PROGRESSIVE ARCHITECTURE *April 1964*

THIS MONTH IN P/A

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Cover CARMEL VALLEY MANOR (page 138)
Photo: Morley Baer

Frontispiece APARTMENT HOUSES, TAPIOLA, FINLAND (page 154)
Photo: Ingervo

ABC ABP R REINHOLD

VIEWS

Reactions to Design Awards

Dear Editor: Congratulations to you, to Progressive Architecture, and to a keen and courageous jury for the awards in the Eleventh Annual Design Awards Program (JANUARY 1964 P/A).

It is inspiring to see recognition given to realism in architecture rather than solutions bent on cleverness.

Competitions with this premise prove their worth and benefit, especially for the cause of architecture.

May I further commend you for the excellent editing and presentation job.

DON HERSHEY
Rochester, N. Y.

Dear Editor: Whether or not a different jury would have chosen other entries for the awards is difficult to evaluate; one would have to see all entries to decide that. But it stands to reason that the publication of the winning designs and the jury discussion will educate and certainly exert influence on your readers. In view of this, the jury's basic premise for selecting awards seems a poor choice. To state that this is a stable period of architecture, and that the concern of the jury must therefore tend toward special or "peculiar" problems, evades the issue of what makes great architecture. Of course, this provides a fail-safe approach to jury duty, but it does injustice to all concerned, including your readers, who expected the jury to be clearly concerned with the issue. Judging from the discussion, only two jurors expressed their thoughts concerning the mark of good architecture.

Its basic premise established, the jury then proceeded to put the stamp of approval on the hitherto untried phase of neo-romanticism. With neo-gothic and neo-baroque already on the scene, it is reasonable to hope that "neo-modern" can't be far behind. But to encourage the use of ruins as architectural adjuncts is definitely unfair to demolition contractors.

Nevertheless, your program is highly commendable in communicating and evaluating the present diverse currents in the continuum of architecture.

DAVID G. SONNENTHAL
Cynwyd, Pa.

Dear Editor: Your jury ought to be commended on taking one giant step and thirteen baby steps backwards on granting the single first design award and thirteen awards and citations.

How, pray tell, can you take time out to comment on the journal that specializes in drawings of either cobblestones, lettering or courtyard scenes a la Gordon Cullan (*The Architectural Review*) while offering citations and awards for the very same mistake?

Your jury has deliberately taken the trouble to pin ribbons on "atmosphere architecture" without searching for the principle that puts atmosphere *in* architecture. It leaves one appalled to think that your First Design Award in residential and urban design and your Citation in residential design could lead others to believe that the jog, the broken shed roof forms, the purposeful nonalignment of elements (all taken in a completely arbitrary manner) speak for a new direction in architecture. What you are doing is speaking out for "Modern Neo-Georgianism" when you should be condemning it.

FRANK EDWARD DUSHIN
Peekskill, N. Y.

Continued on page 8


Modern Door Control by
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Application Details on Opposite Page

Continued from page 6

Dear Editor: In the interest of international architectural relations, it seems to me that efforts put forth to produce future Design Awards issues should cease, if it continues to reflect the standard of excellence in American architectural design as contained in the January issue.

SAMUEL Z. MOSKOWITZ
Wilkes-Barre, Pa.

Students Decry Yama's Twin Towers

Dear Editor: In the face of imminent disaster, we wish to appeal to the native intelligence of all sensitive people concerning the proposed erection of Yamasaki's Twin Towers.

Obviously, a good building must be economically sound, efficient, challenging, and, as Yamasaki thinks, beautiful and delightful. But amidst this delight, one must not forget the factors that are just as important: first, the scale of the building itself; and second, the relationship of the building to its site (in this case, its relationship to the rest of Manhattan).

All good buildings throughout history fit their sites well; therefore, Yamasaki's concept of the Twin Towers is wrong. If the Twin Towers are erected, the whole of Manhattan will be thrown into a different scale and ruin what is now one of the most exciting spatial arrangements in the world.

Although one would be hard put to find a masterpiece in the Wall Street area, the consistency of long slim towers, the use of the same materials and the similar treatment of façade make the Chase Manhattan building by SOM the first crime in the area.

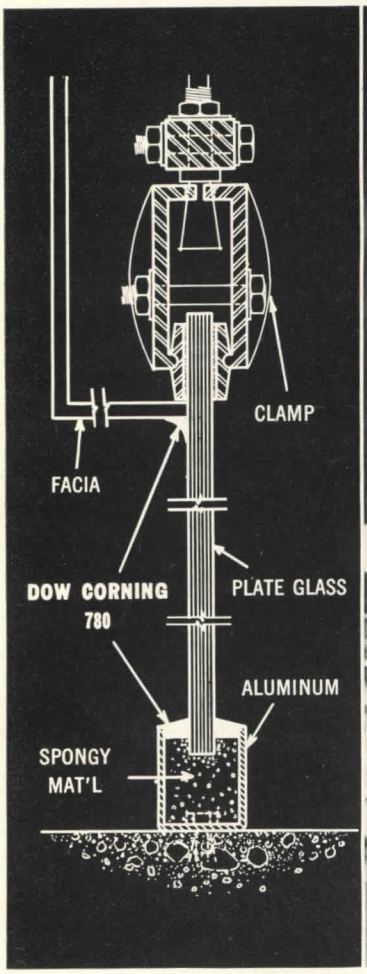
The Chase Manhattan building has intruded into a small plaza, pushed everything aside with its bulkiness, and now will forever grin with its shiny surface. At least it has not destroyed the general scale of the area. If the Chase Manhattan building can be challenged for the destruction of Wall Street's consistency, then the Twin Towers will add the final touches to this fatal feat.

Yamasaki thinks that he has been given the chance of two lifetimes. But let it be known that he is making the mistake of two lifetimes in one. We must never forget, as Frank Lloyd Wright once said, that ". . . a doctor can bury his mistakes; an architect can only advise his clients to grow vines." How do we get vines all the way up there?

THE CLASS OF
ARCHITECTURAL DESIGN 112X
The City College of New York
New York, N. Y.

Continued on page 10

Sealing at the World's Fair



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Continued from page 8

Attacks Views of our Readers

Dear Editor: The content of your magazine grows brighter and more meaningful, while the level of perception of your readers (as expressed in January's VIEWS) grows duller, and, at times, threatening.

We are presented with two letters defending the much criticized Albany Proposal. Both letters imply that the fault, dear readers, is only in the rendering and not in the architecture, and further ask us to "welcome projects . . . of this scope . . . and not to make judgements . . . based on rendered views." If we are to blame the renderer, Mr. Schwartz (whose style is a fairly photographic one—one that "the public understands," to quote your reader), then one asks, where did Mr. Schwartz get this information? If the rendering was true to the architect's design intent, then the architect takes the blame, for the Albany Proposal is grotesque. If, on the other hand, the rendering was only a promotional expedient and we are not to take it seriously, the architect is still to blame, and we must question "the very serious attitude of the entire [architect's] staff" to which the reader attests.

The threat in this is to ourselves and the city and countryscape we live in. When proposals of this sort are not met with informed criticism at their birth, they overnight become *fait accompli*, and we are stuck with them.

Mrs. Moholy-Nagy is probably smiling, having been damned as "unprofessional"—which is high praise indeed for a critic of architecture. It is just this "unprofessional" quality, coupled with constant needling of the architectural establishment and her examination of the human condition as the basis for building that mark her as a great critic.

You concluded your January letters from readers with a plea (from a town planner, no less) for more of "the collective mind" and "collective justification" in architecture. One would think we need less of that, not more. Have you looked at Park Avenue, lately? Or Pan Am? Or . . .

MICHAEL BRILL
New York, N. Y.

CORRECTION: William Alex, who reviewed the Pier Luigi Nervi book in the FEBRUARY 1964 P/A, is not an actual member of the President's Advisory Council on Pennsylvania Avenue, but did some preparatory work on the council's forthcoming report.

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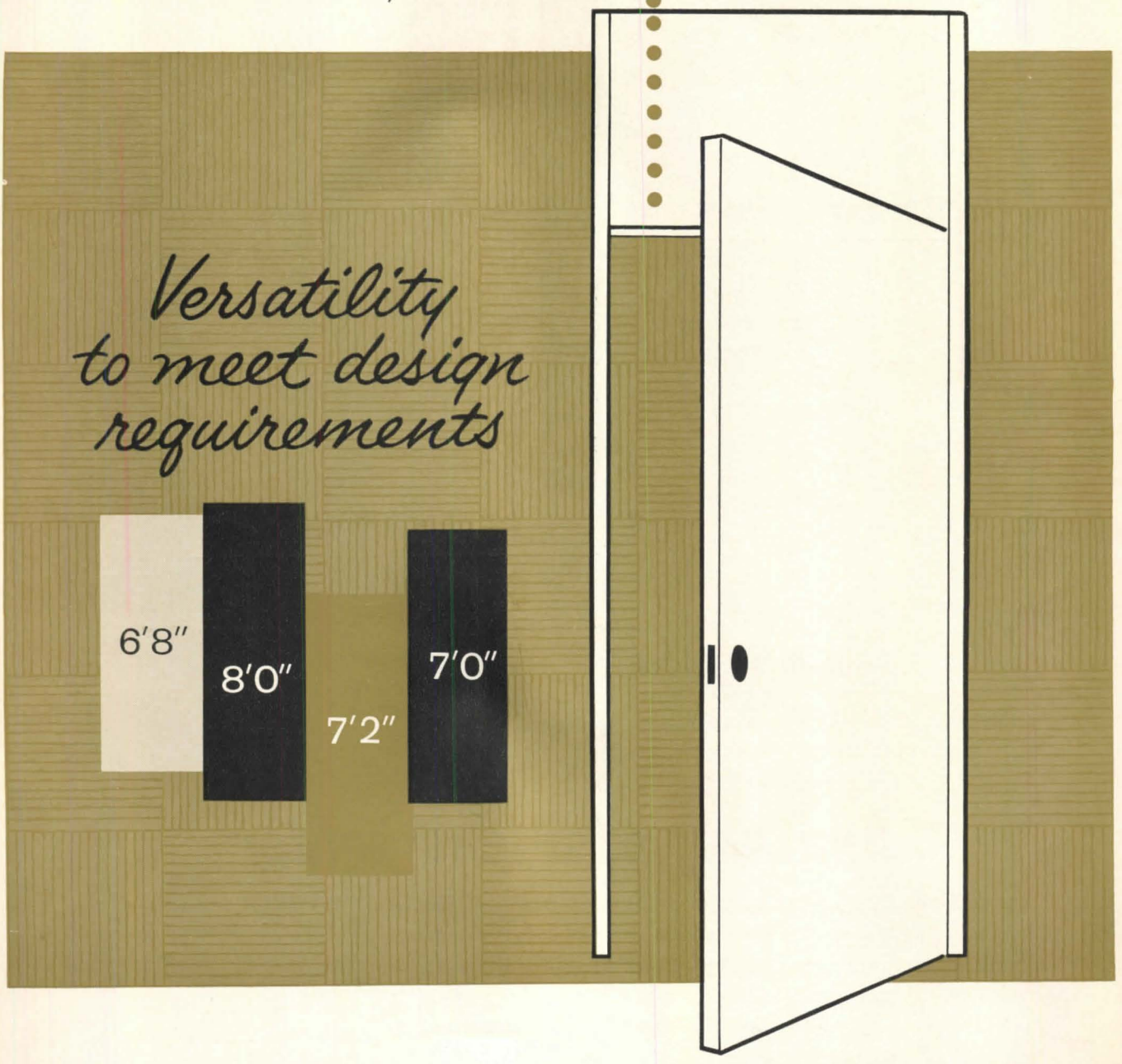

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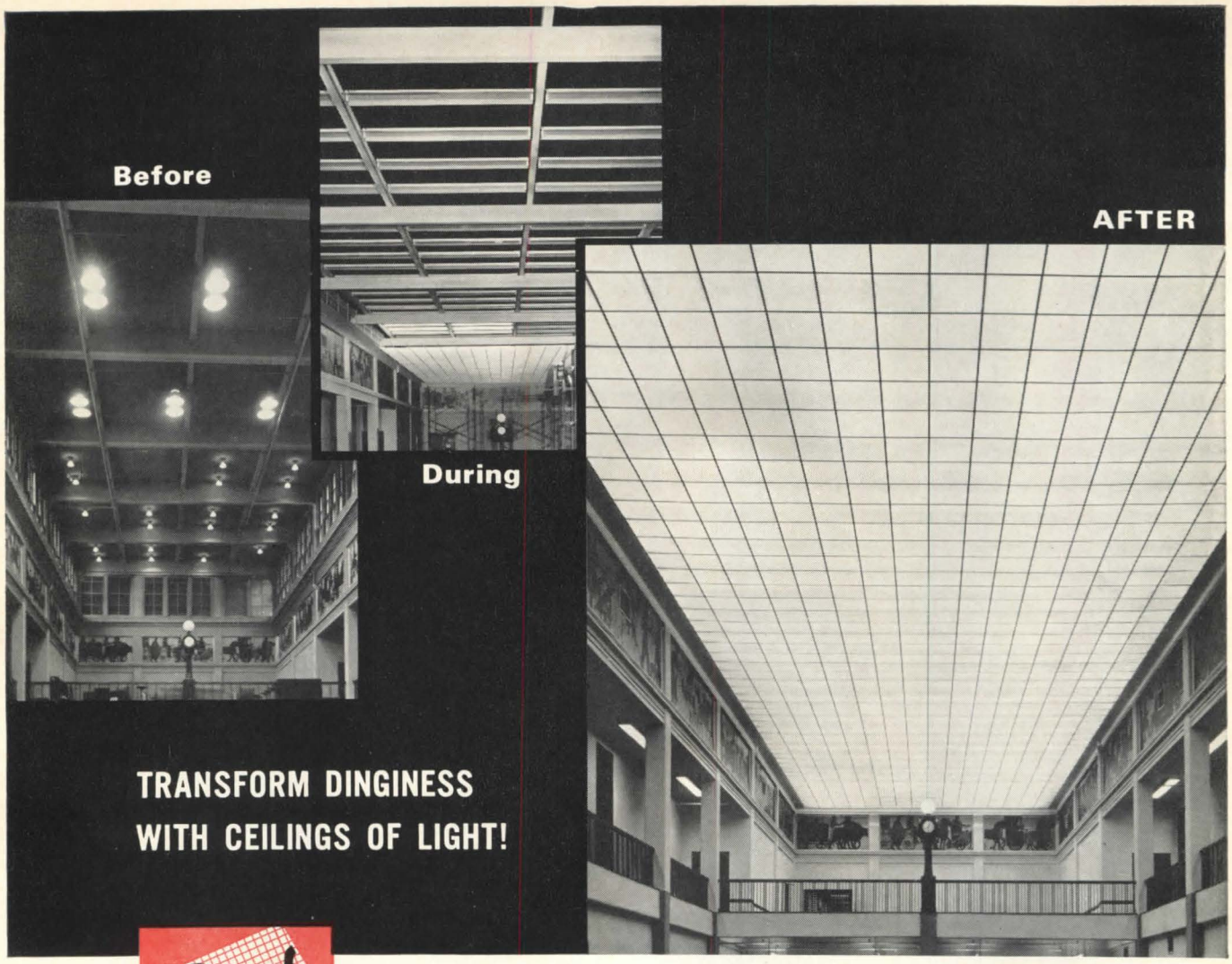

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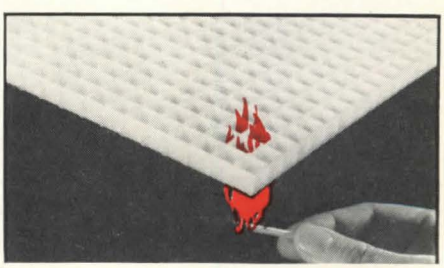

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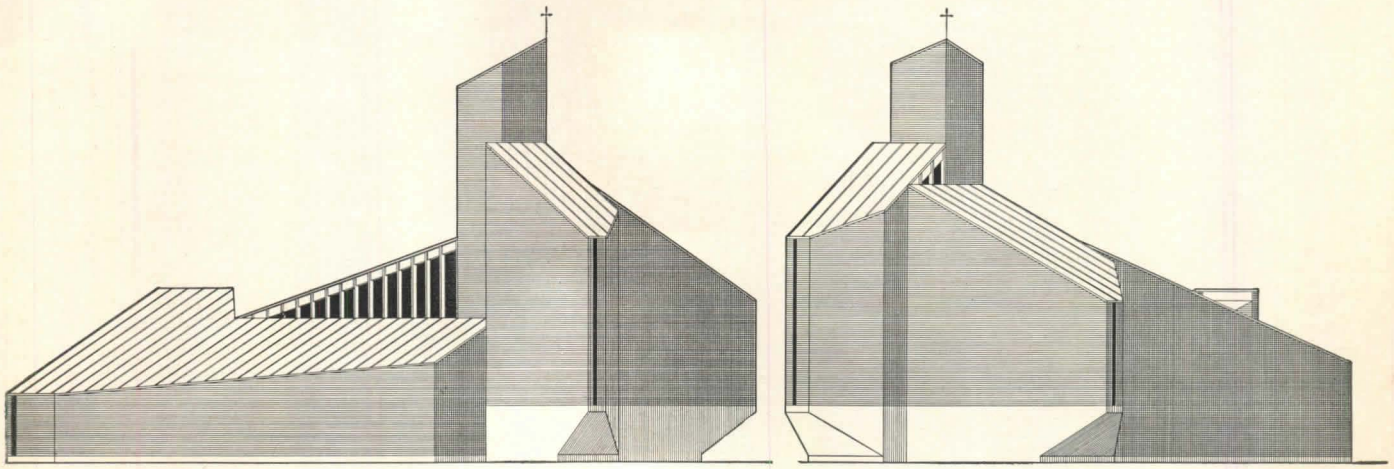
Zonolite prototype building #6: A church



Martin Price designs a church

He utilizes Zonolite* Masonry Fill Insulation to cut wall construction costs. The material also cuts heating and air conditioning costs $360 annually.

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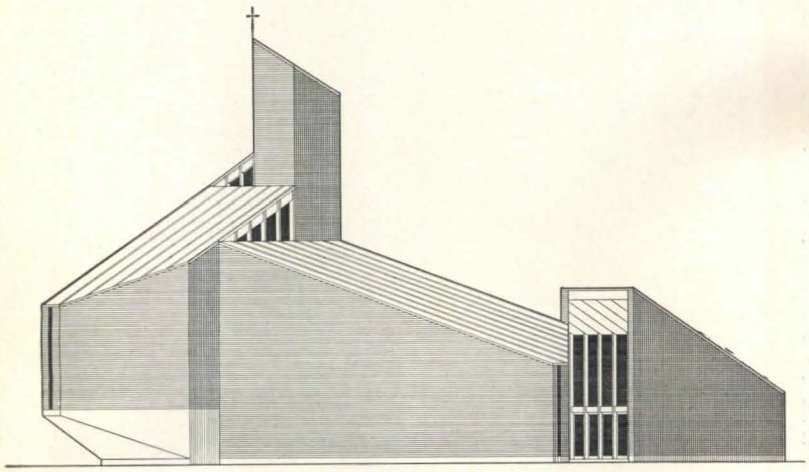

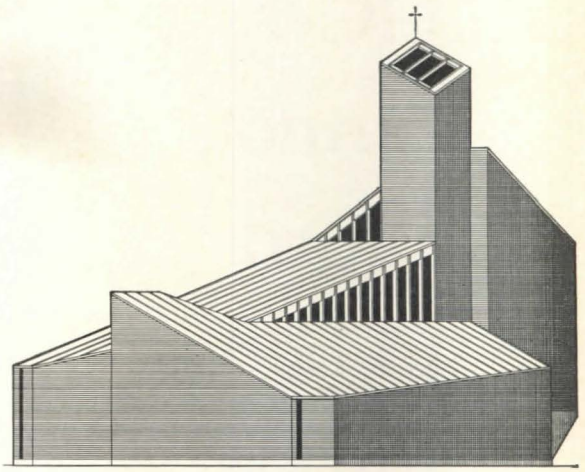

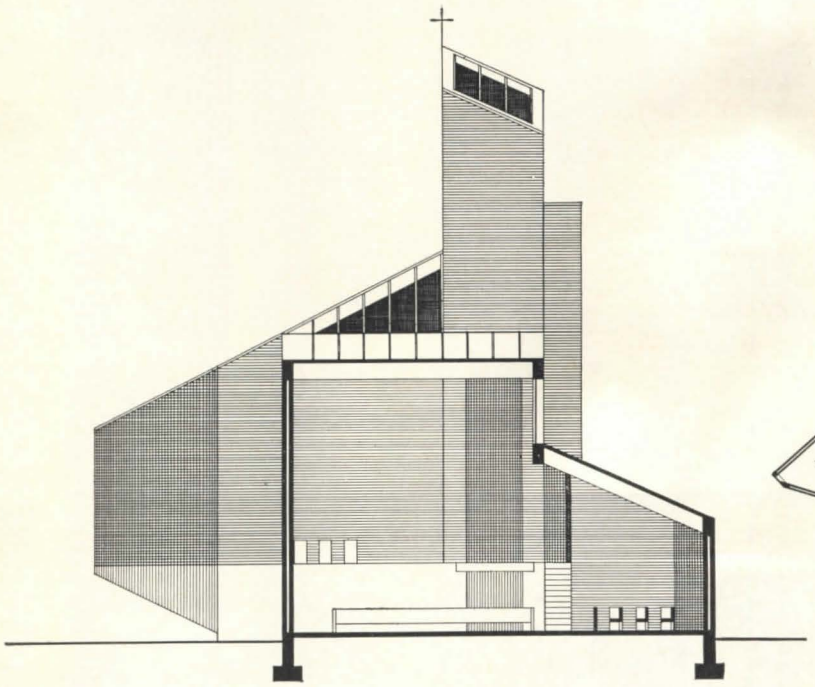

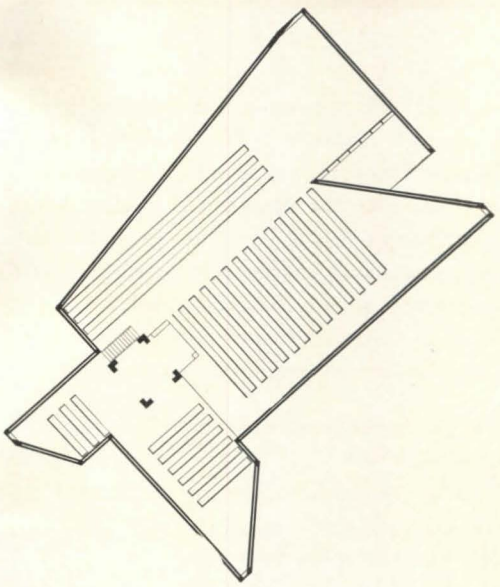

Additional facts worth investigating are contained in our Bulletin MF-83. Write Dept. PA-44, Zonolite, 135 South LaSalle Street, Chicago 3, Illinois.

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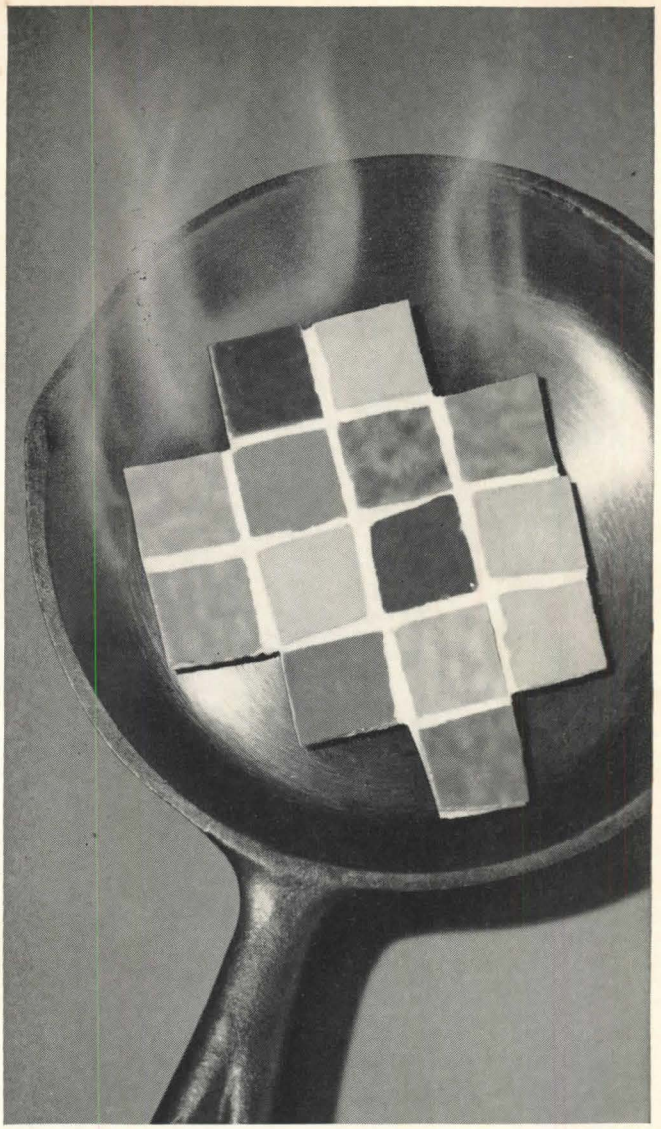

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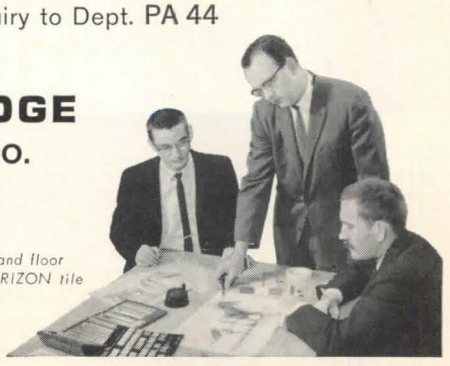

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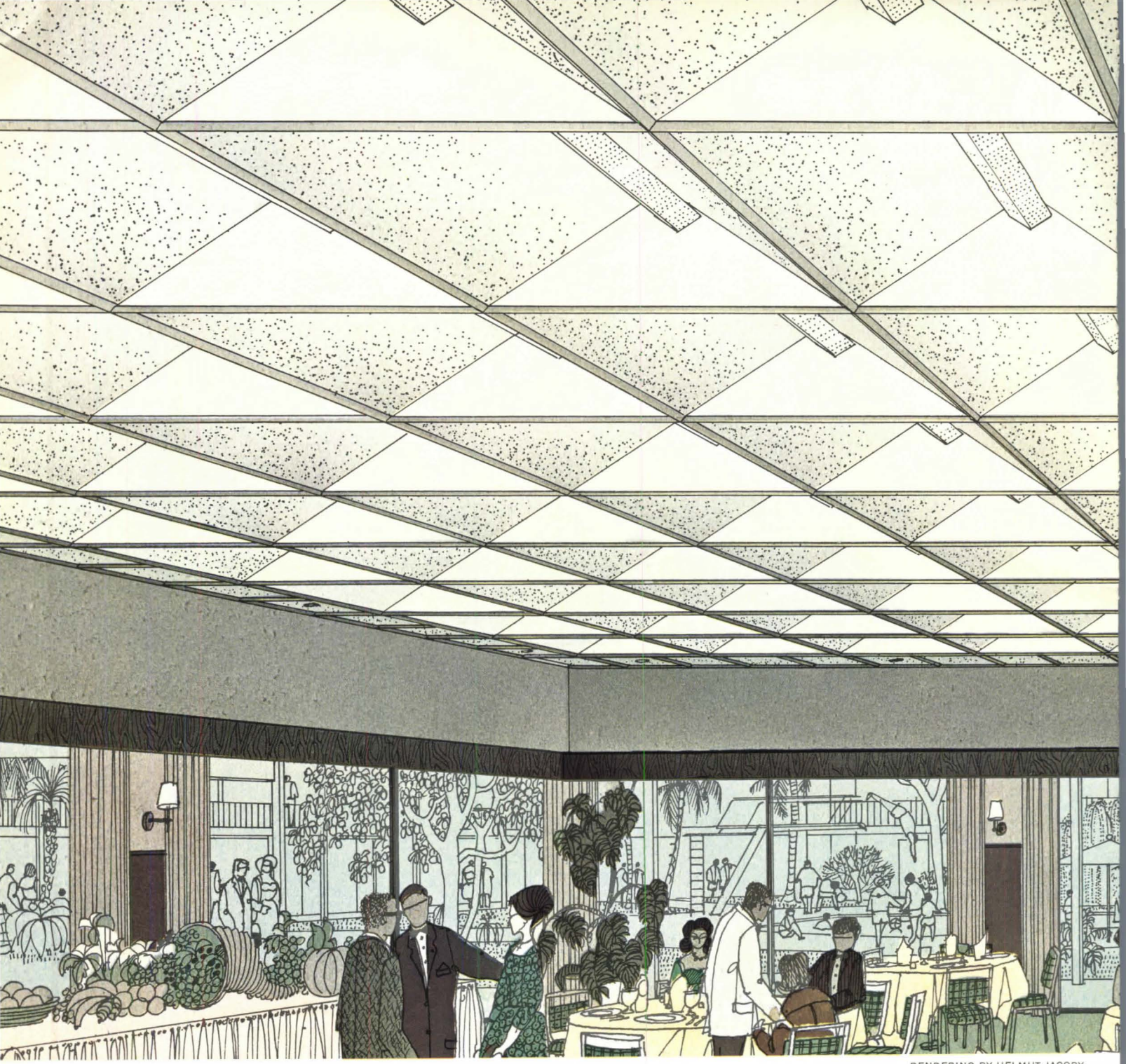

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This visually exciting Armstrong Luminaire Ceiling gives new drama and comfort to the Cypress Room at the New Orleans Hilton Inn.

CREDITS: Hilton Inn, New Orleans, La.
Architect:
George A. Saunders, New Orleans
Mechanical Engineer:
Edward H. Sanford & Assoc., New Orleans
Consulting Engineer:
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General Contractor:
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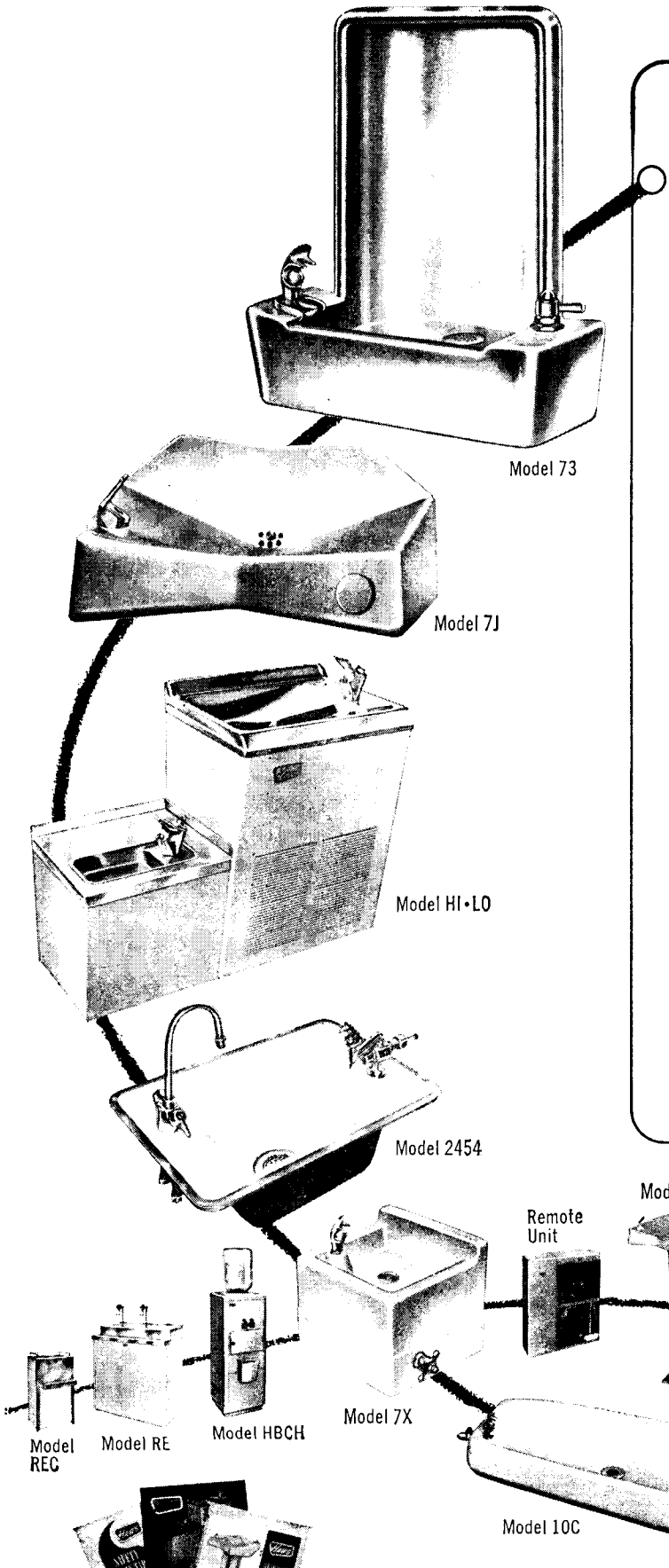

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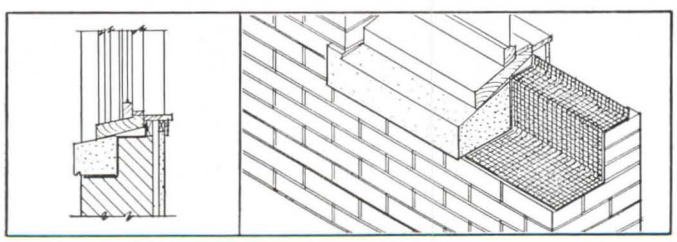

Duoweld protects wall construction under sills of doors and windows

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Can you hear the Carrier Gas-powered Air Conditioning?

Not on your life. That's why the new, luxurious Holiday Inn in Mansfield, Ohio chose Carrier Absorption Refrigeration. They didn't want to lose valuable guest space because of noise or vibration from cooling equipment. And they didn't, because Carrier Gas-Powered Air Conditioning equipment has no large moving parts to create noise. The absorption refrigeration installs easily and needs minimum maintenance, whether operating on full or partial load. What's behind the ease of operation? The fuel that means ease, economy and dependability, Gas. Call your local Gas Company about it. Or write Carrier Air Conditioning Company, Syracuse 1, New York. AMERICAN GAS ASSOCIATION, INC.

For cooling and heating...Gas is good business!

SEE THE CARRIER GAS-POWERED ABSORPTION OPERATING EXHIBIT AT THE FESTIVAL OF GAS PAVILION – N.Y. WORLD'S FAIR 1964-1965

ARCADE (left) is reflected with utter fidelity in wall of Starlux plate glass. Brown brick wall at far end of arcade masks sidewall of neighboring building and attractively terminates arcade. It serves no structural purpose.

First Federal Savings & Loan Association, Hagerstown, Maryland
Architects: Eliot Noyes & Associates
Associate Architects: Coble and Burger

Different–but a good neighbor: an arcaded bank with walls of Starlux plate

To set this elegantly unadorned bank building into context—a street of older, low-rise commercial buildings—Eliot Noyes, FAIA, designed an arcade front with graceful arches that are visual echoes of the tall, curved windows of nearby structures.

To distinguish the building from its neighbors, Architect Noyes devised a design of almost classic simplicity that successfully exploits the characteristics of his principal materials: the color and texture of precast concrete, and the lustrous sweep of broad expanses of glass by ASG.

At ground level, an exterior wall of 11′ by 14′ floor-to-ceiling lights of ASG's Starlux® twin-ground plate glass admits natural daylight to the banking floor. From inside, the exceptional clarity of Starlux brings patrons a faithful view of street activities framed by arches of the colonnade. A band of ASG's textured grey Huetex® spandrel panels creates a visual separation of the upper two floors. And in interior offices, ceiling-high transoms of Starlux plate dramatize doorways and help share light.

Starlux plate and Huetex spandrel glass are only two of literally hundreds of versatile architectural glasses available from ASG. Your local independent flat glass distributor will be happy to show you the full range of ASG plate, sheet, and patterned glasses. Or, for a complete catalogue, write: Dept. E-4, American Saint Gobain Corporation, Box 929, Kingsport, Tenn., 37662.

SEVEN-FOOT TRANSOMS of clear Starlux plate glass make doorways dramatic slots in wall. Wall end at right is covered with stainless steel.

AMERICAN SAINT GOBAIN

ASG
CREATIVE IDEAS IN GLASS

On this new campus, they're automating to operate heating and air conditioning systems efficiently. Model of New York State University Long Island Center is being inspected by Charles K. Cooper, right, finance officer for the university, and Robert E. Passarelli, P.E., R.A., of the New York state architect's office. For the first eight buildings, one man at a Honeywell console can control 30 pumps and 70 fans; check 130 temperatures and adjust 70; and supervise other functions at points up to 3,500 feet away. Plans call for extending control to other buildings as they are completed.

HOW MUCH AUTOMATION IS PRACTICAL FOR YOUR CAMPUS BUILDINGS?

Campus size and age are no longer factors. Architects have discovered that centralized control of temperature, security and other systems is paying for itself in 3 to 5 years . . . whether it's San Antonio College or Harvard.

New way to help meet rising costs

In the face of the relentless cost-revenue squeeze, the next 6 minutes may save your clients thousands of dollars a year in operation and maintenance while improving services.

For here is a new way to help meet rising costs of running the physical college plant. It's the automation of buildings . . . a move that's profitable for a single building and even more so for a complex campus.

With classes bulging and expansion urgent, two key factors give automation a new priority in building plans:

1. Swift advances in equipment and technology now make automation more feasible than ever before.

2. Mechanical-electrical systems are nearing 40% of the cost of many new college buildings, making them machines almost as much as structures.

The machine part of a building not only responds to automation, but *performs best at lowest cost only with a largely automatic "nerve system."*

Here's what we mean by automating buildings

A long stride in automating a building or campus is a central panel to control any or all systems such as air conditioning or heating; automatic fire alarm; security against intrusion and theft; clock systems; and equipment surveillance.

Central control alone can cut a surprising number of man-hours now wasted by operation and maintenance men, through no fault of their own, and slash excessive use of power and fuel.

That's the beginning. Automation also can start and run power-consuming equipment *in just the right sequence and loading combinations for optimum efficiency at any demand.* The accompanying graph shows the unusual increase in efficiency estimated for an actual building by automating 3 compressors for the most efficient performance at all loads.

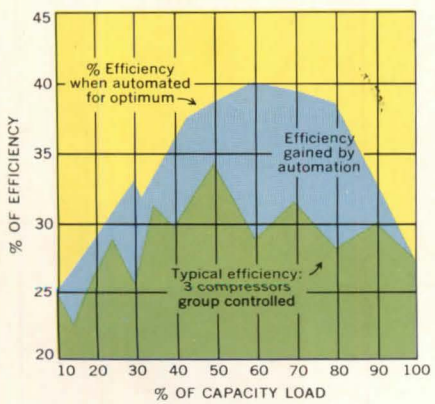


Figure out what such a boost in efficiency would do for your client. Even in a far simpler system than this one, automation may offer extraordinary savings. The only question today is how *much* automation is *most* profitable.

Before: Turning on the heat at Harvard's North Yard buildings once meant daily 2-hour tours through steam tunnels for Isaac H. Larew, engineer, and a crew of associates.

Simpler systems for small buildings, robots for big ones

For smaller buildings there are now *simpler* systems of central control; for complex campuses, computer-robots to analyze scores of variables including weather, internal load, fuel costs—and instantly allocate load to equipment for the desired results at the least expense.

Between these extremes are a host of new advances, including miniaturization, to enable automation where it was impractical or too costly a few years ago.

Often pays for itself in as little as 2 to 5 years

Automated central control often pays for itself so swiftly—in as little as 2 to 5 years—that it's almost unbelievable.

Yet many reports to Honeywell confirm it and show why. For one thing, it's now far simpler to automate only the systems your clients need. Here are a few of the functions you can automate:

Campus-wide equipment operation: Start-stop from central panel. Surveillance with off-normal conditions pinpointed automatically, protecting equipment, eliminating human error, saving man-hours.

Temperature, humidity: Centrally monitored. Operator can adjust set-points in distant buildings.

Building security, fire alarm systems: New electronic, sonic and other detectors see and hear in the dark or distance; spot even a wisp of smoke that portends a fire; feel presence of an intruder even approaching a security zone.

Clock programming systems: Start-stop of equipment at proper time, in proper sequence. Built-in memories to do the right thing after a power failure.

Automatic data logging: Typed records for system analysis, costing, research.

There are many more functions you can now automate, but only an analysis of the specific campus will show which you can include in the system most profitably. Automation's savings may surprise you, for money can now dribble away in countless places, undetected.

For example, air conditioning, heating and other costly equipment often *needlessly runs 2 to 4 hours overtime a day* because it takes so long to tour the campus starting and stopping the machinery.

This wastes power and fuel, cuts equipment life, and diverts man-hours urgently needed for preventive maintenance.

Starting equipment—the old way and the new

From Harvard University comes a dramatic "before-and-after" example.

Two years ago, analysis showed "an inordinate amount of time" needed for operating men to go from building to building to start, stop, adjust and check on the heating and air conditioning.

Starting at 6 a.m., some men required two hours to finish their tours—only to repeat them during the day and again for the shutdown after classes.

Today, as part of a program to improve efficiency, Harvard has installed a desk-sized console *from which one man can supervise 67 buildings!* At this console, a Honeywell Selectographic* DataCenter, it takes him only a few minutes to:

- View 37 schematic diagrams representing systems for the 67 buildings.
- Start or stop 42 fans up to ½ mile away.
- Operate remotely 32 steam valves.

*Trademark

After: Seated at this Honeywell console, Larew now can supervise systems in 67 buildings of Harvard's North Yard, operating 32 steam valves, 42 fans, up to ½ mile away.

- Check temperatures at 100 points.
- Get immediate warning of humidity changes in steam tunnels or in library areas (which include, among other treasures, priceless Oriental manuscripts).

Reports indicate that savings from the automatic control program will amortize the investment in two years, besides improving service.

A second console now controlling systems for the new 10-story Harvard Holyoke Center has been planned so it can also control 30 South Yard buildings.

The same type of control center now serving Harvard is going in at one of the nation's newest—New York State University Long Island Center (see first page). Embracing eight buildings this fall, the center eventually will control approximately 44.

Problems of the small campus differ mainly in size. At San Antonio College, San Antonio, Tex., a Selectographic has centralized control for five present buildings, will be extended to others as they are built. Dr. Wayland P. Moody, president, estimates the automation will pay for itself in 3½ years—and regards it as a step in providing the best education at lowest cost to taxpayers.

Honeywell miniaturization now saves costly space

The Selectographic is an example of the new miniaturization. From this console, hardly larger than a desk, one man can supervise air conditioning of a modest building, a campus or a skyscraper.

By pushing buttons, he sees all fan systems or floor plans on a TV-like screen. Graphic illustrations, rear-projected from 35 mm slides, rivet attention on one system at a time so he isn't confused by a bewildering array of gauges.

For a large building or campus where conventional panels would need 1,200 sq. ft. of floor space, the Selectographic uses only 200. So at building costs of $15-$30 per sq. ft., just the space for a conventional panel would cost $15,000-$30,000 more than for the Selectographic.

Modules help tailor automation to your need

Whatever functions you wish to automate in addition to heating or cooling can be tied into the Selectographic with modules designed by Honeywell to give you a custom job at production-line prices.

FOR FIRE PROTECTION, an alarm-location panel at the operations office as well as the console may save time in directing evacuation, rerouting traffic, shutting off power and gas, notifying firemen of inflammables and explosives, and protecting or removing valuables.

AUTOMATIC SECURITY ALARMS may be centralized at the Selectographic. There are also panels for local control: for example, protecting women's dormitories against intruders. Here, an excellent aid is a small panel in the house mother's quarters for locking all doors and remote control of the main entrance.

AUTOMATIC DATA LOGGING is far more than a record-keeping measure. It's a step in running systems at the optimum.

Honeywell's Datalog* and Datalarm* work as a team. The latter scans hundreds of key points, printing any that is off-normal and recording its value, location and time. The automatic typewriter logs selected points on a schedule, printing any off-limit readings in red.

At a new 378-bed unit of the State University Hospital, Syracuse, N.Y., a Honeywell Datalarm will print out any of 275 key points while the Datalog periodically records any 80.

Tabulated and digitized values will simplify paper work, cut logging manpower needed to run systems at top efficiency.

Other new equipment that speeds automation

The Honeywell ScanAlarm* is another way to monitor key points. In connection with your central console, it will check 100 points in 3 seconds, signaling if any is off-limits and showing its location.

Another Honeywell advance has slashed wiring costs. In typical buildings, the Honeywell Multiplexer relay system reduces the number of wires needed by 79%. These are examples of advances now making automation profitable where a few years ago you may have felt it something for the future.

Electronic signals quicker than footsteps, cost less

Although electronic signals move faster than men, and cost less, foot-tours remain the routine on most campuses.

Colleges are under pressure to expand and modernize. It would be costly to modernize in other ways without exploring what more automation can accomplish.

It may be tempting to consider automation later on. However, it will then cost more, plus the loss meanwhile in "hidden" costs such as—

- Wasted man-hours in touring buildings, adjusting equipment, logging data.
- Downtime avoidable by preventive maintenance made easier by central control of equipment.
- Time lost by maintenance on an arbitrary scheme instead of an optimum plan made possible by system analysis that spots a drop in efficiency, warns when it's time for checkup, avoids breakdowns.

Modern equipment also can instantly locate remote trouble sources that otherwise might take hours or days to find.

So today your client may be paying for automation of his buildings whether he has it or not *and paying more without it.* The question is really how much it will cost NOT to automate. Delay can be expensive.

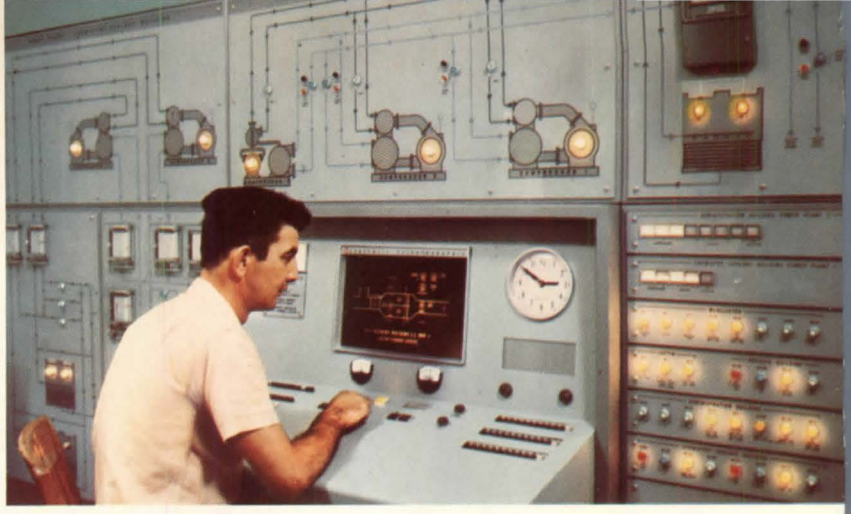
Now's the time to call the people who know automation. Especially Honeywell.

Building automation began with this thermostat

Familiar as you are with this thermostat, the Honeywell Round, it may never have occurred to you that the first Honeywell thermostat was the real ancestor of building automation. But it is. Its principle is basic to automating industrial processes, space guidance systems, or buildings. You may expect Honeywell, as an auto-

*Trademarks

To minimize operating costs, San Antonio College in Texas has largely automated air conditioning with one center (right) now controlling 5 buildings. More will be tied in as the campus expands.



One man at San Antonio's Honeywell Selectographic controls equipment up to 1,300 feet away, starting or stopping 18 fans, 28 pumps, 3 boilers, 4 chillers; checking 131 temperatures, adjusting 30. The college expects center to pay for itself in 3½ years just for the 5 buildings it now controls.

mation pioneer, to fit your clients best with the *right* control systems, *properly integrated for optimum efficiency.*

Only Honeywell designs, builds, installs, maintains all these control systems

Only Honeywell devotes an entire factory to making central control panels, one evidence of its leadership.

Only Honeywell manufactures the panel and all equipment used on it.

And only Honeywell makes *all 3 types* of control systems—electronic, electric and pneumatic. So Honeywell automation specialists are free to advise any type or combination that's *best for your clients specific needs.*

If you need continuous indication of variables, Honeywell has it. Automatic data logging? Honeywell has it. System analyzers? Honeywell has them. A lease-purchase plan? Honeywell has it. And if you want a *definite* maintenance cost with no surprises to upset your clients' budgets, Honeywell offers that, too.

Automation simplified by single responsibility

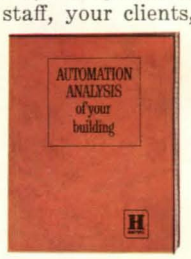
Honeywell will work with you and your clients to study what automation will pay off quickly, what services are on the fringe or beyond it.

We'll help design the system, we'll make the equipment, install it, supervise start-up, and contract to maintain it with periodic inspection, emergency service, parts and replacement.

All guaranteed by Honeywell—one company accepting total responsibility.

Ask about an automation analysis of your buildings

How do you start? Honeywell specialists will work with your staff, your clients, or others to make a documented analysis of your buildings if a preliminary check indicates further automation may be profitable. Whether it's new buildings or modernizing, turn to Honeywell for counsel. Phone your nearest Honeywell office, check coupon, or write Frank Neal, Honeywell, Minneapolis 8, Minnesota. In Canada, write Honeywell Controls Ltd., Toronto 17, Ont.



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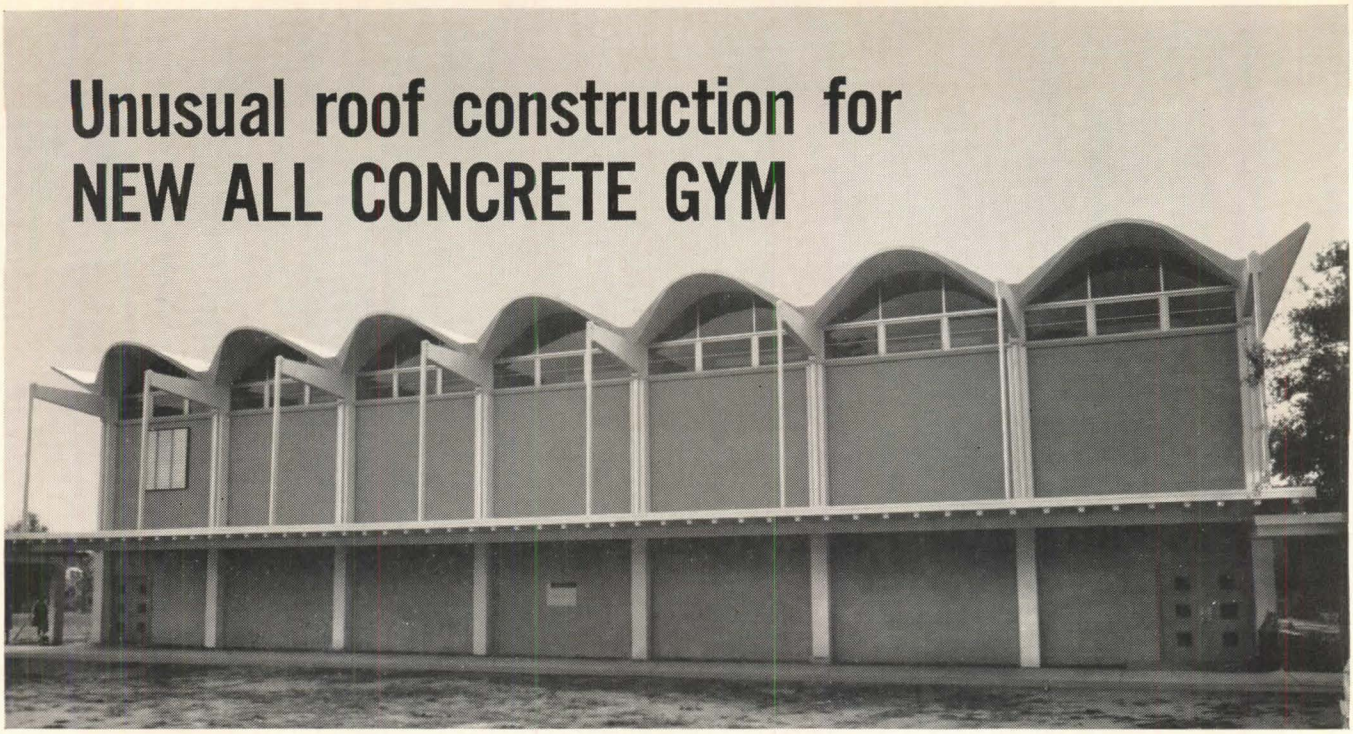
Unusual roof construction for NEW ALL CONCRETE GYM



Fessenden High School gymnasium in Marion County, Fla. is an interesting combination of prestressed concrete, poured concrete and concrete masonry. Tapered ends of the Lin Y roof beams cantilever to support double Tee Beams covering a walkway.

Owner:
Marion County Board of Public Instruction, Ocala, Fla.
Architect:
Berry J. C. Walker, A.I.A., Ocala, Fla.
Structural Engineer:
R. O. Newman, Leesburg, Fla.
Contractor:
Thompson Brothers Construction Co., Leesburg, Fla.
Prestressed Manufacturer:
Dura-Stress, Inc., Leesburg, Fla.
Concrete Block Manufacturer:
Robinson-Scofield Lumber Co., Dunnellon, Fla.

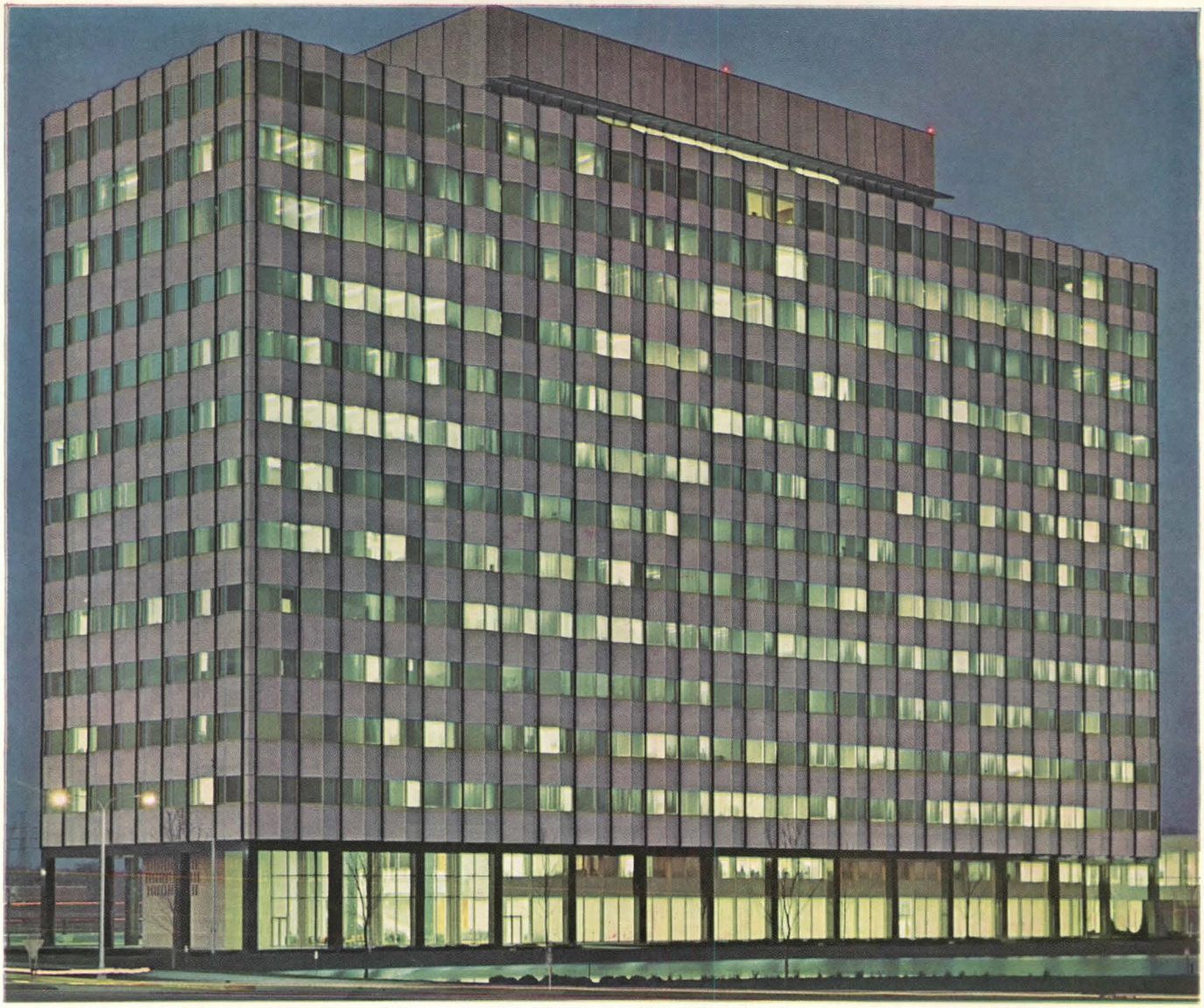
• Huge, prestressed "Y" beams, resting on cast-in-place columns, form the basic structure of this interesting high school gym roof. Cast-in-place parabolic arches between these beams complete the effect. Prestressed double Tee beams, supported from the ends of the "Y" beams, provide a covered walkway. And, the walls are painted concrete masonry units.

LEHIGH EARLY STRENGTH CEMENT BENEFITS EVERY MEMBER OF THE TEAM Dura-Stress, Inc. used Lehigh Early Strength Cement for the prestressed units in this building. Here, as in almost any concrete work, this cement provides important benefits for manufacturer, contractor and architect alike. Quicker re-use of forms. Earlier availability of units. Assured on-time delivery for smoother planning. Lehigh Portland Cement Company, Allentown, Pa.

LEHIGH CEMENTS

Eight prestressed Y beams are set in place on 16′ centers as the first step in roof construction. Each beam measures 105′ long and 8′ wide.

To complete the interesting form of the roof, 8′ wide parabolic arches are poured-in-place between the beams.



3M Company Administration Building, St. Paul, Minnesota. Architects & Engineers: Ellerbe, St. Paul.

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North Carolina State Legislative Building. Architect: Edward Durell Stone, New York City. Associate Architects: Holloway & Reeves, Raleigh, N. C.

Here's how leading architects use coppermetals

Fabricator: J. D. Wilkins Company, Greensboro, N.C.

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WITH FINISHED STONE: Interior, Public Safety Building, Rochester, N.Y.

WITH CERAMIC: F.D.I.C. Building, Washington, D.C. Architects: Chatelain, Gauger & Nolan, Washington, D.C.; Perkins & Will, Chicago, Ill. Fabricator: A. F. Jorss Iron Works Inc., Arlington, Virginia.

WITH GLASS: Eisenhower Presidential Library, Abilene, Kansas. Architect: John E. Brink, Iola, Kansas. Fabricator: Flour City Architectural Metals Div., Hupp Corp., Minneapolis, Minn.

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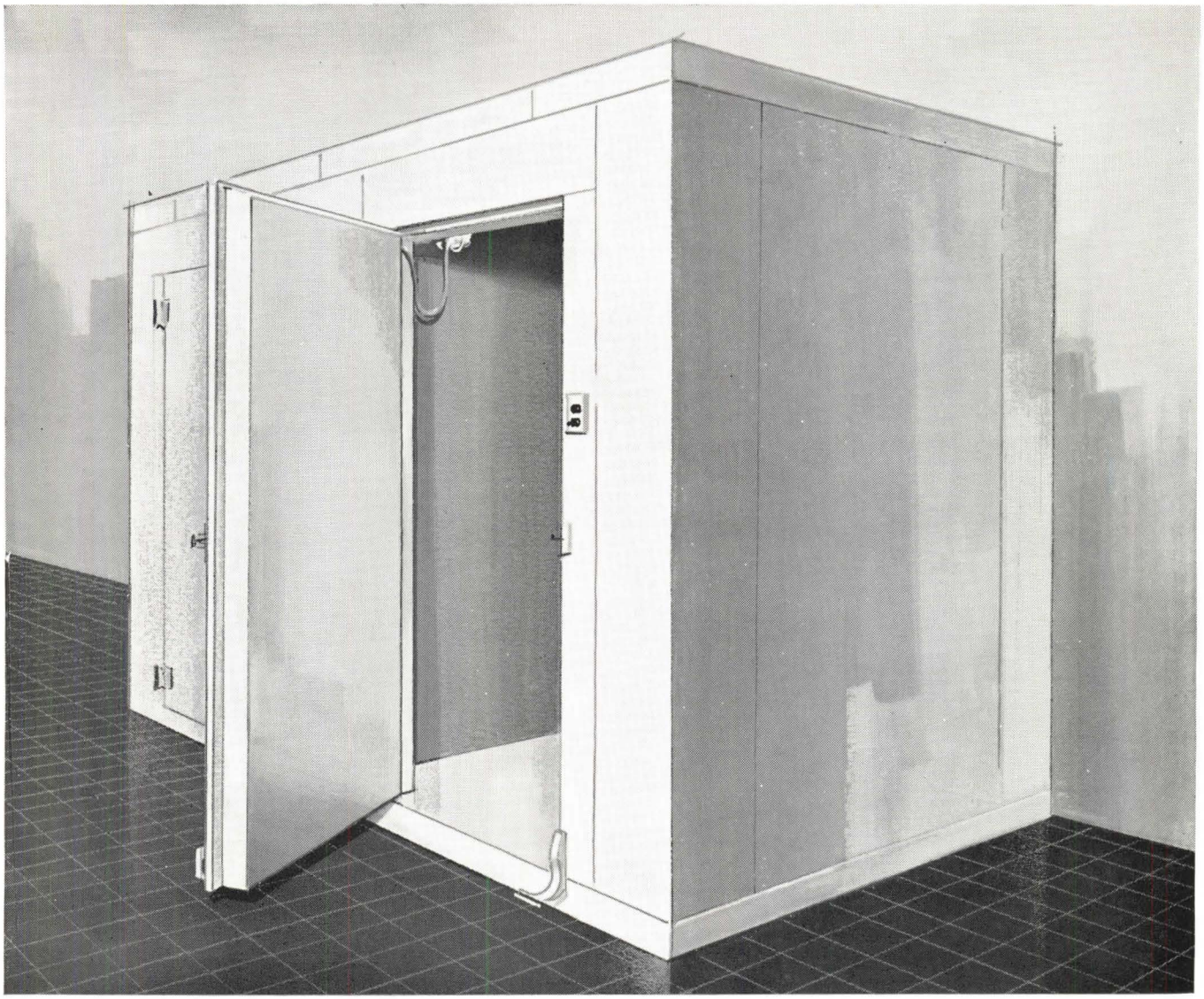

Bally walk-in refrigerator-freezer provides 372 cubic feet of storage space for the Bloomsburg, Pennsylvania, Area Joint High School, designed by the architectural firm of Wolf and Hahn.

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Thin walls save space in this walk-in refrigerator fabricated by Bally Case and Cooler, Inc. It is insulated with Hetrofoam-based polyurethane—a foam so efficient 4″ does the job of 8½″ of ordinary insulation.

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Retards fire. Foams from Hetrofoam pass U.L. Subject 94 on both aged and unaged samples. They are rated non-burning by ASTM D-1692-59T.

They are stable to heat and will not distort at temperatures as high as 300° F against one side.

Resists moisture. Hetrofoam-based insulation has a completely closed-cell structure. Moisture does not spread through it by capillary action.

Light in weight. Hetrofoam-based polyurethane foam between metal skins results in an extremely lightweight section. It greatly reduces shipping cost and makes assembly fast and easy.

For more information on Hetrofoam and its many architectural and construction applications, please write Durez® Plastics Division, Hooker Chemical Corporation, 7704 Walck Road, North Tonawanda, New York 14121.

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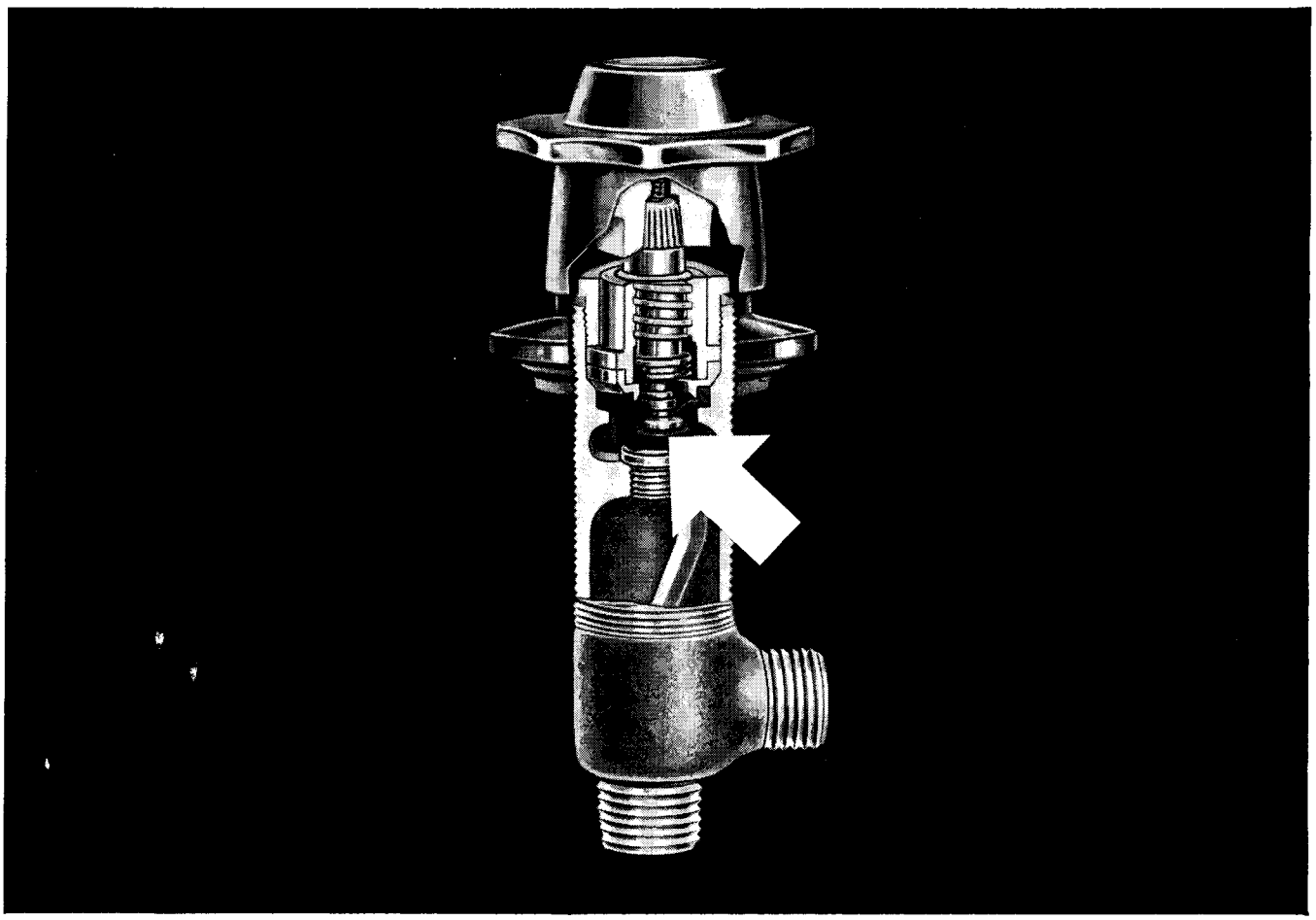

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For more information, turn to Reader Service card, circle No. 315

Michigan Consolidated Gas Bldg.—Architects: Minoru Yamasaki—Smith, Hinchman & Grylls, Detroit. General Contractor: Bryant & Detwiler Co., Detroit. Windows: The Adams & Westlake Co., Elkhart, Ind.

This unusual window design was a challenge to the manufacturer. Stainless Steel came through–in strength, appearance and cost.

The architect's requirements called for strong, weather-tight, corrosion-resistant windows at competitive cost. Adams & Westlake produced them in nickel stainless steel from two roll-formed sections that were bent instead of cut.

The high strength of stainless steel reduces designers' and manufacturers' limitations by permitting the use of thinner gauge components—and brings costs close to those of competitive materials.

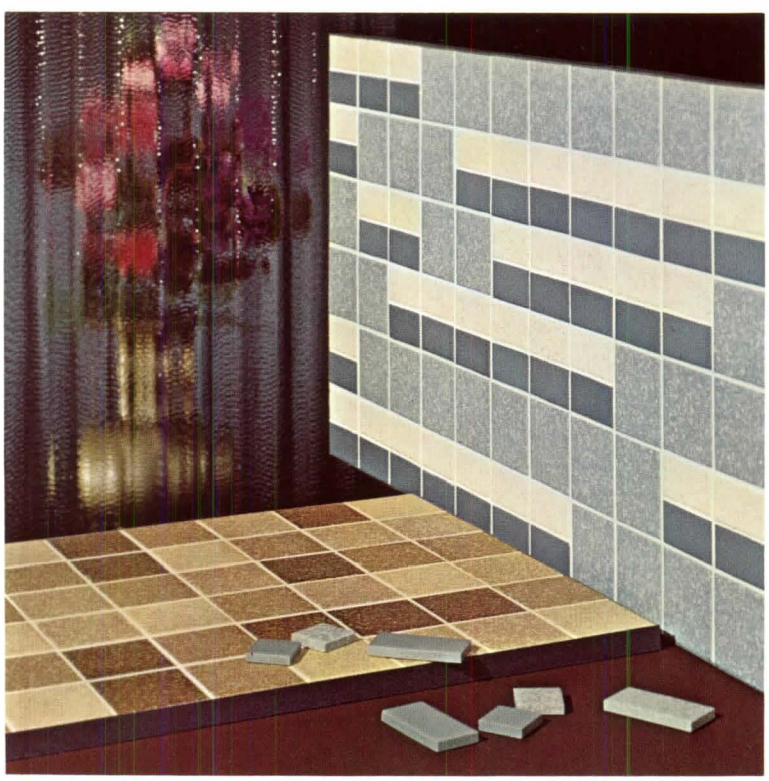
Stainless steel is economical over the years, too. It's solid stainless right through—maintains its gleaming, corrosion-resistant finish for life with a minimum of care. And its low thermal conductivity reduces heat losses in winter and heat gain in summer.

For further information on the many design advantages of nickel stainless steel and a list of fabricators, write for Inco's "Suggested Guide Specifications for Stainless Steel Windows."

The International Nickel Company, Inc. 67 Wall Street New York 5, New York

Glazed tile in 65 decorator colors

18 textured crystalline colors



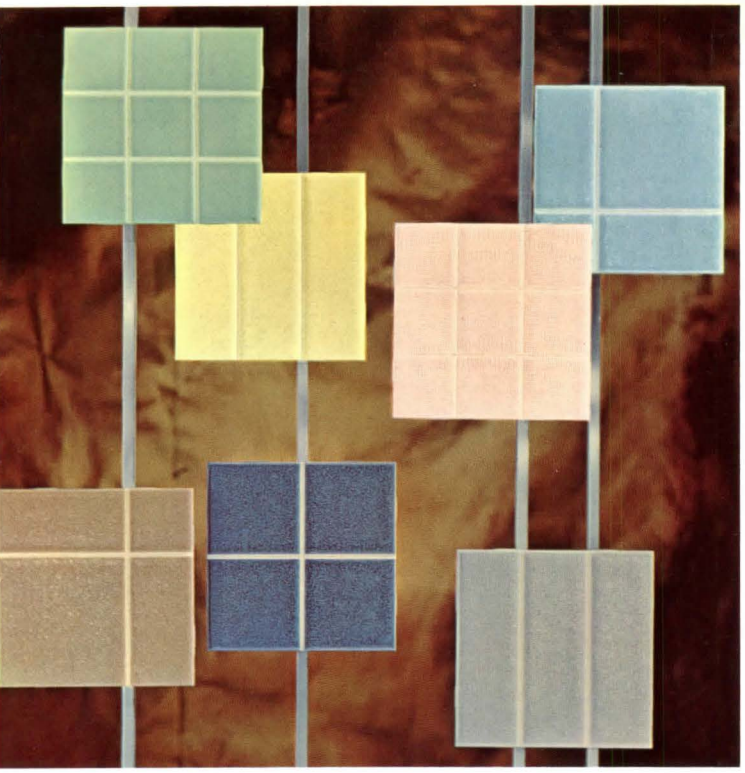
Precedent ceramic mosaics: 54 rich, clear colors

12″ contours CV®: 13 designs in 19 colors

The widest selection of ceramic tile...

AMERICAN OLEAN TILE COMPANY • EXECUTIVE OFFICES: 1872 CANNON AVE., LANSDALE, PA

For more information, turn to Reader Service card, circle No. 307.



Four scored tile designs, with trim

Wide variety of decorated tile designs

Murray quarry tile for rich, rugged floors

Special murals and color coordination service

The finest quality made

CERAMIC TILE
American Olean

MANUFACTURERS OF GLAZED TILE, CERAMIC MOSAICS AND MURRAY QUARRY TILE • A SUBSIDIARY OF NATIONAL GYPSUM COMPANY

SATURN TOWERS, Colorado Springs, Colorado. OWNER-BUILDER: Crestmar & Co.; ARCHITECT: Roland A. Wilson Associates; STRUCTURAL ENGINEER: Sallada and Hanson; STEELWORK: Sterling Steel & Supply Co. All firms of Denver, Colorado.

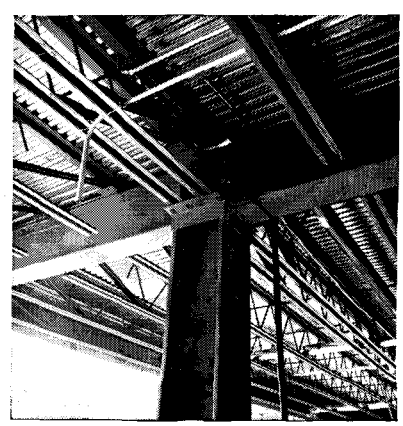
This steel frame, including joists and solid centering, weighs only 7 lb per sq ft

The steel frame (Bethlehem A36 structurals) plus Bethlehem open-web steel joists, with Bethlehem Slabform (our solid steel centering) weighs only 7 lb per sq ft in this nine-story Colorado Springs apartment.

What's more, steel for the 81-unit building was erected in only 45 working days. The owners are so satisfied, they plan two more identical structures at some time in the near future.

Besides fast erection, a steel frame provides strength to spare; and a non-warp, non-sag construction that holds down maintenance costs. Fire-safety is up, with a resistance of up to four hours. Steel joists permit easy passage of pipe, wire, and conduit through the open webs—in any direction. Slabform saves both time and money, compared to flexible-type centerings. It's a safe working platform, too.

We'll be glad to discuss your next building with you. Perhaps we can show you ways you can save time and money with today's steels for construction.



Steel joists allow pipe, conduit, and ductwork to be run in any direction.

Steel for Strength

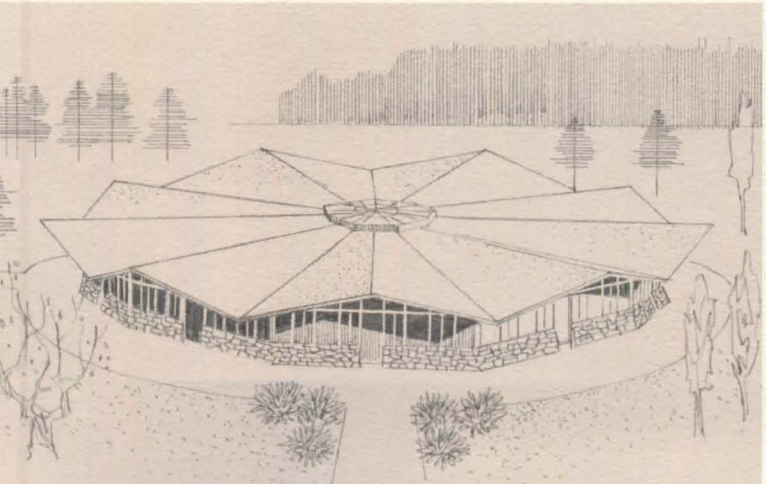
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA., Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

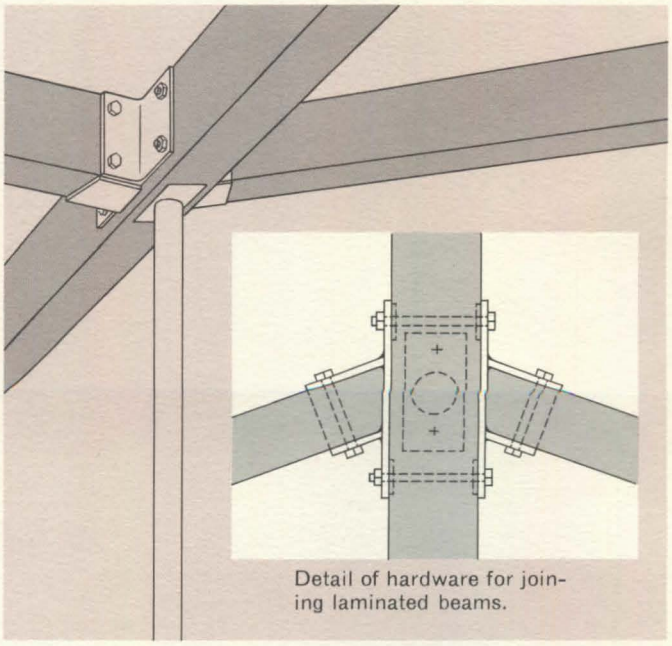
DESIGN IDEAS 1964

On the following seven pages you'll see specific examples of how Koppers building products have helped architects and engineers obtain greater latitude of design and save money for clients. These Koppers products are either permanent in themselves or they give permanence to other materials.

This skylighted rotunda in the center of a circular classroom wing serves as an activity area. UNIT laminated beams (7″ x 16″ x 48′ long), continuous over steel columns, cantilever to support the circular steel compression ring that forms the rotunda. All beams are laminated with waterproof resorcinol glue.



