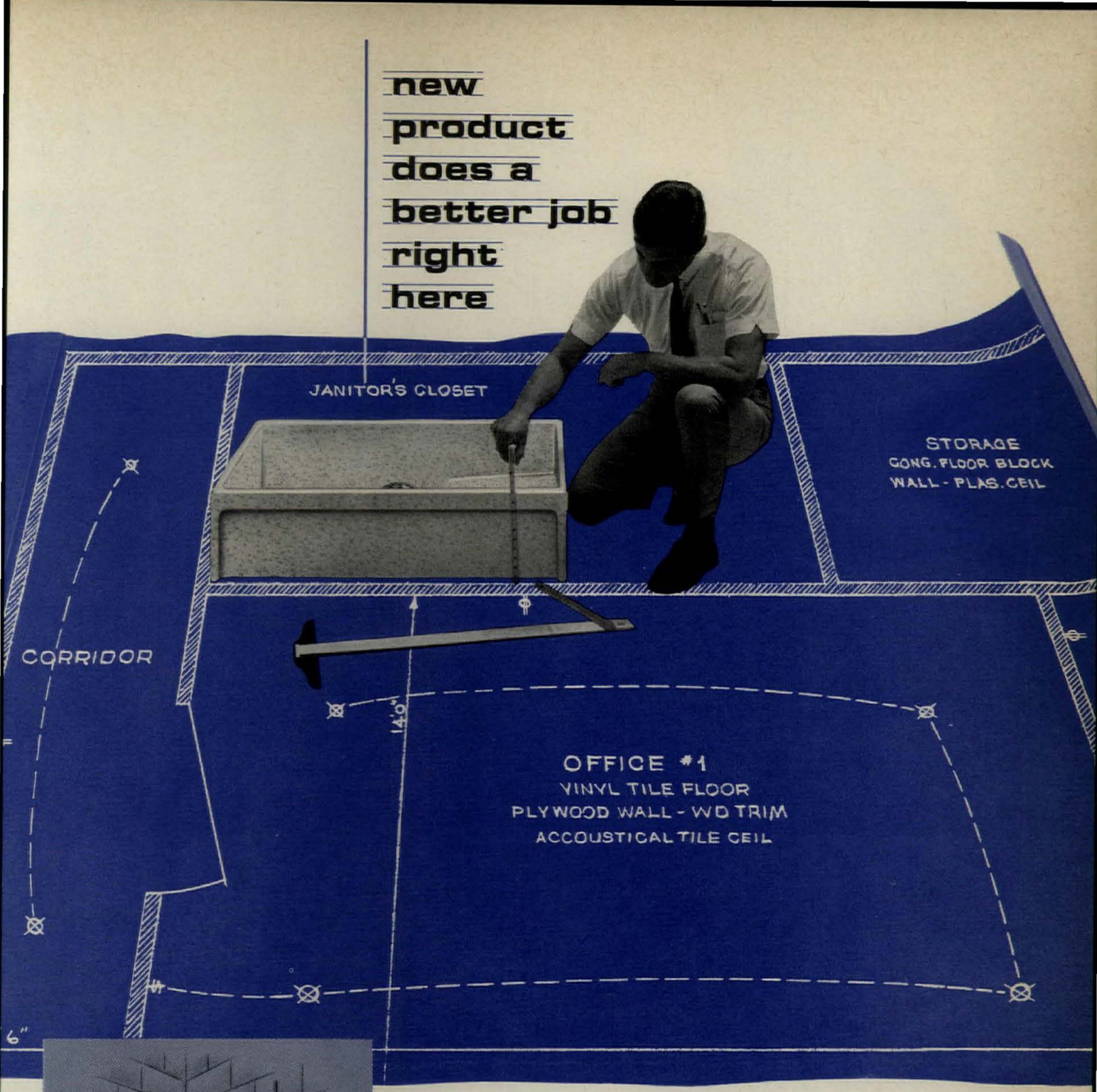
**I-BAR GRATING** / A 4-page brochure gives technical data on aluminum grating for use in catwalks, grated flooring and other applications. The booklet details the non-corrosive and light-weight properties, and contains safe load tables, deflection formulae, weight and size data and grating specifications. ▪ Liskey Aluminum, Inc., Glen Burnie, Md.*

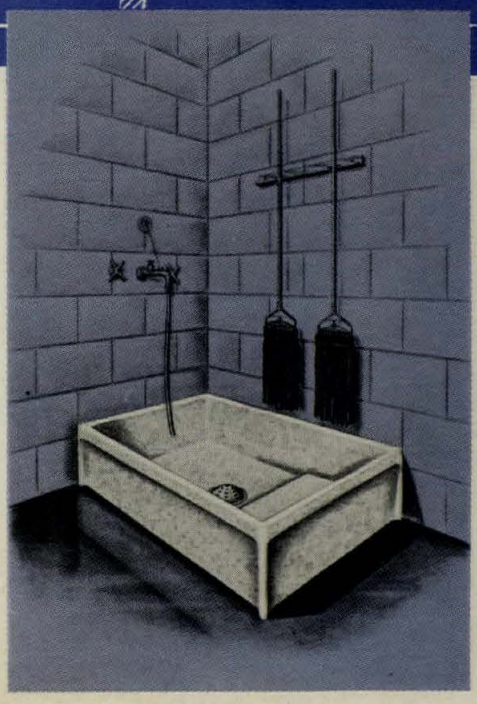
*Circle 412 on inquiry card*

*more products on page 314*

* *Additional product information in Sweet's Architectural File*

# new product does a better job right here



Now, you can upgrade janitor's closets or maintenance rooms to a compatible design level. With this modern Mop Service Basin you specify new and greater utility along with permanent cleanliness and attractive appearance. Has cast brass drain body fitted with stainless steel dome strainer and lint basket. Self-draining mop shelf is molded integral. Adequate internal capacity; low silhouette; complete installation flexibility.

MS* is the exclusive ingredient that makes a better Mop Service Basin. Weighing only 20% of masonry, MOLDED-STONE is smooth surfaced, easy to clean and stainproof. It is molded under heat and extreme pressure for super-strength. Designed with crash-proof, extra-thick shoulders that need no protective cap.

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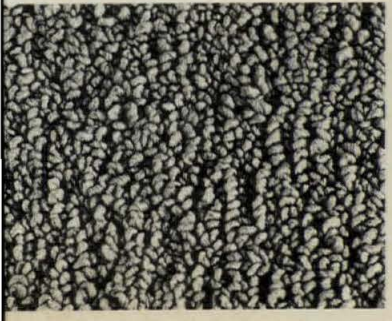

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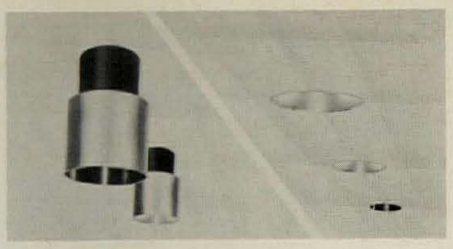

**INCANDESCENT DOWNLIGHTS** / Matching low brightness downlights for surface and recess mounting of commercial interiors or for over-all lighting as in churches, lobbies and theaters assure delivery of 99.2 per cent plus light below 45 degrees. Housings are round with matte black finished bases. Ceiling trim of recessed lights is just ⅛-in. wide unless a wider trim is desired. ▪ E-LITES, Edwin F. Guth Co., St. Louis, Mo.

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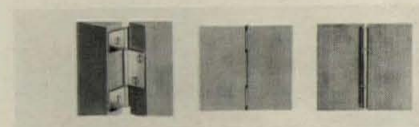

**DOOR HINGE** / A three-leaf door hinge has been designed for folding, swinging, and wardrobe doors. The hinge is completely concealed on one side when the door is closed and shows only small-diameter knuckles on the other side. Nylon washers in all joints are said to give the plain-tipped, three-knuckle-hinge wear strength greater than conventional five-knuckle hinges. Samples are available. ▪ Amerock Corporation, Rockford, Ill.

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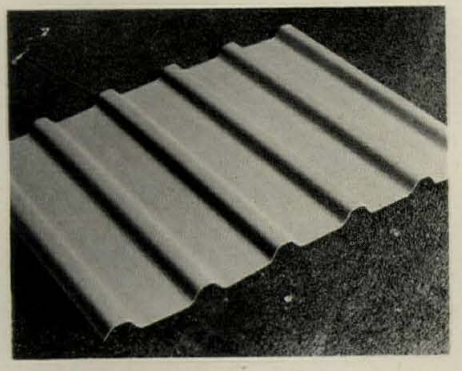


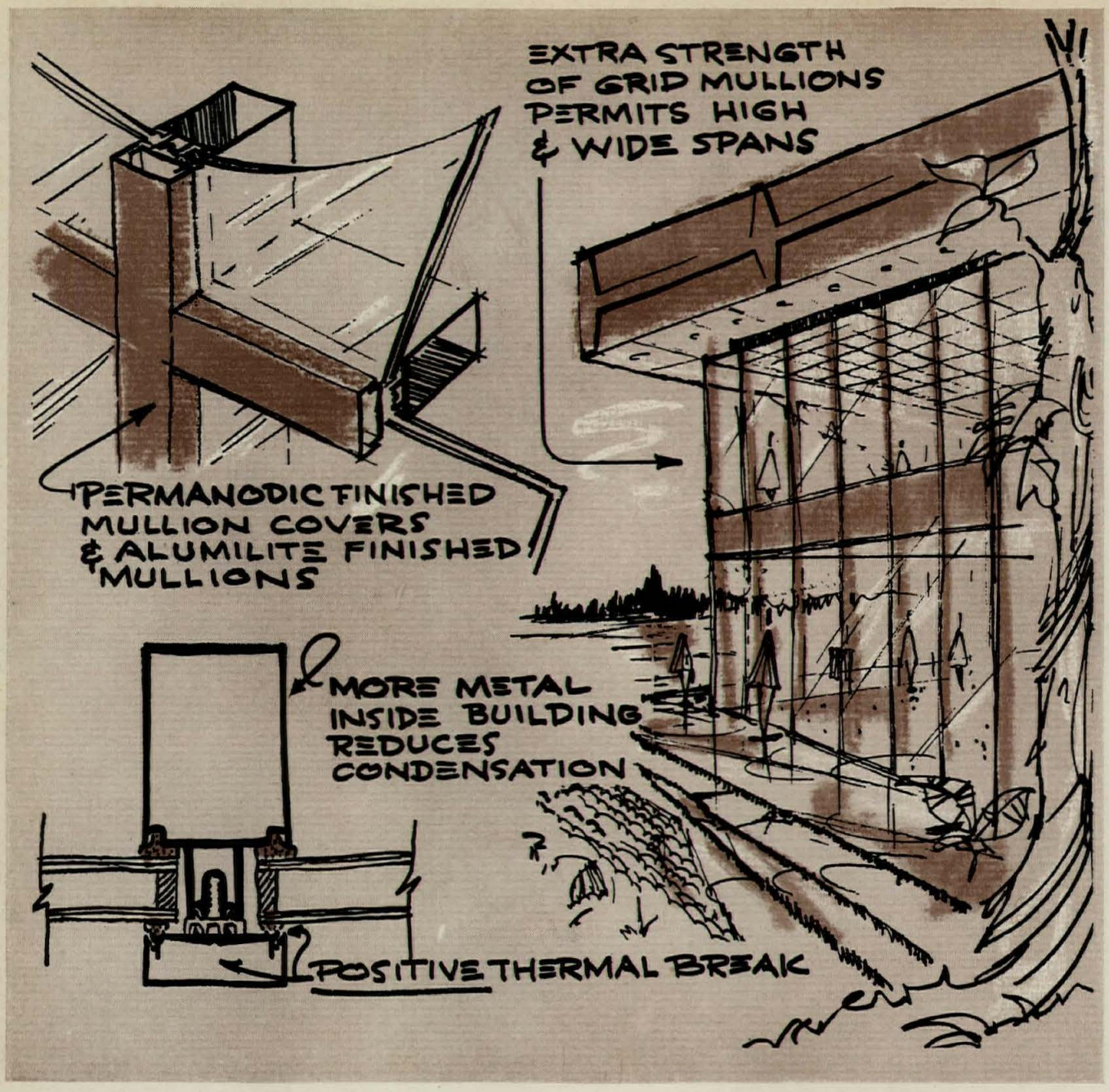
**PATIO ROOF PANELING** / This paneling features a textured exterior surface and is a combination of premium glass fiber reinforcements and light-stabilized resins, with acrylic resins for added light-stability and weathering resistance. ▪ Barclite Corp. of California, Burbank, Calif.

*Circle 309 on inquiry card*

*more products on page 264*

*For more data, circle 95 on inquiry card*

*For more data, circle 96 on inquiry card*




## the Kawneer 1600 curtain wall system that solves condensation problems!

EXCLUSIVE THERMAL BREAK ELIMINATES METAL-TO-METAL CONTACT BETWEEN OUTSIDE AND INSIDE SURFACES!

■ You'll never hear a complaint about condensation causing damage to wall coverings, drapes, carpets, etc. There is little thermal transfer to cause condensation, discomfort, or high costs for heating or air conditioning. Also, there is more metal inside and less outside which in itself tends to minimize heat flow. ■ The Kawneer 1600 Wall System is ideal for high rise and 1-or-2 story applications with *high and wide spans* because of extra strength in the grid mullions. Available with both plate and insulating glass. ■ *Clean, crisp lines and Permanodic*, too!* Available in non-fading Permanodic hard color finishes. You can add rich color economically by combining Permanodic finished mullion covers with Alumilite finished mullions. ■ For more information, write for File No. WS-65. Address Kawneer Product Information, 1105 N. Front St., Niles, Michigan.

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Kawneer

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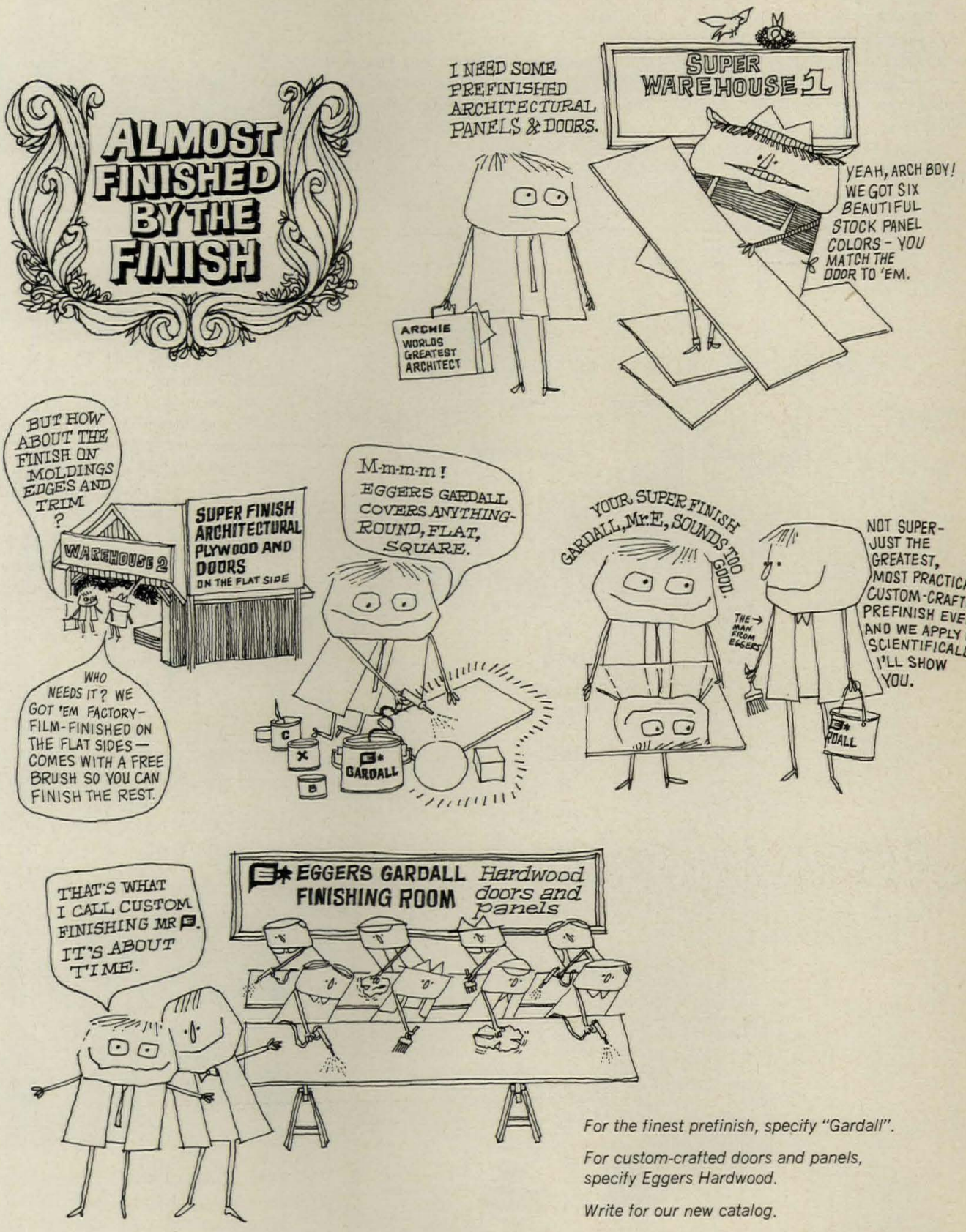


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*For more data, circle 111 on inquiry card*

*For more data, circle 112 on inquiry card*

*continued from page 237*

**CEILING SYSTEM** / A single-layer radiant-heat drywall ceiling system, consisting of 5/8-in. gypsum wallboard with electric heating cables embedded in the fireproof gypsum cores, requires no special parts or insulated nails for installation. Even though each unit is a self-enclosed, separate heating unit, all panels in a room are controlled by a single thermostat. Nailing guidelines are printed on the board face. ▪ National Gypsum Company, Buffalo, N. Y.

*Circle 310 on inquiry card*

**3-IN-1 WASHROOM EQUIPMENT** / Recessed behind conventionally mounted, continuous mirrors, this unit dispenses paper towels and liquid or lather soap, and provides a utility shelf. The entire unit recesses into a 4-in. wall with the towel compartment concealed behind the mirror, permitting the face of the unit to fit flush with the mirror. Flange, cabinet and shelf are constructed of heavy-guage type 302 stainless steel, with satin finish on the exposed surfaces. ▪ Bobrick Dispensers, Inc., Brooklyn, N. Y.

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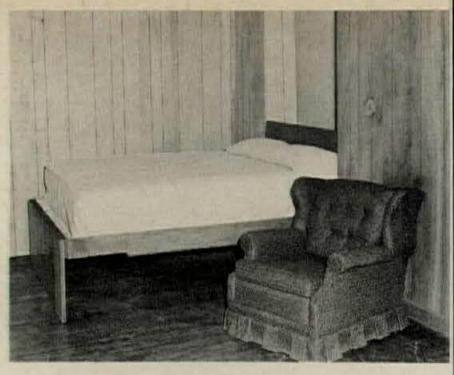
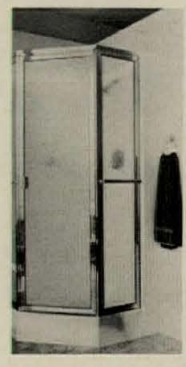


**HID-N-WALL BED** / For homes, apartment buildings, hotels and motels, dormitories or vacation cottages, this space-saver is powered by a 1/4-hp. geared-drive electric motor, electrically reversible through the wall switch. Limit switches stop the bed automatically in both positions, and the system is protected by a fuse plug. The bed can be framed-in during construction or added to an existing building. The control switch may be on the outside of the wall or hidden in an adjoining closet. ▪ Practical Products, Danville, Virginia.

*Circle 312 on inquiry card*



**GLASS FIBER PANEL** / This new panel with a pebbled light-diffusing pattern on one side is said to be light in weight, rigid, and easy to handle. Its uses include many types of architectural and decorative glazing, doors for showers, room dividers, lighting fixtures and sliding cabinet doors. ▪ Lasco Industries, Montebello, Calif.

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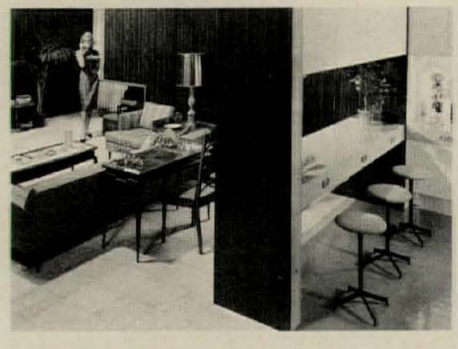
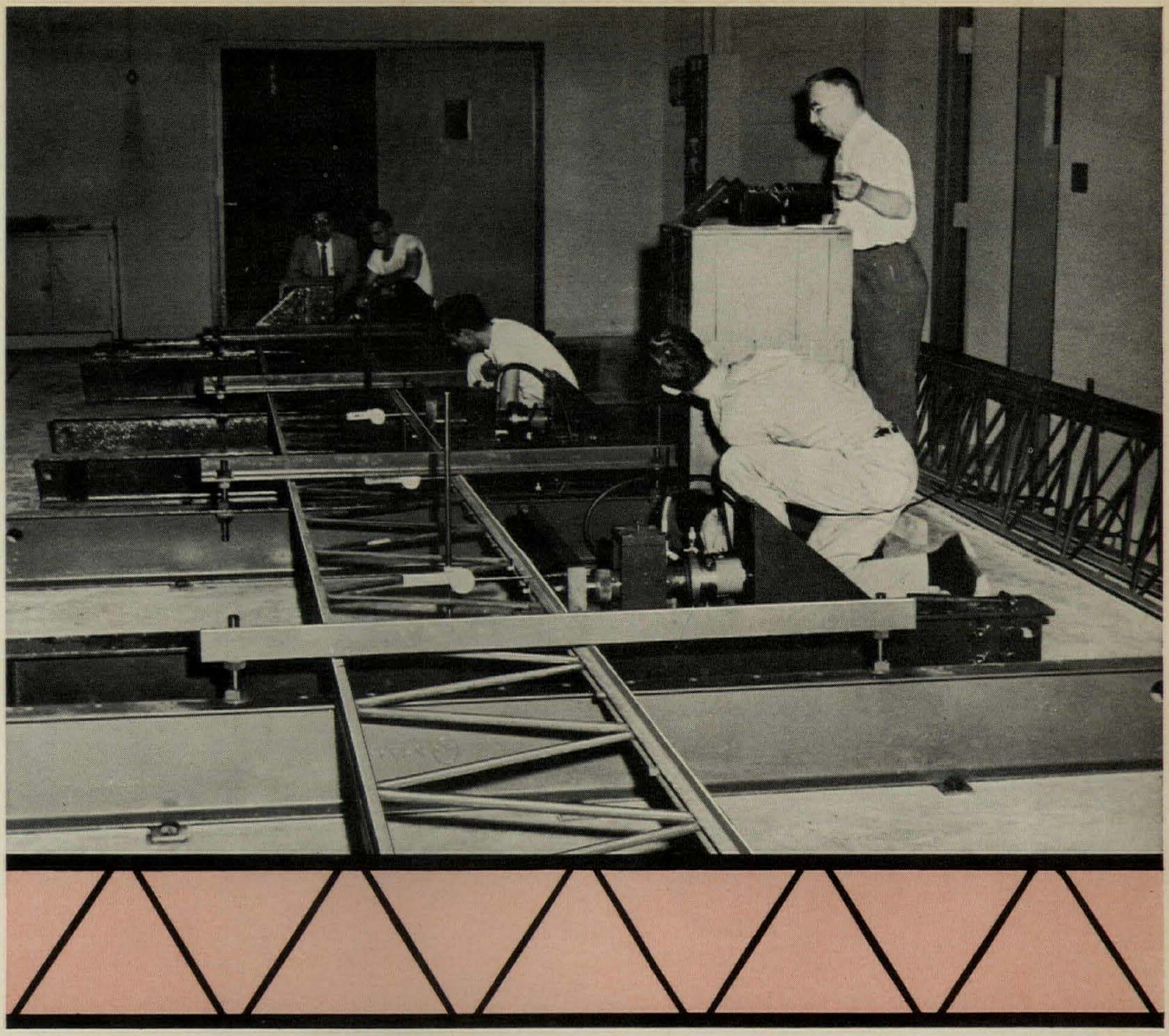


**HARDBOARD PANELS** / Here is an example of plastic-finished panels that come in a variety of colors, patterns and woodgrains. Impervious finish wipes clean with a damp cloth. ▪ Barclay Manufacturing Company, Inc., New York City.

