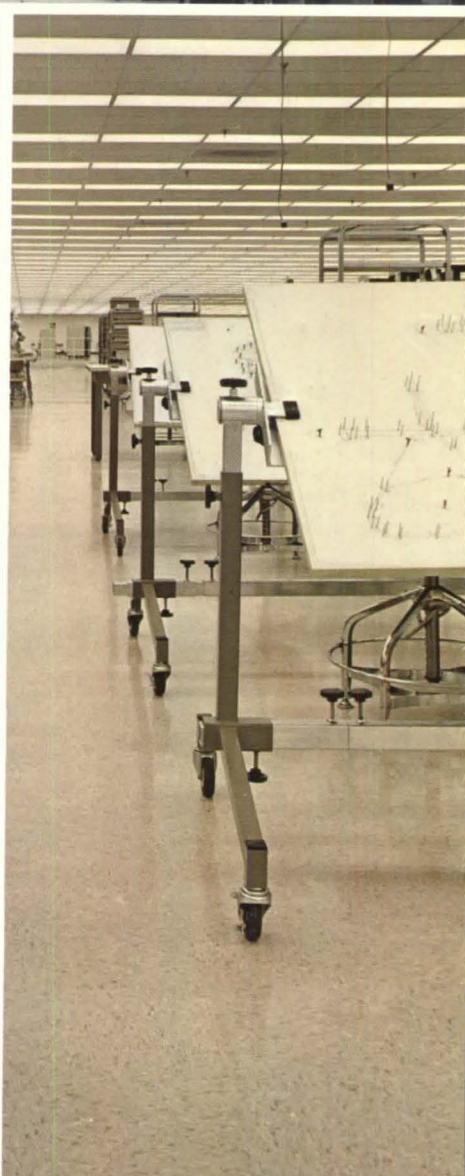
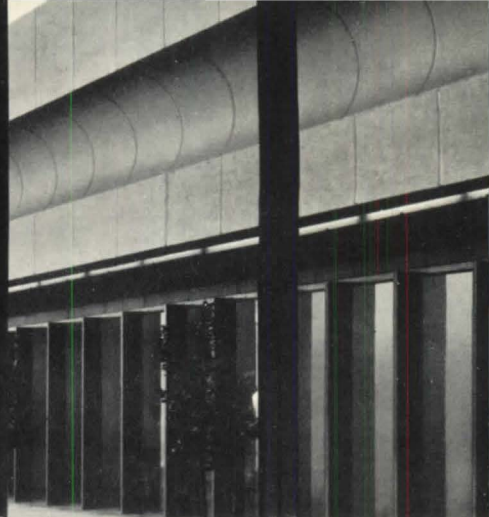


PROGRESSIVE ARCHITECTURE

A Reinhold Publication • December 1969



Today's Museum—Theatre or Mausoleum



National Cash Register's new Rancho Bernardo facility was designed to be the manufacturing and distribution center of a complete line of NCR data processing equipment. When the current building program is completed, the complex will measure 525,000 square feet . . . 300,000 of which has already been completed and is in use.

Architect: Frank L. Hope and Associates, San Diego, California. **General**

Contractor: Ernest W. Hahn, Inc., Los Angeles and San Francisco, California.

Flooring Contractor: Tri-Co Floors, Lemon Grove, California.

The architects and designers had to plan a floor around constant movement of people, equipment, and machinery . . . so ruggedness, durability, ease of maintenance, and an outstanding appearance were required. Their choice: Imperial Modern Excelon Tile. 230,000 square feet of it.

Floor plan for computer



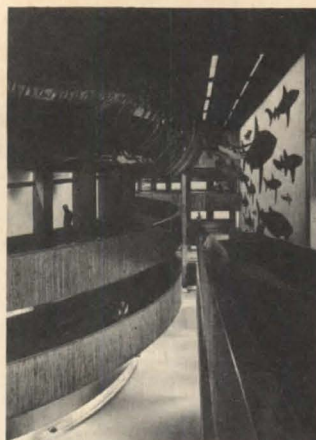
This rugged, vinyl-asbestos tile met all requirements squarely. The pattern and color go all the way through the tile so the design will last as long as the tile itself. And the rich, tight-mottled grain conceals scuffs and heel marks.

From a budgetary point of view, Imperial Modern Excelon Tile looks expensive, but it's offered at the same low price as all Armstrong Standard $\frac{1}{8}$ " Excelon Tile.

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builders. NCR's new computer manufacturing complex required a rugged floor with an outstanding appearance. Designer's choice: Imperial® Modern Excelon® Tile.



P/A

THIS MONTH

Progressive Architecture® December 1969

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The Great Museum Debate

P/A explores the explosive change taking place in the character of today's museum. The basic process of planning a museum is examined along with the pitfalls common to planning and designing museums. Statistics about museum construction and types of museums existing in this country are delineated, and fundamental questions concerning what a museum program should ask, and the importance of the exhibition itself and of display techniques are investigated. Concluding is a discussion of interior spaces for exhibition of artworks and of the different types of buildings designed for museum use. Among current museum construction illustrating the article are the following:

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THE PASADENA ART MUSEUM,
Pasadena, Calif.: Ladd & Kelsey, Architects.

UNIVERSITY ART MUSEUM,
Berkeley, Calif.: Mario Ciampi & Associates, Architects.

KIMBELL ART FOUNDATION,
Fort Worth, Tex.: Louis Kahn, Architect.

BROOKLYN CHILDREN'S MUSEUM,
New York, N.Y.: Hardy Holzman Pfeiffer Associates, Architects.

FLORIDA STATE MUSEUM,
Gainesville, Fla.: William Morgan, Architect.

UNIVERSITY MUSEUM ACADEMIC WING,
Univ. of Pa., Philadelphia, Pa.: Mitchell/Giurgola Associates, Architects.