Hills and valleys of wood decking, which provide insulation and acoustical values, top the 9,000-square-foot schoolroom wing. Architect felt circle, with pie-shaped classrooms, was more suited to teaching-by-TV.



Detail of hardware for joining laminated beams.

KOPPERS®

Photographs from top to bottom: Auditorium. Gymnasium. Typical classroom. Library. Enclosed corridor. All feature UNIT STRUCTURES' exposed laminated wood beams and decking.

Laminated wood beam construction saved $33,000 in this new school

The five buildings of the new Riverbank Elementary School in Stamford, Connecticut, form a radial cluster, a design which is adaptable to the uneven terrain of the site, possible changes in the curriculum, and team teaching. The central building contains the gymnasium, auditorium, cafeteria, and administration offices. The three circular classroom wings and the kindergarten building accommodate 760 students.

The use of laminated wood beams and exposed wood decking gave the architect the warm, attractive environment he wanted for the school. And it was more *economical*. Preliminary studies developed by the architect showed that laminated beams saved $33,060 compared to a structural system with steel beams. The interesting design resulted in an overall cost per square foot of only $17.50.

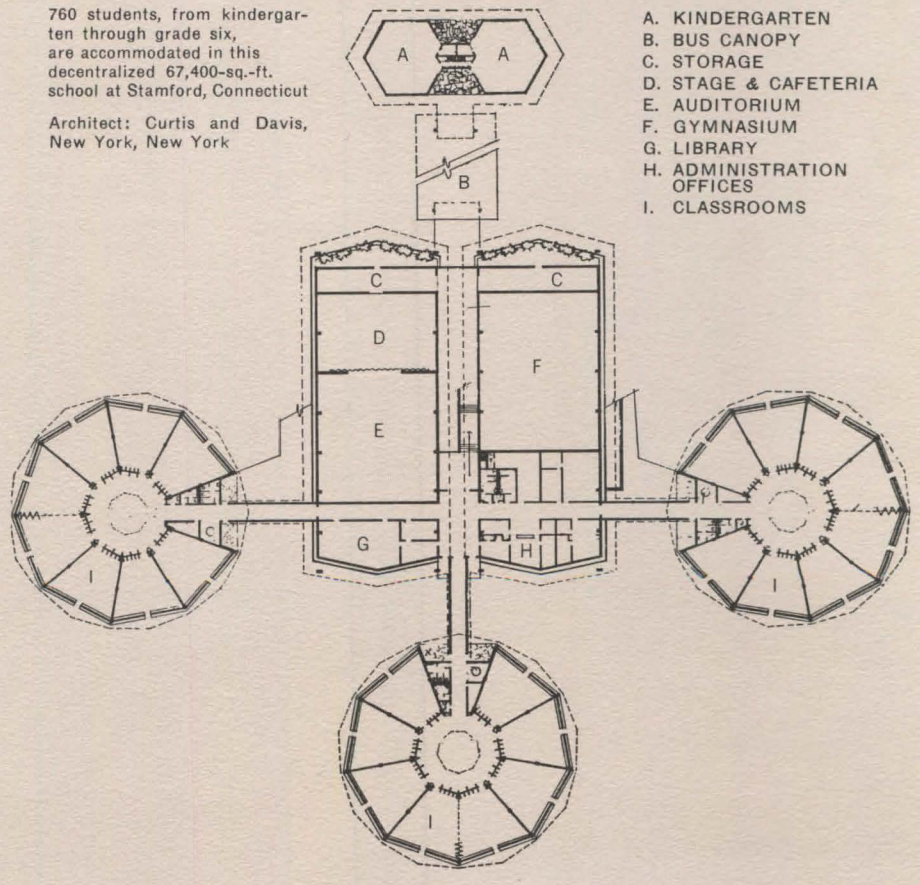
The buildings' frames consist of laminated wood beams supported by steel columns. The roof and exposed ceilings are 4″ x 6″ double tongue-and-groove white spruce decking. Both the beams and decking were supplied by UNIT STRUCTURES, a department of Koppers. Walls are brick and glass, with interior partitions of concrete block and glass.

Margaret C. Toner, school principal, says: "We find the building most functional, enjoyable and challenging. The large entrance corridor provides more than adequate space for many classes of children passing at the same time. Each wing consisting of eight classrooms contains two grades, which separate the age levels very conveniently for individual work and appropriate programs."

For more information about UNIT laminated beam construction, return the coupon on the last page of this Koppers advertisement.

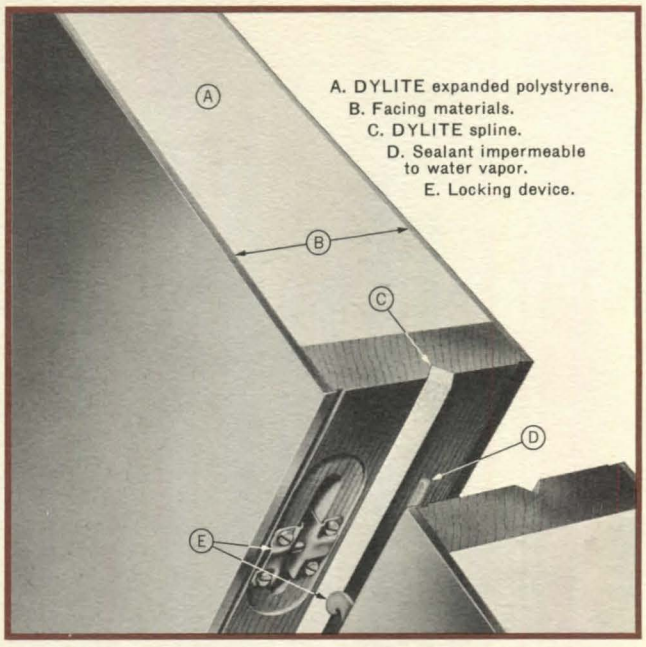
760 students, from kindergarten through grade six, are accommodated in this decentralized 67,400-sq.-ft. school at Stamford, Connecticut

Architect: Curtis and Davis, New York, New York



A. KINDERGARTEN
B. BUS CANOPY
C. STORAGE
D. STAGE & CAFETERIA
E. AUDITORIUM
F. GYMNASIUM
G. LIBRARY
H. ADMINISTRATION OFFICES
I. CLASSROOMS

Insulated structural panels help cut construction time six months



When the record-breaking pecan harvest came in 1963, the Funsten Division of Pet Milk Company was ready for it with a brand-new shelling plant and cold storage warehouse near Albany, Georgia. The entire plant was built in only six months, one-half the time required for their previous plants of this type. Company officials credit much of the time saving to 35,000 square feet of DYLITE® Refrigeration Panels used for the exterior walls and roof of the 150′ x 160′ cold storage section of the plant. They were erected by a small crew in only fifteen working days. Because the panels are load bearing they form the complete structural wall and roof deck. No perimeter steel framing was required.

The sandwich-type panels are 19½′ long, 4′ wide, and 6″ thick. The interior and exterior facings are ¼″ plywood overlayed with white acrylic-coated aluminum. The core of the panel is DYLITE expanded polystyrene. This rigid foam plastic insulation has a very low water absorption rate because of its closed cell structure. It has a "K" factor of 0.24 at 70°F. which gives the 6″ thick panels a "U" factor of 0.040. An easily operated mechanical locking device joins the panels, and locks the roof panels to the tops of the wall panels.

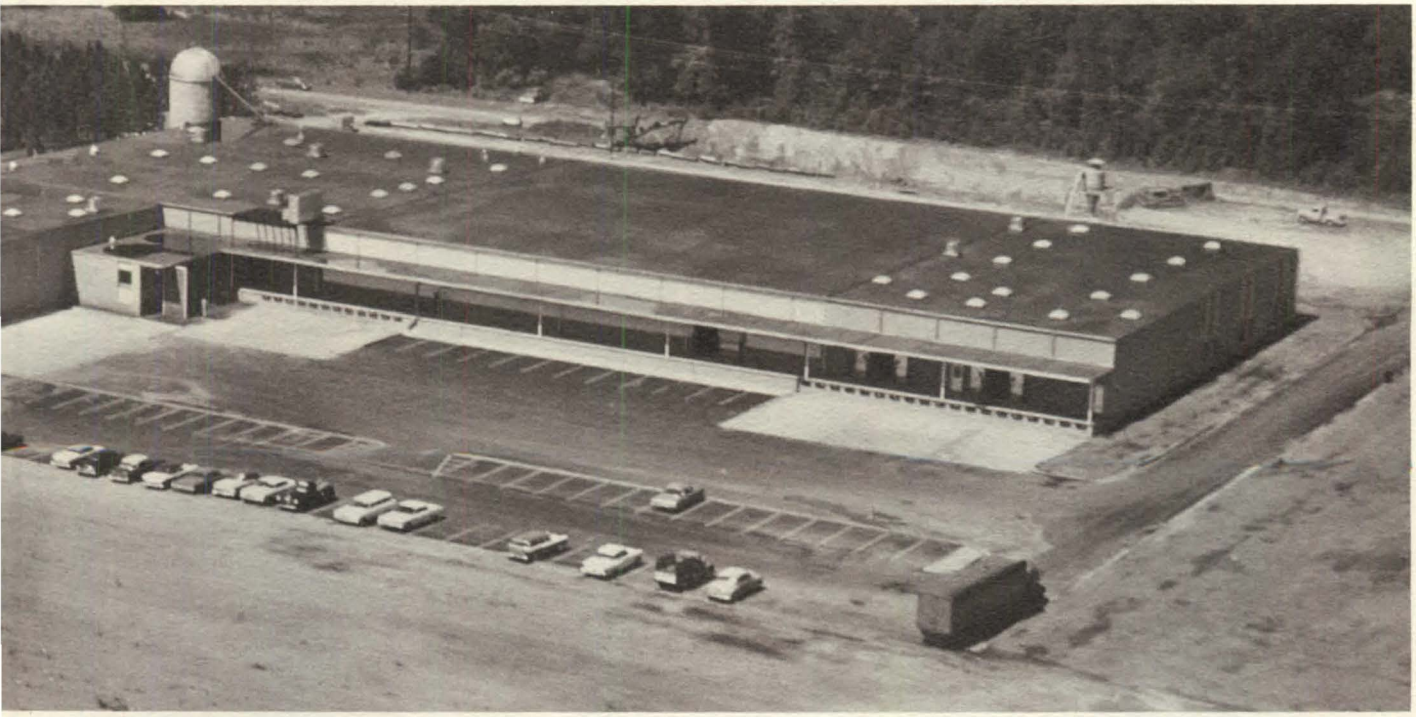
The floor is 6″ reinforced concrete set on a gravel bed. Four-inch pipes, set 2 feet deep in the gravel and 2 feet apart, run the entire length of the floor to permit free circulation of air.

Funsten's cold storage room will hold six to eight million pounds of unshelled pecans in a controlled atmosphere of 32° to 36°F. and 73% to 75% relative humidity.

The company reports that the DYLITE panels provide a 100% effective moisture barrier that eliminates the condensation and water drippage problems encountered in previous plants. Funsten also anticipates savings in operating costs because the high efficiency of the insulation will permit less electric power to maintain low temperature.

Koppers produces both load-bearing and non-load-bearing DYLITE panels—and provides erection services —for refrigeration and many other environmental control applications. Check the coupon for complete information.

Pet Milk Company stores pecans at an average temperature of 34°F. and humidity of 74%, in the center, cold storage section of this plant.



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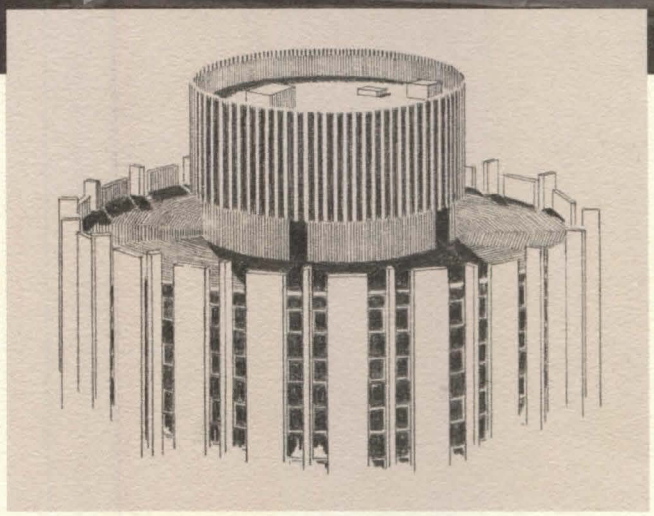


Architect: Deeter and Ritchey, Pittsburgh, Pennsylvania

Coal tar pitch protects unique tri-tower structure from top to bottom

The University of Pittsburgh's new residence hall for men consists of three circular towers standing on a common three-story pedestal. The roofs and sundecks, and the promenades at the base of the towers, are all waterproofed with the same basic material—coal tar pitch.

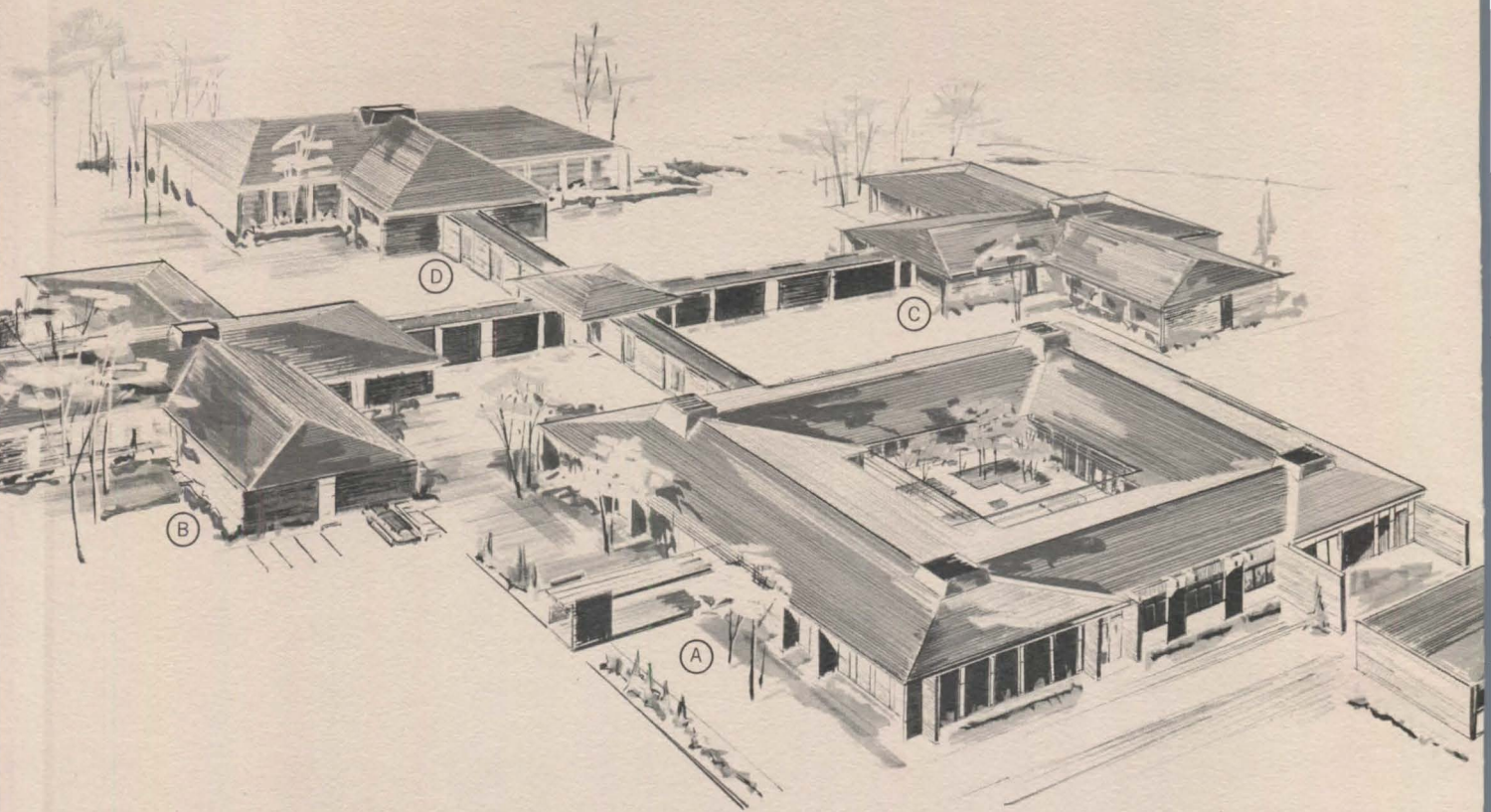
The roofs of the towers' central service cores are Koppers built-up roofing. The 4″ concrete deck is covered with 1½″ cellular glass insulation set in steep asphalt. The insulation is topped with four layers, or plies, of coal tar-saturated felt and pitch (Koppers specification No. 5), and a final layer of gravel imbedded in a pouring of pitch.

The sundecks around the service cores rest on the same basic built-up roofing with two additions. Under 2″ x 2″ radial redwood sleepers are two additional plies of tar-saturated felt and pitch. The roof received an extra pouring of gravel and hot pitch, for added protection.

The promenade at street level, which surrounds the three towers and forms the roof of the three-story base of the building, is protected with five moppings of coal tar waterproofing pitch, 4-ply tar-saturated fabric, and covered with a 4″ terrazzo surface.

Unlike other waterproofing and roofing materials, coal tar pitch has a molecular structure that permanently resists oxidation and the penetration of water and water vapor, and provides long life. Many roofs built up with coal tar pitch are more than 30 years old and still in excellent condition.

For more information about Koppers built-up roofs and products for waterproofing, check the coupon.



A. Dining hall, chapel, library, lounges, arts and crafts shop. Patio in center.
B. & C. Living quarters; each room has access to outdoors. D. Living quarters, plus medical facilities.
Architect: Carl A. Strauss & Associates, Cincinnati, Ohio
Associate Architect: Lipson and Wallace, Cincinnati, Ohio

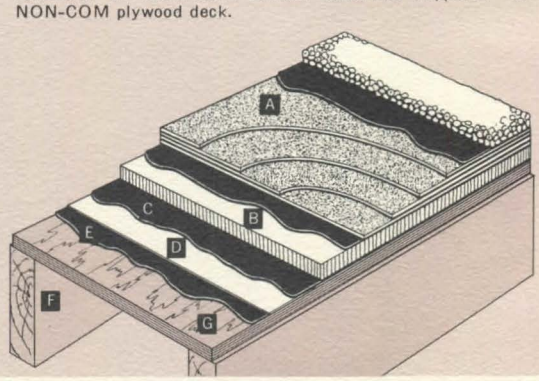
This wood roof has a fire rating equal to steel construction

Because the building site for the Glen Manor Home for the Aged in Cincinnati was lower than the street level, the architect designed a *pitched roof* for more visual interest, and to give the building a more "home-like" appearance. The architect used a new wood roof system, which has received a fire rating from Underwriters' Laboratories, Inc. that's equal to steel.

The roof was built with NON-COM® fire-protected lumber—120,000 board feet for the trusses and joists, and 46,720 square feet of ¾" NON-COM plywood for the deck. NON-COM wood was selected for ease of construction and for the insurance savings. The roof (UL Listing NM501 for a non-metallic deck assembly) also met the fire code requirements of the Ohio Inspection Bureau, the City of Cincinnati, and the State of Ohio.

NON-COM lumber is pressure-impregnated with chemicals that provide automatic protection against fire. At temperatures below the ignition point of wood, the chemicals produce carbon and water vapor that choke off any flame and prevent fire spread. The same chemicals also provide permanent protection from decay and termites. Check the coupon for more information about NON-COM.

NON-METALLIC DECK ASSEMBLY NM501 (ALL COMPONENTS UL-LABELED) A. Standard 4-ply built-up roof or shingles. B. 1" fiberboard insulation. C. Adhesive, or nails. D. Aluminum foil vapor barrier. E. Adhesive, or mechanical fasteners. F. NON-COM lumber structural supports. G. NON-COM plywood deck.



New low insurance rates for non-metallic deck assembly NM501

Many state insurance rating bureaus, based on UL's fire rating, have recognized this NON-COM treated plywood roof deck system, and have assigned it new low rates. Submit preliminary plans to your state rating bureaus for rate evaluation. This new comprehensive recognition by Underwriters' Laboratories of NON-COM roofs makes possible for the first time:

—low-cost incombustible pitched roof decks

—incombustible-nailable roof decks for any configuration

Check the coupon for a Koppers brochure describing this NM501 deck assembly.

KOPPERS®

Troubled parking lot gets a new lease on life

The 305,000-sq.-ft. asphaltic concrete parking lot at the IBM plant at San Jose, California, was starting to deteriorate due to oxidation and softening from years of oil and gasoline drippage. To prevent further damage of the seven-year-old surface, IBM used Koppers *coal tar* Pavement Sealer.

The asphalt pavement was cleaned and patched. Tank truck sprayers then put down two coats of the cold-applied emulsion, which covered approximately 90 square feet per gallon, per coat. The coal tar coating resists oxidation and does not deteriorate in the presence of water, oil or gasoline drippings. Coal tar coating resists aging and drying out, and adds years of trouble-free life to pavements.

Koppers Pavement Sealer can be applied with mechanical spraying equipment or a simple push broom. It cures and dries quickly, is non-flammable, and does not have to be heated. Check the coupon.

Coal tar coating keeps steel water pipe "like new" for 39 years

When engineers on Staten Island had to dig up a section of a 39-year-old waterline to accommodate new road construction, they found the steel pipe was almost like new . . . no damage from rust or corrosion. Before the pipe was laid in 1924 it was coated with BITUMASTIC® Enamel, a Koppers coal tar coating.

The pipe, supplied by a company that is now part of Bethlehem Steel, was fabricated of 7/16″ steel plate with double riveted longitudinal seams and single riveted transverse seams. The interior and exterior surfaces were wire-brushed and shop-coated with BITUMASTIC Primer. At a temporary storage dock, both the interior and exterior were reprimed and hand brushed with hot applications of BITUMASTIC Enamel. Specs called for enamel thickness of 3/32″ plus or minus a 1/32″ tolerance. Recent tests on the excavated pipe showed the coating thickness to be from 70 to 85 mils (just under 3/32″), indicating little loss from corrosion or wear during the 39 years.

Koppers coal tar coatings prevent corrosion of steel because they form a tough, permanent barrier against moisture. The coal tar molecule doesn't deteriorate in the presence of water, so the coating remains intact, a continuous membrane that prevents moisture from reaching the steel. Coal tar coatings also provide excellent flow characteristics. Steel pipe lined with coal tar enamel maintains the highest carrying capacity of any water pipe currently available.

Koppers makes a complete line of BITUMASTIC Coatings for corrosion protection of steel and concrete in building construction, plant equipment, transportation equipment, and pipelines. Check the coupon for complete information.

Problems ... and low-cost solutions

	BITUMASTIC® COATINGS	COAL TAR ROOFING PITCH	DURETHENE® POLY-ETHYLENE FILM	COAL TAR WATER-PROOFING PITCH	PAVEMENT SEALERS	PRESSURE CREOSOTED WOOD	NON-COM® WOOD	WOLMANIZED® LUMBER	DYLITE® FOAM PLASTIC BOARD	DYLITE® SANDWICH PANELS	AIRCOUSTAT® SOUND TRAPS	PENACOLITE® ADHESIVES	LAMINATED ARCHES, BEAMS; DECKING
BUILT-UP ROOFING		X											
WATERPROOFING		X	X	X									
DAMPPROOFING	X		X	X									
CORROSION PROTECTION FOR STEEL & PILING	X												
CORROSION PROTECTION—CONCRETE & MASONRY	X			X									
PROTECTION OF ASPHALT PAVEMENT					X								
INSULATION									X	X			
LOW-COST PILING, POLES & STRUCTURES						X							
FIRE PROTECTION FOR WOOD							X						
TERMITE, ROT & DECAY PROTECTION						X	X	X					
SOUNDPROOFING											X		
WATERPROOF ADHESIVE FOR WOOD												X	
STRUCTURAL SYSTEMS													X

Earl F. Bennett, Mgr. Architectural Sales
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- ☐ Coal Tar Pitch for Waterproofing
- ☐ Pavement Sealer to protect asphalt from gasoline and oil
- ☐ BITUMASTIC® Enamels—Coal Tar Coatings for corrosion protection
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9-6

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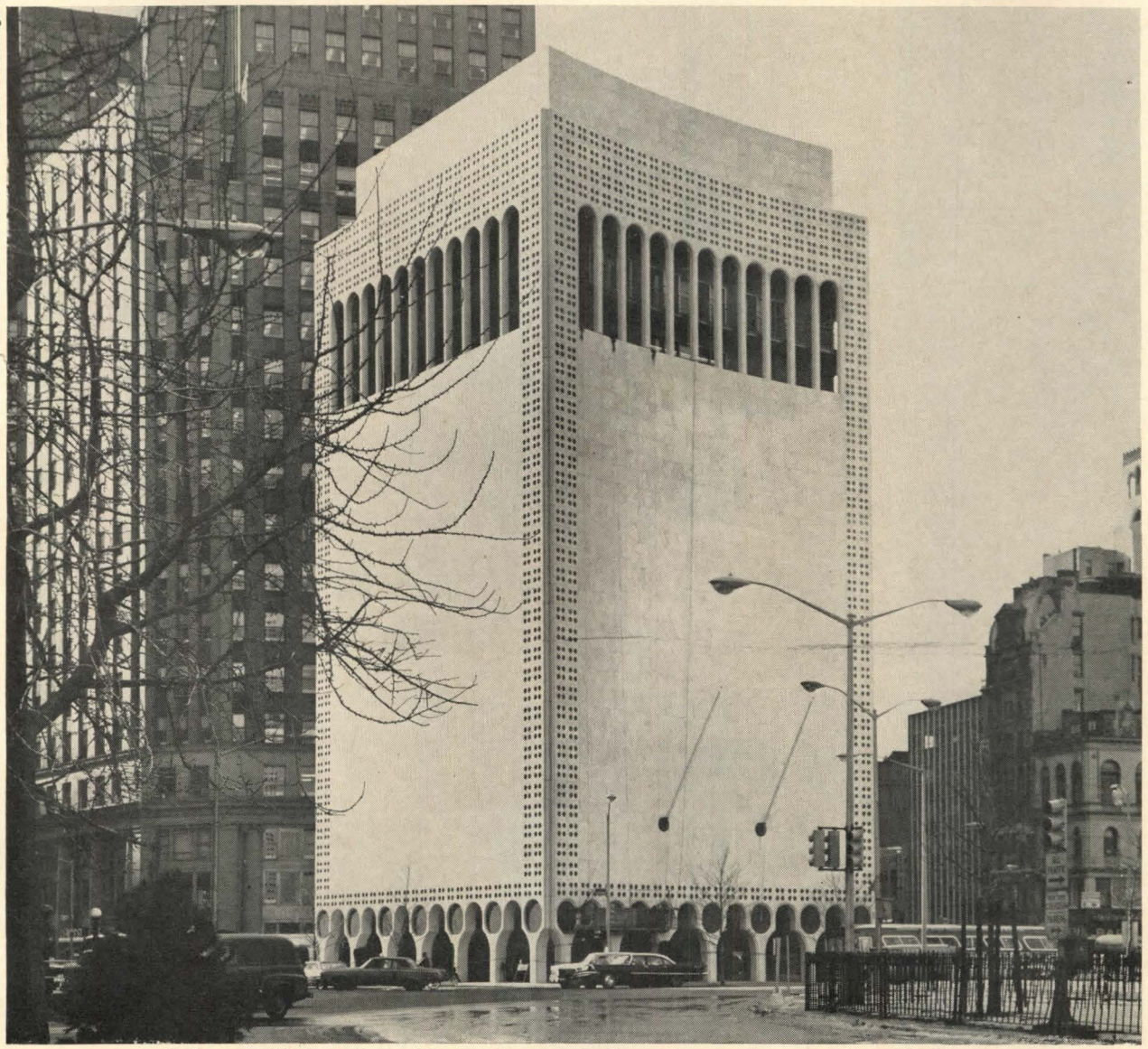
PROGRESSIVE ARCHITECTURE APRIL 1964

NEWS REPORT

Architecture's Monthly News Digest of Buildings and Projects, Personalities, New Products

Photo: Arnold Eagle



Newly opened Gallery of Modern Art adds an element of Byzantine opulence to New York's Columbus Circle.

For more information, turn to Reader Service card, circle No. 403

Photo: Arnold Eagle

Richness of detailing and furnishings in typical gallery area creates an environment for viewing art that is intended to make the museum visitor "aspire to original works of art in his home." The circular windows in the building (there are 1,472 of them) will allow visitors to play peek-a-boo with the view.

STONE'S NEW GALLERY OF ART OPENS

NEW YORK, N.Y. Edward Durrell Stone's first major building here in 25 years is the new Huntington Hartford Gallery—full name: "The Gallery of Modern Art (Including the Huntington Hartford Collection)."

The purpose of the Gallery, as Hartford puts it, is to show "a different aesthetic point of view from the vulgar commercialism on the one hand and the 'ivory tower' intellectualism on the other" that is prevalent in American art circles today. His own collection seeks to emphasize "certain relatively neglected phases of 19th- and 20th-Century art" and has been called everything from independent and personal to unfashionable, uneven, and unmemorable. In addition to housing this basic and growing collection, the gallery will also serve as a "metropolitan showcase" for special exhibitions. Its inaugural show is a retrospective of works by the late Pavel Tchelitchew.

The building Stone has created is a bijou of poured concrete sheathed in white Vermont marble in the setting that is Columbus Circle. The tiny site is an island, 97 ft in its greatest dimension, with no two sides the same. Compounding the problem of fitting the building to the small site were building code requirements for elevators, mechanical services, and other utilitarian necessities which, according to Stone, "would have served a building many, many times the square foot area involved." He was, he continues, "in effect putting a watch together—and a miracle was needed to get an orderly, spacious gallery area."

Stone describes the 158-ft-high building as a grand staircase, with the galleries serving as landings. The structure consists of nine floors, plus a basement housing an auditorium. Four floors are used as exhibition areas, with each floor divided into three separate galleries. Special exhibitions are housed on the second and third floors; the fourth and fifth floors contain paintings from Huntington Hartford's permanent collection. The eighth and ninth floors offer museum-goers the choice between a drink or a full meal: there is a cocktail-espresso lounge on the eighth floor, accommodating 60; and, on the ninth, a restaurant (The Gauguin Room) seating 52, with an arcade and balcony providing a magnificent view of Central Park. Additional floor space is devoted to administration and storage facilities.

The architect's approach to the galleries themselves was to design and furnish them in such a way as to create for the visitor the feeling of paintings enjoyed in a private home, and to avoid any sense of the museum as a mere storage or learning place. To achieve the appropriate sense of warmth and intimacy, rich materials were used: parquet wood floors, fabric and wood-paneled walls, and carpeting of red and gold. This sense of opulence is carried to the two top floors: the cocktail lounge contains walls of Macassar ebony, sofas covered in Danish wool, an ebony-topped bar, and a collection of Oceanic art. The restaurant contains custom-designed tables and service plates, as well as tapestries that reproduce original Gauguin works. One rather unique installation is a 3500-pipe Aeolian-Skinner organ in a midfloor gallery.

Lighting is by Abe Feder, whose theater experience has helped him achieve some striking effects, as when he "targets" a painting and the subjects attain stereopticon reality.

One of the Museum's star attractions is expected to be Salvador Dali's enormous painting, "The Discovery of America by Christopher Columbus," hung in a special high-ceilinged room. We wonder what Columbus himself would think of his Columbus Circle these days. He would certainly find certain aspects of this Venetian palazzo familiar, but might be a bit confused by New York's Coliseum, a far cry from the one of Imperial Rome. And he would certainly bat an eye, some months hence, to see fragments of the old Baths of Caracalla here. If Ed Stone's full hopes are realized, the columns from the doomed Penn Station will be placed in a colonnade around the traffic circle.

Ed Stone has remarked that he can walk through any city and date its buildings—by decade and even by year—because architects are so attentive to the clichés of the moment. Though he says he hasn't used a grille in five years, there is no doubt that this gallery is Stone-work—from what might be called the Middle Stone Age.—E.P.

Young Japanese Wins Hawaii AIA Medal

TOKYO, JAPAN The 1963 Pan Pacific Architectural Citation of the Hawaii Chapter, American Institute of Architects, has gone to Kiyonori Kikutake, 35-year-old Tokyo architect. The award is an annual one to an architect residing in any country bordering the Pacific. Kenzo Tange won the first award in 1957, and subsequent honors have gone to architects in Australia, the Philippines, Mexico, and Canada. As a student at Wasada University School of Architecture, Kikutake won a competition for a shopping center design and third place for a Hiroshima Catholic Church Peace Memorial. After graduation, he won top honors for low-cost government housing and also an international competition for the design of a community center for a city of 10,000 people. He opened his general-practice firm in 1953.

Among Kikutake's notable designs are a design for a "marine city" (1, 1962), the Tatebayashi City Hall (2, 1963), "Sky House," his own residence in Tokyo (3, 1958), and "Kokuritsu Kokusai Kaikan," an international conference hall scheduled for construction in Kyoto (4, 1963).

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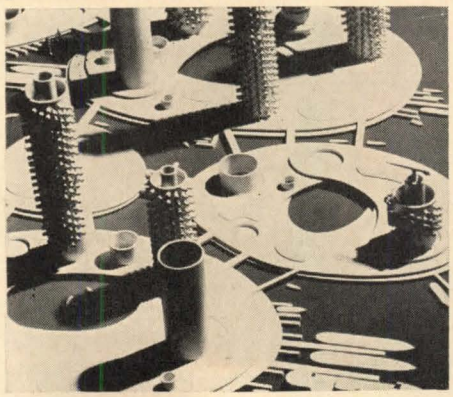

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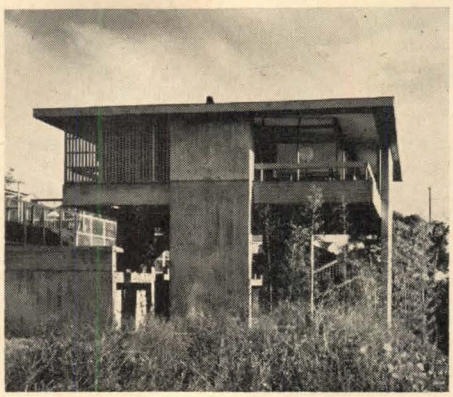

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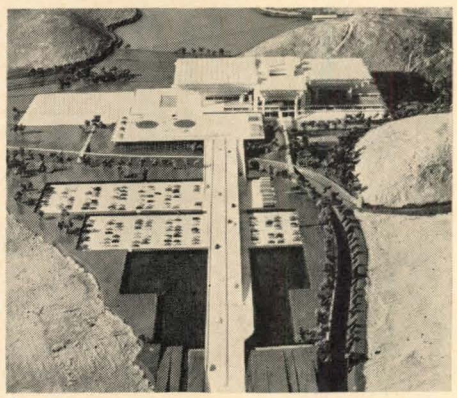


4

Redesign for International Center Proceeds

NEW ORLEANS, LA. Work has now begun on Edward D. Stone's new International Trade Mart Center for this Deep South city. To be situated at the foot of Canal Street, overlooking the Mississippi River, the center will consist of four major elements: a 30–33-story office building, a large plaza, a seven-floor parking garage, and extensive convention and exhibition facilities. There will also be low-rise buildings housing shops and displays on either side of the main plaza.

The tower, chief element in the composition, has been redesigned as a cruciform shaft topped by a circular, revolving cocktail lounge. The structure will be reinforced concrete on a driven concrete pile foundation. Solid concrete panels will alternate with floor-to-ceiling windows on the exterior, with concrete spandrels supporting horizontal solar screens. Public areas will occur on the first two floors, to be approached up a stepped pedestal.

The self-service garage will hold 1050 cars. The convention hall will be built by the New Orleans Dock Board. A riverfront expressway will eventually run under the hall.

Redevelopment Proposed for Downtown Honolulu

HONOLULU, HAWAII The central business district of Honolulu has for some years been prey to the diseases of ailing CBD's everywhere: blight and ungainly traffic problems. In a move to revitalize the core area, persons having interests in downtown Honolulu commissioned Architect Leo S. Wou to prepare a master plan for the city's commercial center.

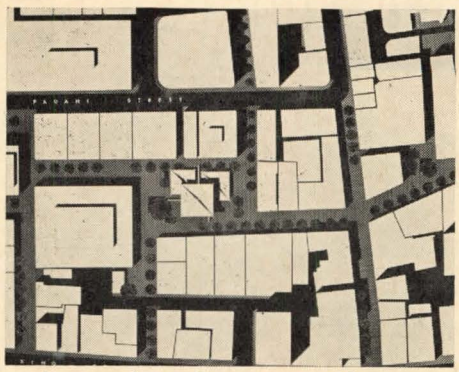
The Hawaiian capital is faced with three factors not common to other American cities: the existence on the edges of its CBD of a major harbor at one end and a large governmental complex at the other, plus a separate Oriental commercial complex that had to be related to other activities of downtown.

Previous attempts to alleviate serious traffic congestion in the city consisted of the usual unimaginative intown parking buildings, "a solution," according to Wou, "which only invites more automobiles on the already snarled streets." His answer is a system of major ring arteries and tunnels under the harbor to carry all unnecessary traffic around the city center. In this way, Wou believes some downtown streets would be liberated from their vehicle-carrying purposes and allowed to become pedestrian walkways and malls. Automobiles would be kept away from the heart of the CBD by provision of garages at its periphery.

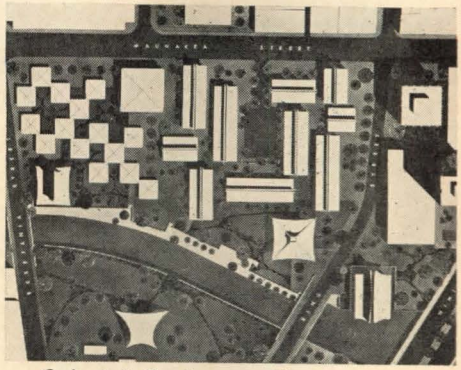
To give the area an evening life for citizens of Honolulu, Wou proposes the creation of cultural centers, including an opera house, in downtown. The cultural program in the Oriental Center nearby would supplement this program. Former servicemen familiar with the palaces of pleasure along Hotel Street may be rendered nostalgic by learning that Wou proposes this street for the spine of the new commercial core, removing Mamie Stover and the like to situations "along an internal open space so that the development will not create much disturbance to the adjacent redevelopment projects."

The Oriental Center, consisting of numerous small businesses unable to finance large-scale redevelopment, would be re-sited and developed as a new area for activities of groups having various ethnic backgrounds, including Japanese, Chinese, Korean, Filipino, and Southeast Asian.

Wou's plan, which has received the study and approval of two prominent urban economists from the mainland, recently won an Honor Award from the Hawaii Chapter AIA.



Proposed retail center would eliminate vehicular traffic at core.



Oriental Center would encompass commerce, entertainment, culture.

Proposed Land Use

Fort Street Mall

Chinese Bazaar

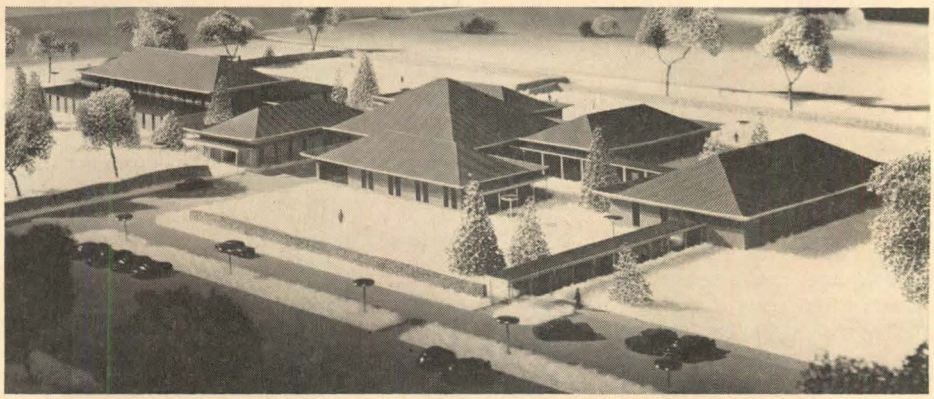
"STEPPING STONE" MENTAL HEALTH COMPLEX

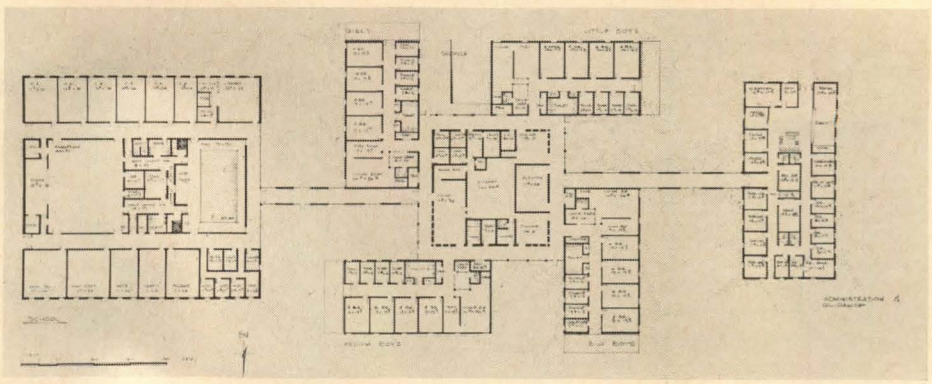
YPSILANTI, MICH. A progressive care center for continuing psychiatric care of children will act as a "stepping stone" between institution and home.

Although this children's unit will be on the grounds of the Ypsilanti State Hospital, it will be completely separate from the major institution on its own campus-like site. Children showing notable progress will be released from the state hospital and admitted to this complex.

Three basic units of the project—designed by Eberle M. Smith Associates (Lyn Graziani, Designer; Lyndon Welch, Project Coordinator)—are administration, living, and education. The administration unit will contain visitors' lobby and therapy, guidance, and administrative services. The central living group will contain four living units each housing 20 children. Kitchen, dining, and activity areas are at the core. The education wing will have pool and gymnasium at the center, separating noisy activities such as shops from library and classrooms.

Pitched roofs and natural materials such as horse head brick and slate colored metal roofs will create domestic scale and feeling.



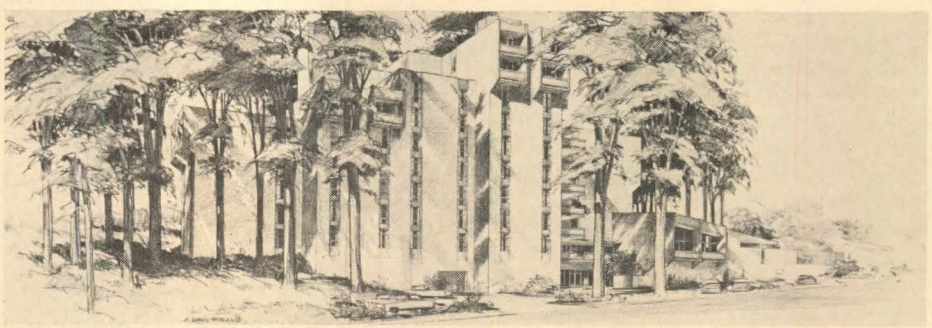


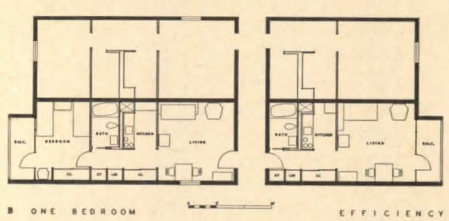
Interim Housing for the Aged

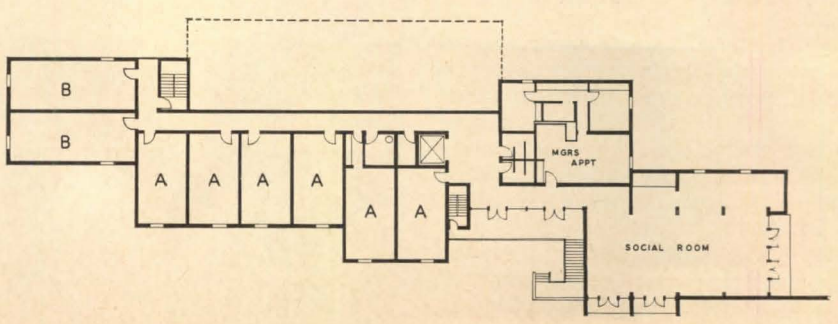
SAN FRANCISCO, CALIF. A project for the elderly, somewhat similar in purpose to the one for children shown above, is the proposed Woodside Gardens Housing for the Elderly, designed by Neill Smith & Associates.

According to Smith, this housing "was conceived to fill the gap between normal housing in the community and that provided by intensive care institutions." Patients from the nearby hospital would be lodged in Woodside Gardens for independent living while recuperating, releasing needed hospital space, and giving the patients freedom from unnecessary hospital routine. Also, couples separated because one member needs medical supervision would be reunited here under the watchful eye of the hospital staff.

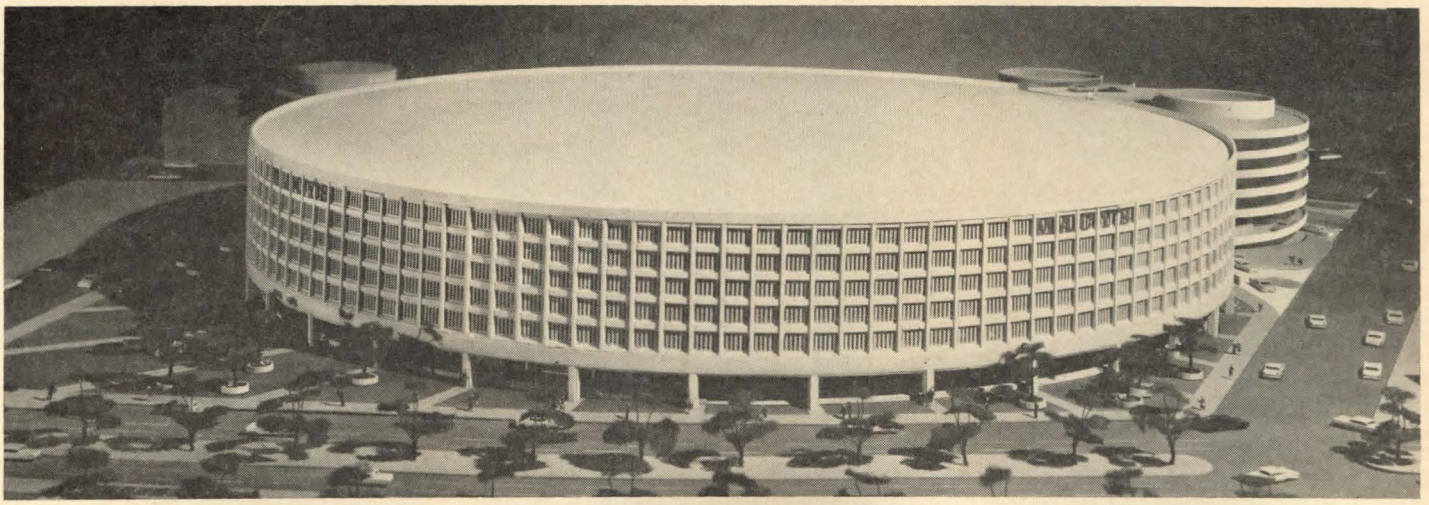
The building, which contains 88 efficiency and 22 one-bedroom units, will have a compact high-rise plan designed to preserve an imposing eucalyptus grove on the site. Construction will be slip-formed reinforced concrete. A conversation area and solarium is provided on each floor, plus a ground-floor recreation room.

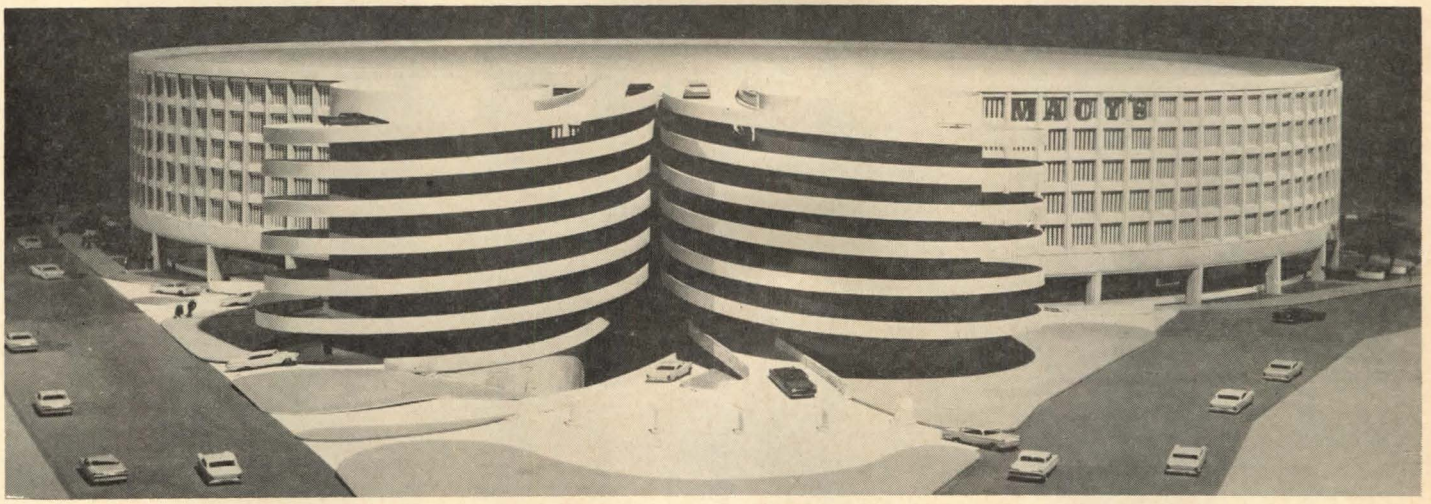


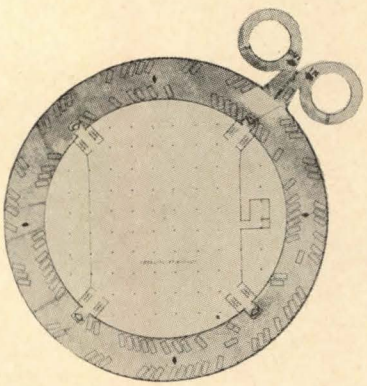


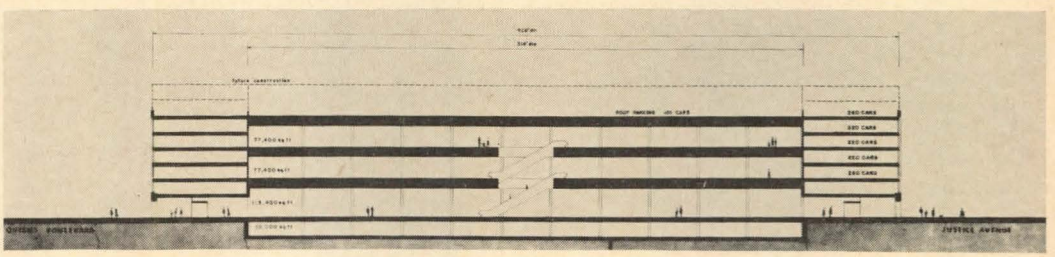


SECOND FLOOR PLAN









SOM Designs First-of-a-Kind Macy's

NEW YORK, N.Y. For the Queens branch of Macy's, the New York office of Skidmore, Owings & Merrill has designed a unique department store-*cum*-parking garage that will combine parking and shopping in a huge circular structure.

Parking for 1500 automobiles will be provided in perimeter spaces ringing three floors of core department store area, with a fourth floor to be added later. In this scheme, the shopper will never have to walk more than 75 ft from his parking space to the department in which he intends to shop. The store area will be 426 ft in diameter and will consist of three merchandising floors plus a basement (deliveries will be made underground). The surrounding parking rings will be 56 ft wide, to be entered and exited via separate entrance and exit helices (*see model photos, plan*). Traffic on ramps will depend on rush and lull conditions; arrangments can be made to devote three of the four ramps to exiting traffic. One-way traffic system will insure safety. Pedestrians will approach the building over a landscaped plaza; a continuous ground-floor arcade will protect them from the elements.

Exposed structural members will be of white quartz aggregate sandblasted to create a bright, sparkling appearance. Precast concrete grilles will provide an interesting façade, as well as furnishing natural light and ventilation for the parking ramps. Night lighting behind the grillage and on the helix ramps will give a dramatic view of the structure after dark. Mechanical facilities will be placed at the cores of the helices.

Seelye, Stevenson, Value & Knecht, Structural Engineers; Syska & Hennessy, Inc., Mechanical Engineers; Copeland, Novak & Israel, Interior Designers.

Sculptured Piers Support Office Tower

PHOENIX, ARIZ. The home office of the Western Savings and Loan Association, designed by William L. Pereira & Associates of Los Angeles, will be an 11-story (plus mechanical penthouse) tower suspended between four bush-hammered concrete piers. The building's unusual form was a result of the architect's desire "to establish a distinctive and identifiable image for this major lending institution." Since the property in downtown Phoenix was small, the architect chose a high-rise form connected to parking space.

The banking area, principal public space in the building, will be 3 ft below grade, affording seclusion from the bustling traffic of the business district while still providing an outside view of the banking quarters. The building will rise from a garden, with an open "galleria" between the bank and the tower offices to be used for civic events and exhibitions. A console keyboard, operating a set of carillon chimes, will be located here. It will be possible to observe banking activities through an opening in the galleria floor.

The piers will house amenities as well as being load-bearing members. The west pier will contain toilet rooms; the north and south piers will house stair shafts; and the east pier will enclose elevators. Typical office floors will be column-free; the four supporting piers will be spanned by girders, on which the floor slabs will rest.

The tower will be sheathed with bronze solar glass in matching anodized aluminum mullions.

Gin Wong, Partner in Charge for William L. Pereira & Associates; Rudy L. Veland, Project Architect.

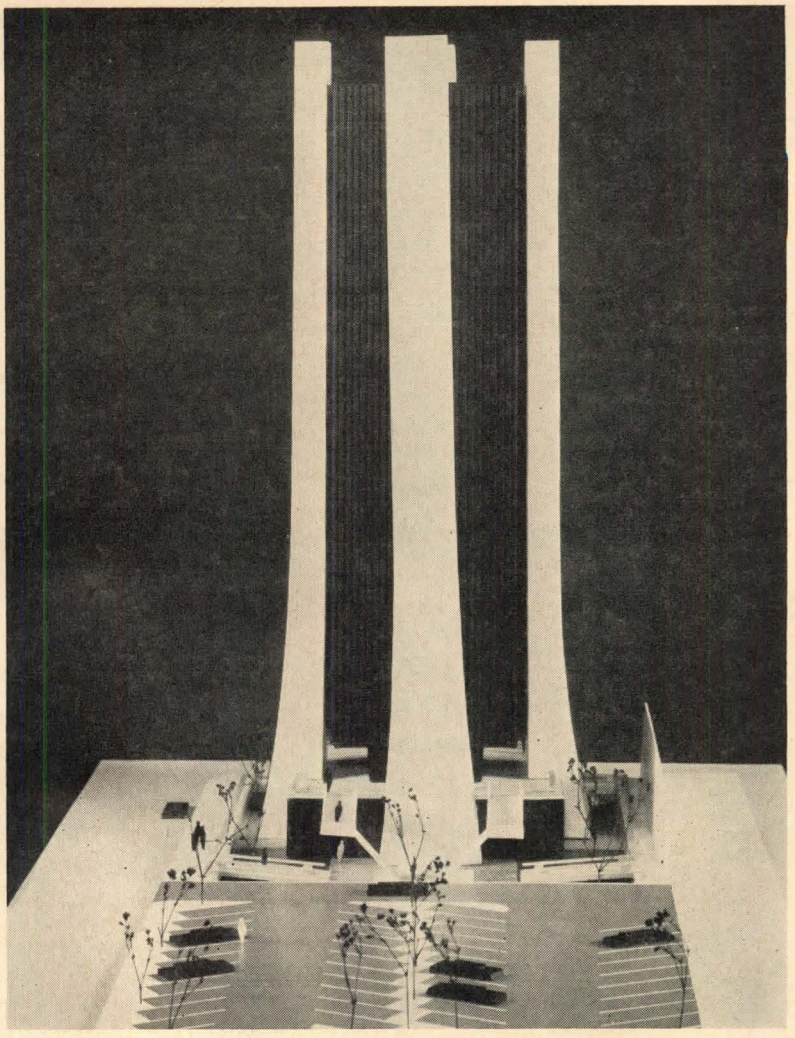
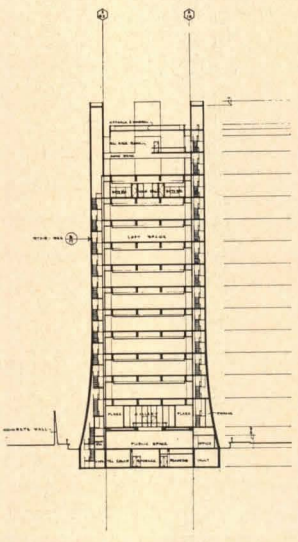
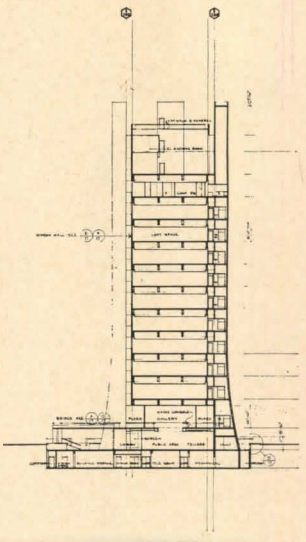
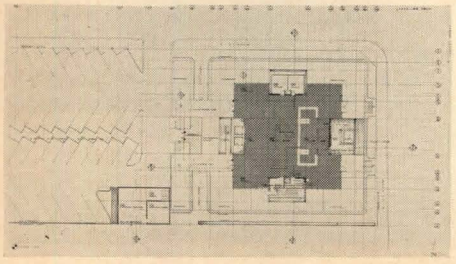


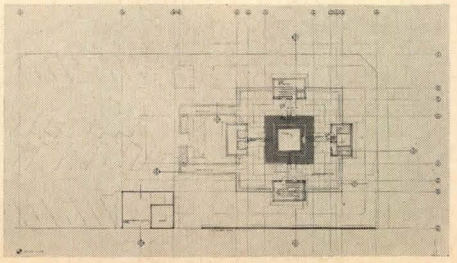
Photo: Studio One



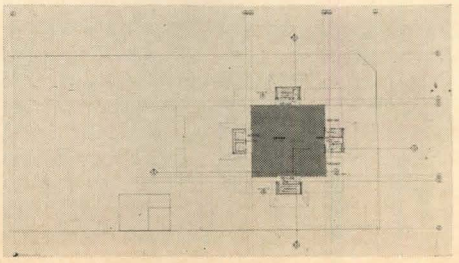




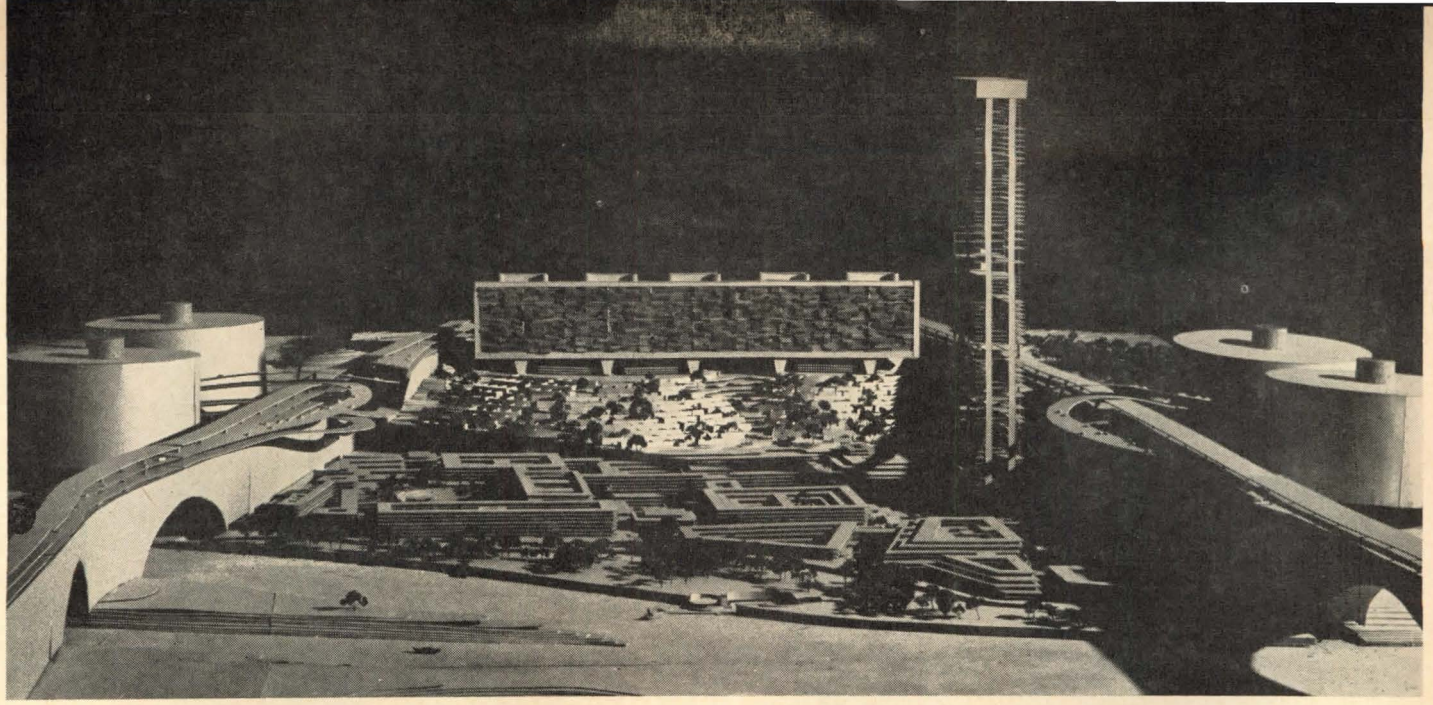
Bank floor plan



Lobby floor plan



Typical floor plan



RPI Students Design Integrated Urban Core

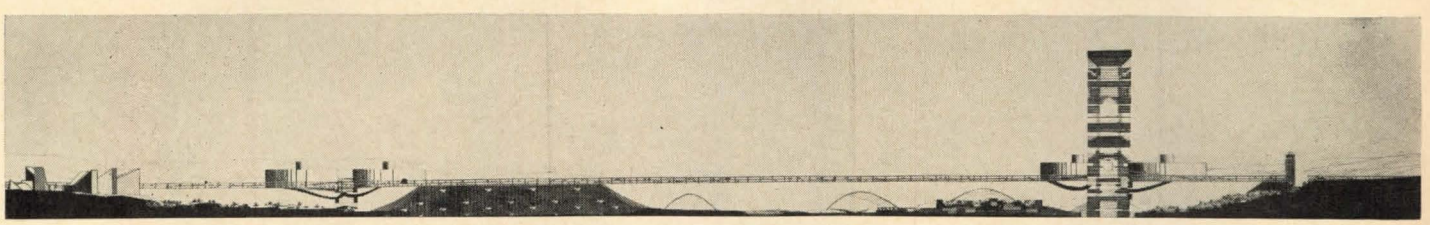
TROY, N.Y. Using the home city of Rensselaer Polytechnic Institute as the guinea pig, a team of RPI architectural students has advanced an admirable hypothetical plan for the recreation of the city's urban core.

Rather than acting as a divisive element, the Hudson River valley in the RPI scheme becomes the factor that binds the disparate activities of the city together. The valley is spanned by two elevated connector highways spaced 2000 ft apart, beneath which are located storage facilities for goods and services. Four circular parking structures act as entrances to the core. Use of the highways and parking structures retains the advantage of the automobile as a flexible means of intercity and country transportation while eliminating it from the urban core where its efficiency is at a minimum. A system of rentable underground carriage units seating two to four is proposed for urban transit.

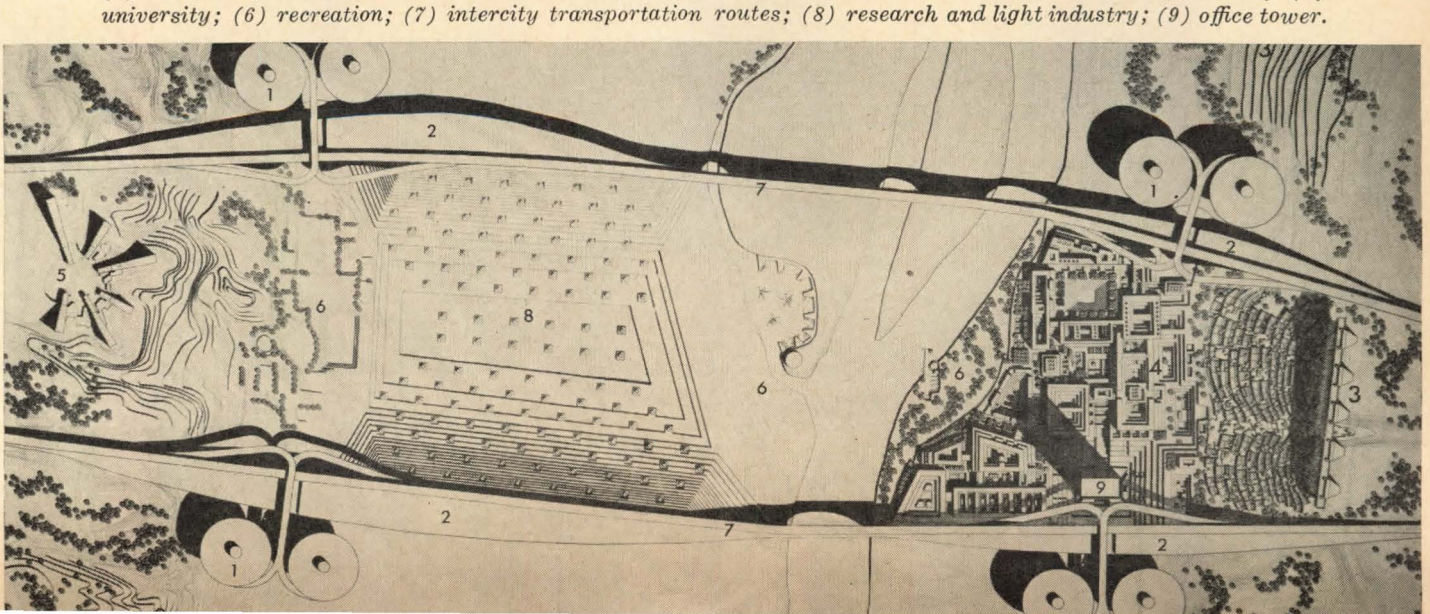
The creation of the riverfront as the recreation core makes that area a focal point in the community, rather than the derelict section it usually is. Offices — both business and governmental—are placed in a single tower 120-stories high. The tower would be "perforated" at several points to provide public spaces. A plaza in front of the tower would be used for civic ceremonial functions. Commercial and cultural elements are placed between the riverfront recreation area and the housing units that define the "top" of the site. Here, shops and stores, theaters, museums, restaurants, etc., are placed on several interconnecting levels to provide an interesting pattern of pedestrian movement. The slab structure, which terminates the housing at the edge of the hill, also marks the beginning of a park, the buffer between "town" and "country."

Across the river, an area devoted to research and related light industry is located between two recreation strips, and a university complex tops the rise.

Designers and planners of the problem were Peter R. Bromer, William M. Danusier, James Jensen, and Richard G. Matteson. Professor Henry C. K. Liu was design critic.

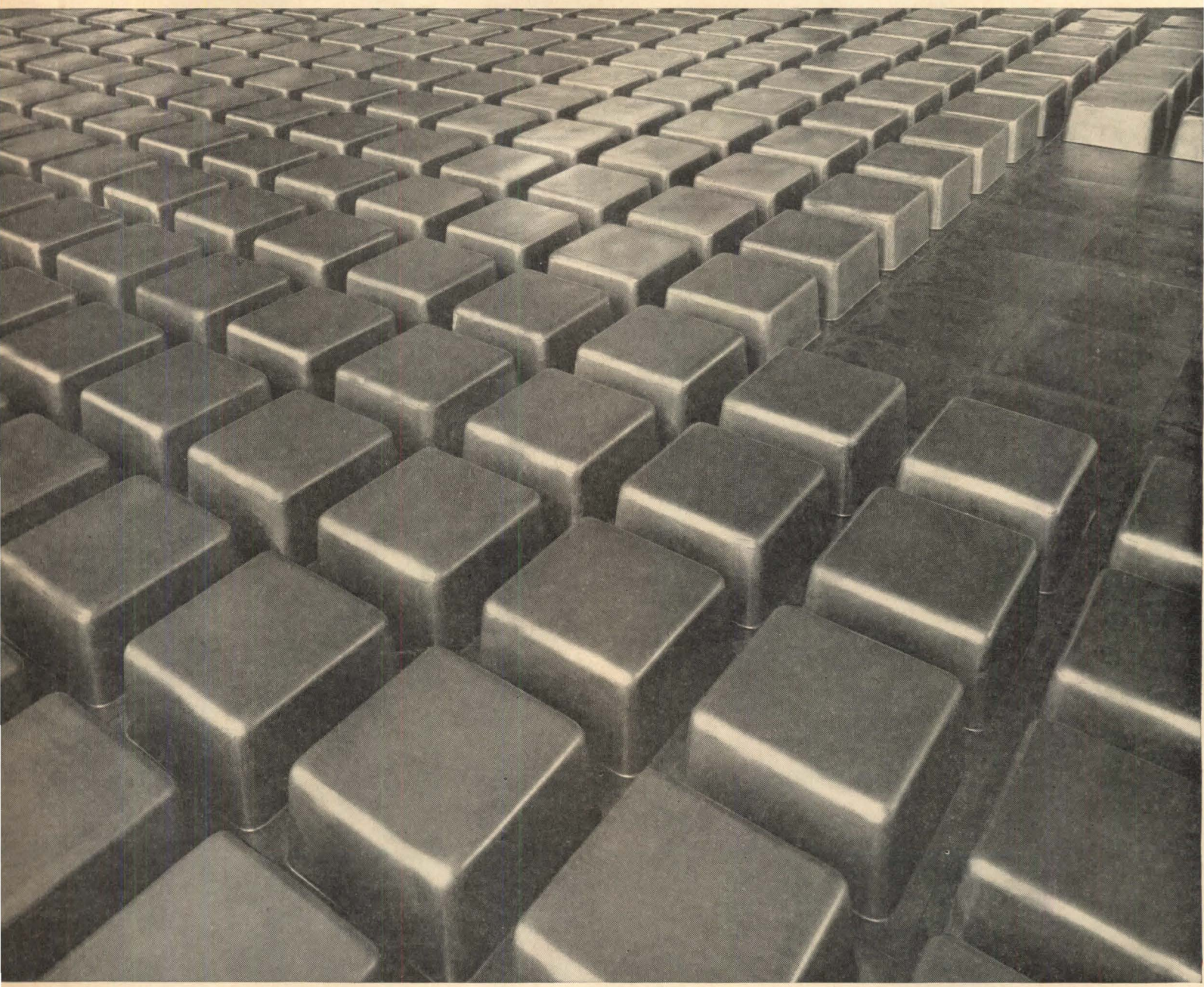


(1) car storage; (2) goods and services storage; (3) housing; (4) commercial and cultural facilities; (5) university; (6) recreation; (7) intercity transportation routes; (8) research and light industry; (9) office tower.



Another **CECO** first!

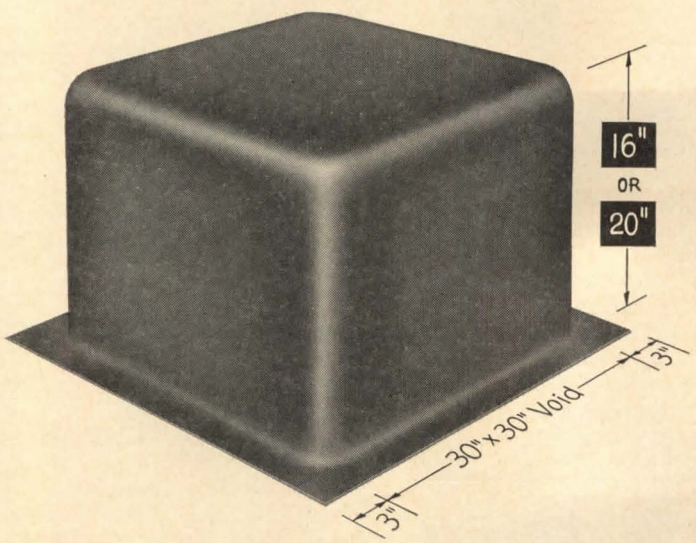
Deeper Steeldomes fill the need for longer spans... stronger waffle slabs!



***Longer** spans . . . **stiffer** floors . . . **heavier** loads . . . now made possible with CECO'S new Deep Steeldomes. This is a typical layout of 16" deep 30" x 30" Steeldomes ready for placement of reinforcing steel. For full particulars, see your Ceco man or fill out the coupon.*

Now you can design spans in the 50-ft. range ... in *monolithic* reinforced concrete waffle flat-slabs ... using Ceco's new 16″ or 20″ Deep Steeldomes. Combined with Ceco's regular depths, these Deep Steeldomes offer architects and engineers a complete range of standard Steeldomes to meet the needs of any project.

All Ceco Steeldomes—from depths of 4″ through 20″—are one-piece units—the best for waffle construction. More rugged and rigid. No excessive deflection—no excessive concrete — no excessive clean-up problem. And the ceiling finish of the last-poured slab is as good as the first.



Ceco's two new Deep Steeldomes are 16″ and 20″ in depth.

CECO'S FULL LINE OF STANDARD STEELDOMES

SYSTEM	30″ x 30″ voids	19″ x 19″ voids
MODULE	36″ x 36″ overall	24″ x 24″ overall
DEPTH OF DOMES	8″, 10″, 12″, 14″, 16″ and 20″	4″, 6″, 8″, 10″ and 12″

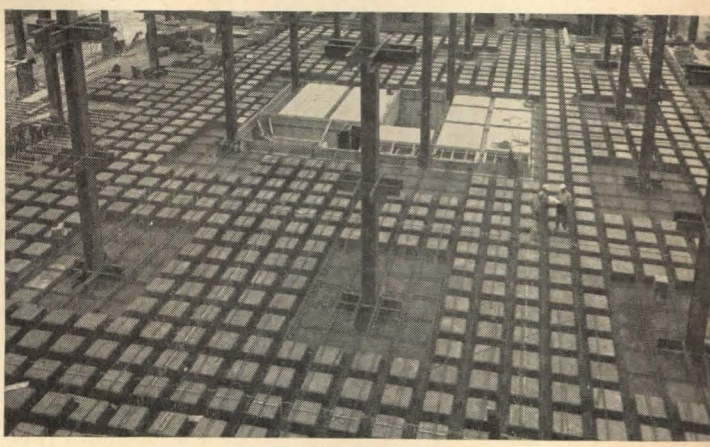
Waffle flat-slabs formed with Ceco Steeldomes make the most efficient use of concrete and steel—reduce deadload over comparable systems—give additional savings throughout the structure in beams, girders, columns and footings.

Ceco Steeldome Service is backed by more than 500 million square feet of Steelform experience. Among currently-let projects using Ceco's Deep Steeldomes are Technical classroom building, M.I.T. campus, Cambridge, Mass.; Residential hall, Illinois State Normal University, Normal, Ill.; and Mormon Temple Plaza parking garage, Salt Lake City, Utah. Ask for information about Deep Steeldomes.

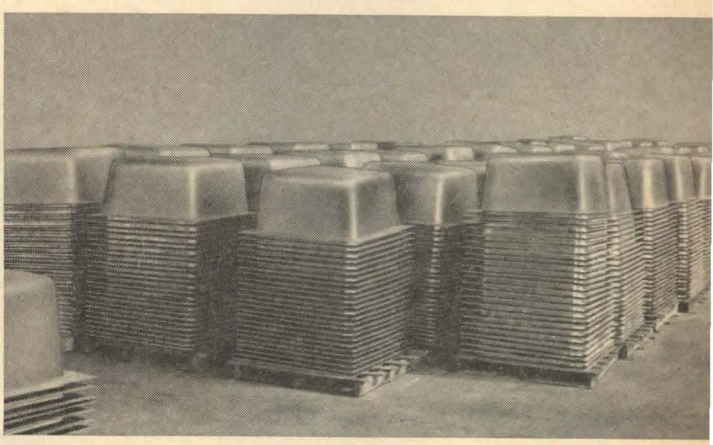
CECO
Steeldome Construction

expansive? yes! / expensive? no!

The new Mormon Temple Plaza Parking Garage under construction in Salt Lake City. Here Ceco is forming nearly three-quarters of a million square feet with 16″ or 20″ deep steeldomes. Church of Latter-day Saints, owners / George Cannon Young, architect / George S. Nelson, engineer / Jacobsen Construction Company, general contractor. Write for data about Deep Steeldomes.



Below—Typical supply of Ceco's new Deep Steeldomes



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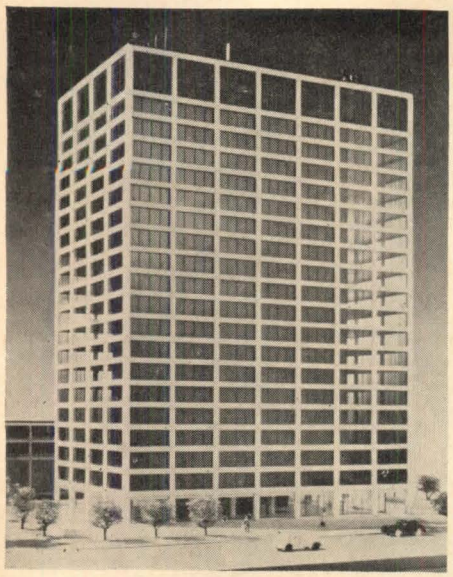
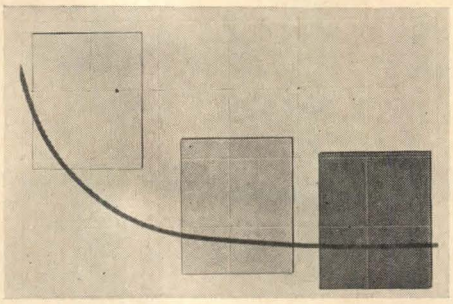


High-Rise for Mies Campus?