*Circle 314 on inquiry card*

*more products on page 272*



# Joist Laboratories Like This Assure BETTER CONSTRUCTION for You

This is a common sight in the laboratories and test centers operated by Carnegie Tech and Kansas and Washington Universities on behalf of the Steel Joist Institute. In these laboratories, new ideas in open web steel joists are performance-tested by research and development specialists. It was through such facilities that the SJI evaluated the new high-strength joist series, and conducted valuable investigation into methods of bridging.

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# New . . . for the budget-minde with elegant ideas . .

## meet the moderately priced Radcliff

Pleasing smooth-line sculptured design. Modern low silhouette. No jet channels on the outside of bowl. Super-efficient siphon jet action. They all give the new Radcliffe a look of elegance.

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You've simply got a lot going for you with Weatherban® Brand One-Part Sealant 101. The product itself solves most sealing problems. Offers the proven dependability of a polysulfide (Thiokol® based) sealant in ready-mixed, easy-to-use form. And the "Weatherban" Man will help you solve the rest. He's ready to assist you right from joint design stages on. If you like, he'll even be at the job site to help the calking crew get started, recommend application equipment—you name it. Just request him, he'll be there.

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National Bank of Commerce, San Antonio, Texas — Electrical Contractor: Allen Electric Co.

# When you specify building lighting like this you can save your client $6,000 a year!

The new Wide-Lite* SW fixture gives more light from fewer fixtures—and the National Bank of Commerce Building of San Antonio proves it dramatically.

The 21-story building formerly was lighted by 252 1000 watt incandescent floodlights, but the building management wanted additional light. So the 252 incandescent floodlights were replaced by just 124 1000 watt "Wide-Lite" SW floodlights using GE Multi-Vapor lamps.

The results are obvious—the National Bank of Commerce building dominates the city's skyline. And another result is also pleasing to management—operating, lamp and maintenance costs for the new floodlighting are projected to be $6,000 a year *less* than for the former incandescent installation!

Want more facts about how the "Wide-Lite" SW floodlight gives more light (with lower operating costs) for buildings, parking lots, and other installations? Just ask your "Wide-Lite" distributor, or send the no-obligation coupon.

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*For more data, circle 118 on inquiry card*

# At the ripe old age of two this building was recaulked with G-E Silicone Sealant.


## (The original caulk couldn't stand the weather.)

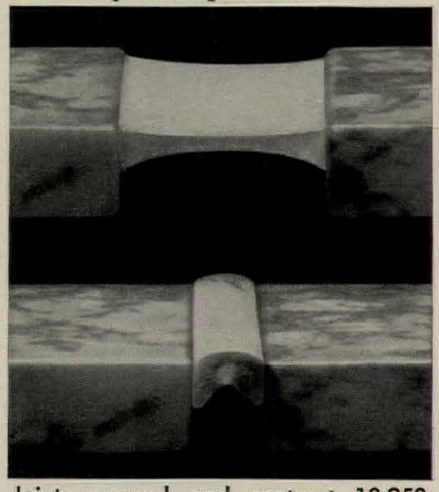
Was it the Florida heat or a hurricane named Dora?

Chances are, both caused the polysulfide caulk in this Florida hospital to break down in just two years. (And it was guaranteed for five!)

Now, General Electric's Silicone Construction Sealant is doing the job. It's providing superior protection day in and day out. And it'll survive Hurricanes Dorothy, Dolores, Donna and Dinah!

*In fact, tests show that G-E Silicone Construction Sealant will take punishment of high winds and rain, intense heat and sunlight for years without loss of bond or elastomeric properties.*

Because it's permanently flexible silicone rubber, it withstands severe expansion and contraction cycles. It won't crack, crumble or leak with age. And it's also permanently waterproof.



Joints expand and contract 10,950 times in 30 years. So will G-E Silicone Construction Sealant.

So recaulk with G-E Silicone Construction Sealant. Or use it from scratch and forget about recaulking. It comes in standard caulking cartridges and a range of permanent colors.

For more information and color swatches, contact your G-E distributor or write: Section BG10239, Silicone Products Department, General Electric Co., Waterford, New York 12188.

GENERAL ELECTRIC

*For more data, circle 119 on inquiry card*

# BEAUTY AND DURABILITY AND ECONOMY

These are, of course, the normal criteria employed by most architects in the selection of a building material, and wherever metal roofing or mansard fascia is involved, we believe Follansbee Terne unique in the degree to which it satisfies them. For terne delights the eye, lasts indefinitely, and is relatively inexpensive when measured by the standards of those to whom ultimate performance is no less significant than initial cost.

**FOLLANSBEE STEEL CORPORATION**
Follansbee, West Virginia

Follansbee is the world's pioneer producer of seamless terne roofing

Avon Products Inc., Laboratory and Office Building, Springdale, Ohio
Architect: Albert Kahn Associated Architects Inc., Detroit, Michigan
Project Architect: Sol King, A.I.A.
Roofing Contractor: Tri-State Roofing Co., Charleston, W. Va.

*For more data, circle 120 on inquiry card*

*continued from page 264*

**VERTICALLY LAMINATED BEAMS**/Beams are manufactured of Idaho White Pine and are available in quality grades and a selection of depth and width sizes. The "Premium" grade is a 5-ply sandwich of three nominal 1- or 2-in. boards with ½-in. exterior plies of clear type grade. The "Architectural" and "Industrial" grades are of 3-ply laminations of nominal 1- or 2-in. boards. ▪ Potlatch Forests, Inc., Wood Products Division, San Francisco.

*Circle 315 on inquiry card*

**TURBINE GENERATOR UNIT** / Especially "designed for heavy-duty industrial power generation," this unit is a two-shaft engine with a single stage axial turbine driving a centrifugal compressor. Each shaft and its turbine wheel is an integral unit which "eliminates costly splines or pilots and simplifies alignment and servicing." Full floating sleeve bearings on high speed shafts are pressure lubricated. ▪ Waukesha Motor Company, Waukesha, Wisc.

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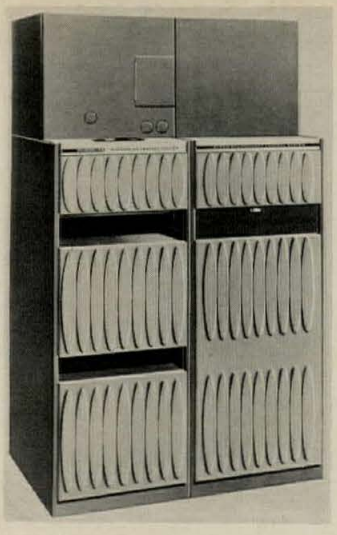
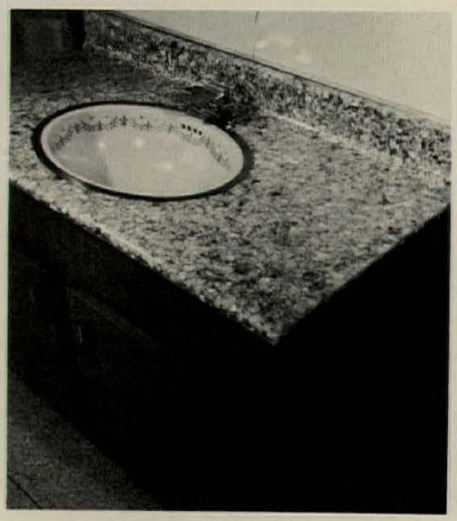


**TOTAL-CLIMATE CONDITIONING** / A twin cabinet package combines furnace, air conditioning unit, power humidifier and electronic filter and "operates continually without need to touch the controls except for seasonal changes." Cabinet dimensions are 55 in. high by 27⅝ in. deep by 20½ in. wide. Top return air plenum dimensions are 20 in. deep by 20½ in. wide. Humidifier capacity is from 9 to 11 lbs of water per hour and the electronic air cleaner has a capacity of 1,400-2,200 cfm. ▪ Rheem Manufacturing Company, Chicago.

*Circle 317 on inquiry card*

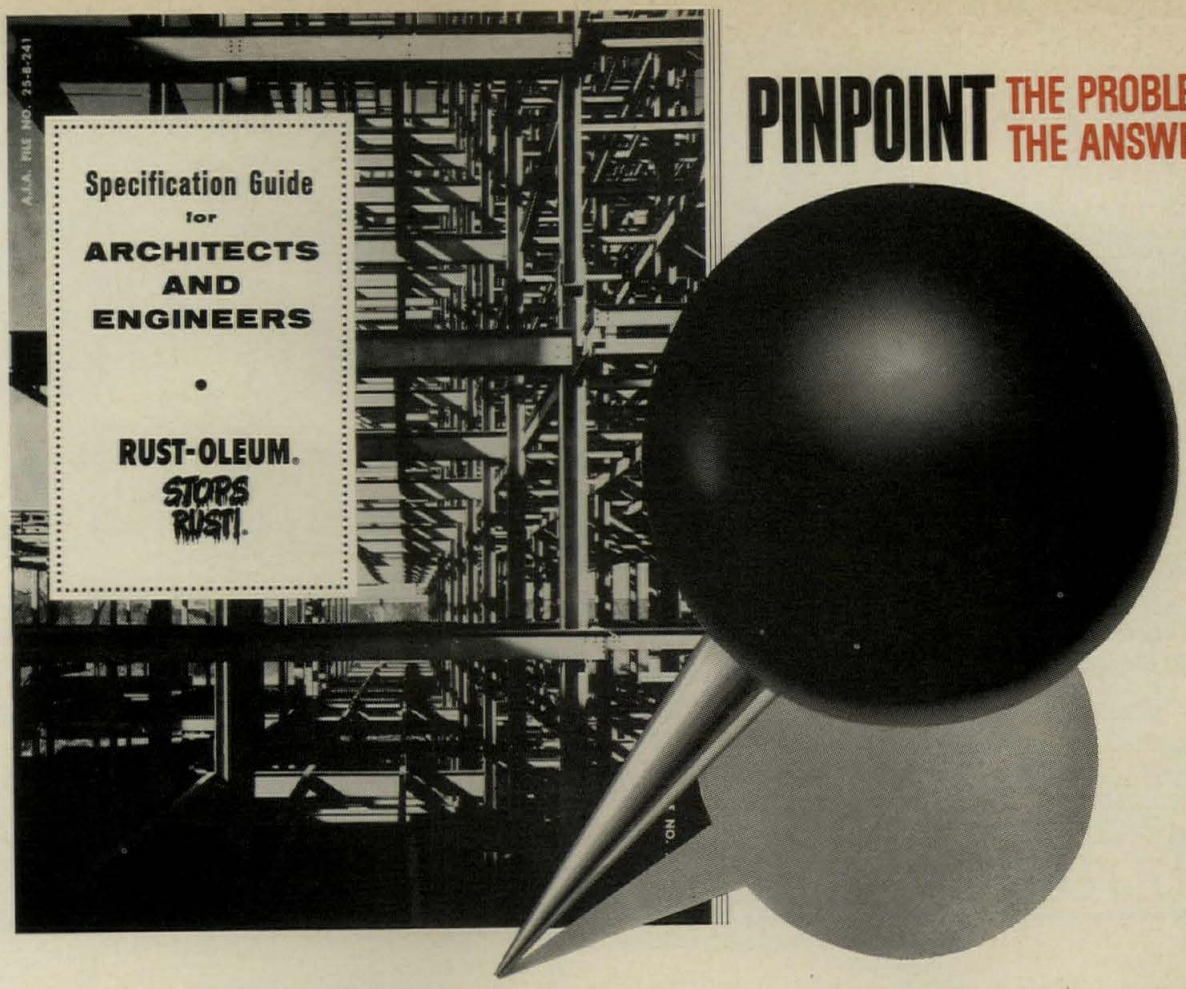




**CULTURED MARBLE FINISHES** / A new manufactured surface for table tops, vanity tops, counter tops, floors and walls is said to be produced and sold for about half the price of quarry marble and one-third the cost of other synthetic surfaces. Polykrystalon cultured marble is not porous, is stain-resistant, is break-resistant, and is fully repairable if it does break. ▪ The Polykrystalon Company, Inc., Houston, Texas.

*Circle 318 on inquiry card*

*more products on page 295*

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# This complete Specification Guide for Architects and Engineers opens new doors to long life protection!

Much more than a specifications guide, this important manual pinpoints coating problems by material, location, use and service conditions. Then—it pinpoints the answers including recommendations for Rust-Oleum coating systems, surface preparation, application, short form specifications and a selection of almost 150 color standards.


From primers to top coats, there's a long life Rust-Oleum coating system for almost every need—all with a worldwide reputation for lasting economy. Your Rust-Oleum Field Engineer will be happy to work with you on your specifications—and will follow through on job-site application. Clip coupon to your letterhead for the facts.

**RUST-OLEUM®**

**STOPS RUST!®**

Rust-Oleum Corporation, Evanston, Illinois
Haarlem, Holland

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☐ Please have a Rust-Oleum Field Engineer call.

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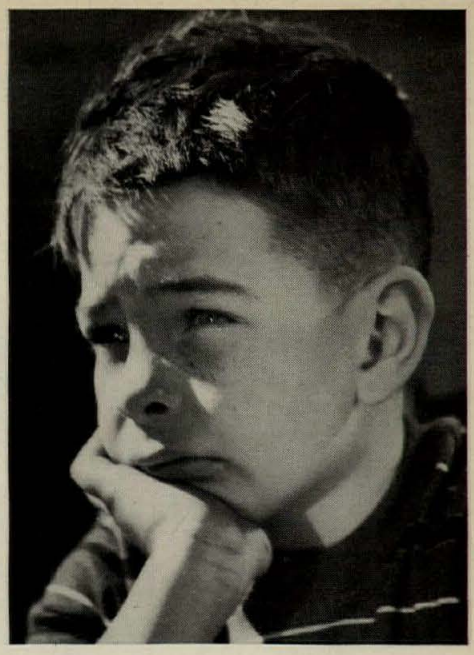

# Multiply Billy Edwards by 48,800,000

## *to measure*

## *the challenge of school construction*

Figures on school enrollment are only part of the picture.* Education today is a living, changing thing. The idea is to equip Billy Edwards for *his own future*—not for his parents' past.

Doing this job calls for new concepts in school design—concepts made possible with *prestressed concrete.* Teaching space must be quickly changeable in size and shape. A gymnasium this evening may be four lecture halls tomorrow morning. The *most adaptable* schoolhouse is the *best schoolhouse* since education must meet changing needs and accommodate sophisticated teaching aids *with multi-purpose space.*

Now, school planners bring wide-open spaces *inside* as the long-span muscle of prestressed concrete invites them to forget about space-wasting columns. At the same time, this truly 20th century material points the way to impressive economies in speedily erected, fire-safe, quality schools.

See your local PCI member for details on the use of prestressed concrete in schools.

*Send for your free copy of "PRESTRESSED CONCRETE—applications and advantages" and selected literature on prestressed concrete in schools.*

**PRESTRESSED CONCRETE INSTITUTE** PCI

205 WEST WACKER DRIVE • CHICAGO, ILL. 60606

ARCHITECTURAL STRUCTURAL

* Public and private school enrollment, first twelve grades, 1965—1966 school year, is 48,800,000. Enrollment will increase 400,000 annually through 1975.—**U.S. Office of Education.**

**UNIVERSITY OF CALIFORNIA**
Davis, California
**Architect:**
Gardner A. Dailey, FAIA, & Associates
**Engineer:**
T. Y. Lin, Kulka, Yang & Associate

**AMBASSADOR COLLEGE**
Pasadena, California
**Architect:** Peter J. Holdstock
**Engineer:** Johnson & Nielsen

**HENRICO HIGH SCHOOL**
Richmond, Virginia
**Architect:**
J. Henley Walker, Jr. AIA

**PARSONS RURAL ELEMENTARY SCHOOL**
near Salina, Kansas
**Architect & Engineer:**
Anderson—Johnson AIA

**ACADEMY OF THE HOLY ANGELS**
Demarest, New Jersey
**Architect & Engineer:**
J. G. Phelan and Associates

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*"Oh Mr. Fitzmorris, thank you for the posy-pink carpet of Herculon in my office. And have a good evening at home, sweetie."*

***Does carpet of Herculon* olefin fiber stand up under coffee breaks, conferences, high heels and traveling salesmen?*** Yes. Carpet of Herculon is exceptionally long wearing even under the heaviest traffic. Lab and "in use" tests show that Herculon matches nylon in long wear and abrasion resistance. And is far more abrasion resistant than acrylics or wool.

***Does carpet of Herculon need pampering like secretaries?*** No. Herculon is the easiest-to-care for, easiest-to-clean of all carpet fibers. It's so chemically inert, so moisture resistant, stains and soil tend to stay on the surface until they are wiped clean. Reduces maintenance costs to a minimum.

***Do clients have to be rich to install carpet of Herculon?*** No. Herculon can save them as much as $3 per square yard below competitive carpet fibers of comparable bulk and construction.

***Does carpet of Herculon look like your clients are rich?*** Yes. It looks like a million dollars. In beautiful colorfast solids, multicolors and patterns. And a pile so densely packed, they'll find it hard to believe this is contract carpet. Of course all carpet of Herculon is practically static-free.

***Is carpet of Herculon the most brilliant advance in contract carpet today?*** Yes. And it's available at the best carpet mills in the country.

***What is the name of Mr. Fitzmorris' secretary?*** (Sorry we cannot reveal that classified information)

But for anything else you want to know about commercial carpets of Herculon or for a free copy of the new Architect/Designer's Guide to Carpet of Herculon, simply call, write or visit Fibers & Film Department, Hercules Incorporated, 380 Madison Avenue, New York, N.Y. 10017. OX 7-0010.

**Is there a carpet that has all the answers? Yes.**

## Since when? Since Herculon.*

**The No. 1 polypropylene fiber for contract carpets.**

*Registered trademark of Hercules Incorporated, Wilminaton, Delaware for its olefin fiber.

HERCULES

FT 66-19

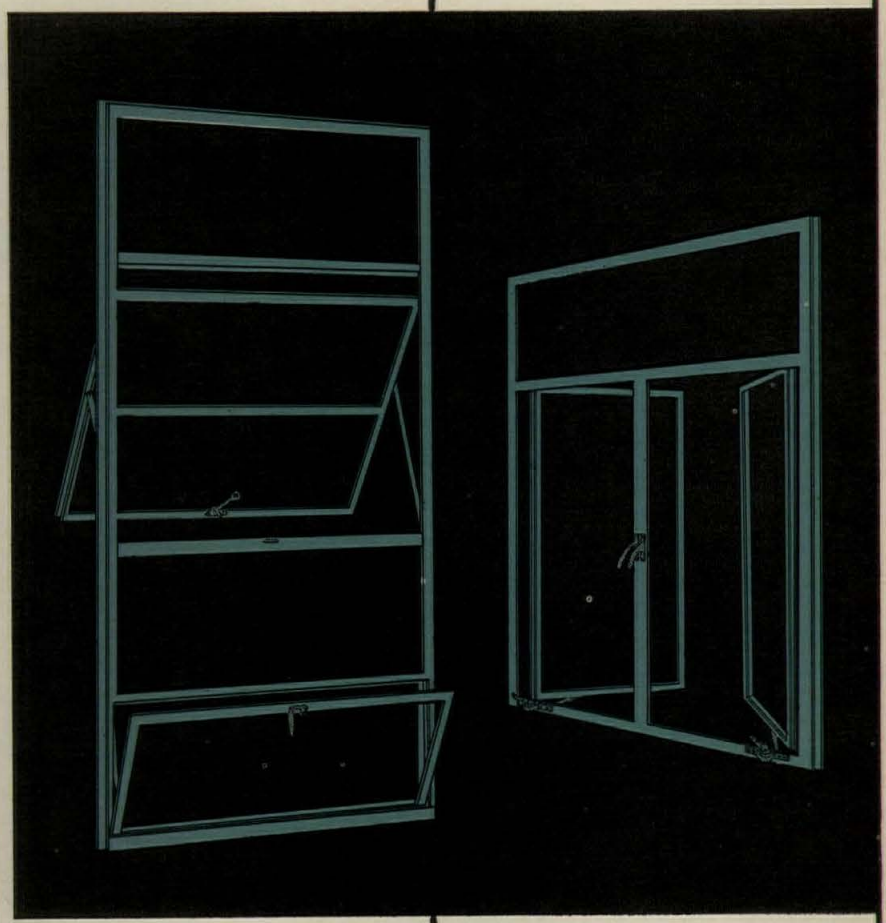
# Can you stand by a specification that will save your client maintenance money for years?

If you can, we have windows that are right down your alley.

These are Cecoclad steel windows. They are finished in polyvinyl chloride, which is impervious to moisture. They won't rust.

Your client won't ever have to paint these wondrous windows, as he would ordinary windows. You save him up to $10 per window every four years. You save him a lot of inconvenience, too.

Will he like that? Ask him. Ask us for colors, cost data, test data, specifications and samples. The Ceco Corporation, general offices: 5601 West 26th Street, Chicago, Illinois 60650. Sales offices and plants in principal cities.



CECO*CLAD*
**STEEL WINDOWS**

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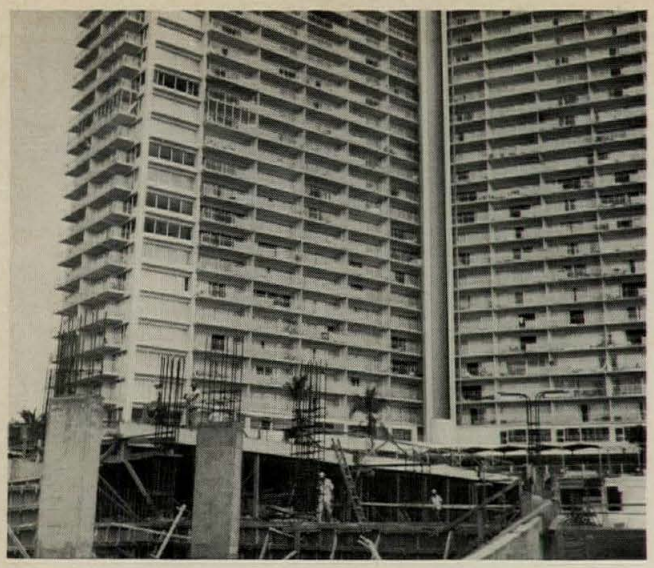
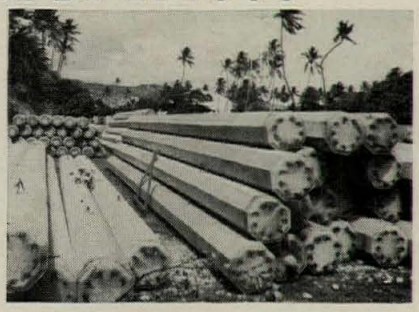


Lagoon Tower addition to the Hilton Hawaiian Village. Prestressed concrete piles made with MARACON by Prestressed Concrete, Honolulu, Hawaii.
General Contractor — Munro, Burns and Jackson Brothers, Honolulu, Hawaii.

# MARACON*

## ADMIXTURES FOR CONCRETE

# in HAWAII...



Prestressed beams for the ILIKAI Hotel addition made with MARACON by Prestressed Concrete, Honolulu, Hawaii. General Contractor — Pacific Construction Company, Ltd., Honolulu, Hawaii.

## ...for Higher Strength...Greater Durability and Better Control of the Concrete

There is a MARACON Water Reducing Admixture to meet the exacting demands . . . for water reduction, set retardation and air entrainment . . . of every concrete application.

For more information about the advantages of using MARACON Water Reducing Admixtures in concrete mix deisgns use the coupon below.

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*MARACONS conform to ASTM Chemical Admixtures Specification C494-63T. They are manufactured by American Can Company's Marathon Chemical Products — a leader in the field of lignin research and a producer of a variety of lignin chemicals.

AMERICAN CAN COMPANY, MARATHON CHEMICAL PRODUCTS
NEENAH, WISCONSIN

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TITLE.....