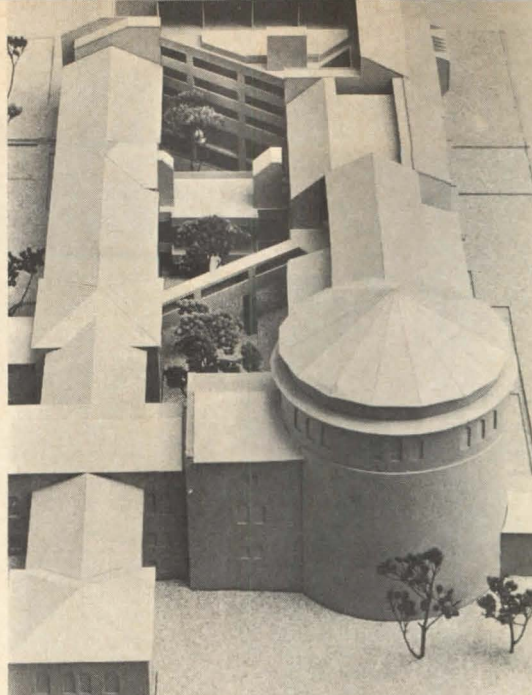
Yonkers' Regional Keep

An addition to a late-19th Century mansion provides a planetarium, a branch library, and community art facilities as well as exhibition space for the museum's collection. The superb handling of relationships with the existing building results in a revitalization of the old, and a direct expression of the new. *The SMS Partnership, Architects.*

86



Pasadena's flowing art spaces.



New Administrative wing encloses sculpture court.

Oakland's Urban Oasis

Highly acclaimed for its "invisible" character as an underground museum, the new Oakland Museum integrates structure with a landscaped oasis from within, and further shows the architect's concern for achieving a necessary and aesthetic experience through ecological means. *Kevin Roche, John Dinkeloo, Architects.*

92

Boston's Underwater Environment

Imaginative new lighting and signage, along with a one-way double-spiral circulation pattern, makes the New England Aquarium a scientific museum of the most up-to-date character. Illustrated are details of the structure and of the mechanical system, both of which are considerably complex owing to the enormous quantity of water supported in a central cylindrical tank with windows extending continuously from top to bottom of its four-story height. *Cambridge Seven Associates with LeMessurier Associates, Architects.*

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Oakland's varied galleries.

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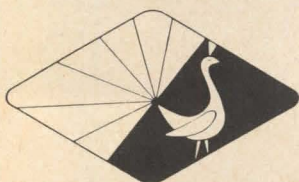


the Westvaco Building

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YOUR POINT OF VIEW

Portland: Full Slate

Dear Editor: I see by your news column (October 1969 P/A), "High in Portland's Sky," that your magazine considers Oregon "an architectural tabula rasa."

This will be news to Oregonians and, indeed, all people who have some knowledge of contemporary architecture in the United States. I suggest just off hand that you recall Oregon as the place where Pietro Belluschi did the early churches and houses that sent him on to national prominence; as the state that gave birth to the firm of Skidmore, Owings & Merrill, which has done a little to alter the face of America, you must admit; as the site of the Equitable Building, a major pioneer in curtain-wall design; as the place where attendants to the 1968 AIA Convention saw a significant departure in urban landscaping in the form of Lawrence Halprin's Lovejoy Plaza and Fountain; the list could go on and on, but perhaps you are too beguiled by the architectural splendors of Stamford, Connecticut, to heed the message. You might caution what seems to be all new staff to check its references before making such sweeping generalizations in the future, however.

*Bruce Bonine
Portland, Oregon*

Dear Editor: After reading Progressive Architecture's News Report, October 1969, entitled "High in Portland's Sky," I am compelled to express my concerns about material in the article.

First of all, admitting my naïveté, what the hell does "Oregon, an architectural tabula rasa" mean? The "50 Story Seattle—First National Bank" is not in Oregon; it is obviously in Seattle, Washington. You may feel that the new 40 story First National Bank designed by Charles Luckman Associates is a "Bud in this skyscraper-sprouting block of downtown

Portland," but I look at the whole thing as a canned press release by Luckman's P.R. firm.

The article further states that the complex mirrors Northwest culture with its marble, bronze-tinted glass, and bronze anodized aluminum. Come now! This is the second Los Angeles Palm Tree planted in our cold, rainy city. The other one is the "Bank of California" by Anshen and Allen of San Francisco.

It is unfortunate that some large corporations forget their heritage and the people that contribute to their growth and feel compelled to impersonalize both in image and community sensitivities. I believe it is even worse that Architects like Luckman's firm should be that insensitive to people, region and planning. I guess they really do not know any better, but they should authenticate their press releases and also know what materials go in what part of the country. We have a fine tradition of multi-story examples in Portland. The Equitable Building by Pietro Belluschi is still one of the most impressive "skyscrapers" in the country. You will agree with this—come out to Portland to look and you will see. The West Coast is not all Palm Trees.

*Saul Zaik, AIA
Portland, Oregon*

Airports

Dear Editor: We enjoyed your article on Airports (September 1969 P/A) and found it especially interesting in that, over the past few years, we have been involved with many facets of airport design and its development.

There is one small matter that we would like to clear up. In the article, "Airports: The Problems and Possibilities," the South Terminal for Boston's Logan Airport is described as being designed by John Carl Warnecke & Assocs. We would like to inform you that the South Terminal has been designed as a joint venture with principal design representation from Desmond & Lord working in New York City with John Carl Warnecke & Associates for over a year.