Mies van der Rohe created the master plan of Illinois Institute of Technology in 1939–40 as a campus of immaculately-detailed low-rise structures. Now there are plans to erect "one of the nation's tallest research buildings" on the IIT campus. The design by Schmidt, Garden & Erikson for the proposed IIT Research Institute is a perfectly straightforward structural scheme that Mies might approve of, but it is to be questioned whether the violation of his master plan by however distinguished a high-rise building is desirable. Reason given, of course, is the usual the-land-is-too-valuable gambit. When approached for an opinion, Mies wrote: "All my life I have followed the principle of not being a critic of other architects' work."



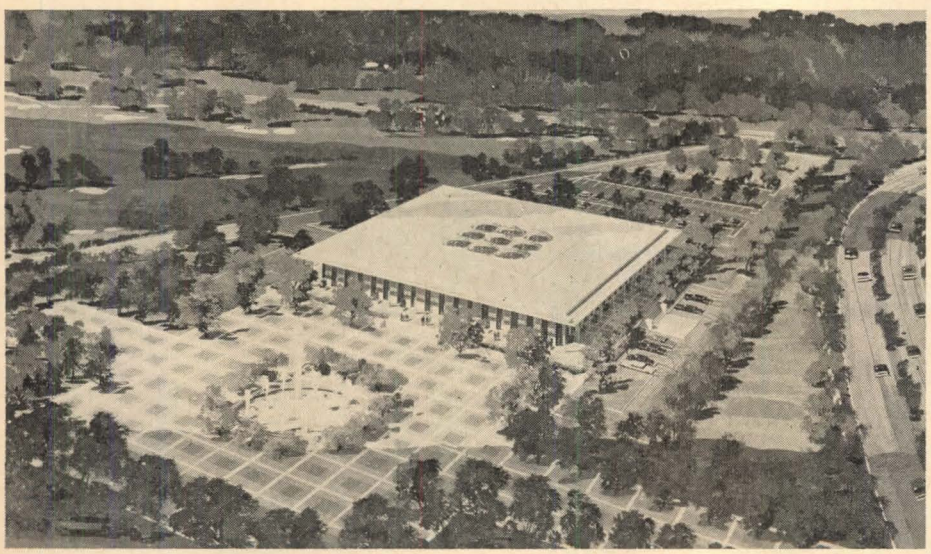
"Through a Glass Darkly"

Photochromic glass, which never loses its ability to change from clear to dark and back again to its transparent state, has been developed by Corning Glass Works. During two years of day-and-night exposure (or through 10,000 darkening-clearing cycles in the laboratory), specific lights of photochromic glasses did not fatigue or deteriorate. Recovery time to its original transparency depends on composition and not on thickness. Photo illustrates ¼" glass darkening from exposure to ultraviolet rays. In this case, clearing will take three minutes.

Inorganic materials consist of silicate glasses, which contain dispersed submicroscopic crystals of silver halide that do not effect transparency before exposure to ultraviolet rays. Wavelengths that produce darkening are typically near ultraviolet. The darkened color is usually neutral gray, brown, or purple. Typical photochromic glass darkens in daylight, but remains clear as window glass under normal indoor lighting. Photochromic action can be controlled so that only part of the glass darkens when exposed to light.

This material is considered "true glass composition" with advantages of transparency (87 per cent), corrosion- and abrasion-resistance, rigidity, impermeability, and hardness and smoothness of surface.

These photochromic glasses have not yet been produced as a commercial product. Their potential for architectural applications, such as light control through windows and reduction of air-conditioning loads, indicate that they are worthy of consideration and study by the profession.



Levitt Lives It Up

Levitt & Sons, Inc., which long ago took away Paul Bunyan's title as the continent's foremost tree-feller, evidently likes to treat itself a little better than the people who buy split-level Martha Washington ranches in those L'towns. For here is the proposed new international headquarters of the firm, designed in palace-like terms by Edward D. Stone in a paradisiacal landscape by Edward D. Stone, Jr. President William J. Levitt noted that the ratio of buildings to open spaces on the site at Lake Success, N.Y., will be seven to one. "[It] will, I am convinced, set a new standard," he said. One to be followed from now on by your company, Mr. Levitt?

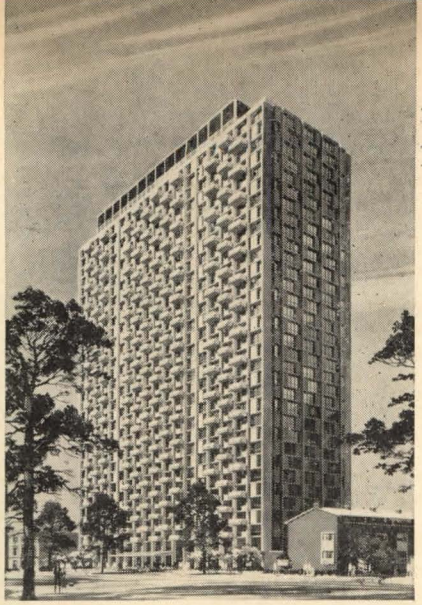
Advisors on Kennedy Library Named

A design advisory committee has been selected for the John F. Kennedy Library, to be located on the banks of the Charles River in Boston. Committee will consist of architects Pietro Belluschi, Louis Kahn, I. M. Pei, Mies van der Rohe, Hugh Stubbins, Paul Thiry, Benjamin Thompson, John C. Warnecke, Alvar Aalto, Franco Albini, Lucio Costa, Sven Markelius, Sir Basil Spence, Kenzo Tange; industrial designers Henry Dreyfuss and George Nelson; and landscape architect Hideo Sasaki. The advisory committee will develop a general architectural program; architect for the project will be selected after the committee's report. Artist William Walton is chairman of the committee.

Competition for Philadelphia Fountain

Competition for the design of a fountain at the terminus of Benjamin Franklin Parkway in Philadelphia will be open either to architects or to sculptors and designers collaborating with architects. Design must emphasize water action, but contain solid

Continued on page 84



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A remarkable new automatic computer-control system, created by Haughton Electronics, constantly monitors traffic demand... and relays calls for service instantly to the car-control system in the elevator machine room. Response is immediate. Thus, elevator service is never more than just a few seconds away on any of Hopkinson House's 34 floors. What's more, the ride is a revelation in velvety smoothness and quiet comfort.

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*Haughton's advanced program in systems research and engineering, with specific emphasis on the creative application of electronic devices and instrumentation for betterment of systems design and performance. Registered in U.S. Patent Office.

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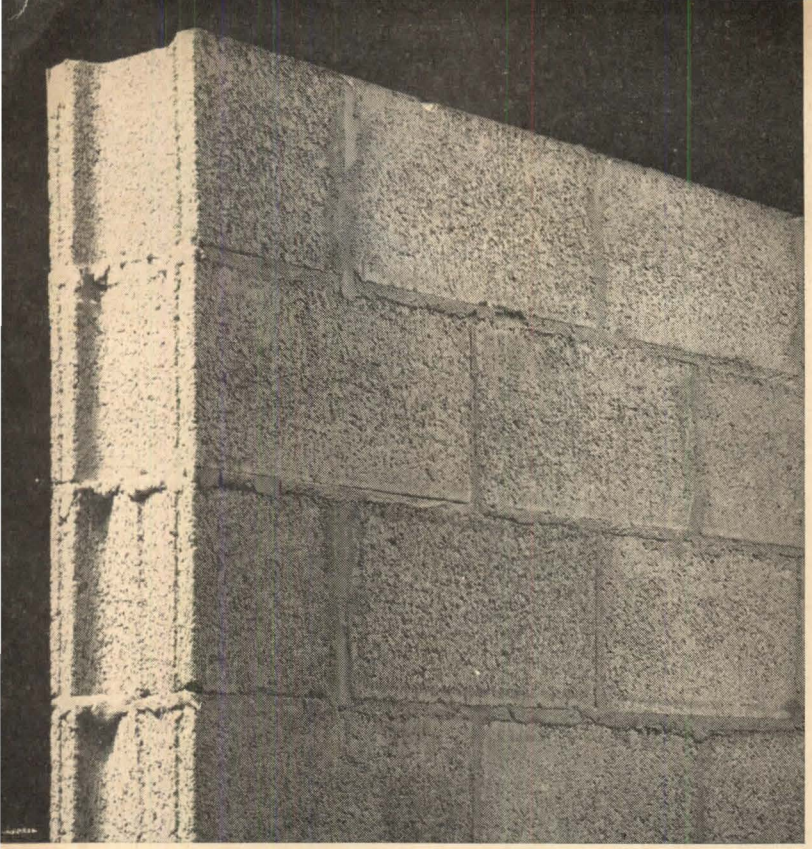
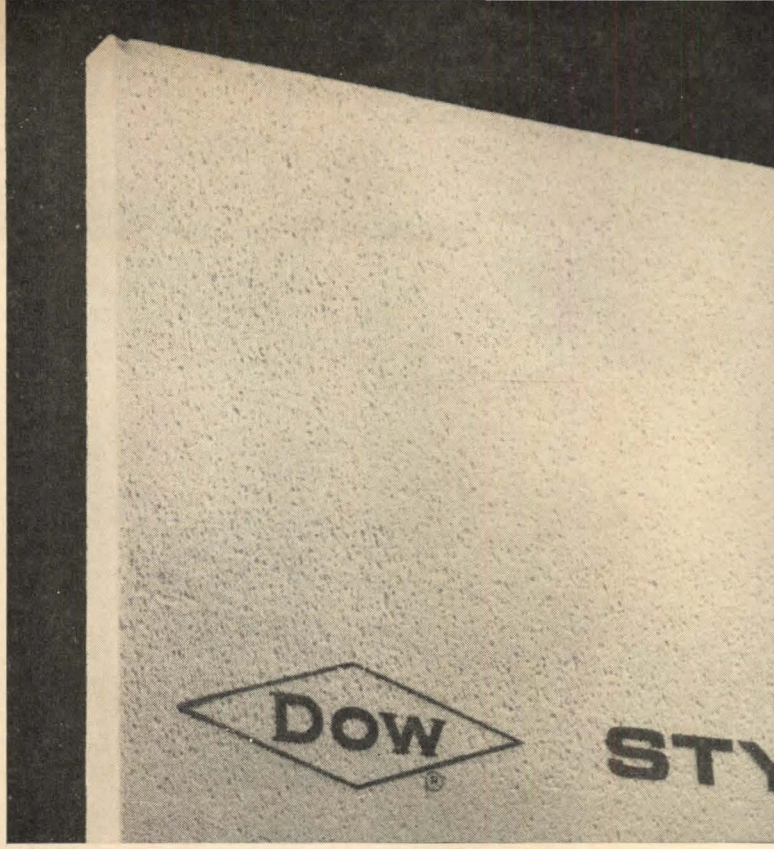
Hopkinson House Apartments / Washington Square South, Philadelphia, Pa. Winner in 1963 of the AIA Philadelphia Chapter Award for finest design in residential structures, Philadelphia area. Architect: Stonorov & Haws, Architects Building, Philadelphia. / Builder: R. M. Shoemaker Company—Hopkinson House, Inc., 245 South 24th Street, Philadelphia.

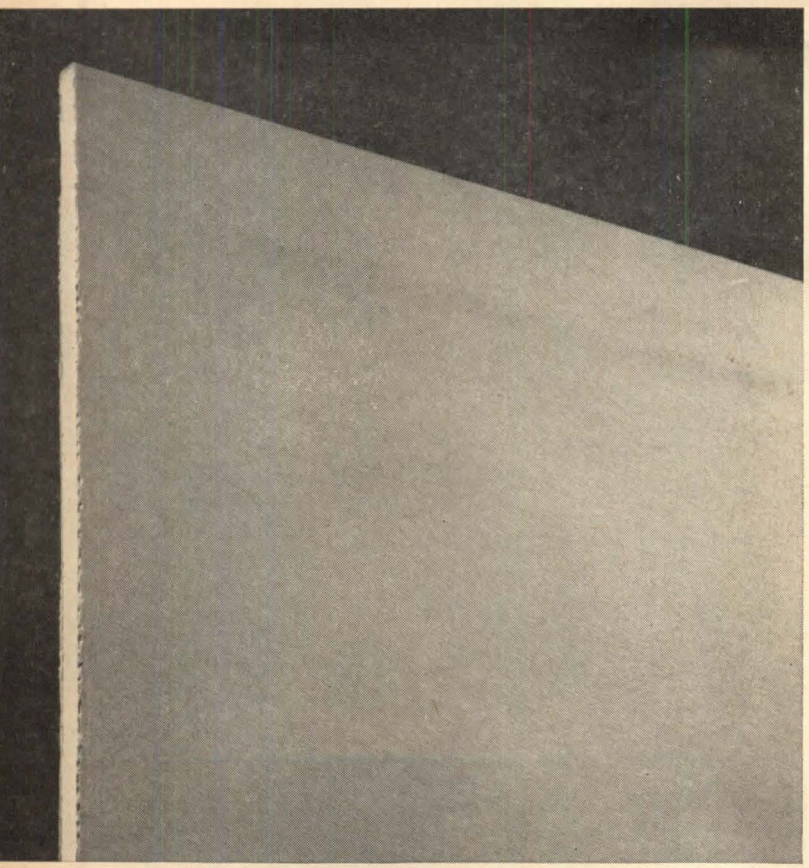
For more information, turn to Reader Service Card, circle No. 346



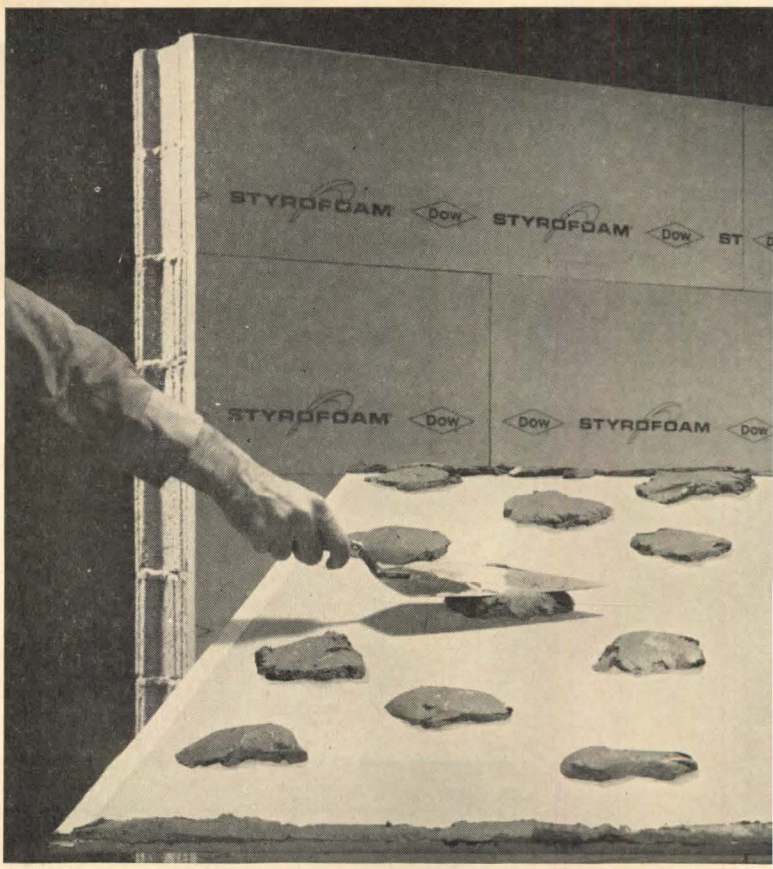
1. To insulate masonry walls economically:



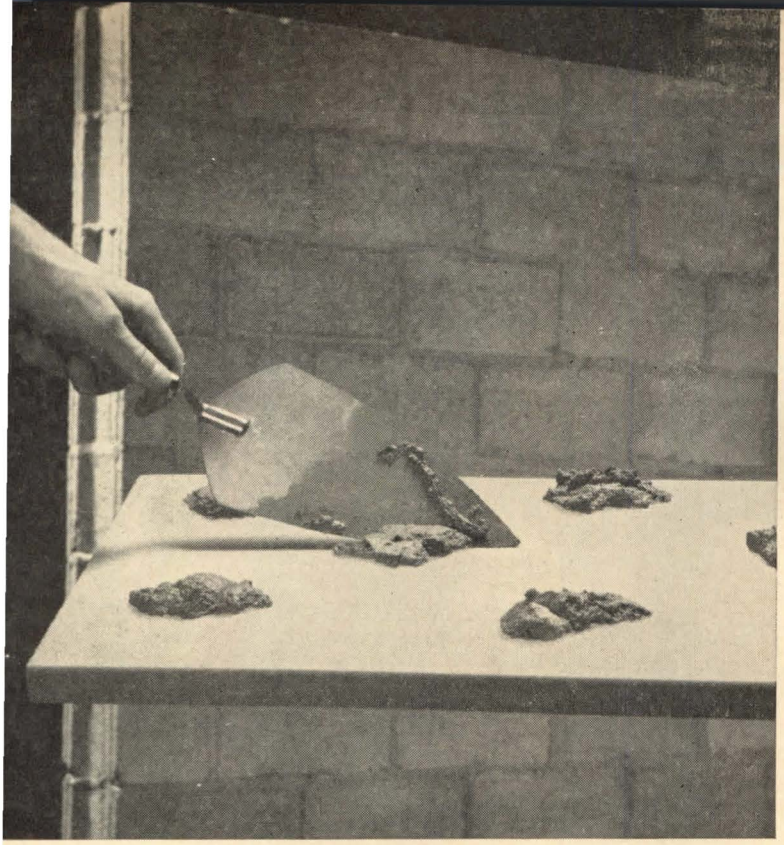
2. Remember Styrofoam® FR insulation board and specify it. It prevents moisture absorption and migration; keeps its low "k" factor (0.26) permanently.



5. Take wallboard. (No vapor barrier, no furring. You get a solid, insulated wall at almost the same cost as a furred, uninsulated wall.)

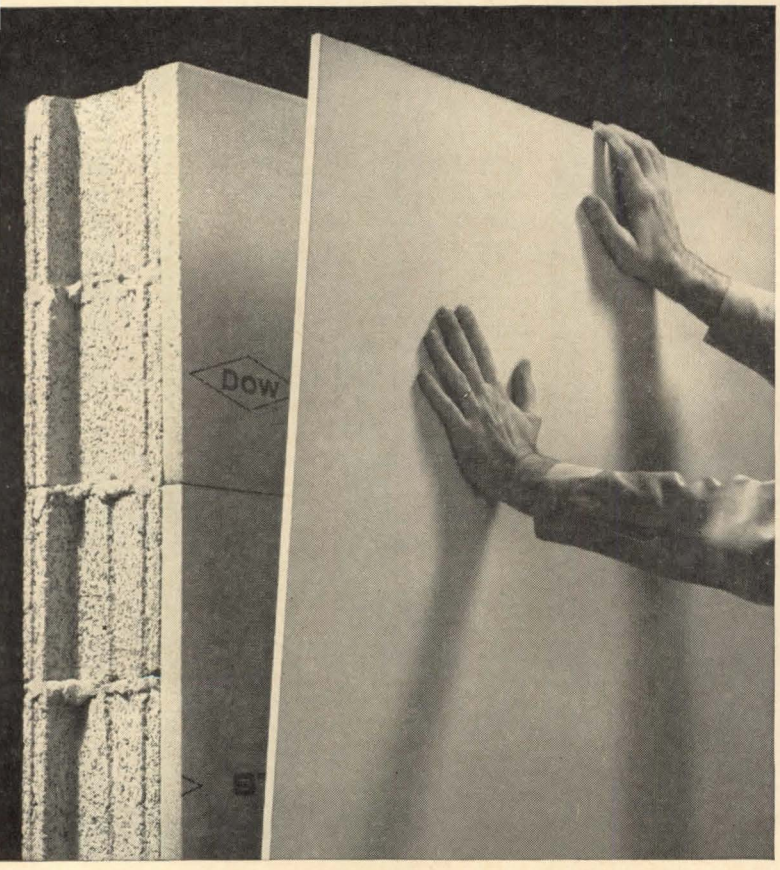


6. Styrotac goes on. Take your last look at Styrofoam FR.

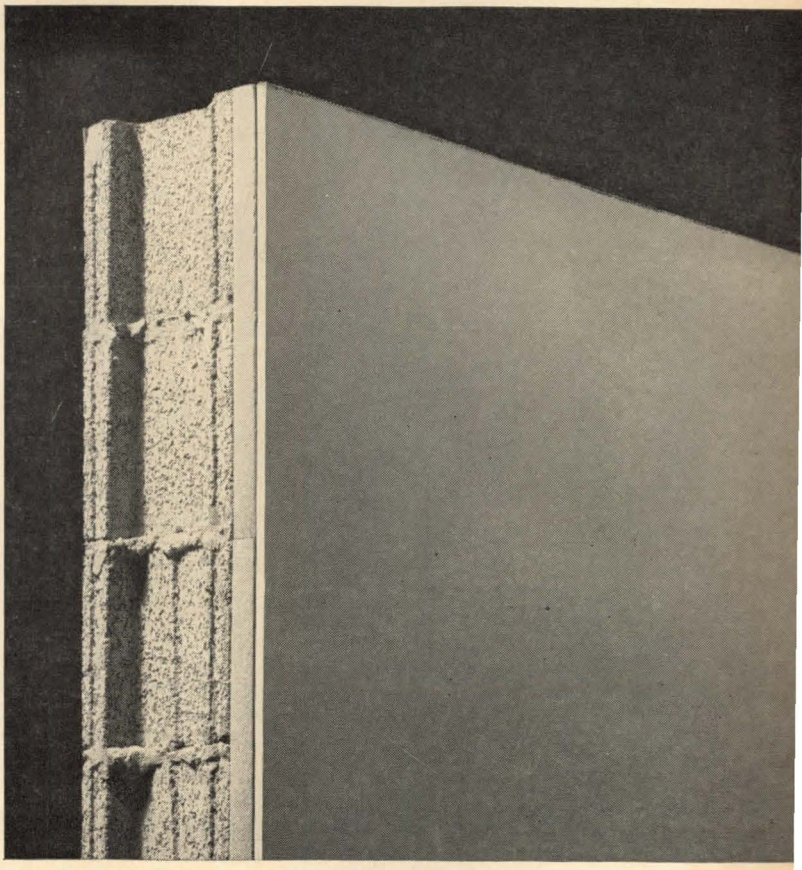


3. Spot-apply Styrotac® bonding adhesive.

4. Press Styrofoam FR into place. It installs fast, stays dry for year-round comfort.



7. Wallboard goes up. Finished wall (8-in. concrete block, 1-in. Styrofoam FR) has "U" factor of 0.16.

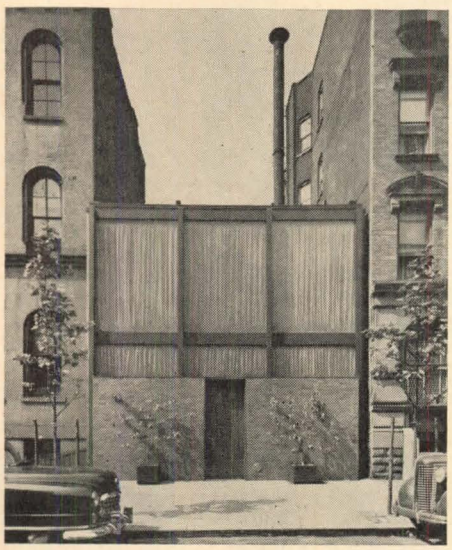


8. OK. Now forget it. Styrofoam FR won't absorb water, won't let moisture pass, won't need attention —ever! Any questions? See Sweet's Arch. File 10a/Do. The Dow Chemical Company, Midland, Mich.

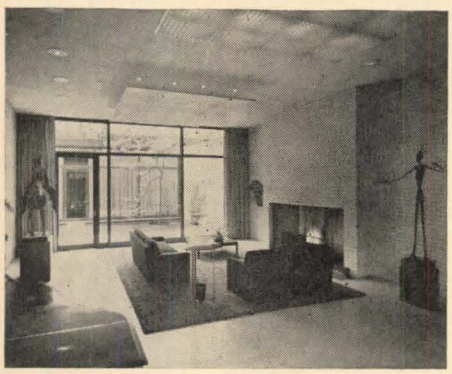
DOW

Continued from page 80

forms that will stand alone during winter months. Jury will consist of architects I. M. Pei and Paul Rudolph, sculptors Jacques Lipchitz and Theodore Roszak, and Philip Price of the Fairmount Park Art Association (sponsor of the competition). Registration forms and information are available from Norman N. Rice, Professional Adviser, Fountain Competition, P.O. Box 8366, Philadelphia, Pa. June 15 is deadline for registration.



Photos by Robert Damora



MM Art Guest House Sold

The guest house of the Museum of Modern Art in New York, designed by Philip Johnson for Mrs. John D. Rockefeller III in 1950 and later presented to the museum, has been sold to the wife of a Manhattan business consultant who also owns a Johnson house on Long Island. The new owners plan to occupy the house on East 52nd Street in May. Facilities for which the residence provided amenities—receptions, visiting dignitaries, and so on—will be shifted to a penthouse in the additions to the parent museum, also designed by Johnson (p. 68, SEPTEMBER 1963 P/A) and currently under construction.

The last function in the guest house was a private members' show of "The Eight," a group of early 20th Century painters which included Henri, Glackens, Shinn, Prendergast, Sloan, Luks, Davies, and Lawson.

URA Cuts Urban Design Personnel

Commissioner William Slayton's efforts to improve design in urban renewal projects have been curtailed by recent cuts in URA appropriations, which necessitated cutbacks in personnel. Approximately four years ago, Slayton inaugurated a program by which an Urban Design Office, consisting of a central office in Washington, D.C., and seven regional urban design specialists, would advise and encourage local public agencies to seek better design in urban renewal projects. Only two specialists had been appointed, one of whom—Hinman Kealy, regional urban design specialist for New York—had been "on loan" as Acting Chief of the Urban Design Office in Washington. It was Slayton's hope that, after qualified specialists could be found in other regions, urban renewal projects would eventually achieve a much higher standard of design. Due to lack of funds, however, Slayton has found it necessary to cut the regional specialists from his staff, and the central office is now also empty. This setback to a move for better-designed urban environments is bound to cause great disappointment in the profession.

Bard Awards Presented

Last spring, the City Club of New York initiated its Bard Awards program to appraise the architecture of New York City. The 1963 jury, in surveying Government-sponsored design, judged that no building was worthy of an award. The stir resulting from last year's "No Bard Award," focused attention on what would happen this year when the City Club's jury passed judgment on the privately-sponsored architecture of New York. On March 16, the jury *did* make a First Honor Award and three Merit Awards, but emphasized that the premiated buildings were the exception rather than the rule in this city and that "other great cities would have matched these award-winning structures in quality many times over."

Recipient of the First Honor Award is SOM's Pepsi-Cola Building on Park Avenue, which, the jurors felt, makes effective use of its small site to achieve a new standard of quality within the often criticized 'glass-box' concept of Park Avenue. Especially commended was the building's relation to the street: it maintains the building line of Park Avenue and is set back only along 59th Street.

Awards for Merit went to: (1) Begrish Hall by Marcel Breuer and Hamilton Smith, Associate, for the University Heights Campus of New York University, for its "vigorous, imaginative, and highly sculptural expression of the possibilities of reinforced concrete"; (2) Cinema I and Cinema II, by Abraham Geller and Ben Schlanger, which places one movie theater over another, in a design notable in a field known for its monstrosities; and (3) Premier Apartment Building by Mayer, Whittlesey & Glass, William J. Conklin, Associate Partner in Charge of Design, at 333 East 69th Street, which reflects the small scale of its brownstone neighbors.

Jury consisted of architects Edward L. Barnes, I.M. Pei, and Peter Blake, and Sidney W. Dean, Jr., of the City Club.

IRS Rules on Architects' Corporate Setup

Architects joined numerous other professional groups in Washington early in March to protest a proposed ruling by the Internal Revenue Service which, they said, would amount to dictating who may or may not practice as a corporation.

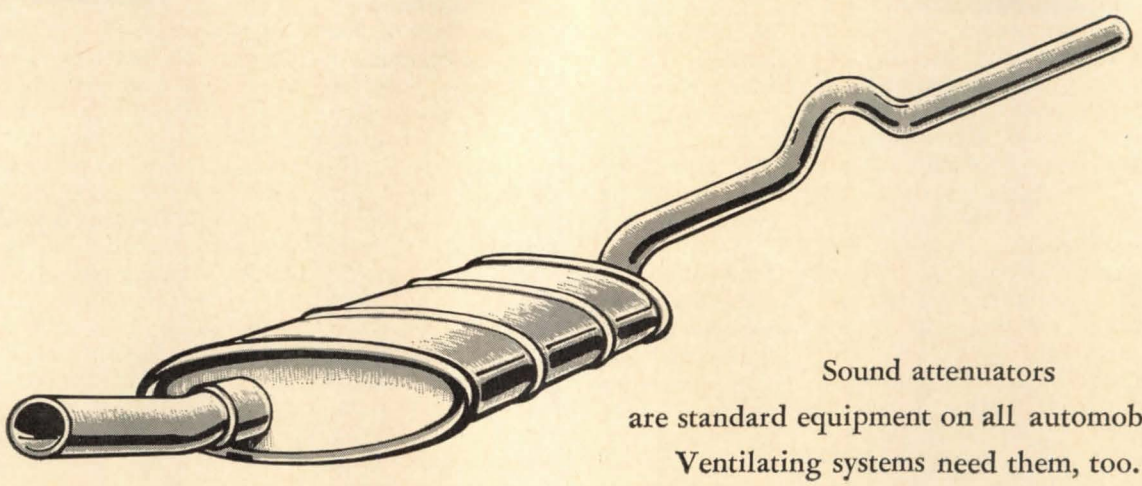
The proposed ruling (which was protested also by some engineering groups, medical societies, and bar associations) would have a profound effect on existing architectural organizations.

In effect, IRS would insist that incorporated architects meet its standard tests for corporations: including limited liability of officers and transferability of stock. Because of the nature of architectural work, added the IRS, very few architectural organizations could meet this test: responsible heads must accept responsibility for work, and free transfer of stock might easily mean that a firm could be controlled by nonprofessionals.

One effect of the ruling would be most important to many architects: nontaxable status of corporate pension funds would be changed, and the firm would have to pay taxes on them. (Now, such funds become taxable to the beneficiary, after he starts to draw his pension.)

Another effect would be loss of the opportunity to accumulate funds—

Continued on page 94



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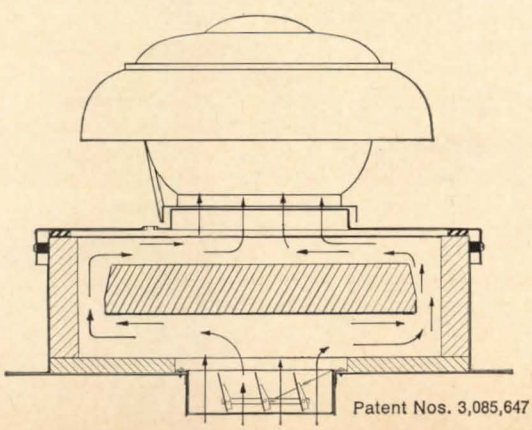

Patent Nos. 3,085,647 and 3,110,357

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President's Housing Proposals Under Attack

by E.E. Halmos, Jr.

It came as no surprise to the House Subcommittee on Housing that President Johnson's housing message (*see* MARCH 1964 P/A) came under immediate attack from many quarters.

The surprise lay in the wide range of the attack, and the quarters from which it came. (The message, as you'll recall, covers aid for construction of "satellite" cities on the fringes of major metropolitan areas, including Federally-guaranteed loans to private developers for assembling and planning huge developments.)

Big-city mayors opposed the idea on the grounds that fostering such developments would further speed destruction of central-city cores, make rehabilitation more difficult; county officials weren't flatly opposed, but they wanted the power to dispense the loans. Private realtors attacked the program because, they said, no real need had been demonstrated, and because it would give too much power to Federal agencies.

Housing officials (the National Association of Housing and Redevelopment Officials) argued that the proposed program was inadequate; and so did representatives of the AFL–CIO.

The President's proposal for penalizing employers by forcing double-time or better for overtime work also got into the argument: The National Association of Home Builders claimed that extension of this plan, plus extension of provisions of the Davis-Bacon Act (covering minimum wages on Federally-supported construction) to the housing field would inevitably increase costs.

There was some support for the bill, too—most notably from the Reverend Robert G. Howes, associate professor of city and regional planning at Catholic University. Speaking to a civic group, he said that well-planned satellite cities would benefit the central city by reducing sprawl on their outskirts.

Behind the furor—leaving aside the politics of doing something for as many people as possible in an election year—is this point: the fear in some quarters of further control of private enterprise by the Federal Government. Control exercised through grants and loans, these observers argue, could easily be extended to: (1) directing the type of construction, planned layout of the development and the like; (2) a make-or-break power over private builders, by the simple threat of withholding approval; (3) extension of various antidiscrimination and other provisions (already the source of some business fears among housing people) to cover nearly all housing construction.

New Limit on A-E Contracts

Architect-engineers should be aware of recent changes in Defense Department Procurement Regulations that lift the "limit" on yearly A-E contracts from $25,000 to $100,000.

There's a lot of misunderstanding on this point—both on the part of the military services and architect-engineers. Defense procurement experts insist that the figures are not in fact a "limit" on the amount of work an A-E firm can get. Actually, the regulations do provide specifically that if a firm's contract (from one branch or part of a military service) total $100,000 in fees, then any further awards must be approved by the next highest command echelon. Thus, in theory at least, a firm could have $100,000 worth of fees from three different districts of the Corps of Engineers and not run the necessity of getting higher-echelon approval.

In fact, however, any such series of awards to the same firm (the services are now running reports on such contracts through a central office in Washington headquarters) will cause some eyebrow-lifting. So the result has been that the limitation (formerly $25,000) has tended to be a ceiling in some instances.

Strong protests by many of the professional societies, plus DOD studies, resulted in lifting the award figure—but no change in procedures.

FHA Issues New Standards

On housing, note that FHA's new Minimum Property Standards for Multi-Family Housing (MPS) go into effect nationally on July 1. (Details may be obtained from the Government Printing Office in Washington by ordering FHA No. 2600 and enclosing $2.50.)

Of specific interest are expanded standards for fire protection; planning of the building; noise control; and elevators.

Federal Aid to Mass Transit

Another of President Johnson's proposals, which could have substantial effect on city planning, was under attack in Congress: the proposal (inherited from the Kennedy Administration) for Federal aid to mass-transit systems.

Leader of the attack was Ohio's Senator Frank Lausche, who said that the program, if approved, would lead to expenditures of at least $10 billion over the next 16 years, despite the mild $75 million asked in the 1965 budget. Lausche claimed that, of the 212 "standard metropolitan areas" (over 50,000 population), only 40 would account for the $10 billion, and the program would be never-ending. Worse, he added, the whole country—not the users—would have to pay for the transit systems (unlike highway users who are specially taxed to support highway construction).

(Nobody, however, really expects this program to get off the ground this year.)

But the Housing and Home Finance Agency, under powers it already holds, is going ahead with a part of the program anyway: It granted $357,754 to a bi-state agency in the St. Louis area to finance a demonstration of new express bus routes.

FINANCIAL

General Services Administration request for funds ($208 million) to finance construction or rehabilitation of some 59 Federal buildings; plus action on various appropriations bills; passage of such measures as the three-yearly airport aid bill, and other activity strengthened the construction economy during the past month, and gave ample evidence of the Federal Government's intention to keep up heavy spending in this area.

Private industry was also doing its share: A survey by a shipping organization indicated that a total of 467 industrial *facilities* were built or expanded along the waterways in 1963.

And January construction put-in-place was estimated at $4.6 billion—down 13 per cent below December, but up 10 per cent over January 1963.

One cautionary spot was in the picture: The Bureau of Public Roads' cost index for the fourth quarter of 1963 hit an all-time high, at 103.4, boosted by costs of excavation and structural concrete.

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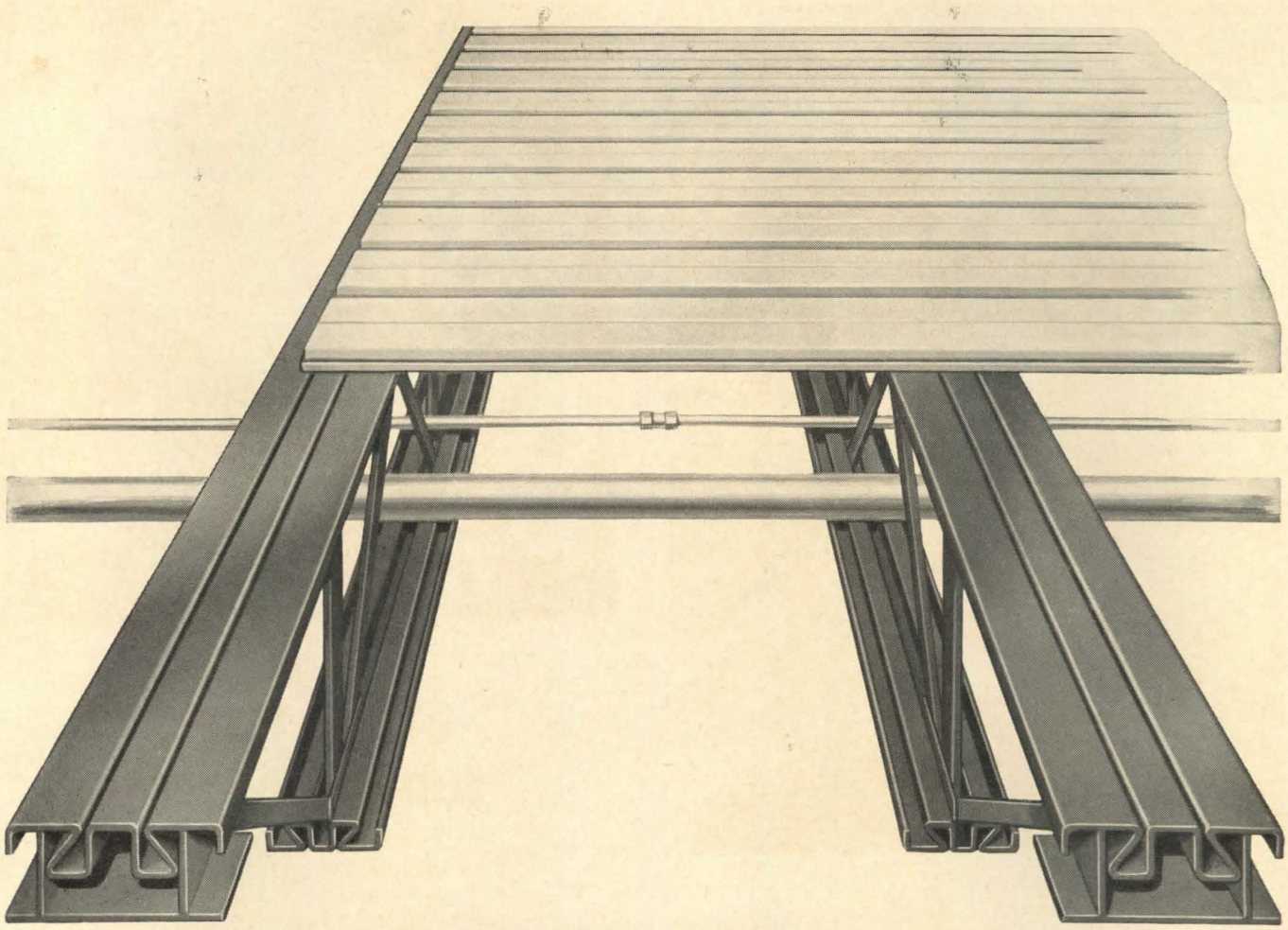

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Whatever your ceiling needs or problems, Lo-Tone has the answer. See AIA File No. 39-B in Sweet's Catalog. For product samples, consult the Yellow Pages for your local Lo-Tone Acoustical Contractor, or write to Wood Conversion Co., St. Paul 1, Minn.

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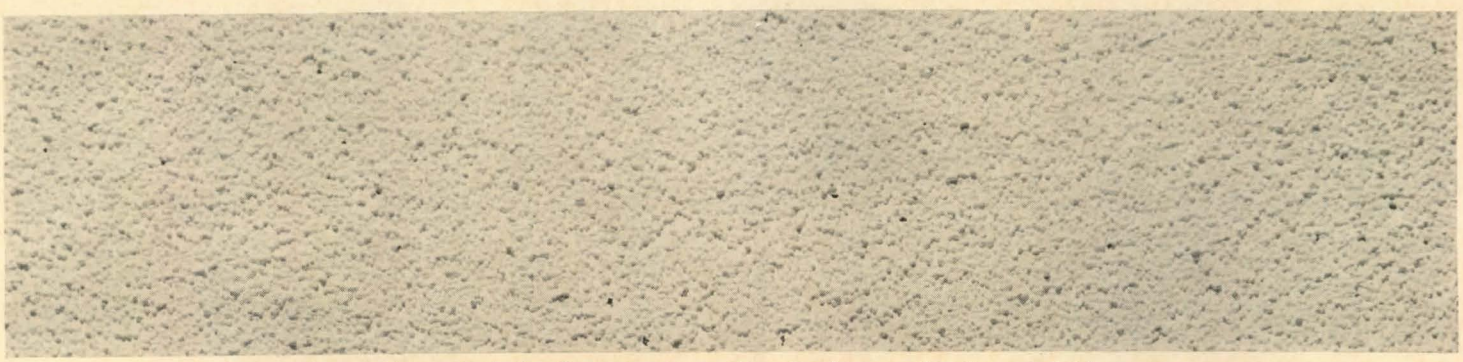

Lo-Tone's Newest Enduring Beauty pattern — New Sandex — authentic sand finish, acoustical board that combines monolithic and a granular-textured surface for enduring beauty.

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1 Look at the "mystery part" picture. If you're not positive what it is . . . you'll find the list of Onan product feature clues helpful. List the name of the part on the coupon or on a separate sheet of paper.

2 You may enter as often as you wish, but all entries must be mailed in a separate envelope, postmarked no later than June 10, 1964 and received no later than June 17, 1964.

3 All entries will be judged by Onan on the basis of accuracy of picture description. In event more than 10 correct entries are received, blind-fold drawing will be used to select 10 winners from total number of correct entries.

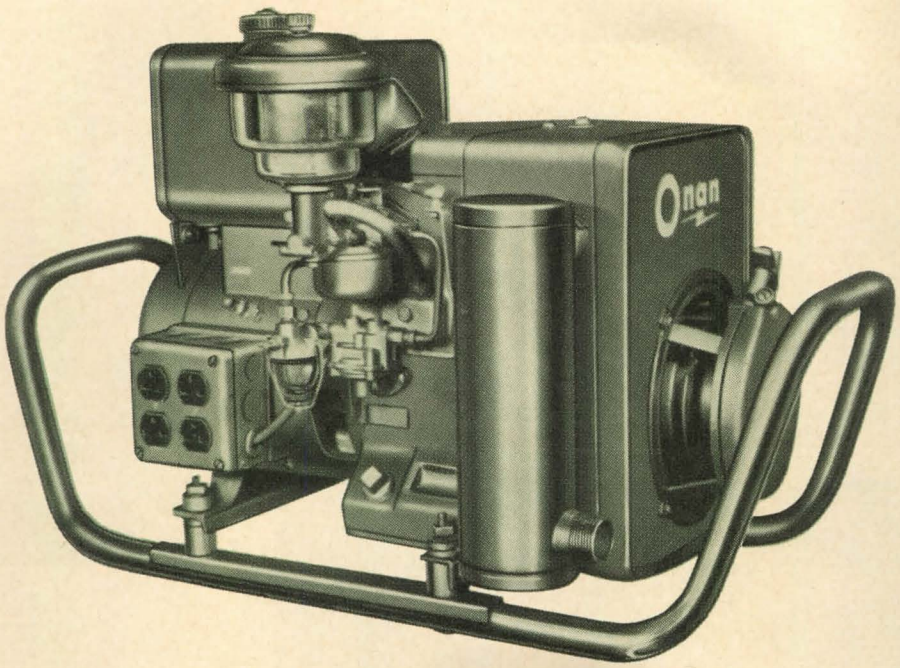
4 To qualify for bonus award of an R.C.A. color TV set, you must identify part correctly *and* also include the correct name and address of your local Onan distributor or dealer on your entry. Winner of the TV set will be determined by a blind-fold drawing of all entries who correctly identify mystery picture *and* give correct name and address of local Onan distributor or dealer.

5 All winners will be notified by mail on or before July 1, 1964. All entries become the property of Onan and will not be returned.

6 You may obtain a list of winners by writing to Onan after July 1, 1964. Please include a self-addressed stamped envelope.

7 Employees of Onan, Studebaker Industries, Inc., their advertising agencies and affiliates are ineligible.

8 Void in Wisconsin and in any other state, territory or province in which the contest participation therein or award of prizes offered is taxed or prohibited.



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The mystery part picture is_____

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Qualify me for the color TV, too! My Onan distributor/dealer is

_____; his address is_____

_____

Continued from page 84

possible in a corporate setup, very difficult for a partnership. Such accumulation is very important to architects, said AIA's William H. Scheick, in view of the fluctuating nature of their business, and the heavy investment they must make in terms of time and staff against sometimes long-deferred payments.

Scheick's statement (accompanied by a more detailed one from AIA attorneys) pointed up another important aspect—and the extent of the effect of such a ruling on the profession. In the first place, IRS would be negating many state laws under which architects have incorporated their businesses—the IRS would, in effect, be dictating who could and who could not incorporate.

And, said the AIA spokesmen, nearly three-fourths of U.S. legal jurisdictions (the 50 states and Puerto Rico and the District of Columbia) permit corporate practice of architecture in some form. At a conservative estimate about 700 U.S. architectural firms are now operating as corporations—most of these in heavily industrialized states. IRS is "considering" the objections to the ruling.

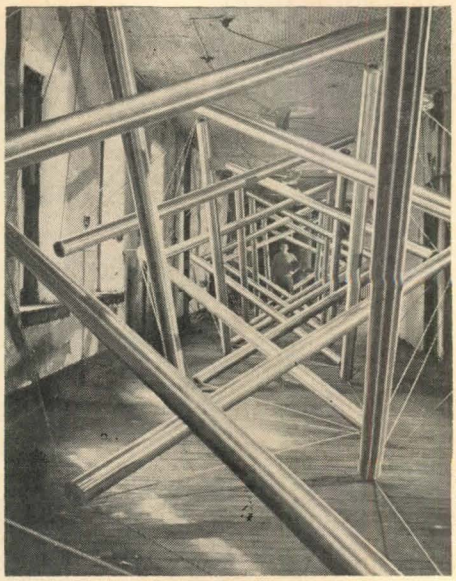


Photo by Hella Hammid

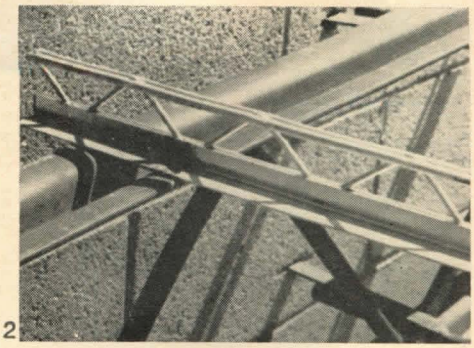
Photo, Courtesy of Electric Power & Light Exhibit, Inc.

All Wrapped Up in His Work

The problem of the man who built a boat in his basement during the winter, then had to tear down the house to get it out for launching, could have been Kenneth Snelson's after he constructed a 70-ft-high architectural sculpture in a third-floor loft in downtown Manhattan (*top*). But Snelson, an adept and imaginative structural designer, made sure that the structure could be taken down and remounted *even* by skilled labor ("I can do it by myself in three hours; they'll take two days").

The tall, glittering object, which its creator describes as a discontinuous-compression structure, now stands (*bottom*) in the central shaft of the Electric Power & Light Pavilion at the New York World's Fair, to be lit by no less than 12 billion candlepower ("I hope it doesn't disappear"). Snelson is now at work on another structure to stand in front of the pavilion.

1



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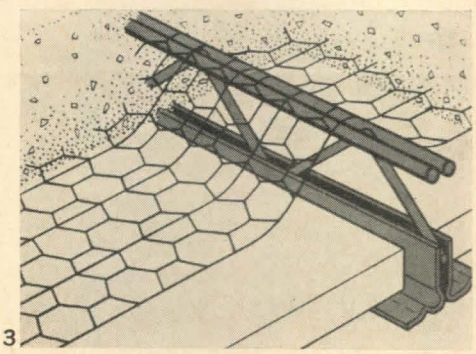

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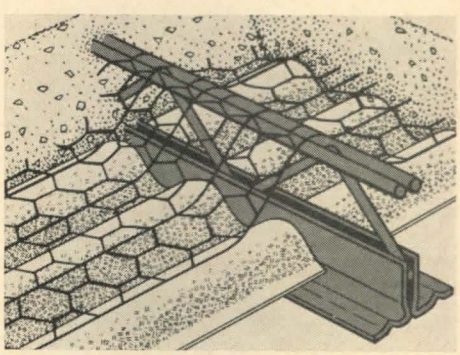

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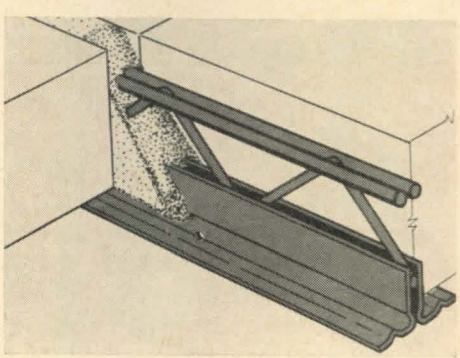


5

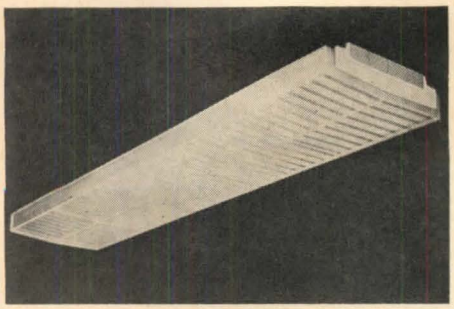
Monolithic Slab for Roof Decks

Need of a monolithic slab for roof decks has been realized with the introduction of "Keydeck" subpurlin system. Open-web truss design, 1½" to 2½" in height (1, 2), permits truss and chord members of subpurlins to be completely embedded into deck materials. Such embedment utilizes full strength of chords and flanges by making deck materials work compositely. This combination results in greater load-carrying capacity and minimizes deflection with less weight of steel. Deck materials may consist of gypsum or lightweight concrete over formboard (3), lightweight concrete over metal (4), or precast tile or slabs with grout (5).

Gypsum concrete, lightweight aggregate concrete, or grout flows through and around all members of subpurlin design to form crack-resistant monolithic slab. This embedment of subpurlin members locks roof deck to structural supports by positive mechanical attachment, which results in perfect anchorage against up-lift forces. Keydeck system has greater resistance to shear forces because its open design provides an uninterrupted diaphragm of continuous roof slab materials.

Grade of steel in lower chord angles permits more subpurlins to be welded in place per man hour. Subpurlins are painted with heavy coat of zinc chromate primer that provides base for any desired architectural finish. Bottom flanges may be punched on job for nailing to wood joists. Electrical conduits may be placed through open webs of the subpurlins. Since open-web subpurlin system has less thermal conductivity, it consequently has less heat loss and allows for slightly lower heating costs. Keystone Steel & Wire Co., Peoria, Ill.

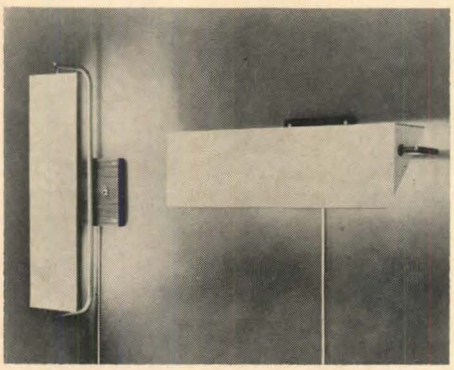
On Free Data Card, Circle **100**



Plastic Lenses

Fluorescent lighting fixtures include prismatic, wrap-around lenses made of acrylic plastic. Lenses have no metal framework, hinges, or latches to complicate installation or hinder cleaning. "Realite II" fixture may be stem-mounted or attached directly to the ceiling. Two-lamp fixture is available for 4′ or 8′ lamps, and may be individually mounted or installed in continuous unbroken runs. Holophane Co., Inc., 1120 Avenue of the Americas, New York, N. Y.

On Free Data Card, Circle **101**



Compact Lamps

Norman Cherner has designed a group of compact all-metal wall lamps with triangular and semicircular shades (19½″ long) that pivot 90° around two 60-w bulbs. They can be hung horizontally or vertically; walnut brackets are provided. Shades are finished in baked, antique-white enamel; other colors are available. Bases, columns, and fittings are brushed or polished solid brass. Desk lamps of similar shade design are approximately 19″ high. Wall lamps are $52.50 F.O.B. Nessen Studio, Inc., 317 E. 34 St., New York 16, N.Y.

On Free Data Card, Circle **102**

Wall-A-Beds

A new version of the murphy bed, designed to save space in hotels, dormitories, and other institutional interiors, may be recessed into a wall (18″ deep) or installed as a free-standing case. The wood-panelled surface behind which Wall-A-Bed disappears is completely clean except for two glides on the retracted legs. Bed is easily manipulated by a spring counterbalancing mechanism, which is newly designed for compactness. Free-standing case pieces and head and foot boards are constructed to specification. Unit is finished in choice of five wood-simulated vinyl-clad metals. Simmons Co., 1 Park Ave., New York.

On Free Data Card, Circle **103**

Developments In Glass

Several important glass products were recently introduced. (1) "To-A-Line Spandrelite" glass can be fabricated to provide variety of desired clear and opaque areas in single light of glass *(illustrated)*. It eliminates need for horizontal mullions. Because window and spandrel are combined in one unit, they permit setting in one light of glass instead of two. (2) First float process glass in U.S. has been developed. Glass is floated over a molten metal bath. It combines flat and parallel characteristics of plate glass with lustrous finish of sheet glass. (3) "Gold Spandrelite," a 22-karat gold spandrel in a stipple-textured finish, replaces synthetic gold backing. It is especially developed for use in areas between windows in glass-clad high-rise buildings. (4) "Herculite K" is high-strength, tempered safety glass for use in residential sliding doors and bath enclosures, school glazing, and other applications. It meets revised FHA requirements to reduce injuries resulting from glass-door accidents. Should glass break under heavy impact, it fails safe by crumbling into small, granular-sized particles rather than large sharp pieces. Pittsburgh Plate Glass Co., 632 Fort Duquesne Blvd., Pittsburgh, Pa.

On Free Data Card, Circle **104**

1200-Ton Cooling Tower

Packaged cooling towers in 900, 1050, and 1200 nominal tons in single unit have been announced. Units are available in three models: centrifugal fan, tubeaxial fan, and multistage propeller fan. Units consist of hot-dip galvanized steel construction and include wave-formed wet deck steel surface. Baltimore Aircoil Co., Inc., P.O. Box 7322, Baltimore, Md.

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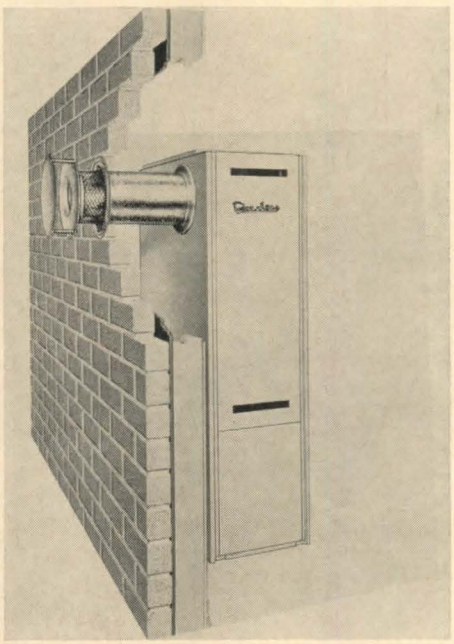


Gas Furnace Eliminates Chimney

"Safe-T-Sealed" gas furnace is sealed combustion system that eliminates need for chimney. Unit of 55,000 Btu's vents through wall, using concentric flue to provide fresh air from outside for combustion and exhausting through the pipe. Since combustion unit is sealed, gas fumes or exhaust gases do not escape into living area, and possibility of heat loss is eliminated. Furnace handles up to two tons of air conditioning. Since chimney is eliminated, furnace can be installed on any outside wall on any floor with vent from unit going directly through wall. By utilizing two or more units installed in outside walls, zoned heating and cooling in larger installations can be provided. Peerless Corp., 1853 Ludlow, Indianapolis, Ind.

On Free Data Card, Circle **106**

Glass Fiber Acoustical Unit

Acoustical unit of molded glass fiber is employed where spot absorption and diffusion of sound are required. It has elongated pyramidal shape with the base measuring 7⅝″ x 15⅝″. Unit consists of mounting base, volume-

For Class I Metal Roof Deck Construction

PYRO-KURE® 600 — TWICE THE VAPOR RESISTANCE, FAR BETTER ABRASION-PROOF THAN VINYL

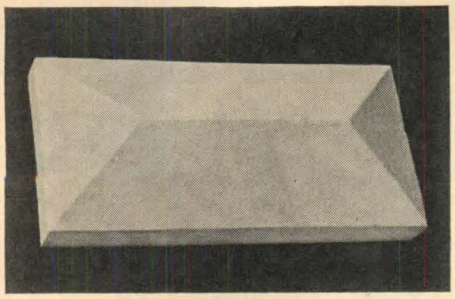
New Pyro-Kure® 600 provides a better vapor barrier system. It has twice the vapor resistance of vinyl film, and, unlike vinyl, this tough lamination has high abrasive resistance which results in a vapor barrier that will retain its integrity. As a result the owner gets a better roof, protected against condensation damage.

Factory Mutual Approved for use with metal decks and Fiberglas® insulation, Pyro-Kure 600 is rated as non-combustible and has an Underwriter's Laboratory flame spread of 25. This non-combustible property is permanent.

Pyro-Kure 600 is applied to the metal deck with conventional felt-laying equipment using regular asphalt, 12 to 15 lbs. per 100 sq. ft., or it can be strip mopped. The use of asphalt rather than special cold adhesives results in substantial savings in material cost. Write for suggested specifications and additional information on this new vapor barrier system. American Sisalkraft, 56R Starkey Avenue, Attleboro, Mass.

AMERICAN SISALKRAFT
DIVISION
St.Regis PAPER COMPANY

Pyro-Kure 600 is available nationally through Owens-Corning Fiberglas Corporation and its distributors.

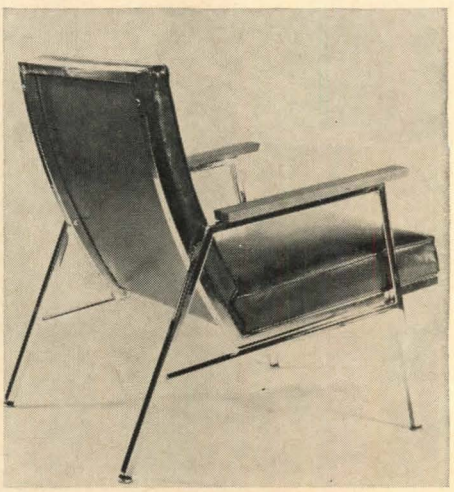


control apertures, and snug fitting slip-on top with painted finish. Depending on spacing, each unit has up to two units of absorption. Diffusion characteristics will eliminate flutter echo between parallel wall surfaces. Each unit has eight sound-absorbing surfaces, all on different planes. They are permanent, incombustible, and unaffected by moisture. Elof Hansson, Inc., Acoustical Div., 711 Third Ave., New York, N.Y.

On Free Data Card, Circle **107**

Lounge Chair

"The Modulus" lounge chair measures 25½″ wide, 31″ deep, and 32″ high. Seat, 22″ wide by 20″ deep, is tailored in 3″-thick upholstered foam rubber. Chair consists of 1″ sq steel tubular seat and back frame (18 gage) and 13/16″ sq arm and leg "A" frame assembly. Arms are capped with ¾″ thick solid hand-rubbed walnut. It is available in both bright and satin



finishes, as well as in a variety of baked enamel finishes. Troy Sunshade Co., Troy, Ohio.

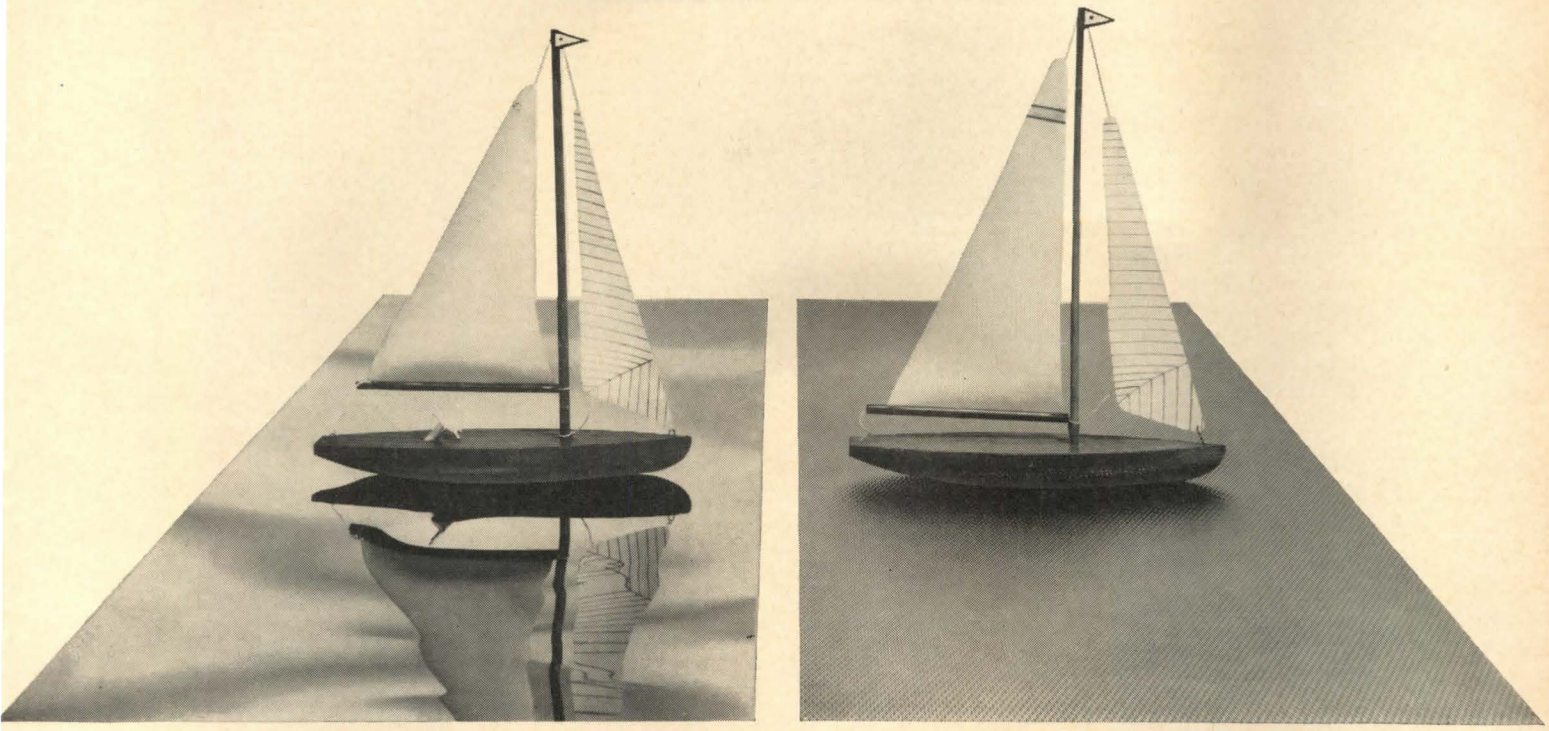
On Free Data Card, Circle **108**

Baseboard Heating Without Ductwork

Compact, self-contained electric forced-air baseboard unit can be installed without plumbing, ductwork, or other involved construction. Equipment, 33″

x 13″ x 3⅞″, can be installed at floor level in existing homes without cutting into walls or can be placed directly against studs in new or remodeled construction. Centrifugal blower and motor are concealed behind heater's grille. Built-in thermostat senses temperature of floor level air, which becomes cold before that in area above. Built-in thermal cut-off prevents overheating. Robbins & Meyers, Inc., Hunter Div., 2500 Frisco Ave., Memphis, Tenn.

On Free Data Card, Circle **109**



RIGID-tex® takes the waves out of metal curtainwalls...
FOR MAXIMUM VISUAL FLATNESS

You're aware of this paradox. Flat curtainwalls look wavy . . . while wavy or RIGID-tex curtain walls look flat. You've seen it yourself. That's why Curtis & Davis, architects of Pittsburgh's new IBM Building, chose Stainless Rigid-tex Metal Pattern #2-WL. Mr. Sidney J. Folse Jr. of that firm says, "Buckling and reflection were minimized by Rigidizing. Other metals investigated were higher in cost."

Consider the use of Rigid-tex Metal in your next building project. The wide variety of design-strengthened textures offer unlimited scope for exterior and interior design and give absolute visual flatness. Design-strengthened Rigid-tex Metal is rolled in all ferrous and non-ferrous metals, and in a variety of finishes, including color with highlighting. Widths to 52″. World-wide distribution.

Stainless Rigid-tex Metal Pattern #2-WL provides visual flatness plus cost savings over other metals in the 13-story IBM Building, Gateway Center, Pittsburgh. **Architects:** Curtis & Davis. **Stainless Fabricators:** Limbach Company.

Steel

Send for samples and literature:

RIGIDIZED METALS
CORPORATION
688 Ohio Street, Buffalo, New York 14203

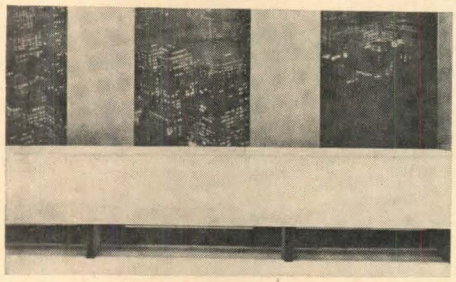
For more information, turn to Reader Service card, circle No. 405

AIR/TEMPERATURE

Heat Transfer Systems

Reference handbook, 16 pages, describes "Dowtherm" heat transfer products. It explains heat transfer as well as vapor and liquid phase transfer. Additional information includes detection and control of contamination, testing for leaks, cleaning of systems, welding, safety checklist, and references. Charts, tables, and photos are included. The Dow Chemical Co., Department DT, Abbott Road Building, Midland, Mich.

On Free Data Card, Circle **200**



Air-Conditioning Systems

Series of four booklets present all-air induction system for terminal heating, air and water induction system for large building perimeters, air and water induction with system powered air by-pass control, and room fan coil air-conditioning systems for multiroom buildings, respectively. Each booklet describes advantages, how system is used, and how it works. Illustrative details are given. Carrier Air Conditioning Co., Syracuse, N.Y.

On Free Data Card, Circle **201**

Air Conditioners' Directory

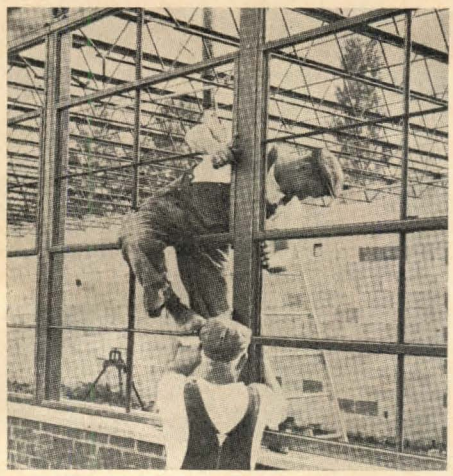
"Builders' Directory of Certified Room Air Conditioner Models" lists 337 models under 19 brand names. It includes Btu/hr cooling capacities and amps and watts ratings. Room Air Conditioner Certification Program, National Electrical Manufacturers Assn., 155 East 44th St., New York, N.Y.

On Free Data Card, Circle **202**

CONSTRUCTION

Structural Steel Tubing

Catalog, 52 pages, presents information on steel tubing for structural use as columns and beams. Round, square, rectangular, and special shape tubing are discussed. Catalog includes carbon steel tubular sections, stainless-steel tubular sections, and electrical raceways. Charts and illustrations are included. Republic Steel Corp., Steel and Tube Div., Cleveland, Ohio.



On Free Data Card, Circle **203**

Coated Glass Reduces Solar Heat

"Reflectovue," a coated and laminated glass that reduces solar heat transmission by reflection, is introduced in eight-page brochure. It reduces air-conditioning tonnage requirements and subsequent operating cost, eliminates need for shading schemes, and protects against breakage the same as laminated auto windshield glass. Reflectovue is suitable in all climates and has coating impervious to abrasion and corrosive atmospheres. Brochure contains charts on heating and savings with glazing and shading schemes as well as specs. The New York Air Brake Co., Kinney Vacuum Coating Dept., 1325 Admiral Wilson Blvd., Camden, N.J.

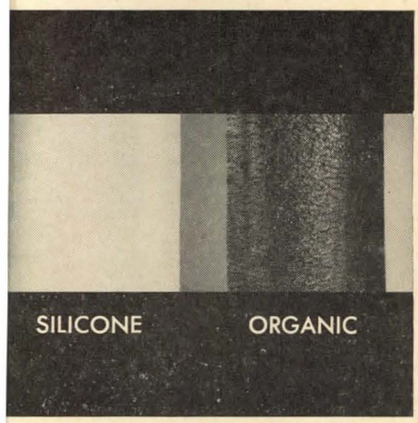
On Free Data Card, Circle **204**

Structural Glazed Tile

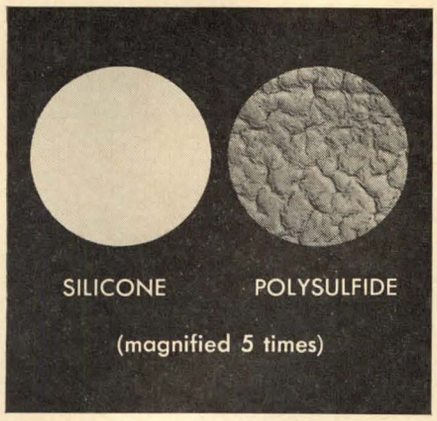
Catalog offers standard facing tile, sculptured ceramic tile, acoustical tile, and glazed brick. Also featured is recently developed "Super" tile in normal 8″ x 8″ x 16″ size. Tile offers interior structural wall 8″ in depth and glazed in one or both faces. Because both wall faces are set at same time, installation costs of Super tile can be reduced as much as 50 per cent. Catalog includes relative costs, and estimating, specs, vertical and horizontal coursing tables. Basic units including stretchers, corners, closures, and supplemental shapes are

SILICONE CONSTRUCTION SEALANT

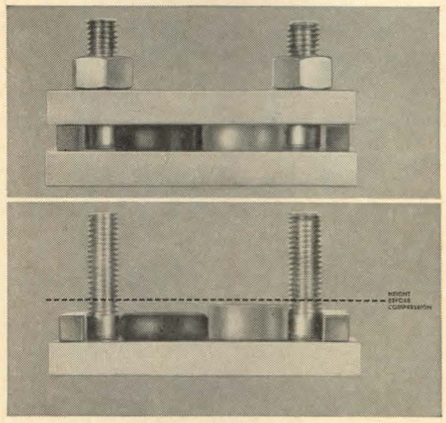
proved most resistant of all sealants to weather, time and joint movement



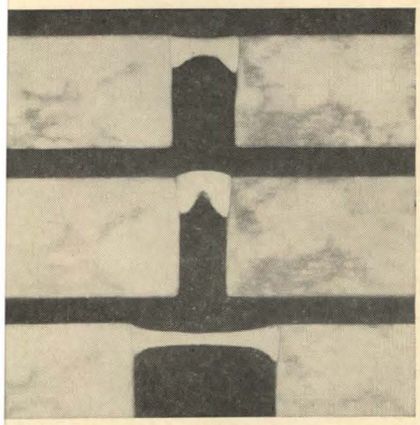
SISTS AGING Because it is a rubber, G-E licone Construction Sealant is resilient and terproof. And because it is a *silicone* rubr, it is virtually unaffected by organic rubr's worst enemy, ozone. In accelerated aging sts, silicone rubber is unaffected by ozone, in y concentration, over thousands of hours.



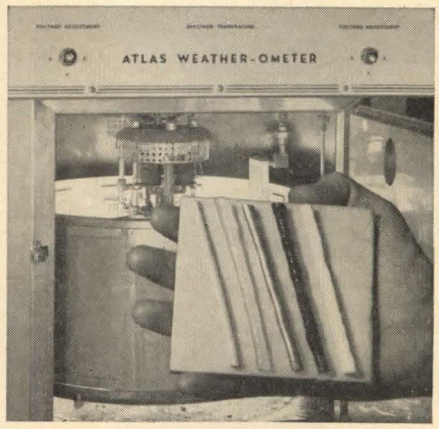
DOESN'T "WEATHER" Samples of silicone rubber have been exposed outdoors for as long as 15 years with no significant deterioration. Severe weathering tests, in which silicone and polysulfide sealants were exposed to Florida sunlight and salt spray, proved silicone's superiority after only one year. Note "checking" in polysulfide.



GREATEST LONG-TERM RESILIENCE The recovery or "comeback" of silicone sealant after compression is far better than any other type of sealant, particularly at extreme temperatures. In this standard ASTM test, cured samples were compressed 40% for 22 hours at 160°F. Silicone recovered 92%, polysulfide only 20-40%.



OMPRESSION-EXTENSION CYCLE This is a ajor cause of sealant failure. Because other astomeric sealants take a set during *comression* (see above), they put a severe strain the bond during *extension*. Silicone sealant, ith almost 100% recovery after compression, ithstands repeated cycling, while maintaing an effective seal.



STABLE COLORS, NON-STAINING G-E Silicone Sealant comes in five non-fading stock colors: translucent, white, black, aluminum, neutral. Unlimited colors can be ordered. No chance of staining, since nothing in the pigments or the rubber itself will stain building materials. Accelerated weathering test above demonstrates color permanence, lack of staining.

STRONG BOND AT ANY TEMPERATURE G-E Silicone Sealant can be applied year-round from —35°F to +140°F. Flows easily at low temperatures. Bonds well to hot or cold surfaces. When cured, it will not stiffen in cold or soften with heat. Adheres to all common building materials. A one-part material, it needs no mixing or catalyst.

Years of testing and performance in rigorous applications have proved that silicone rubber is the most durable and dependable elastomer available today. General Electric has made this material available as a sealant formulated specifically to meet the needs of the construction industry.

To further assure reliability, General Electric performs the entire manufacturing operation, from the manufacture of the basic gum through formulation and final packaging. No steps are trusted to formulators or satellite plants. This is your assurance of the finest and most consistent quality.

For more information contact your G-E Silicone Construction Sealant Distributor shown on the opposite page. Or write Section 0-4110, Silicone Products Department, General Electric Company, Waterford, New York.