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Please attach to your company letterhead. A-10

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DELTA FAUCET COMPANY

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Division of MASCO Corporation

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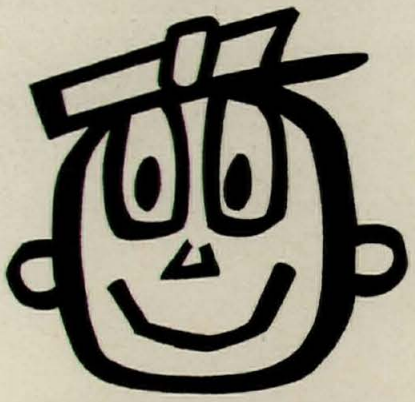
# I WANT YOU



# TO USE ZIP CODE

**So that you can have faster, more efficient mail service.**

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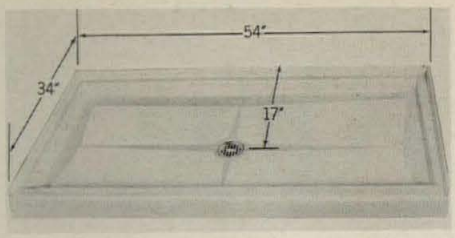
continued from page 295




**SHOWER FLOOR** / A new floor is 54 in. by 34 in. and "was designed to meet the growing demand for roomier, more luxurious showers." Available in eight colors plus white with black accents, the floor is molded with tiling-flange for recessed installation. It features reinforcing ribs on the underside—no subpan or backing-up are needed. ▪ Fiat Products Department, American Cyanamid Co., Plainview, L. I., N. Y.

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**BOLTS** / A new high-strength, corrosion-resisting bolt has comparable weathering characteristics to steel used in bridges and buildings. The steel ages with long-term exposure to a dark, pebbly-textured finish formed by a tightly adherent oxide coating which acts as a barrier to moisture and oxygen and prevents further corrosion. ▪ Bethlehem Steel Corporation, Bethlehem, Pa.

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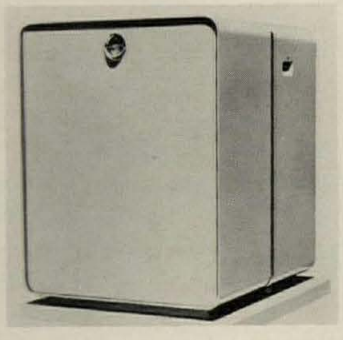

**DISTRIBUTION TRANSFORMERS** / Three-phase, 30- and 45-kva pad-mounted transformers have a free-standing cable compartment that allows electric utilities to make initial primary connections when the primary cable is laid. Some of the features are: A contour weather cover on the tank; a stainless steel strip around the joint between the cable compartment and tank compartment; an insulated barrier separating the high- and low-voltage campartments; and a steel rail around the base for protection against corrosive elements. ▪ Westinghouse Electric Corporation, Pittsburgh.

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more products on page 307


# advanced concept in human comfort

The climate control division of the world wide SINGER organization heralds a new era of comfortable living for people all over the world —where they live, where they work, where they play, where they worship.

Electromode, Easy-Heat and Remington—during long years of independent operation in their respective fields, each has earned a high reputation for quality, service and dependability. United under THE SINGER COMPANY, with its vast resources, they offer the world more and better climate control products for more comfortable living today and tomorrow.

Climate Control Division / The **SINGER** Company

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**Electromode**
electric heating products

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Incremental* air conditioners

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**EASY-HEAT**
*A Trademark of THE SINGER COMPANY
electric snow melting and heating cable products

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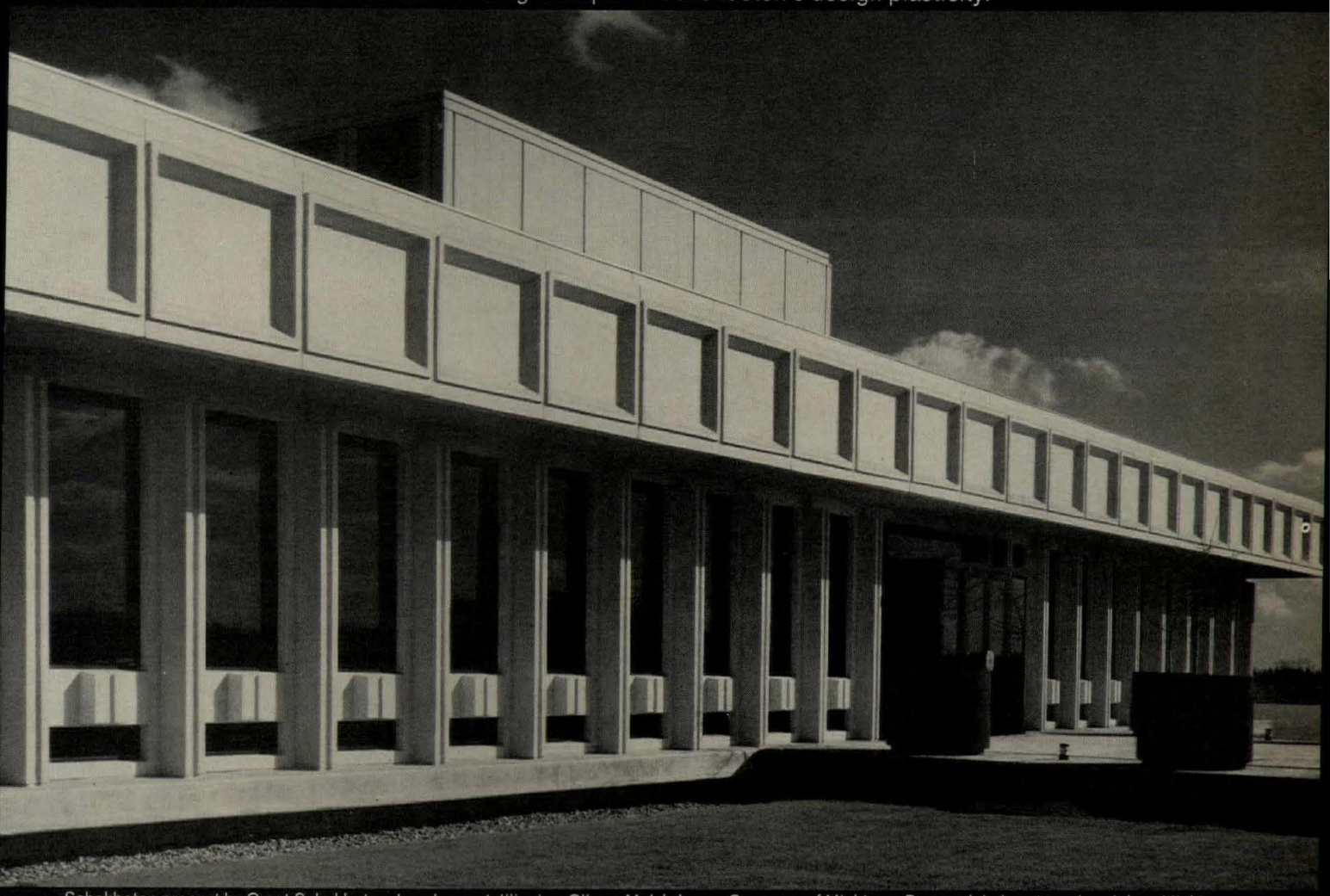
# SCHOKBETON®

Another outstanding example of Schokbeton's design plasticity.



Schokbeton precast by Crest Schokbeton, Inc., Lemont, Illinois • Climax Molybdenum Company of Michigan, Research Laboratory, Ann Arbor, Michigan
Architects: Smith, Hinchman & Grylls Assocs. Inc.—Contractor: Spence Bros., Ann Arbor

For the best in precast concrete,
specify Schokbeton

EASTERN SCHOKCRETE CORP.
441 Lexington Ave., New York 17, N.Y.
65 Mountain St. West, Worcester, Mass.
P.O. Box 56, Brandywine, Md.

SCHOKBETON-PITTSBURGH
A Division of The Levinson Steel Co.
37 South 20th St., Pittsburgh, Pa. 15203

CREST/SCHOKBETON CONCRETE, INC.
P.O. Box 328, Lemont, Illinois 60439

PRECAST/SCHOKBETON, INC.
P.O. Box 2088
Kalamazoo, Michigan 49003

MABIE-BELL SCHOKBETON CORP.
P.O. Box 1558, Greensboro, N.C.
Peachtree City, Georgia
P.O. Box 47546, Miami, Florida

INLAND SCHOKBETON
A Division of Nebraska Prestressed Concrete Co.
P.O. Box 29208, Lincoln, Nebraska 68529

ROCKWIN SCHOKBETON
Division of Rockwin Prestressed Concrete Corp.
Subsidiary of United Concrete Pipe Corp.
P.O. Box 2536, Santa Fe Springs, Calif.

TEXAS SCHOKBETON, INC.
Loop Road—P.O. Box 1002
Crockett, Texas

BUEHNER SCHOKBETON COMPANY
301 West 60th Place, Denver, Colorado 80216
640 Wilmington Ave., Salt Lake City, Utah 84106

BASALT SCHOKBETON
A Division of Basalt Rock Company, Inc.
P.O. Box 2540, Napa, California

CANADA
SCHOKBETON QUEBEC INC.
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CONTECH SCHOKBETON
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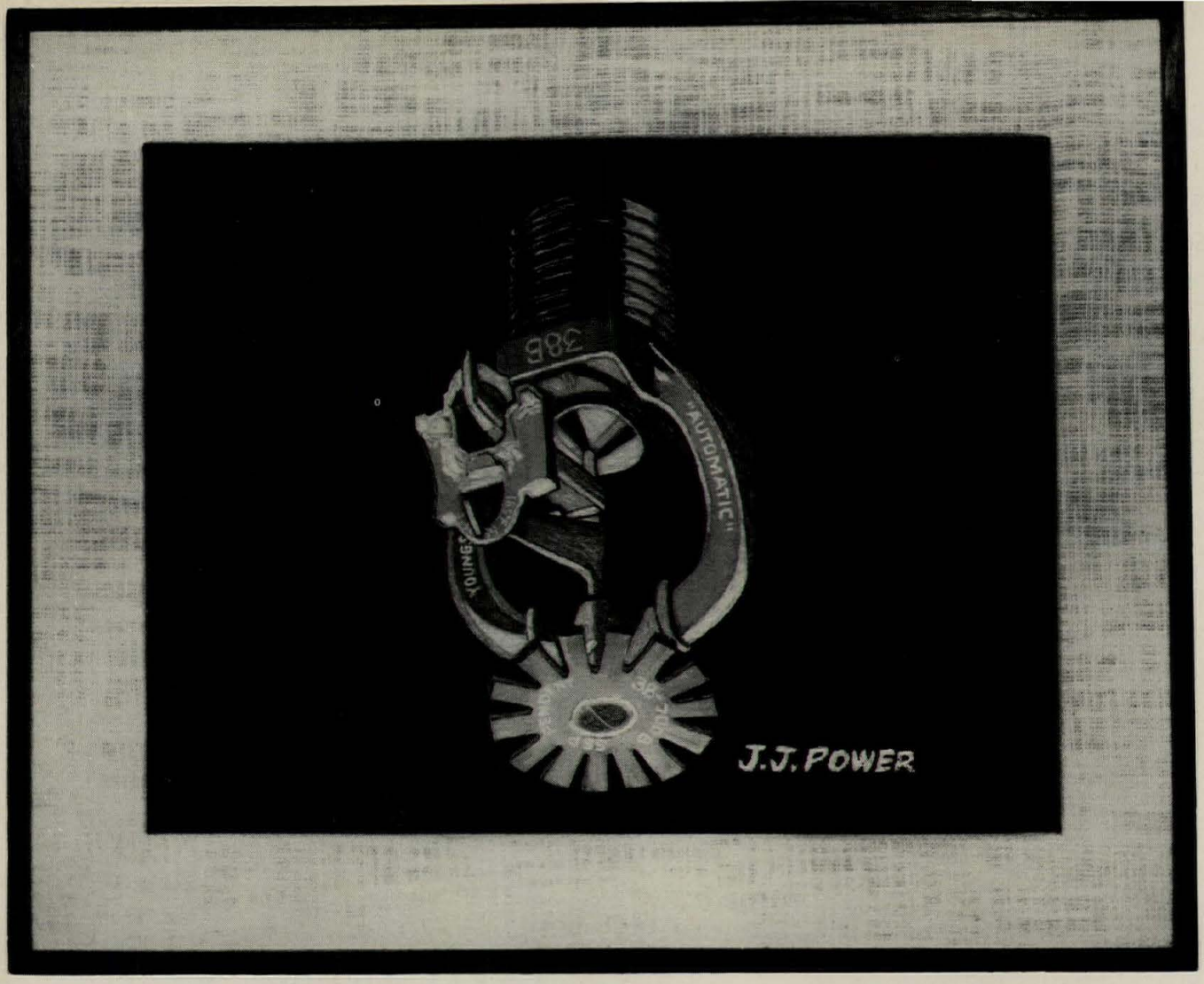
SCHOKBETON PRODUCTS CORP., 1270 AVE. OF AMERICAS, N.Y.C. 20, N.Y.—A SUBSIDIARY OF AMERICAN METAL CLIMAX, INC.




# You call it ugly. We call it art.

The aesthetics of sprinkler heads is a matter of point-of-view. We think we have enough ammunition to make you change yours. Or at least suppress it.

And start installing "Automatic" Sprinkler systems in every building you design.

Here goes:

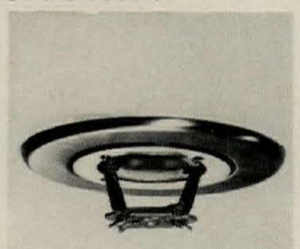
1. *Safety*. A school, hospital, hotel, shopping center, factory, warehouse, auditorium—in fact anywhere people gather or where contents are valued—is not safe from fire unless it has an "Automatic" Sprinkler system. No amount of fire insurance can reimburse the man whose livelihood has gone up in smoke, or who has lost his loved ones. (70% of all businesses that burn down die out. To say nothing of loss of life and property.)

2. *Economy*. You can deliver a sprinklered building to your customers for less money than an unsprinklered building. Because you get a much better break from building codes on your use and location of fire walls and choice of materials. In addition, your customer enjoys tremendous insurance savings on a sprinklered building.

He can cut premiums up to 90%. Just ask your "Automatic" man to work out actual savings with your client's insurance man.

So design freely. Use materials freely. Use space freely. Call or write "Automatic" Sprinkler for any information or specifications. If you like, we'll have a man from one of our 41 offices in your office on the double.

And if you're still aesthetically opposed to sprinkler heads, feast your eyes on this.



Our model 400. A recessed type that fits flush to the ceiling of fancy offices and reception areas.

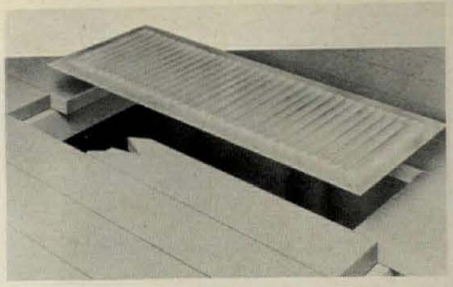
We think it's pretty enough to install in the Louvre. Or anywhere.

DON'T PLAY WITH FIRE. CALL US YESTERDAY.

"Automatic" Sprinkler
CORPORATION OF AMERICA
DEPT. AR-106 YOUNGSTOWN, OHIO 44501

Meet the growing family of "Automatic" Sprinkler: American LaFrance Division • "Auto-Grip" Division • "Automatic" Process Piping Co., Inc. • Badger Fire Extinguisher Company, Inc. • Fee & Mason Manufacturing Company, Inc. • Kersey Manufacturing Co. • Powhatan Brass & Iron Works • William Stanley Company

*continued from page 303*



**SKYLIGHTS** / This glass fiber model has a flat-bottom layer and a corrugated top layer with diffusion elements sandwiched in the center. The double construction is said to give insulation qualities equal to double-glazed windows. Load-bearing capacity is up to 300 lbs. per square yard. No base or trimming is needed, flashing is done with the top layer of roofing ▪ Euramco, Inc., Skokie, Ill.

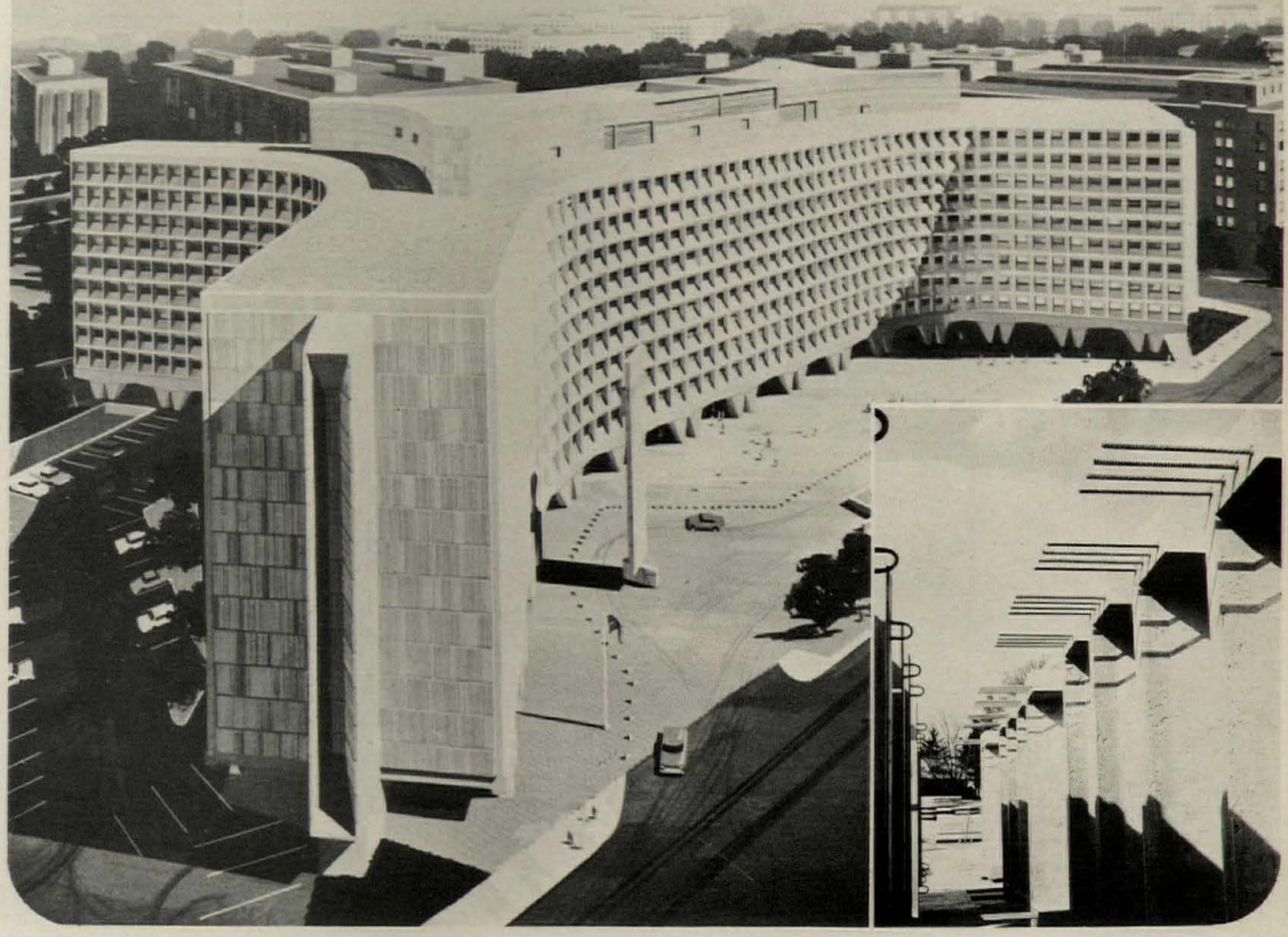
*Circle 325 on inquiry card*

**CEMENT COATING** / A sealed-in cement coating for spray-on use has been formulated for both northern and southern climates. The coating is used to beautify and protect exterior and interior masonry and wood walls, roofs, swimming pools, and in the construction and maintenance of hospital buildings, churches, bank buildings, schools, industrial plants, residential buildings, silos, tunnels and bridges. Said to be completely fireproof, waterproof, chip and peel-proof, and stain and chemical resistant, the cement has an unconditional 10-year guarantee. Letterhead inquiries. ▪ Constructo Chemical Industries, Inc., 28 West 44th St., New York City.

**CEILING VENTILATORS** / Units with six coil options, including two that utilize remotely located compressor-condenser sections, are said to operate at higher pressures than any ceiling units on the market. They are designed principally for complete automatic thermal conditioning of large classrooms, cafeterias, small auditoriums, and similar areas, but they may also be used in offices, hospital rooms and standard-size classrooms. ▪ American Air Filter Company, Inc., Louisville, Ky.

*Circle 326 on inquiry card*

# Zinc Prevents "Undercover" Corrosion



## To Give This Building A Beautiful Future

The Federal Government insured the beauty of Washington's new Department of Housing and Urban Development building by specifying that all reinforcing steel less than 2 inches from the surface be hot dip galvanized. ☐ This will protect the striking concrete and cast stone exterior against ugly stains and discoloration caused by rust bleeding through to the surface. The zinc galvanized reinforcing rod also eliminates any danger of cracking or spalling caused by the pressure of expanding rust. And the zinc coating on the rods actually provides a better bond with the concrete than is possible with uncoated steel. ☐ The inset photo shows the hot dip galvanized steel reinforcing rod extending from precast concrete wall panels. A total of 1,584 of these precast panels will be used in the building which is scheduled for occupancy late in 1967. ☐ When you specify materials remember that no other metal gives you the proven combination of strength, corrosion resistance and economy found in galvanized steel.

ST. JOE

**ST. JOSEPH LEAD COMPANY**

250 Park Avenue, New York, New York 10017

*St. Joe is a Major Supplier of Zinc to the Galvanizing Industry*

ZN-300


# Buy "piecemeal" troubles...

Suppose you do buy standby power in bits and pieces. Despite all kinds of paperwork, shipment and compatibility problems, you finally have everything together. And Voila! Wonder of all wonders! It's working!

So whom do you call when you need service?

Now's when the fine art of passing-the-buck can get a workout. You make phone calls. You write letters. You threaten and cajole. You get frustrated. And you still may not get results.

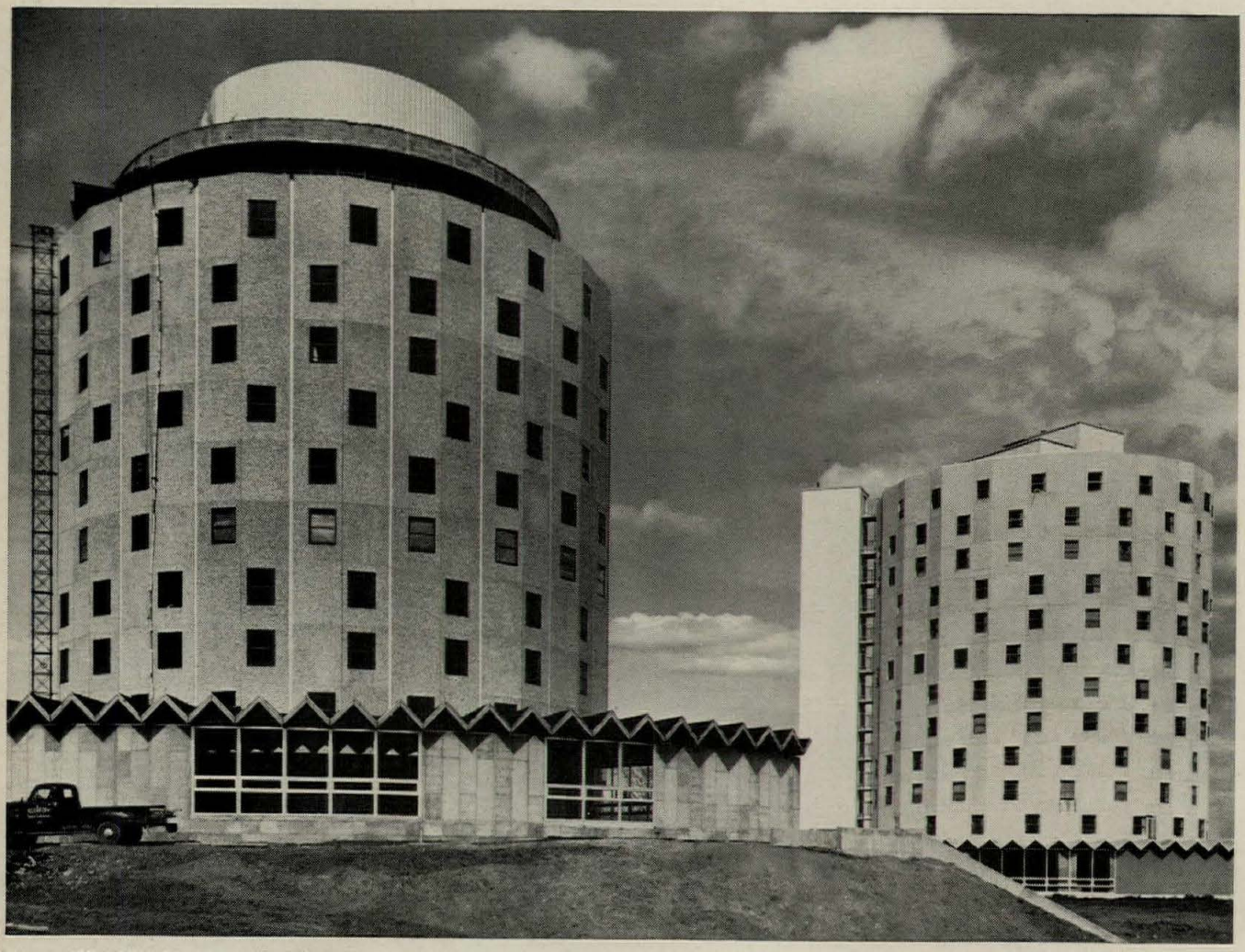
But when you specify Onan, you get Unit Responsibility all the way. Your Onan standby plant and all controls are assembled, tested, Performance Certified (an Onan exclusive), shipped, and installed as a unit . . . a smoothly functioning system . . . and *backed by an exclusive one-year warranty.*

Just one number to call for service: your local Onan distributor. He'll be on hand for startup, back for performance checks. He'll always be available any time you need him.