*Charles P. Hagenah
Desmond & Lord Inc.
Boston, Mass.
(More views on page 16)*

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Roofer: Iowa Sheet Metal Contractors, Inc., Des Moines, Iowa



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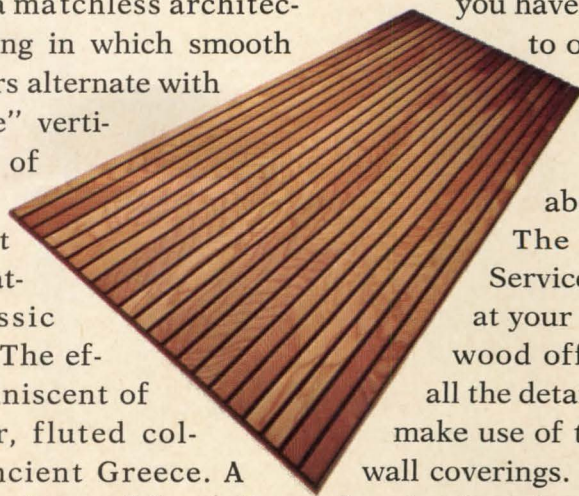
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Consulting Engineers: Farkas, Barron & Partners, New York, N.Y.
Contractor: Community Services, Inc., New York, N.Y.
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Heublein, Inc. selected an Accesso "instant-access" ceiling system for this modern corporate headquarters building in Hartford, Connecticut.



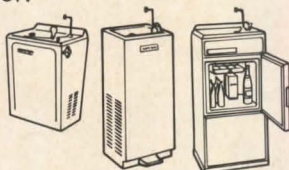
Tiles fit snugly to form a smooth, almost seamless ceiling with Accesso concealed suspension. The design here called for 12"x24" tiles, but 12" squares are equally convenient in the Accesso system. Note that overhead systems can be serviced easily without interrupting office operations. Just push a tile up and lift it out. No tools needed with the Accesso system. And every tile is an access panel!




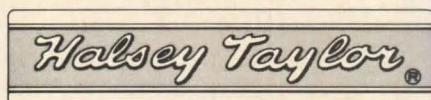
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PEOPLE PLEASER



(Continued from page 6)

Dear Editor: In reading the September 1969 issue I was impressed with your article on Airports, which is the kind of subject that, if well covered, makes it worthwhile to read *Progressive Architecture*. In the hope that you will continue to deal with broad, significant subjects in depth instead of reporting only individual design efforts I would like to renew my subscription beginning with the September, 1969 issue.

*Wilhelm von Moltke, AIA
Cambridge, Mass.*

We Stand Corrected

Dear Editor: Your September 1969 P/A article on Magister Gropius is one of the most original discussions on Walter Gropius and his legacy to American architecture that I have seen in recent times.

However, I would like to bring to your attention a few inaccuracies that existed in the article. In the list of distinguished architects that were in Gropius's master class at Harvard you should not have included Harry Weese's name. Although a distinguished architect, Weese was never a student at Harvard. Also John Carl Warnecke's name appeared under the photo of Benjamin Thompson's student dormitories at Colby College, Maine and Ben Thompson received the credit for Warnecke's library at the University of California, Santa Cruz.

*John Sheehy
Cambridge, Massachusetts*

Sad News

Dear Editor: I was saddened upon reading the P/A "Special News Report" on the Chicago convention (August 1969 P/A).

It was sad to read your editorial version of the convention proceedings. It was sad to see the type of material to which you saw fit to devote prestigious space.

I have delayed writing in order that I might read the report of the *AIA Journal*, and speak to some members of the Institute who were present at the convention, to get a clear and perhaps somewhat more accurate version of the proceedings and tone of the discussion.

*Gene Thompson, AIA
Winter Haven, Fla.*



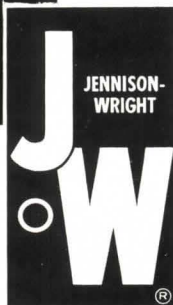
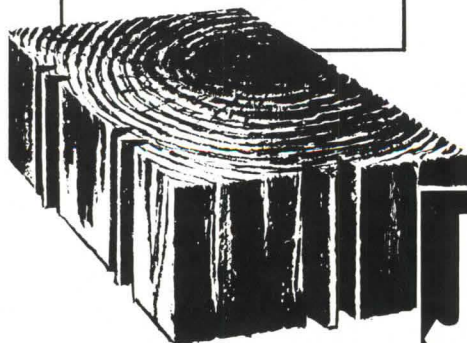
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The gutter with drain holes built below the Weathering Steel siding is a straightforward and attractive solution to the staining often associated with Weathering Steel.





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The building was hardly completed before additions were being made. The first phase of 200,000 sq ft is now being augmented with a 100,000 sq ft addition, and a new wing of 150,000 sq ft is under construction. The entire building will feature a Weathering Steel exterior. Because the building is steel-framed, there is flexibility in making these additions; simply remove the exterior and add on. And the contractor reports that the speed of steel erection lets him stay well ahead of schedule.

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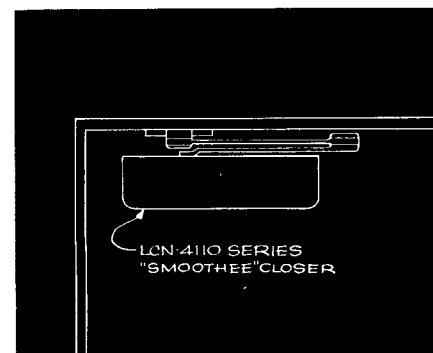