GENERAL ELECTRIC

shown in color. Stark Ceramics Inc., Canton, Ohio.
On Free Data Card, Circle **205**

Translucent Glass Fiber Panels

Pamphlet describes translucent glass-fiber panels. Materials consist of thermosetting polyester resins, modified with acrylic monomer, and then reinforced with high-tensile-strength glass fibers. Panels are available in 15 colors, 12 configurations, and 6 grades. Technical data, properties, color charts, and specs are given. Rippolite Plastic Products, Division of A. E. Lilly Co., 3910 Cohasset St., Burbank, Cal.
On Free Data Card, Circle **206**

Welded Tier Buildings

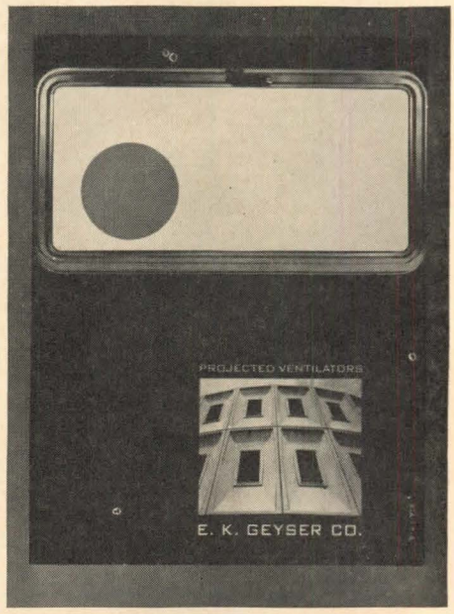
Structural report deals with design of welded tier buildings, especially those 20 stories or higher. Part 1 presents an "Analysis for Tier Buildings"; and Part 2, a "Discussion of Welded Details," which includes beam-to-column connections. Charts, details, photos, and bibliography are included. United States Steel Corp., 525 William Penn Place, Pittsburgh, Pa.
On Free Data Card, Circle **207**

Open-Web Joists

Catalog, 24 pages, furnishes information on open-web joists. Sections include "Advantages of Open-Web Joist Construction"; S-, J-, and H-Series Joists"; "Standard Load Tables"; "Longspan Joists, L- and La-Series"; "Specifications for Open-Web Joists"; and "Recommendations for Handling and Erecting Open-Web Joists." Details and photos are included. Bethlehem Steel Co., Bethlehem, Pa.
On Free Data Card, Circle **208**

Porcelain Enamel Panels

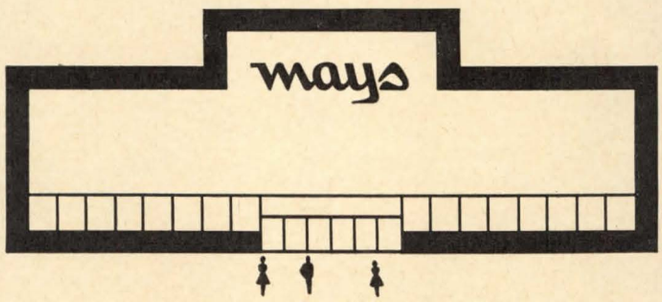
Brochure features examples of several building types constructed of porcelain enamel panels. Details, dimensional data, and color illustration of each building are given. Also included are typical details showing application to furring and fastening to masonry. Davidson Enamel Products, Div. of Fenestra, Inc., 1104 Kibby St., Lima, Ohio.
On Free Data Card, Circle **209**



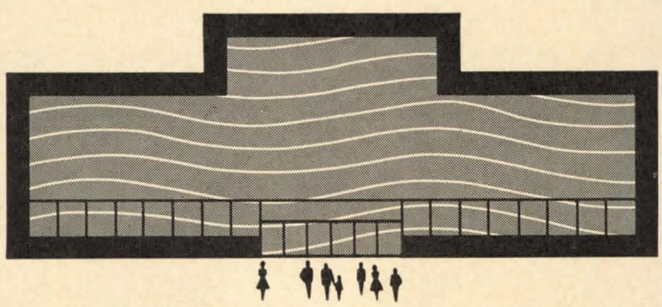
Projected Ventilators

Projected type ventilator unit for use with masonry construction grid systems and precast concrete is shown in four-page brochure. It is made to swing in or out from top, bottom, or either side. Ventilators have rounded, cold-formed steel corner

Continued on page 108



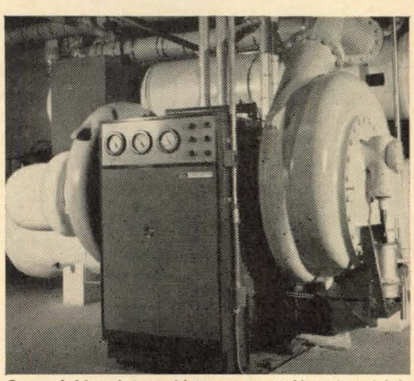
Why Mays Department Store installed Chrysler Airtemp



lays Department Store in Massa-equa, New York, needed an air onditioning system that would ool 290,000 sq. ft. of floor space fficiently and give trouble-free erformance. Their selection, two irtemp centrifugal water chillers, iet these requirements. The units upply 970 tons of cooling capac-y, enough to keep temperatures ell within comfort levels, through-ut the store. And reliability far xceeded Mays' expectations. Ex-mple: equipment operated from art-up through one of the most evere summers in New York his-ry without any adjustment.

You, too, should consider Chrysler Airtemp for your next cooling problem. Its line has one of the broadest BTU ranges in the cooling field. And all equipment is Chrysler Engineered. Reliable. Chrysler Airtemp stands ready to help you. With fully qualified technical representatives. Detailed technical literature. For more information, write T. W. Kirby, Vice President-Marketing, Airtemp Division, Chrysler Corporation, 1600 Webster Street, Dayton 4, Ohio.

AIRTEMP DIVISION CHRYSLER CORPORATION



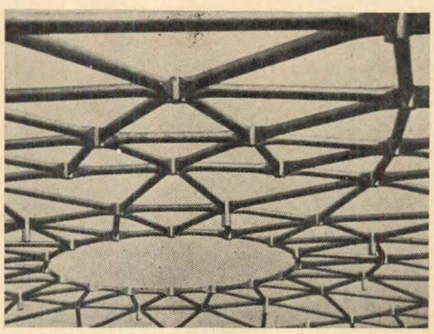
One of Mays' two Airtemp centrifugals which together deliver 970 tons cooling capacity, cool 290,000 square feet of floor space. Contractor: Samuel Messing, Nassau Mechanical Contractors. Consulting Engineer: Sidney W. Barbanel. Architect: Herbert Tannenbaum.

nore information, turn to Reader Service card, circle No. 333

Continued from page 104

plates. Installation details for grid systems, masonry, precast concrete, and special framing are given. Sizes, neoprene gasketing details, costs, hardware, and specs are also included. E. K. Geyser Co., 915 McArdle Roadway, Pittsburgh, Pa.

On Free Data Card, Circle **210**



Space Frame Connector for Large Spans

Recently developed structural connector for large span space frame structures is presented in 12-page brochure. System employs efficient hub connector that entirely eliminates bolts, welds, and rivets. Joints, made by coining or press-forming ends of structural elements, are inserted into connector. Method joins almost any number of members of different lengths and sections radiating at various angles. True three-dimensional lightweight frameworks can be readily fabricated in form of grids, slabs, or shells of single or double curvature. Diagramatic sketches, dimensional charts, and illustrations are given. Triodetic Structures, 335 Roosevelt Ave., Ottawa 13, Ontario, Canada.

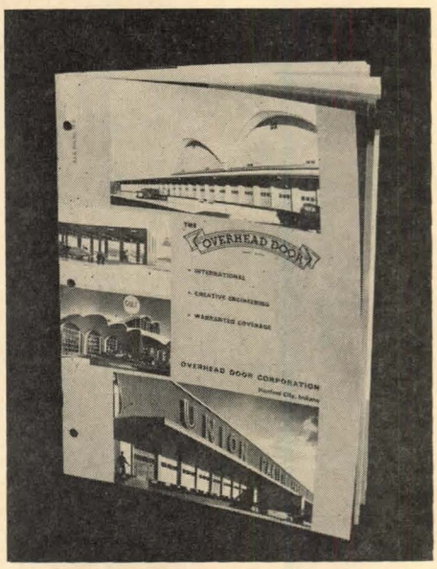
On Free Data Card, Circle **211**

DOORS/WINDOWS

Double-Hung Window

Double-hung window, called "Narroline," is presented in 10-page brochure. It includes snugly fitting pile channel that rides on rigid vinyl rib. Sash are factory groove-glazed and wood is toxic-treated for protection from termites and decay. Manufacturer states that weathertightness is four times greater than in ordinary windows. The Narroline is available in 44 standard sizes, 9 matching picture windows, and 12 grille patterns. Andersen Corp., Bayport, Minn.

On Free Data Card, Circle **212**



Upward-Acting Doors

Reference catalog, 32 pages, provides selection charts for wood, steel, aluminum and glass fiber sectional upward-acting doors. Contents are divided

In this unusual bath, a single 5-foot-wide Marlite Mural covers the tub wall from corner to corner.

)nly Marlite paneling offers your clients such a wide choice of colors and patterns

matter how imaginative your client's decorating es may be, you'll find a beautiful Marlite color and tern to please him. All are styled by Faber Birren, nority on color trends and preferences.

With Marlite paneling, you can choose an authentic ndwood® reproduction, a distinctive decorator pat-, a subtle solid color . . . or one of the new Marlite rals. These new 5-foot-wide mural panels are crafted old on a white background. Nine designs in all, they e created by outstanding artists to add a dramatic new dimension to any room.

And every Marlite panel has an exclusive soilproof plastic finish that resists heat, moisture, stains and dents. It goes up over old or new walls; never needs refinishing; stays like new for years with an occasional damp cloth wiping.

For complete information on new Marlite Murals and other Marlite paneling, see your building materials dealer, consult Sweet's Files, or write Marlite Division of Masonite Corporation, Dept. 414, Dover, Ohio.

Marlite®

plastic-finished paneling

ANOTHER QUALITY PRODUCT OF MASONITE® RESEARCH

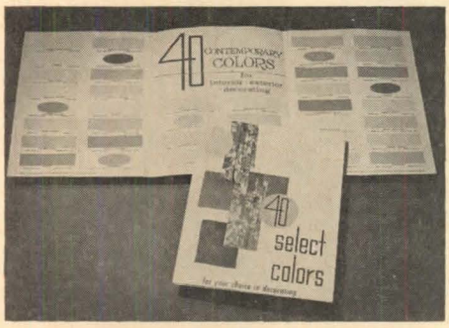
TE BRANCH OFFICES AND WAREHOUSES: 204 Permalume Place N.W., Atlanta 18, Georgia • 18 Moulton Street, Cambridge 38, Mass. • 4545 James Place, Melrose Park, Illinois (Chicago) • 8908 Chancellor Row, 7, Texas • 1657 Powell Street, Emeryville, California (Oakland) • 3050 Leonis Blvd., Los Angeles 58, California • 39 Windsor Avenue, Mineola, L. I. (New York) • 2440 Sixth Avenue So., Seattle 4, Washington

re information, turn to Reader Service card, circle No. 365

into commercial-industrial and residential garage doors. Included is information on standard track and jamb details, special operating equipment, and electric operators and controls. Illustrations, details, and specs are given. Overhead Door Corp., Hartford City, Ind.

On Free Data Card, Circle 213

FINISHERS/PROTECTORS



Epoxy Coatings

Booklet illustrates 40 architectural colors of epoxy coatings. Colors are available in gloss, semigloss, or flat finishes. Booklet also gives performance data on epoxy coatings plus patching and cladding compounds. Hauger-Beegle Assoc., Inc., 7250 Franklin St., Forest Park, Ill.

On Free Data Card, Circle 214

Revised Painting Specs

Tenth edition (124 pages) of architectural specs for painting, varnishing, and enameling has recently been published. Manual is divided into eight sections: Products and Descriptions, Index of Surfaces, General Conditions, Master Specifications, Selected Specifications, Color in Design, Color Plans/Wood Finishing, and Problems and Answers. An important feature of the manual is the "base bid" clause under General Conditions, which eliminates misunderstanding arising from the "or equal" clause. A "base bid" is submitted by the contractor in terms of these specs, which include use of materials of the specific brand, quality, and color specified. Contractor may submit an alternate bid, but must include his request in writing for approval by architect. Contractor will be notified within 10 days after award of contract to him, if such an alternate is accepted. If not accepted, contractor must follow specs in accordance with base bid. Specs are given for churches, hospitals and institutions, hotels and apartment buildings, industrial buildings and warehouses, motels, office and commercial buildings, residences, schools, and colleges. Pratt & Lambert, Inc., 75 Tonawanda St., Buffalo, N.Y.

On Free Data Card, Circle 215

INSULATION

Plywood Acoustics

Booklet, 16 pages, discusses how plywood can provide adequate sound control with only minor changes in conventional construction methods. Sections of "Acoustics and Plywood" are "Sound Insulation" and "Sound Absorption." Glossary, ratings for typical constructions, and bibliography are included. First section describes typical plywood frame wall and floor-ceiling building methods. Second section outlines use of plywood to absorb sound in flat and curved surfaces. Details are included. Douglas Fir Plywood Assn., Tacoma 2, Wash.

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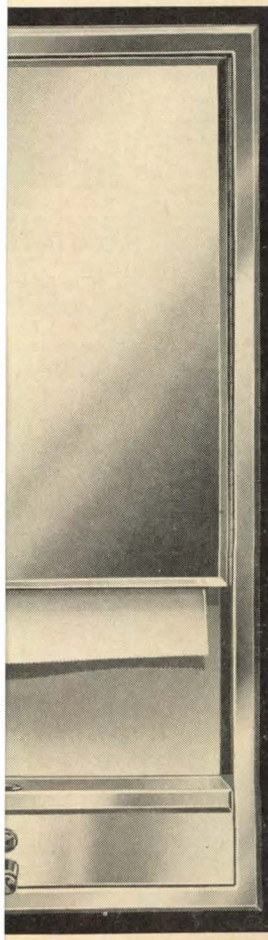

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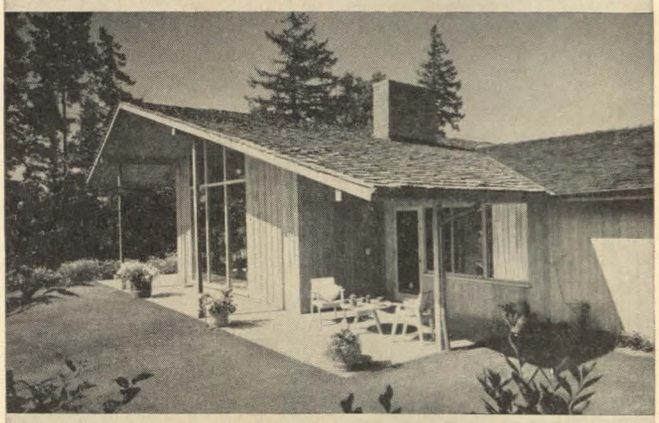

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styrene Insulation

, eight pages, describes "Uni- xpanded polystyrene for in- requirements. It can be util- insulating material, as a va- ier, and as a plaster base. In full details are given for ld room and freezer applica- etails, charts on physical s, and comparative values ded. United Cork Companies, 3 P, 120 Central Avenue, N.J.

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sorbtion masonry block is n four-page folder. "Sound- weatherproof and withstands . Since its structural strength to monacoustic blocks, it can for construction of partitions earing walls, and in ribbed tems as filler blocks. Because vide good sound absorption equency regions, they reduce oblems due to transformer ns, air-conditioning pent- and assembly plants. Sound- n data, photos, and specs n. Acoustical Building Block , 9 Dalton St., Boston Mass.

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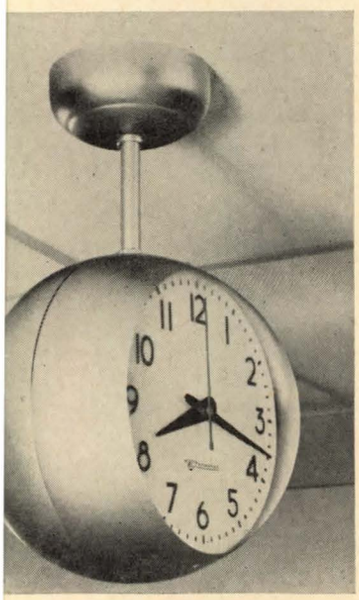

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r designed line of clocks for banks, theaters, lobbies, and plications is presented in 16- chure. Dials vary in size from 4". Models range from moder-

ately priced economy versions, to prestige designs, to special-purpose types. Some types of clocks are explosion-proof, vapor-proof, and weatherproof. Others are panelboard versions and elapsed-time indicators for hospitals and laboratories. Edwards Co., Inc., Norwalk, Conn.

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Sculptural Glass Fiber Planter Boxes

Pamphlet contains six pages of sculptural and geometrically shaped fiber glass trash receptacles, planter boxes, and planter benches. All pieces are available in various colors and textured surfaces. Architectural Fiberglass Div., Architectural Pottery, 2020 South Robertson Blvd., Los Angeles, Cal.

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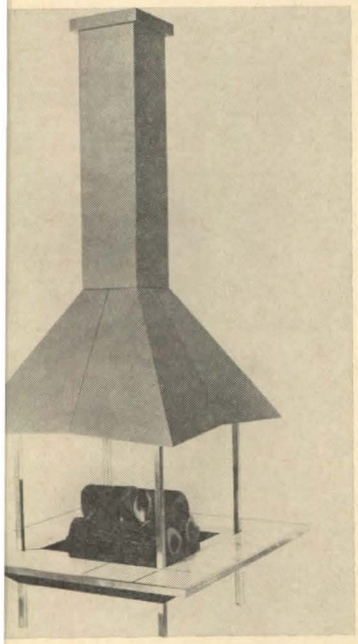
Modular Casework

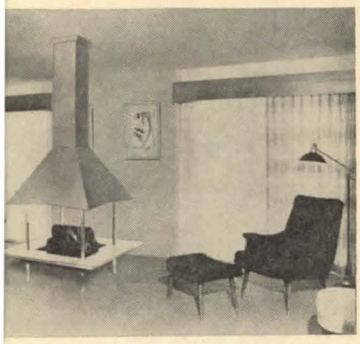
Booklet, 30 pages, presents modular casework for industrial laboratories, hospitals, and institutions. Units include cupboards, drawers, sinks, floor cases, wall cases, sloping tops, end panels, horizontal panels, fume hoods, titration tables, distillation racks, portable table benches, and clean-up sinks. Photos, descriptions, sketches, and specs are included. Brunswick Corp., Brentwood Div., 1801 South Hanley Rd., Brentwood, Mo.

On Free Data Card, Circle **221**

Free-Standing Fireplace

Brochure illustrates gas-fired free-standing fireplace. Framework consists of satin-finish chrome, tubular-steel construction. Hearth is white porcelain-enameled steel in pattern to simulate 8½″x8½″ tile blocks. Fireplace is available in blue, brown, white, and red. Specs for fireplace as well as





tops, venting attachments, essories are given. Majestic ., Huntington, Ind.
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prinkler Systems

20 pages, gives benefits of g sprinkler systems. How rs work, insurance graphs, and ion of various systems, as well ographs and details, are in- Grinnell Co., Inc., 260 ge St., Providence 1, R. I.
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chitectural Pottery

8 pages, covers architectural for planters, lighting fixtures, ns, and screen walls. Various s, sizes, and glazes are given. designs may also be commis- Pottery is available in unglazed re: olive green, waxen yellow, ocher brown, and blue. Photo- sizes, and descriptions are Seperate price list is also in- Architectural Pottery, 2020 Robertson Blvd., Los Angeles,

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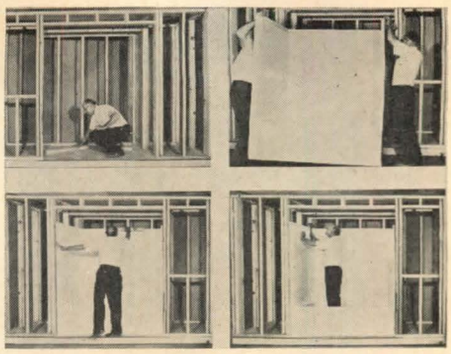

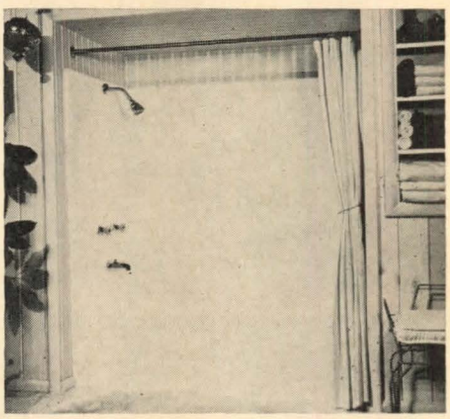

Glass-Fiber Bathroom Fixtures

Two fact sheets illustrate shower stall and tub-wainscot combination, respectively. They consist of glass-fiber reinforced polyester resin. "Uni-Tub" is one-piece 5′ bathtub combined with 72″ high back and sides splash wall. "Uni-Shower" is one-piece shower floor or pan with three integral side walls. Shower is available in widths of 36″, 48″, and 54″. Both units are repairable after installation and have nonskid surface. Universal-Rundle Corp., New Castle, Pa.

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Shower Stalls

Folder describes shower doors, bathtub enclosures, and shower stalls. All sliding enclosures have top suspended panels for trouble-free rollers with nylon tires. Models are available in either chrome-plated brass or aluminum. Photos of enclosures and specs are given. Keystone Shower Door Co., Inc., Southampton, Pa.

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Merchandising Fixtures

Catalog, 36 pages, introduces merchandising fixtures that adapt slimline features to standard slotted angles. System is adaptable to walls, counters, lowboys, or island units. Components are completely interchangeable. Cata-

udes color details, specs, and of all parts and accessories. arling Co., Bronson, Mich.
Free Data Card, Circle 227

FACING MATERIAL

Wood Finishes for Cabinetry

shows variety of wood exterior for kitchen cabinetry. Wood rs, which are mounted on ood-colored steel bases, are of ee-ply construction. Panels are by basewood cores that prevent g or splitting as well as absorb- ise. There are 15 different fin- choice of contemporary, tradi- or provincial styling. Panels ilable with rope or bead mold- no molding at all, and there de choice of hardware in black, copper, chrome, or silver. All s are sealed, baked, and lac- before molding and hardware plied. Folder illustrates the 15 inishes in color and the three s. Geneva Industries, Inc., , Ill.
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temperatures are 50 F or lower. Test data, photos, and specs are given in 4 page folder. Terrafino Corp., Subsidiary of Lancaster Chemical Corp., Carlstadt, N.J.

On Free Data Card, Circle 229

Terrazzo

Booklet, 42 pages, presents information on terrazzo. Sections include "Methods of Installing," "Other Applications," "Conductive Terrazzo," "Monolithic Terrazzo," and "Working Data." Specs and detailed drawings are included. Booklet is free of charge on company or individual's letterhead. National Terrazzo & Mosaic Assn., Inc., 1420 New York Ave., N. W., Washington, D. C.

Metal Wall Tiles

Manual offers six types of metal wall tiles: porcelain or enamel on aluminum, solid copper, stainless steel, copper glaze, brushed aluminum, and brass glaze. They will not expand, contract, buckle, or support combustion. Tiles are resistant to vermin, dust, grease, dirt, scratching, marring, and abrasion. All types are corrosion-resistant and some types are even corrosion-proof. Examples of tiles and descriptive data are given. Separate price lists and installation brochure are also available. Vikon Tile Corp., Washington, N. J.

On Free Data Card, Circle 230

Tile Color Charts

Color comparison charts for both vinyl asbestos and asphalt tiles have recently been published in one booklet. Charts give latest comparisons of many tile colors and patterns. Booklet includes products of Amtico Flooring Division of American Biltrite Rubber Co., Congoleum, Johns-Manville, Kentile, Ruberoid Co., and Tile-Tex Division of Flintkote Co. Asphalt and Vinyl Asbestos Tile Institute, 101 Park Avenue, New York, N.Y.

On Free Data Card, Circle 231

PROGRESSIVE ARCHITECTURE
NEWS REPORT

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Bradley

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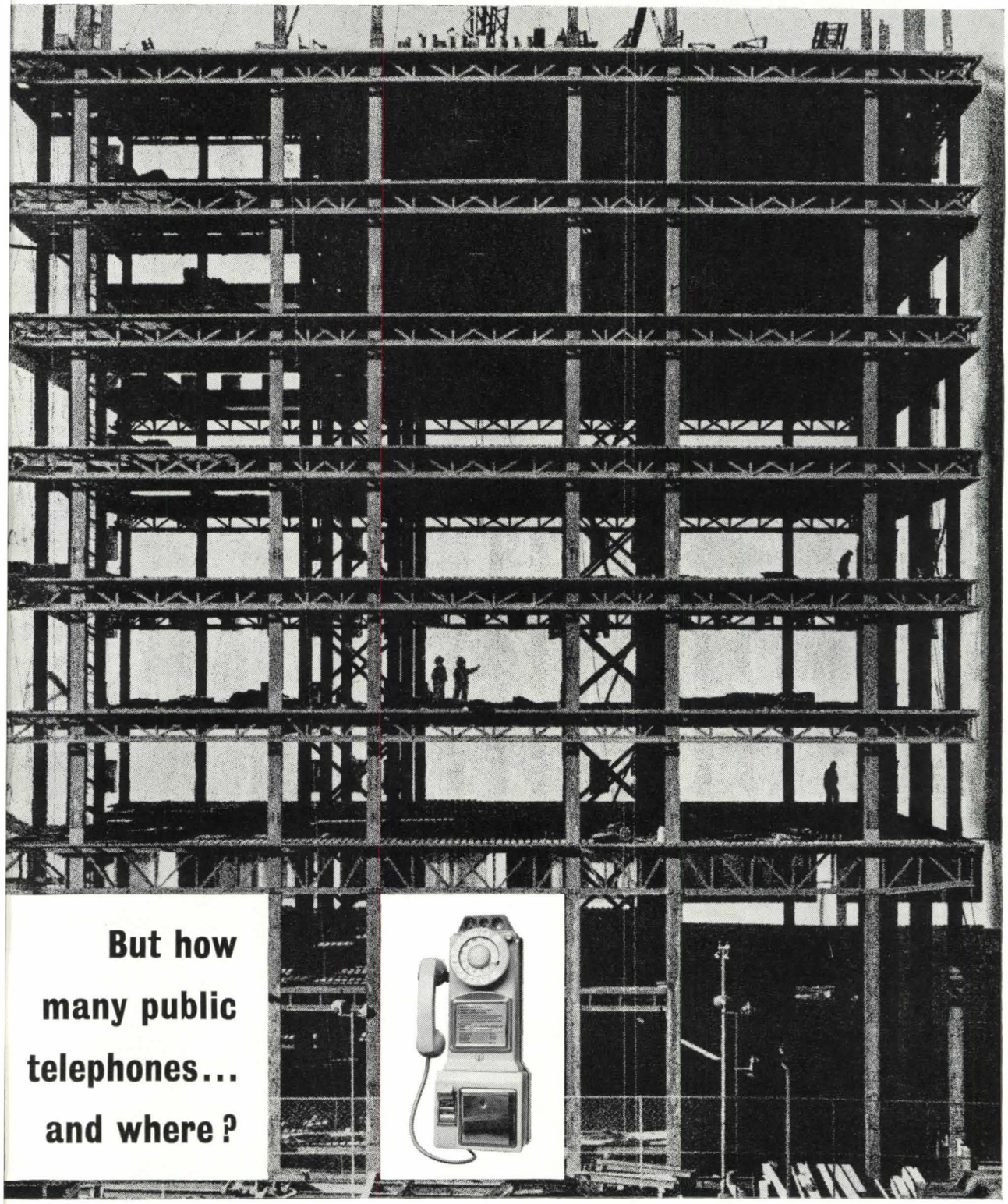

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The design called for four levels of parking, three drive-in teller stations for banking service, and access for pedestrian traffic to the adjoining bank from ground and second parking levels and to an adjoining office building from the third and fourth levels—all in a space that challenged the architects' skills.

Architects Spangler, Beall, Salogga & Bradley began by securing air rights over adjoining city sidewalks and vacating a little-used one-block-long street. Designing the frame to take full and economic advantage of available space, they chose steel for columns, girders and beams. Main girders of USS TRI-TEN (A441) Steel were cantilevered ten feet over the sidewalks and were tied in compositely with reinforced concrete decks. The balance of steel framing was A36. Both footings and columns were designed to carry six future levels over a portion of the structure.

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Total area is 79,260 square feet. Capacity—152 cars. Cost—$4.73 per square foot. Conclusion: A steel framed structure can park more cars in less space, for fewer dollars. And it's easy to add more floors to a steel structure. United States Steel, 525 William Penn Place, Pittsburgh, Pa. 15230. USS and TRI-TEN are trademarks.

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Citizens National Bank Parking Garage, Decatur, Illinois • Architect Engineer: Spangler, Beall, Salogga & Bradley, Decatur, Illinois
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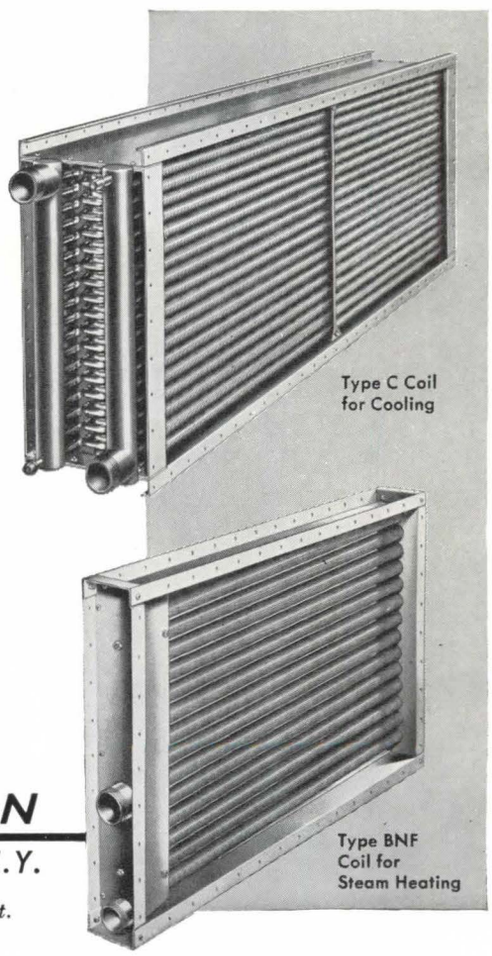

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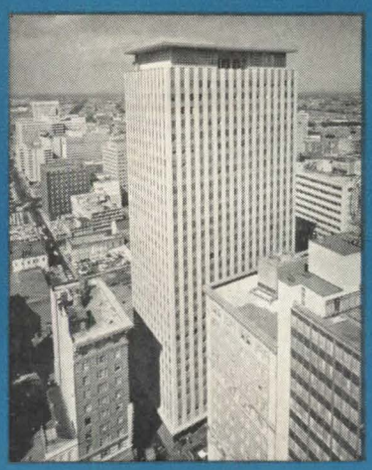

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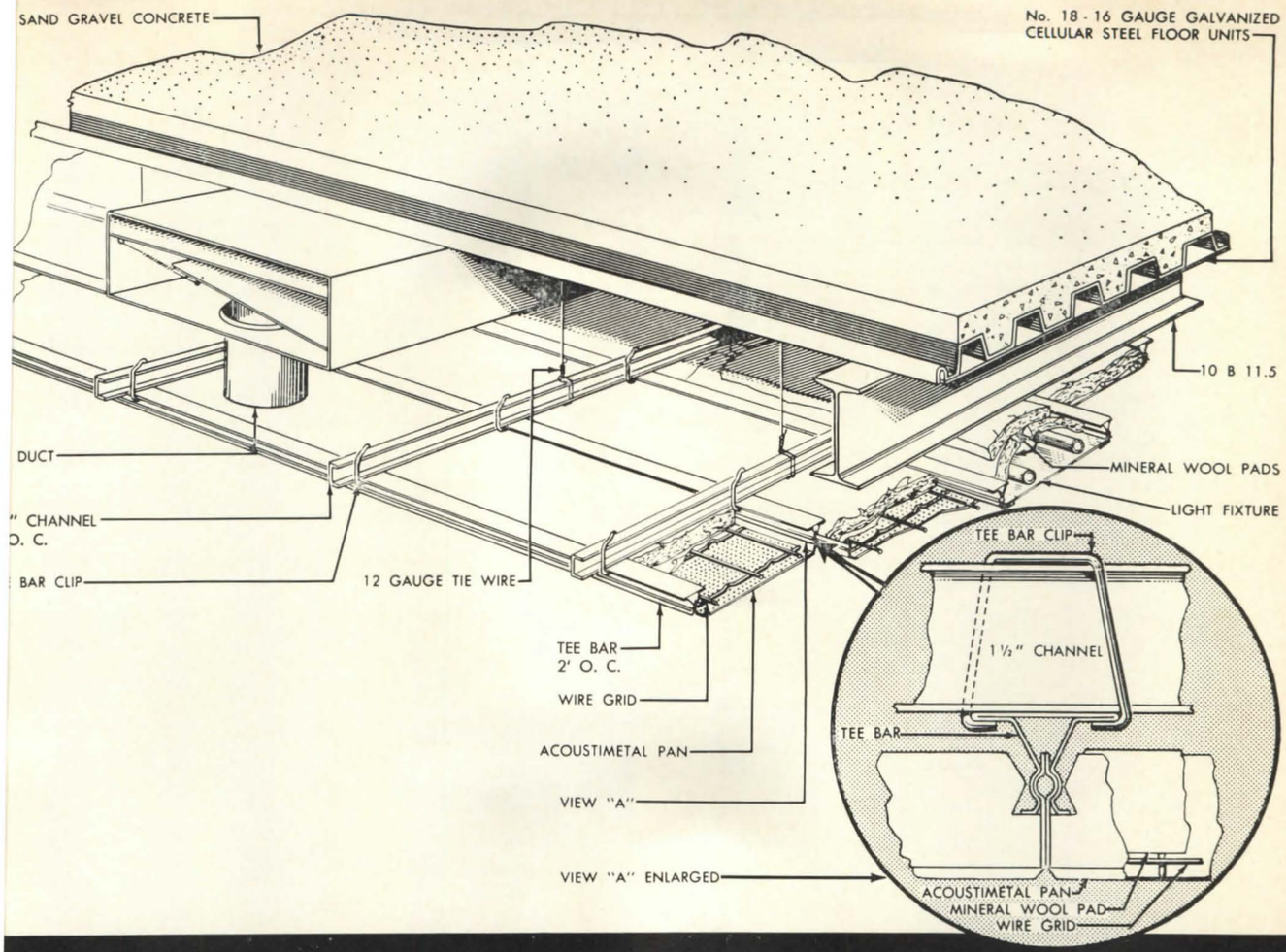

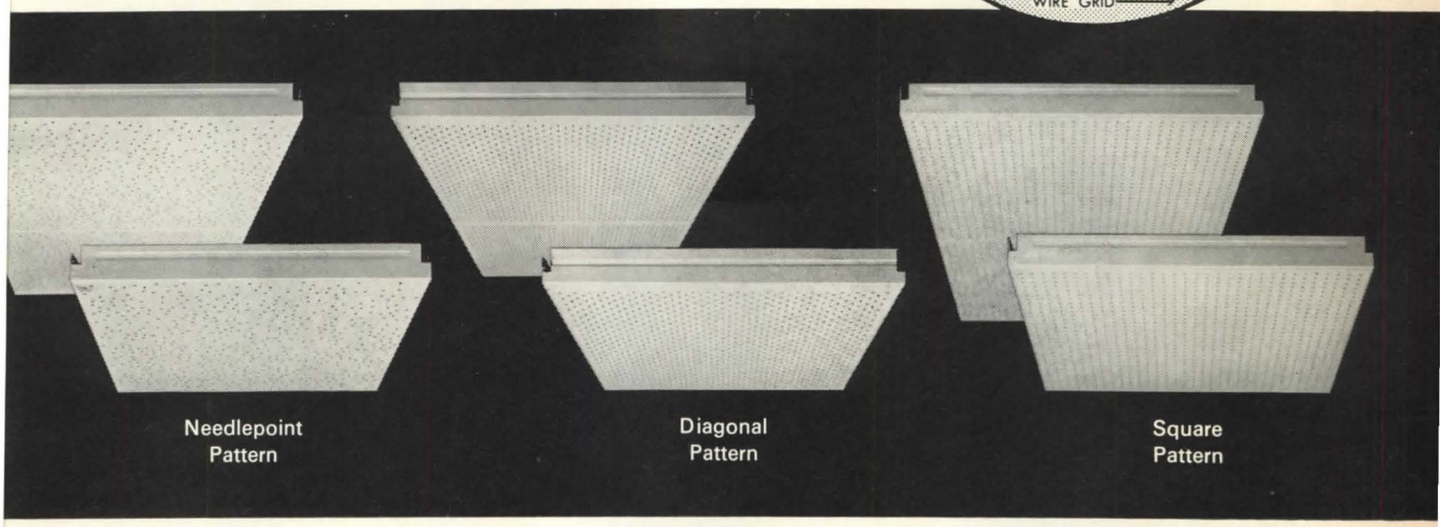

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EDITORIAL

Housing projects will continue to be built in large quantities, and various Governmental agencies, such as URA, PHA, and FHA, will be guiding, or at least influencing, their location, composition, and design. We know from past experience that official criteria for what is good and what is bad, what is desirable and what is not, are difficult to change. The bureaucratic mind not only likes rules but also their perpetuation.

Architects are quite influential in the establishment of these rules. It is unlikely that we would have today zoning ordinances and other planning paraphernalia, all geared toward achieving minimum land coverage and maximum open space, were it not that architects enthusiastically supported this concept.

Now that we realize that *soleil et verdure* wrapped around free-standing buildings is not the right answer to a psychologically satisfying urban environment, and are trying to find different answers, it might be wise to examine carefully other concepts before supporting them, lest they become fossilized in various rulebooks.

It is currently fashionable to claim that mixing different income groups within a neighborhood is essential to a healthy and interesting city life. Do not segregate housing into luxury, middle-income, and low-income, goes the new theory, and all will be well. Vest-pocket public housing developments and experiments with skewed rentals are some of the first symptoms of such a philosophy.

Some politicians support this idea because mixing income groups in the present-day U.S. also means mixing racial groups; and sociologists tend to support it because they are sociologists. But many architects support it because they have the Jacobsean vision of a stimulating urban environment achieved through variety —without thinking too much, it seems to me, about what kind of variety is really desirable.

Mixing uses is not the same as mixing income groups, and I have doubts that the mixed-income concept will prove to be a cure for our urban ills. If a whole city were to be developed according to the mixed-income theory, what would result is a homogeneous city without any differentation from one area to another. Nowhere would there be the quiet, aristocratic elegance of a Fifth Avenue, or the rowdy, arty hubbub of a Greenwich Village. Since each neighborhood would be similar to the next one, instead of variety we would achieve just the opposite—uniformity. And instead of complaining about the sameness of "projects," we would then start complaining about the sameness of whole districts. "Mixed" neighborhoods appeal to us today only because they are different from monolithically one-income neighborhoods.

When planning urban environments, one used to talk about streets, squares, plazas, arcades, and all the other accoutrements of civic life. They, or the lack of them, made city life pleasant, or unpleasant. We should go back to thinking in those terms again, for the solution to the monotony of housing does not lie in the purposeful mixing of income groups, I think, but rather in a renewed interest in all the multifarious urban forms and activities. What city dwellers need are sequences of spatial experiences and the experiencing of different activities these spaces contain.

The best way to get rid of the dullness and oppressiveness of our housing projects is to stop thinking of housing projects as housing projects, and start building spaces around which people live, work, and play. ■

James C Rowan

Environment for the Elderly

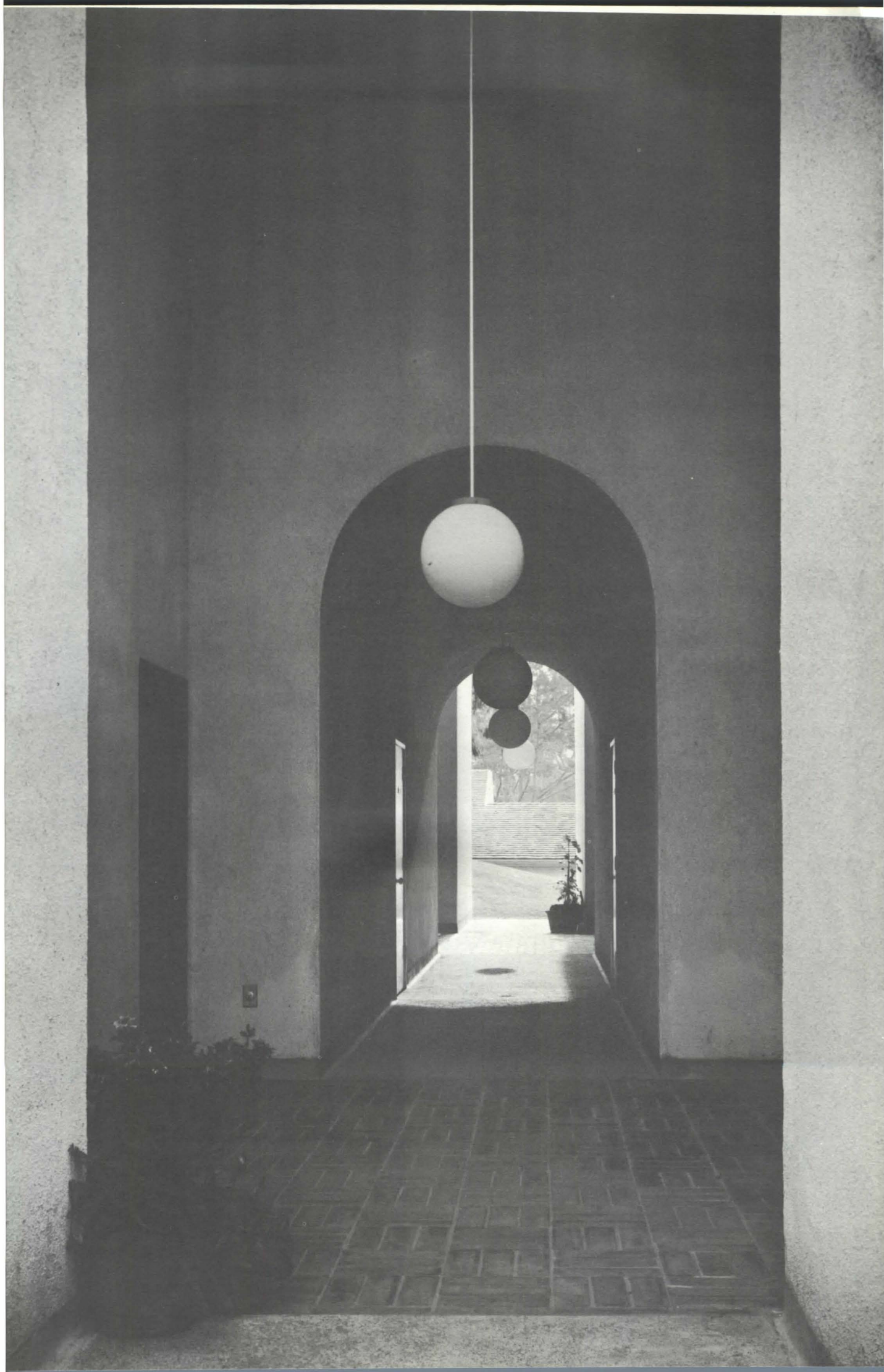
Only in the past decade has the field of housing for the elderly developed beyond the limited area of "homes for the aged" to include facilities for the physically able and financially independent elderly. During this period, the term "elderly" has completely supplanted the less flattering "aged" and the unctuous phrase "senior citizens" appears so often that the rest of us might wonder whether we are to be dubbed "junior citizens."

By general agreement, "elderly" refers to people 65 and over, but housing for the elderly often accommodates younger people who have retired or who have elderly spouses. The potential need for such housing is suggested by the fact that persons over 65 now constitute more than 15 per cent of our adult population.

The great majority of these people are able-bodied and live much as they did before they turned 65. One principal difference is that the majority of those who were employed before 65 became unemployed after 65. Another distinctive characteristic of the group is the large proportion of single or widowed women—about 30 per cent, as against 20 per cent unattached men and 50 per cent married people living with their spouses. The greater longevity of women has a more pronounced effect with advancing age, so that among people over 80, for instance, 60 per cent are single women or widows. What these people need in their housing is a pleasant environment that facilitates day-to-day chores and encourages social contact. Most of them spend more time at home than ever before, and all of them face at least the possibility of reduced mobility. They need private quarters, where they can receive visitors without embarrassment and from which they can observe some active part of the world outside. When they do go out, they should find shopping, services, and social activities—both organized and informal—as near to their doorsteps as possible.

Much has been written about designing housing for the elderly to eliminate stairs and stooping, to allow for wheelchairs and assisted bathing, and so on. These features—which would be equally valuable to expectant mothers and hapless skiers, among others—are required not because the elderly are generally disabled, but because of the likelihood that they eventually will be. Illness among the elderly is doubly depressing when it forces them to give up their privacy, their belongings, and their friends; the object of these special design features is to minimize such separation—to enable the elderly to take care of themselves or each other despite reduced mobility and to facilitate nursing care at home when it becomes necessary.

The three privately sponsored projects shown on the following pages represent three distinct approaches to the problem of housing the elderly. Each makes a significant contribution to our knowledge about their environmental needs.



Environment for the Elderly

RETIREMENT VILLAGE

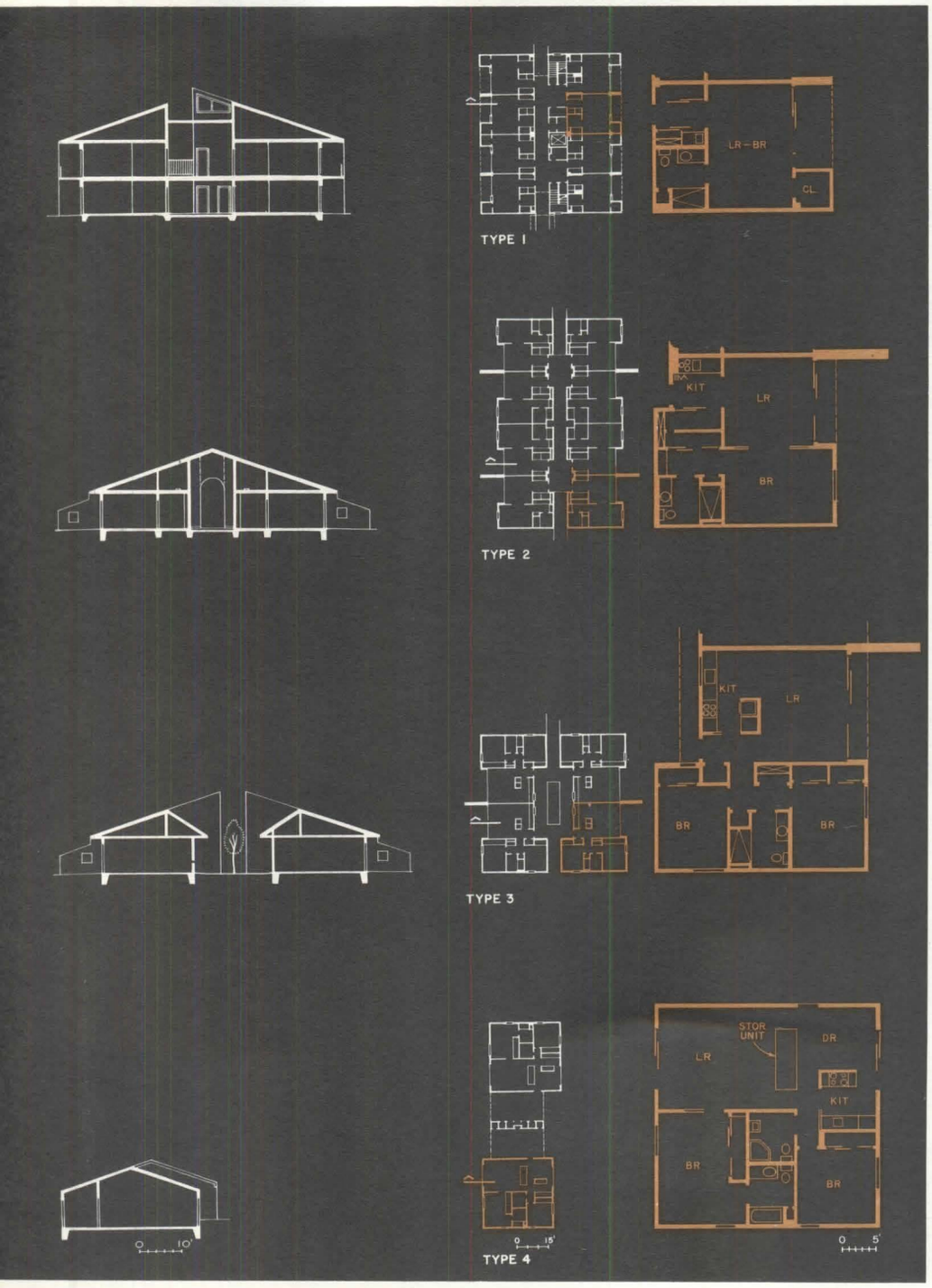
CARMEL VALLEY MANOR • CARMEL VALLEY, CALIFORNIA • SKIDMORE, OWINGS & MERRILL, ARCHITECTS • SASAKI, WALKER & ASSOCIATES, LANDSCAPE CONSULTANTS

On a farmland site seven miles outside of Carmel, SOM has created a village environment of remarkable visual interest through a close integration of site planning and architecture. A system of circulation routes passing alternately through buildings and plazas exposes residents to sequences of views enlivened by subtle variations in architectural forms and landscape design.

The project comprises 170 residential units, and also includes an infirmary, a library, a laundry, lounges and craft

PHOTOS: MORLEY BAER

, a swimming pool, and a chapel
oubles as an auditorium and ball-
There are, however, no shopping
es on the site.
roject such as this—isolated from
l community activities and services



There are four different types of living units in Carmel Valley Manor: 48 efficiency units (Type 1) for single occupancy, with sinks and refrigerators but no cooking facilities, which occupy three two-story buildings near the center of the site, connected to the main building by covered walks; 72 one-bedroom units with pullman kitchens (Type 2) and 32 two-bedroom units with full kitchens (Type 3), located in one-story structures; and 18 two-bedroom cottages (Type 4) connected in pairs by the carports between them, which are located along the roadway around the perimeter of the site.

—might draw objections on sociological grounds. But the architects, whose previous work includes housing projects for the elderly on both in-town and rural sites, have observed that such isolation is preferred by a certain group: those who want an atmosphere of seclusion and the company of people of their own age and social outlook. In any case, surveys by the sponsors, Northern California Congregational Homes, indicated a strong demand for such a project. The relative isolation of the site is offset by the unusually high rate of car ownership for people of this age group (parking for 150 cars had to be provided) and by a regular limousine service linking the project to the commercial and recreational facilities of Carmel.

The 23-acre farm on which the project was built originally included a large house of Monterey Colonial style, built in the 1920's, that was to be retained as a recreational facility. This building—which undoubtedly influenced SOM's architectural approach—burned down when the project was in working drawing stage, permitting some improvements in the site layout.

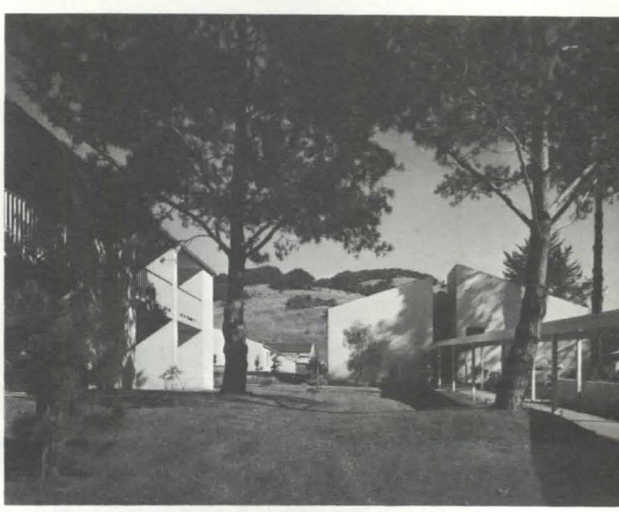
The capacity and density of the development were determined by a special-use permit from the local planning commission, which allowed 7½ units per acre. Site planning was governed by this density and by the need to avoid stairs on a site whose natural slope approximates the maximum ramp slope of 6 per cent. Buildings are grouped in clusters of four around courts that serve as circulation hubs, and placed to save as many of the existing trees as possible.

Construction is of wood frame throughout the project, except in the chapel (where a wood diaphragm roof is supported on steel Vierendeel trusses), and in the two-story residential buildings (where light steel framing was demanded by FHA regulations). Residential interiors have gypsum board wall surfaces and carpet over concrete floor slabs. Exterior materials are white dash-coat stucco and redwood shingle roofs; bright colors are introduced on exterior entrance doors and in bands around some windows on the end elevations.

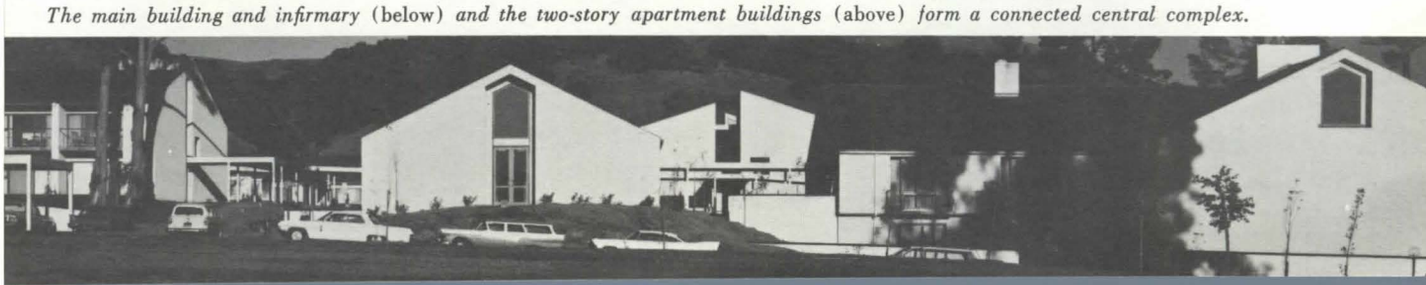
The cost of the residential buildings was approximately $16.00 per sq ft, including carpeting wherever specified.

The focal structure of the village is the 55-ft-high pyramidal chapel, situated on an eminence above the entrance road.

The design was influenced by the historic architecture of the Monterey area and its sources in the Mediterranean countries of Europe. The beauty of the site and density of building on it, as well as the program, called for a quiet architecture of simple forms in which individual buildings would appear as parts of the group, and the group would be constantly opening to views of the surrounding valley and hills. The gable-roofed forms of the traditional regional architecture are used because they are quiet, compose well with the hills, and function well. The slots which cut the buildings into livelier trapezoidal segments are the result of opening the circulation corridors as far as possible in an area of mild climate and light rainfall. Previous experience had taught us that the corridors were the key to the institutional character of the project; efficient land utilization and circulation demanded double-loaded corridors, and so the only solution was to make something special of the corridor. On entering a building, you are first in a lofty slot, then in a 20-ft-high covered entry space, then in an arched corridor, and then the sequence is reversed as you go out the other end. From courts or corridors, the slotted ends constantly frame views of the hills. The result is that all of the circulation is part of a continuous experience of the site, punctuated and framed by the strong white forms of the buildings. —JOHN WOODBRIDGE, PROJECT DESIGNER



The main building and infirmary (below) *and the two-story apartment buildings* (above) *form a connected central complex.*

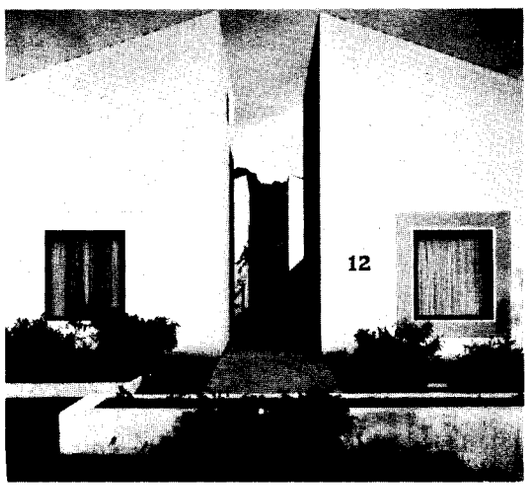


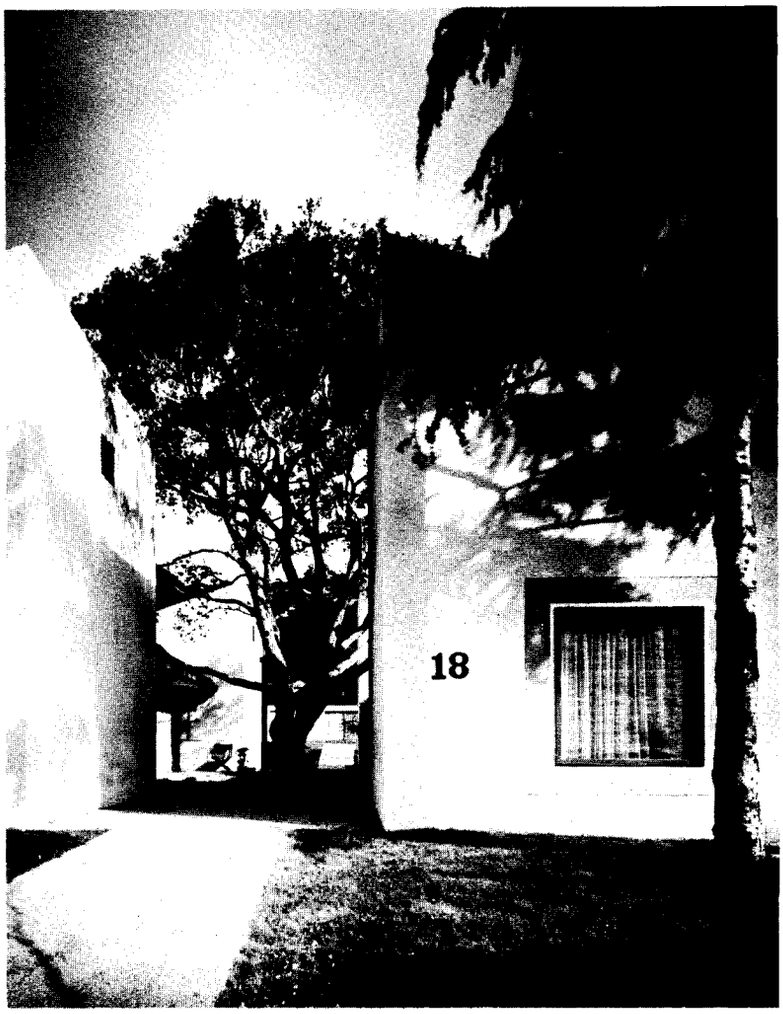
The forms of the residential buildings appear sharp and angular when the white end walls are seen against the sky (this page), *but when the shingled roofs are seen from higher elevations* (facing page), *they seem to form gentle undulations like those of the surrounding hills.*

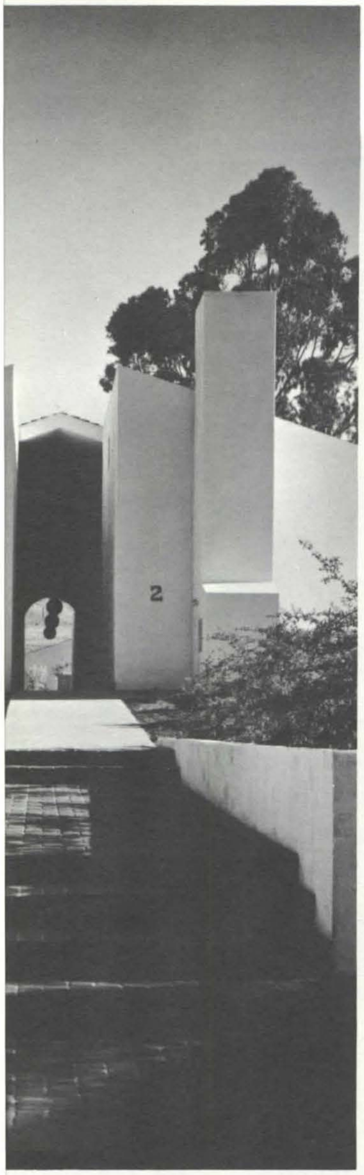
Landscaping on most of the site is limited to existing or native trees and grasses. More delicate plantings lend color to the sheltered courtyards (this page), *much as they did in the old California missions. Bulkheads and stepped planting beds* (above) *articulate changes in ground level, but there are no steps in the walks or other paved areas.*

Once the scheme of circulation through central corridors had been adopted, the effort to give these passages interesting variation led to forms similar to those in Mediterranean villages. "Having seen the direction these forms were taking," says the project designer, "we worked more consciously on the Mediterranean feeling." Among the elements reflecting this feeling are the painted bands of vivid color around some of the windows (right and below), *similar to those found on the Aegean island of Patmos.*

Artificial lighting was designed to reverse daylight conditions—providing bright illumination in the passages and restricting light in the intervening spaces to the walkways only. Two lighting fixtures were custom-designed for the project: a low, cast aluminum unit that lights only the ground plane (right and bottom) *and a 16-in. clear glass globe with a special bulb that produces a "gaslight" effect* (facing page, right).



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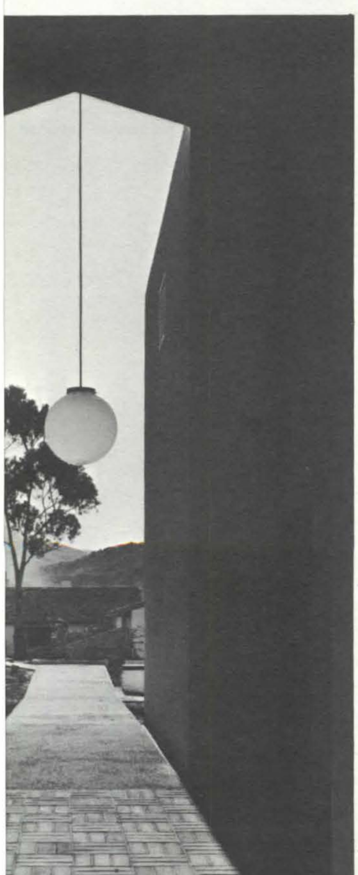
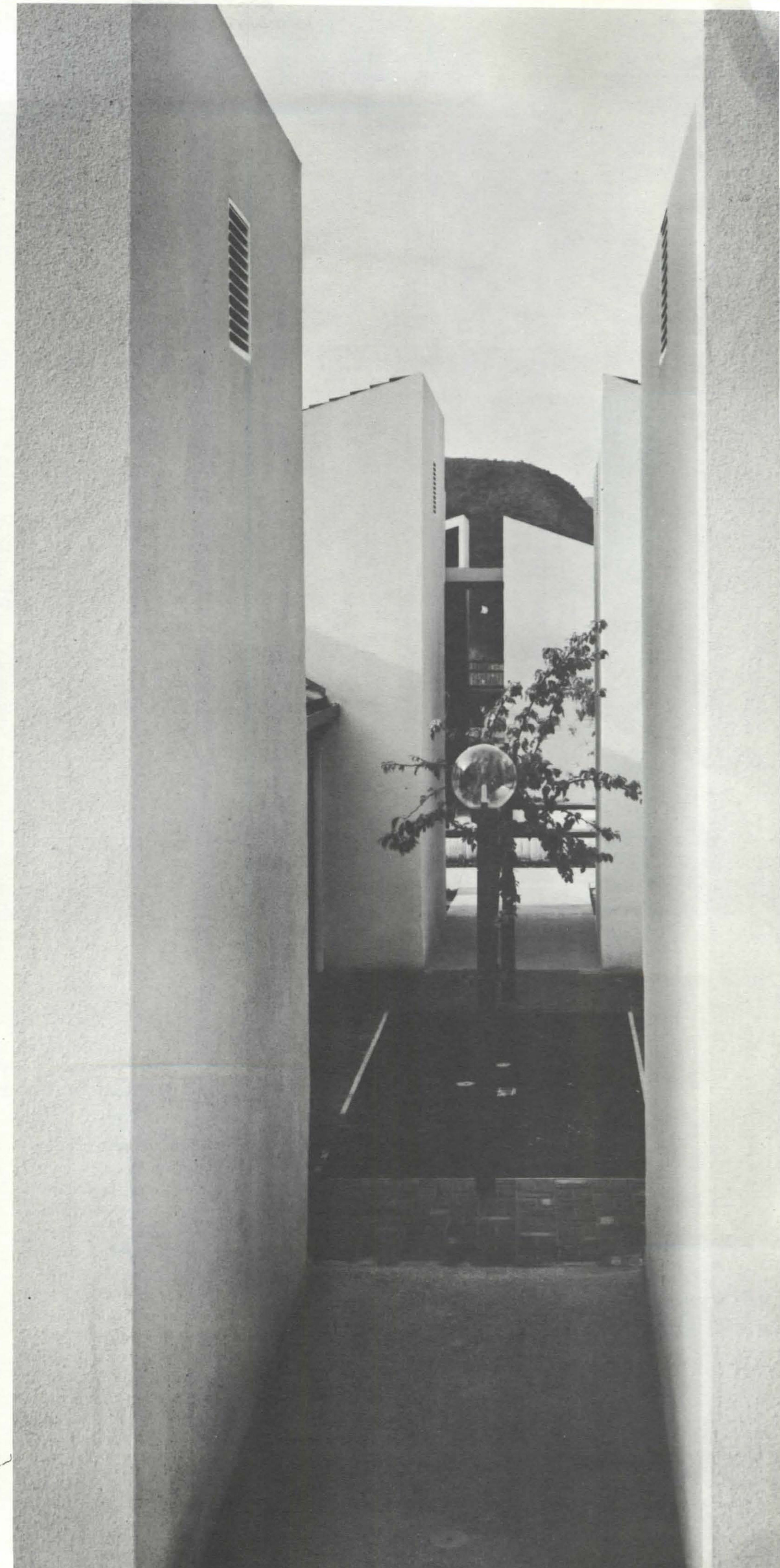




PHOTOS, EXCEPT AS NOTED: BALTHAZAR

Environment for the Elderly

APARTMENTS FOR INDEPENDENT LIVING

PLUM LANDING • AURORA, ILLINOIS • WALTER K. VIVRETT, ARCHITECT

This in-town apartment project provides 70 living units for retired people who want to remain active. Besides offering a variety of recreational facilities on the site itself, it is within easy walking distance of the stores, churches, and medical facilities of an established town center.

PHOTO BY ARCHITECT

The riverside site permitted a six-story structure to be built into the bank, so that its bulk is not apparent from the street side (*above*). The apartment wings have been designed to give every unit a balcony or terrace overlooking the river.

Two existing houses have been incorporated into the project as recreational and social facilities; an existing boathouse provides a deck for observing river activities.

The heart of the project is the garden court, around which the buildings are grouped. Sheltering walls and buildings on all sides except the south make it a comfortable meeting place even in the cooler months.

Landscape consultants for the project were Sasaki, Walker & Associates. George Fred Keck, William Keck, and Robert H. Shelp were associate architects. Virginia Nagle was the interior design consultant.

The architect is an advisor on housing for the elderly to the Housing and Home Finance Agency. His consultant on this project was Ollie A. Randall, Vice-President of the National Council on Aging. The project is owned and operated by the Mighell Fund, a private foundation.

following comments on Plum Land- by Walter K. Vivrett and Ollie A. ıdall point out some aspects of the gram and operation of such a facility had to be taken into account in its gn.

n Landing is an apartment house for re- l people who are able to live in relative al independence and want to remain ve citizens of the community.

articipation in local civic, commercial, gious, and social affairs reinforces the vidual's ability to surmount the stresses ıging. Because old people tend to lose h with the community at large, measures ncourage such participation are sometimes ntial.

ı the case of Plum Landing, it was decided ocate the project in a 60-year-old residen- district, close to shopping and transpor- on facilities, churches, and hospitals. ally important was the decision to estab- a program emphasizing participation in munity life.

ırtments for Housekeeping

majority of apartments are efficiency s and all are suitable for single occupancy. vas recognized that the principal market ld be among single and widowed indi- ıals—those whose need to move might e been thrust upon them, and who might e a particular need for the "supportive" ironment.

ccupancy in such a project as Plum Land- necessarily grows slowly. It does not offer rent advantages of public housing, and raws its residents from an economic group is likely to be already adequately housed. ples have been slowest to move, because are generally less inclined to leave their present homes and their moving is often contingent on selling these homes. After a year of operation, only 4 of 58 units rented were occupied by couples.

Social and Recreational Facilities

Activities are to be organized, directed, and reoriented from time to time by the residents according to their interests and capabilities. At the outset, it was understood that the support rendered by management should be unobtrusive and noninstitutional. Emphasis is upon independent residence as the primary function. This was achieved in part by dispersing activity centers on the site so that they function as separate endeavors; thus the two existing houses and the boat landing found ready places in the program.

By-products, of course, are the multiple points of interest on the site. Each of these facilities becomes a "place to go," a resource which may fill some of the gaps caused by deaths of friends or relatives, or by regressive health conditions. It may be desirable, as the project develops, to introduce services such as a beauty parlor or a regular program of movies, but only if a demand for them is created.

Two types of social activities are planned for, both of which require professional guidance to realize the potentials they offer for residents and other members of the community.

Studio House: Occupational activities will be accommodated in studios available at nominal rents. While instruction and demonstration may take place in the main lounge, most of the work will be individual.

Stone House: This center is visualized as the place for "group" activities—an on-site meeting ground for residents and nonresidents. Spaces are provided for entertaining, particularly in the case of parties that cannot be accommodated in the apartments. A special feature is a men's lair with private entrance —off limits to female residents except on "Ladies' Night."

After a year of operation, the rate of occupancy was not sufficient for full operation of either facility.

Dining Facilities

The dining room has a capacity of 100, with two to eight people per table. Three meals a day will be served to residents, guests, and nonresident club members. The adjoining lounge will provide sociable waiting spaces, as well as a spot for afternoon tea or chats.

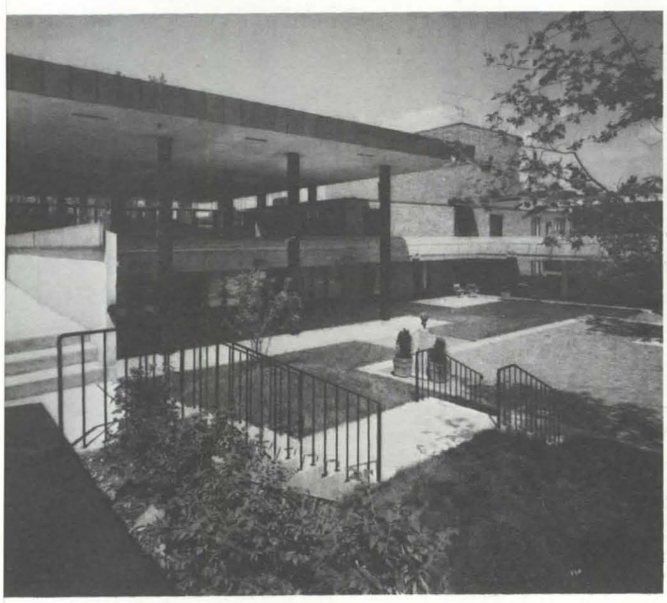
This was the first of the major services to get underway. Maintenance of the service will require some support from all residents, probably to the extent of one meal per day.

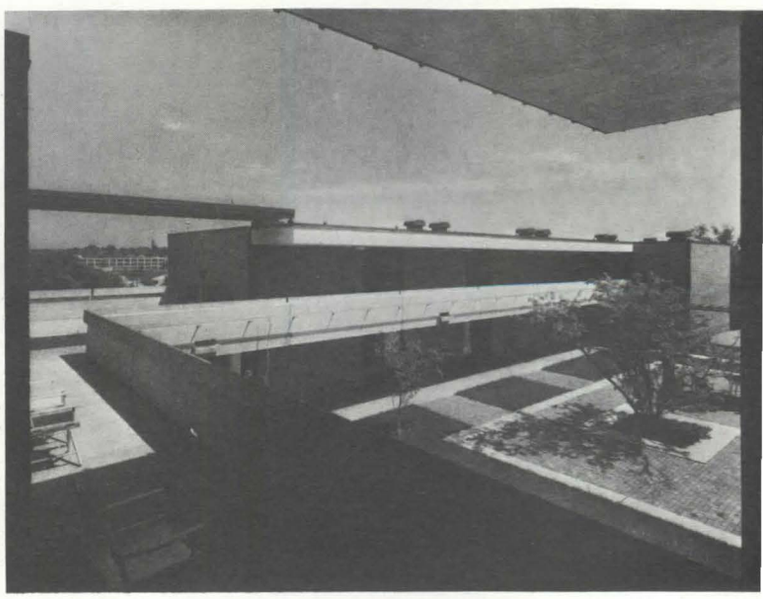
Management and Services

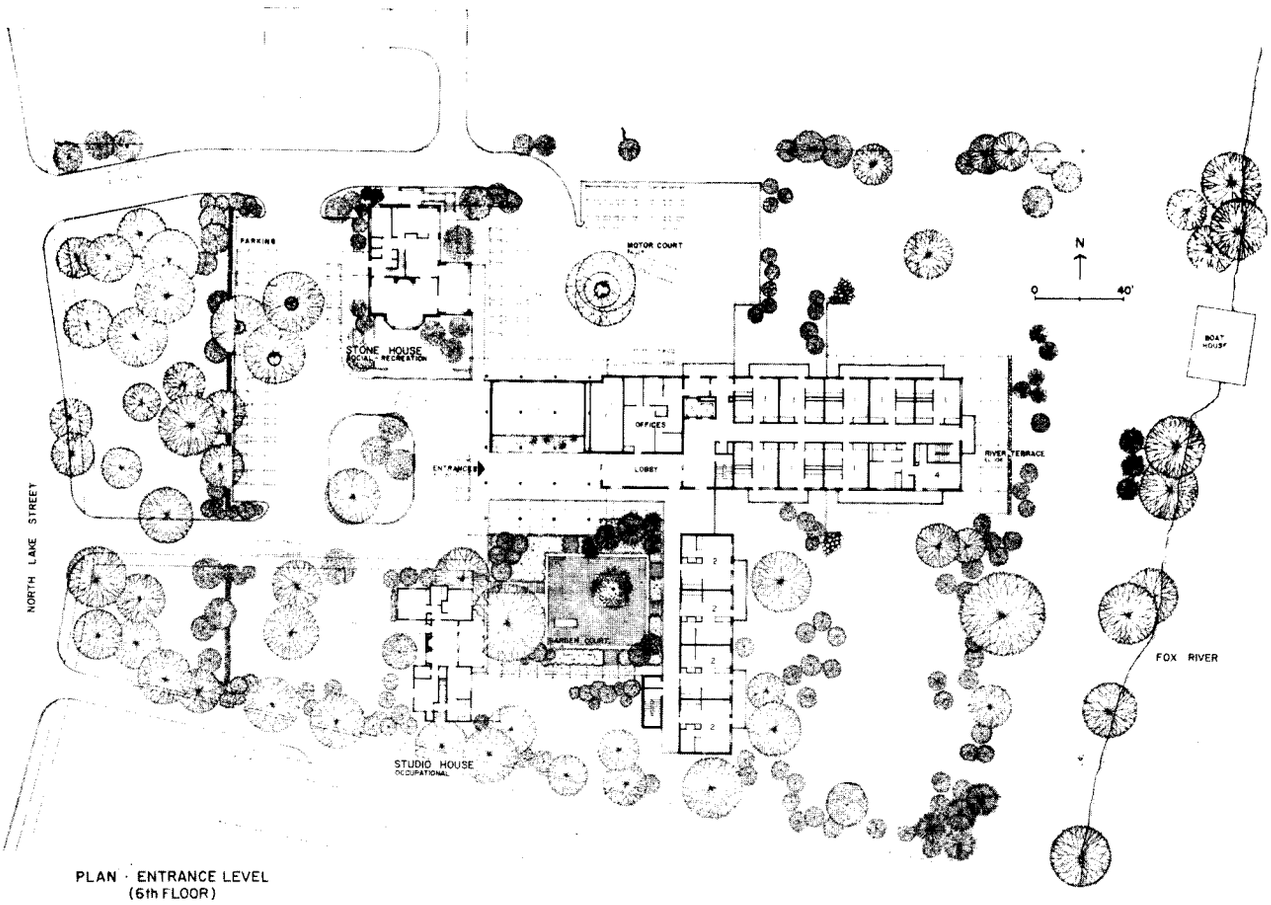
No cash outlay other than a month's rent is required at the time of moving in; no "strings" keep the individual from moving elsewhere at will.

Management, vested in a board of directors, will provide counseling for residents in meeting daily problems (personal, health, etc.) and help in emergency situations. Key personnel will consist of: an executive director in charge of business affairs, personnel management, and public relations; an associate director in charge of social service aspects of the program; a health consultant to counsel residents on individual health programs.

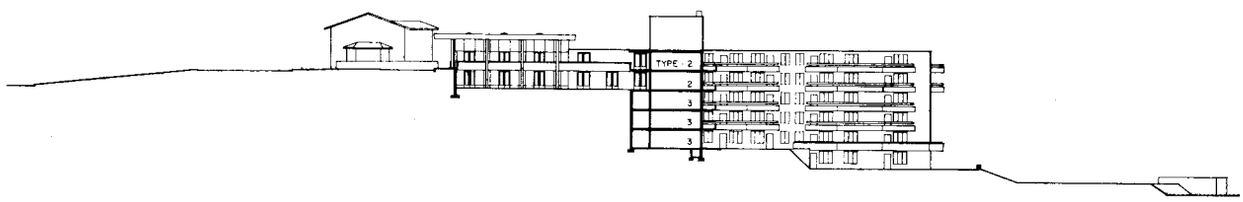
A first-aid suite, including nurses' interview area, examination-treatment area with bed space for emergency use, and a bath for attendant-aided bathing, is provided. As expected, few health problems or emergencies have arisen among newly arrived residents, and the suite has not been put in operation.