Why don't you call that number right now? It's in the Yellow Pages under "Generators—Electric". Talk to your Onan Distributor about the advantages of buying a complete Onan electric plant package. Or if you prefer, write or call direct.

**We build our future into every Onan® product**

# Now there are two



New GRAHAM M. DRESSLER HALL is in the foreground. It will house 342 students and has a penthouse meeting hall. GEORGE PEARCE HALL in background was completed in 1964 and houses 440 students. The pastel green of the new dormitory provides a pleasing color contrast with the light brown walls of the previous structure.

## Another circular dormitory uses Lehigh Cements throughout

The second circular dormitory at Eastern Washington State College is now ready for occupancy. It features 180 precast, exposed aggregate wall panels. Each panel, 14′ x 9′ x 4″, was made with Lehigh Type III Cement, white sand and green marble chips and marble dust. The central utility core was made of regular weight concrete erected by the slip form method. Floors of the main structure are cast-in-place lightweight concrete. The lounge floor is composed of 18 prestressed, tapered "T" beams and the roof is formed by 23 precast, tapered folded plate beams. Here, as in other important construction through the U.S., Lehigh Cements contributed materially to the success of the project—just as they did to the success of its earlier counterpart.

Lehigh Portland Cement Company, Allentown, Pa.

LEHIGH CEMENTS

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Eastern Washington State College, Cheney, Wash.

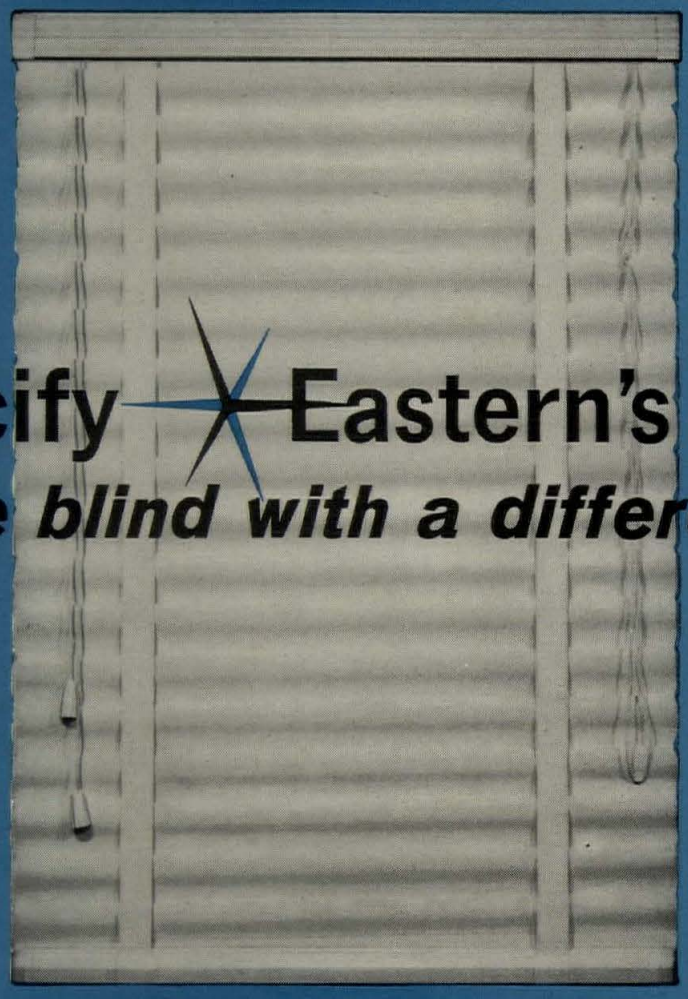
*Architect and Engineer*
Culler, Gale, Martell & Ericson, Architect
Norrie & Davis, Engineer, Spokane, Wash.

*General Contractor*
George Pearce Hall—H. Halvorson, Inc., Spokane, Wash.
Graham M. Dressler Hall—Selkirk Co., Spokane, Wash.

*Ready Mix Concrete*
Central Premix Concrete Co., Spokane, Wash.

*Precast & Prestressed Units*
Central Premix Concrete Co., Prestressed Division, Spokane, Wash.

# When paying for custom-made Venetians, don't settle for ordinary blinds



# Specify Eastern's Star

## ...the blind with a difference!

Unlike Eastern's Star, most custom-made Venetians have ordinary concave slats. **In appearance, they're identical to most stock blinds.** Fashioned with exclusive 2½-inch S-shaped slats, Eastern's Star blinds are distinctively different! They look smarter, perform better. Closed, the slats interlock to block out light. Open, their wider spacing allows up to 38% more visibility. Heavy-duty construction from head to rail assures longer, trouble-free service. Paying for custom . . .? **Insist on the Venetian blinds with a difference: Eastern's Star!** Write for the complete Eastern's Star story now . . . or see Sweet's 18d/Ea.

Eastern Products Corporation

Subsidiary of Geo. D. Roper Corp.

**VENETIAN BLINDS**

*Horizontals / Verticals / Audio-Visuals*

**CUSTOM-MADE BY FRANCHISED DEALERS THROUGHOUT THE U.S. AND CANADA**

Eastern Products Corporation, 1601 Wicomico St., Baltimore, Md. 21230

*For more data, circle 152 on inquiry card*

*continued from page 234*

**HYDRONIC HEATING UNITS** / Two 4-page brochures provide complete information on home or commercial electric heating units that take about as much space as a small television set. The units provide modulated circulation for all types of hot water baseboard units in new or existing buildings. ▪ Singer, Climate Control Division, Auburn, N.Y.

*Circle 413 on inquiry card*

**TRUSSLESS STEEL BUILDINGS** / A 4-page brochure gives information on prefabricated, corrugated, modular steel panels that can be bolted together on the site to form a self-supporting structure. Suggested uses include housing, swimming pools, tennis courts, gymnasiums and other recreational activities. ▪ Wonder Trussless Building, Inc., Chicago.

*Circle 414 on inquiry card*

**PLASTIC-COATED WINDOWS** / A 24-page brochure describes steel windows with a polyvinyl-chloride polymer coating. Included is a sample of the plastic coating plus results of standard ASTM weatherometer, salt spray, water immersion and abrasion tests. Also included is information on color samples, kinds of windows, subframes and curtain wall components available and a list of representative industrial, commercial and institutional buildings in which the windows have been installed. ▪ The Ceco Corporation, Chicago.*

*Circle 415 on inquiry card*

**SHUTTERS** / A complete collection of wood shutters is presented in a handsome 24-page color catalog. Pictured are ideas for window treatments in every room of the house as well as for louvered doors and storage walls. Included is a color- and stain-selection guide and a new group of decorative hardware knobs and pulls. ▪ Joanna Western Mills Co., Chicago.*

*Circle 416 on inquiry card*

**DRAFTING FURNITURE** / A 36-page illustrated catalog and accompanying brochure present automatically adjustable drafting table/desk combination units for large or small offices and for schools. In addition, there is accessory furniture such as reference desks, work tables, utility cabinets and book shelves, and a complete roster of blueprint filing systems for vertical, flat, or tube filing. ▪ Stacor Corporation, Newark, N.J.

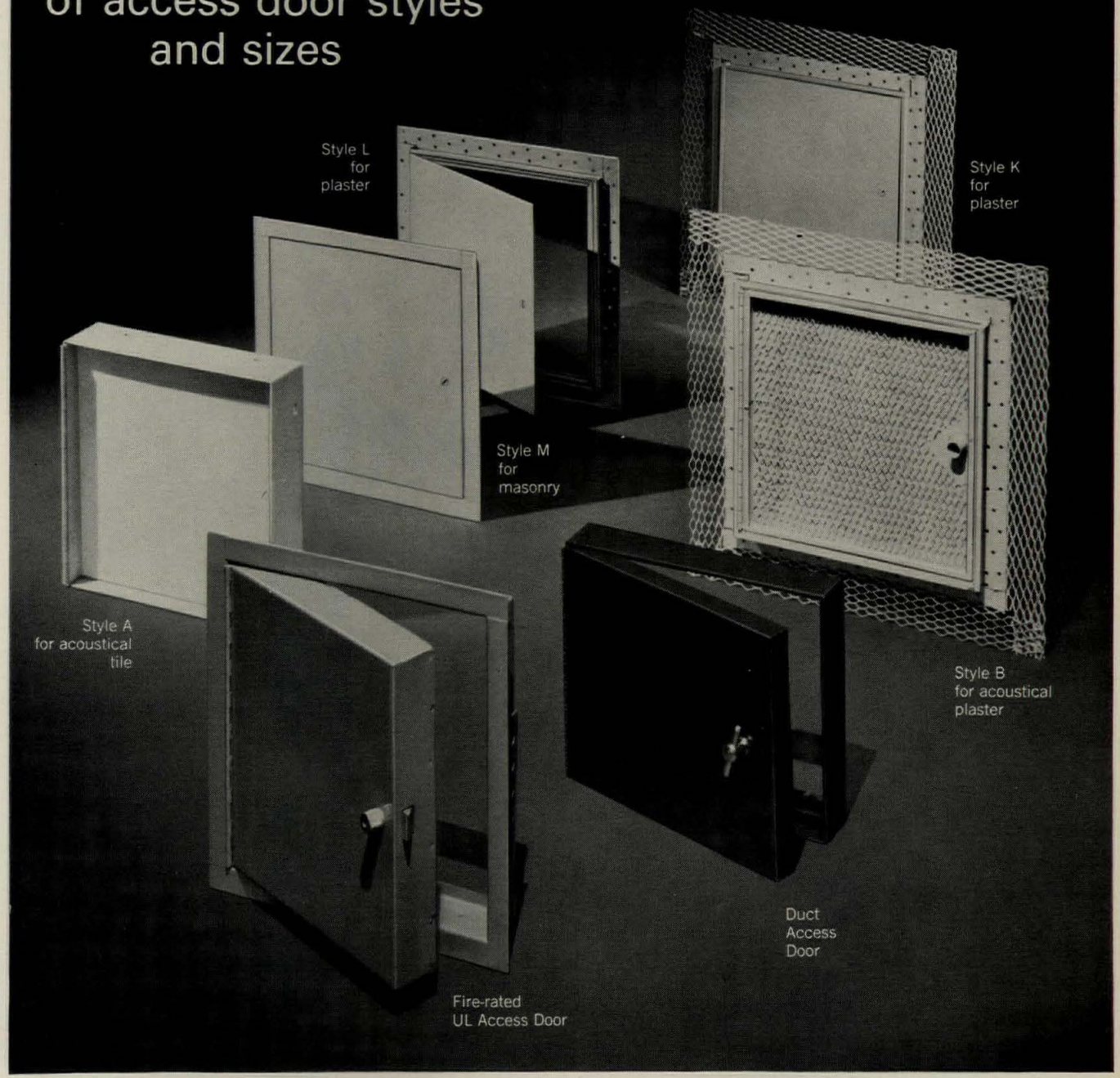
*Circle 417 on inquiry card*

**Additional product information in Sweet's Architectural File*

*more literature on page 318*

# COMPLETE SELECTION

## of access door styles and sizes




In buildings everywhere, Milcor Steel Access Doors provide service openings in any surface without encroaching upon design. They are carefully made and rigidly constructed for minimum maintenance—economically installed, without on-site cutting and fitting—readily available in seven styles and a wide range of sizes. See Sweet's, section 16K/In. Write for catalog 210-6.

MILCOR®
STEEL ACCESS DOORS

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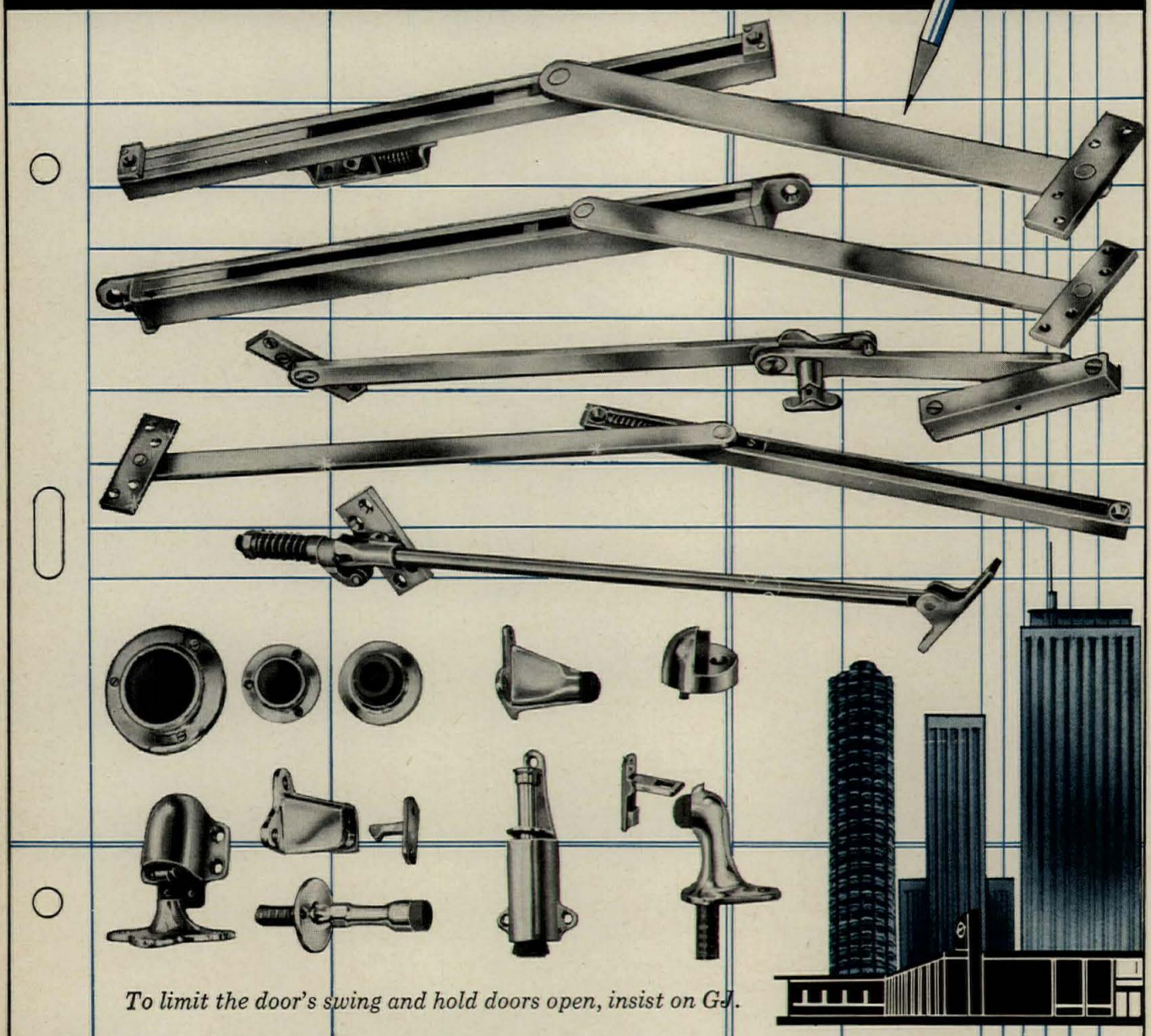

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*Write for Catalog / See Weis in Sweet's*

continued from page 314

**PASSENGER ELEVATOR** / A 20-page catalog contains illustrations and preliminary information for planning vertical transportation for office buildings, hospitals, universities, apartments, factories and financial institutions. ▪ Dover Corporation, Elevator Division, Memphis.

*Circle 418 on inquiry card*

**PARKING LOT BARRIERS** / A 32-page book shows six types of wheel-stopping barriers for parking lots. In addition, there are basic plans for lots of many sizes and shapes. Dimensions of new cars are shown, including front and rear overhang, along with angles for approach, departure and bottoming. ▪ Harris-Barrier, Inc., Indianapolis.

*Circle 419 on inquiry card*

**HARDBOARD FIRE TESTS** / A series of fire tests using hardboard paneling, red oak flooring and existing plaster as corridor wall linings has been recorded in a bulletin published by the National Fire Protection Association. The 13-page bulletin contains detailed information and diagrams on the tests and reports that hardboard reacted favorably under the actual fire conditions. ▪ American Hardboard Association, Chicago.

*Circle 420 on inquiry card*

**SOUND-DAMPING BOARD**/A revised 12-page booklet illustrates typical applications. Installation procedures and physical, acoustical and fire-resistant properties are also outlined. ▪ Monsanto Company, Building Products Department, St. Louis, Mo.

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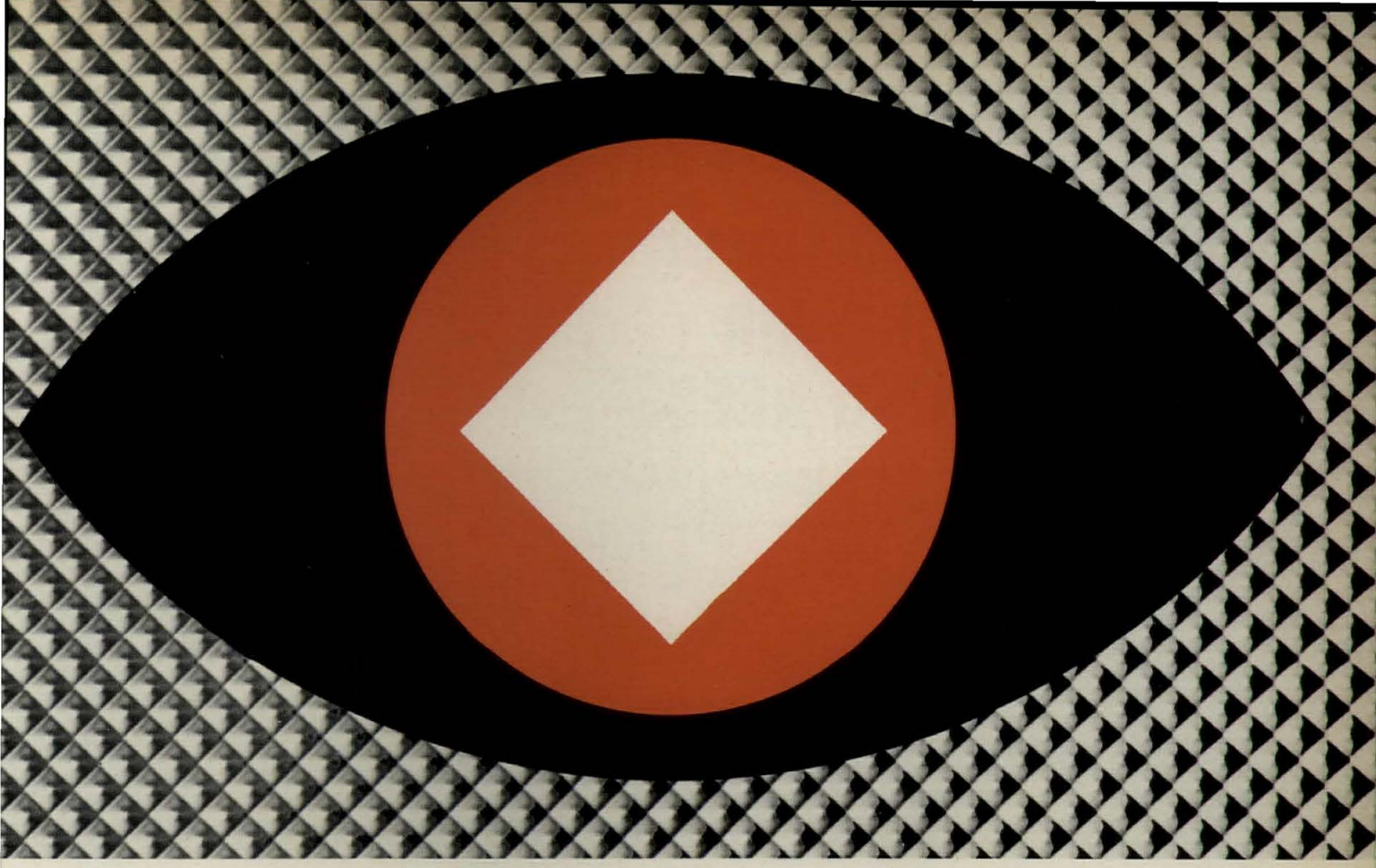
**COMPACT BOILERS** / A colorful 8-page brochure describes the Model 3 boilers that are never larger than 6 ft 2 in. The brochure explains various applications for low- and high-pressure steam. Such applications include heating of buildings or swimming pools, snow melting, and supplying constant steam and hot water for hospitals, laundries, laboratories and others. ▪ Cleaver-Brooks Company, Milwaukee.

*Circle 422 on inquiry card*

**NOISE CONTROL** / "What Can We Do About Noise?" is a 4-page bulletin which describes five basic classifications of industrial noises and discusses six principal methods of controlling it. ▪ Industrial Acoustics Company, Inc., New York City.

*Circle 423 on inquiry card*

**Additional product information in Sweet's Architectural File*



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Mechanical Engineer: Hellman & Lober
Mechanical Contractor: F. B. Gardner Company
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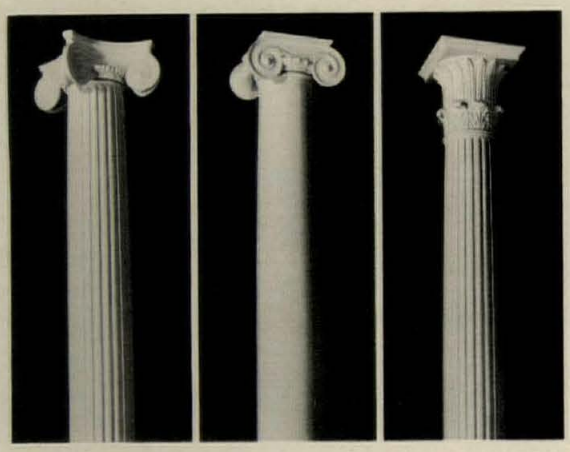

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Phone 312-439-5600

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# ON THE CALENDAR

OCTOBER

**17-21** Annual Meeting and Transportation Engineering Conference, American Society of Civil Engineers—Sheraton Hotel, Philadelphia.

**24-28** Fall Convention, American Concrete Institute—Jung Hotel, New Orleans.

**26-29** "Architecture's Challenge—America's Future," American Institute of Architects South Atlantic Regional Conference—Queen Charlotte Hotel, Charlotte, N.C.

**27-29** "Toward a More Livable City," Regional Symposium of the Pennsylvania Chapter, American Society of Landscape Architects—Hotel Hershey, Hershey, Pa.