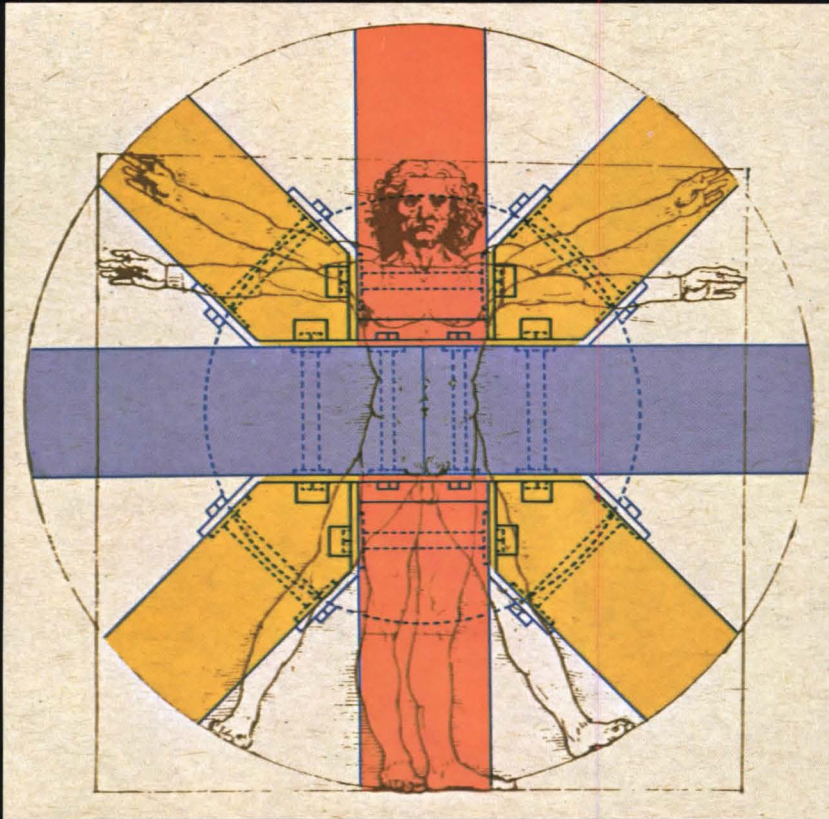
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They topped city hall with Koppers roofing

The new Boston City Hall was decided upon in 1962 when the architects won a national competition with their idea of just what a city hall should be. It is now a concrete and brick example of architectural achievement.

The organization of the building is complex but open—visitors can pass through their City Hall any time of the day or night and not be confronted by a single door. Erected on a sloping site, the lower floors are partially buried and include garage space, files, computer rooms and offices. The second and third

floors hold those government offices most contacted by the public. The top four floors contain office spaces requiring a minimum of public traffic, and hung below them at the fifth level are the elements of symbolic and civic importance: the Mayor's Suite and the City Council Chambers.

The roof of City Hall is a 74,000 square foot, 4-ply Koppers roof. On the concrete deck, a vapor barrier of one-ply tarred felt was laid, then 1½" ridged insulation board. Next came alternate layers of coal tar pitch and tar-saturated felts with a

final heavy top pouring of coal tar pitch with aggregate embedded.

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Architects and Engineers for the Boston City Hall:

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"Like a bouquet of open umbrellas" new library roof is built with 550 laminated wood beams

The bouquet description was given by one of the students at Wells College where the Louis Jefferson Long Library was recently completed. It is apt because the multiple traverse system involved nine different floor pods, three floor levels and 84 separate roof planes. The 550 laminated wood structurals range in length from 8' to 36', in widths from 5" to 11", and in depths from 8" to 13". Almost 39,000 board feet of western red cedar was used for the 3"x6" and 4"x6" double tongue and groove decking.

The library's 55,000 square feet

include stack space for 250,000 volumes, seating capacity for 328 people, various study environments, seminar rooms, a music listening area, a rare book room, a permanent art gallery, and a room which is planned for electronic carrels for information retrieval from library centers.

Because of the numerous elevations and roof planes, every laminated structural member was custom-fabricated by Koppers with varying dimensions, angles of cut, and locations of connections. To coordinate the roof construction a

"hot line" was set up between the architect's office in Chicago, the Koppers plant at Peshtigo, Wisconsin, and the job site in Aurora, New York. The shop production drawings were used as blue prints for erection, and only one minor on-the-site modification was made in putting the entire system in place. The job was completed in only 165 working days, from the start of drawings to placement of the decking.

Architect: Skidmore, Owings & Merrill, Chicago, Illinois



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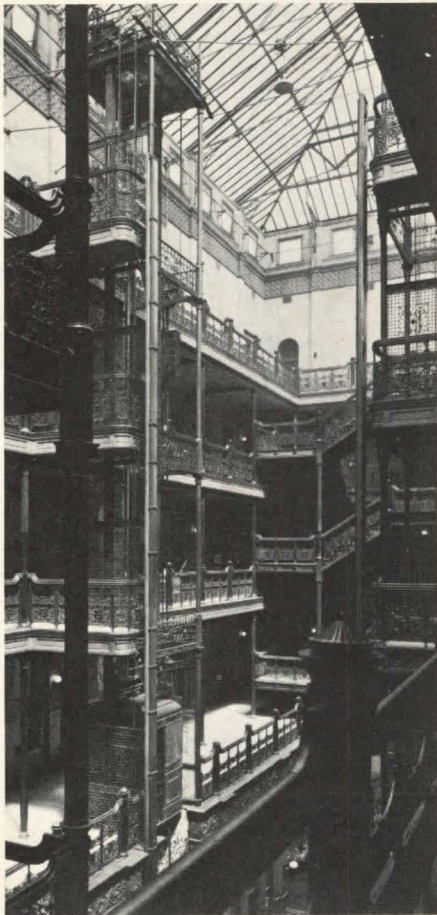
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NEWS REPORT



Bradbury Building Again Attracts Professionals

Following a \$100,000 restoration, LA's famous Bradbury Building has become the new home for the Southern California Chapter of the AIA.

Built in 1893 by a mining millionaire, Lewis Bradbury, for a staggering ½ million dollars, the building had a luxury few office buildings have — a spacious interior court. Because of the lack of outward views in the rather industrial neighborhood, the architect, George Wyman, decided to turn the building in on itself. The exterior walls, all constructed of sandstone and brick, are treated with straightforward classical reserve. On the interior court however, these walls are laced with ornamental ironwork balconies, stairways and elevator shafts. Combined with the glassed-in roof, the court creates an in-

triguing ambiance evocative of a French "galerie." The architect used marble in combination with ironwork stairways, but rejected it as a cladding for the walls in favor of simpler regional brick and tile. The sophistication and sensitivity apparent in the general handling of materials, proportions, light, and space, is all the more surprising considering the architect had no formal training in architecture or engineering, nor did he ever again design a building.