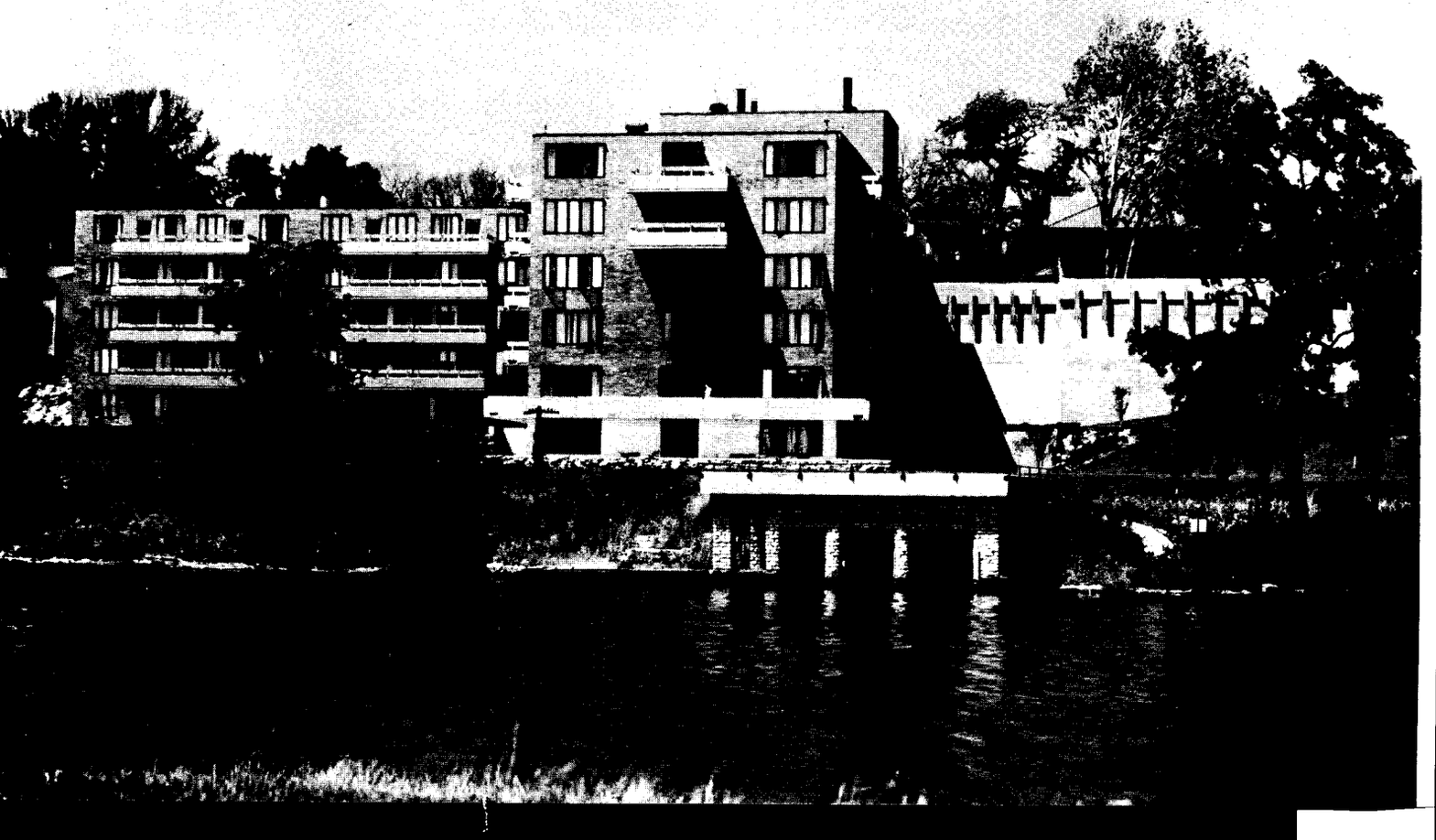




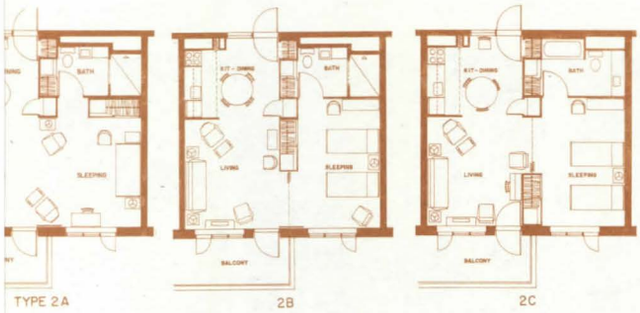


PLAN · ENTRANCE LEVEL
(6th FLOOR)



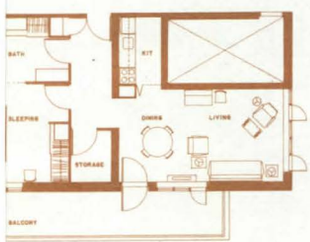


TYPE 1



TYPE 2A 2B 2C

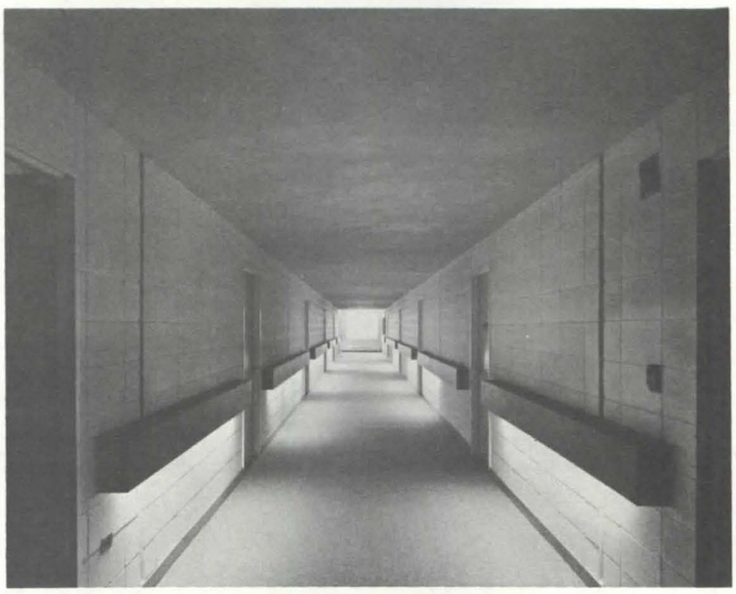
TYPE 3

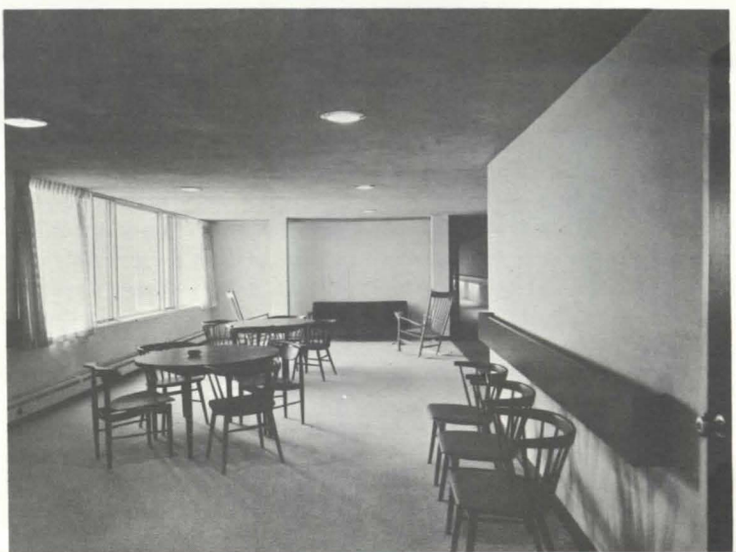


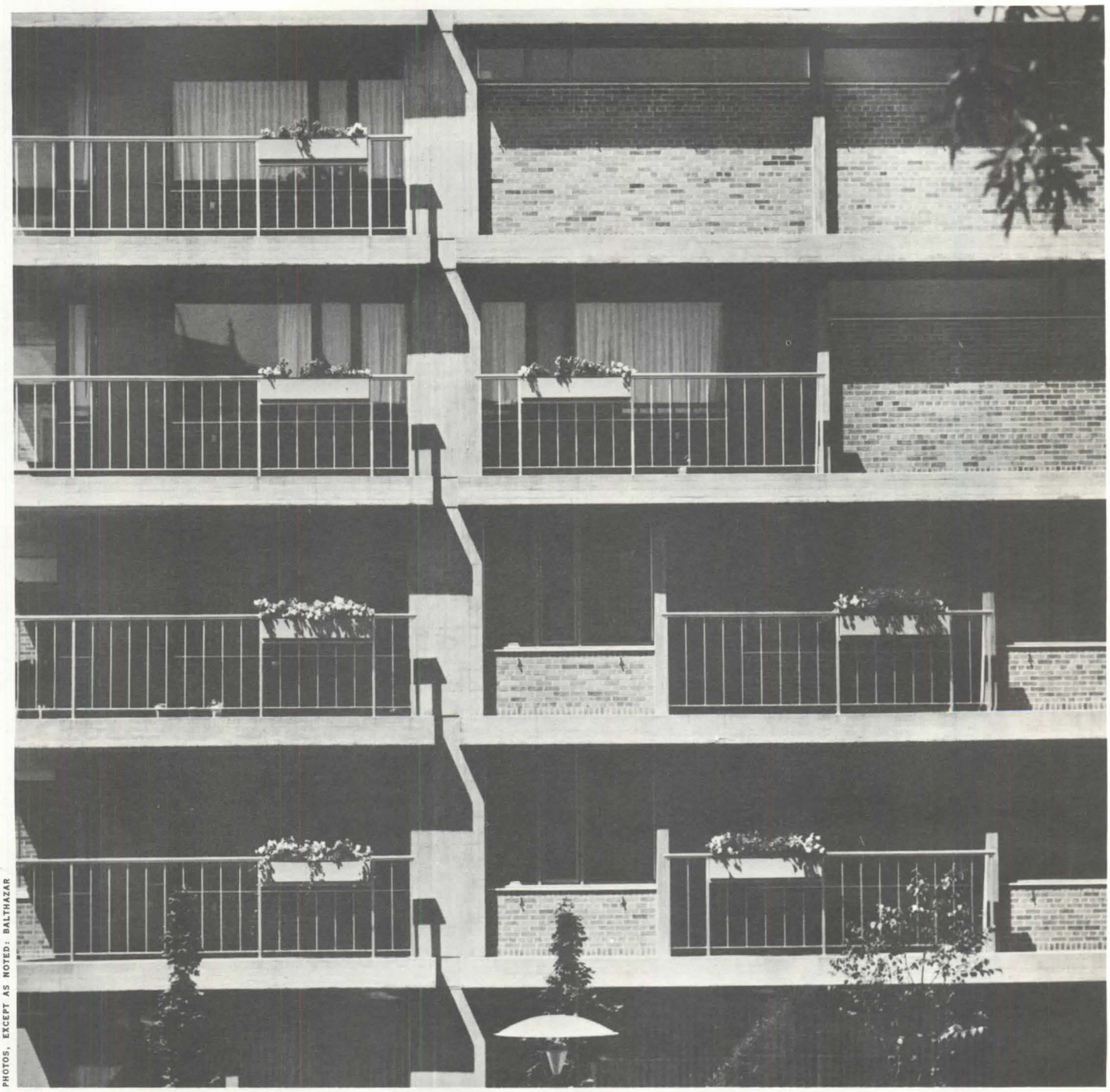
TYPE 4

70 apartments at Plum Landing, 44 are efficiency units (Type 1) gle occupancy. The oversized bathrooms in these units are useful ly in the care of those who use wheelchairs and walking aids, but erve as private dressing areas (complete with wardrobes) when are present. For residents who do not cook, the kitchenette serves leasant study or work area. The layouts of the eight studio units 2) can be varied by changing the position of wardrobes and in- accordion-type doors, as shown. These units are entered from open es along the garden court, hence have through ventilation. The 12 droom apartments (Type 3) have closets at the entrance doors, wardrobes in the bedrooms, and accordion-type bathroom doors. largest units (Type 4), bathrooms are accessible from the foyer, ermitting accommodation of guests in the living room. Apartments peted, with vinyl flooring in kitchens and ceramic tile in bathrooms. l color draw draperies were installed at all windows, with additional for the tenant's own draperies. Basic items of furniture provided small extension dining tables and four straight chairs scaled to e of the spaces.

ning room (top right) *opens to the garden court on one side and ndscaped parking area on the other through double doors. Central rs in the east wing* (middle right) *terminate at wide windows or ies overlooking the river; lighting strips incorporated in the hand- oncentrate light on the floor, where elderly residents particularly t. On the lower floors, there are corridor lounges* (bottom right) *intersection of the two apartment wings.*







PHOTOS, EXCEPT AS NOTED: BALTHAZAR

Environment for the Elderly

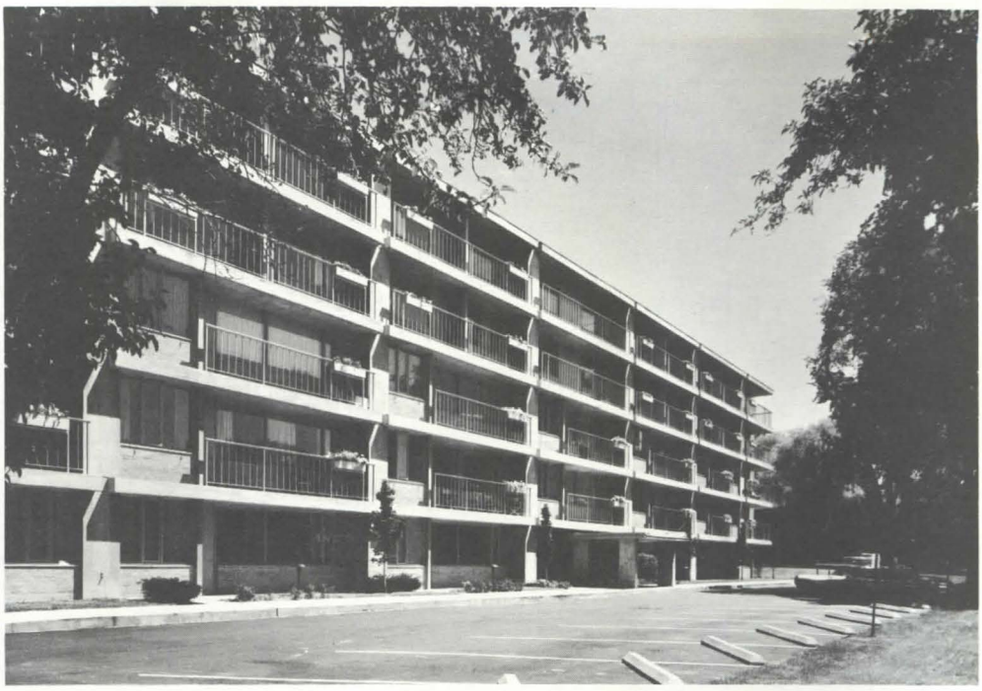
DEGREES OF SHELTERED LIVING

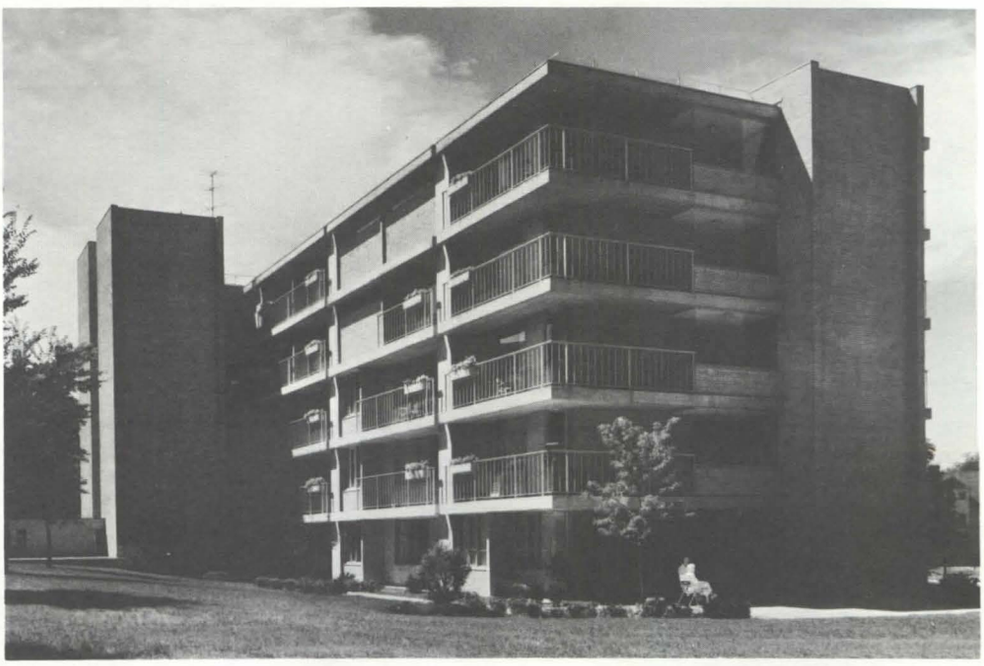
BRADFORD TERRACE • MILWAUKEE, WISCONSIN • WILLIAM P. WENZLER, ARCHITECT

The several types of accommodations included in this building offer a variety of living conditions—ranging from "sheltered living" (where management is responsible for essential services, safety, and medical care) to "protected living" (for those who need constant care or supervision). The program was based on a survey by the Community Welfare Council of Milwaukee, which revealed a pressing need for quarters that provide greater security and freedom from responsibility than apartments for the independent elderly, but permit more independence and social contact than nursing homes or mental institutions.

The facility that meets some of these needs was built as an addition to the Milwaukee Protestant Home, which offered available land in a convenient location, as well as basic services (such as utilities and food preparation) and treatment facilities (which could be integrated with facilities in the new building to the advantage of both).

The character of the potential occupants demanded an architectural solution expressing the individual living units within the building mass. This consideration, along with the need for acoustical isolation and extensive mechanical services, led to the development of a hollow-pier structural system, in which all vertical





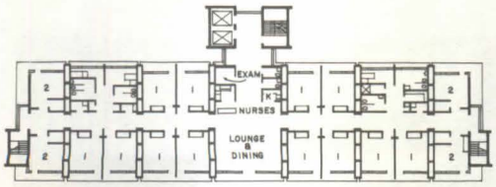
and utility risers are inside the piers.
plumbing fixture in the building
ated adjacent to one of these piers.
e concrete frame is exposed on both
ior and interior. Brick and glass ex-
walls, designed to meet the require-
s of spaces behind them, give the
es variety within the underlying
of the exposed framework. On the
or, the exposed piers divide the cor-
s into a series of spaces related to
izes of the individual living units.

The use of the piers for mechanical services eliminated the need for suspended ceilings, thus permitting minimum floor-to-floor heights. Clay filler tiles between the concrete floor joists reduce sound transmission and provide a direct plastering surface for the acoustic plaster ceilings.

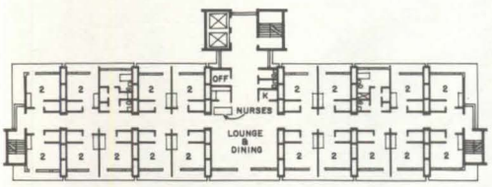
Heated and conditioned air is distributed vertically through the piers and is supplied to rooms through custom-built sill-height perimeter heating cabinets.

All of the living units have continuous glass from sill to ceiling, shielded by the continuous balconies. Artificial light is provided by indirect fluorescent strips and concealed incandescent downlights, so that extreme contrasts in brightness are avoided.

Materials were used in their natural state wherever practical. Color was introduced on the exterior in the door and window frames and in the planting boxes along the balconies, and on the interior in furniture, plants, and paintings.



5TH. FLOOR



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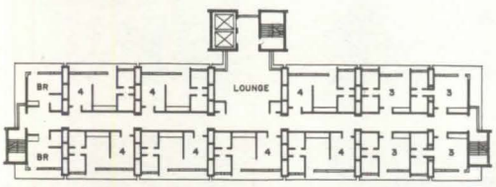
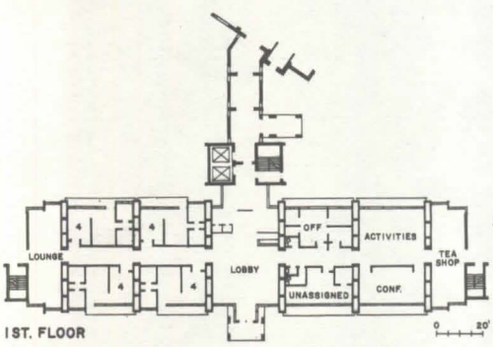
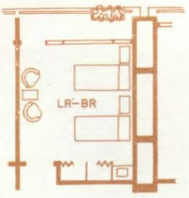


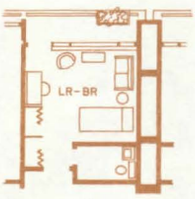
2ND. & 3RD. FLOOR



1ST. FLOOR



TYPE 1



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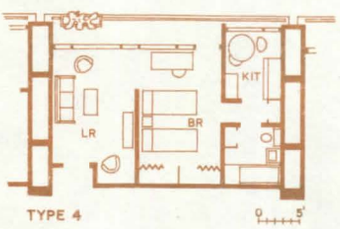


TYPE 4

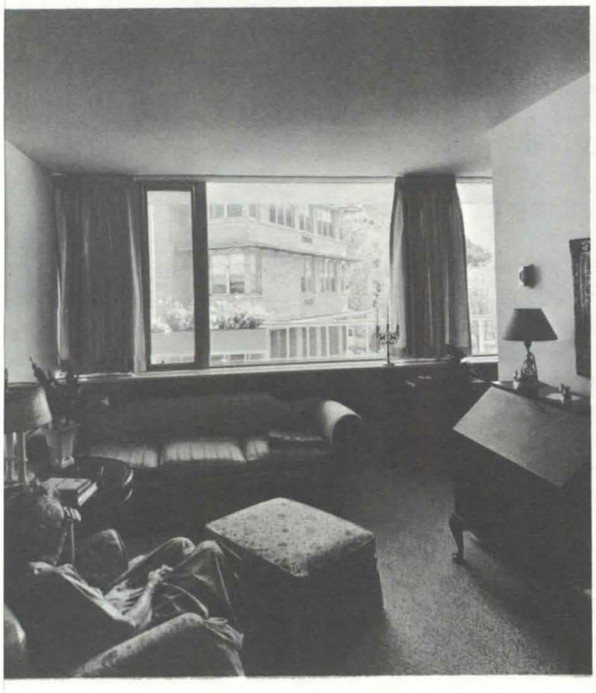
The top floor of Bradford Terrace contains double nursing rooms with lavatories (Type 1). The floor below has rooms with private toilets (Type 2) that are designed for a single occupancy but are large enough to accommodate two persons if necessary. Both floors have round-the-clock nursing staffs; meals are served in the rooms, or—for ambulatory residents—in the central lounges.

"Sheltered living" units on the lower three floors (Types 3 and 4) have one or two rooms for living and sleeping, with uniformly planned kitchens and bathrooms. A few units with complete baths but no kitchen facilities are included, principally for temporary residents. In addition to living units, the first floor includes central administrative and social facilities, as well as a commercially operated tea shop. Central kitchens and therapy facilities are located in the basement.

Exposed concrete structural members appear in the common spaces on the interior (below). *The corridors are divided into alcoves by projecting columns.*

Continuous windows from sill level to ceiling in all living units give an impression of openness, even in the kitchens (facing page, top), *yet preserve the wall space desired by tenants who are used to larger accommodations* (facing page, bottom left). *Balconies are accessible from all units, including nursing rooms* (facing page, bottom right).

PHOTO: BIG CEDAR STUDIOS



FINNISH ARCHITECTURE:
Traditions and Development

BY LEONARD K. EATON

The excellence of Finnish architecture—with its sensitivity to nature, deep feeling for materials, respect for cultural continuity, and sense of individuality—has received all too little notice outside Scandinavia. Yet the overwhelming majority of those who have visited Finland, and have seen both the early masterpieces and the recent work, have been immensely impressed. One such traveller, Leonard Eaton, is emphatic in his belief that Finland is the architectural leader of Scandinavia. The author, who is Associate Professor of Architecture at the University of Michigan, was recently in Scandinavia on sabbatical completing a book on Jens Jensen, whose work he discussed in the DECEMBER 1960 P/A.

"What did you see in Finland?" is the question most often asked of architects and designers returning to the United States from northern Europe, and the answer is likely to provoke serious discussion. At present, Finland is undoubtedly one of the most interesting places in the world for the architecturally minded visitor. Its position of architectural leadership in Scandinavia is clear, and the quality of the national building effort puts to shame many countries that are richer in population and natural resources. Finland lost heavily in territory and manpower during World War II, and also had to pay large reparations to the Russians. Its economy is shaky, dependent to a large degree upon the world market for timber products. While not a Soviet satellite, it has a sizable Communist party that is a constant worry to the leaders of the government. Political crises with the Russians are a regular occurrence. In short, Finland is a country beset with problems. How, then, do the Finns manage to produce such good architecture?

The answer to such a complex query necessarily involves many different considerations. The first is geography. Goran Schildt has aptly characterized Finland as "Europe's most remote land." Tucked away in a far northern corner of the continent (2), it has rarely been subjected to the cultural influences that have molded the main streams of European architecture. Because much of the country is covered with forest (1), and because wood is the traditional building material, there are almost no surviving Gothic buildings. The cathedral at Turku (3), which relates to the brick-built churches of Lübeck and the other Hanseatic ports, is a lonely example of the medieval building art. Here, as in so many other respects, Finland is differentiated from other North European countries. There is no body of provocative medieval work to interest the traveller, such as the stave churches of Norway, or the fascinating but too-little-known Romanesque work on the Swedish island of Gotland.

Swedish and Russian Rule

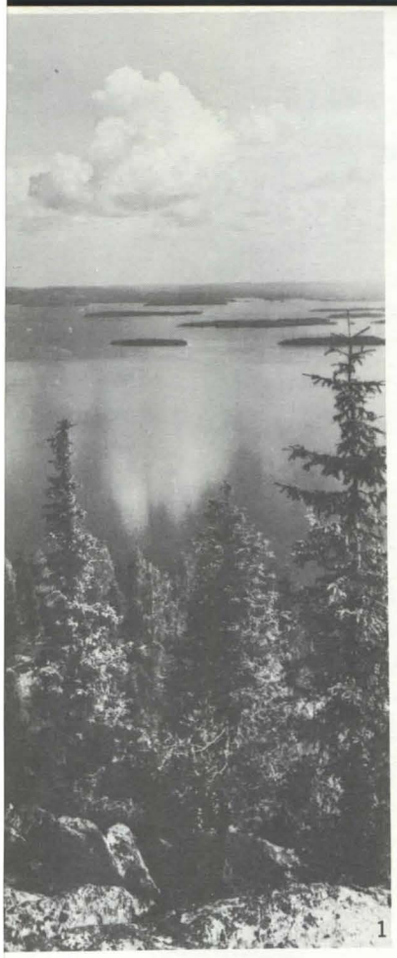
Much the same comment can be made about the architectural position of the country in more recent times. Until 1809, Finland was a Swedish province, and while the Finns unquestionably derived many benefits from their long association with the Swedes during the Renaissance and Baroque periods, architecture was not one of them. The major building efforts of the Vasa kings were centered in Stockholm, which even today has the character of a royal city. It would be an overstatement to say that the Swedes regarded Finland as a territory to be exploited in colonial fashion. They saw it rather as a frontier, where enterprising young men could carve out fortunes for themselves, and as a useful buffer against the westward drive of the Russians. It was also a good source of troops for the various Swedish enterprises; many of the regiments of Gustavus Adolphus were of Finnish origin. Helsinki, the new capital, was founded by the Swedish crown in 1640. Its development was impeded by a succession of wars, epidemics, and fires, so that as late as 1810 it had a population of only 4000 persons. In comparison with Stockholm or Copenhagen, it was a decidedly provincial town.

In certain respects, this isolation was a great benefit to Finnish architects. It meant, for example, that the country was spared some of the worst horrors of the 19th-Century stylistic merry-go-round, simply because it was a great effort for Finnish designers to see what was happening in other countries. Similarly, Finland has been very little affected by what Sigfried Giedion calls "the playboy architecture" of the last ten years. The nation's architects have been free to go their own way with very little reference to the fads and fancies widely followed elsewhere in Europe and in the United States. They have also had the advantage of being able to rely heavily on a highly developed native craft tradition for the furnishing of their buildings. The Finns have always accorded the artisan a high place in society, and today their glassware, ceramics, and textiles are world-famous. (The rugs ["ryijy"] are particularly outstanding, and it is noteworthy that making these handsome objects is a passion among women at all levels of society. The Society for the Preservation of Finnish Handicrafts has even developed a well-packaged kit for its best designs, with reasonably clear instructions in English. This might become an important export item in time.)

In 1809, Finland became a part of the Russian Empire as a consequence of the Napoleonic settlement, and in 1816 an enlightened governor-general, Count Steven Steinheil, took an action which brought Finland closer to the mainstream of European architecture. He named a German designer, Carl Ludwig Engel, as architect-in-chief for the committee in charge of rebuilding Helsinki. Engel, who had been a student at the Prussian Academy of Art with Karl Friedrich Schinkel, was one of the most gifted architects of his period. With Russian backing, he was able to build on a grand scale, and he gave the inner portion of Helsinki a neoclassic character that it still possesses today. Among his best structures are the Palace of the Senate (4) and the Cathedral of St. Nicholas (5), which front on one of the most imposing squares in Europe (6). The clarity of his volumes and the directness of his solutions prefigure, in a curious way, much of the later development of Finnish architecture. [The buildings in what is called "Engel Square" (7) are very likely by this architect.] In point of fact, a certain kind of classicism has always had a curious attraction for the peoples of the North. It was Jan Sibelius who said, "The more I see of life, the more I feel convinced that classicism is the way of the future."

National Self-Consciousness

In the late 19th Century, Finnish architecture exhibited the same confusion of styles as did other European countries, but the Finnish cultural situation had one ingredient generally lacking elsewhere: a unique variety of national self-consciousness. Finnish had been "rediscovered" as a language in 1835, when Elias Lonnrot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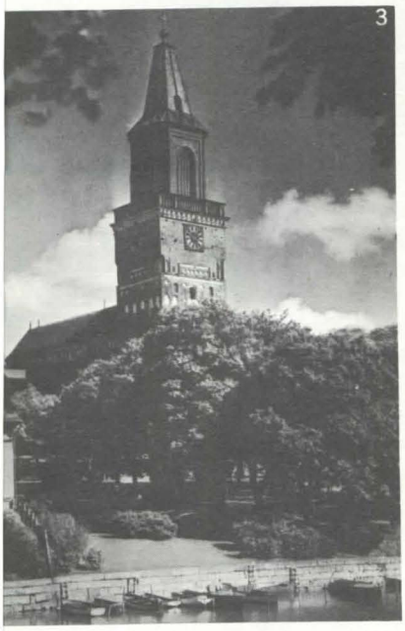
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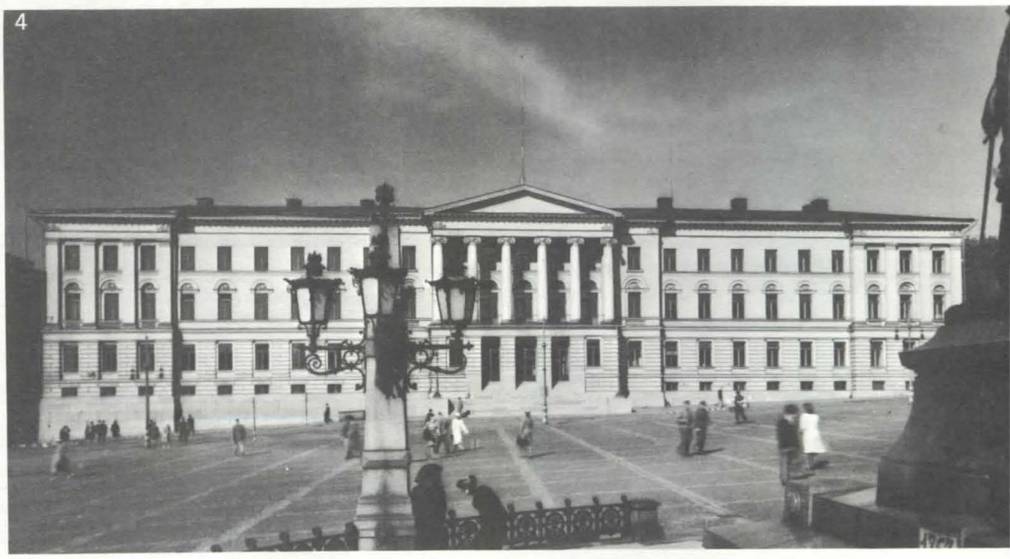
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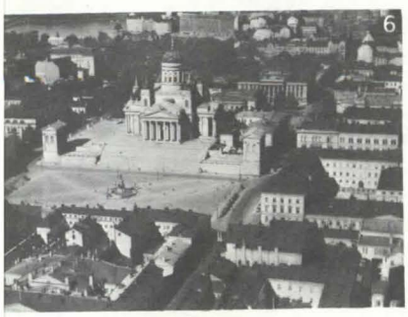
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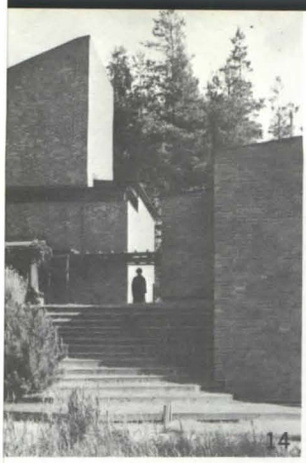
published the first edition of the *Kalevala*, the national folk epic, which has been a rallying song for the Finnish people since that time. As the century wore on, Finnish, which had long been the language of the common people, attained equal status with Swedish as a legal and literary language, and a strong feeling of national identity began to emerge. Sibelius composed several tone poems on themes from the *Kalevala*, and the painter Axel Gallen-Kallela (1865–1931) was preoccupied with it throughout his career. In short, national romanticism, which in many countries was a peculiarly vapid movement, had in Finland an unusual vigor. The artists who matured around 1900 (Sibelius, Gallen-Kallela, and the elder Saarinen) felt an extraordinary compulsion to be Finnish in all their utterances.

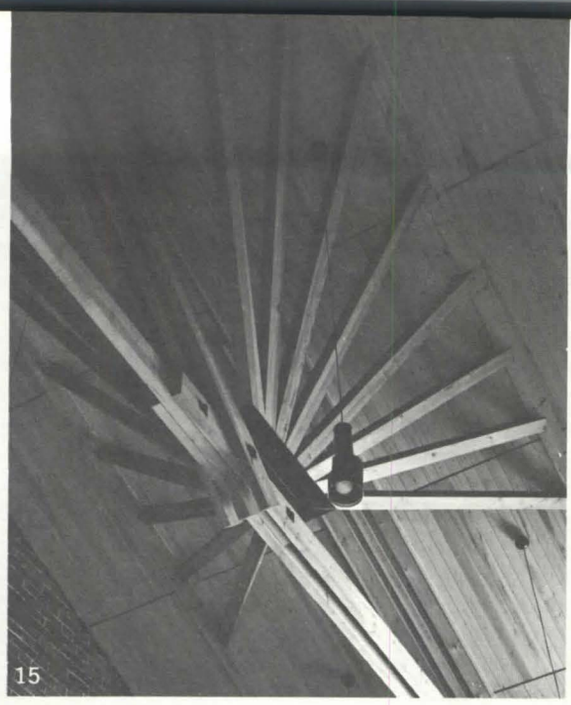
At that point in history, the Russian czars were interfering in Finnish affairs to an unprecedented extent. During most of the 19th Century, they had left the Finns fairly well alone. The country had existed as a grand duchy within the empire and had had a fair amount of internal autonomy. Now the czars began a campaign of Russification and sought to conscript young Finns for service in the Russian Army. The Russian governor-general, Bobrikoff, was assassinated by a Finnish student in 1905, and severe repressive measures followed. In the course of the next few years, the Finns fought hard against Russian oppression, and the artists played a leading role in the struggle. Sibelius wrote *Finlandia* for a patriotic occasion: a national demonstration in aid of newspapermen who had lost their jobs when the Russians suppressed one paper after another. It could scarcely have been anything other than soul-stirring; the Russians forbade its performance as soon as they heard it played. Saarinen and Gallen-Kallela were identified with the struggle in similar ways. As a consequence of this involvement, the role of Finnish artists in the national life is almost unique. It would be hard to think of another country in which the headline of a leading daily paper would run "Professor Saarinen Returns from America," and then the reader would find, in much smaller print, "Greta Garbo on Same Boat."

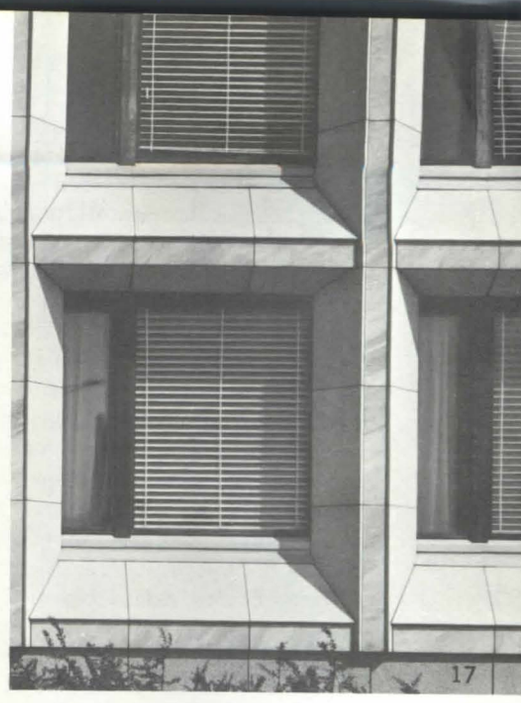
The Finns have thus come to take great pride in their architecture as an expression of the national character. In a certain sense, their buildings are the face the country turns toward the world. They have become accustomed to welcoming visitors who want to see their architecture, and English-speaking architectural students are glad to serve as guides in the Helsinki area. The Finnish Architectural Museum, a unique institution, has assembled a remarkable archive of drawings and also organizes travelling exhibitions. The work of Engel and of the pioneering generation of Saarinen and his great contemporary, Lars Sonck, is taken with utmost seriousness. Despite the country's building boom, there is absolutely no tendency to tear down significant older structures, as in the United States. There is a widespread interest in the area of architectural history and a consciousness that an immense amount of work needs to be done here. While there is a substantial book on Engel in German, Sonck still awaits his biographer, and there is no proper treatment of the Finnish work of Saarinen. Probably the only unfortunate aspect of this cultural nationalism is a tendency to publish only in Finnish.

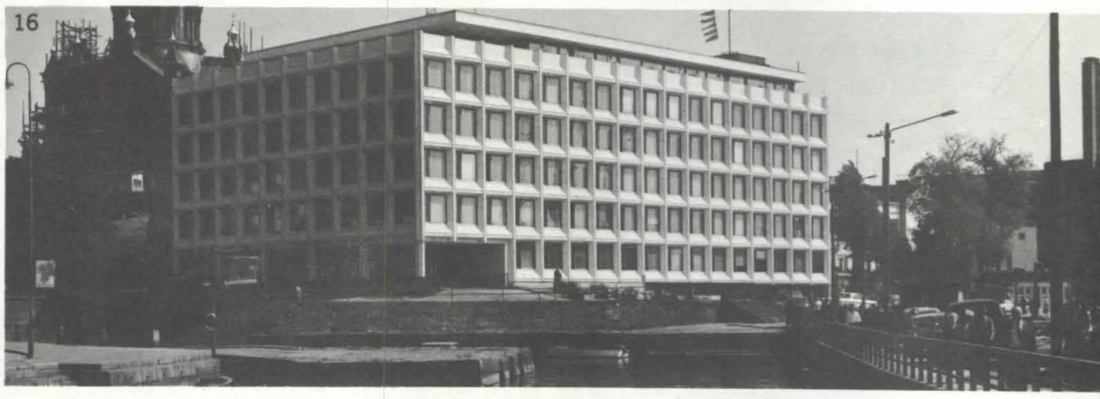
The Leadership of Aalto

The great inheritor of the tradition of Sonck and Saarinen is, of course, Alvar









and a word should be said about adership he has provided for the ects of his country. Perhaps its most nding characteristic is its flexibility. areer has demonstrated that he is mmitted to the pursuit of a narrow ectural goal, and he has encouraged er men to take a variety of direc- The first of his buildings to be d abroad, the famous TB sanatorium mio **(8, 9)**, seemed to belong to the ational Style of the 20's; so too, e early housing at Sunila **(10, 11)**. ext, however, was the Viipuri Li- which, in its preoccupation with d surfaces, was a reversal of every- that the International Style stood **12, 13)**. In the immediate postwar his municipal buildings for Säynät- **14, 15)** were widely heralded as a against the omnipresent cube of rn architecture, and yet his most re- finished building, the Helsinki quarters for Enso-Gutzeit (the Finn- imber Trust) is a classical box if here was one **(16, 17)**. It is not sur- g that the younger Finnish archi- have felt free to pursue their own

lto's leadership has, in fact, had an extremely undoctrinaire quality. Unlike Le Corbusier, he is notably averse to manifestoes. There is no Finnish equivalent of Corbu's *Vers une Architecture*. Most of the publications on Aalto are in foreign languages; in recent years, the Italians seem to have done the most extensive job, and in that country his details have also been used in a number of buildings. While Aalto has immense personal authority in Finland (he sits on every important jury and moves in the country's leading social and political circles), there is no evidence whatever that he has tried to set up an academy. On the contrary, he has tried to encourage experimentation, and has done his best to recognize talent wherever it exists. The essence of his leadership is that he teaches by personal example. This is an heroic idea, and the Finns, who have always taken the notion of heroism seriously, have responded to it with enthusiasm. "Kalevala," after all, means "land of heroes." The real meaning of Aalto's career for Finnish architects is rather like that of Justice Oliver Wendell Holmes for American lawyers. Justice Holmes, a critic once observed, demonstrated by his life that it was possible to live greatly in the law.

The Effects of World War II

For Finnish architects, the economic difficulties of the country since World War II have in some respects been a blessing in disguise. In the peace of 1947, Finland lost 17,704 square miles, or 11.8 per cent of her territory, containing 35,000 independent farms, 8 million acres of forest, and many important industrial and power plants. She lost more manpower in proportion to her population than any belligerent except Germany. In fact, so formidable was the situation that a British writer observed, "The jobs to be done might have warranted an extension of the powers of the state, an iron discipline reinforced by regulations and controls; and the human deprivation and misery left by the war might equally have warranted a mass extension of social services leading in the direction of the Welfare State." To the eternal credit of the Finns, they adopted neither of these measures. Instead, they chose to rely on hard work and self-reliance within a limited framework of state aid.

In this situation, architecture has flourished. Benefiting from their traditional position of leadership in the country, ar-

chitects have been called on for jobs of the utmost political and social importance. Aalto, for example, was asked to supply a new plan for the city of Rovaniemi in Lapland, which had been almost completely destroyed by the German scorched-earth policy, and the new Rovaniemi is certainly an improvement on the old. As in Germany, a building boom has played a significant part in the national recovery. Perhaps the most surprising aspect of the boom is that an amazing amount of good planning has been done despite the intense pressure to provide urgently needed new physical facilities. In addition to Aalto's Rovaniemi, there is Aarne Ervi's magnificent new garden city of Tapiola, to which a number of Finland's outstanding younger architects have contributed buildings. It is, in fact, a kind of architectural showcase **(25-31)**.

Explanations of Excellence

While the building boom has provided a superb opportunity for Finnish architects, it in no way explains the amazingly high level of their work. Any reasonable explanation of this phenomenon must take several factors into account. The leadership of Aalto is important. So, too, is the quality of craftsmanship in the building industry; in most cases, it is first rate. The visitor will see very little jerry-building. Another important factor is the variety of materials available to the architect. The Finnish ceramic industry has developed an amazing series of tiles, and thanks to the enormous mines at Outukumpu, copper plate is available as a surfacing material at a reasonable price. The most extensive use of copper so far is probably in the new municipal theater at Turku by Helmer Stenros. This structure, built for a city of 120,000 people, would do credit to almost any American metropolis. Another important asset of Finnish architects is the marvelous landscape setting for many of their best buildings. Many of them occur as incidents in unspoiled forests of birch or pine and thereby obtain an extra impact.

In the last analysis, however, that formidable abstraction known as "national character" is of primary importance in any calculation. In this respect, I would like to suggest there has been too much talk of saunas and sisu. More important is the simple fact that Finland possesses an intensely competitive society. Most nations with an advanced technology and a highly developed collection of social services place great emphasis on the provision of security for the individual citizen. Competition tends to be discouraged in official circles because people who compete are frequently hurt. While Finland cares as much as any country for the lame, the halt, and the blind, she has somehow contrived to encourage competition at every level of the national life. The remarkable record of Finland in international athletics is well known. No other small nation has won so many Olympic medals, and part of the reason for this success is simply that they enjoy competition. It is not surprising that the majority of important buildings in Finland are awarded on the basis of competitions. Finnish architects themselves attribute much of their success to the system of competitions. The nation's most distinguished architects are glad to serve on juries, and entrance conditions are inevitably well drawn. In short, far more than its Scandinavian neighbors, Finland is an "open society," with tremendous encouragement given to the striving for excellence.

New Architects Emerging

In this situation, a number of architects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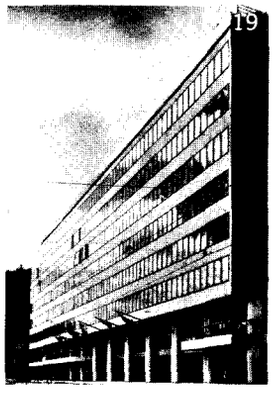
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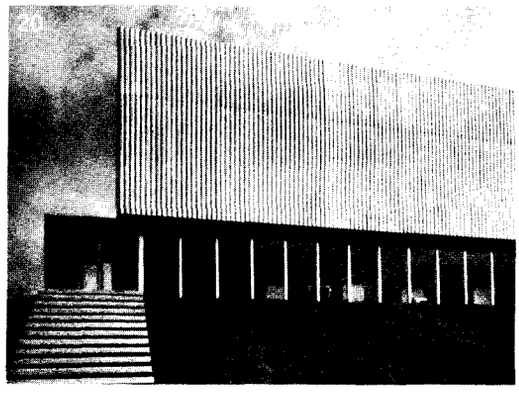
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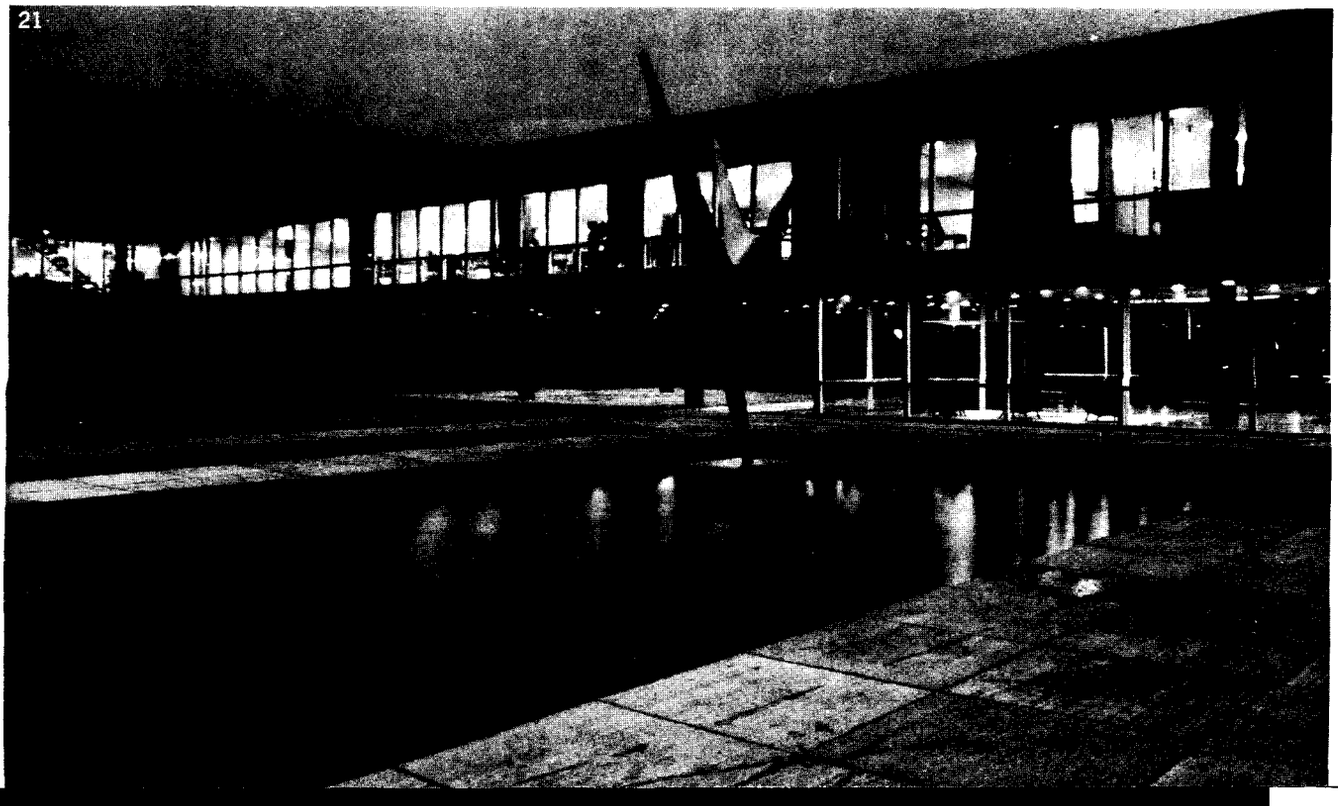
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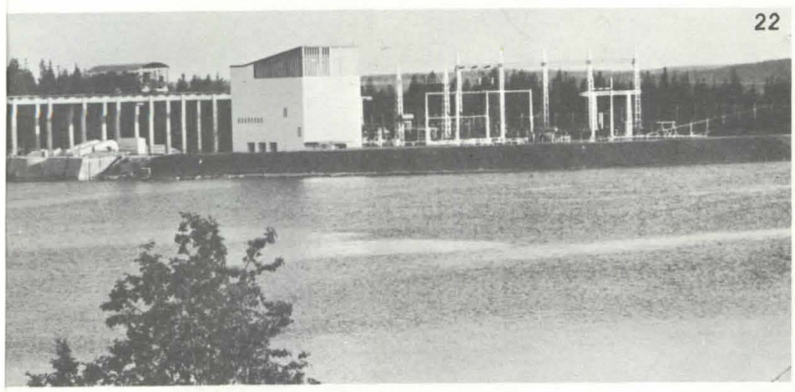
nerged whose buildings are worthy closest scrutiny. Foremost among re probably Viljo Rewell, winner Toronto City Hall competition; Ervi, an unusually versatile archid planner; and Kaija and Heikki who are responsible for several fine res at the new Technical University niemi, just outside Helsinki, as well ral fine buildings at Tapiola.

ell **(18-21)**, who is especially nofor his powerful rectilinear comns, is at his best in commercial and ial structures. His clothing factory ko **(20, 21)**, on a peninsula in the e southwest part of the country, is introduction to the high level of n industrial building. Occupying an and well-planted site, it shows a tely logical approach to design naracteristically neat detailing. In ti, Rewell did an equally outstandhool, and, in Helsinki, many imt commercial buildings. [Among lier works are a veterans' rehabilicenter **(18)** and a hotel with offices He is now at work replanning one largest downtown business blocks. le Rewell's work often shows an tion of the engineering aesthetic, the architecture of the Sirens is quite different in character. They are best known for their buildings at the new Technical University in Otaniemi, just outside Helsinki. The chapel here is an incredibly sensitive work **(24)**; in its superb relation to the landscape it suggests the recurring pantheism of the Finnish religious mind. The bolted wooden roof trusses in the student restaurant are also extremely interesting, as is the somewhat Miesian studio theater for Helsinki. The touch of the Sirens is almost always delicate and refined without ever becoming overly exquisite, and their sense of color and texture in building materials is extraordinary. Their handling of black ceramic tile with rust-colored streaks, like echoes of the forest floor in autumn, is unforgettable.

The staple of Aarne Ervi's practice appears to be an exceptional series of power plants in the northern part of Finland **(22)**, but he is probably best known for his planning of Tapiola. In addition to this job, which he won in a competition, Ervi has contributed several distinguished buildings to the city and has also done important work for the Universities of Helsinki and Turku **(23)**. The former buildings are especially significant for the profound respect they show for the spirit of Engel. In all of these commissions, Ervi has demonstrated a remarkable ability to deal with groups of buildings. His structures inevitably relate well to each other and to the landscape in which they are situated. These are qualities all too rare in the world of architecture today.

Finally, mention should be made of Aulis Blomstedt, who is not only a gifted designer, but also an outstanding theoretician. While Blomstedt has built very little, he has great influence among the younger generation of Finnish architects, and it is to be hoped that some of his writings will soon be translated into English. There are, of course, other noteworthy personalities on the Finnish architectural scene, but these are perhaps the most important. All probably owe something at some stage of their careers to Aalto, but all are now making important contributions of their own, quite different in style from his work. While their directions are different, they present a body of work remarkable for its insistence on integrity of structure, consistency in detailing, and integration with the landscape.

(For photo credits, see page 226.)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The new town of Tapiola, 7 miles outside of Helsinki, has been called "a 'Who's Who' of Finnish design." Its three neighborhoods contain 15 to 20 subordinate units, each representing the work of a different architect, and together including all the important designers of the country.

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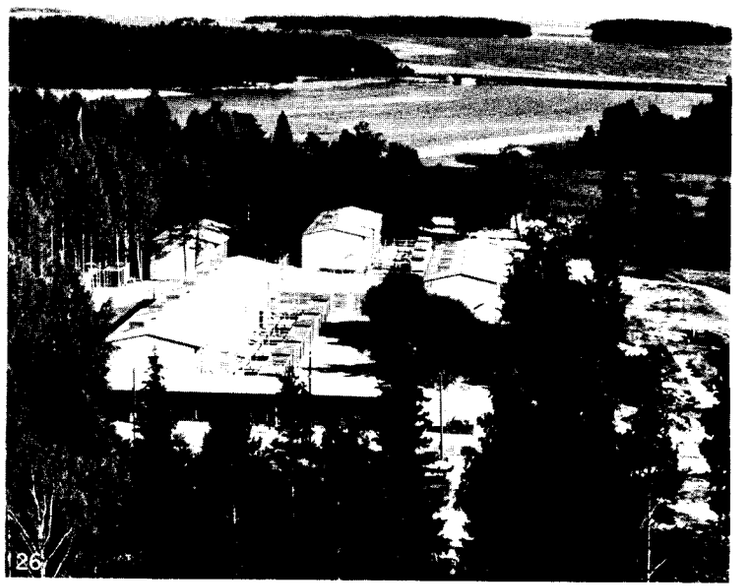

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*The work of Kaija and Heikki Siren is among the most outstanding in this community of outstanding architecture. Shown here are two of their terrace houses: the "Kontiontie" **(25, 26)**, built in 1955, and the "Otsonpesä" **(27, 28)**, built in 1959. One of the major aims at Tapiola was to respect the natural beauty of the land, and each building has been carefully sited among untouched birches and pines. The views across the Gulf of Finland add to a scene that is already magnificent. A total of 17,000 people will eventually live here, at a low density of 26 persons per acre. Construction has been under way since 1953, with the final work to be finished in 1965.*

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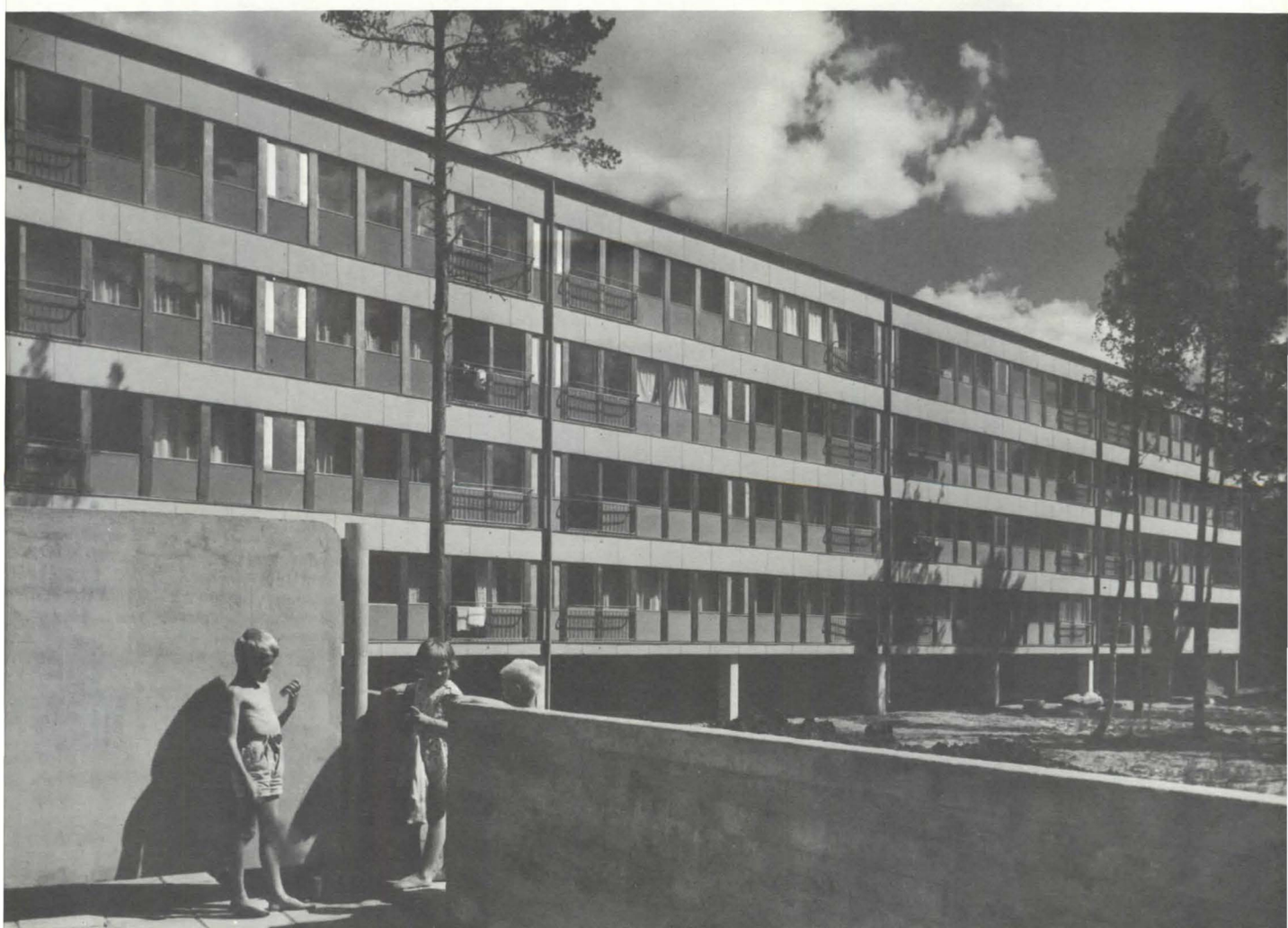
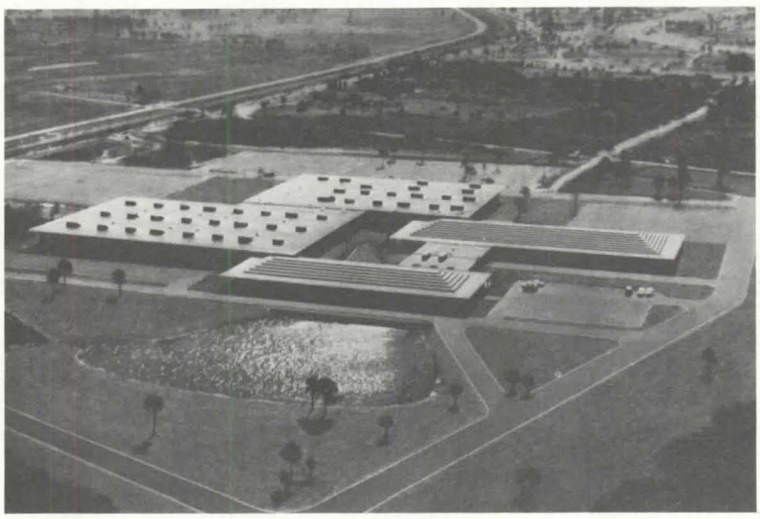
Tapiola includes single houses, row houses, and apartments side by side. The "Riistapolku" apartments ***(29, 30)****, by Aulis Blomstedt, were completed in 1961; the "Sufika" apartments* ***(31)****, by Rewell, in 1955. The town is a privately sponsored, privately financed venture of the Finnish National Housing Foundation, a nonprofit corporation that has started two other new towns in the Helsinki area.*



WARM-WEATHER SOLUTIONS FOR INDUSTRIAL PLANTS

In recent years, a variety of factors have contributed to making plant locations in warmer climates feasible: a large labor supply; tax aid and exemptions; lower construction costs; technical advances in artificial climate control; and new techniques for improved natural ventilation. The two factories which follow are notable for their imaginative solutions to problems of industrial planning, of siting in areas of natural beauty, and of subtropical weather conditions.



Fully Air-Conditioned Plant in Florida

COMPUTER MANUFACTURING CENTER • PALM BEACH GARDENS, FLORIDA • MALCOLM B. WELLS, ARCHITECT

Upon selection of a site in Florida's pine country, the architect was requested: to design structures which would "serve all conceivable types of operations, flexible enough to accommodate a fast-growing technology, and easily expandable"; to include 100 per cent air-conditioning, paving, and landscaping, but to keep costs below similar buildings in Florida; to make the structure "beautiful—a pacesetter for industry in Florida."

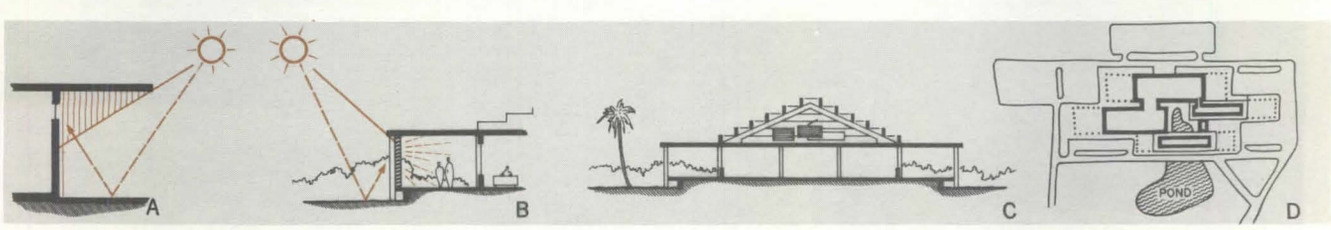
Functionally, two types of spaces were called for: one for manufacturing and warehousing; the other for administration, cafeteria, and engineering buildings.

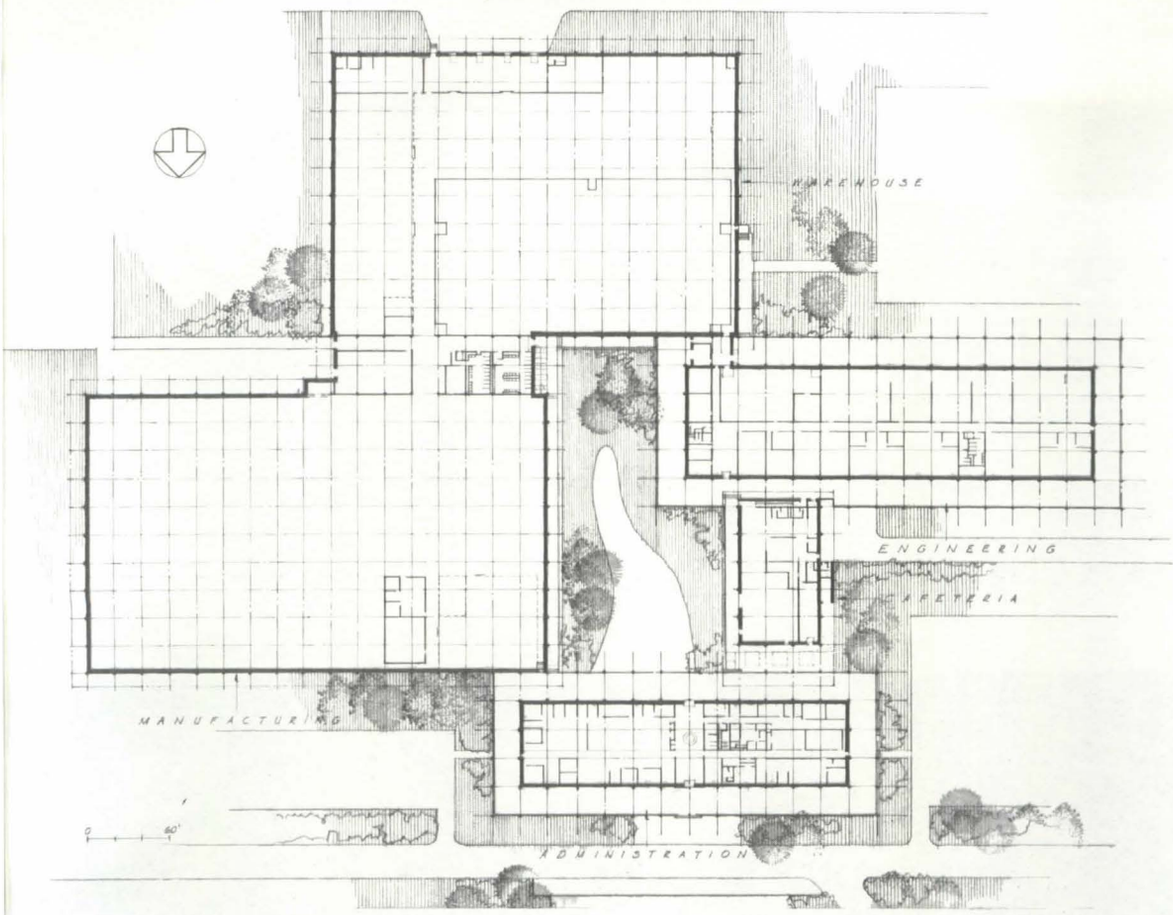
Structures housing such varied functions as machine shops, stock rooms, test and assembly areas, had to be easily expandable, closely controlled thermally, and allow interior components to be freely moved. This led to the development of two large, high-bay areas. A central fixed core for maintenance, guards, toilets and time clocks was designed not to interfere with operations or with future expansion. Though daylight was desirable in these manufacturing spaces, the architect explains that "any penetration of direct sunlight would have sent cooling costs skyrocketing. The solution therefore was to place high, continuous windows along all outside walls, shade them with 10-ft overhangs **(A)**, and use diffusing glass for glareless light. Then, with external heat gain to a minimum, low-cost rooftop air-conditioning packages (*aerial photo, above*) could be used effectively. By eliminating all duct work, the lights were pulled up to joist level, leaving bright open workspace clear to the roof."

On the other hand, administration, cafeteria, and engineering buildings—requiring resilient flooring, acoustical ceilings, telephones, partitions and big windows—were found to be best housed in flexible low-bay spaces. Direct sun has been controlled by exterior shades as well as outdoor passages **(B)**. For lowest possible cooling costs, plan flexibility, and savings in floor area, rooftop air-conditioning units were installed. The usually unsightly appearance of these on low-silhouette buildings was overcome by concealing them behind an open gridwork of precast concrete horizontal and inclined beams **(C)** on top of the low buildings.

In making use of several smaller building units, rather than one large, consolidated structure, a handsome interior court (*right*) has been gained. At the same time, the required 7½ acres of parking space have been dispersed into smaller clusters —all of them capable of being individually expanded **(D)**. To avoid flooding, the buildings were raised 2-3 ft above the grade. Fill was gained by excavating for a reflecting pond.

Arthur Parker was the Associate Mechanical and Electrical Engineer; James Borowski, the Structural Engineer; and Robert Neal, the Landscape Architect.

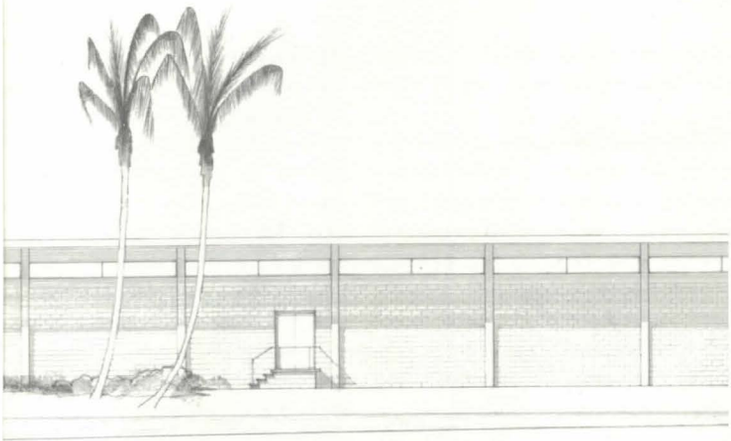




OS (EXCEPT AERIAL) : VIC TATELMAN, RADA PHOTOGRAPHY

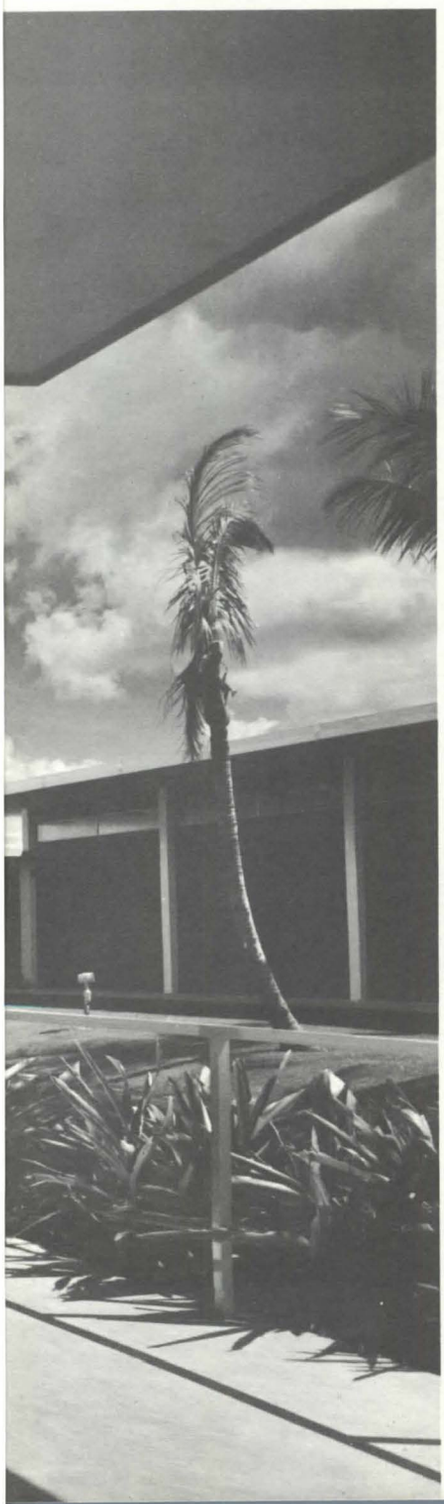
ADMINISTRATION, CAFETERIA, AND ENGINEERING BUILDINGS:
Foundations: Poured concrete • **Structural Frame:** Reinforced concrete columns and beams • **Walls:** Concrete block • **Roof:** Concrete slab, built-up roof • **Floor:** Concrete slab; vinyl asbestos • **Ceilings:** acoustic tile • **Interior Partitions:** Concrete block (where fixed); Wood (where movable) • **Skylights:** Plastic • **Windows:** ¼" plate glass in fixed aluminum sash • **Lighting:** 2'x4' recessed troffers.

Step-roofed administration and engineering buildings ***(1)*** *have bay-spacing of 20' x 20', 9-ft hung ceilings, exterior sun louvers* ***(3)****, sun-protected galleries* ***(4)*** *on all sides.*



MANUFACTURING AND WAREHOUSE BUILDINGS: **Foundations:** Poured concrete • **Structural Frame:** Reinforced concrete • **Walls:** Concrete block • **Roof:** Poured gypsum on long-span, open-web joists; asphalt and white chips • **Flooring:** epoxy coating on concrete slab • **Windows:** ¼" plate glass in fixed aluminum frames • **Lighting:** 3-tube high-output fluorescents.

Flat-roofed manufacturing and warehouse buildings (far right, **1**) *have bay-spacing of 20' x 40', ceiling height of 15'-8"* **(2)**, *and high windows, protected by roof overhangs.*



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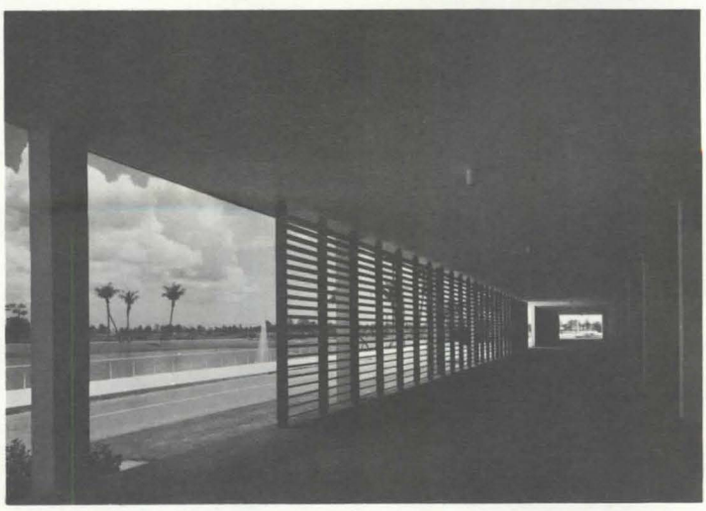


4

Accent on Natural Ventilation in Venezuela

FOOD PROCESSING PLANT, STATE OF CARABOBO, VENEZUELA • TOMAS J. SANABRIA, ARCHITECT AND SITE PLANNER

Appropriately, this factory is located in an agricultural area that supplies much of the raw material for processed foods production. Although the site is flat, its attractiveness is greatly enhanced by many handsome specimens of native saman trees, vistas of distant mountains, and the proximity of Lake Valencia. Employees live for the most part in the nearby cities of Maracay and Valencia. Caracas, Venezuela's capital city, is within 1½ hours driving time of the factory. To facilitate movement of raw materials and finished products, a railroad spur connects the plant with the major cities.

In this locality, which lies 10° north of the equator, temperatures range from 70–98 F. Prevailing winds are easterly and southeasterly; and rainfall is typical of tropical regions—intense but of short duration.

For building purposes, the soil-bearing qualities of the region are unfortunately poor, making it necessary that piles and concrete grids be used under all structures.

Considering the terrain, the climatic factors, and the program requirements for present and future needs, three basic types of architectural spaces were decided on: (1) buildings for administration and social services; (2) buildings for industrial production; and (3) ancillary services for industrial needs.

Administration and social services are housed in simple, flat-roofed structures of reinforced concrete, based on a modular system of 7m x 7m (± 23′ x 23′). Their exterior walls are generally set back from the roof line so that sun and rain-protected passages are gained for circulation. Of this group of four structures, only the administrative offices are air-conditioned. Cooling apparatus, as well as telephone central and electrical transformer, are located in a separate structure that is joined to the office building by a concrete duct. The remaining structures, with the exception of a small area within the plant proper, are naturally ventilated, and, to this end, were left as open as possible, with doors and windows eliminated wherever possible, and necessary partitions kept to a height just above eye level. The cafeteria is, in effect, an open pavilion, shaded by two spreading saman trees.

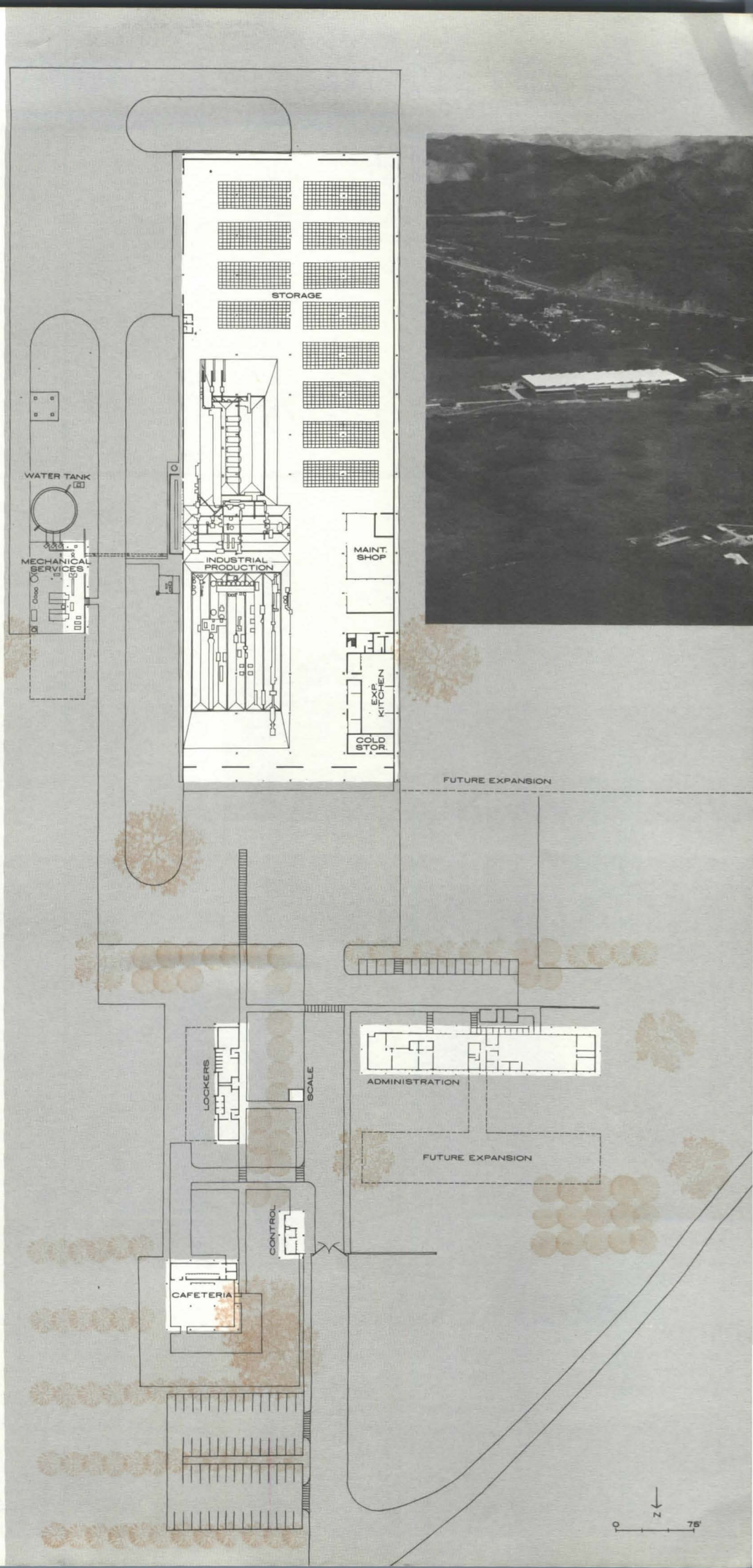
Industrial production is housed in one large steel-framed, sawtooth-roofed structure. Columns are spaced 12m x 16m (± 39′ x 52′) on centers, keeping interference of structural members to a minimum and facilitating possible future rearrangement. The ceiling clearance is 7.20m

throughout. This vast space is
r ventilated and lighted through
trusses, which are oriented to
try of direct sun rays, yet capture
ailing breezes.

ary services, such as the electric
n, water supply storage, pump
ater treatment plant, and boilers
concentrated within the service
the east of the plant. These are
most part constructed of rein-
oncrete.