NOVEMBER

**21-22** Eleventh Annual Meeting, National Better Heating-Cooling Council—Summit Hotel, New York City.

DECEMBER

**4-8** Annual Convention-Exposition, National Association of Home Builders—Chicago.

# OFFICE NOTES

OFFICES OPENED

**Joel H. Vicars, A.R.A., Architect,** of Wise, Va., has opened an additional office, **Comprehensive Design Collaborative,** at South Mayo Trail, Pikeville, Ky.

**Donald L. Hardison, A.I.A.** and **S. Richard Komatsu, A.I.A.** have opened an office in Jackson Square, San Francisco. They have offices also at 522 Washington St., San Francisco, and 160 Broadway, Richmond, Calif.

The architectural firm of **Hellmuth, Obata & Kassabaum, Inc.** of St. Louis has opened an office at Kearny St., San Francisco. Additional office quarters have been taken at 8584 Melrose Ave., Los Angeles. **Dudley F. Wynkoop** is in charge of Western operations.

**Gene R. Summers, A.I.A.,** formerly with Mies van der Rohe, has opened an office at 200 East Ontario St., Chicago.

**James L. Wadley** has opened an office at 970 Clark Ave., Uba City, Calif.

The firm of **Woodward, Clyde, Sherard & Associates,** consulting engineers

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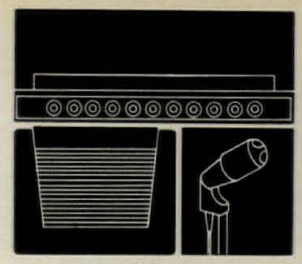
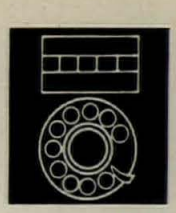
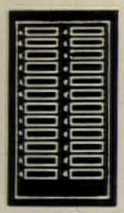
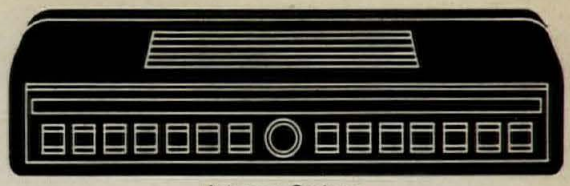


Sound Systems



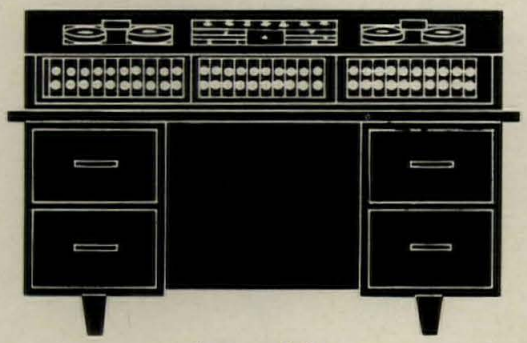


Personnel Registry Systems



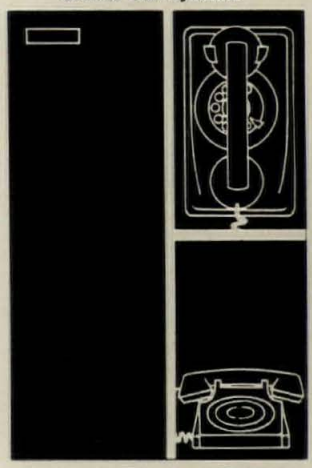
Intercom Systems

Central Call Systems

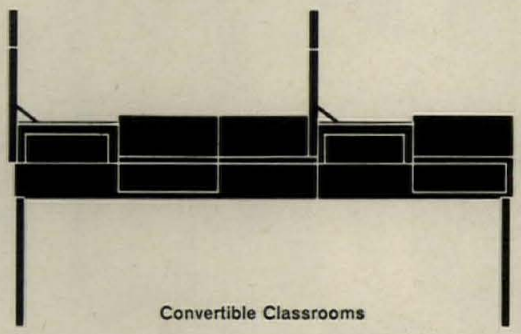


Language Labs

Nurse's Call Systems



Automatic Telephone Systems



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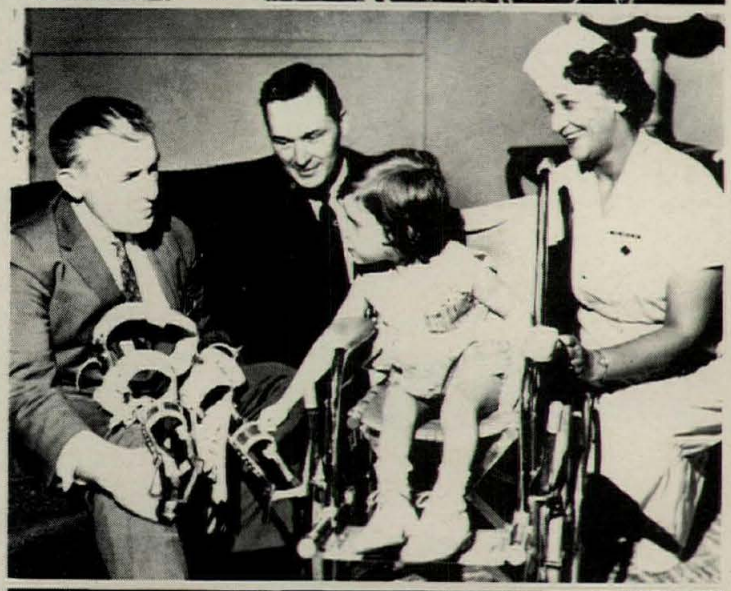
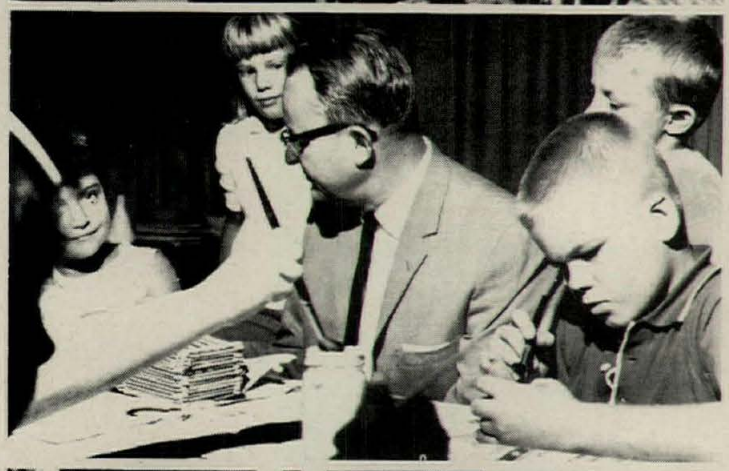
School principals study a United Fund agency that provides the handicapped with both vocational training and work.

Attorneys, members of a United Fund campaign committee, visit an agency that helps youth, the aged and the needy.



Union leaders chat with a child being helped by rehabilitation, nursing and other United Fund services.



An industrialist inspects an agency that provides a "day camp" for children of working mothers.

Bank presidents call on a family whose three children were adopted through an agency of the United Fund.

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*For more data, circle 164 on inquiry card*

*continued from page 322*

and geologists, has opened a New York City affiliate of its San Francisco-based firm at 277 Park Ave.

NEW FIRMS, FIRM CHANGES

**Leonard Busch,** whose structural consulting engineering firm is at 211 Academy St., Trenton, N.J., has formed a partnership, to be known as **Leonard Busch Associates,** with **Philip Paul** as partner.

Associateships in the Australian-based firm of **Crooks, Michell, Peacock & Stewart** have been accepted by **N. C. Lowe** of Sydney, **J. W. Nairn** of Melbourne, **R. J. Jackson** of Newcastle, **W. R. Millar** of Kuala Lumpur, **E. R. Patterson** of Sydney, **M. Lloyd Jones** of Sydney, **L. P. Hurst** of Sydney, Engineers; and **K. McDowell** of Sydney, Architect.

**Frank E. Miller** has become a partner in the Princeton, N.J. firm of Diehl and Stein. The firm, at 4 Chambers St., will practice as **Diehl Stein Miller, Architects.**

**William J. Donovan** has opened a consulting engineering firm to be known as **Donovan Associates,** at 740 North Main St., West Hartford, Conn.

**Selwyn Bloome** and **Norman D. Kurtz** have been admitted to partnership in the firm of **Fred S. Dubin Associates, Consulting Engineers.**

The Chicago firm of **A. Epstein and Sons, Inc.,** engineers and architects, has named **S. Ernest Pepe** senior vice president; **Garfield S. Rawitxch** administrative vice president; **Marvin L. Mass** and **Joseph A. Vedra** vice presidents and members of the newly-created project management committee. Associates **Lawrence Amstadter, Leo D. Chicca** and **J. Stewart Stein** have also been named to the management committee.

**Wynant D. Vanderpool, Jr., A.I.A.,** has become an associate of the firm **Faulkner, Stenhouse, Fryer and Faulkner.**

**T. F. Fitzgerald** and **William S. Kaplan** have consolidated their former structural engineering practices to form a partnership with **C. D. Elfers** as an associate. The new firm will be known as **Fitzgerald & Kaplan, Structural Engineers,** 149 California St., San Francisco.

**Elliott M. Glass, A.I.A.** has joined the firm of M. Milton Glass A.I.A., Architect. The new firm will be known as **Glass & Glass, Architects,** 31 Union Square West, New York City.

**Theodore E. Kurz, A.I.A.** has joined **Glen Paulsen and Associates, Architects** of Bloomfield Hills, Mich. as a principal.

**Burt M. Richmond** has become manager of business planning for **I.S.D. Inc.,** Interior Space Designers of New York, and Chicago.

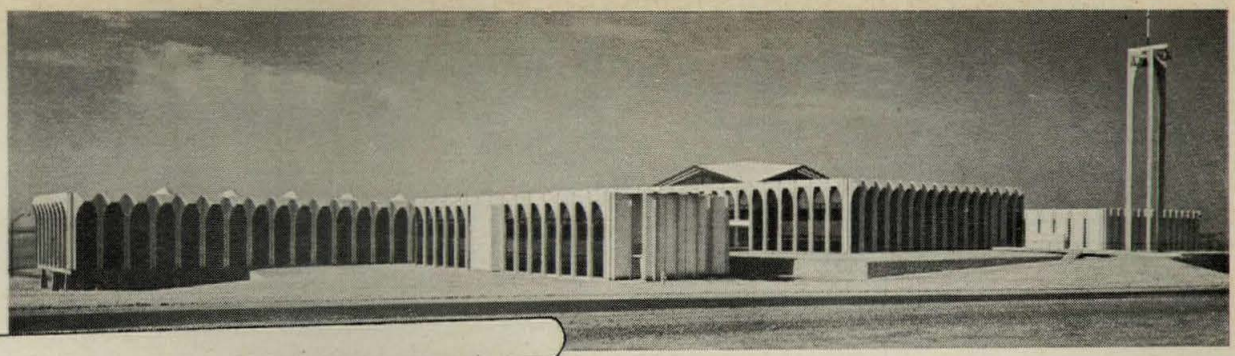
**Edmund J. Sebastian** has joined **P&W Engineers, Inc.** of Chicago as vice president of mechanical engineering.

**I. M. Pei & Associates** has become **I. M. Pei & Partners,** headed by **I. M. Pei, Eason H. Leonard, Henry N. Cobb and Araldo A. Cossutta.** Senior Associates are **Leonard Jacobson, James I. Freed and Werner Wandelmaier.** Associates are **Pershing Wong, Owren J. Aftreth, Kenneth D. B. Carruthers, Lien C. Chen, Robert Lym, Jr., A. Preston Moore, James P. Morris, Theodore J. Musho, James A. Nash, Shelton R. Peed and Kellogg H. Wong.** Senior planner is **August Nakagawa** and business manager is **Robert J. Hagelin.** The offices are now located at 600 Madison Avenue, New York City.

**The Perkins & Will Partnership,** architects of Chicago, New York and Washington, has elected **Morton Hartman, A.I.A.** a partner.

**Richard, Bauer & Moorhead,** Toledo architectural and engineering firm, has announced three new associ-

*continued on page 336*



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***PRODUCT DESCRIPTION:*** A modified clorinated rubber sealer. Recommended to properly cure concrete. It is commonly used to fill and seal porous masonry-type floors. Protects surface, improves appearance and provides base for final wax or finish coats.

***SPECIFICATION AND HOW TO APPLY:*** Onto a perfectly clean, stain-free floor, apply Cem-Seal in an even coat with lamb's wool applicator. Avoid puddling. After drying thoroughly, apply two thin coats of Super Hil-Brite carnauba wax with a new lamb's wool applicator, again being careful not to puddle. On large, open exterior areas, Cem-Seal may be sprayed.

***DRYING TIME:*** Cem-Seal—two hours in normal weather conditions; Super Hil-Brite wax – 30 minutes.

***COVERAGE:*** 500-700 square feet per gallon depending upon the porosity of the floor.

***TECHNICAL DATA:*** N.V.M.—20%. Viscosity—Gardner A-2—A-5. Color—Gardner max. 6. A clear liquid with no sediment or suspended matter. The product shall comply with ASTM C156-55T, water retention efficiency of liquid membrane forming compounds for concrete curing.

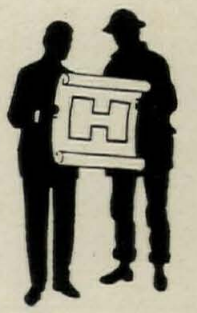
***GUARANTEE:*** When applied in accordance with manufacturer's directions, it is guaranteed to meet all claims made.

***MAINTAIN WITH THESE HILLYARD PRODUCTS:*** Sweep daily with a Super Hil-Tone treated dust mop. Buff periodically. When floor is soiled, clean with Super Shine-All or with Clean-O-Lite (if a cleaner-sanitizer is desired). Traffic lanes may be patched in with Super Hil-Brite carnauba wax and buffed to blend with entire floor.

***APPROVALS:*** All Hillyard products mentioned are listed by the Underwriters' Laboratories as slip resistant.

***EXCEPTIONS:*** Do not use Cem-Seal on light-colored masonry type flooring. Contact Hillyard for specification.

***REFERENCES:*** Sweet's Architectural File, A.I.A. Building Products Register, Hillyard A.I.A. File No. 25G.



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*The most widely recommended and approved treatments for every surface*

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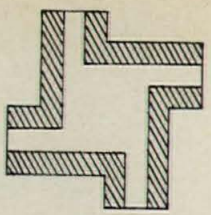
## The formal generators of masonry structure:

# The pinwheel



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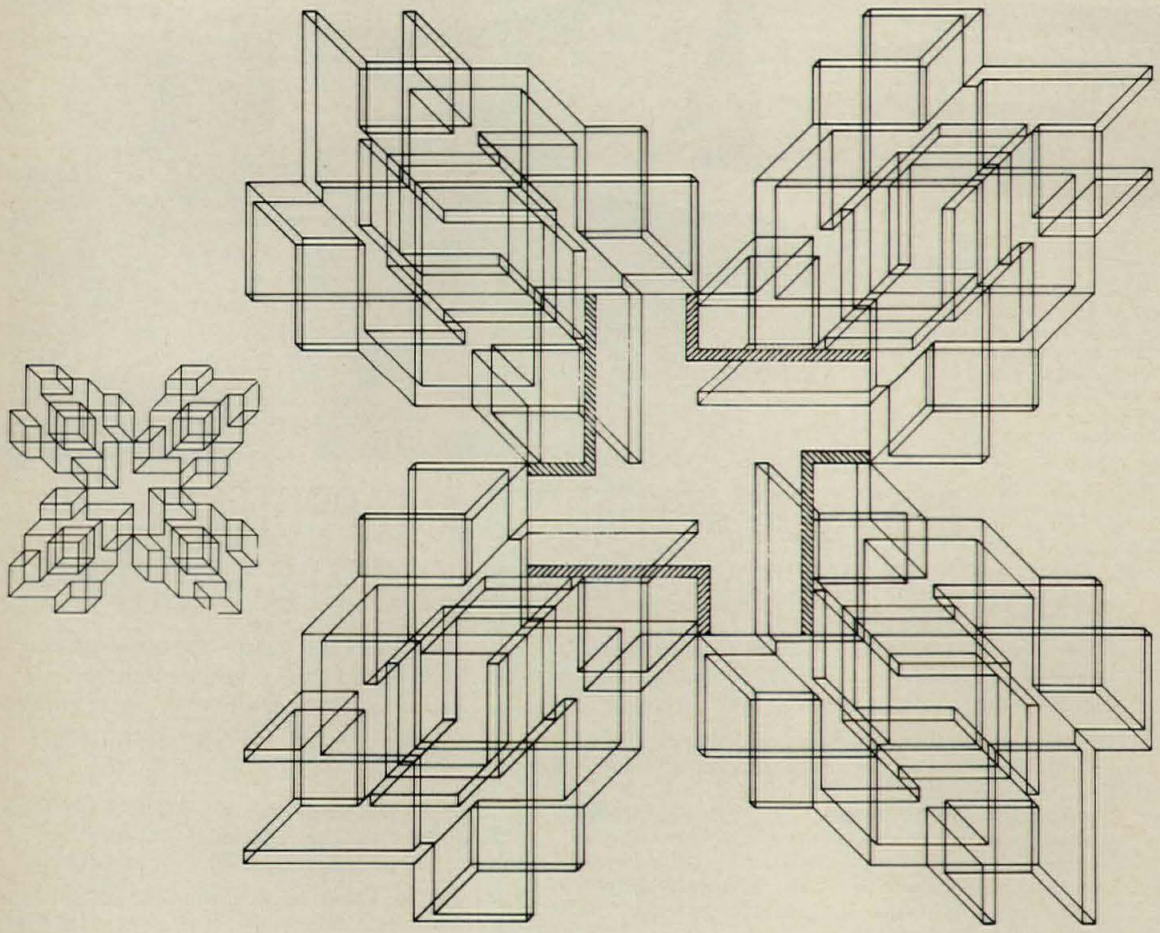
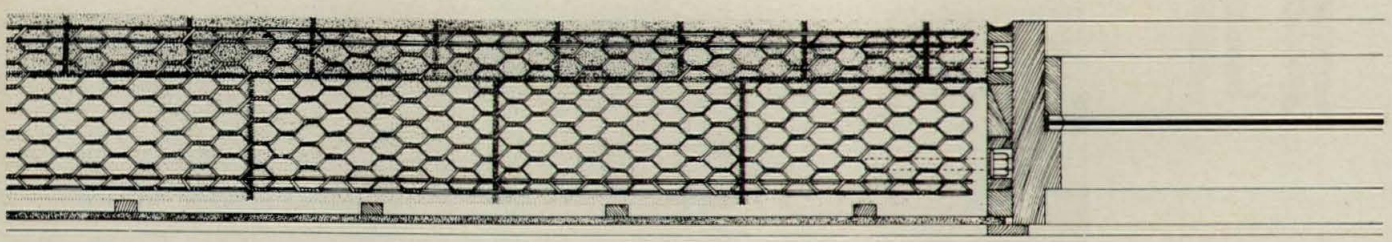
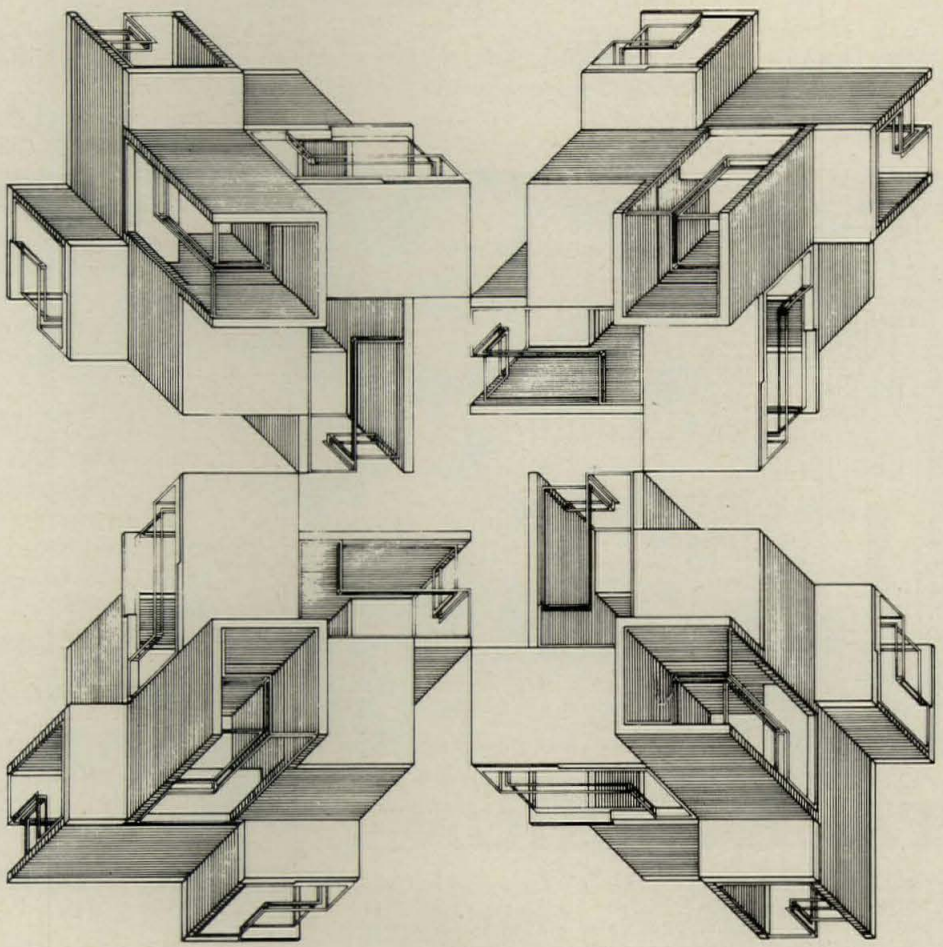


The exploration of masonry's formal generators is continued here by architect Stanley Tigerman. From a pinwheel projected three dimensionally, Mr. Tigerman proceeds from parti to floor plan to complete structure—here utilizing load-bearing walls. You are looking at the top of the complete structure.

Throughout this series, we shall continue to show how the basic orthogonal shapes of masonry construction—the square, lozenge, rectangle, pinwheel, cross and linked form—can be developed and projected. We hope the drawings offered here will serve as both idea-stimulators and time-savers.



Jamb sections: 12" masonry wall, 4" face brick, 8" block, and ½" taped sheet rock on 1" x 2"'s. Wood fixed sash with ¼" plate glass.



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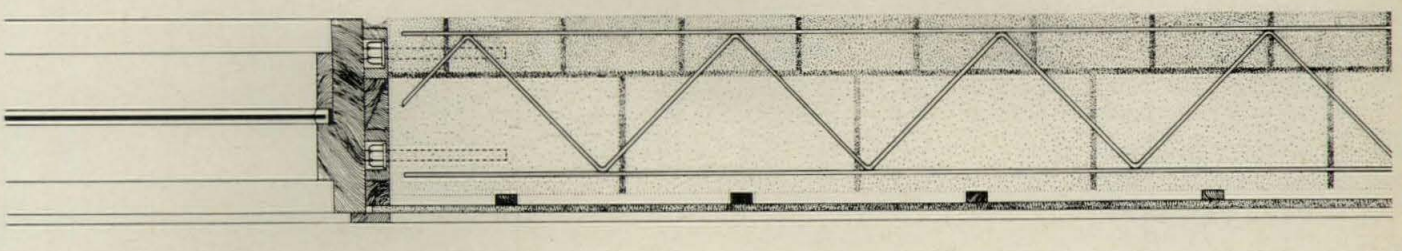
Peoria, Illinois 61607



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*continued from page 326*

ates and five senior associates. The associates are **John W. Raggon,** construction superintendent; **Gerald L. Heiser,** chief mechanical engineer; and **Michael G. Rousos,** assistant chief structural engineer. Senior associates are **H. Lee Smith, Charles H. Stark, III** and **Leland E. Moree,** architects; **Dean L. Lashbrook,** chief structural engineer and **Robert W. McMahon,** chief electrical engineer.

The merger of **Leslie R. Winsauer, A.I.A.** and **Robert C. Taylor, A.I.A.** has formed the architectural practice of **Winsauer-Taylor and Associates Incorporated,** 212 S. Marion St., Oak Park, Ill.

## NEW ADDRESSES

**Affleck Desbarats Dimakopoulos Lebensold Sise, Architects in Copartnership,** 8th Floor, Read Building, 1015 St., Montreal 3, Que.