Upon completion, the building was a prestigious address for a number of years, until both the neighborhood and building suffered general deterioration. The present owners, Western Management Corp., however, after some pressure from various architectural, planning and community groups decided on a restoration to assure the building's preservation. For many years leased by a textile business, the building will now house professional offices as it originally did.

A Plan for New York City

At its fortieth annual conference, the Regional Plan Association hosted the debut of New York City's first comprehensive city plan. Drawn up by the New York City Planning Commission, the plan is designed to deal with the city as it now is and to guide its course of action over the next five to ten years.

The scheme was officially presented on November 18 by Donald Elliot, Chairman of the City Planning Commission, and then was the subject for six panel seminars (running concurrently) and numerous small round-table discussions. Black militants representing community planning groups dramatically disrupted the morning panels and luncheon speeches. Pointing out that blacks and Puerto Ricans had not been involved in drafting the plan, they chanted "Damn, Damn the Masters' Plan."

Their unilateral confrontation tactics were abandoned by afternoon however, when they participated as individuals in the round table discussions. Meaningful dialogue resulted which, if the stated intentions of the CPC are effected, would considerably shape the final version. Questionnaires submitted by participants and future public hearings are also a part of this feedback process.

The New York City plan is not

simply a physical blueprint for the development of the city, but proposes social, economic, and governmental changes as well. It affirms the concentration which characterizes New York in its educational, cultural, financial, and business facilities, and is its source of vitality. The congestion, a result of concentration, is blamed on lack of planning.

The proposal not only deals with major city-wide problems but focuses on specific neighborhoods, with chapters on each of the sixty-two community planning districts in the city, and on Model Cities neighborhoods.

The plan focuses on:

1. Strengthening the city's role as a national center of finance, business, communications, and culture.
2. Creating new opportunities through jobs, education and health.
3. Strengthening neighborhoods and improving recreation.
4. Improving governmental procedures to provide more flexibility.

In strengthening the city's role as a national center, planned growth is encouraged in undeveloped areas, such as west Midtown, and the downtown waterfront areas. Specific recommendations are made for cohesive building schemes that will provide a

(Continued on page 29)



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(Continued from page 27)

mixture of uses and amenities.

One Midtown area west of Eighth Avenue would provide 30 million sq ft of office space tied in with new hotels, housing, parks and civic facilities. A two block strip of buildings planned along the axis of a proposed 48th Street cross-town subway is set back for a wide pedestrian walk from Eighth Ave. west to the river. Crossing this axis would be a new superliner terminal, and nearby, an exhibition center.

Another timely scheme came as a result of numerous studies of existing available land and transportation, climate, topography, pollution, wind and historical development patterns. It calls for developing Staten Island by means of a high density corridor along the route of the existing rapid transit line following the southern shoreline. Strips of high-density housing would branch out from the spine with parks and recreation filling spaces in between. Community facilities are organized along the spine particularly at points of intersection between the rapid transit line and the cross-island bus routes.

City-wide transportation facilities are also examined in the report, accompanied by recommendations and exhortations (for example, calling for the speedy installation of a Second Avenue subway line tunneled through bedrock in order to prevent the usual above ground traffic jams during construction).

In another area, the Commission urges the city to stimulate business enterprise in the ghetto, contending that the Black and Puerto Rican minorities will have to be brought into the economic and social matrix of the city. Numerous other recommendations in this section deal not only with jobs, but also with welfare, health, and education.

Regarding neighborhood environments, the city plan calls for working within the existing fabric to create better neighborhoods. It also suggests that instead of a fixed static plan for re-

habilitation, the city needs to move by increments; instead of using monolithic housing schemes, a mixture of types should be tried, and architectural experimentation encouraged. Incentives are suggested for dealing with developers of sub-divisions in outlying areas to encourage better design, and for dealing with rent stabilization problems in the city.

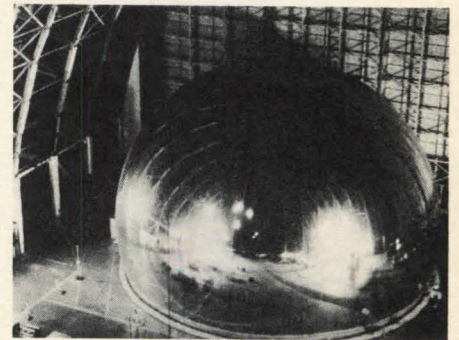
The city plan also analyzes methods for city improvement, backing the Model Cities approach as the principal vehicle of rehabilitation. However, it recommends that other areas be rezoned on a selective instead of on a wholesale level.

Sanitation, protection, and other city maintenance problems have come to the attention of the City Planning Commission, as has the governmental structure. The Commission states that the city's budget system is too highly centralized, too concerned with minutiae, too rigid. Furthermore the relationship between city and state is in need of change. The city often has too many responsibilities assigned to it but not the necessary funds to meet them. The city plan calls for more city and state aid (seven billion more for the next decade than is now apportioned), and a more equitable method of sharing city revenue with the state.

All these various proposals only touch on the many covered in this intensive, realistic, and well-thought out report. The plan is so comprehensive that it seems more like a mayoralty position paper than a city plan. (That it was accomplished under Mayor Lindsay's aegis speaks well for his grasp of city problems). It surely represents something new in city plans — it redefines the term to embrace the social, political, and economic concerns that increasingly dominate architectural and planning decisions in the urban milieu.