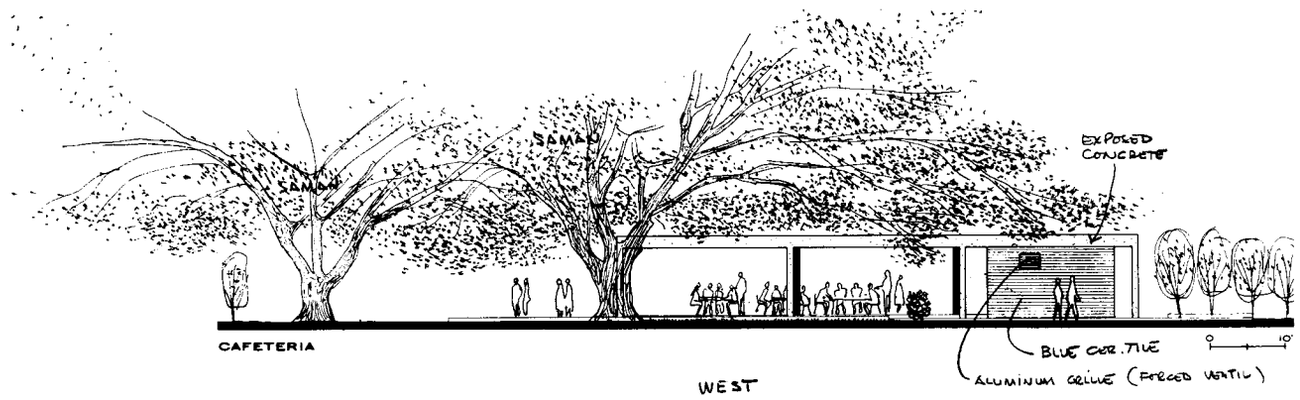
functional aspects of employee
on within these three building
have been particularly well
as have the visual aspects of sit-
lements in relation to each other.
Padula, Roberto Smitter, Robert
were the Structural Engineers;
Kasin, Nestor Perez, Mechanical
rs; Antonio Vicens, Electrical
r; Ramon Espinal, Soil Engineer.

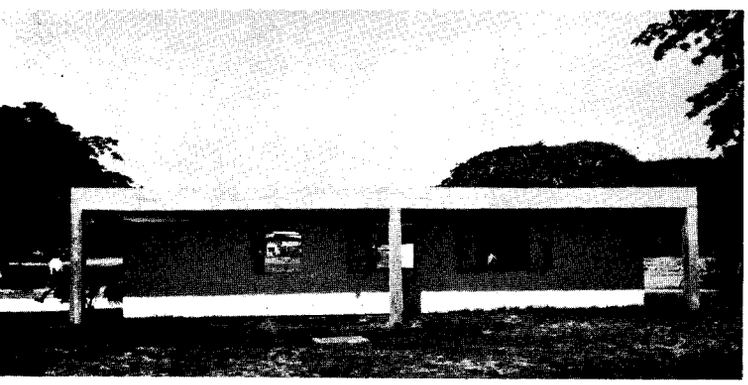
PHOTOS (EXCEPT AERIAL PHOTO): HEINRICH THEDE



CONTROL, LOCKERS, CAFETERIA: Foundations: reinforced concrete • **Structural frame:** reinforced concrete • **Roof:** concrete waffle slab • **Ceiling:** Acoustic plaster • **Exterior wall surfaces:** blue or white ceramic tile • **Window walls:** aluminum sash, fixed glass, asbestos spandrels

Control building (gate house) ***(1, 2)*** *cafeteria* ***(3)*** *and structure containing lockers and washrooms, are based on 23′ x 23′ structural module. All are naturally ventilated and have wide roof overhangs for sun protection.*





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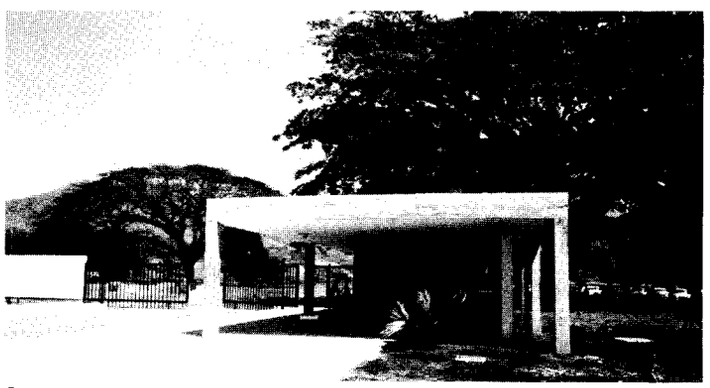
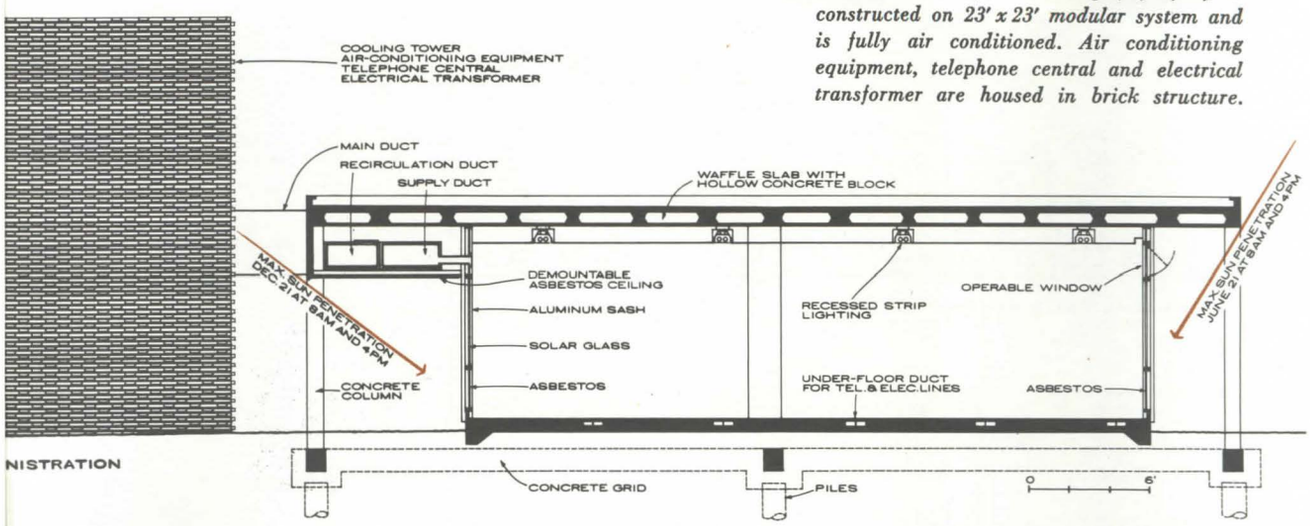


2

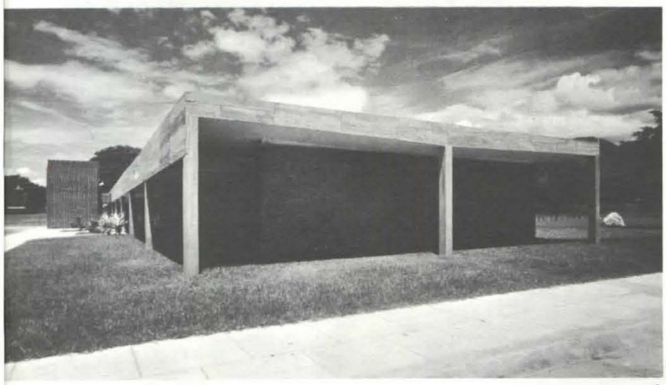
3

ADMINISTRATION BUILDING: Foundations: reinforced concrete grid on piles • **Structural frame:** reinforced concrete • **Floor:** concrete slab with underfloor ducts for telephone and electrical lines • **Roof:** Waffle slab with hollow concrete block in-fill • **Suspended ceiling:** acoustic plaster

Administrative office building ***(4, 5, 6)*** *is constructed on 23' x 23' modular system and is fully air conditioned. Air conditioning equipment, telephone central and electrical transformer are housed in brick structure.*



NISTRATION



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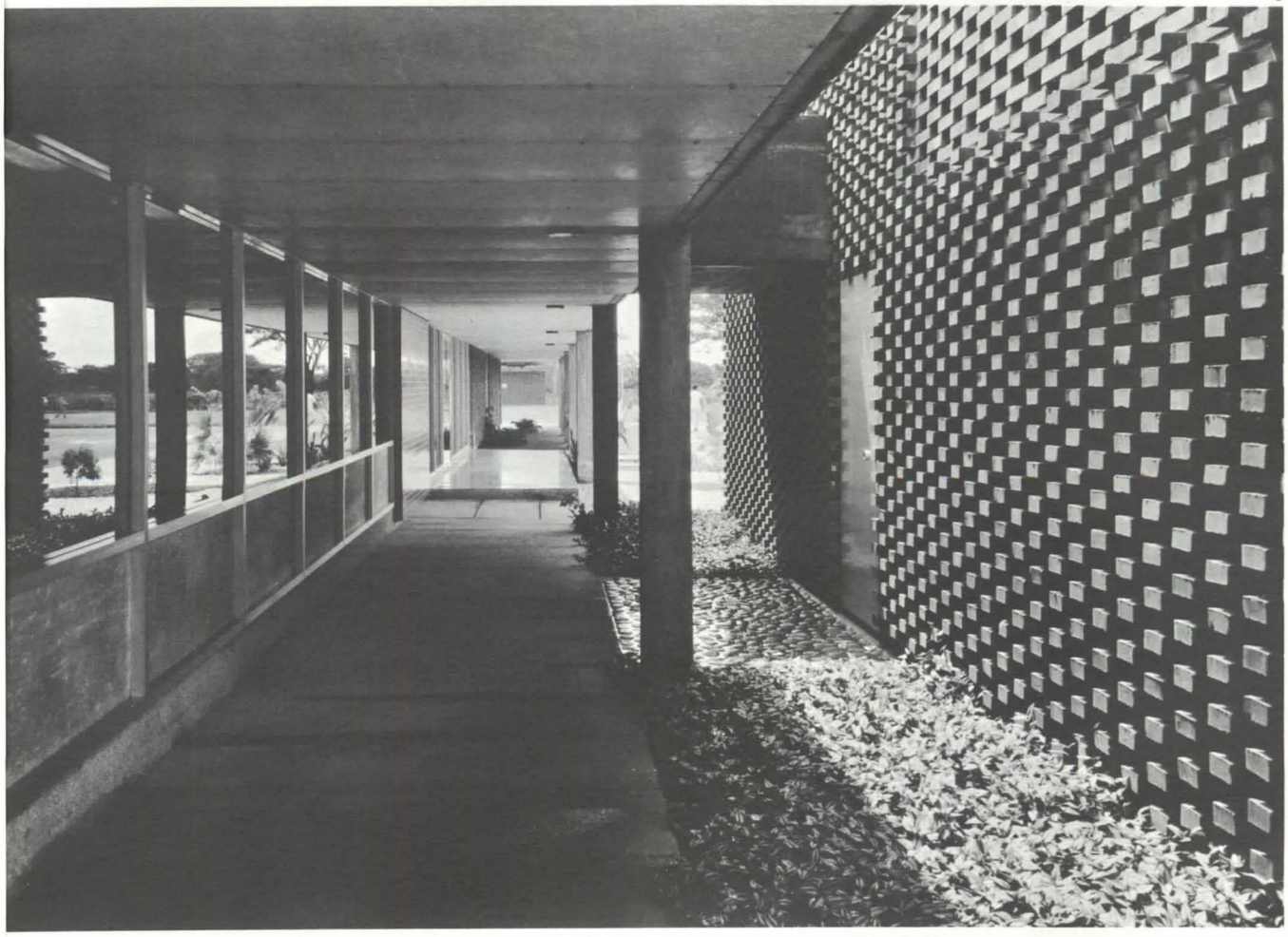
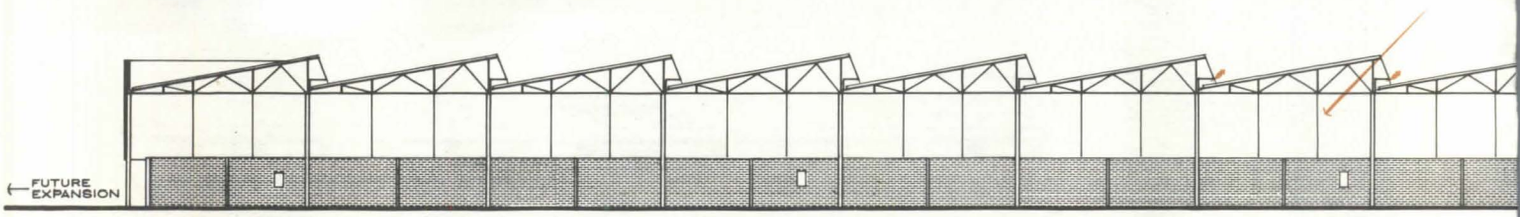
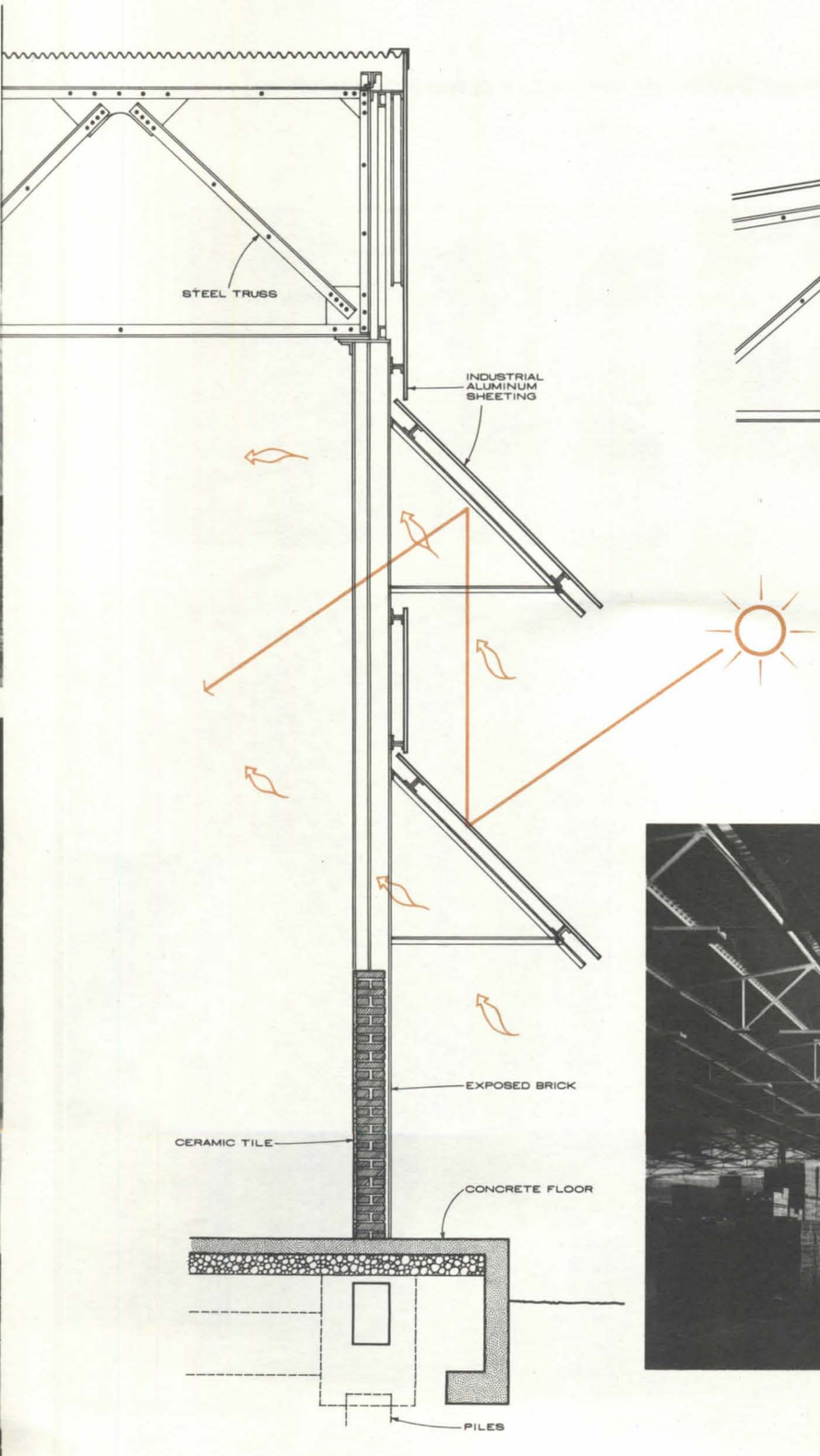
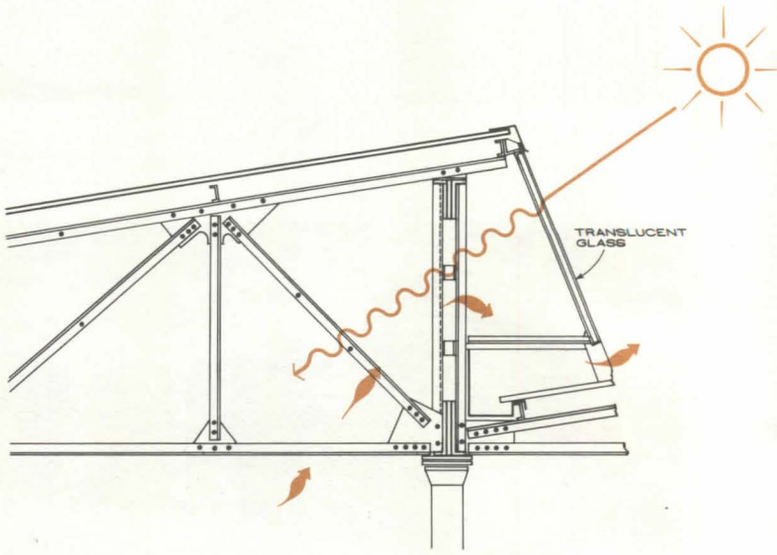


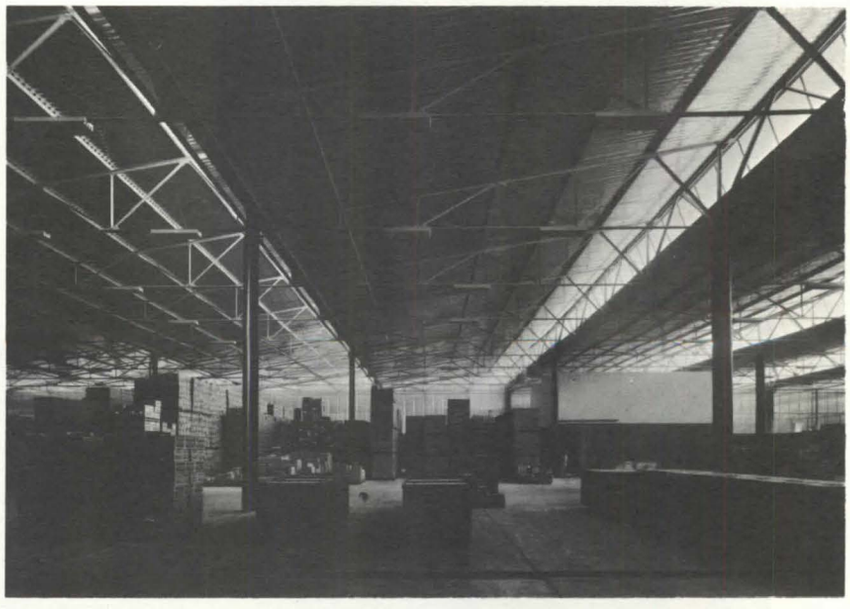


INDUSTRIAL PRODUCTION PLANT



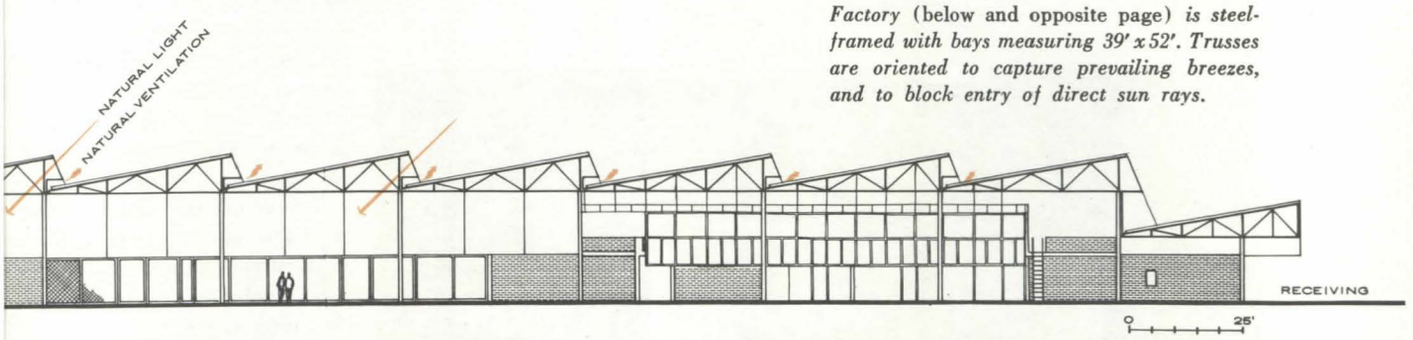


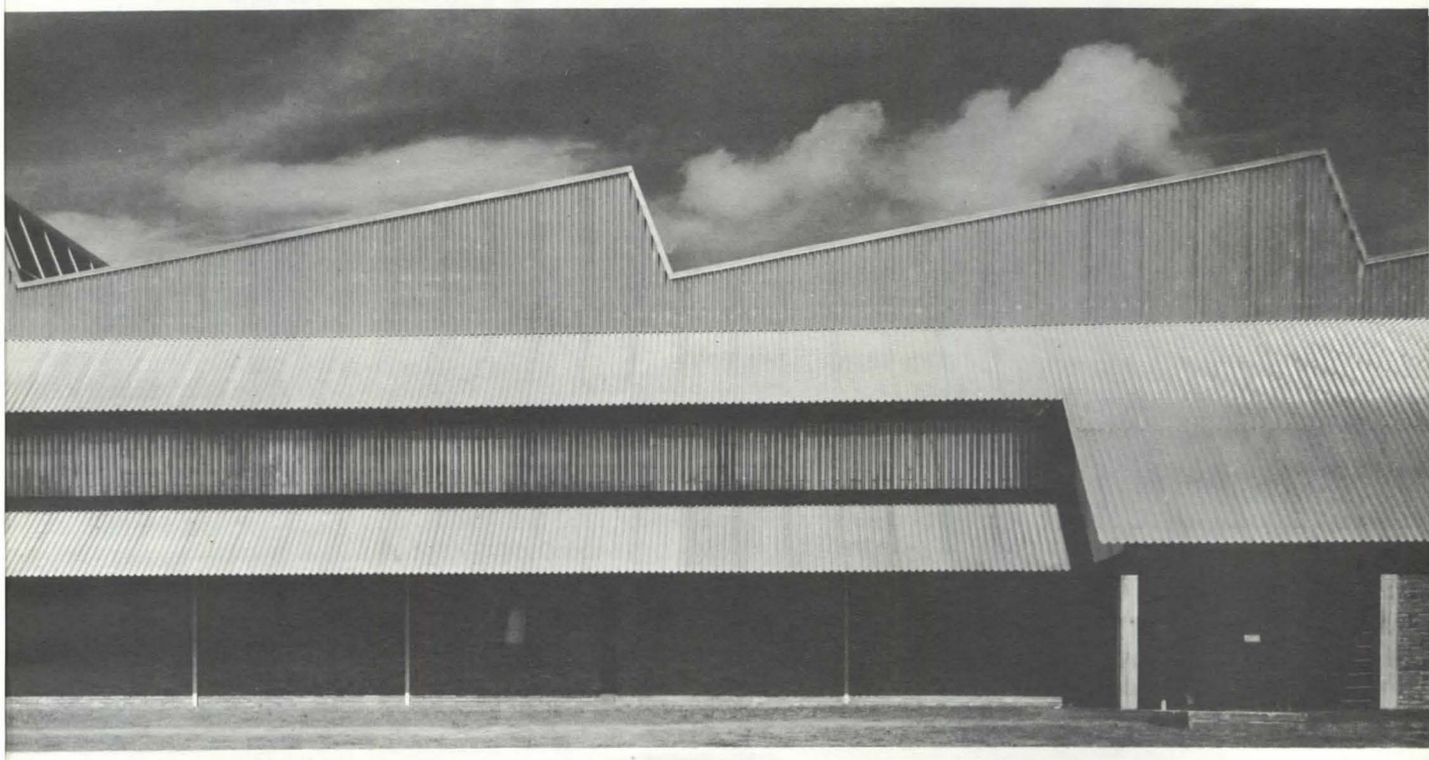
Natural light and ventilation are brought into the factory at the roof trusses (section above), *and at the side walls* (section left). *Translucent glass, inserted into the end cords of the trusses, serves to cut light reflections.*



INDUSTRIAL PRODUCTION PLANT: Foundations: reinforced concrete grid on piles • **Structural frame:** steel • **Roof and side walls:** corrugated aluminum • **Interior wall surface:** ceramic tile • **Floor:** concrete slab • **Windows:** anodized aluminum frames, translucent glass

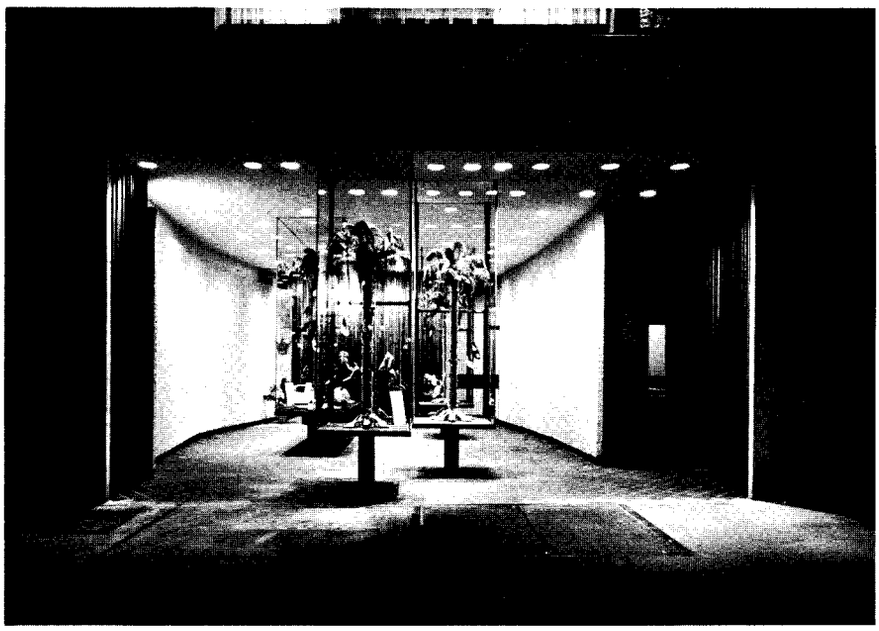
Factory (below and opposite page) *is steel-framed with bays measuring 39′ x 52′. Trusses are oriented to capture prevailing breezes, and to block entry of direct sun rays.*



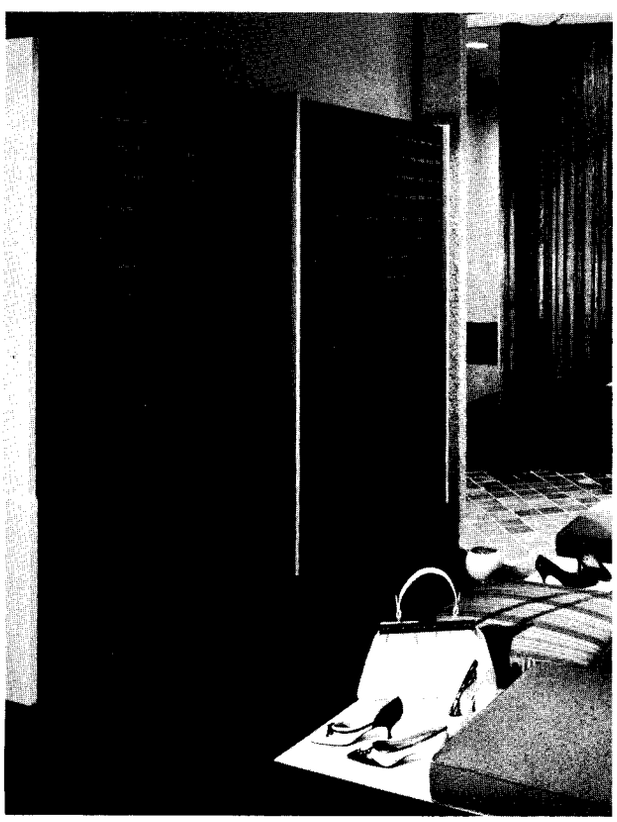


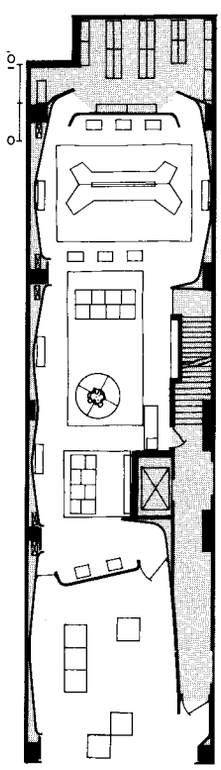
Chilean Shoes on Fifth Avenue

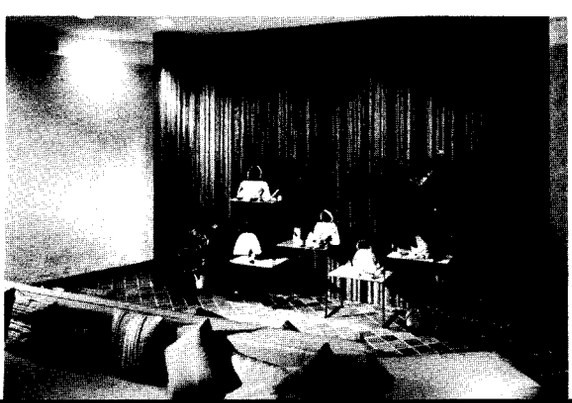
SANTIAGO SHOE & LEATHER CORPORATION • NEW YORK, N. Y. • MORRIS KETCHUM JR., & ASSOCIATES, ARCHITECTS



PHOTOS: ALEXANDRE GEORGES







Within a single-story space in a Fifth Avenue building, the architects have molded a street-level shopfront into a huge niche and have nestled within it a cluster of columnar showcases. This small and relatively discreet display serves to introduce the client's product, Chilean shoes, to the American market, and for that purpose, a patio seemed an appropriate South American effect.

The patio is made larger also by recessing the entrance leading to the upper rented floors. The walls forming the patio are curved, in a funnel-like plan, so as to draw customers off the sidewalk. Both the walls themselves and the front frame are surfaced with white marble chips; wood panels of rough-sawn basswood strips, which are stained deep brown, punctuate these surfaces at the front and at the rear. Within this outdoor space, the display technique used has a degree of novelty in that all the showcases are free-standing, no wall cases being used.

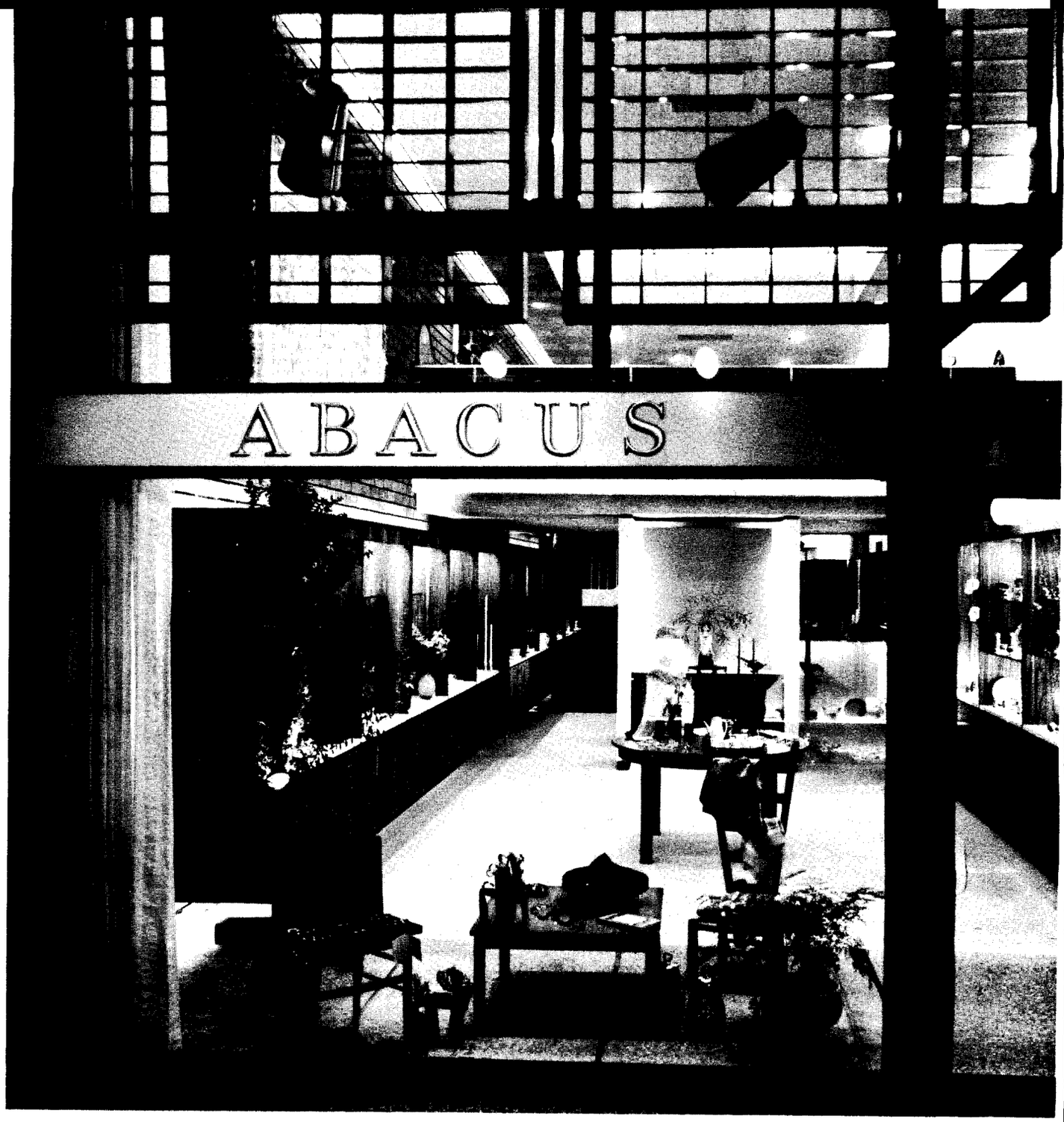
The interior is partially separated in plan into two retail sales areas, one each for medium- and high-priced shoes, but at the same time the space reads as a single unit, with both areas serving as a showroom for wholesale distribution. A third area, the stockroom, is located at the rear, behind another basswood panel.

The typical American use and arrangement of chairs and stools and the customary wall-to-wall carpeting have been replaced by benches and sofas, in the South American tradition, and by area rugs on a quarry tile floor.

Like the quarry tile flooring, the marble chips of the entry walls are continued into the interior. There, the undulating walls serve both to suggest a South American flavor and to conceal protruding columns and duct work; however, the upper registers, which might have been painted out like the baseboard, remain prominent.

The architects also co-ordinated the firm's graphics and package design. In the fabrics, splashes of blue and green are played against each other—a scheme that reiterates the package colors.

FLOORS: Tile/heather brown/Dennis Ruabon Ltd.; area rugs/royal blue, moss green/Boss Company. **LIGHTING:** Recessed downlights/Lighting Electronics. **FURNITURE: Bench around planter:** white plastic/Architectural Pottery. **Back-to-back sofas, Benches:** statuary bronze/white plastic/architect design/R. P. S. Associates. **Upholstery:** blues and greens/Boris Knoll. **Display tables:** bronze, plastic tops/architect design/Richter & Ratner. **Stools:** white pedestals, upholstered seats/both Knoll Associates. **Ash urns:** white/Laverne. **Planters:** Architectural Pottery. **Mirrors:** architect design/Richter & Ratner. **SHOPFRONT: Sign:** cast bronze / architect design / Guild Sign. **Showcases:** glass / bronze bases / Union Port.



Abacus Gifts in Pasadena

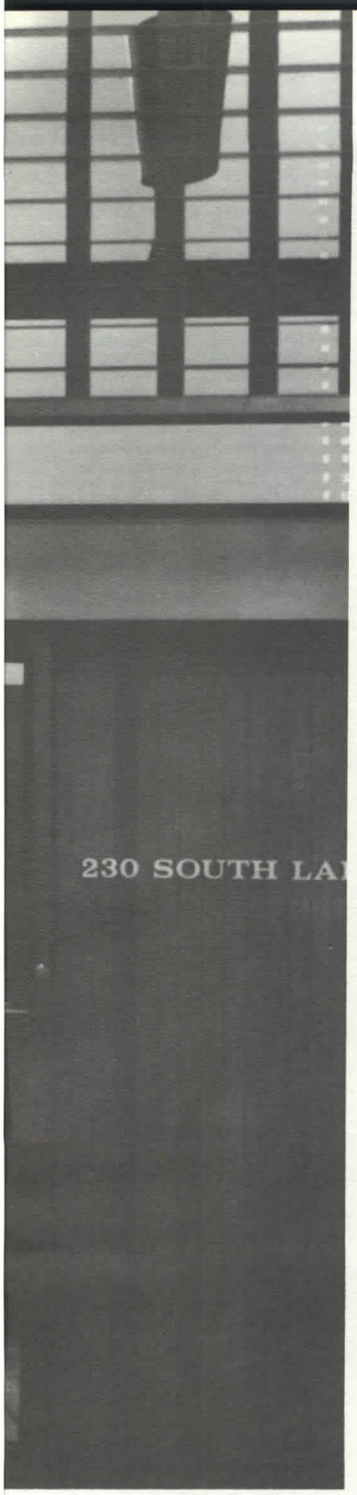
ABACUS SHOP • PASADENA, CALIFORNIA • PULLIAM, ZIMMERMAN & MATTHEWS, ARCHITECTS • JAMES G. PULLIAM, PROJECT ARCHITECT

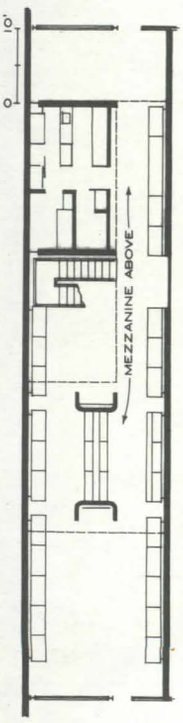
To provide a respite in the continuous line of visually competing shopfronts on Lake Street, the architects recessed this building containing four stores 25 ft from the building line. The resulting forecourt, which contains a display case, planting areas, as well as umbrella tables and chairs used by a Swedish Konditori in the building, provides the stores an adequately competitive attraction. The other end of the structure, which faces a parking area, was given a similar treatment.

To provide relief from the sun on the east and west elevations, where the forecourts are, the architects set the shopfronts 6 ft further back behind aluminum sunscreens. These façades, although patterned, give the stores a conservative uniformity. Signs and shopfronts also are uniform, individuality being expressed only in window displays and the interiors, which are visible through broad glass windows.

The interior of Abacus—a shop for art objects and gifts—is broken up into areas of varying size, large and intimate, which are intended for different types of merchandise. This variation is extended vertically as well as horizontally by means of a mezzanine. The central space beneath the upper level is divided by a partition of display shelves flanked by two U-shaped, stud-and-plaster niches.

A variety of lighting techniques is used: wall-hung walnut cases are back-lighted at tops and underneath to emphasize their suspension; plastic shelves are lighted from behind to transmit light to the glassware they display; other cabinets are front-lighted. A dropped ceiling conceals a perimeter fluorescent strip that washes the walls. Recessed and surface-mounted fixtures provided accent lighting.





PHOTOS: MARVIN RAND

al materials and neutral colors
he merchandise simply; purple-
ep blue, and black felt mounts
occasionally to accent tableware.
nain, merchandise is announced
tively, as is the building itself.

Descriptions and sources of the
naterials and furnishings shown.

G: Pebble aggregate at entry/tan; off-white
t/Salé; red brick/Davidson Brick. **WALLS:**
ister, brick/sand blasted, natural finish. **CEIL-**
ustical plaster/beige; soffit of mezzanine/oiled
NDOW COVERINGS: Sunscreen: bronze
luminum/Aluminum Skylight Speciality Co.
white linen. **LIGHTING:** Recessed downlights,
ts/Gruen Lighting. **SHOWCASES:** Walnut,
Formica/architect designed/custom. **STAIR:**
stringers/teak handrail/off-white carpet treads.

Materials and Methods

Assembly Hall Lighting

1

2

ticle describes how lighting was change interior characteristics of domed space, to permit different r activities.

rs were required to complete the ity of Illinois' new assembly signed by Architects Harrison & vitz **(1, 2)**. Spanning a diameter t and reaching a height of 124 ft ex, the hall has a seating capacity 0. It not only can accommodate e crowds that attend basketball **3, 7)**, but it can also be used as t hall **(4, 5, 6, 8)**, a theater for nal and student productions **(9,** d a convention hall. In short, it ooked for any type of public event meet all possible student needs. narkable lighting solution, cre- Lighting Consultant Abe Feder, the key to changing the interior e type of facility to another.

important that the hall's strong tural character be preserved at d that the dome not appear like a lk against the sky. It was equally t that it should have a festive ce so many of its events were to ce at night. The actual effect of icial lighting at night is to lift e into space by lighting only its e. This is achieved by directing ing, which emanates entirely from ior of the structure, to emphasize ng window pattern **(1)**. Behind dow, a 12-ft long, double-reflector nounted within a cove located at face of the foyer and about 10-ft or level. Each reflector holds two rgroove fluorescent lamps; each ses four lamps. The units are fo- ward, with the light paralleling rside of the exterior structure, a pattern of considerable inten- In addition, PAR-64 units, set he fluorescent fixtures, increase sity, add warmth to the light, and e to increase the illumination in the foyer.

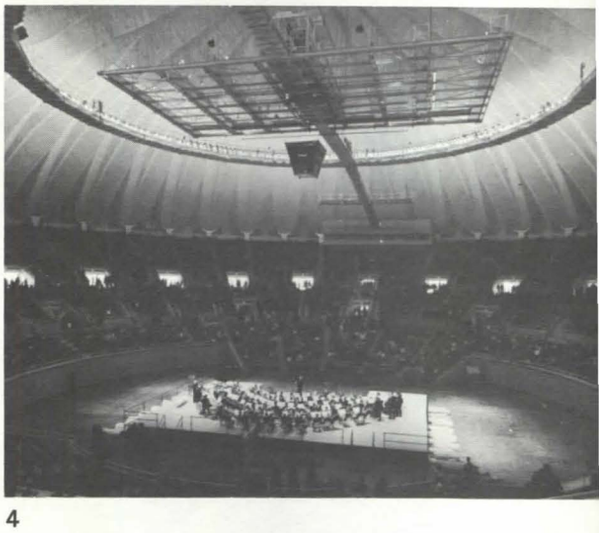
of primary importance that the ighting of the interior should fill nous unbroken space with a sense brightness. At the same time, it rovide sufficient illumination so 00 people could read their pro- ith ease, no matter where they ed. A circular catwalk, approxi- 50 ft in diameter, was hung 85 ft floor **(11, 12, 13, 14)**. Mounted uter perimeter are 158, R-80, mercury-vapor reflector units **16)**. The lamp itself, with its *ined reflector*, provides an in- controlled source of light. The cone reflector, which forms most of the fixture housing, was specifically designed for this lamp to intensify and further control the beam pattern it projects. These units are focused so that their beams are targeted against the outer half of the dome ceiling (*see section*). The housing reflectors and louvered light shields are tinted gold to warm the mercury vapor light. In addition, the acoustical surfacing on the underside of the dome is finished in a soft, pink cast. Powergroove twin-reflector units are also mounted along the outer perimeter of the catwalk, and are focused toward the center of the dome ceiling (*see section*). Here, too, the reflectors are warmly tinted. The lighting of the ceiling creates a sense of sky, filling the entire dome with a pleasing brightness.

The upper half of the seating is evenly covered with the indirect light from the mercury vapor and fluorescent units. To increase the illumination of the lower half of the seating, 48 two-lamp, PAR-64 reflector units are also mounted on the catwalk. They are focused down onto the lower seating, intensifying the lighting there. The direct light from these sources blends with the indirect light from the top of the dome, so that all of the general lighting appears to come from a single source. The illumination level at any part of the seating is better than 20 ft-c. For theatrical-type events, when "house" lighting must be lowered and then blacked out, the mercury-vapor lamps are switched off first, the powergroove lamps next, and the incandescent lamps are dimmed out last. All lighting can be blacked out instantaneously by means of a main switch.

At the center of the floor, a regulation basketball court is laid out **(7)**. Its 94′ x 50′ dimension, excluding the end zones, provides sufficient floor space to accommodate almost any type of event. One requirement was that this basketball court could be lighted with sufficient intensity so that the players' faces could be seen by those seated in the top rows, more than 150 ft away. The lighting treats the area as a cube reaching across the height of the backboards, and extending down to the floor. To this end, 148 dual, incandescent, PAR-64 spotlight units are mounted along the inner rim of the catwalk and are focused into the cube **(11, 12, 15)**. The end zones are lighted by two long borderlights containing PAR-64 spotlights and mounted parallel to the end zones on either side of the stage gridiron **(11)**. This lighting produces no glare for either players or spectators. The illumination level is maintained at above 150 ft-c.

Many of the student and professional

3



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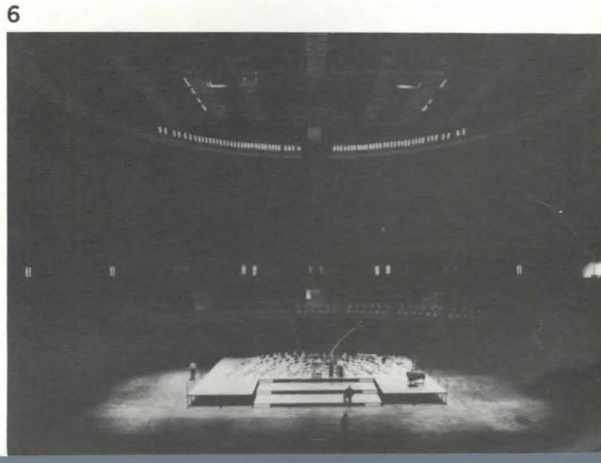

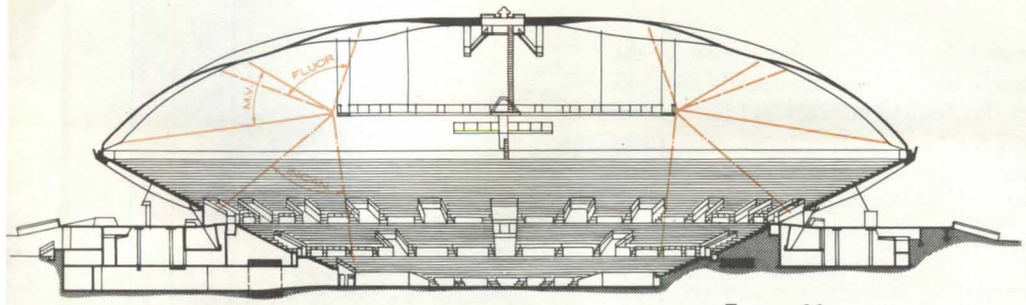

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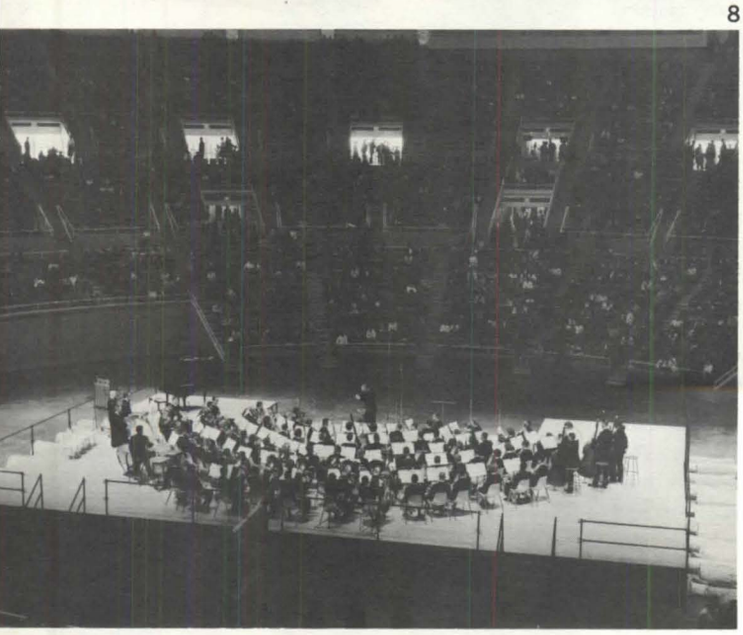
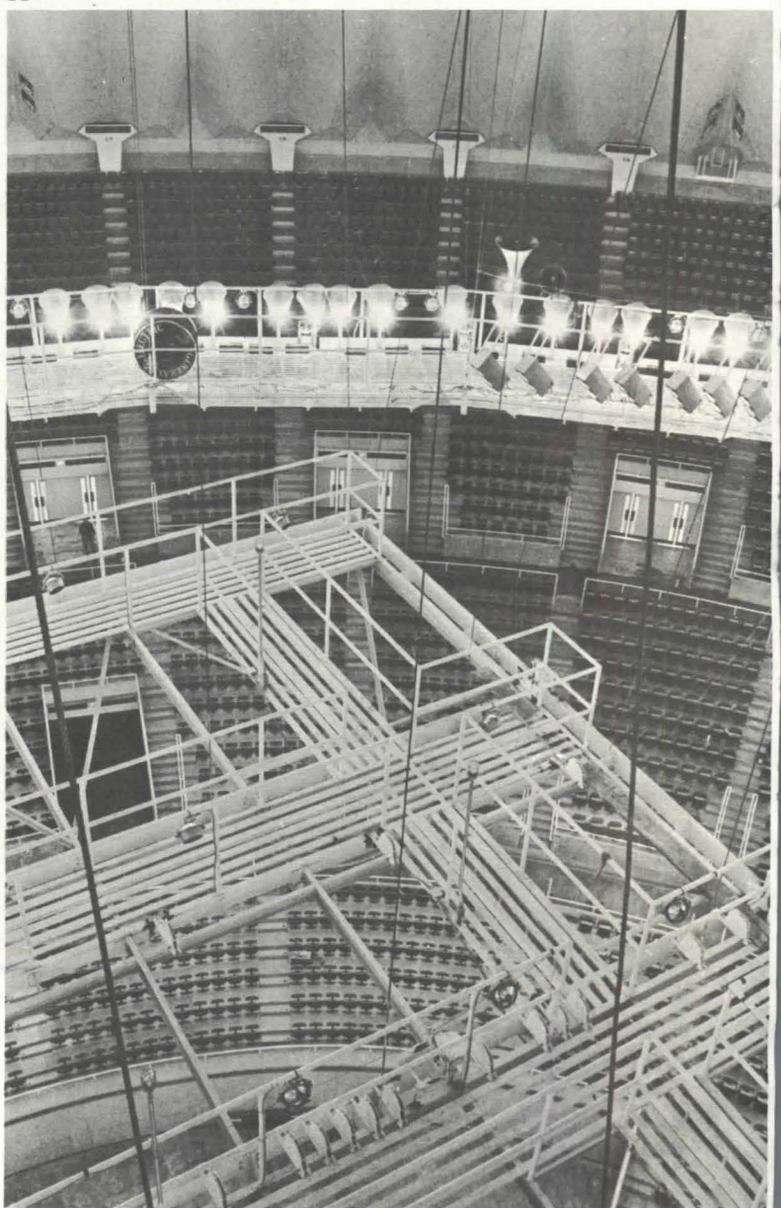


9

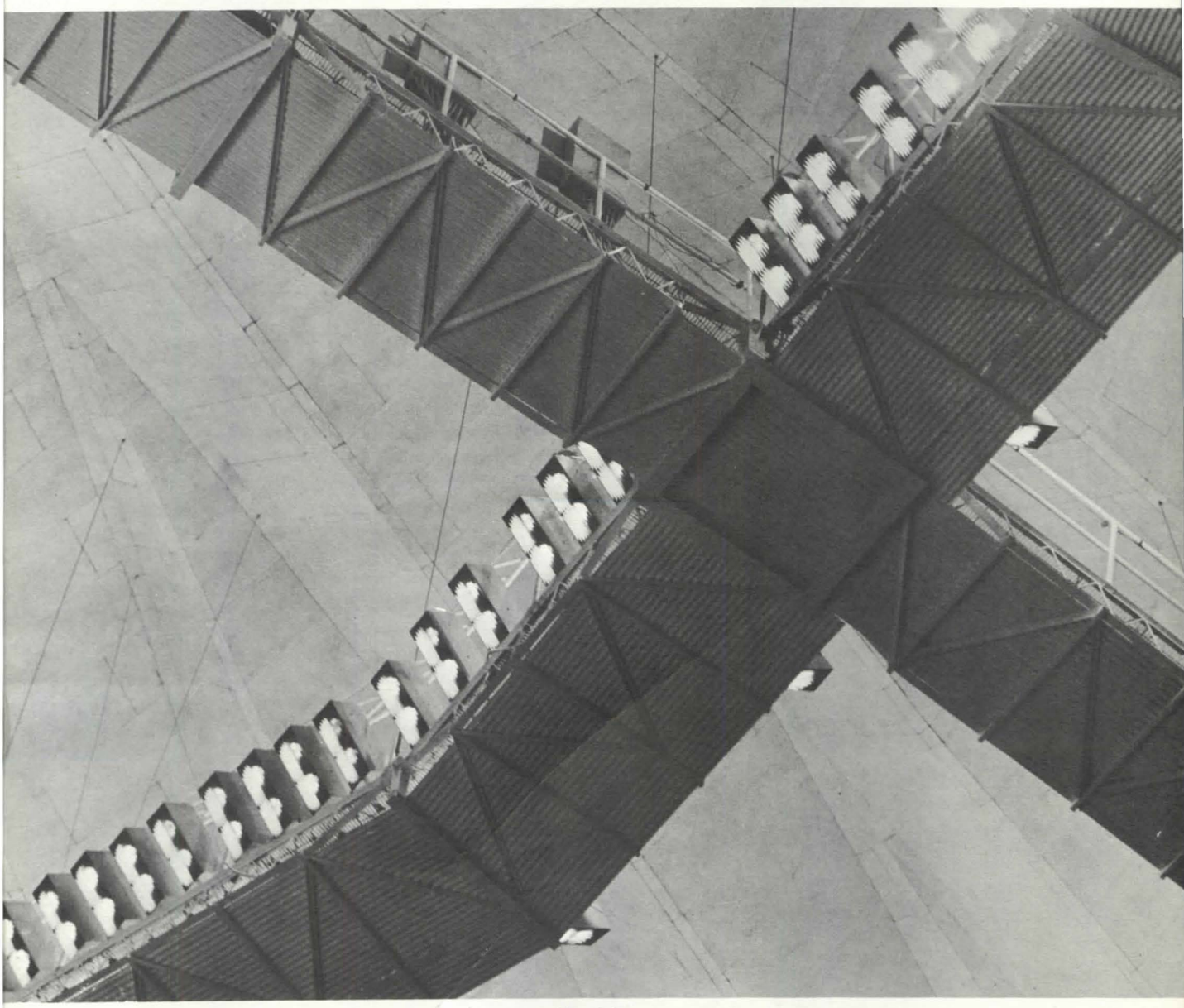
performances require a proscenium stage **(10)**. For these, a quadrant of the arena, with 4500 seats, is roped off, and a portable stage, 49′x96′x3½′ high, is moved in. The general lighting for the theater quadrant is controlled independently as house lighting. An electrified, rectangular gridiron is permanently located in the center of the catwalk **(11)**. Immediately below it is hung a set of 32 stage pipes, each

11



10

ied (and equipped accordingly) to
ng draperies, or front and back cur-
spotlights, scenery, or as spares.
ipes are controlled from a portable
le which is rolled into the wings.
may be controlled as a group or
ately; they are lowered for hanging
hen raised for stage use.
stage lighting was designed to
e every possible type of production, both student and professional. The weight, bulk, and expense of typical theatrical equipment was avoided by the use of the long-life, PAR-64 lamps within continuous housings, resulting in equal intensity and flexibility and more accurate control. The first two of the five special borderlights contain two rows of lamps: one row is fixed to provide light as needed over assigned areas; in the second row, lamps are set in adjustable lamp holders so that each lamp can be focused and set in any direction. The other three borderlights, further upstage, have single rows of fixed spotlights. Flexibility is provided by extensive circuiting. All borderlights are permanently fixed to the light battens, so that rehanging for each production is eliminated; they are serviced by electric cable wound on drums above the pipes



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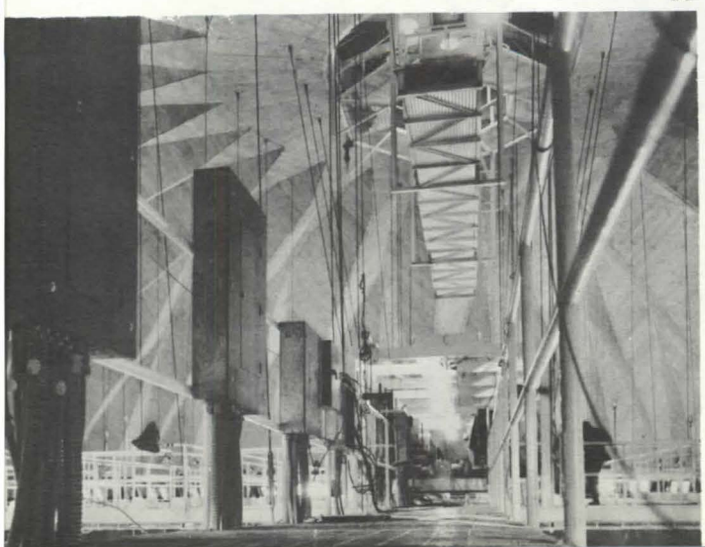

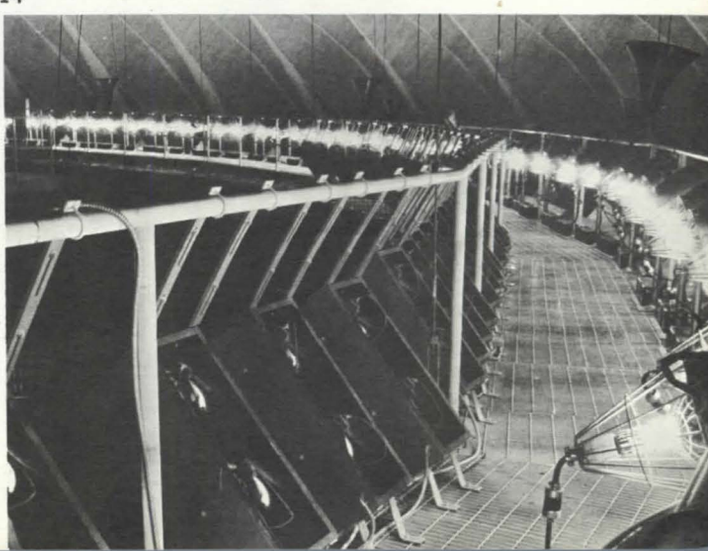

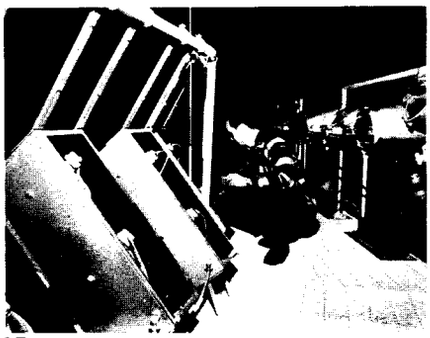

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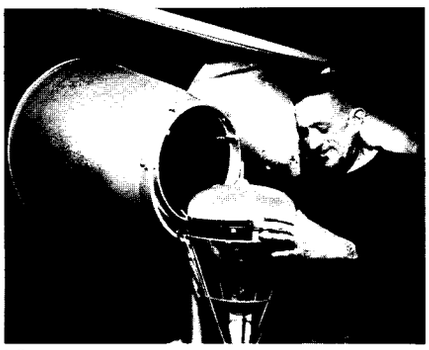

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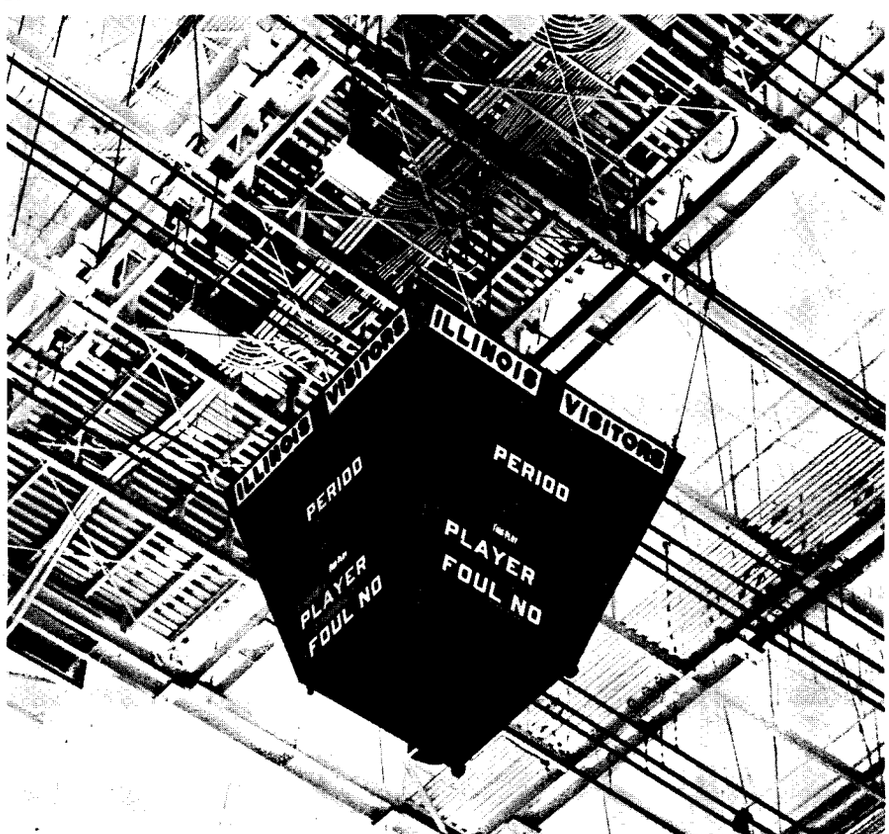
when the stage is not in use. Each borderlight has sufficient pigtails to accommodate special stage lights when needed, and no extra wiring is required. Outlets are provided for pitlights and booms, which have not yet been purchased. Front lighting, which must be projected more than 150 ft, is provided by 32 new quartzline ellipsoidal spotlights, equalling in performance the larger and more expensive dynabeams of higher wattage. Supertrouper arc lights complete the stage lighting.

All lighting in the entire arena is controlled from a console located in the control booth (17). A silicon-control rectifier dimming system was designed to provide as much flexibility and allowance for future expansion as possible. Even the borderlight pigtails are controlled from the console, as are the pitlight and boom stage pockets. Whatever lighting is not subject to dimming is, nevertheless, controlled from the console. The layout of the console, with its carefully planned group masters, is compact and can be operated by one man. Double-throw dimmers are used where possible for economy. The dimmer bank is located in a separate room. A portable console, duplicating the one in the control booth, can be rolled onto the wings of the stage as required. The comprehensive dimming system is the key to the flexible lighting design, making it possible to use the same lighting units for different types of events at different illumination levels, thus creating different moods.



Epoxy Flooring

)BERT F. YTTERBERG

:teristics and installation of epoxy which provide protection against ion and have other special uses, are ied by the Vice-President In Charge oxy Flooring Research at Kalman Co., Inc.

floors are slowly coming into their 'hey are steadily achieving accept- or use in areas subjected to corro- nd many roadblocks to their further ition and acceptance seem to have vercome.

primary reason for the slow ac- ce of epoxy floors has been that :e a "manufactured-in-place" prod- ther than a product produced in a nd assembled at a construction site. he former, one does not know pre- what one is specifying and what will be obtained until that product ace. In the case of epoxy floors, the t is bonded-in-place and therefore ely difficult to remove. Thus, many al applications have been ruled out design stage because of the valid iat the product would not be in as anticipated.

:her reason for the slow acceptance xy floors is that, when first intro- they were viewed by both designers vners as the long-sought answer to all flooring problems. This was not e, however, since epoxy floors were :ant to take the place of existing ts. Rather, they filled a gap that older products had not been able to fill. This became apparent after several installations had failed, or, at least, had not come up to expectations.

Still another reason for slow acceptance is the complex nature of the product itself. Epoxy is a generic term for a whole family of products, from underwater protection of steel parts to encapsulation of electrical components used in missiles. Even in floors, the proliferation of components having potential use in the formulation of a topping is so great that it almost requires the full-time services of an engineer to review and evaluate the potentials of the various new products. For example, floor toppings and paint coats of epoxy are still widely considered to be similar products.

Characteristics

An epoxy floor topping is about ¼" thick and is bonded to the base slab. Essentially, it is composed of a liquid resin, a liquid hardening agent, an aggregate, and a coloring agent. Since they are not entirely corrosion-proof floors, their usefulness falls between concrete floor toppings and acid-resistant brick floors. Epoxy floors combine some of the best qualities of both of these floor surfaces: they can be colored, and are abrasion-resistant, dustproof, impervious to water, and resistant to many chemicals. In addition, epoxy floors are virtually joint-free, cure-fast, and allow for easy maintenance of minor repairs.

Largest Installation

Perhaps the most dramatic example of the growing acceptance of epoxy floors is the recent installation for the Sun Maid Raisin Growers of California, at Fresno. There the architects specified floor areas amounting to more than 115,000 sq ft. This is believed to be the largest industrial epoxy installation. It was designed by Architect Paul Harris, a partner in the Fresno firm of Walter Wagner & Partners. The great size of the installation reflects the confidence placed in the material by the architect and owner.

The epoxy topping was applied primarily in the processing and packaging areas. Although much of the operation is automated, there is some fork-lift truck traffic. In addition, raisins and sand often spill on the floor. Sanitary requirements necessitated that the floor areas and all machinery be washed periodically throughout the day, and once daily with hot water and detergent. Requirements for the floor were that it withstand this use and still maintain a satisfactory appearance. Except for epoxy terrazzo, epoxy is not at the stage of development where is may be chosen primarily as an aesthetic material; its primary function is to protect the sub-base from corrosion.

The epoxy was treated to resemble sand in color, with a special aggregate added to give the surface a "salt and pepper" effect. Since much of the area is often wet, the surface was also given a slight texture

to produce a slip-resistant finish.

Concrete was ruled out for the installation because raisins are 75 per cent sugar. In the old plant, this corrosive effect from the sugar increased cleaning and maintenance costs; the epoxy is anticipated to be resistant to this corrosive action. Brick was ruled out primarily because of the difficulty of maintaining a clean floor with the great number of joints such a surface possesses. Furthermore, it is expensive and is exposed to the potential danger of fork-lift trucks chipping the units.

Prior to the installation of the epoxy topping, portions of the on-grade concrete slab were used to produce tilt-up wall panels. These areas were steel trowelled. Before the epoxy was installed, the concrete slab was sand-blasted to produce a rough surface. Two days before installation of the topping, the slab was etched with muriatic acid. These steps were taken to promote bond between the relatively thin topping and the base slab.

The topping itself was installed in three applications (*photo*). All of the applications for a given area were made the same day. First, a mixture of epoxy was employed so as to seep into the pores of the base slab. Then, a stiff mixture of epoxy formulation and aggregate was applied by screeding, mechanical compaction, and hand trowelling. Finally, a surface coating was applied to produce the finish texture desired. Except where expansion joints occur in the building, the epoxy topping has no joints. Production varied according to the area size made available. Peak production reached 14,100 sq ft in one day, although the average was nearer 3000. Had more areas been available, this peak rate could have been maintained constantly or even surpassed.

Formulation and Installation

The seeming simplicity of the application belies some of the formulation and installation problems. Formulation or batching is critical, and is sometimes altered by atmospheric conditions; pot life is short (especially if compared with concrete), so that mixing and installation must be carefully paced; tools must be cleaned constantly; and ambient temperature must be watched. Other than the quality of the formulation itself, items of particular importance are the surface finish and bond to base slab. These, however, are not the only problems to be aware of. Air entrapped in the mix can leave minute holes in the surface as it escapes from the topping mix; before curing, the surface can whiten under certain atmospheric conditions; improper preparation of the surface that the epoxy is to be bonded to—on the assumption that epoxy's adhesive strength is so great that the powers of the material itself will offset these preparations—can be fatal.

What is the best way for an architect to specify this material so he can be sure he is providing what is required? If, as suggested earlier, one thinks of epoxy flooring as a product that is manufactured-in-place, the pitfalls that await the specifications writer may be avoided. Two aspects are involved in writing the specifications. First, the workmanship—the degree of skilled labor—that is to be put into applying the epoxy; second, the quality of the formulation iself.

These two considerations are interrelated. A formulation having high-viscosity resin and maximum amount of aggregate costs more for materials, as well as for workmanship, because of its quality and because of the difficulty in working it. It will, however, produce the most lasting floor. Conversely, a low-viscosity resin formulation costs less for the material as well as for the labor, since it is easier to install. But it will not produce as good a floor.

The quality of installation or workmanship on the part of the supplier can be checked by inspecting personally, or checking by telephone or letter, a number of his floors. Although any number could be selected, an average of five taken at random from a total list of jobs installed would probably give a representative sampling. Items to check carefully are uniformity of bond, surface finish, and the willingness of the contractor to correct unsatisfactory work.

The second aspect, the quality of the formulation itself, will be more difficult to check. The quality of the materials definitely will affect the serviceability of the finished floor. The architect, therefore, has an obligation to his client to have some knowledge of the quality of the materials used.

The two critical ingredients in this respect are the epoxy resin itself and the hardening agent. There are many products that could fit into each of these categories, and there are even more potential combinations. Affects on chemical resistance resulting from various qualities of the components have been tabulated and may be obtained from the supplier.

Specifications

How can the specifications writer make use of this basic knowledge? He cannot include precise formulations in his specifications because it will enmesh him in a subject that is normally outside his field of competence. Moreover, to make a detailed specification takes much of the responsibility of successful completion out of the hands of the subcontractor, where it rightly belongs, and transfers it to the architect. In the event the architect is dissatisfied, the subcontractor's statement that "I've done exactly what you told me to do" is difficult to contradict. To be effective, such a detailed specification requires a representative on the job who possesses sufficient detailed technical knowledge to inspect the work intelligently. The representative from the architect's office must have the authority to order the subcontractor to make changes in his work as well as to remove any work deemed unsatisfactory. Such an individual must also have sufficient standing so that his decisions will stand up in a court of law. Obviously, this is not a solution to the problem.

Therefore, the architect's most reliable guide as to the quality of a particular supplier's epoxy floor is to inspect previous installations that are in service and compare them with the architect's present design problem. Chemical resistance charts are useful as a general guide. But they should not be excessively relied on. The performance of a chemically-resistant floor will depend on the type of chemical it will be subjected to, its temperature, its concentration, the time it is in contact with the floor, the floor design (floor slope and drains), and maintenance. These factors cannot be simulated in laboratory tests.

Thus, while an architect may wish to be informed of many pertinent technical details as part of his evaluation procedure, he should name one or more suppliers who, according to his investigations, can deliver a floor that will perform satisfactorily.

Epoxy floors are not a panacea—especially when the severe service to which most floors are subjected is taken into consideration. Their prime function (except for epoxy terrazzo) is not a decorative one; they do not possess unlimited chemical resistance; and, finally, they do not take the place of good concrete surfaces where wear resistance or cleanliness are the only problems.

Epoxy frequently holds the answer to perplexing design problems, however, and in many cases at a saving in initial cost, maintenance, and repair cost.

Stand-By Power Sources

W. GOULD

al power failures in hospitals and nstitutions can result in personal property damage, and additional osts. In order to meet these criti- uations, emergency power equip- hould be available. The following ion, by a Philadelphia electrical r, describes the primary types of ncy power devices, their compon- ts, and their specific applications.

l, state, and city authorities are g increasingly aware of the perils and property when electrical fails. Many laws, ordinances, and al codes now require schools, hos- and other institutions to be equip- th automatic emergency lighting. neously, manufacturers have de- a wide variety of emergency sources to meet almost any re- ent. A typical example of a power might be caused by the failure pper bus bar (1), the main elec- conductor at the switchboard of power company. In such an in- it may be necessary to rush a substation (2) to a community re electrical power while repairs de at the power station. During eriod, some type of emergency y power is required.

ng the Best Source

lection of the best source for a installation should be governed electrical capacity of the source, ility of fuels, utility company s, building laws, local codes, floor and cost.

electing the proper system for a particular type of building, the architect or his engineer should also evaluate the location, whether it can be evacuated, time required for evacuation, and the importance of the building to the community during disasters.

Hospitals, for example, cannot carry out full-scale evacuation, and therefore must continue to function during power outages. During storms or floods in rural or suburban areas, when the injured might require hospital care, damage to utility company service lines might cause power outages of long duration. To enable hospitals in such areas to function under emergency conditions, consideration should be given to the need for continued operation of lighting; operating-room and emergency-ward facilities; sanitation equipment; refrigeration; and heating, ventilating, and air-conditioning equipment.

On the other hand, a school, auditorium, gymnasium, dormitory, theatre or night club can be evacuated readily during prolonged power outages without major inconvenience to the users or occupants.

Studies of manufacturing plants, department stores, and office buildings might indicate that evacuation for long periods would result in spoiled products, loss of business, or excessive costs in lost man-hours.

Having decided on primary considerations, the architect or engineer has a lengthening list of emergency-power equipment from which to choose. Frequently, two or more of the basic types of equipment can be combined for greater protection at comparative economy.

Battery Power

Batteries are frequently the most economical, reliable, and instantaneously responding power sources for emergency-lighting. Through recent developments, batteries have expanded far beyond previous limitations as to protection time, maintenance-free operation, and ability to operate varieties of types of equipment.

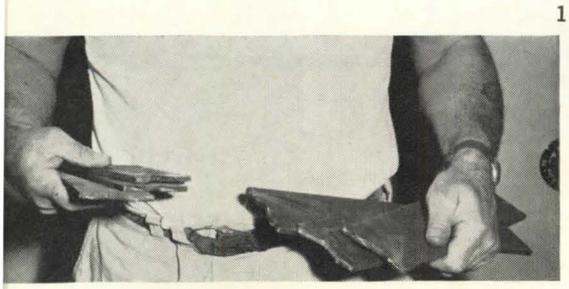
Emergency Lighting Units. Simplest sources of emergency lighting power—excepting candles, flashlights, and oil lamps—particularly for outages of relatively short duration and for ease of installation in existing buildings, are self-contained packaged units.

A typical packaged unit incorporates a 6-v storage battery or dry-cell battery, automatic transfer switch and charger in a steel case. It powers up to four sealed-beam lamps, some of which can be mounted on the case and others remotely. It also can be used to power exit lights and emergency lighting fixtures that are mounted remotely.

Emergency lighting units can be mounted on walls, pillars, brackets, or shelves. They can be plugged into a regular alternating-current outlet or connected to the AC power source by conduit.

When AC power fails, the transfer switch instantaneously switches on battery-powered lamps. After AC power is restored, the battery-powered lamps are extinguished, and the battery begins to be recharged. The battery charge is maintained continuously when the AC power is on, and thus is ready for the next blackout.

1



2

Photos: Courtesy of Exide

One advantage of packaged emergency lighting units is their extreme versatility. One unit, for example, can easily protect a small restaurant with a pair of lamps; a number of units with lamps strategically located in conference rooms, hallways, and stairwells can protect a large, evacuable office building.

Central Battery Systems. For a larger electrical load (batteries sometimes have 20 or more times as many cells as a single emergency lighting unit), for a higher voltage, for a new building where a more permanent-type of installation is desirable and possible, and for an established utility or industrial application, a central battery system might be the proper selection.

A typical central battery system includes a series of interconnected cells of long-life, stationary-type storage batteries mounted on steel racks in a ventilated room of the building (**3**) and related emergency power equipment (**4**). It is linked with an automatic transfer switching unit and automatic charger (**5**), larger, but operating similarly to the components of a packaged unit. Emergency lamps or other DC loads are wired to the battery by conductors separate from the AC system.

Besides providing emergency lighting for relatively large buildings, central battery systems frequently provide power for telephone offices, for electrical utility switchgear control, for shortwave and microwave radio systems, for laboratory equipment, for railway signaling and communications, even for control of atomic reactors.

Central battery systems are available in all conventional voltages—24 to 230v.

If protection beyond the relatively large electrical capacities of stationary batteries is needed, an engine generator can be added to charge the battery during an AC power outage.

Static Inverters. Static inverters are the latest equipment involving storage batteries as a major factor. They combine the advantages of high electrical capacity, of having virtually no moving parts to be serviced or replaced, of responding within a fraction of a second, with the ability to operate standard AC lights and equipment.

A typical static inverter consists of a silicon-controlled rectifier inverter that changes the DC power of a stationary storage battery to AC. Normal AC power feeds the battery through a rectifier-type charger.

A static converter can produce output wave shapes required by the most sensitive electronic computers and can respond within a few microseconds when interruptions or transients on the input line occur.

Again, where it is necessary to protect against relatively long outages, an engine generator can be added to maintain the charge of the stationary battery.

Engine Generators

Engine-driven generator systems, which can supply AC power requirements, frequently are more economical than storage battery systems for large-capacity loads. They also have the advantage of being able to operate continuously as long as fuel lasts.