**Armand Bartos and Associates, Architects,** 200 Madison Ave., New York City.

**H. J. Degenkolb & Associates, Consulting Engineers,** 86 Third St., Suite 500, San Francisco, Calif.

**Derthick & Henley, Architects,** Gateway Professional Building, Chattanooga, Tenn.

**Lathrop Douglass, Architect,** 521 Fifth Ave., New York City.

**Fred S. Dubin Associates, Consulting Engineers,** 312 Park Rd., West Hartford, Conn.

**Earl R. Flansburgh & Associates, Architects,** 119 Mt. Auburn St., Cambridge, Mass.

**Dales Y. Foster, A.I.A., Architect,** 7th Floor, LTV Tower, National Bank of Commerce Building, Dallas.

**Joseph S. Gelfarb, Architect, A.I.A.,** 909 C. South Hill St., Oceanside, Calif.

**Arnold S. Rinaldi, Architect,** 91 North Franklin St., Hempstead, N.Y.

**Bernard Rothzeid, A.I.A., Architect,** 104 East 40th St., New York City.

**Samion Associates, Architects,** 435 West 22nd, New York City.

## ADDENDUM

In the news story "World Trade Center will start construction" (September, page 36) the architectural credits for the project should have read "designed by Minoru Yamasaki and Associates and Emery Roth & Sons."

# WHAT'S SO DIFFERENT ABOUT U/R FIBERGLASS FIXTURES?

METEOR NEW! Full-width, one-piece bathtub and three integral walls with back-wall vertical recess design motif which includes grab bar and soap dish. One-piece unit is lightweight and mobile . . . one man can handle, two can easily install. Goes in place quickly for faster plumbing hookup.

EVERYTHING! They're one-piece. Bathtub or shower with three integral walls are molded *absolutely leakproof* all-in-one. Saves time, money and labor with its revolutionary new method of installation during framing. One or two men lift, set in place, nail flanges, and it's ready for plumbing hookup. No grouting. No seams. No unsightly tile lines. Stain-proof. Chip-resistant. Rust-proof. Easy to clean and maintain, too. No scouring or scrubbing. U/R fiberglass fixtures stay glistening with ordinary liquid household detergent.

U/R Uni-Baths and Uni-Showers are NAHB tested and passed for scrubbing, staining, cleanability, wear and strength. Available to meet all specifications in white and five decorator pastels color-matched to other handsome U/R china and cast iron lavatories and water closets.

ADD BOLD BATHROOM HIGHLIGHT COLORS—U/R enameled cast iron counter top lavatories in round and oval shapes now dramatize the bath in Avocado, Butterscotch, Tomato, Larkspur, Apricot, Fern and Cocoa. Select a Highlight Color for the lavatory and then choose pastels or white for bathtub and water closet. New! Different! Smart!

Before specifying another project, it'll make good design and business sense to discover how U/R vitreous china, cast iron enamel and fiberglass plumbing fixtures and chrome brass fittings can help set the pace for residential, commercial and institutional installations.

SPA NEW! One-piece shower stall with integral corner seat molded all-in-one. 60" wide with 3 walls 75" high. Recessed soap dish and grab bar. Non-skid safety bottom. In demand for senior citizen dwellings and nursing homes. Other U/R fiberglass shower units available in 36", 48", and 54" widths.

HIGHLIGHT COLORS NEW! Bright, bold, beautiful colors —for an exciting new bathroom decorating dimension. Enameled cast iron counter top lavatories in both the oval Orion and the round Orbit. Luxury trim fittings in chrome or gold plate.

UNIVERSAL-RUNDLE CORPORATION

**UNIVERSAL-RUNDLE CORPORATION**
New Castle, Pennsylvania 16101

Tomorrow's plumbing fixtures here today!

Send U/R's smart, new ideas in fixtures, fittings, fiberglass and Highlight Colors.

NAME_____

FIRM_____

ADDRESS_____

CITY_____ STATE_____ ZIP_____


# 12 hours later this Lennox DMS unit was

## So what?

The building was running 45 days ahead of schedule. This Lennox Direct Multizone System helped keep it there.

Here's how: This is a complete heating, ventilating, air conditioning system, with all controls and components factory installed, wired and tested.

It thus permits architects and engineers to meet virtually any time schedule. It also offers a new degree of design flexibility. And a new level of sophistication in climate control. And true single-source responsibility.

It is an overhead system with flexible ducts that permit easy alteration of interior spaces.

Each unit will heat and cool up to 12 different zones at the same time (or more if you design a dual duct system with mixing boxes). Individual zone by zone control is provided.

The system cools free with outdoor air at any temperature under 57°.

It ventilates continuously. It filters continuously. It controls humidity.

It's the quietest system available.

# cooling this building 2400 miles away

And lightest for its capacity (up to 22 tons cooling, 490,000 Btuh heating).

It permits progressive, modular occupancy. And installs on the roof to conserve costly floor space.

It offers a choice of gas, electricity, or hot water as a heat source.

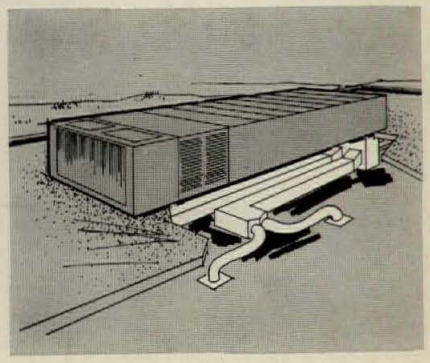
What are you designing? An office, school, or church? A clinic, laboratory, apartment, plant?

You can occupy earlier, alter more freely, with a series of Lennox DMS units on the roof.

For information, write Lennox Industries Inc., 683 South 12th Ave., Marshalltown, Iowa.

**LENNOX**®

AIR CONDITIONING • HEATING



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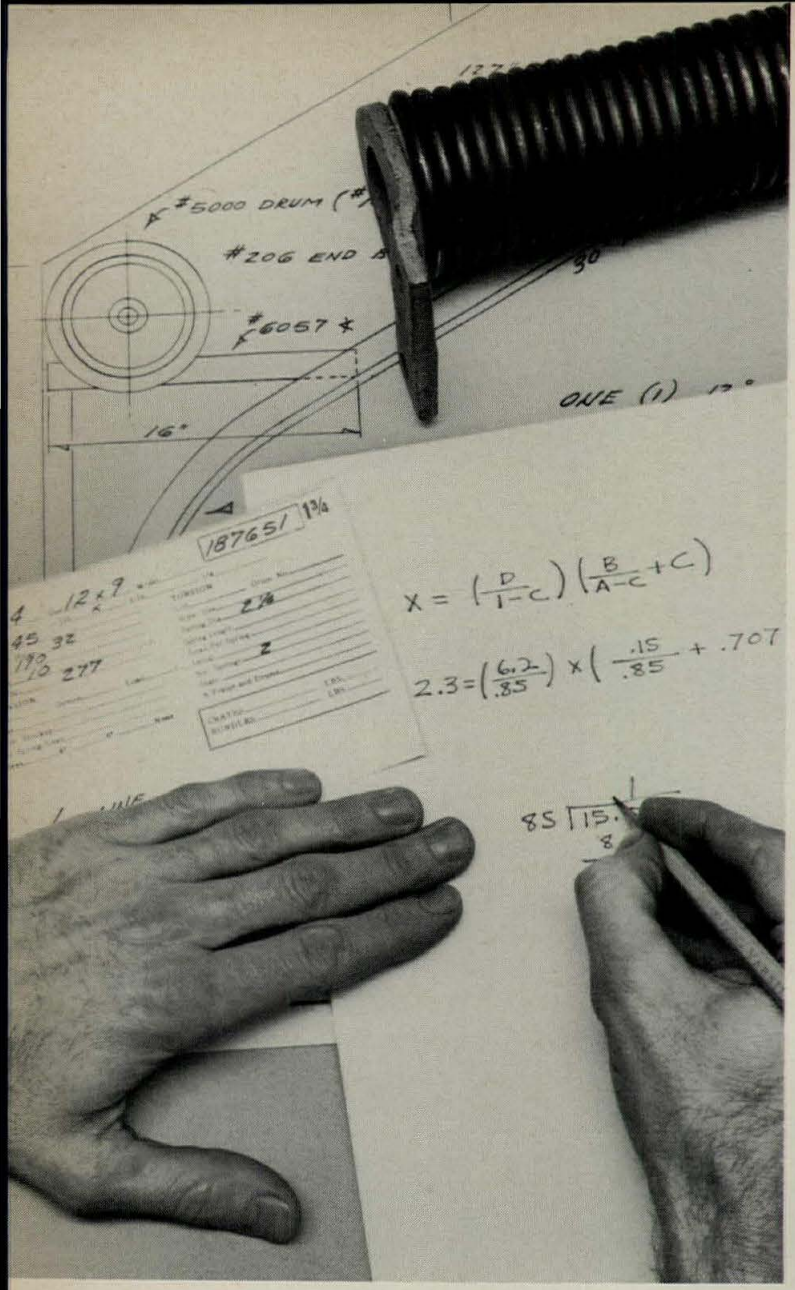



# Raynor custom winds springs for each overhead-type door. Why doesn't everyone?

Raynor calibrates each spring to within a half pound of the finish door weight! (Including paint, glass, hardware, etc.) This is costly. It also takes costly time and special machines to custom wind and load test every spring. But, Raynor knows it's the only way to assure perfect balance and longer life in overhead-type doors. That's one reason why all Raynor doors — wood, Raylon (fiberglass), aluminum or steel — give extra years of smooth, trouble-free operation. And every Raynor door is permanently registered on data film for positive identification and quick replacement of damaged parts years from now.

RAYNOR
The Brand You Can Depend On

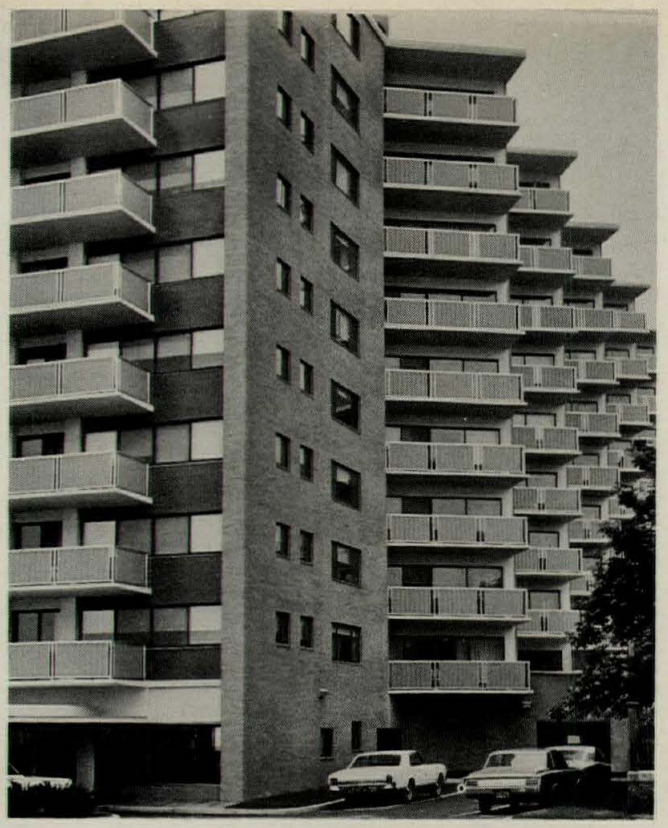
**Raynor Manufacturing Company, Dixon, Illinois, Dept. H**
Please send me free literature on Raynor garage doors.

NAME _____

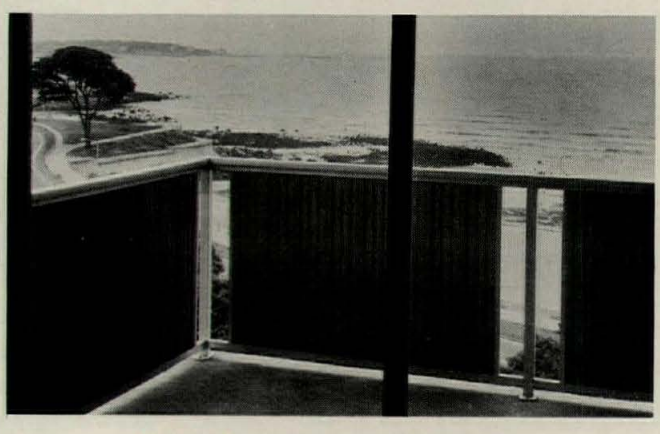
ADDRESS _____

CITY _____ STATE _____ ZIP _____

*For more data, circle 175 on inquiry card*



# Anchor® railing systems for beauty and protection



300 Lynn Shore Drive, Lynn, Massachusetts

Anchor Railing Systems can set your property apart with style and safety features that appeal to both prospects and tenants . . . at low initial cost and with the low maintenance advantages of all-aluminum. Ideal for balconies, divider panels and sun decks.

You'll find a style with special appeal for you in the Anchor line: vertical square pickets, colored panels and Modernmesh® — all made beautifully of rust-proof aluminum.

For beauty, quality and protection, be sure you choose Anchor. For detailed information, call your local Anchor man. Or, for 4-color catalog, write: Anchor Post Products, Inc., Dept. H-10, 6500 Eastern Avenue, Baltimore, Maryland 21224

ANCHOR POST PRODUCTS, INC.

Plants in Baltimore, Houston, Los Angeles. Sold direct from factory branches in principal cities.

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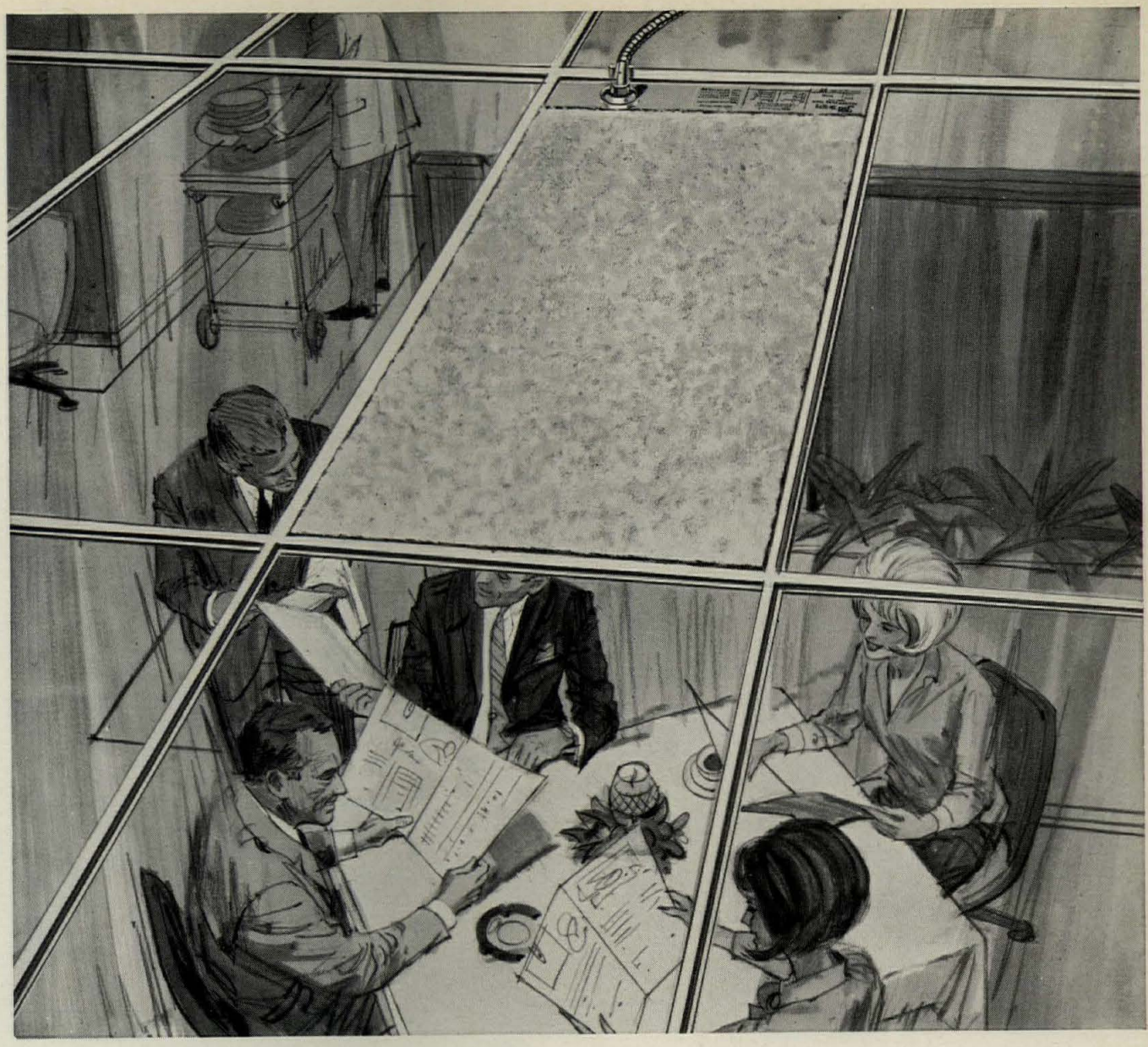
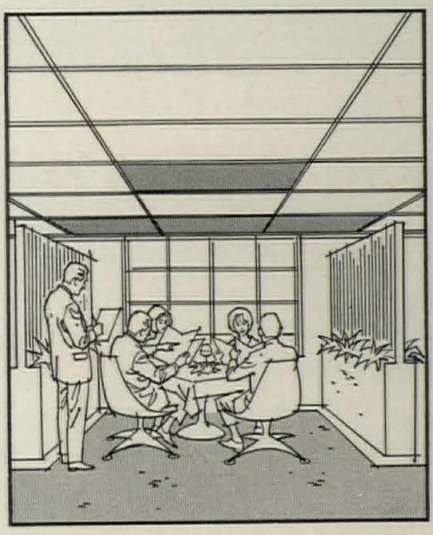


# If your clients cater to comfort, why not drop in a heating system like this?



## *T-bar Ceiling Heat, using new 3M Brand Radiant Electric Heating Panels.*

Even a gourmet dinner is more enjoyable if the diners are comfortable. And they will be. Everyone is, with a heating system incorporating new 3M heating panels.

They radiate gentle sun-like warmth. There are no drafts. The floor stays warm. Each room is thermostatically controlled. They are ideal for maximum comfort total heat, or for supplementing a central system in high heat loss areas.

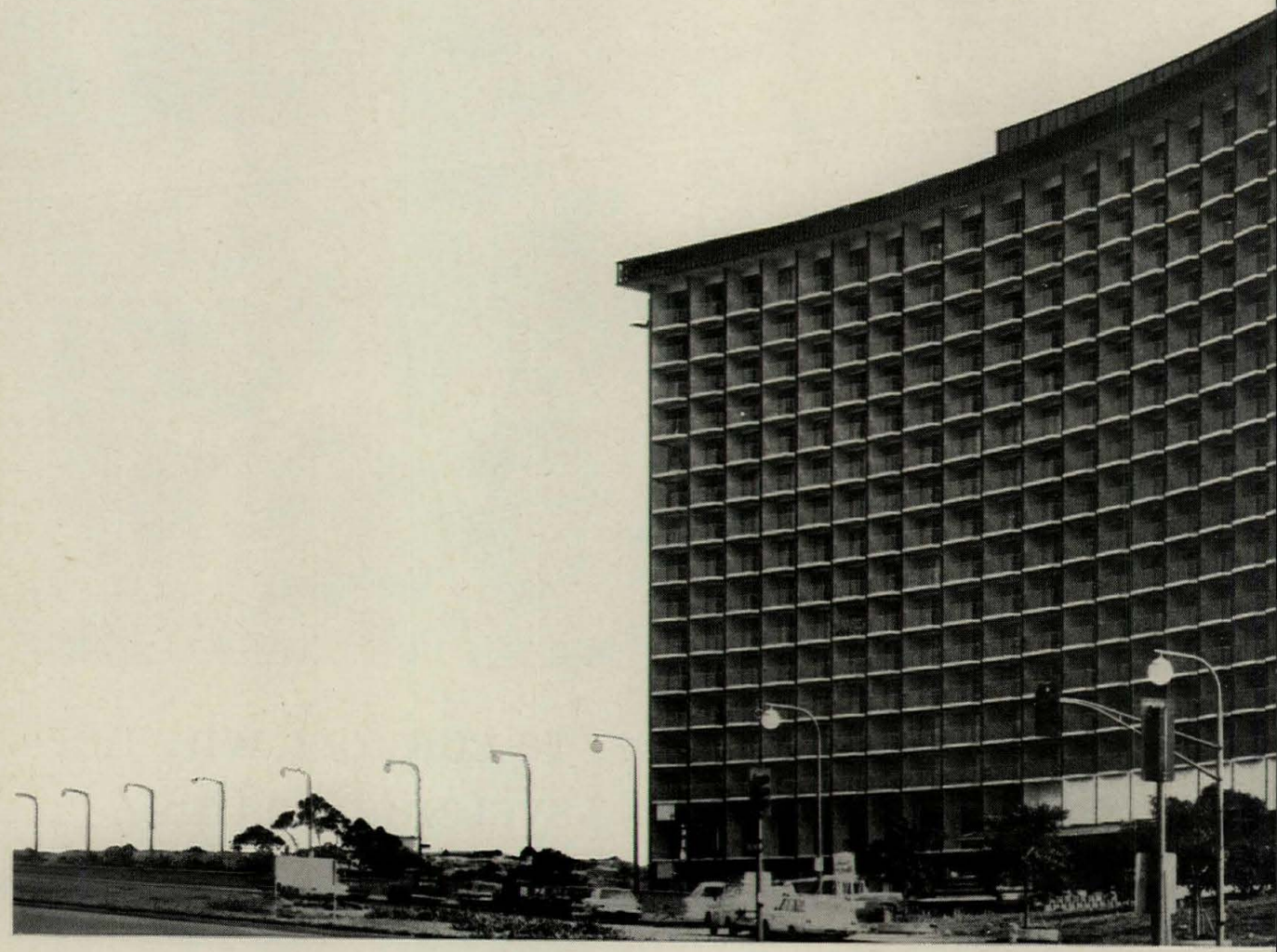
This ceiling-mounted system does not interfere with ductwork, utilities, or structural members. You enjoy complete freedom of design.

3M Heating Panels have no moving parts to whir, rattle or wear out. They cycle on and off without a sound.

Designed specifically for drop ceilings, the panels are one-inch thin, and fit into the standard 2′ x 4′ T-Bar module. To install simply drop them in and wire up.

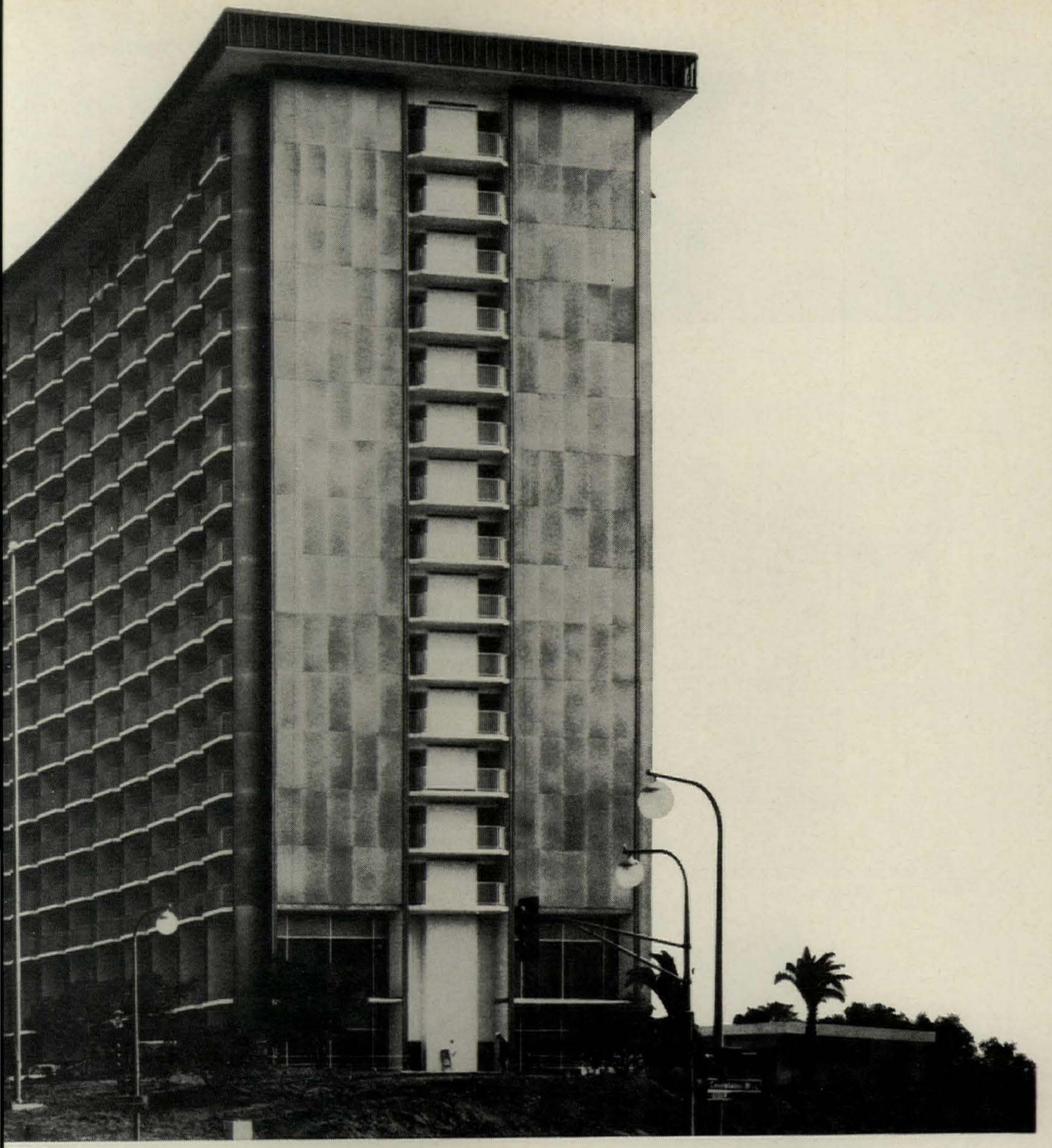
Supplied in flat off-white; they can also be painted to blend or contrast with surrounding panels of acoustical material or translucent lighting panels.