What is disturbing however are the practical limitations of the plan implicit in the document's consistent use of the verbs "propose," "suggest," "encourage,"

"urge." Nowhere is there discussed actual methods by which implementation would occur. That this plan is a guideline for change is understood, but what is not understood is whether the suggestion, encouragements, and proposals will indeed be followed, and whether the Commission will have real control over the city's growth. If not, then this plan is little better than an extensive compilation of recent essays on New York City by planners, sociologists, architectural critics, and New York Times writers.

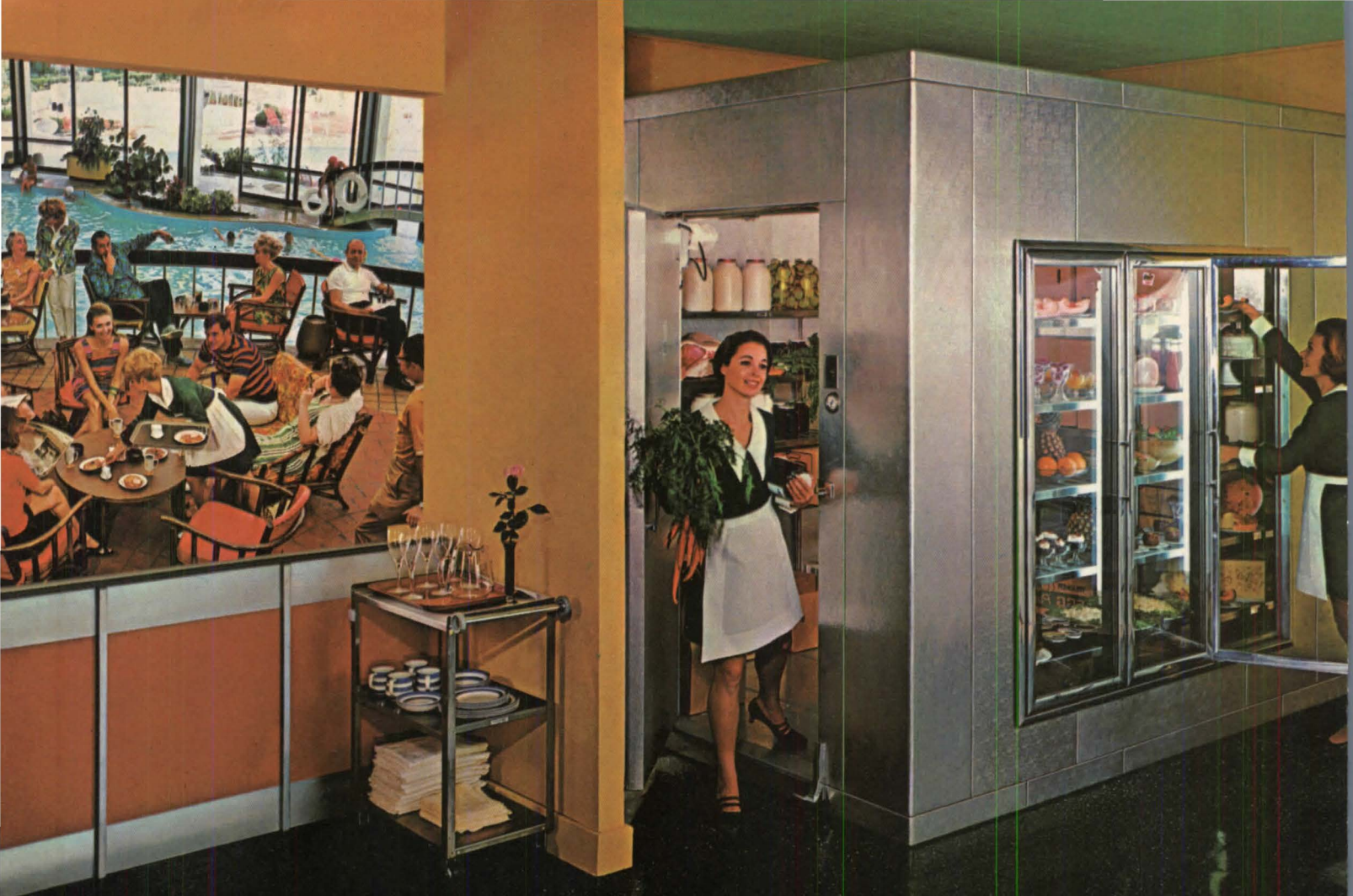


Mirror Dome for Osaka '70

Pepsi sent up a trial balloon in Santa Ana, California for its main show "World Without Boundary" at Expo '70 — a vast 210-degree concave mirror of 13,000 sq ft of aluminized mylar. This unique sphere didn't leave the blimp hangar, but did explode the boundaries of the senses.

Pepsi and EAT (Experiments in Art and Technology) hit on the idea, David MacDermott, Western Regional President of EAT and his associate, Ardison Phillips, narrowed it down, and with a team called Envirolab, they designed it. Envirolab is three graduate and graduated students from UCLA's School of Architecture and Urban Planning: Chris Dawson, Denny Lord and Alan Stanton.

Mylar was selected for the 90-ft diam. 55-ft high single-skin air-supported structure because it is the strongest of the p.v.c. materials for its weight. A circular double-collar system traps and holds the fabric's edge. — EM