They can respond within a few seconds, as opposed to microseconds with battery systems, with power being interrupted until the engine starts. Where interruptions cannot be tolerated, therefore, many users have both a battery system and an engine generator.

Engine generators need to be started and "exercised" regularly to make sure that they will start promptly in an emergency. Having more moving parts than battery systems, they require more maintenance.

Engine generators range in size from small auxiliary units to charge a battery system, to full-scale generating plants capable of supplying a building's entire electrical load.

Types are diesel engines, gasoline engines, propane or butane gas engines, and steam engines. They are started in emergencies by means of battery-powered electric motors or by compressed air, hydraulic or gasoline-powered devices.

Equipment associated with an engine generator system includes a circuit breaker, relays, and an automatic transfer switch. An auxiliary relay monitors the normal power supply and, when voltage drops below a fixed percentage, a contact closes to start the engine. When the generator reaches full speed and delivers full voltage, a relay is energized, and the switch transfers to the emergency service. A reverse transfer occurs after normal power is restored, which shuts off the engine automatically.

Dual Distribution

In many localities, additional protection can be provided by a dual distribution system within a building.

Dual service from a utility company provides two incoming primary power sources supplied from separate points on the utility's outside distribution system. Thus, loss of one substation would not interrupt the power supply.

A dual distribution system within a building draws its power from a single outside source, but has alternate circuits for distributing the power within the building.

The latter system is a relatively economical method of protection and is quite reliable in areas where utility company lines are energized from several points.

Many buildings, such as hospitals, combine dual service or dual distribution with an independent battery or engine generator system for maximum protection against outages.

3

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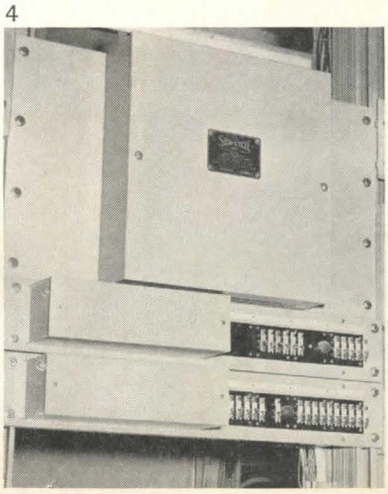


5

The 145th Building Committee Meeting *or* How One School Was Built

OBERT H. MUTRUX

g from personal experience about ustrations an architect not uncom- encounters in designing a high , the author, chastened but with his bowed, chronicles the birth pangs igh school and suggests solutions st obtaining a working relationship en architect and building commit-

ort*, Connecticut, with a popula- f approximately 9000, and founded *circa* 1820 A.D., finally boasts a full-fledged senior high school building. For more than a year, it has housed some 600 pupils—the boys in tight slacks and black loafers and the girls in monumentally-teased hair-dos—who stroll nonchalantly about its halls as though it had always been there.

Few people, least of all these students, recognize that the long, toilsome road to its realization is strewn, like the Far West in Frederick Remington's paintings, with

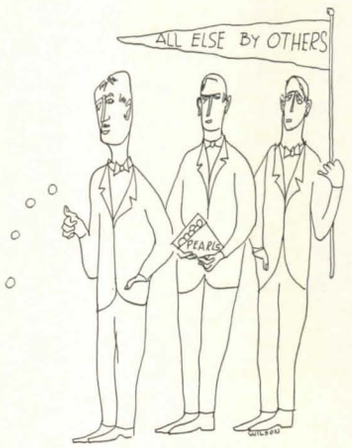
* Although this article describes an actual case history, the true name of the town has been withheld for reasons of security (the author's).

the corpses and skeletons of those who perished along the way. In fact, by last report, the known dead include four architects of different firms (permanently *persona non grata*), one nationally known educational consultant (crucified), one surveyor, and two subcontractors (bankrupt); missing are seven committee members and several well-known citizens; ruined are several nonprofes*sional* reputations; and broken are several deep friendships. These staggering casualties were spread, not over the two years that normally encompass the conception, gestation, and birth of a high school, but a full three. The logistics of this campaign include not one, but two complete sets of plans and specifications. Its progress was punctuated by some 65 addenda, 95 change orders, an unnecessary semester of double sessions, and a total tab of well over $2,000,000. Most significant of all is a statistic recorded in a recent communiqué that resembles the annual announcement of another encampment of the G.A.R. and which is the occasion for this article: the notice that the building committee has just held its 145th meeting.

What is so remarkable about this school that it required so much time, manpower, and professional ability to build it? Perhaps a studied look will reveal that the results justified the expenditure. There is nothing apparent, either on the exterior or interior, to indicate that it is not a fine school. Its standard red-brick exterior, accented with crisp, aluminum frames around its windows and doors, and its flat gray gravel surfaced roof sprinkled at random with an assortment of ventilators, stacks, and skylights are the standard earmarks of the modern high school throughout the country. Its bituminous curbs show only a few nicks, and its painted-block corridors show only faintly the mark of passing students. True, there are minor ventilating problems, and acoustic difficulties to be overcome in the Guidance Department, but on the whole it ranks well with the other new high school buildings that adorn the bedroom towns on the periphery of New York City. However, no one who has seen this school and studied its history will deny that the accumulated mountain of meetings, personalities, opinions, and paperwork has given birth to an architectural mouse.

The actual reasons why so many took so much time to accomplish so little are lost to history, but a few facts are available from dusty records, from accounts of survivors, and interviews with descendants of those closely connected with its construction. A self-styled "blue-ribbon" committee, larded with talent and heady with the exhilaration of a new civic enterprise, set out on a late autumn afternoon to visit the site. They jeeped and tramped over the 45-acre plateau overlooking the river and town and saw that it was a good location. Then they set out to select an architect. At that time, there was nothing to suggest that the committee, with the entire galaxy of the nation's best architects to choose from, could fail to make the perfect selection.

The final selection was a dual one. An architect nationally known in the educational field formed a temporary business association with an established architect from a nearby town. This *mariage de convenance* turned out to be a disastrous compromise. The head spokesman of the



Concept Men

"nationally-known firm," accompanied by a retinue of trained assistants and armed with overhead projectors and a most disarming manner, proceeded to parley an utterly prosaic parti into a veritable poem of form, function, and educational philosophy. Then, in the best carpetbagger tradition, he proceeded to take a powder.

The committee was not immediately aware of his voluntary demise, and, remembering that he had promised to design them a "pace-setter" school, paraphrased it wryly with "We pays while he sets." Finally, when patience and humor had run out, they summoned him to appear. Upon arriving, he airily explained that he was a "concept man," and that his local associate would take care of workaday details, meetings, final drawings, and the like. The real difficulty became apparent when it was discovered that his new associate, though able and experienced in every respect, had never done a low-cost school, and when they realized that it is impossible for one architect to fill another man's architectural shoes.

It was at this point that the importance of "image" became apparent to the entire group. Regardless of the fact that this term originated in advertising, it is as significant in architecture today as in every other field, and most important to a committee of laymen.

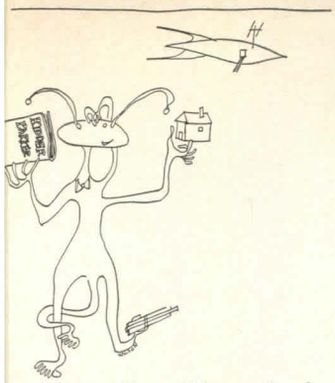
In our case, the untried association of two firms produced two images, like a photographic double exposure, with the local architect striving vainly to do an uphill job under the shadow of the super salesman who preceded him. The result was continuing dissatisfaction, ranging from exasperation to resignation, with the strong aftertaste of having been deceived through no fault of our own. It was identical to the embarrassment and disappointment of betting all on something less than a winner.

In the light of these events, it seems appropriate to offer a guiding precept to future building committees. If a new architect is to be hired, consider, if possible, the local architect, who is already a responsible and permanent member of the community, and beware of the sounding brass and tinkling cymbals of the expert from distant lands.

The second shattered image was that of the educational consultant. The committee had been ambushed regularly by several vociferous town groups which, following standard operating procedure, insisted that a study be made evaluating the advisability of "adding to the present junior high school" rather than erecting a new building. It was decided, though not unanimously, to abdicate the responsibility of making a decision and to hire

Double Image

an "expert." The expert selected, who had made previous surveys in the same town, virtually had the situation handed him on a silver platter. Yet he aroused growing resentment, partly due to a play of unsympathetic personalities, and largely because he insisted upon actually directing the design of the school and blandly attempting to influence the choice of an architect. Finally, he signed his own death warrant when, in a tone of ridicule, he remarked, "The Homemaking teachers teach the girls to make bread but who makes bread nowadays?" It happened that the wives of two com-



The Expert From Distant Lands

members were noted, among other
, for just that culinary accomplish-
However, although his activities
summarily curtailed after the pre-
ıry phase, his findings did serve to
the grumblings of the dissident
minorities.

s yields another moral. In our
ɔn, the educational consultant is
engaged by the school board, not
building committee. If at all
ɔle, the findings of educational con-
ıts should be limited to a study of
ll needs and recommendations, but
o their solution in architectural
. Above all, beware of the difficulty
rking with a consultant who claims
e same time to be an advisor on
ng methods. This is the architect's
ınd it seems unwise for a commu-
o invest twice in the same product.
e entire purport of this article is
int out that good schools can and
d be built with less waste of time,
y, and manpower than was required
r case. It is expressly written for
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on this stimulating venture, and
would prefer not to learn the hard
In our case, the committee seems
ve been appointed, either divinely
abolically, as the horrible example
l the things that should never
n. Looking backward, our laborious
ess can be traced to two major
s. The first is the matter of luck,
ı, in our case, was all bad. It was
nough to have the first set of bids
in 40 per cent (yes, 40 per cent!)
the stipulated budget. Through one
able stroke of fortune, a recent New
ınd AIA ruling saved the commit-
ıe cost of the massive revisions that
ved, but nothing could offset the
ng delay in all areas and the in-
ɔle additional double sessions. Char-
istic of the problems that plagued
ɔrogress was an error of 20 feet in
perty survey. This passed unnoticed,
several townspeople reported that
ozers were gnawing away at the natural stone landmark that was to have been the focal point of the entire plan. And if there is one reader who can pinpoint the blame in this case, let him please speak up. The surveyor was hired by the committee; the road was laid out by the architect, who neglected to check its relation to exact field conditions. Whose was the ultimate responsibility, and who should have been charged for the necessary corrections in drawings? Moral: have an attorney on the committee, preferably one who has served on previous school building committees.

The major cause of our difficulties, however, lay in our gross inexperience. I know whereof I speak because, although I was myself an early casualty, the most glaring example of lack of experience was my own. Not as an architect, for I have been associated for many years with a firm that has built educational buildings at all levels, and, as far as committees are concerned, we have been confronted with some veritable "lulus." Nor am I completely ignorant of the inner workings of a school, since, during the Depression, I worked for four years as an instructor in a secondary school and found it enlightening and rewarding. But to be effective on a committee, one must be versed in the workings of committees as such, before all other considerations. My first blow came when I found that my supposed superior knowledge and boundless, if misdirected, enthusiasm must bow low before Robert's Rules of Order. And the *coup de grace* was dealt me by the devastating realization that my entire contribution, such as it was, could be cancelled out by the beaming account executive on my right.

All this may explain why I cannot resist, as a voice from the grave, to deal a blow to procedure-by-committee. Not committees as such, since this is inherent in the structure of our society. Nor committees of experienced educators and administrators, who are waging a heroic fight to make education available, in the American tradition, to everyone. Nor committees of school designers and builders, who have their professional ethics and ideals to maintain, along with their standing in the community.

My quarrel is with the committee of uninformed laymen. I know of no other country in which the construction of public buildings of any kind rests in the hands of those who place faith, hope, energy, and political acumen before knowledge and experience. Strangely enough, this phenomenon is peculiar only to the public primary and secondary school, with the rare exception of churches. All the devoted but exhausted individuals who proudly sit on the platform on dedication day work in banks, offices, and plants that were designed entirely by specialists. The plans and design decisions for all of our major buildings are, as a rule, directed without benefit of a single layman, with the possible exception of the chairman of the board (or his daughter). But in the case of school building committees, I have suffered, time after time, the agonizing experience of seeing not only the gifted architect but the dedicated school superintendent overruled by a well-intentioned but completely misinformed numerical plurality. Fortunately, the committee of laymen seems to be disappearing and is being supplanted by two superior groups.

We have dealt with the autonomous school board itself, which directs the entire school system—from the hiring of teachers to the establishment of the curriculum and the design of the plant to house them. It is difficult, in our opinion, to improve on this approach. Here, each person on the committee is not only selected for his particular ability, but gains experience through a period of tenure that spans several building projects. A second approach, which is being adopted more and more, is the system of the permanent committee. I am happy to say that the town in question has at last adopted this approach and has gotten off to a flying start with a full slate of members who have previously served (and survived).

In conclusion, it may be said that the end result justifies whatever means are used to achieve it. Whelport now has a fine school; its standards are high, its students are happy, its faculty well paid. What is the significance of all the gruesome details of its origin? In general, we see the result, and we are, on the whole, more than satisfied. Who knows all the factors that entered into the design and construction of the great cathedrals? Who cares, except in an academic sense, about the cruelty and ignorance of the autocratic age in which they were built, or the details, delays, or difficulties of their construction? We are all aware that the camel was developed by a committee that set out to design a greyhound, but who, indeed, can say for certain that, had a committee of laymen attended its design, the cathedral might not have been even more beautiful and inspiring?

Perhaps, after all, it is not so bad this way. For it is undoubtedly true of Whelport High School—whether because of the way in which it was built or in spite of it—that "It is there." And to no one's surprise, we—pardon me, they—are already planning the next one.

Exotic Coatings

BY HAROLD J. ROSEN

Selecting and specifying new synthetic architectural coatings is discussed by the Chief Specifications Writer of Kelly & Gruzen, Architects-Engineers.

Recently, the Engineering Institutes of the University of Wisconsin conducted a two-day seminar on the subject of exotic architectural coatings, the new synthetic products of chemistry developed by the paint industry. The purpose of the meeting was to bring together architects, specifications writers, painting contractors, and the manufacturers of these new basic coating products so that they would have an opportunity to understand each other's problems created by this new Pandora's Box of chemical trick or treat.

The coatings that comprise these exotic finishes are acrylics, epoxies, polyesters, urethanes, and vinyls. However, this enumeration of basic chemical systems is only the beginning. By varying the formulations, solvents, plasticizers, pigments, curing agents, etc., the number of possible end products is legion and likewise their properties.

The problem confronting architects and specifiers when selecting and specifying these materials lies in their limited knowledge of chemistry. In addition, the number of products that manufacturers produce, their conflicting claims, the lack of standard specifications, and the absence of time-tested-use experience further complicate the specifier's problems.

There is no question that these new coatings have some properties that are superior to conventional paint and varnish systems. Urethanes are especially suitable for gymnasiums, ballrooms, bowling alleys, and most wood flooring in industrial installations, because of their inherent abrasion resistance, which considerably reduces maintenance of these floors. Similarly, in areas subjected to abrasion and hard usage, such as school and hospital corridors, decorative paints can be replaced by polyester and epoxy coatings, which exhibit marked improvement in these properties. When resistance to chemical fumes or corrosive chemical attack is required, epoxies, polyesters, and vinyls offer varying degrees of resistance that impart increased ultimate film life when compared to conventional coatings.

In the absence of standard specifications, the specifier is at a loss to write a specification that would permit competition. Furthermore, the absence of standard specifications complicates the specifier's selection, since the physical and chemical properties of the varying coating systems are reported by the competing manufacturers on differing bases. For example, hardness properties are listed by some manufacturers on the bases of Rockwell number, Barcol hardness, Sward hardness, pencil hardness, ad infinitum, so that the specifier has no way of comparing these test results. Abrasion resistance is similarly listed in terms of a Taber abrasive test, scraping with the edge of a coin, or employing a mechanical rubbing test devised by a manufacturer that is completely unrelated to standard methods.

Since the industry has not yet standardized test procedures, the manufacturer tests his own material and reports these results in his literature on the basis of tests he devises himself. Usually, the tests the manufacturer conducts and the physical data he makes available are those that will reflect certain favorable attributes. However, he plays down or does not list other physical data that may be important to the architect and specifier. When the specifier attempts to compare the products of two competitors, to determine whether they may be rated equal or whether one is superior to the other, he is hampered by the fact that the materials are neither tested nor reported on the same basis and evaluation is simply impossible.

In "Product Data Sheet Proposed," (NOVEMBER 1962 P/A), this column suggested a system of reporting information when a standard specification is not available. Under this system, certain pertinent physical and chemical test requirements referenced to standard test procedures would be established. Each manufacturer would then fill in the required information for his product on this data sheet. This would permit architects and specifiers to compare and evaluate materials more intelligently. An exotic coating could be selected by the specifier on the basis of the physical properties that are most pertinent to a specific project. For example, if a coating is required that can withstand the corrosive atmosphere encountered in a laboratory, and abrasion resistance or hardness is not a factor, then those attributes would determine his selection. If the coating were destined to be applied to a school or hospital corridor subject to abrasion and abuse, then those materials having these outstanding attributes could be selected.

Manufacturers would not have to compete in every category of physical requirements. Many coatings can be selected for certain minimum properties. Thus economies can be effected in the over-all construction budget through selective choice of the physical characteristics of the coating.

Until that day arrives, specifiers should be cautious in their selection of the appropriate coating. Once they have made a choice, the specification should be carefully written around the material selected, even to the point of excluding all others. In addition, the material should not be included under the regular painting trade section. It should be specified under a separate trade section making special provision that licensed or franchised applicators of the material be utilized in the application of the coating system. The specification should also include the requirement that the preparation of the substrate, the method of application, the weather conditions, and the number of hours between coats be in accordance with the printed instructions of the manufacturer of the material.

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Environmental Research

BY WILLIAM J. McGUINNESS

Environmental research programs directed toward the improvement of human comfort and health are discussed by a practicing mechanical engineer.

The new building at Kansas State University that houses the Institute for Environmental Research and the KSU–ASHRAE Environmental Laboratory was dedicated in November 1963 and is now in active operation.

Prominence in this field of research has long been associated with KSU. Dr. Ralph G. Nevins, Director of the Institute and Head of the Department of Mechanical Engineering at the university, began intensive studies of human comfort more than 15 years ago. Starting then with roots established by his predecessors in 1930, he has broadened the scope of the work and the efficiency of his staff to the point that his laboratory has become nationally important.

The new Institute has the support of the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), and the National Institute of Health. It is hoped that the Institute's efforts will not be confined to human comfort, but will extend also to human health and to the areas of veterinary medicine, engineering, architecture, psychology, and physiology.

Providing a strong impetus to the present enlarged facilities was the decision of ASHRAE in 1961 to deploy its research to universities. The society has been the outstanding source of information on human comfort and climate control since the inception of its own laboratory in 1917. Recently, however, it has been felt that even higher level personnel could be attracted if the jobs offered them were to combine *both* teaching and research. Even more important, however, was the conviction that significant research findings could immediately be made known by scientist to student in his capacity as teacher. Graduate study in environmental engineering is also contemplated.

The foregoing decisions, and the established excellence of the earlier work at KSU, prompted ASHRAE to donate its facilities at Cleveland to the new Institute. This gift, together with a substantial grant for research during the current year, is a strong endorsement for the Institute's program.

The test room is a 12′ x 24′ chamber with a ceiling adjustable from 8′ to 12′ in height. Through the use of copper tubing carrying hot or chilled water, the interior surface temperatures can be varied from 20 to 150 F. Division of these surfaces into small panels makes it possible to simulate glass at any location. The chill of cold glass and the thermal contribution of sun-flooded glass are important architectural considerations, which will be studied for their effect on comfort and architectural design.

The usual controls of air temperature, relative humidity, and air flow can all be applied in the test room. Using students as subjects, experiments are now being conducted to evaluate human comfort; tests on older people are also planned. Dr. Nevins will have the assistance and guidance of an advisory panel whose members will be drawn from ASHRAE and the university.

Lest it be thought that further advanced research in this area is not essential, it should be pointed out that some data in current use by engineers have not been reviewed since the 1930's. The presence on the staff of Dr. Frederick H. Rohles, Jr., who has many years experience in aeromedical research at U.S. Air Force bases, suggests that conditions during flight and space travel will be investigated. At the university, Dr. Rohles will hold concurrent appointments in the departments of Psychology and Mechanical Engineering.

This leads into another of the many phases of the proposed work. The grant of the Kansas Legislature for the construction of the building was matched by an equal amount from the Health Research Facilities Branch of the National Institute of Health. Biomedical investigations of human and animal physiology are planned in another of the test areas now being developed. Advances are expected in applying engineering techniques to medical operative and treatment processes. Research will be conducted in the use of artificial hearts and kidneys. The hydrodynamics of blood flow in thin rectangular sheets, measurements of biological heat transfer, and the assimilation of data on metabolism are other items scheduled for study.

Other commissions are keeping the Institute active. There is an air-pollution laboratory that promises to be of increasing importance, given the fast growth of industry and the population concentration in cities. It will be used in a joint study with the Department of Family Economics of the College of Home Economics. Fine particles, grease, and other undesirable material are being studied for the improvement of air-conditioning filters and range hoods.

Interesting to architects is the problem that faced Assistant Professor Henry Neely. He was charged with the responsibility of getting the laboratory building equipped and incorporating in it the test room, which was moved from Cleveland. No blueprints were used. Instead, Neely worked from a previously prepared model, scaled at 1 in. equals 1 ft. He found that this was adequate and gave a much better visual impression of the volumes to be coordinated in setting up this multi-element complex.

Dr. Nevins anticipates important contributions to health and comfort. He looks forward to the development of revolutionary instrumentation and equipment that will aid the local control of comfort under rapidly changing conditions of weather and occupancy.

The location of the new Research Institute Building in this educational center of a great university appears to be an ideal arrangement. Its proximity to engineering, architecture, psychology, veterinary medicine, and graduate study should prove to be a great asset.

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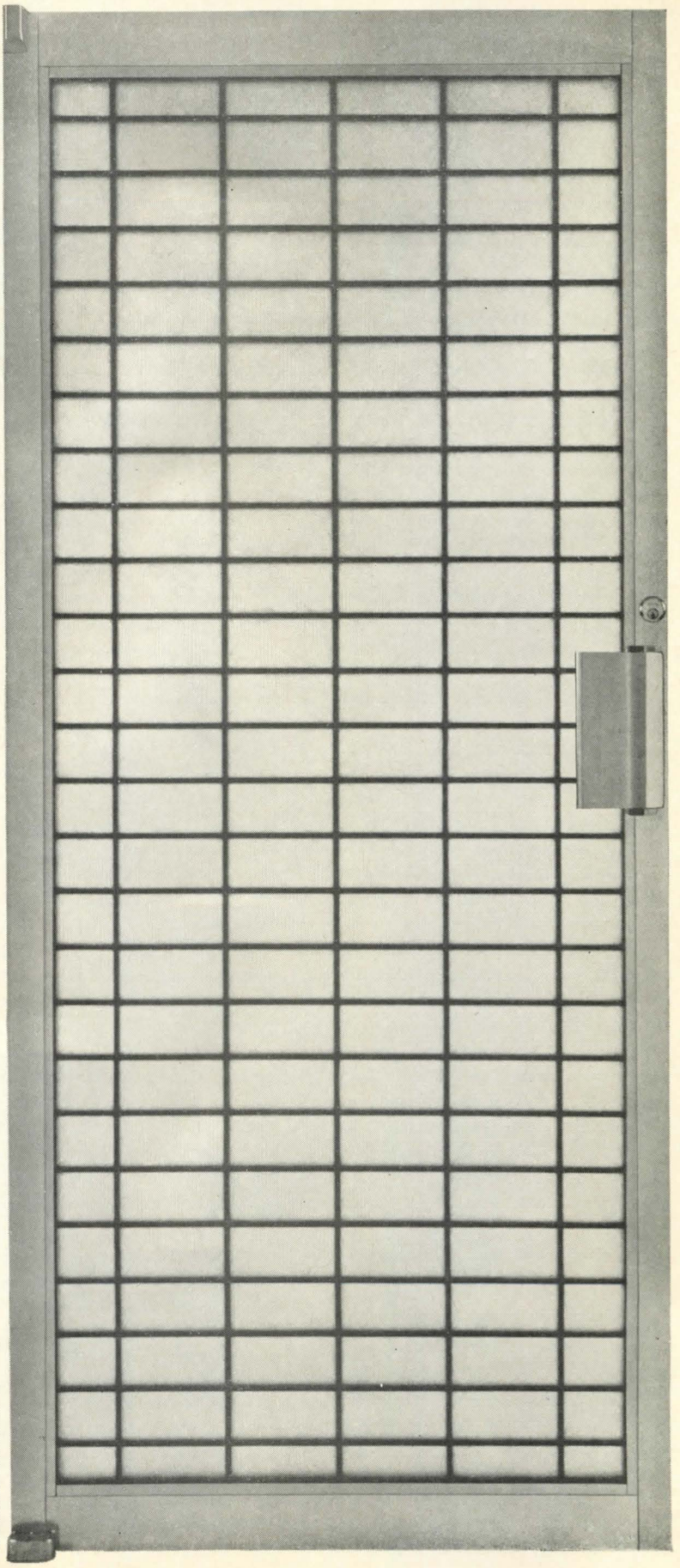

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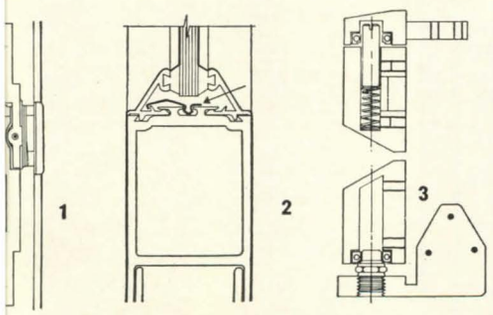

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Inducing a Breach of Contract: Part 1

BY JUDGE BERNARD TOMSON AND NORMAN COPLAN

In the first of two articles, Nassau County District Judge and a New York attorney discuss the legal and ethical aspects of what constitutes a breach of contract.

Architects are often puzzled by the legal and ethical considerations with which they must be concerned when approached by a prospective client in connection with a project in which some other architect is or has been involved. On occasion, AIA chapters that wish to take a public position or make a critique or recommendation concerning the letting of past or prospective public contracts, are unsure what action is permissible under the prevailing law or under the Standards of Professional Practice promulgated by the Institute. Much of this uncertainty stems from a lack of knowledge concerning the principles of law that apply, and from the lack of specificity in the formulation of ethical standards relating to this issue.

We will first consider some of the principles of law relevant to this subject. Where a third party has induced a breach of contract resulting in damages to a party to that contract, the law holds that third party responsible for the aggrieved party's damages, on the hypothesis that the performance of the contract and the benefits resulting therefrom to the innocent party are property rights which are entitled to protection. The inducement of a breach of contract is a wrong or tort, and the legal doctrine that the wrongdoer is liable for damages in this situation is imbedded in our law dating back to the common law of England.

An individual cannot be charged with wrongfully inducing a breach of a contract unless he had knowledge of the contract's existence. If a person acts in good faith and in his own legitimate interests, without knowledge that a contract exists, he is not chargeable at law for his actions, which, in fact, resulted in a breach of contract on the part of some other person.

An essential element of an action for damages based upon an inducement to breach a contract is "malice." The malice here referred to, however, is not actual spite or ill-will, but merely a purposeful act without legal "justification" or "excuse." Acts that were not intentionally directed to occasion a breach of contract would not, therefore, afford a basis for a legal suit for damages.

There must be a causal relationship between the efforts of the person charged with inducing a breach of contract and the actual fact of the breach in order to establish a basis for a suit for damages based upon interference with the contract. If, for example, it was found that the breach of a contract did not result from the persuasion of the party charged, but rather from the independent act of the party breaching the contract, there would be no liability as against the party who attempted to bring about the breach of contract.

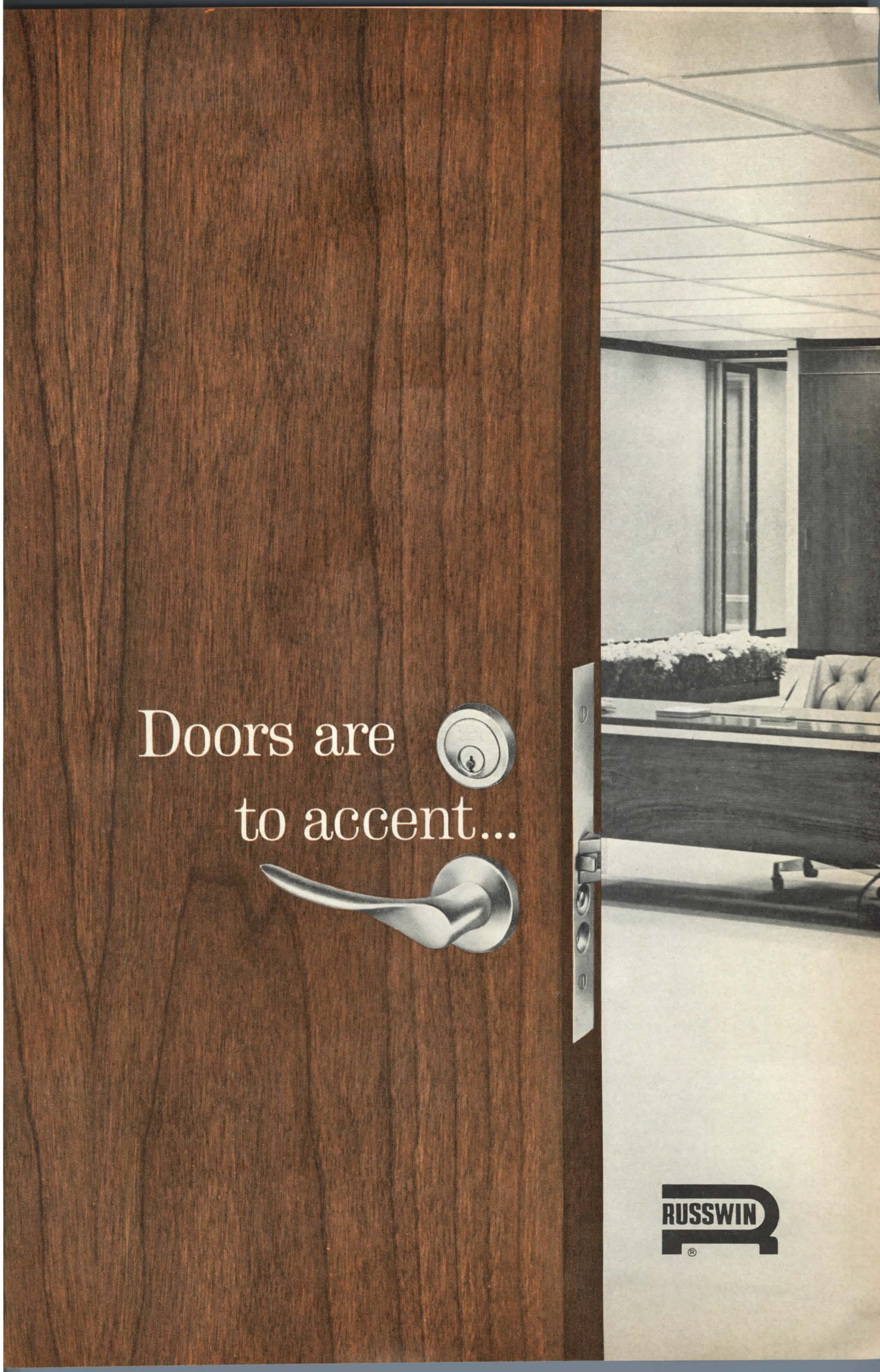
In most instances, if the inducement to breach a contract arises from persuasion, as distinguished from intimidation, it is nevertheless actionable and the persuader is liable for damages. In every state, a person who has procured a breach of contract through unlawful means, such as fraud, intimidation, violence, and slander, will be held liable for the breach.

Many of the legal decisions on this subject state that inherent in the rule establishing liability for inducing breach of contract is the requirement that the act of the party procuring the breach was without "justification." In this context, however, "justification" is a very limited concept. It is clear that the act of a person inducing a breach of contract, if only to further his own interests, would not constitute such justification, and will not be condoned as an aspect of legitimate competition.

In some instances, however, the public interest may be such that the courts will find "justification" for interference by one party with someone else's contract. For example, the confidential nature of the relationship between attorney and client, and the function of the attorney to advise his client, would exclude the right of a party to a contract to institute suit against the attorney arising from a breach of contract on the part of the attorney's client that may have resulted from the attorney's advice. Similarly, recommendations of an architect to his client, vis-a-vis a contractor, which resulted in a breach of the construction contract on the part of the client, would probably not be actionable as against the architect.

It is also a general rule that if a person "maliciously" induces another person not to enter into a contract with a third person, he is liable for any damages sustained by that third person. It must be proved in such a situation that, in fact, the contract would have been entered into in the absence of interference. Here, however, the social desirability of free competition in our economic system provides a much broader definition for "justification." Thus, in general, actions taken in the exercise of free competition, which result in one person failing to make a contract with another person, are not actionable unless some improper or unlawful methods are used.

It would seem clear that if an architect induces a prospective client to breach an existing contract for the purpose of securing the commission for himself, he would be guilty of a tort. However, the legal principles applicable to an individual architect are not as easily defined in relationship to the activities of professional societies. In next month's column, we will discuss the permissible area of action by professional societies as it might affect individual contracts and the application of the Standards of Professional Practice of the AIA to this subject and to the activities of individual architects.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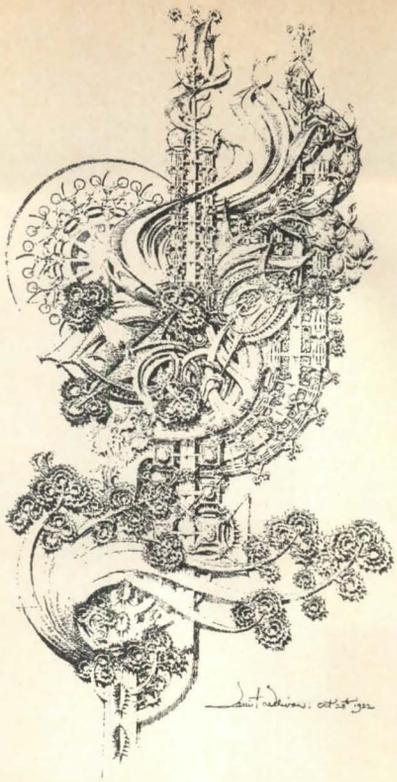


The Message of Creative Abundance

BY MAURICE ENGLISH

A System of Architectural Ornament: According with a Philosophy of Man's Powers *by Louis H. Sullivan. Facsimile edition of the first edition published by the Press of the American Institute of Architects, New York, 1924. The Prairie School Press. W. R. Hasbrouck, 117 Fir St., Park Forest, Ill. (1963, 12 pp. plus 20 plates, $15.00). Maurice English, managing editor of the University of Chicago Press, has recently compiled* The Testament of Stone, *a collection of Sullivan's writings on themes of "idealism and indignation."*

Shortly before this volume came into my hands, I picked up a copy of a contemporary magazine and found a review that began with these words: " 'Form follows function' is no longer a satisfactory slogan for most architects today. The need for emotional expression of form once again is nourished among the young architects . . ."

It would be hard to find a better illustration for the appropriate republication at this time of *A System of Architectural Ornament.* The author of the sentence I have quoted clearly did not know the crucial sense in which "form follows function" was meant by Sullivan, the originator and life-long elucidator of the phrase—above all, that the ultimate function a building should express in its form must be some emotional function. Sullivan stated this explicitly in his most masterly piece of writing, "The Tall Office Building Artistically Considered"; but it is also one of several messages to be found in *A System of Architectural Ornament.*

As even cursory students of his career know, Sullivan spent many years at war with the official organizations of American architecture. It is not as well remembered that some of those organizations tried to make amends, in his last years, for the neglect in which he had languished; and they did so before all his creative powers were extinguished. One of these organizations was the American Institute of Architects: we owe a permanent debt to its leadership, for having, in the last two years of Sullivan's life, roused him to produce—the last leapings of the flame—two important final testaments to the profession of architecture and to the American people. The first of these was *The Autobiography of an Idea;* the second was the present volume. From the date of its publication in 1924, the year of Sullivan's death, *The Autobiography* has been kept in print; but the *System,* published in the same year and essentially the more important work (for Sullivan was an architect and an artist before anything else, and his thinking about art is more valuable than his thinking on other subjects) has been out of print since the first edition of 1000 copies was exhausted.

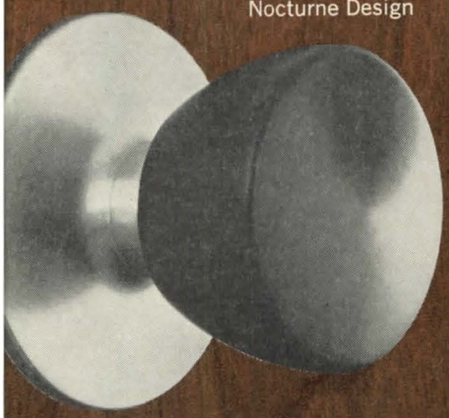
We are now again in debt to the AIA, and this time also to the Prairie School Press of Park Forest, Illinois, which in 1961 obtained the Institute's permission to issue a facsimile edition of the original printing. The 250 copies of the fascimile edition reproduced the original with such scrupulous care that the new publisher's own colophon was not to be found on any page.

The reissue was a quick success; so much so that the Prairie School Press was encouraged to print another run of its facsimile edition, using, as in its first printing, the original plates. The copyright page carries the minimum data that bibliographical decorum requires, and lets us identify the publishing house we have to thank, along with the AIA, for again making available this display of Sullivan's genius in some of its original aspects.

Even in its external appearance, this is a notable book. Its green cloth cover, with the title in gold, is 12½ in. wide by 18 in. high. Inside, we find brief passages of text, preceding and interrupting a series of 20 plates. On these, with the loving attention to detail which characterizes genius, Sullivan attempted to leave a record of the process by which he elaborated his ornamentation. The reproduction of his drawings is excellent and one sees immediately that this is a book precious not only to architects but to anyone interested in fine art, and its genesis.

Continued on page 200

Nocturne Design



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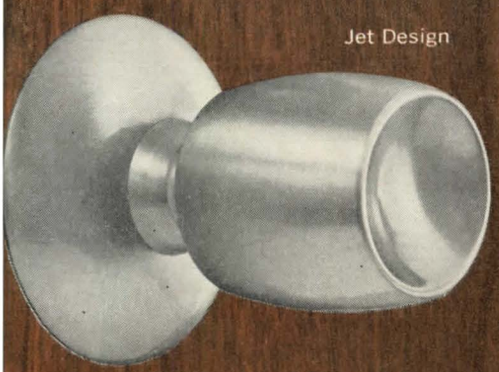

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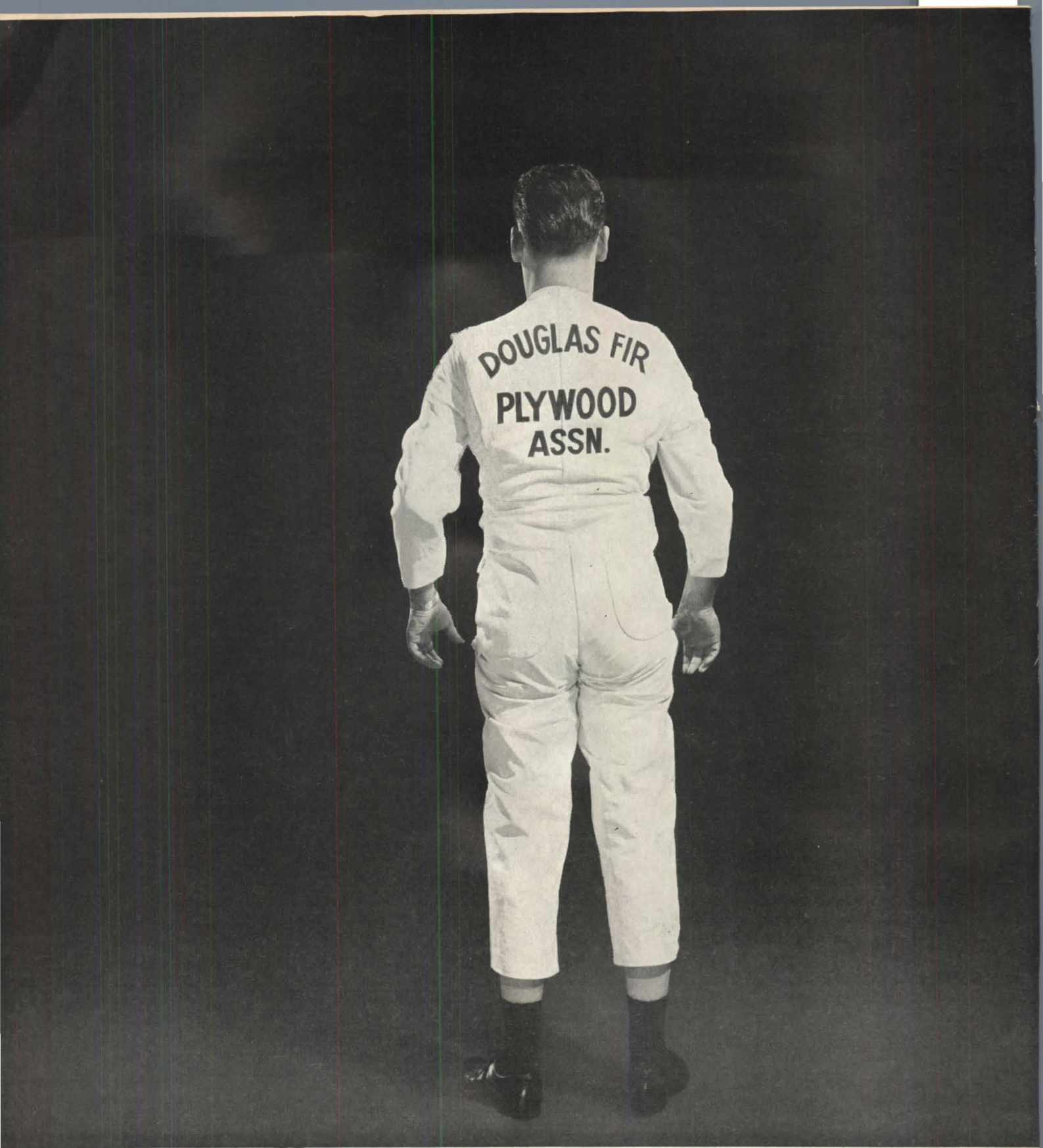
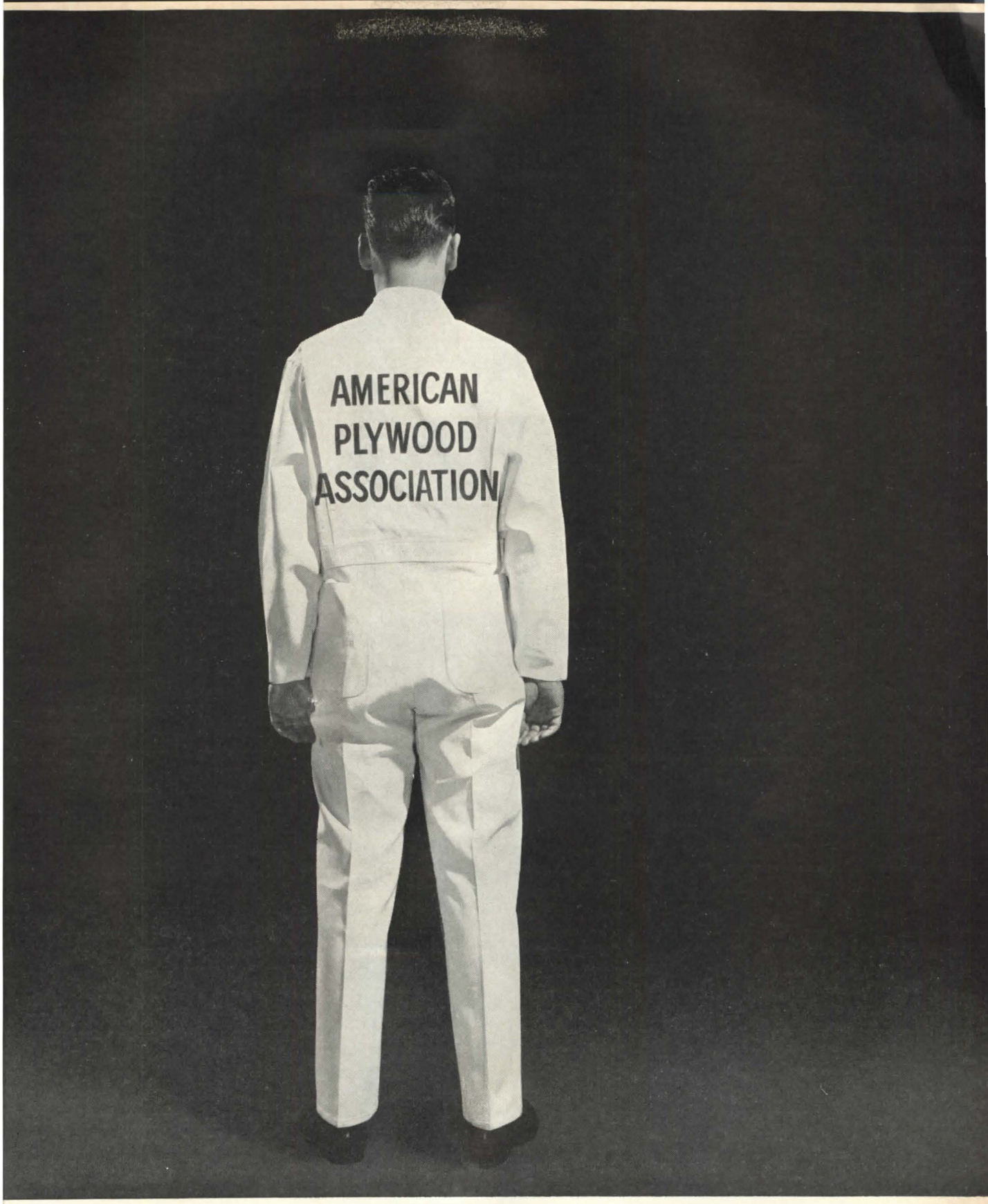


Douglas Fir Plywood Association has outgrown its name



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ENVIRONMENTAL CONTROL IN HOSPITALS

Designing to meet a medical facility's special conditions of temperature, humidity, air cleanliness and circulation

The environmental requirements of today's hospital increase the demand for total air conditioning. Thirty years ago, air conditioning a hospital was big news. In fact, air conditioning *anything* was new and exciting; the concept of a controlled indoor environment had just dawned.

Many basic ideas now common in air conditioning practice were born in that period. Force-fed by the pressure of great building programs, they matured and were refined into highly efficient systems. But they had their limitations.

The vast volume of air used to heat and cool a large building required extensive mechanical equipment and ductwork. Wet refrigerating coils had a bad habit of accumulating and propagating airborne contaminants. These deposits tended to develop into colonies of bacteria and other micro-organisms which passed into the air stream during the system's operation.

Great strides were made by filter designers to reduce this hazard. But one weakness of the filter remains: it has to be serviced regularly and faithfully by human beings — and is subject to consequences of their vagaries.

Need for a New Approach

The basic ideas of the 1930's were great in their day, but we are now in the mid-1960's. The need now is for an up-dated approach to hospital comfort control — one that takes into account the special conditions of the hospital.

Designing an air-conditioning system to satisfy these particular requirements differs from designing for other building types. Problems indigenous to hospitals are:

(1) The need for 100% exchange of air.
(2) Complete control of airborne contamination.
(3) Temperature, humidity, and air movement favorable to a patient's health and comfort.
(4) Cleanliness and ease of maintenance.
(5) Economy—both in first cost and in operation.

There is a new awareness of air conditioning as a contributing factor in sanitation, as well as comfort. Obviously, it is inconsistent to spend time and money to create aseptic conditions in surgery and other critical departments by sterilization methods and then permit contaminating influences to exist in the air conditioning system.

Growth of New Technics

Technological advances over the past decade have placed at the disposal of the hospital architect new equipment, methods and procedures that are capable of improving environmental conditions in medical facilities — at the same time, contributing to economy of installation and operation.

One of the newest developments is the Inland Radiant Comfort System. Here is a completely new concept in total air conditioning specifically designed for the needs of the hospital.

This system combines three widely accepted, proven components into one engineered design: (1) a radiant-acoustic ceiling, (2) a chemical air conditioner, and (3) a cellular steel floor. Because of the integrated design, each component assists in the functioning of the others.

100% Exchange of Air

The arguments for and against using only *outside* air as an air-conditioning source, instead of recirculating *inside* air, are academic. If it weren't for its record of excessive costs (*until now*), everyone would prefer to start with outside air, condition it, feed it into the patient's room, then exhaust it. Outdoor air, by action of the sun and massive dilution, usually is less contaminated than recirculated air, both given the same degree of filtration.

Recirculating inside hospital air is a touchy procedure completely dependent upon filter efficiencies which can be variable, due to maintenance problems. Equally or more hazardous is to attempt flushing air completely in some parts of the hospital and not in others, depending upon balanced pressures to prevent cross-contamination.

No one prefers these compromise measures. They were forced upon hospital designers by the high cost of conditioning the large volumes of air required by conventional, all-air systems. To add the cost of conditioning outside air was to prohibit it.

This is no longer so, with the Inland Radiant Comfort System for hospitals. By efficiently handling only a small amount of air, the IRC System introduces 100 per cent outside air throughout the hospital and does it at no extra cost.

This contrasts with conventional air conditioning systems which generally are based on the principle of using large quantities of air, most of it recirculated. Decontaminating air in large quantities not only is impractical, but the fan horsepower to move such air adds to the expense of operation.

With Inland's modern system, it is practical to exhaust all air without recirculation. The air can be decontaminated very effectively, because of the small amount used.

ıt Panel Ceiling System

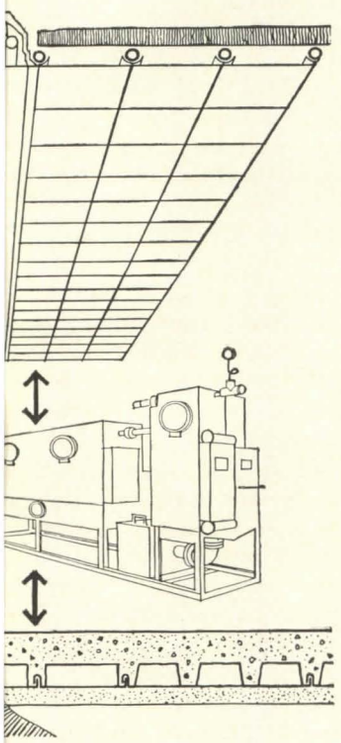
erent advantages of radiant- ceiling panels help to make this nd technology a sound approach al air conditioning.

name implies, the radiant-acous- g heats and cools by the prin- radiant heat transfer and, at the ne, provides acoustical control om space.

tical treatment is simple. Per- in the aluminum panels, with r insulation above, give this ceil- m an excellent acoustical rating reduction coefficients as high as nds disturbing to a restful at- e, e.g., the extra noise level dur- ng hours, are dampened.

adiant-acoustic ceiling acts as a vall-to-wall heat exchanger — when the thermostat calls for d cooling when circumstances The ceiling heats in the same as the sun. Low-frequency f heat energy travel in straight n the ceiling to every part of the thing all surfaces in warmth.

teady, gentle comfort is patient-



ıd Radiant Comfort System is made ee basic components, carefully en- to work together more efficiently one of them could work alone. The nts are not new to architects and al engineers. They are: (1) a radi- stic ceiling, (2) a chemical air con- (3) a cellular steel floor (optional al construction).

e of these components have long of successful performance as indi- oducts. It is the way in which they together — in integrated design — unts for the efficiency of the IRC The radiant ceiling handles virtual- ntire heating and cooling loads in ital. The chemical air conditioner humidity and purifies the air. Re- r volume makes it possible to use lar steel flooring for air distribu- minating tons of ductwork.

oriented. Physiologists have determined that more than one-half of our body heat is lost by radiation. Therefore, the most practical method of maintaining comfort is to control the rate of heat gain or loss by radiant means.

Here's where radiant heating is ideally suited to the needs of a hospital patient. It bathes his body in continual warmth, free of drafts. Even without a blanket, the rate of his body heat loss is kept at a uniform rate throughout the day and night. Because radiant heating is not dependent upon moving air to raise room temperature, there are no hot blasts from registers, no strong convection currents.

Radiant cooling obeys the same physical law of radiant energy transfer as radiant heating, but in reverse. Now, the ceiling is made cool and it absorbs heat from all surfaces in a room, including a patient's body. The human body loses heat most comfortably through radiation, without chilling drafts.

Only ventilation is required of the air system. Ventilating air is supplied at low velocity and held to desirable humidity levels.

Chemical Air Conditioning

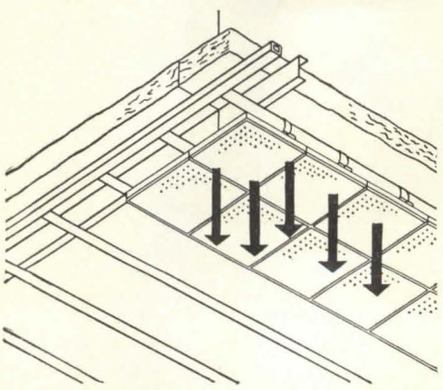
Chemical air conditioners have long been recognized as superior devices for controlling humidity and air purity in operating rooms, recovery rooms, and other critical hospital areas. In the integrated design of the Inland Radiant Comfort System, a Kathabar® Chemical Air Conditioner* treats the hospital's entire ventilation-air system.

Air is conditioned by a spray of lithium chloride. This traps up to 97 per cent of all airborne impurities.

Conventional air conditioners use refrigeration coils to cool and dehumidify the air. For many years, these wet coils have been recognized as breeding places for colonies of bacteria and micro-organisms.

Trouble arises when matter from these colonies blows off into the hospital's air stream. Elaborate filter systems have been designed to remove this contamination from the air, but their complete effectiveness frequently has been questioned. Hospital administrators, bacteriologists, and others have been shocked at the contaminating effect of conventional air conditioning systems.

*Surface Combustion Division, Midland-Ross Corp.



The radiant-acoustic ceiling acts as a single, wall-to-wall heat exchanger. Heating and cooling are accomplished by means of aluminum panels attached to grids of water pipes hung in the manner of a conventional suspended ceiling. Hot or cold water is circulated through these pipes to heat or cool the panels. Heat loss and noise are reduced by an acousti-thermal blanket.

Substantial Construction Savings Possible

Where hospital plans include a steel frame, significant savings in construction costs accrue from the IRC System's third basic component, a cellular steel floor.

Ventilating air is carried through cells in Inland Celluflor, eliminating tons of expensive ductwork. This not only saves money on materials and labor, it reduces the space required between floors. This can drop the total height of a multi-story building by as much as 5 per cent, without sacrificing a cubic inch of interior space. Obviously, there are consequent cost savings all down the line — including savings on the foundation, since building weight shrinks with the height.

There are other advantages to consider here, during the planning stage of a new hospital: The greater erection speed of steel-frame construction. The flexibility of electrification made possible only by a Celluflor steel floor.

Breakthrough in Hospital Comfort Control

Of great importance to the hospital architect, the Inland Radiant Comfort System delivers all of its advantages well within the budget for an ordinary hospital air conditioning system. Key to its economy is its concept of three basic components working together. By balancing the high performance of these components through careful engineering, the IRC System saves on both first cost and operating costs.

Further information is available in a new brochure, "Breakthrough in Hospital Comfort Control." Write for your copy today. Address Inland Steel Products Company, Engineered Products Division, 4069 West Burnham Street, Milwaukee, Wisconsin 53201.

Continued from page 194

The *System* begins with an introduction, which its musical-minded author characteristically called a "Prelude." This outlines the "philosophy of man's powers," which is essentially a statement of the beliefs to which Sullivan related his art, his faith in democracy, and his vision of a utopian future for the human race. It is followed by his drawings, one or many to each plate; these (with a one-page prose passage on his doctrine of "parallelism") show the working out of simple geometric forms, following inspirations drawn from his readings in botany ("Remember the seed-germ"), into the amazing elaboration of decorative elements, at once rigorously controlled and spiritually, sensuously rich, with which we are familiar on the façades of the Gage and Condict buildings, and the Carson, Pirie, Scott department store. No one, not even the Arabs or the Hindus, ever made geometry more voluptuous or more dramatic than did Sullivan, working by himself; and step by step this book shows how, as much as it can be shown. For that alone, the new edition would be precious: it is a fragment retrieved from a great past, as remote as it is recent—that fleeting period of 10 or 15 years before the turn of the century, when it was easy to believe in the organic relationship between American life and American art. This is a belief no one holds today with the fervor Sullivan felt, but also a belief he will not let us quite forget.

For this reason, it is pleasant to hope that the *System* may indeed have been reissued at a propitious moment in the development of architecture, which, as all agree, is now so close to being shredded by economics and technology into fragments assignable to promoters, contractors, engineers, city and regional planners, etc., etc.—all of them men with appropriate roles to play, none of them with the mission of making buildings fit for joyful habitation. "Joyful" because a glance at any page of this book can remind us of two gifts we are always prepared to get from Sullivan—individuality and beauty—and a third we are less likely to have in mind: joy. The *System* thereby becomes another implicit critique of all current building in which the concept "form follows function" has been interpreted in a meager, mechanical sense.

Looking afresh at Sullivan's designs, it becomes easier—and more painful—to see how the *meaning* of contemporary building has routinely been stripped away in the ongoing homogenization of all values, until—for example—the form, steel, now too often expresses simply the function, steel; the form, glass, now expresses simply the function, glass: indifferently, with no articulation, in structures that may be labeled banks, churches, schools, office buildings, apartment houses, factories, and so on; but which, with a minimum of internal remodeling and no external alteration beyond a change of signs, could often be adopted for any number of other purposes. Our antiseptic tubes and cubes, designed often by architects who do not care to live in them, are products of our economic and demographic problems, rather than solutions of them. Socially, they are works of curettage rather than of creation. Every plate of drawings in the *System* is a manifesto against the defeatism they represent; and, in another context, Sullivan has told us why that manifesto is worth heeding: "To disdain our fertile childhood is precisely equivalent to disdain of our maturity."

Continued on page 212

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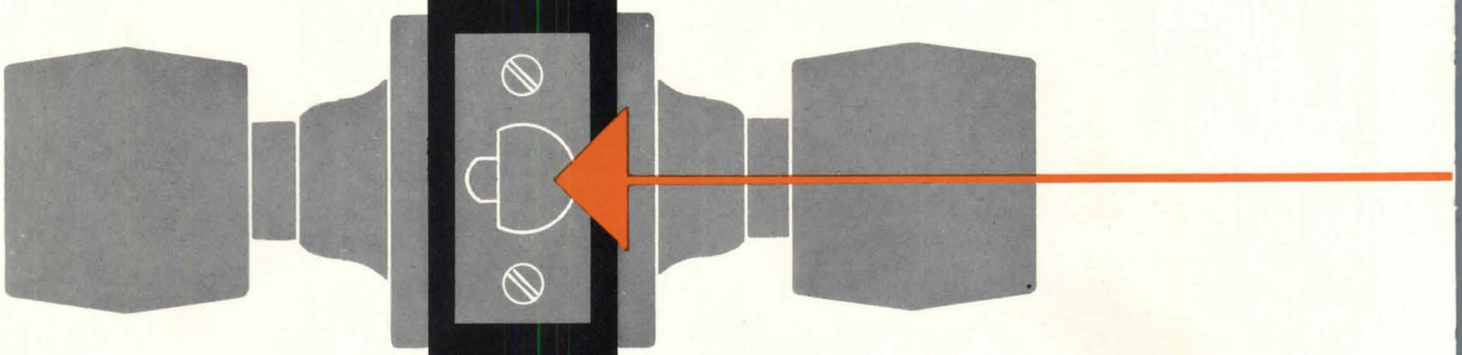

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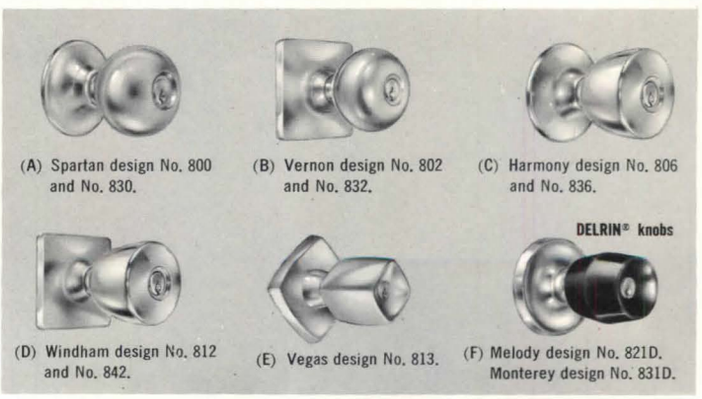

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No. 836, wrought brass, bronze, aluminum or stainless steel.

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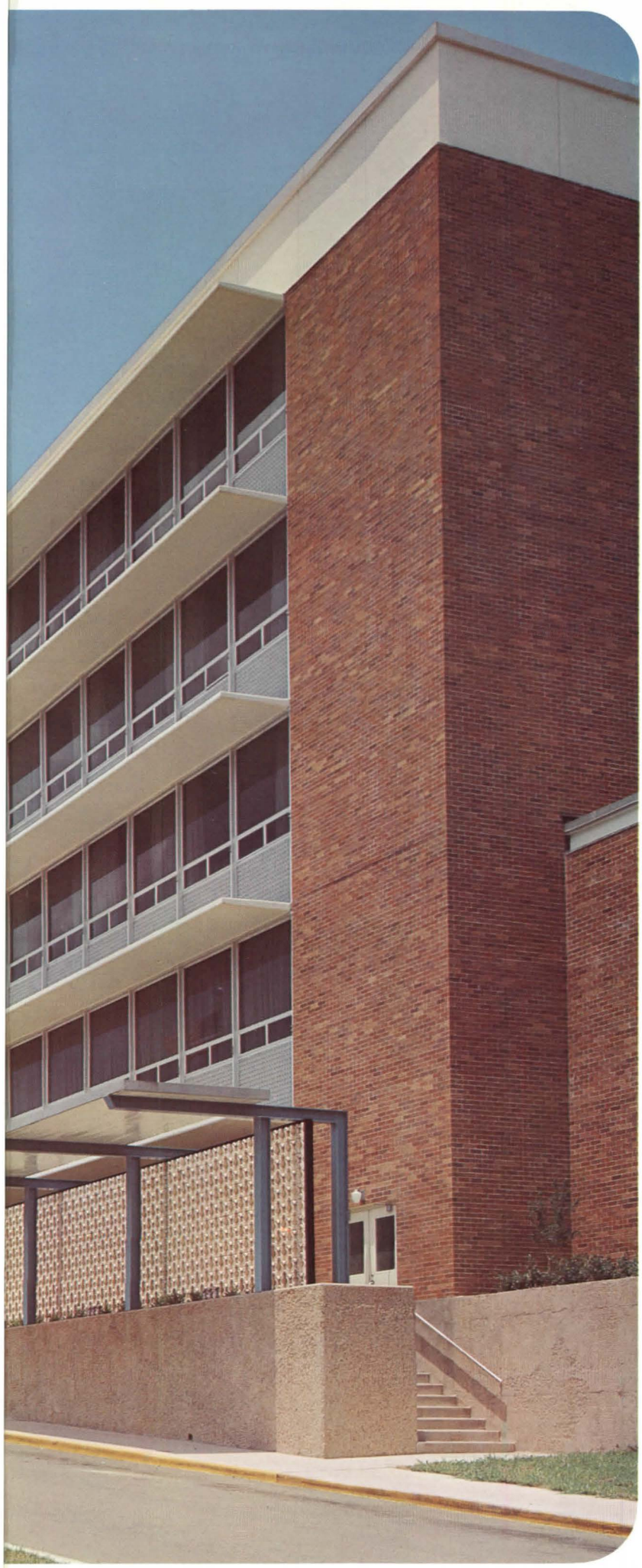
Hillcrest Baptist Hospital, Waco, Texas. Architect: Easterwood, Easterwood & Drennon, Waco, Texas. Contractor: Smith Construction Co., Waco, Texas. Photograph by John Rogers.



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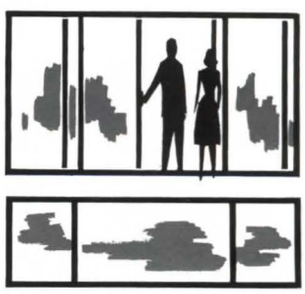

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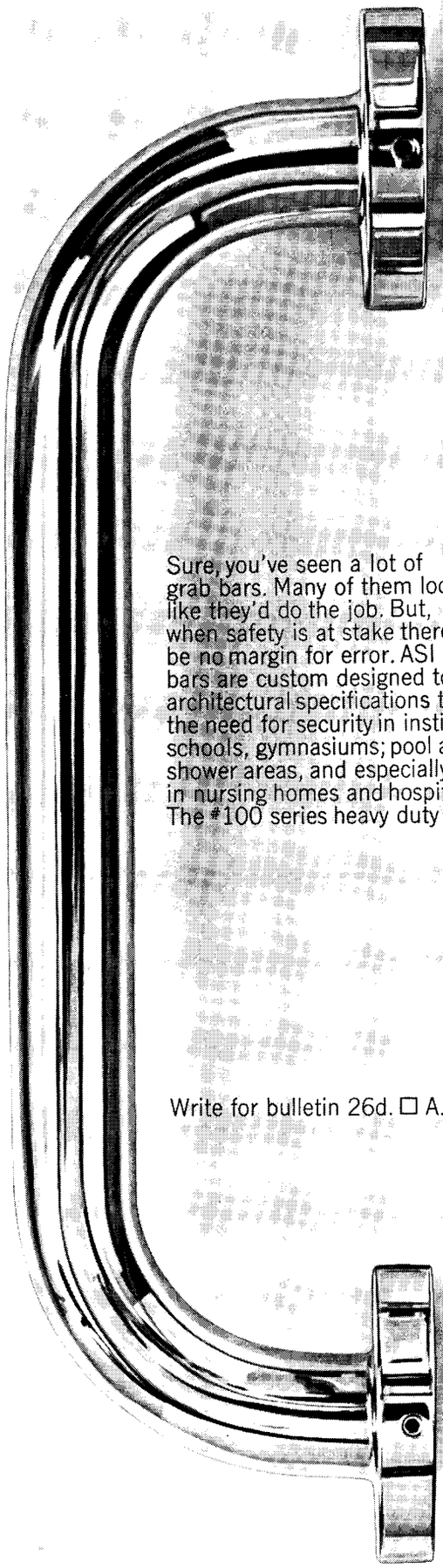

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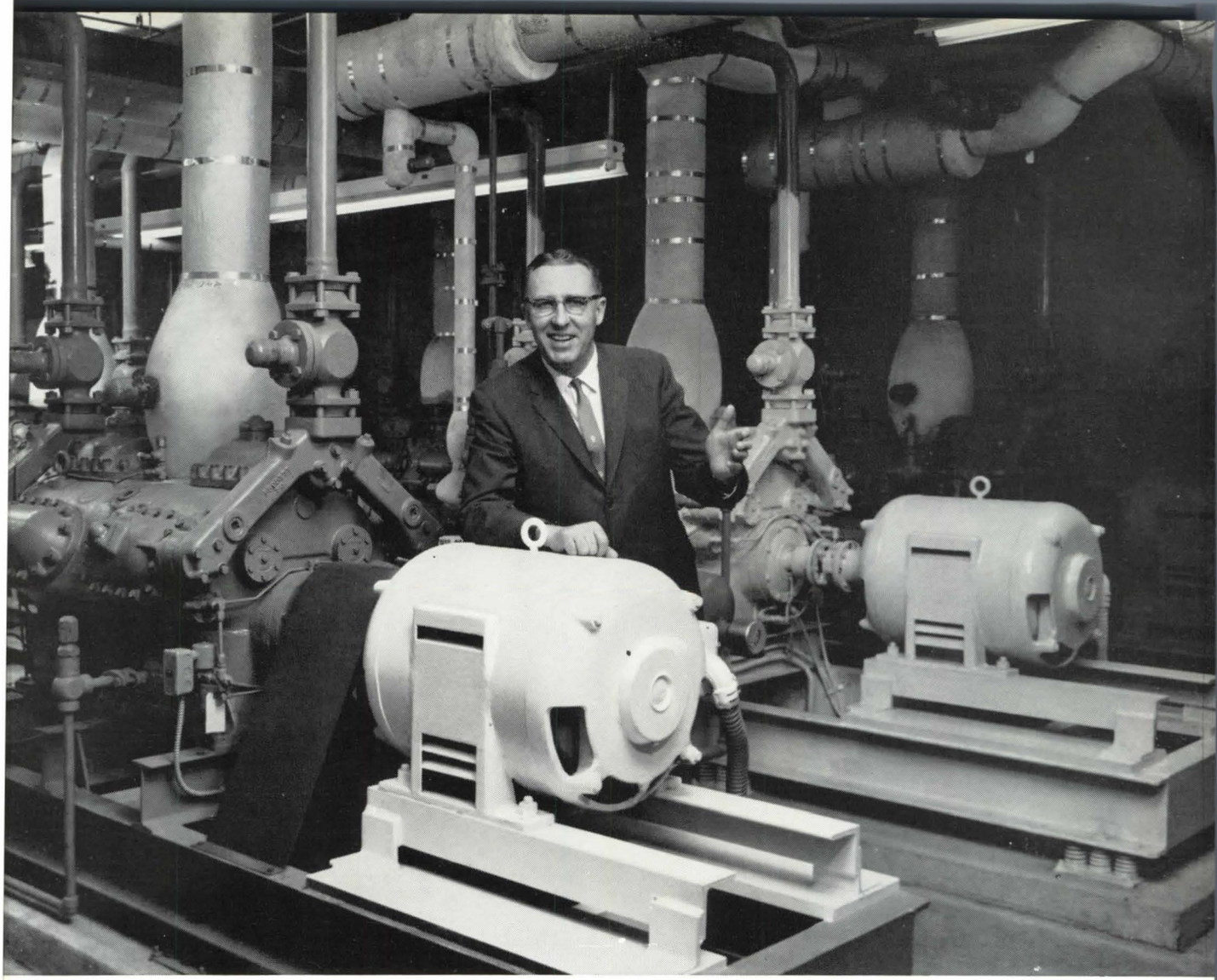

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ewburgh, New York, Edmund Lloyd, owner of Lloyd's pping Center, tells how his architect's use of flameless tricity as a single source of energy made it possible to bine all heating, lighting and cooling for maximum rating efficiency

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The best way I can sum it all up is this: we figured out t to handle the same job, a conventional system would d seventy-five components. Our electric space condition- system, exclusive of the lighting fixtures, has fifteen."

For architects and consulting engineers, total electric space conditioning offers the modern method of combining heating, lighting and cooling into one efficient operation using a single source of energy. If you are interested in learning more about this new concept, contact your local electric utility company. They will welcome the opportunity to work with you.

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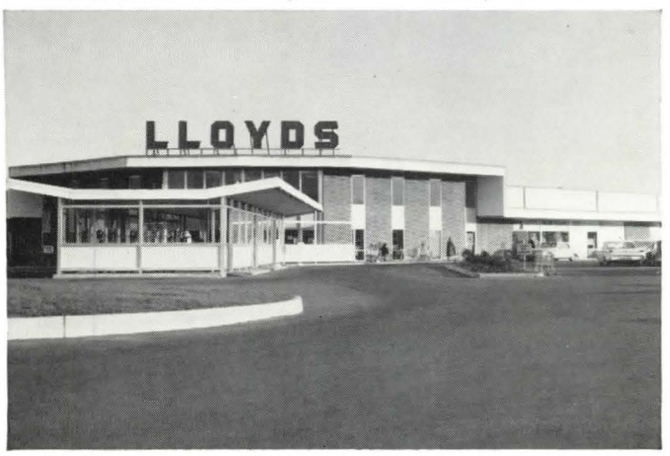

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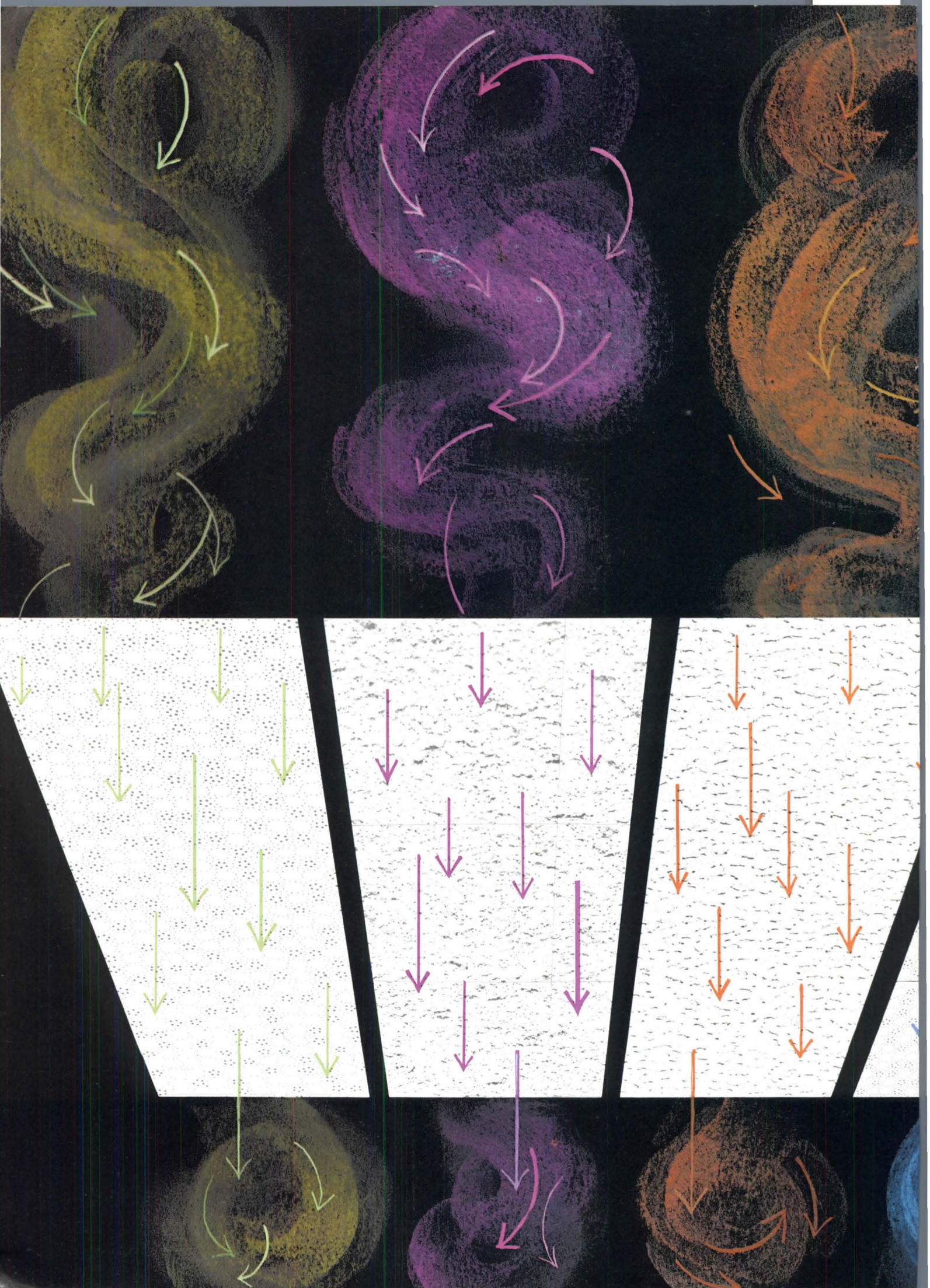

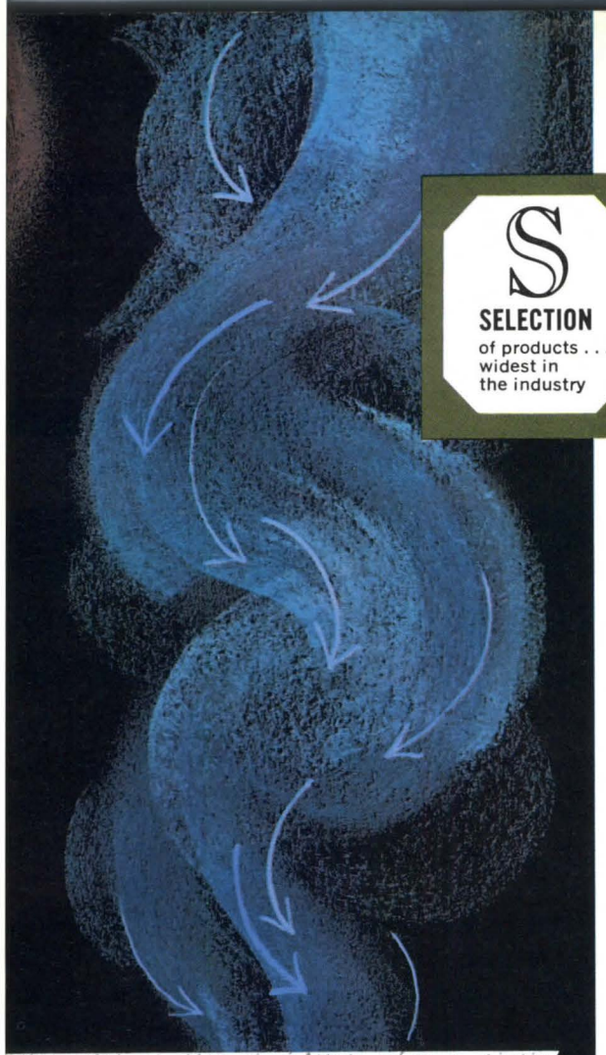

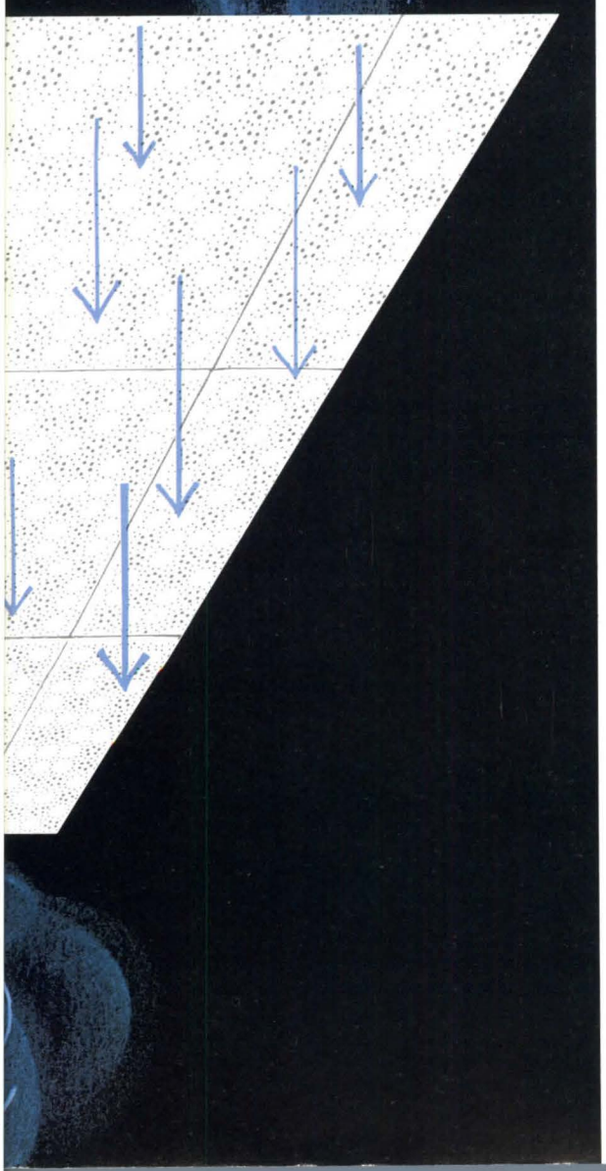

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In anticipation and appreciation

Earlier this year, Pittsburgh Plate Glass Company, in cooperation with the National Institute for Architectural Education, announced a series of four undergraduate competitions for architectural students. □ The major competition is an assignment to design an underwater restaurant in a lagoon location. Three additional competitions, in the form of brochure presentations, cover the subject of glass in the areas of Materials and Methods, Structural Design, and the Historical Use of Architectural Glass. □ The response to these competitions has been so highly gratifying to date that this word of appreciation is in order. □ We especially wish to thank the NIAE for their efforts in arranging these competitions, and the imagination they have shown in determining the competition subject material. □ We appreciate deeply and sincerely the cooperation of the various architectural faculties in merging the competitions into their own current teaching programs. □ And, lastly, we congratulate those students in architectural schools across the United States who have elected to enter these competitions, which will be judged by the NIAE in June. □ Architecture is a demanding as well as a rewarding profession. The range of both its capabilities and responsibilities has never been higher than today. It is our hope that these student competitions will add substantially to the abilities the young graduate architect brings to his first professional assignments.