More information? Write Electric Products Division, 3M Company, Building 220-5W, St. Paul, Minn. 55119



# Unique design to resist

The new Century Plaza Hotel in Los Angeles is 20 stories high and is located in earthquake Zone 3. In what is believed to be a first, the designers combined the ductility of the steel rigid frame and the stiffness of X-bracing to make this structure earthquake-resistant. The unique structural system permitted a story height of



# earthquake forces

only 8′ 10″ with a floor to ceiling height of 8′ 5½″, with no beams projecting into the rooms or corridors. This integration of structural and architectural space meant low unit cost and very low unit weight per square foot of floor area.

This is another example of what can be accomplished with steel and imagination.

Architects—Minoru Yamasaki and Associates • Structural Engineers—Worthington, Skilling, Helle and Jackson • General Contractors—George A. Fuller Company, Inc. • Owner—Aluminum Company of America • Operated by—Western International Hotels • Fabricators and Erectors—American Bridge • Weight of Structural Steel—3,800 tons—ASTM A36

USS TRADEMARK

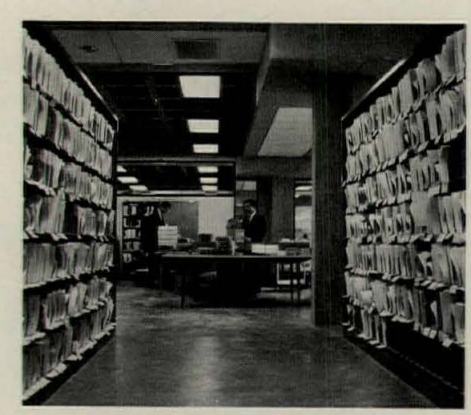
**American Bridge**
**Division of United States Steel**

N. J. Chisholm

## IBM builds first library designed for computers

The new library facility for International Business Machines Corporation in Hawthorne, New York, has "operations so unlike those of a conventional library," says architect Carl J. Petrilli, "that it was necessary to study assembly lines where punched cards were produced rather than library stacks" before designing the $1-million structure. The 74,000-square-foot structure consists of a one-story administrative wing in front joined with the major two-story library structure in the rear. The roof of the building serves as a parking area for 95 cars, with access to the building through a central stairway. A two-way ramp on the northeast corner of the structure leads to the parking deck.

The computer library utilizes 40,000 square feet, and careful attention was given to work flow in the building's design. There are two major areas: the machine room (90 by 90 feet) where computers generate programs, and the stack area (90 by 120 feet) where documentation is added and the program package is assembled. General contractor was the East Coast Development Corporation.





*continued on page 352*

# This new Cadet* rises up to meet the elderly half way

## Nearly 4 extra inches of height facilitates wheelchair transfer

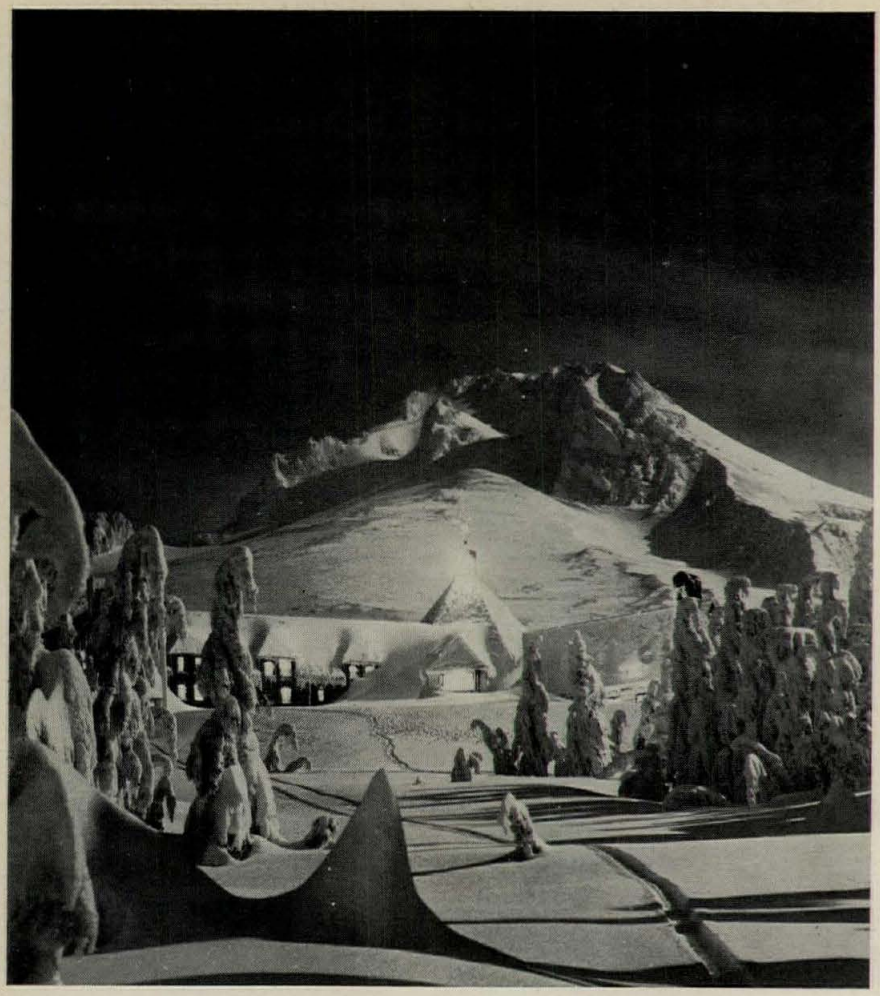
Now there's a new, chair-height (18-inch) version of the American-Standard Elongated Cadet toilet. It is a boon to the elderly with their lessened agility and slower reflexes. And to all other patients who have difficulty in raising their bodies. A welcome aid to attendants, too—it permits direct, lateral wheelchair transfer with minimum strain or risk. The extra-long bowl design puts more area under water for increased sanitation, allows for a larger, more comfortable seat. The siphon jet flushing action is thorough and quiet. Also available for flush-valve operation, and in a choice of cheerful colors. For more details, see your American-Standard representative. Or write American-Standard, Plumbing and Heating Division, 40 W. 40th St., New York, N.Y. 10018.

*TRADEMARK AR&SS CORP.

**AMERICAN-STANDARD**

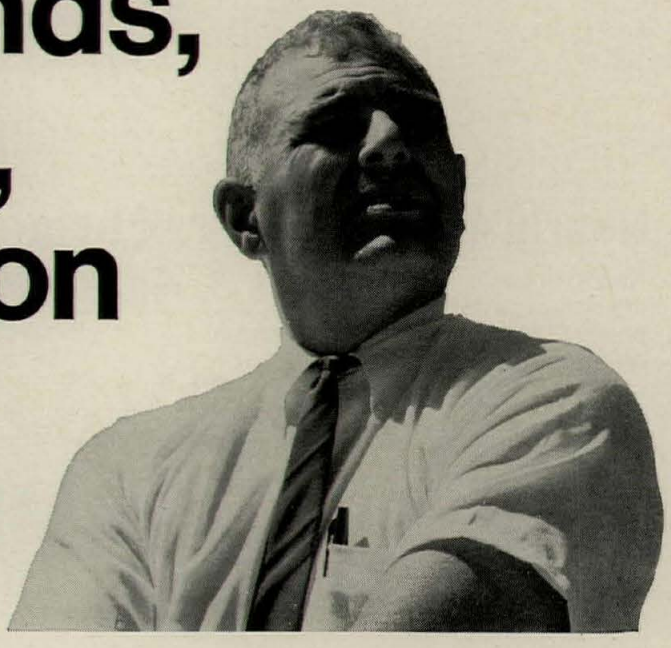
American-Standard
PLUMBING AND HEATING DIVISION

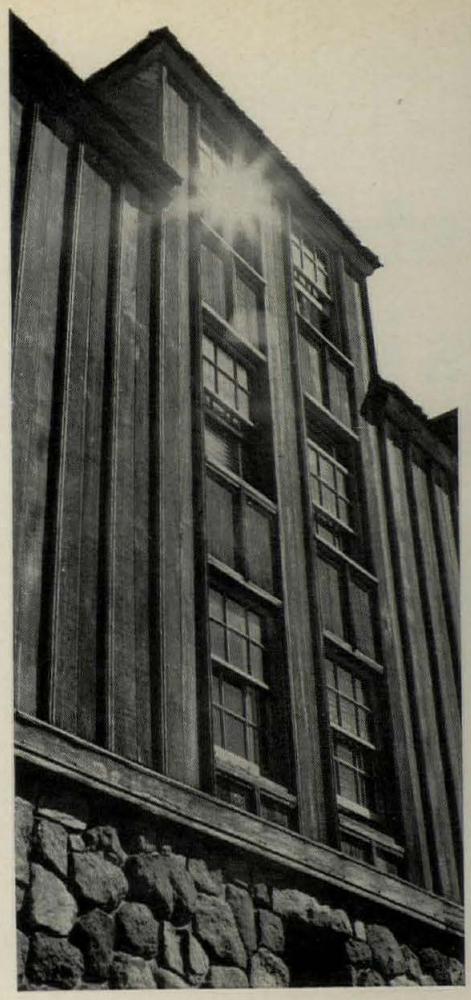
*For more data, circle 179 on inquiry card*

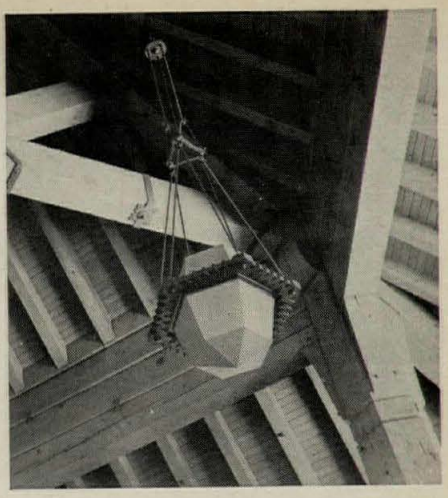


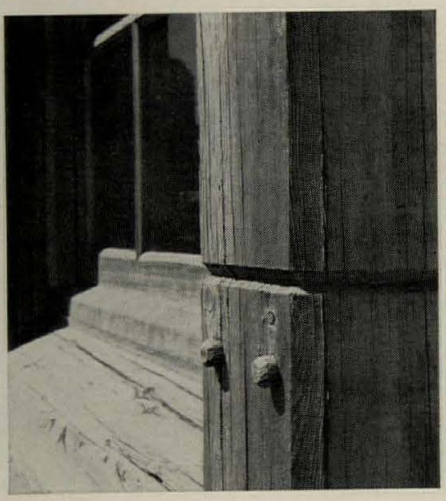
Timberline Lodge (left) sits at the 6,000-ft. level of Mt. Hood, about an hour from Portland, site of the 1968 A.I.A. National Convention. Winters are long and harsh. Its exterior board and batten (large picture right), the stairway (top center), the hand-hewn exterior columns (lower center), the interior beams above the main lobby (top right), and the hand-carved door (lower right) are all Western Wood Products. All suggest Timberline's massiveness and durability.

# Timberline Lodge has weathered 29 winters, 100-mile winds, 25 ft. snows, and 8½ million tourists.









It's easy to tell when wood's new. But try telling the age of old wood. Especially Western Woods. Like the Douglas Fir and Ponderosa Pine in Timberline Lodge.

A significant influence on Pacific Northwest architecture, Timberline is massive, graceful, compatible with its environment. And needs little maintenance.

Designed by a team of architects, the lodge was built in 1937 primarily of native woods and stone. It's the height of an eight-story building (96-ft.), has some 50,000 sq. ft. of floor space, and holds 173 guests plus staff. It also provides facilities for thousands of daily skiers, hikers and sightseers.

How has it held up?

Here's what A. P. DiBenedetto, Forest Service architect, Pacific Northwest Forest Range Experiment Station, Portland, Oregon, and the man responsible for maintaining Timberline's architectural continuity says:

"Sometimes I wonder if Timberline will ever wear out. Not that it never needs maintenance. It does. But it's surprising how little it needs when you consider that it wasn't designed for anything like the tourist traffic it gets."

What wears so well at Timberline is the Western Wood. There's quite a bit of it: 7-ton, hand-hewn columns of Ponderosa Pine; beams, purlins, decking, and exterior of Douglas Fir; knotty Ponderosa Pine paneling in the rooms.

And according to Mr. DiBenedetto, "As the years go by, the wood in Timberline grows richer in texture and color.

"Structurally, Timberline's interesting, too. Take the roof and ridge system. The whole thing deflects slightly under the heaviest snow loads. And as the snow melts, the roof line returns to its original position."

The lodge was designed by Project Architect William I. Turner, Linn A. Forrest, Dean E. R. Wright, and Howard L. Gifford. Ward W. Gano was Structural Engineer.

When you specify materials, consider the many advantages of Western Wood Products. Especially when you want durability. You can't be delicate and resist 29 winters on the slopes of 11,245-ft. Mt. Hood.

**Western Wood Products Association**

Portland, Oregon 97204

# You'd never know it.

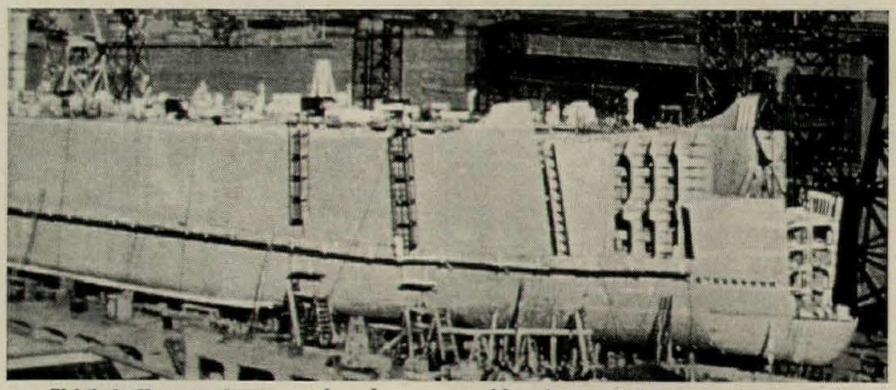
A. P. DiBenedetto, Forest Service Architect, Pacific Northwest Forest Range Experiment Station, Portland, Oregon.

*For more data, circle 177 on inquiry card*

Money-saving idea

# Now you can get structural durable shop primers based on

**Tough, mill-applied coatings cost less than field application—give dependable protection during shipment, field storage and erection—provide an excellent base for a wide variety of topcoats.**



**Ship's hull stays clean,** rust-free during assembly when steel has been shop-primed with zinc-rich primers based on Epon or Eponol resins.

UNTIL RECENTLY, mill-applied primers on steel products were costly and did a poor job of protection. So most users of structural steel had to do the priming themselves in the field.

But no longer. Now many structural steel suppliers are equipped to apply the first truly durable and economical shop primers for steel. These highly impact-, weather-, and corrosion-resistant epoxy coatings are based on Shell Epon and Eponol resins. They *save you money* in two ways:

**1.** Fabricators can offer these coatings at a very attractive price compared to materials and labor for field priming. Fast dry of the coating system, plus new automatic sandblasting equipment, permit the economies of production-line operation.

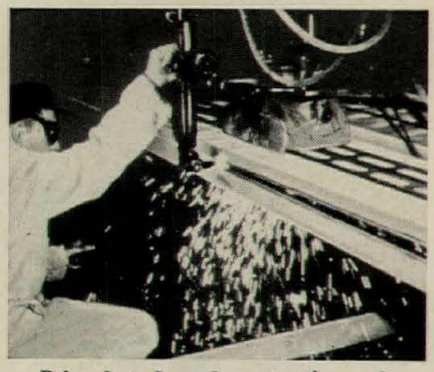
**2.** These primers have excellent resistance to the heat of cutting and welding operations, as well as to physical abuse and corrosive environments. This minimizes the amount of spot-repairing required before application of topcoats, and insures long-lasting protection of the coated structure.

### Excellent base for topcoats

In addition, primers based on Epon and Eponol resins provide an excellent base for a wide variety of topcoat systems. In most cases, removal of surface contaminants by washing and/or solvent cleaning will insure good adhesion to the aged primer.

### Bonus advantages

Cleaning and priming of the steel by the fabricator lets him do a better job of inspection. He's much more apt to spot flaws before shipment, saving you time and trouble on the jobsite. Also, shop-primed steel is cleaner and safer to handle.



**Primed steel can be cut** without adversely affecting corrosion resistance when zinc-rich primers based on EPON or EPONOL resins are used. The zinc fuses around the cutting area as in hot-dip galvanizing.

### Three cost-saving shop primers

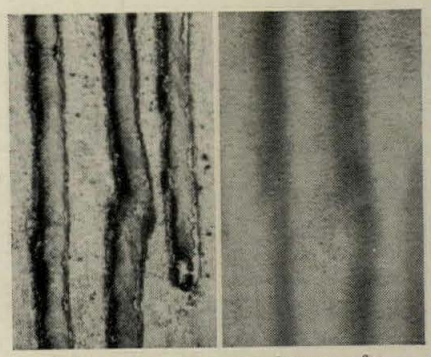
Choose from a shop primer based on Epon resin or from two different primers based on Eponol resin. Here are the advantages of the three primers:

#### 1. Zinc-rich primers based on Epon resin offer:

- *Outstanding adhesion, toughness and abrasion resistance*—minimize damage in handling and fabrication.
- *Excellent resistance to corrosion at low film thickness*—in most marine and industrial environments as little as ½ mil gives adequate protection until the finishing coats are applied (not recommended if exposure to highly acidic or alkaline atmospheres is expected to occur prior to application of topcoats).

# steel precoated with truly Shell Epon® and Eponol® resins

• *Weldability*—there's no loss of corrosion resistance due to heat from welding and cutting—no hazard to workers. Except for certain critical applications involving special grades of steel, welds of entirely satisfactory quality can be made with zinc-rich primers.



**No loss of corrosion resistance** after welding a plate coated ½ mil with a zinc-rich primer. (Left) Only the weld beads themselves show rusting after 6 months' outdoor storage. (Right) Except for discoloration, there is no apparent damage to the primer on the reverse side.

• *Cathodic protection*—retards corrosion of steel substrate even where surface is exposed by scratches or other physical damage to primer.

• *Good intercoat adhesion with a wide variety of topcoats.*

• *Resistance to solvents*—prevents softening when overcoated with paints containing strong solvents.

### 2. Zinc-rich primers based on Eponol resin

These primers offer the same desirable properties as Epon resin-based zinc-rich primers with the exception of solvent resistance.

### 3. General purpose primers based on Eponol resin offer:

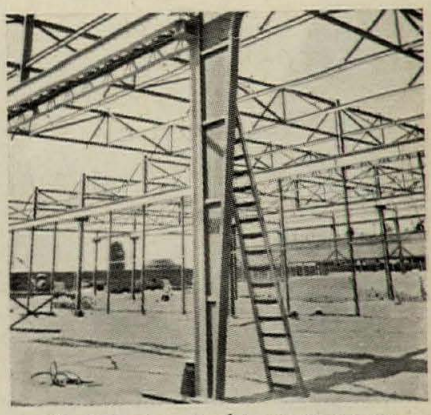
• *Outstanding adhesion and toughness*—minimize damage in handling and fabrication.

• *Excellent corrosion resistance*—a single 1-mil coat exhibits good resistance to atmospheric corrosion even in acidic, alkaline and marine environments.

• *Good intercoat adhesion with a wide variety of topcoats.*

### Mail coupon for details and assistance

Many steel fabricators across the country can now apply these new shop primers to your specifications. At your request, Shell will arrange to have a formulator of these primers contact you. He will work with you and your steel supplier to bring you products with the exact shop primer your project needs. *Just send in the coupon.*



**Steel members** in this structure were coated with an EPON resin-based zinc-rich primer to prevent rusting during construction.

**Shell Chemical Company**
**Plastics & Resins Division**
**110 West 51st Street**
**New York, New York 10020**

**Shell Chemical Company**
Plastics and Resins Division

I would like to be contacted by a formulator of: ☐ zinc-rich primers based on EPON resin ☐ zinc-rich primers based on EPONOL resin ☐ general-purpose primers based on EPONOL resin.