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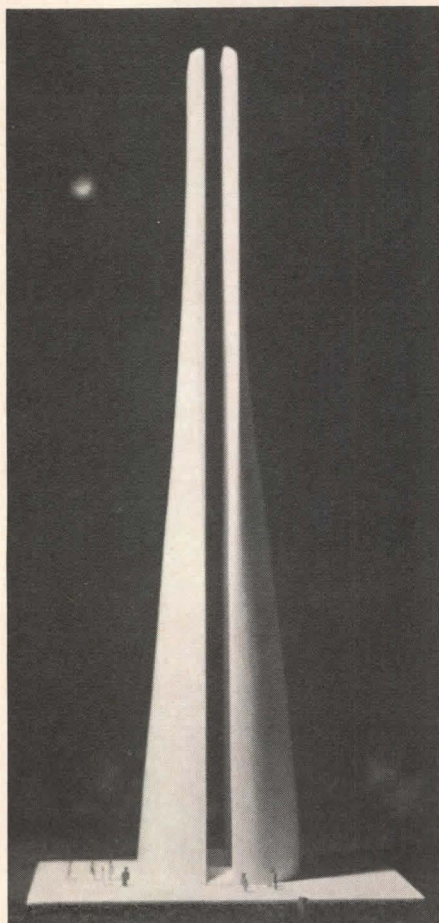
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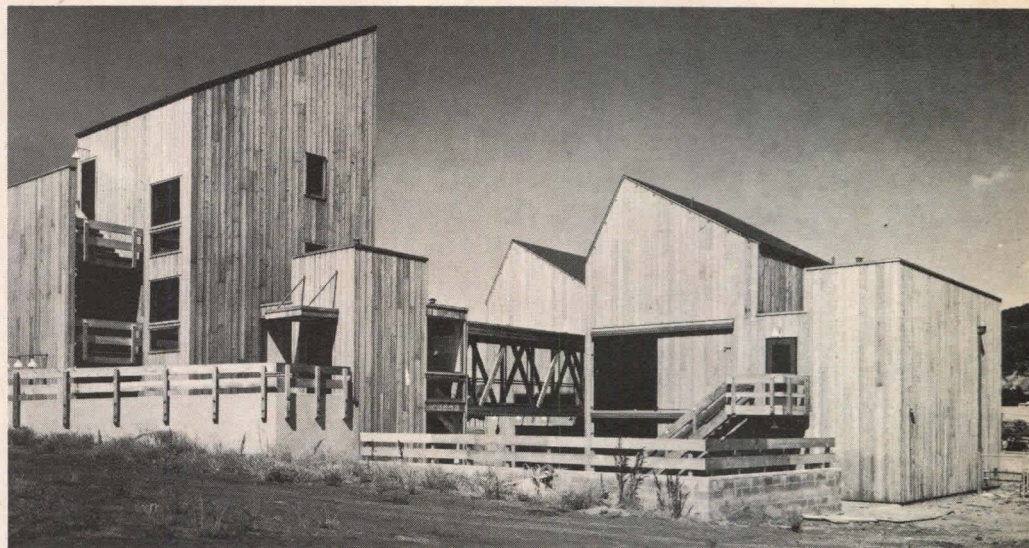
Buildings on the Way Up



Selene Monument to Man's Conquest of the Moon

*Dahong Wang, Architect,
of Taiwan China*

Named after the Greek goddess of the moon, this projected monument is fraught with symbolism, but simple enough to be appreciated on its own merits. The design is composed of twin stelae of reinforced concrete resting on a square limestone podium. The stelae, which symbolize the arms of man reaching for the moon, extend to a height of 238.8 feet to represent the mean distance in miles between moon and earth. The stelae's form, semicircular at the base and tapering to flat slabs at the apex, creates a circular hall only 33 feet in diameter but "infinite in height." Inside the hall stands a memorial block with the appropriate inscriptions honoring those who made it possible to reach the moon.



Douglas County Museum

*Roseburg, Oregon
Backer, Arragoni, Ross*

This historical museum's separation into four connected wood frame buildings gives it a small scale and flexibility. An enclosed bridge forms the main axis of circulation, connecting the four-level entrance tower to two two-level exhibition pavilions. There an interior bridge-type circulation scheme carries people across large open spaces containing space-con-

suming installations such as farm implements. An exterior court also serves for exhibits, as well as a third pavilion — an outdoor covered display area for exhibition of heavy pieces of machinery. Flexibility of interior spaces is provided by a system of movable hung panels, and expandability assured by the modular basis of the design which allows additional units to be "plugged in" to the open-ended structures.

Armstrong Rubber Company

*West Haven, Connecticut
Marcel Breuer and Associates*

At first glance the separation of this building into two bulky masses may seem puzzling. According to the architects, the four floors of the administration's office space are raised above the two story research and development facility to express their separate functions while emphasizing their connection and for built-in expandability. Looking at the structure, however, it's more likely that the division is to emphasize that the top four floors are hung from steel roof trusses spanning the 186' from the end walls of the two stairwells. From the end of each of the seven 50-ton trusses, steel hanging columns drop the dis-



tance of four floors, connecting to a network of beams. The steel structure, sheathed in precast concrete panels and poured in place concrete, is an interesting one but nevertheless leaves a presently unusable floor. The solution seems to provide an innovative structural answer to a problem that really doesn't exist.

(More buildings on page 33)

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Buildings on the Way Up



Dragon Fort

*Ito City, Shizuoka Prefecture,
Japan
Youji Watanabe*

The rather odd name for the home and clinic of a pediatrician results from its visual affinity to the coiled body of a dragon. Jutting out from the side of a slope modified to give a southern exposure to the rooms within, the

crude concrete structure rests on piloti. Pedestrian and vehicular access proceeds beneath the structure where part of the site ground has been cut away to create a spiraling ramp. The influence of Corbusier with whom the architect once worked is in evidence — and as the architect enthusiastically exclaimed to a friend, he has indeed gone beyond Corbu.