Elmer A. Lundberg, AIA, Director, Architectural Liaison

Students who have not yet enrolled in these competitions, and who still wish to do so, contact their instructor, or write to the National Institute for Architectural Education, 115 E. 40th St., N. Y., N. Y.

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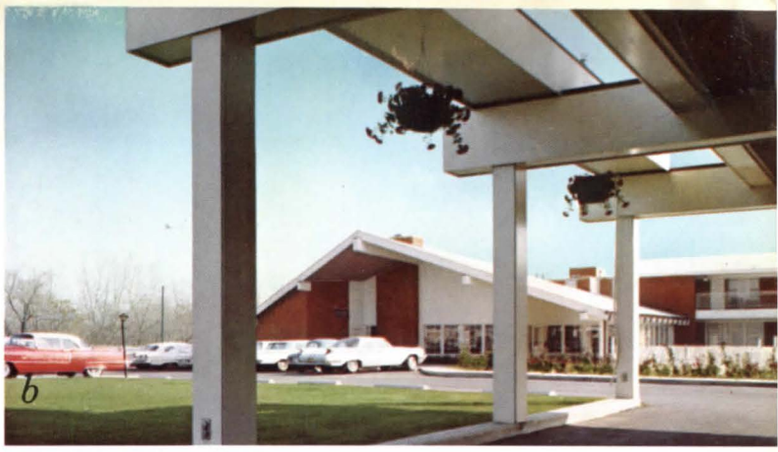

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Continued from page 200

Perhaps the republishing of this work will add another voice to those already raised in and out of the profession of architecture, against the sterility of functionalism mechanically conceived, and against the assumption that we cannot plan in a generous spirit because of the weight of numbers and the lunge for quick profits.

The "Prelude" Sullivan wrote for his book sounds odd today in several ways. It invokes grand issues of human destiny, and invests *all* building with spiritual values. And it does this in a florid rhetoric, in which, however, one detects the occasional hand tremor and blurring of focus so characteristic of Sullivan's last writings. With its strong insistence on the ultimate sources of the creative impulse, it is also capable of inspiring (in defiance of its author) a re-examination of his insight about form and function—a realization, prompted by Sullivan's own words in the "Prelude" and elsewhere, that the concept "form follows function" does not, after all, explain everything, even when taken in the full sense Sullivan intended.

It does not, for example, explain the quality of controlled excess in life, the flow of superabundant energy evident both in Sullivan's drawings in this volume and in the prodigies of nature. (This amazing aspect of being is, in fact, left unaccounted for even by the epic vision of Darwin: how does the theory of evolution, or any other generalization about life, account for the emergence of human intelligence, and other human qualities, so far—in quantity and quality—beyond the needs of either "function" or of mere survival in a struggle for existence?)

There is an exuberance in life that is as evident, on its own scale, in Sullivan's drawings as in a sunset or a mountain range, or the procession through geologic ages of animal species. This exuberance cannot be squeezed into any formula; but it can be seen as an ultimate source of hope for man, since it implies abundant resources of energy that may be channeled to what purposes he chooses. It is absent from most contemporary building, which is why we need to look again at the pages of the *System*. The creative abundance that can make everyone somehow an artist—this is a central message both of Sullivan's prose and of his drawings in this volume. And the latter, while they can tell architects much about the neglected resources of their art, can also be looked at by

Continued on page 218

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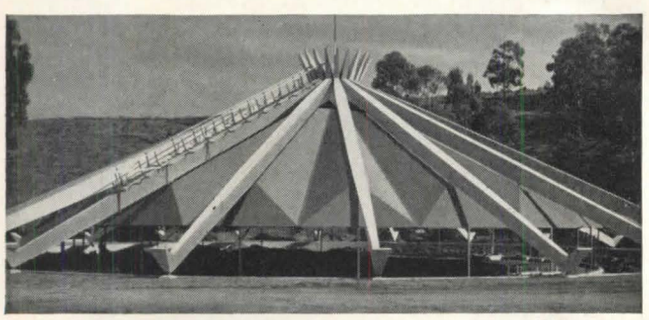

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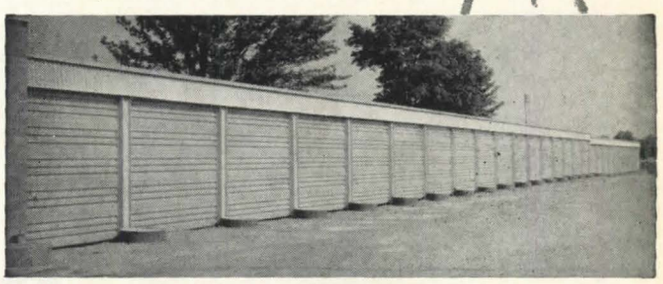

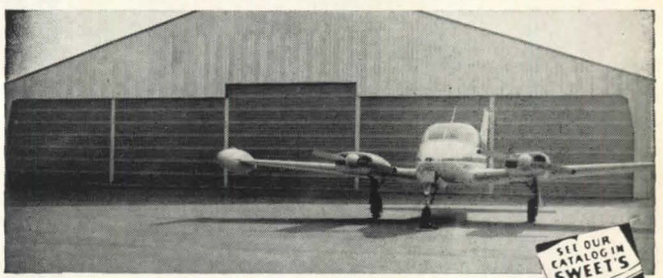

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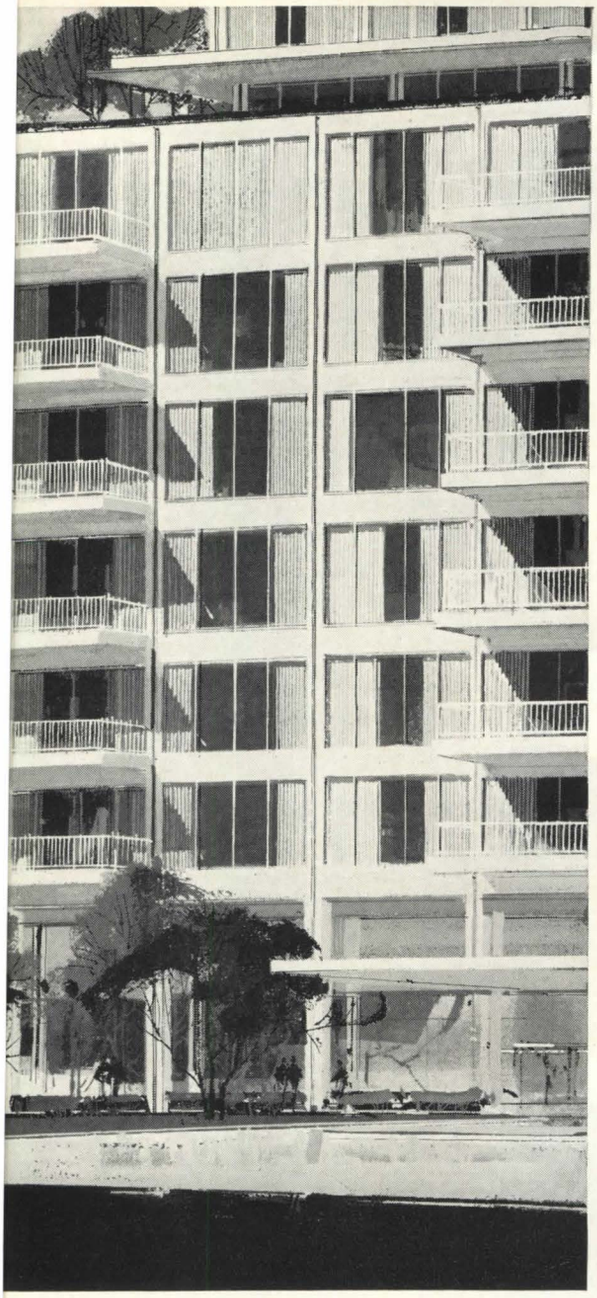

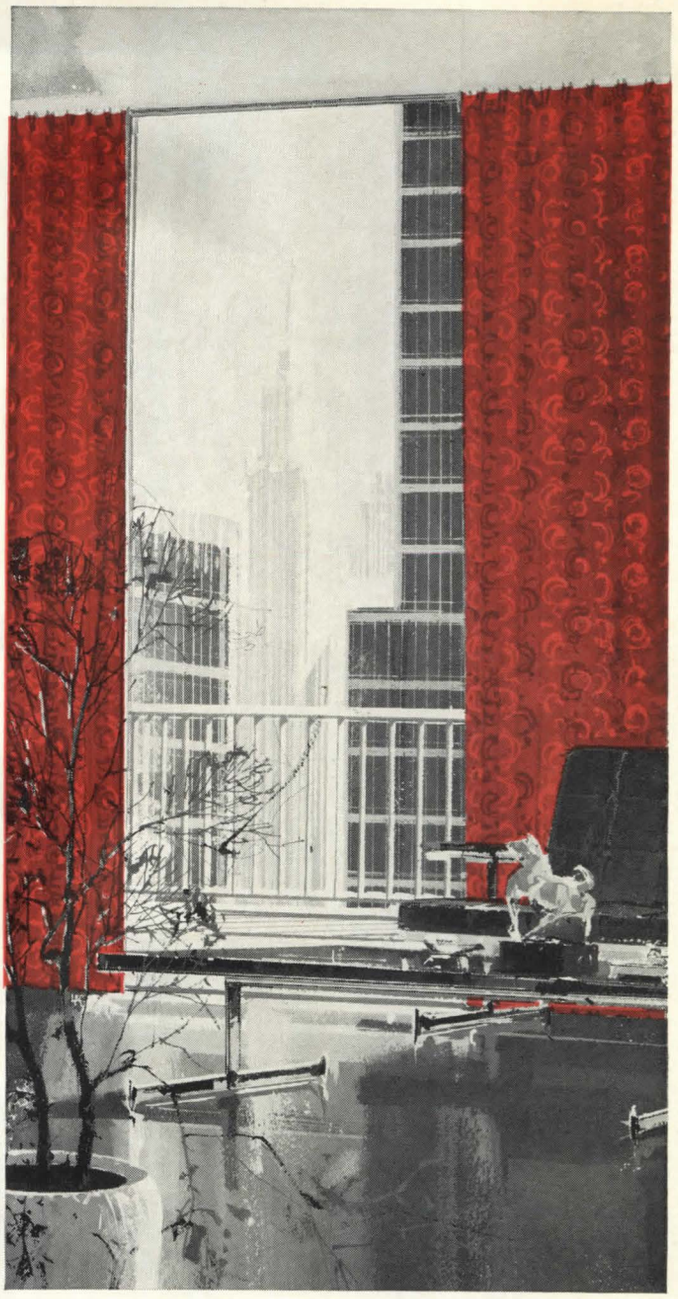

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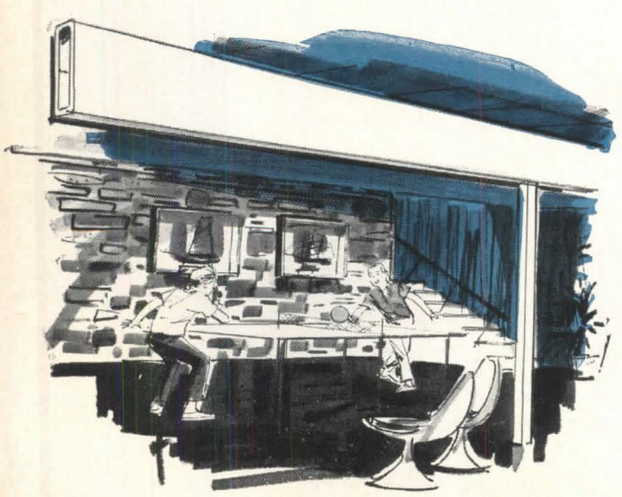

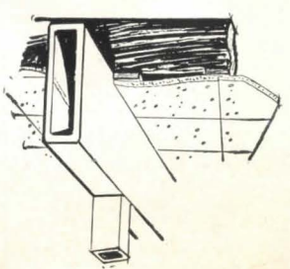

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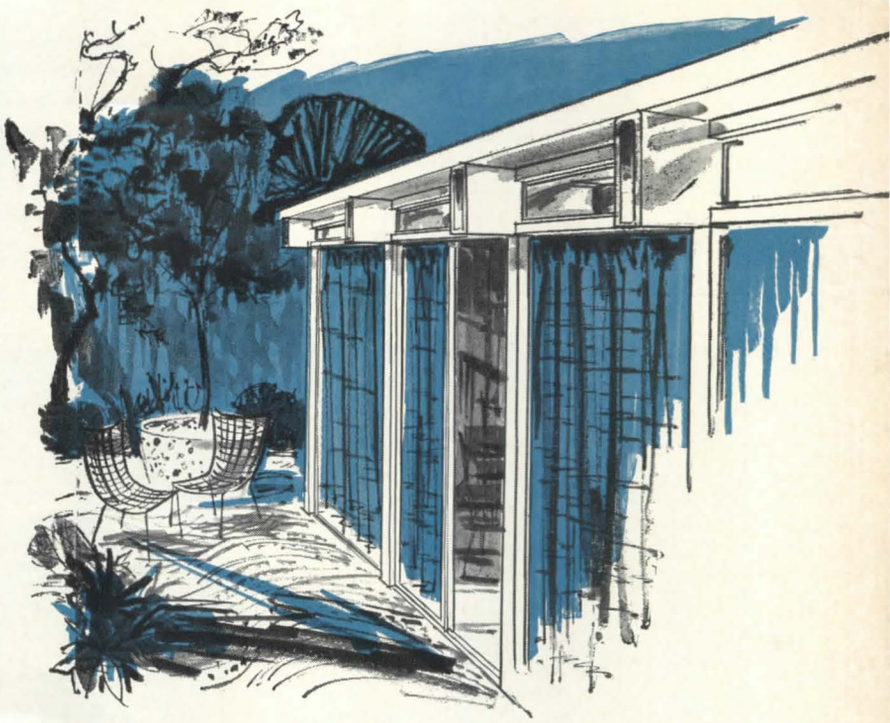

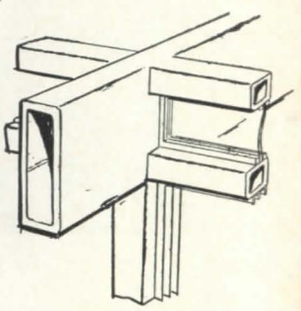

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Continued from page 212

all of us as a series of visual poems-in-process-of-becoming.

The theme of these poems is joy, the joy of controlling, expressing, and praising abundance, a joy that we all can share, whether in the best of his buildings or in the best pages of this book; and from which a variety of artists can draw inspiration, as the sculptor Theodore Roszak has shown in recent work.

Radical Approach

TOWARDS A CHURCH ARCHITECTURE *edited by Peter Hammond. Published by The Architectural Press, 9–13 Queen Anne's Gate, London, S.W. 1, (1962, 262 pp., illus. 30s)*

Towards a Church Architecture is a collection of essays on problems facing the designers of religious buildings in our time. The premises stated by the architect/contributors are hardly original, being those of early functionalism. The argument summarized by Peter Smithson (not one of the contributors) is as follows: He advises the client to "keep on hammering away at the functional requirements being met so that even if they cannot invest every part of the building with meaning . . . they can at least eliminate the obviously meaningless." And concluding his advice to architects he says, "In other words, we should be heading toward rather plain brick boxes with no tricks."

The essays by churchmen state that "architecture should spring from human activity, not from formal concepts, new materials or new structural concepts." Peter Hammond gives the following examples: " . . . in the prison camps of occupied Europe, we have seen that it is perfectly possible for the church to flourish with undiminished vigor even though it has no buildings, no set aside places, at its disposal"; and "in England, more than one university chaplain commented on the astonishing effect upon a student community of celebrating the Eucharist in lecture rooms and hostels with the congregation sitting round a simple table, instead of some neo-Gothic edifice, the whole layout and spatial organization of which effectively obscure the character and implications of the sacramental action."

Let us examine briefly what kind of program for the modern church is suggested: *The church function* is "a place where a community meets for its corporate worship. The Sunday assembly to hear the word and celebrate the Eucharist is the chief expression of the life of each Christian community . . . " (Charles Davis). *The building* needed for such activity is described by Rudolf Schwarz: "For the celebration of the Lord's supper, a moderately large, well proportioned room is needed, in its center a table and on the table a bowl of bread and a cup of wine . . . that is all." Peter Hammond adds that " . . . we must be prepared to forget about architecture and enter into the simple things at the source of the Christian life. There is no other way to build real churches, churches which will reveal the structure of the *ecclesia* itself."

Since the last war, there has been a great building boom. The majority of work has been bad but there remains a body of work created in our time which we can celebrate—*included in* it, buildings for religious purposes. That these are the minority of the minority is not odd, for, generally speaking, the least desirable client for the architect is the tradition-bound client; and the church is just such a client, being by its nature and history dedicated to the continuance

Continued on page 222

JOINTS

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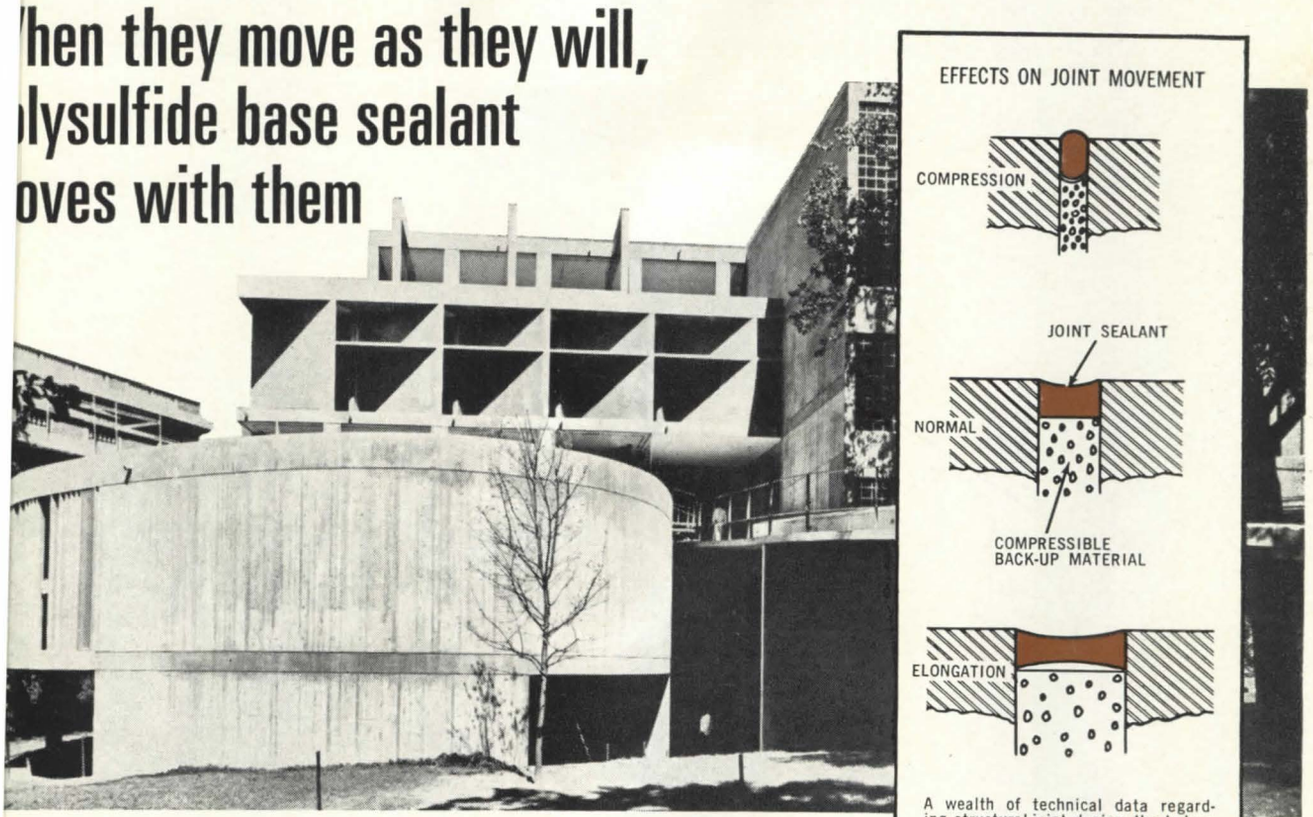

Carpenter Center for the Visual Arts, Harvard Univ., Cambridge, Mass. Designer of the Architecture: LeCORBUSIER OF FRANCE. Architects: SERT, JACKSON and GOURLEY, Cambridge, Mass.

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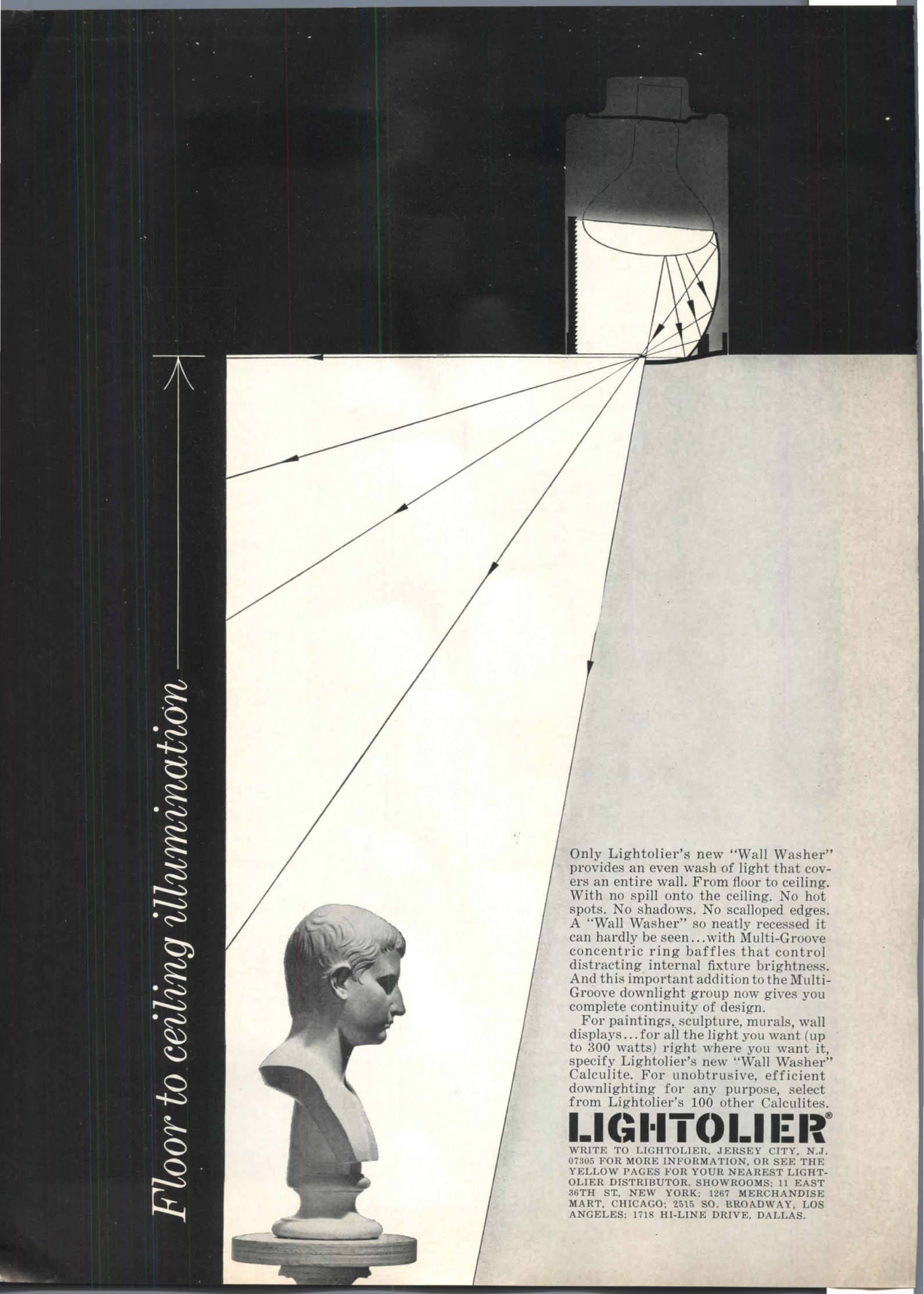

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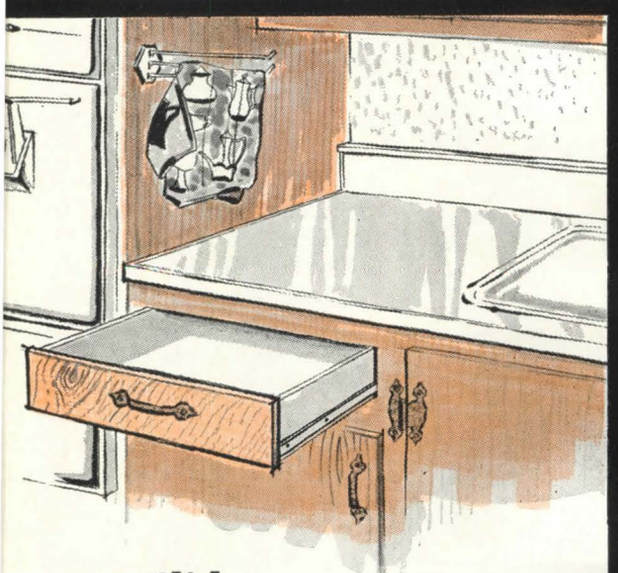

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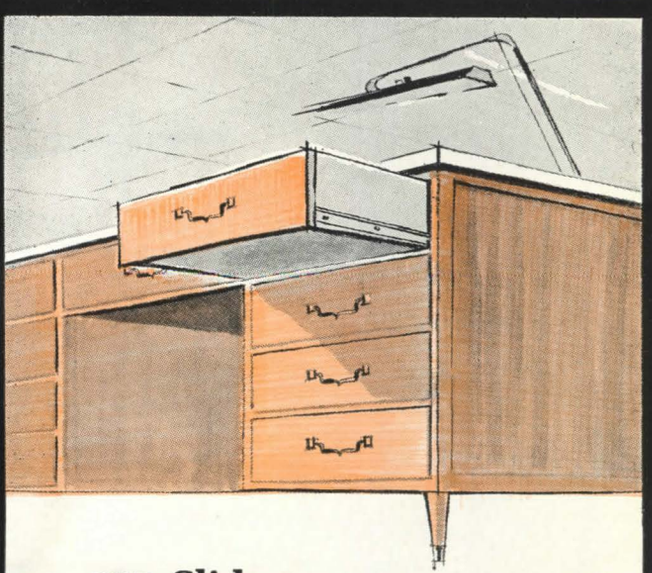

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Continued from page 218

of rituals growing from the formal acting out of traditions.

A valid architectural expression grows from some kind of new vision—a change in program, a new construction method, responsiveness to the *Zeitgeist*. For the church, a basic change can occur, for example, when the tradition is broken (i.e., the Quaker meeting house), or when the tradition is reinterpreted (i.e., monastic to congregational church). The liturgical movement proposes a reinterpretation in the form of a return to an earlier Christian tradition. Its supporters believe essence has been lost in trappings, which must be stripped away so as to arrive again at the meaning of the Christian sacrifice.

It would appear that such a simple idea would result in a direct program of requirements and there need not be a hesitancy on the part of its proponents in sharply stating it. This is not the case, the difficulty being that architecture is not required—in fact, is a hindrance to the program. But who is willing to admit this, except metaphorically? Who, except a Savonarola, dares say art is the devil's work? Who, except a Mohammed, can say that "the most unprofitable thing that eateth up the wealth of a believer is building." When a plain brick box is suggested, one asks why brick; when a moderately large, well-proportioned room is recommended, one asks why well proportioned. If we take the statements seriously, the building program is not a program for architects at all. We can only conclude that when Hammond calls for a "radical approach to church architecture," he is calling for the elimination of architecture as a fine art and the substitution (at least for our time) of shelter engineering. This, I think, is an unwarranted counsel of despair.

But Islam did build the Mosque at Cordoba, the Roman Catholics did build Chartres. These were built because the artists and their clients understood the spirit of the Levitical sacrifice: "Each shalt give the best of his flock as an offering unto the Lord."

PERCIVAL GOODMAN
Associate Professor, School of Architecture
Columbia University
New York, N.Y.

OTHER BOOKS TO BE NOTED

Campus Planning. Richard Dober. Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y., 1964. 314 pp., illus. $25
To be reviewed.

A Career in Architecture. Michael Patrick and Michael Tree. Museum Press Ltd.,

Continued on page 226

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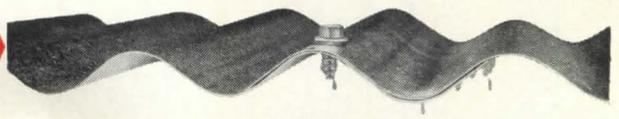

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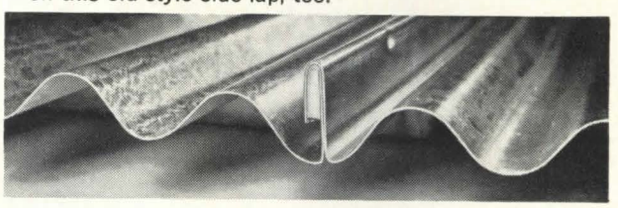

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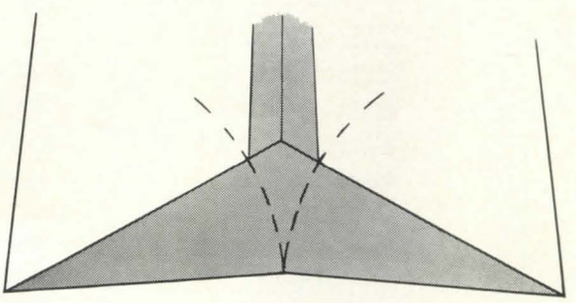

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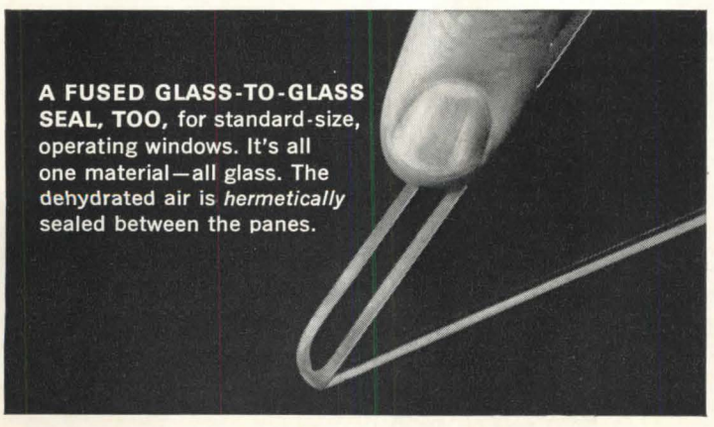

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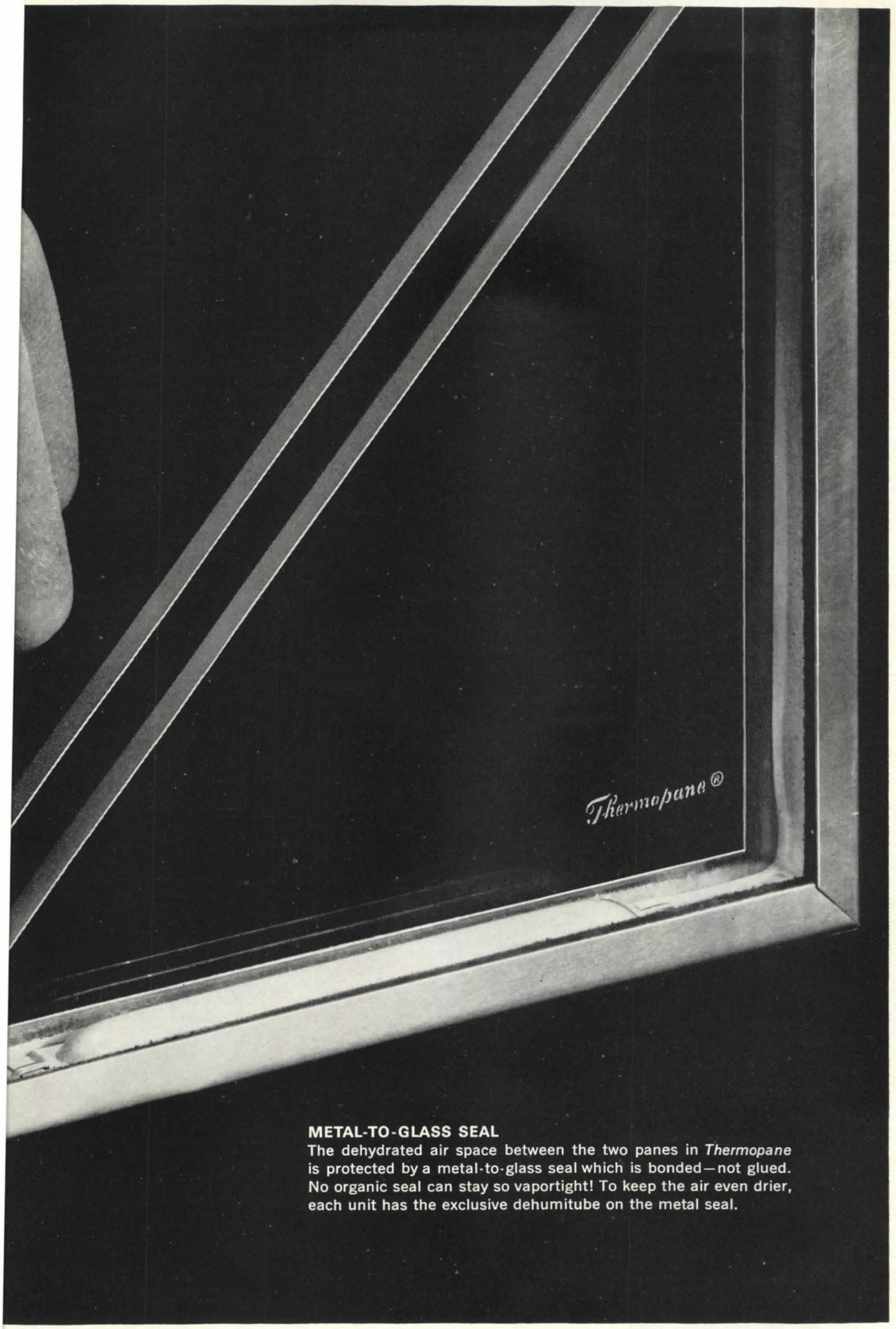

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Continued from page 222

London, 1963. Distributed by Sport Shelf, P. O. Box 634, New Rochelle, N.Y. 127 pp., illus. $4.25

An interesting guide to the profession in Great Britain. It describes the different educational possibilities in England and elsewhere, and the different types of practice—in the country, in local government, and in a large London office. One chapter asks "Am I Suited to the Career?" There are many facts of interest to American readers—one, that the architectural profession was the lowest paid of any in England in 1960. Another, that use of the letters FRIBA are granted under rather different circumstances from the letters FAIA; in England, one becomes a Fellow of the Royal Society of British Architects by fulfilling these conditions: being admitted as an Associate of the FIBA, practicing for seven consecutive years as a principal or in a position of responsibility, being approved as a Fellow by the Council, and being at least 30 years of age. When this book was written, the author was Principal of the Architectural Association School of Architecture, from which he moved to the post of Principal at the Central School of Arts and Crafts.

Newport: Pleasures and Palaces. Nancy Sirkis. Introduction by Louis Auchincloss. The Viking Press, Inc., 625 Madison Ave., New York 22, N.Y. 1963. 161 pp., illus. $10.

To be reviewed.

Recent American Synagogue Architecture. Organized by Richard Meier. The Jewish Museum, 1109 Fifth Ave., New York 28, N.Y., 1963. 64 pp., illus. $2 (paperbound)

Handsome catalog, designed by Elaine Lustig, of the excellent exhibition that was held last fall at The Jewish Museum. Catalog features an introductory discussion by Richard Meier, the architect who organized the exhibition, and brief statements on "the architecture of the synagogue" by several rabbis and by the exhibited architects. Among those represented are Louis Kahn; Percival Goodman; Philip Johnson; Geddes, Brecher, Qualls & Cunningham; Davis, Brody & Wisniewski; Yamasaki; Belluschi; Blake & Neski; Salzman & Edelman; Breuer; Sherwood, Mills & Smith. The catalog has a few excellent mood sketches by Kahn and Mendelsohn, plus other drawings and photos from the exhibition, and a bibliography of works on synagogue architecture.

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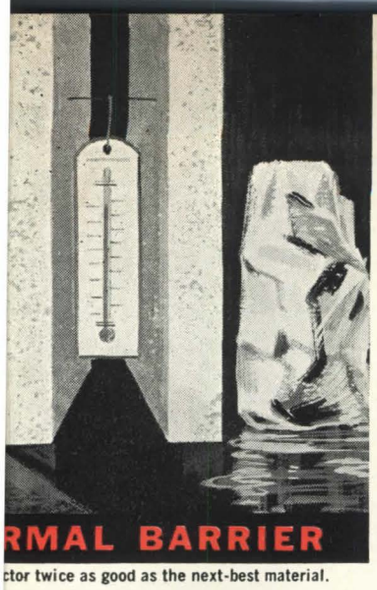

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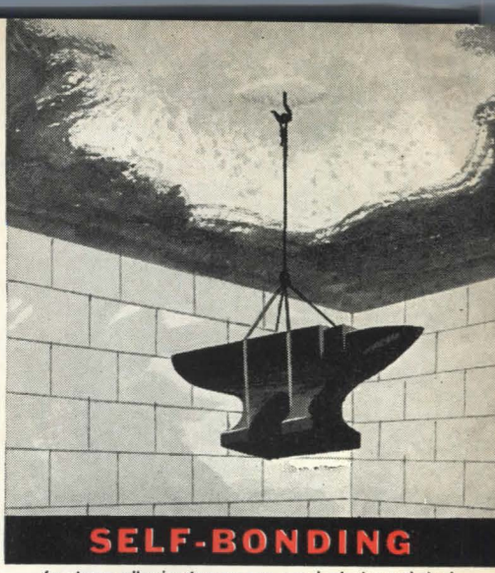

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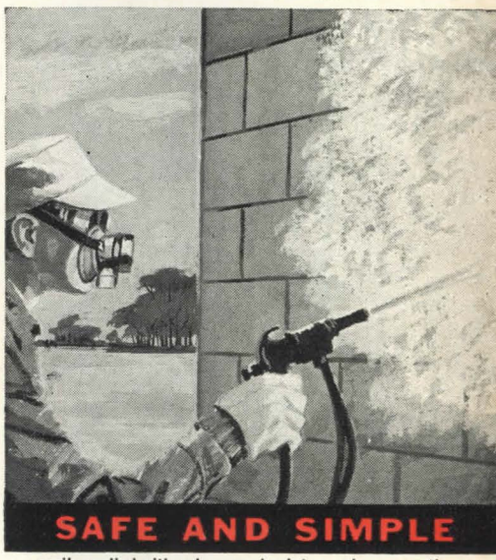

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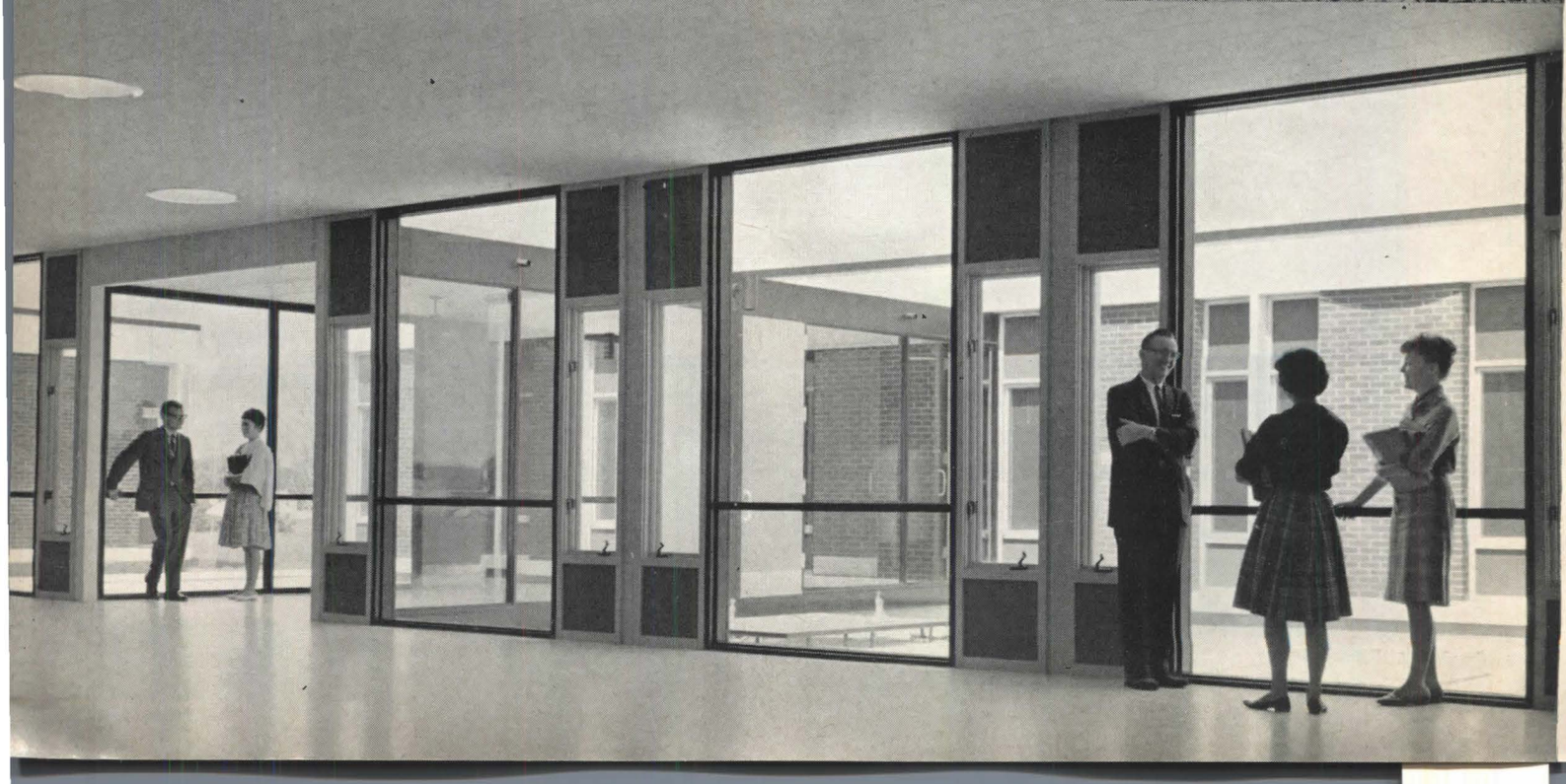

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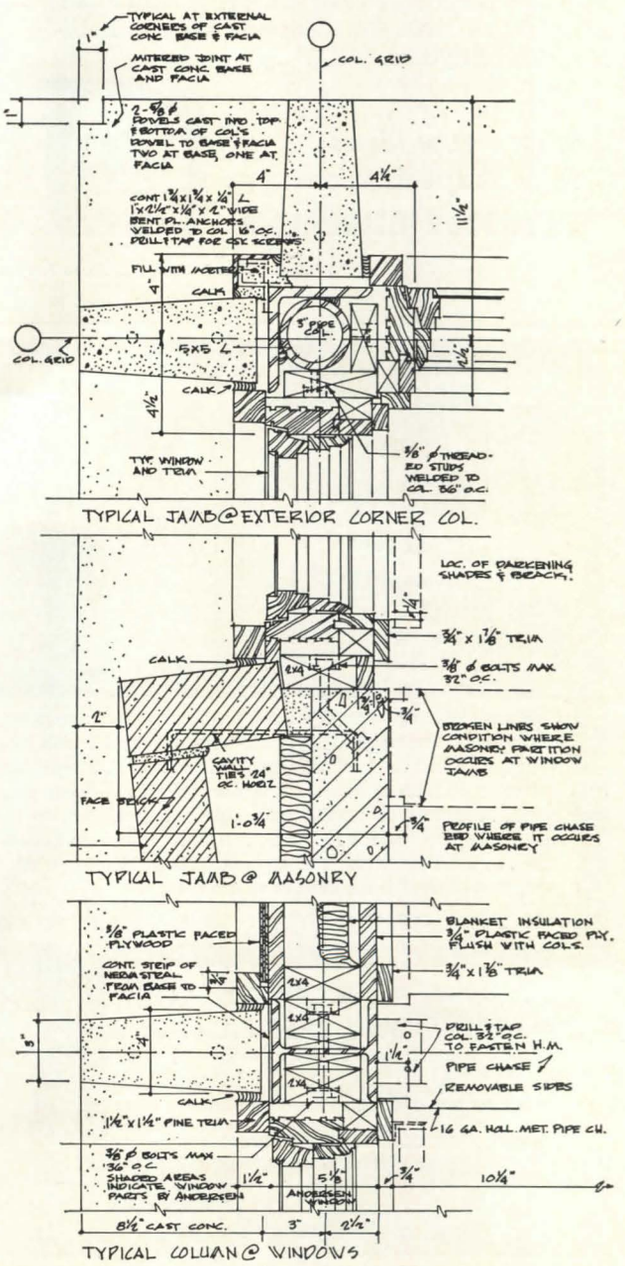

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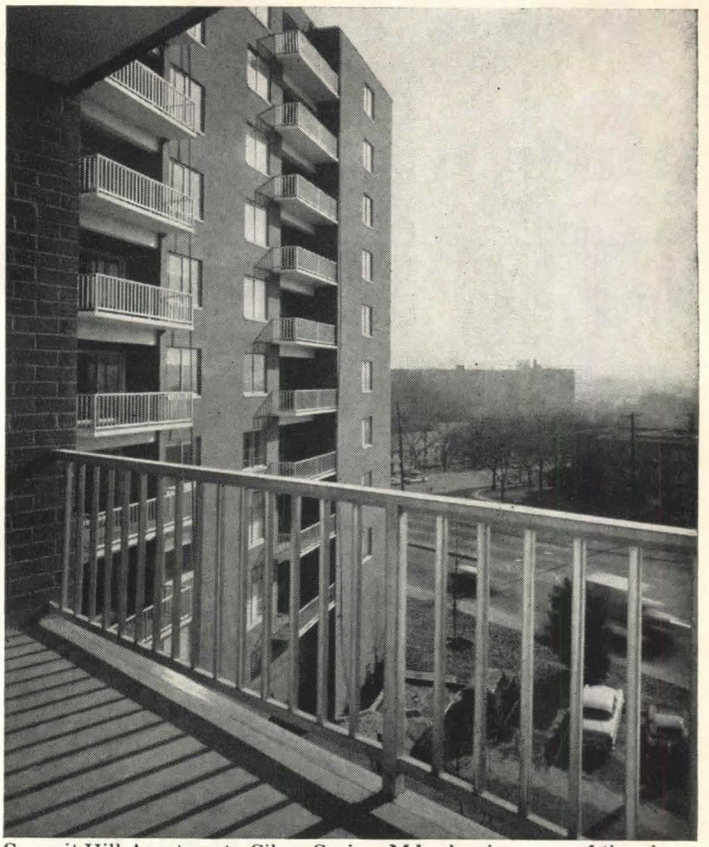

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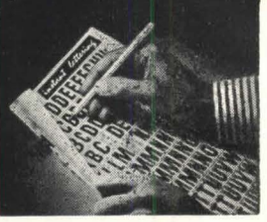

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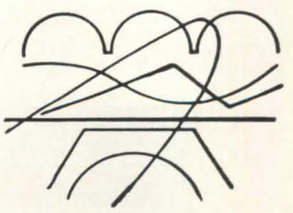

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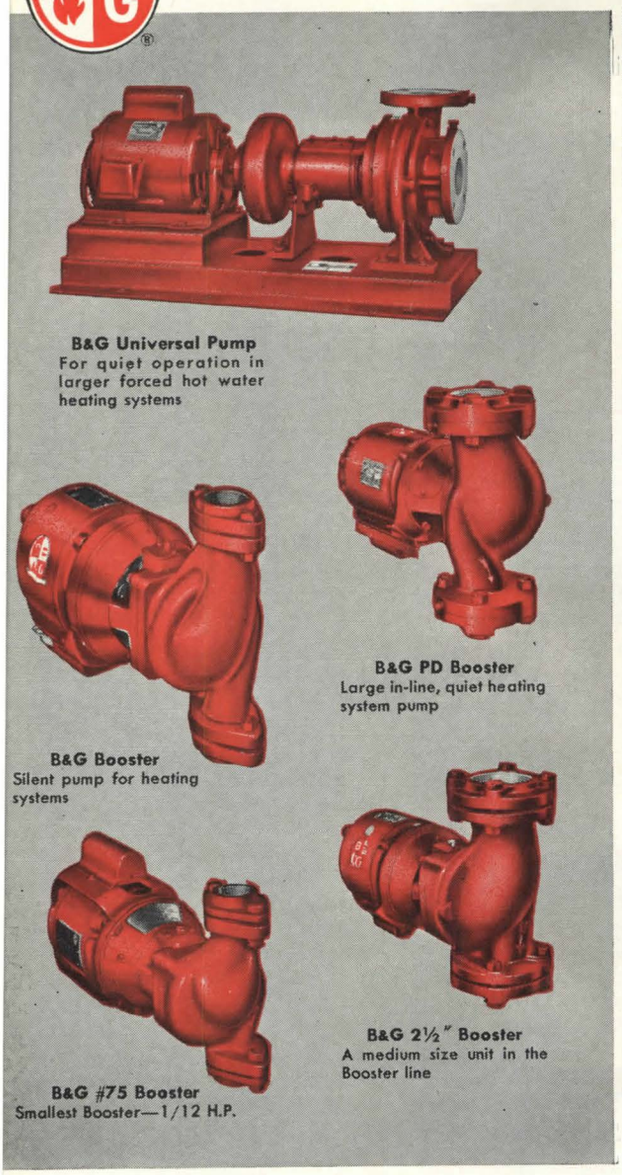

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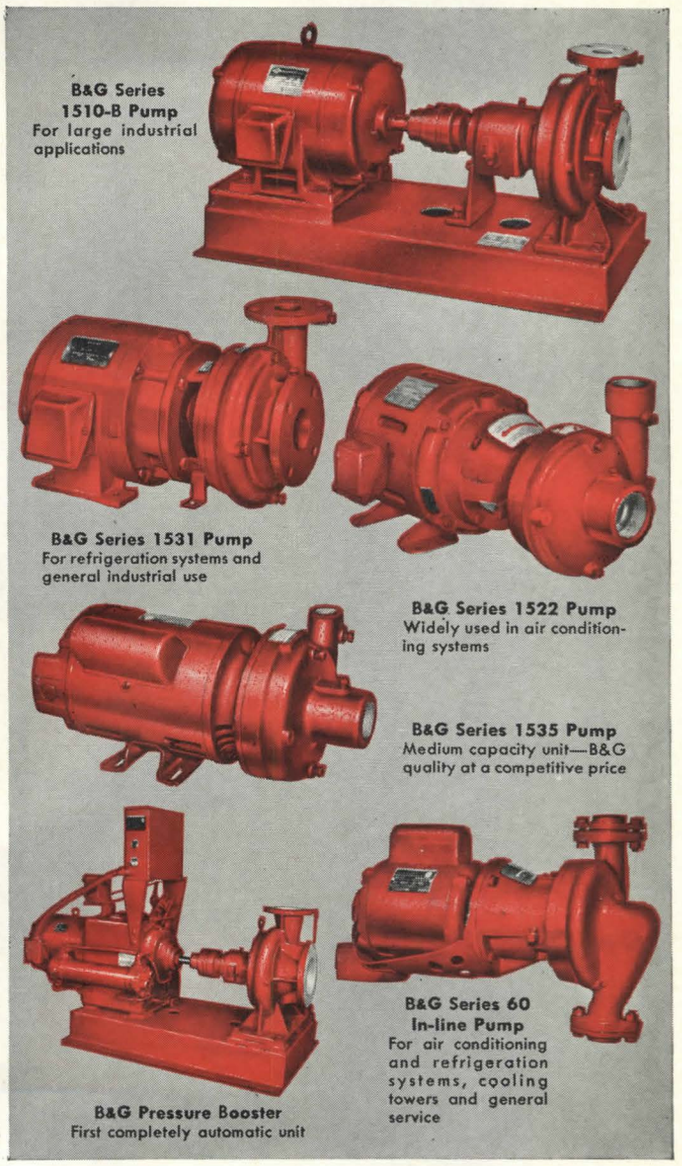

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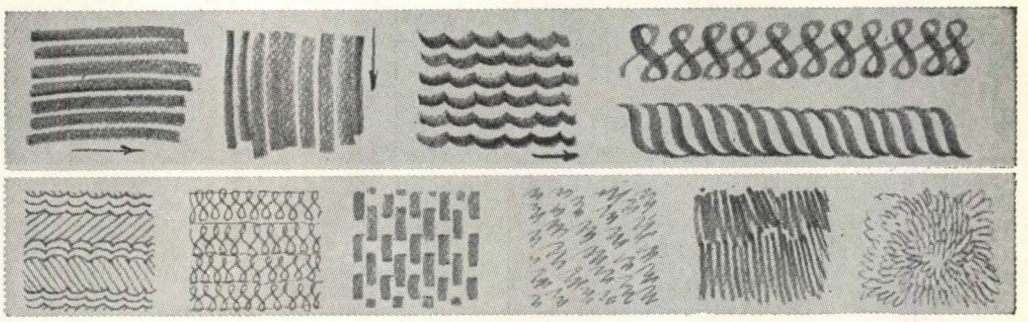

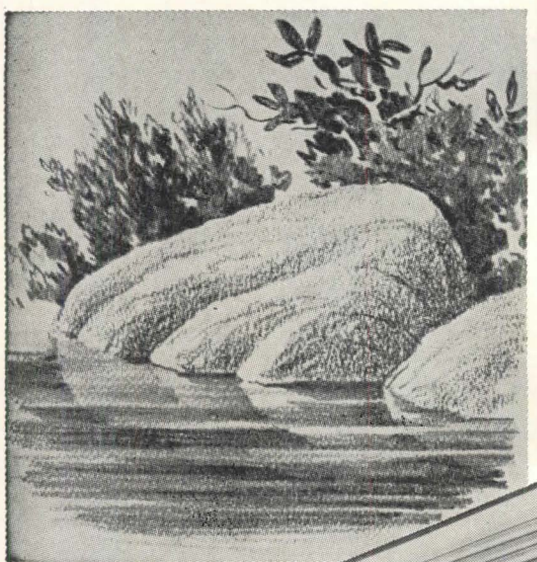

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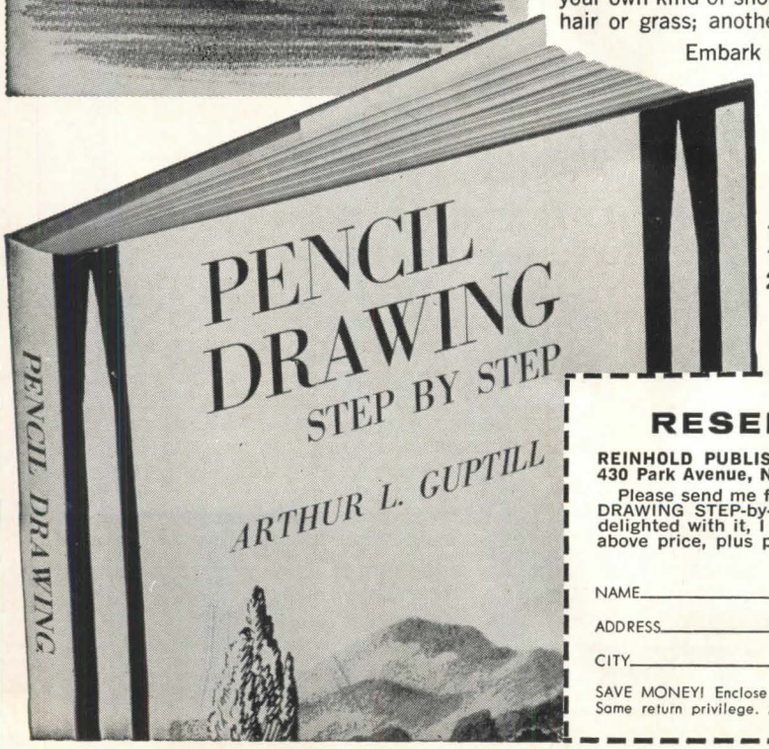

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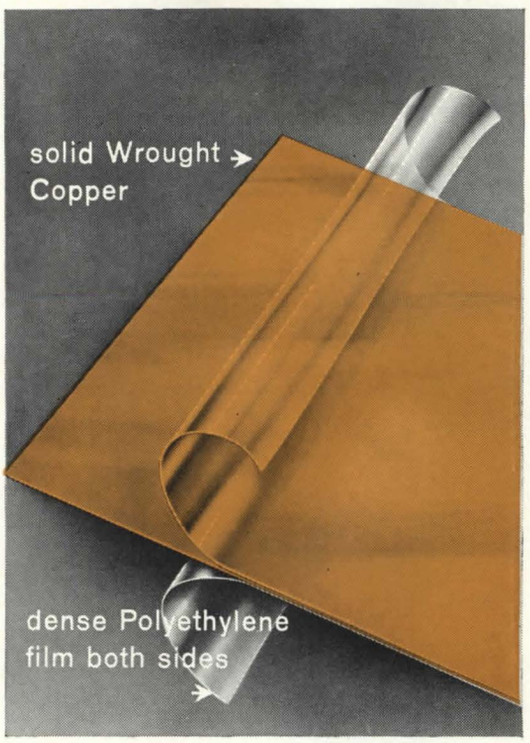

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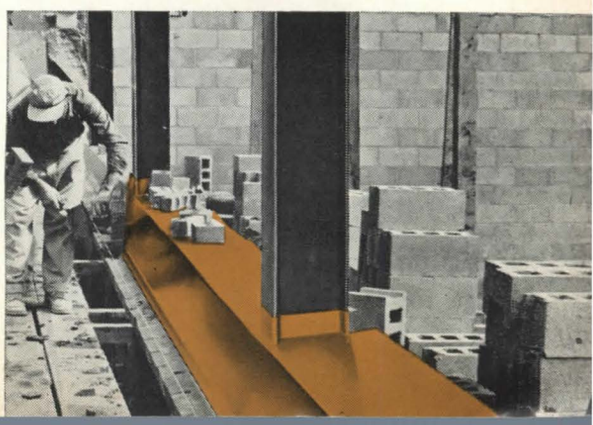

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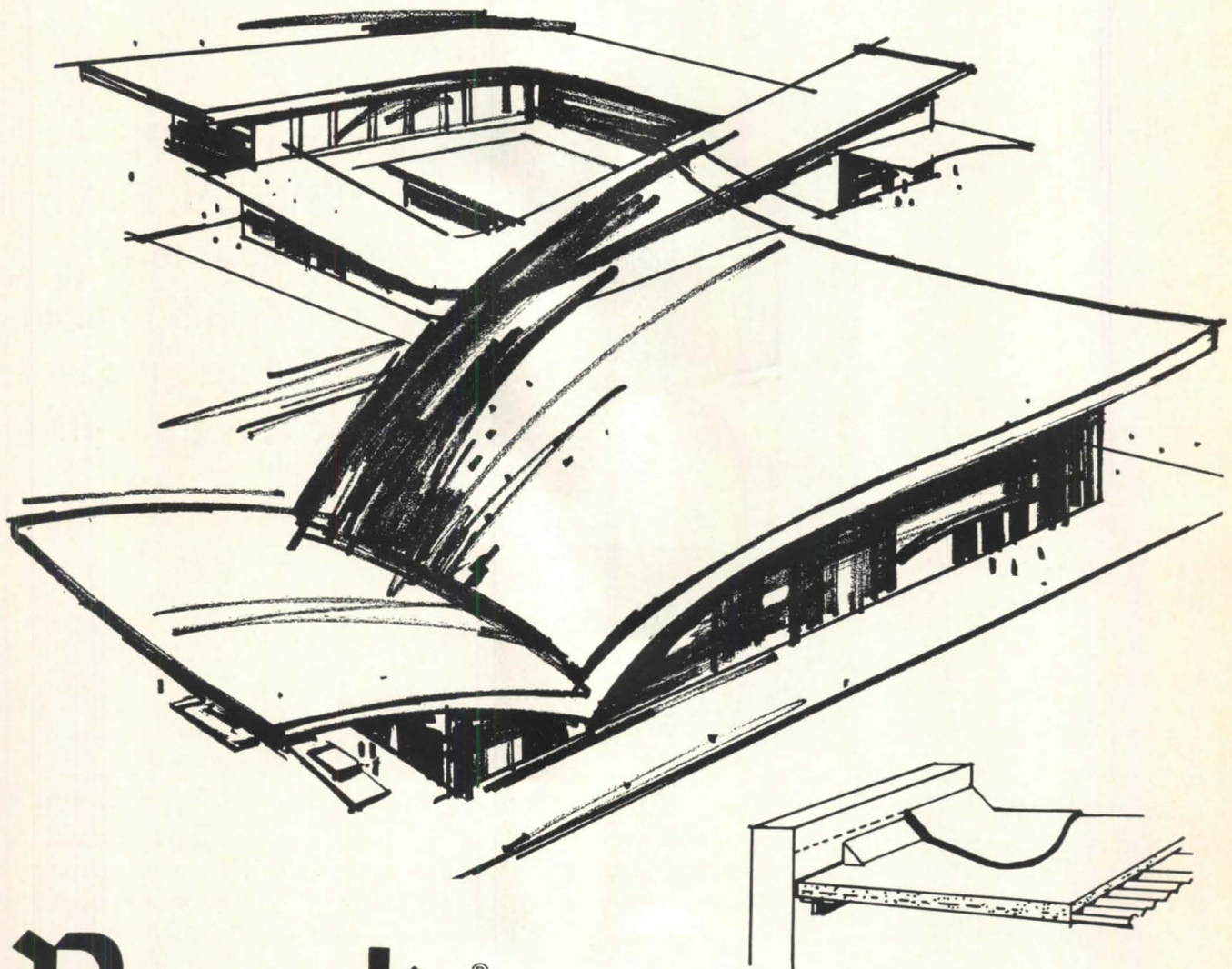

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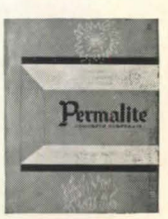

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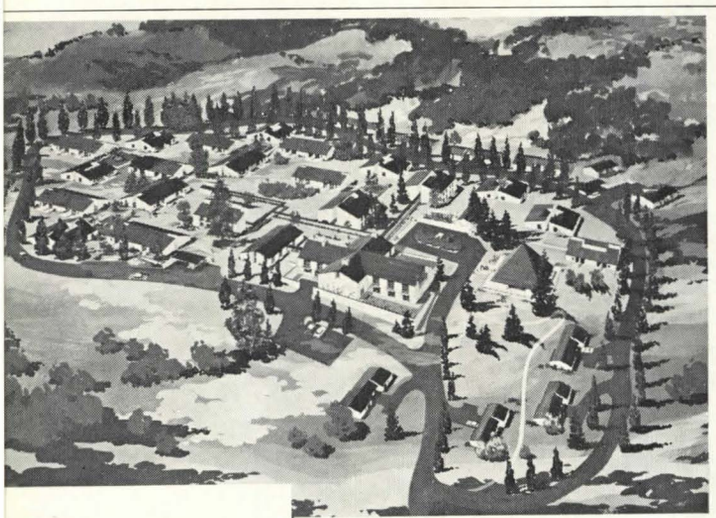

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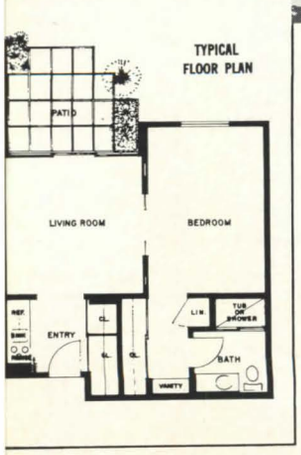

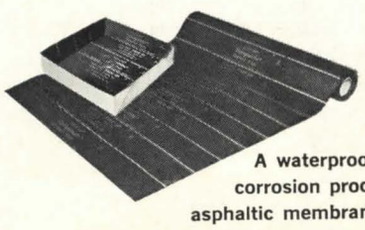

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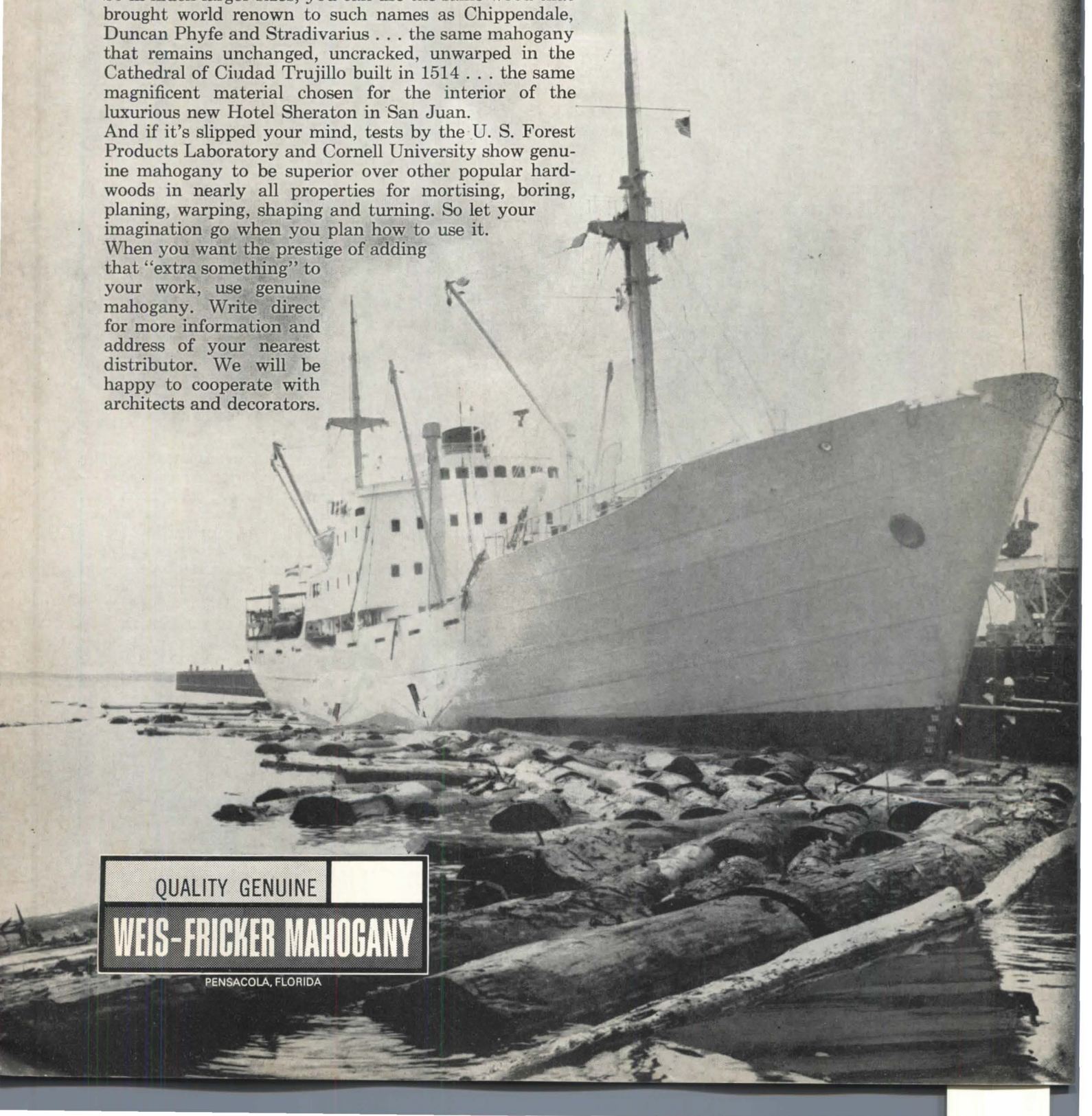

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Top photo: The floor tile in the heavily trafficked lobby is Ruberoid Vinyl Asbestos 3001.

Center photo: Building exterior is in harmony with the wooded, rolling countryside.

Bottom photo: Sunlit corridors enhance the beauty of the floors in this 800 pupil school.

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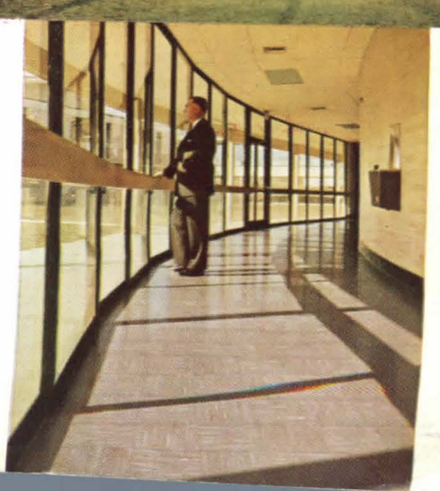

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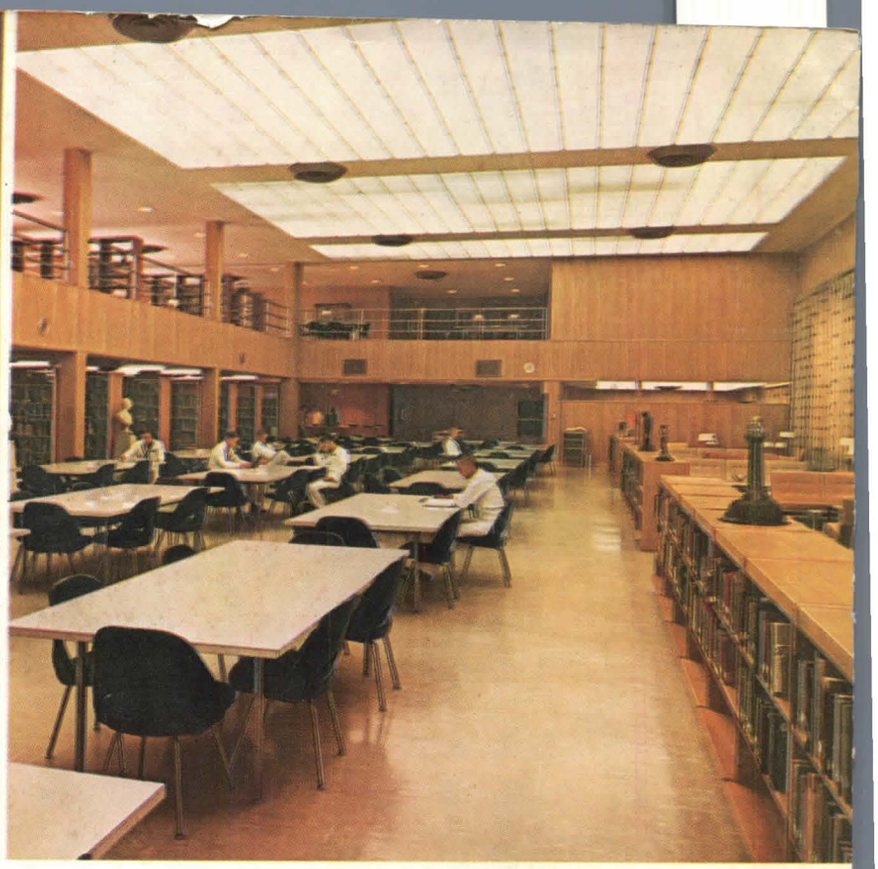

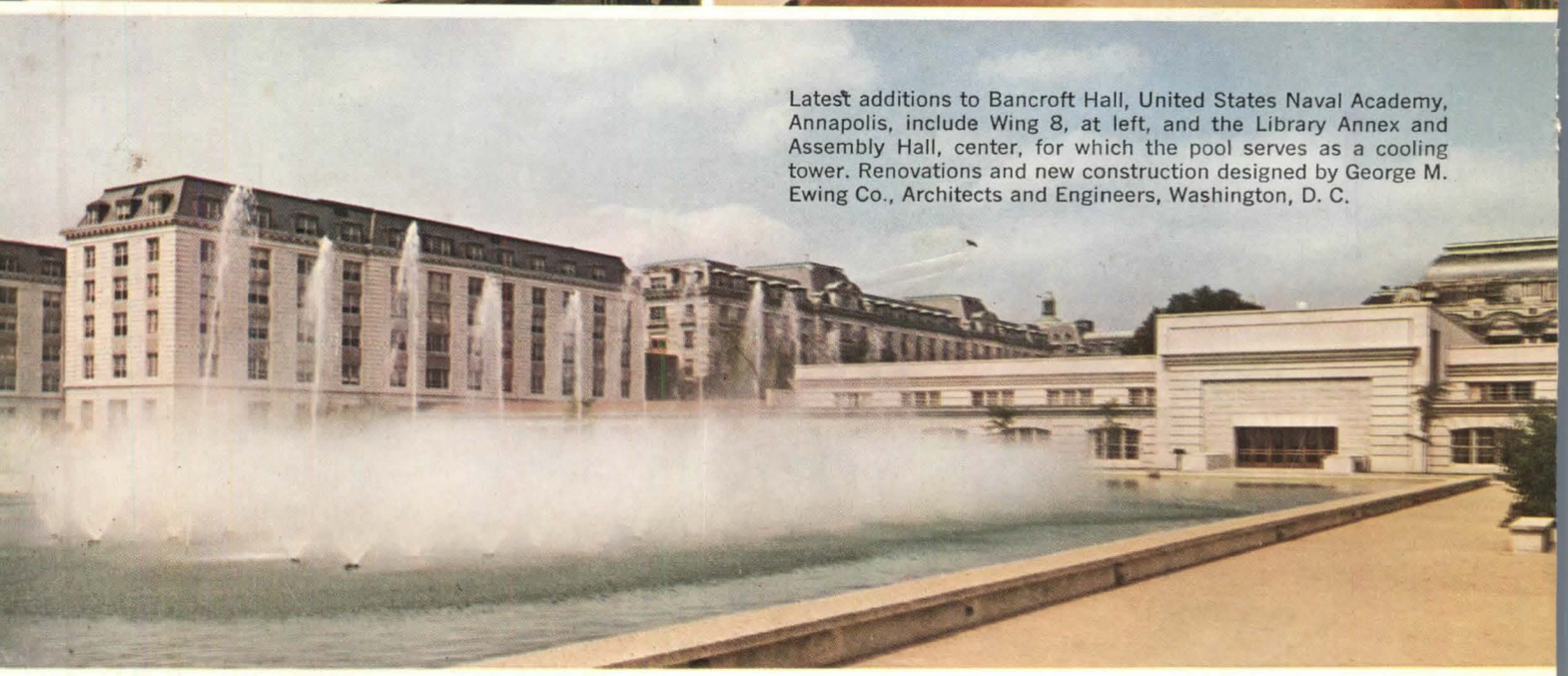

Latest additions to Bancroft Hall, United States Naval Academy, Annapolis, include Wing 8, at left, and the Library Annex and Assembly Hall, center, for which the pool serves as a cooling tower. Renovations and new construction designed by George M. Ewing Co., Architects and Engineers, Washington, D. C.

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