I am interested in using shop-primed steel for_____

**Name**_____ **Position**_____

**Firm**_____

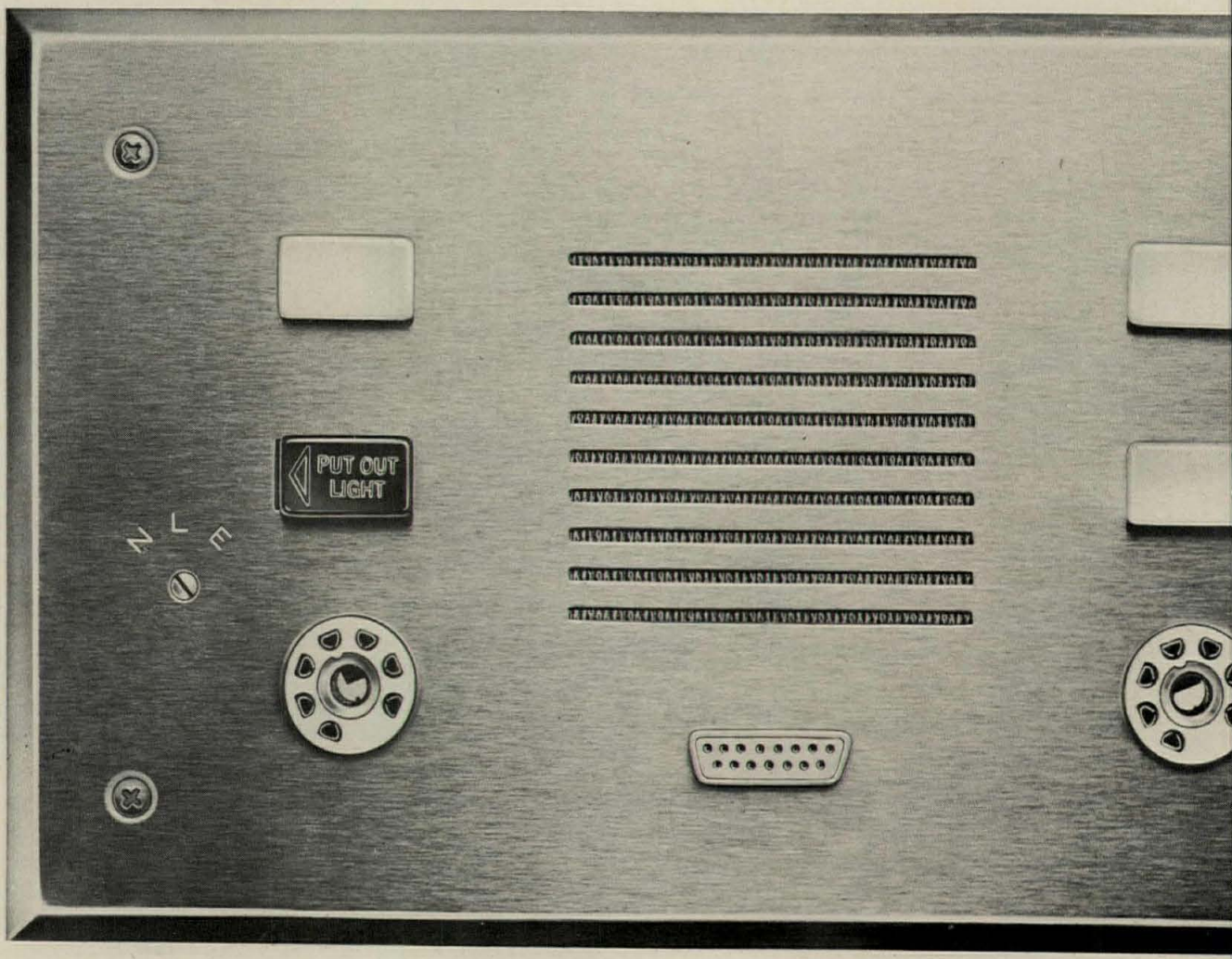
**Address**_____

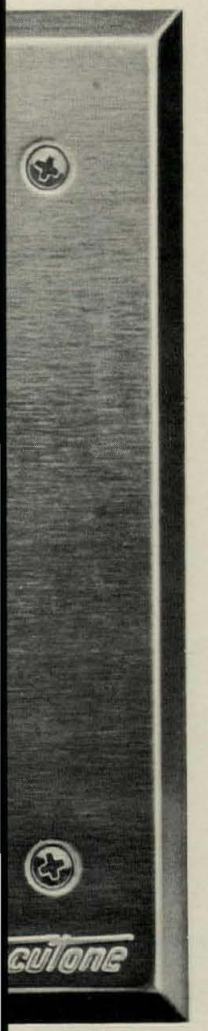
**City**_____ **State**_____ **Zip**_____

AR-10

*For more data, circle 180 on inquiry card*

# 249,532 Executone patient stations are being used every day.






# Why?

1. **They work.** Year after year. Engineered to take constant use and abuse, they help improve patient care, assist overloaded nursing staffs, reduce per bed operating costs.
2. **Their sound is clear and natural.** Voices come through undistorted. Equipment is so sensitive that patient's breathing can be monitored at nurse's station.
3. **They are simple to operate.** Unique switching and signalling circuits make system simple to operate for nurse and patient (even a child).
4. **They are versatile.** One station can accommodate different type call cords for patients who can't use their hands, or are under oxygen. Even for those who can't talk.
5. **They are part of a communication plan.** Prepared by the local Executone specialist, working with the hospital administrator, the architect and the engineer. Together they plan the communications best suited for the hospital's individual requirements–whether new construction, modernizing or adding to present system.
6. **They get prompt service when needed.** From local factory-trained technicians. Around the clock.
7. **They are guaranteed.** Every Executone system is backed by the Factory's warranty, implemented in the field by the local Executone organization with dependable service, free during the first year.
8. **They are made and installed by people with over 20 years' experience serving hospitals.** Pioneer in the field of hospital communications, Executone has worked with hospital administrators, architects and engineers on thousands of hospital projects.

   This unique experience is available to you and your clients through Executone's network of local offices.

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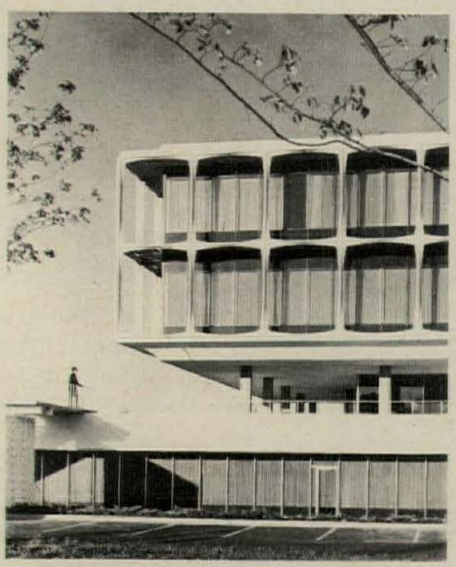
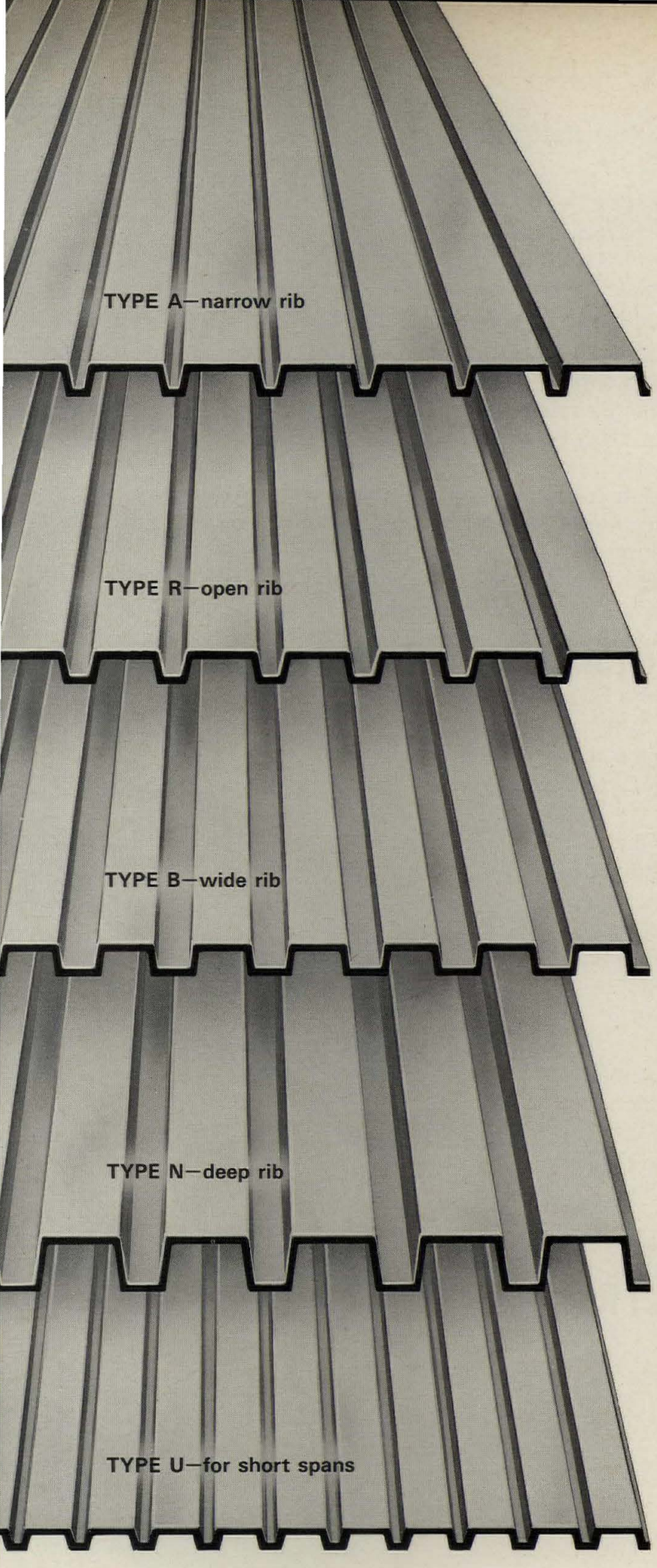
## Administration center linked by textured concrete podium

The new $5-million Administration center of Federal-Mogul Corporation, located in the Detroit suburb of Southfield, provides a total of 148,000 square feet in two separate structures connected by, and integrated with a textured concrete podium-terrace of 36,288 square feet. The complex is located on a graded site of 18 acres, allowing for future expansion. Architects for the project are Giffels and Rossetti, Inc., and the general contractor was the Barton-Marlow Company.

The four-story-high corporate staff unit, containing 69,600 square feet, has its all-glass lobby located on podium level. The lobby is reached by a bridged walkway and contains a raised reception area and sunken area for visitors. Located below podium level are support facilities, including the executive and employee dining rooms. Located above the lobby are two floors surrounded by a star-shaped grid work of pre-formed prestressed concrete which overhangs six feet for sun protection.

Also linked to the podium is the divisional office unit of three stories, containing 78,400 square feet. The building has a two-story lobby with an open stairwell and the structure surrounds an interior open court. Altogether, 75 per cent of the offices (for 500 employees) in both structures will have window exposure.



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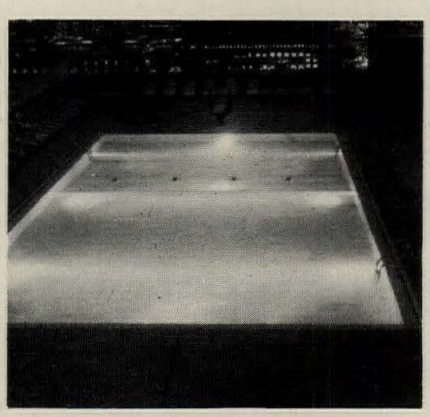
A four-pipe system isn't always the answer.

# Want extra space for a pool and a garage?



Then consider a General Electric Zoneline heating/cooling system. The way architects Nowicki & Pollilo did with the William Penn House, Philadelphia, Pennsylvania, shown here.

G-E Zoneline gives you all the benefits of a four-pipe system. But, because it does away with pipes, ducts, boilers and cooling towers, it frees space—for a garage in the basement or a pool on the roof or both.

Other benefits:

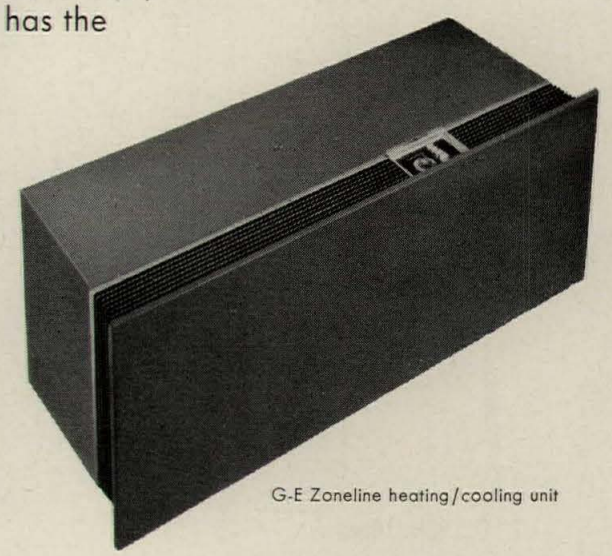
**FIRST COST** can be cut drastically. The General Electric system used for William Penn House was much less than estimates for a four-pipe system.

**ROOM-BY-ROOM CONTROLS** enable a tenant who is chilly to turn on the heat, even though everyone else has the air conditioning on.

**CHOICE OF GRILLWORK** is one you make. G-E Zoneline grille comes in two standard designs or can be treated architecturally to blend with building appearance.

**INTERIOR FLEXIBILITY** allows you to fit units over doors (Marina Towers, Chicago) or under window seats (Century House, Lincoln, Nebraska).

From motels to high-rise construction, Zoneline systems can make dramatic economies in space and first cost. Call your General Electric Zoneline Air Conditioning Representative for the facts.



G-E Zoneline heating/cooling unit

Air Conditioning Department, Appliance Park, Louisville, Kentucky

**GENERAL ELECTRIC**

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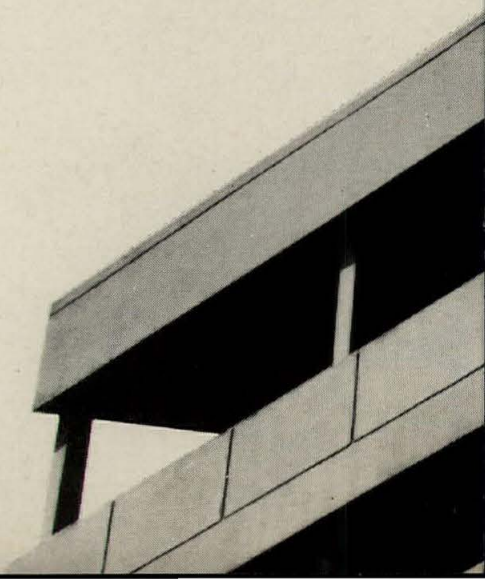

Owner: William Penn House, Inc.
Architect: Nowicki & Pollilo
General Contractor:
E. J. Frankel Enterprises

**Design Versatility**—The decorative stainless steel screen on this 1200-car, four-level municipal parking garage permits ventilation but protects neighbors from headlight glare. City of White Plains Parking Garage, White Plains, N.Y. Designers and Engineers: Abbott, Merkt & Co., New York, N.Y. Stainless steel screen facade: Trio Industries, Inc., Bridgeport, Conn.


# *Public building designs in nickel stainless steel assure taxpayers of money well spent.*

They know stainless. It's in their sinks, ovens, flatware, transit cars, hardware and appliances.

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**INTERNATIONAL NICKEL**
Nickel—its contribution is quality

**Corrosion Resistance**—These intake gate structures, each nearly 100 feet high, are clad with matte-finished stainless steel panels for strength and stability in a corrosive environment. Niagara Power Project, Niagara Falls, N.Y. Engineers and Designers: Uhl, Hall and Rich, Boston, Mass. Architectural Consultant: John B. Peterkin, New York, N.Y. Stainless steel panels: General Bronze Corp., New York, N.Y.

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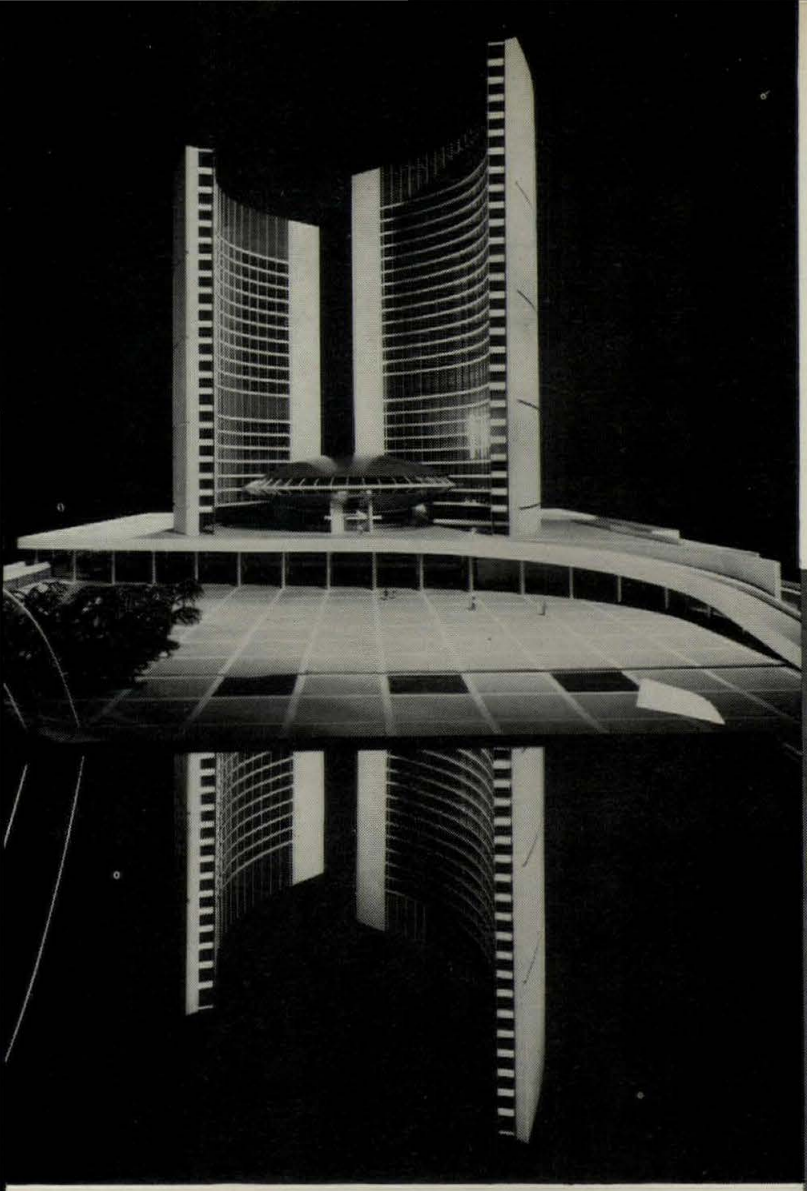
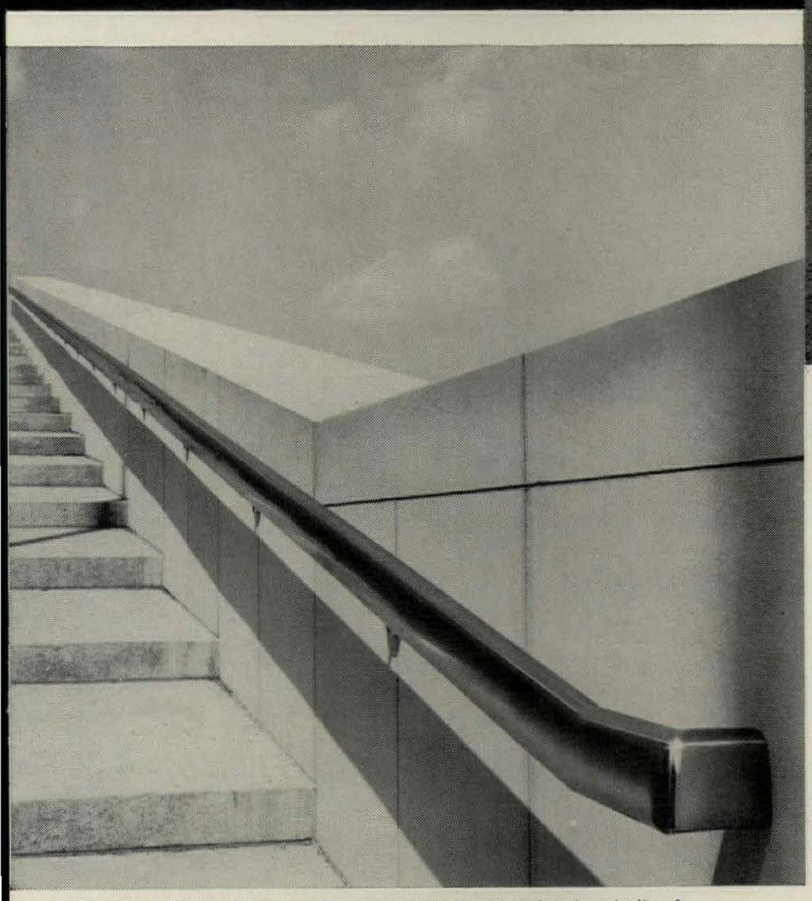


**Economy**—Over 250,000 pounds of stainless steel were specified for curtain wall mullions, window frames and louvers in this striking civic government complex at a price within 4½ per cent of the lowest bid received on any other metal. This small initial difference will be quickly offset by savings in maintenance. Toronto City Hall, Toronto, Ontario, Canada. Architects: Viljo Revell, Helsinki, Finland, in association with John B. Parkin Associates, Toronto, Ontario, Canada. Stainless steel curtain wall mullions, window frames, louvers and entrances: Canadian Rogers Eastern Ltd., Toronto, Ontario, Canada.

**Durability**—Lustrous stainless steel fluted panels and flush doors were specified for this public library for their contemporary appearance and their ability to resist soiling and scuffing. Buffalo and Erie County Public Library, Buffalo, N.Y. Architects: James W. Kideney and Associates and Paul Harbach and Elon B. Clark, Jr., Buffalo, N.Y. Stainless steel panels and doors: The Michaels Art Bronze Co., Covington, Ky.



**Prestige**—Stairway leading to a second floor terrace has handrails of polished stainless steel set into a marble balustrade. Lamps are concealed inside the rail to illuminate steps after dark. Smithsonian Institution Museum of History and Technology, Washington, D.C. Architects: McKim, Mead and White, New York, N.Y. Stainless steel stairway railing: Alexander Metal Products Corp., Falls Church, Va.

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Gulistan Carpet offers many benefits at the new facilities of the Maryland Cup Corp. Designer is Alan Shaivitz; contractors, Lucas Bros. of Baltimore.

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# *Index to buying information*

A


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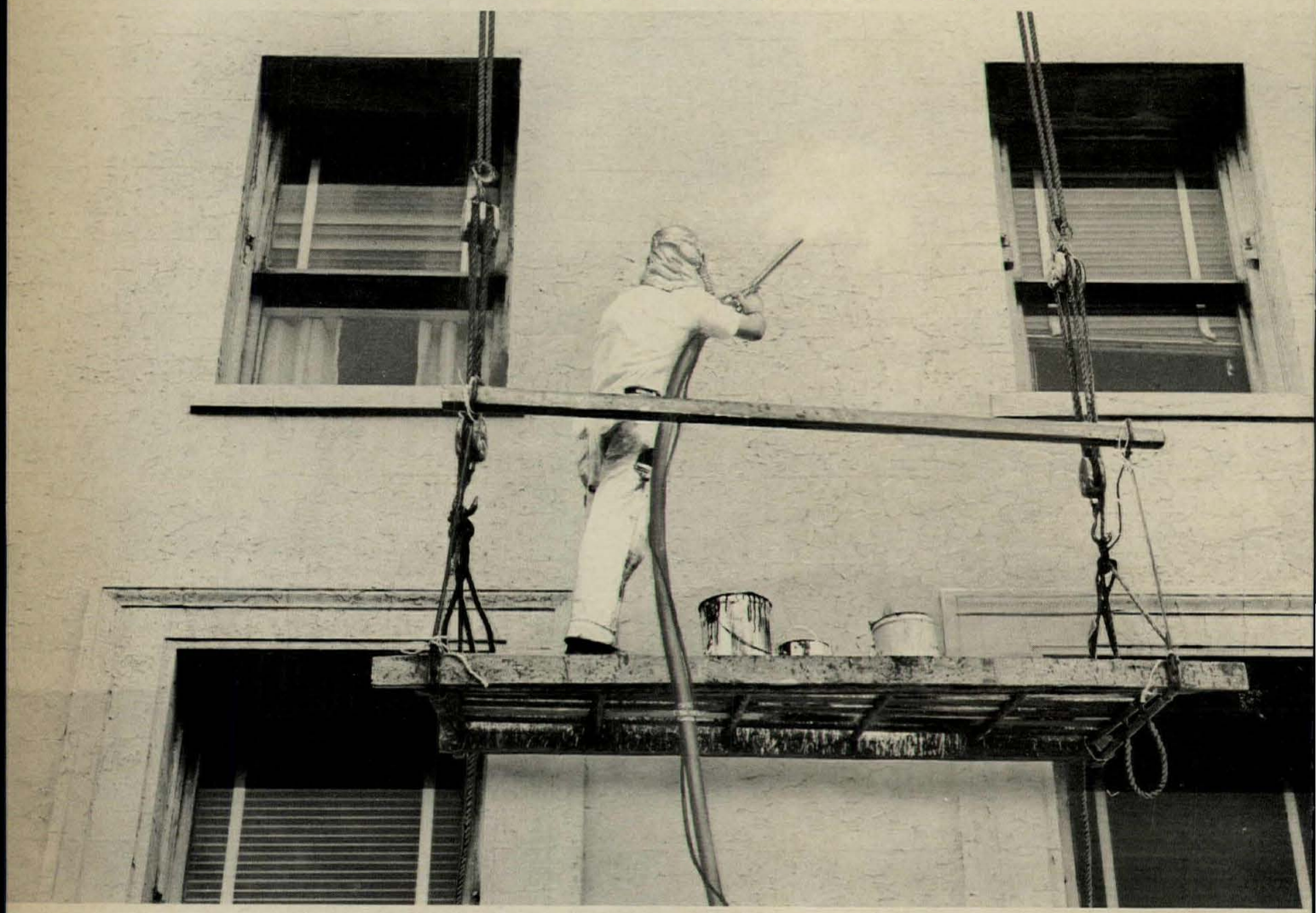

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