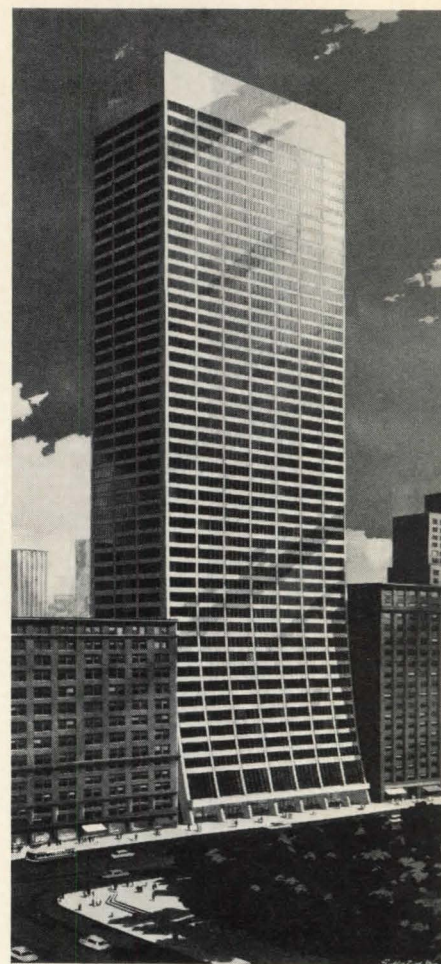


Climate-Controlled City

*Anchorage, Alaska
Adrian Wilson Associates*

The world's first totally climate-controlled city, Seward's Success, is projected for construction in Alaska. The \$800 million development will house 40,000 people, a scheme financed by Tandy Industries Inc. of Tulsa, Oklahoma to accommodate a growing oil industry on the west side of Knik Arm, opposite Anchorage. All transportation will be enclosed

and restricted to moving sidewalks, tramways, bicycle paths and a weatherproof monorail connecting the city to downtown Anchorage and the airport. Nevertheless there will be conventional roads and railroad lines to bring supplies to the city. In the initial phase of construction the town depends on one main shopping center, but as the population expands additional facilities will be located in each of the separate units.



Office Building

*West 42nd Street, New York,
New York
Skidmore, Owings, & Merrill*

A 50-story skyscraper will rise on the site of the old Stern Brothers Dept. Store looming over the rest of this block facing Bryant Park. Evidently the architects thought the similar form of C. F. Murphy's First National Bank in Chicago had some merit to it: as SOM partner Gordon Bunshaft explained, the curving walls allow more floor space for the lower 19 floors without having to use the usual setback facade to conform with the zoning restrictions. For this reason, this new form threatens to become as much of a design cliché as the ziggurat. Yet the architects don't seem to be avoiding already existing clichés in this scheme: materials will be marble travertine and tinted glass and there will be the usual token Sixth Avenue plaza adjoining a 43rd Street entrance.

(More buildings on page 35)



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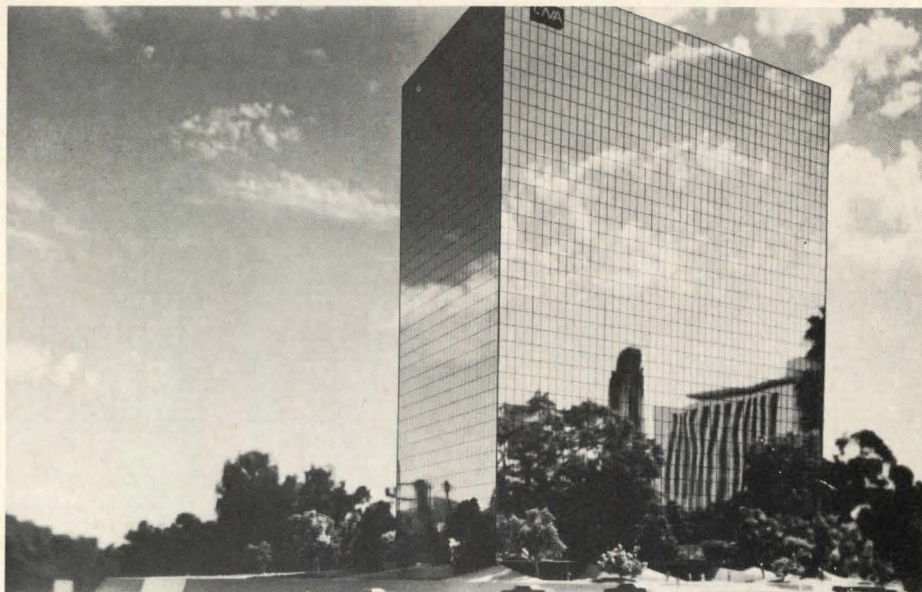
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Buildings on the Way Up

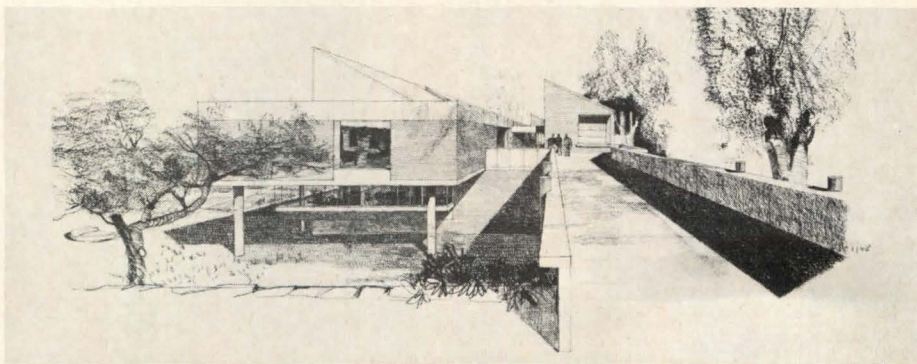


CNA Financial Building

Los Angeles, California
Architect: Langdon and Wilson

This 19-story building springs out of a raised plaza that conceals four levels of parking for 600 cars. Planting at the base of the plaza, designed by landscape architect Emmet Wemple, will relate the plaza to the 11-acre Lafayette Park contiguous with the

site. The glass skin — sandwich panels of softly reflective gray glass and clear glass with an insulating vacuum between — will mirror the trees in the park and plaza, so that the building will, as architect Ernest Wilson Jr. says “sometimes disappear.” The structure will provide 3500 square feet of office space. — EM



Mount Holyoke College Art Building

South Hadley, Massachusetts
Hugh Stubbins and Associates

A three-story art building will soon join a number of other Hugh Stubbins buildings on this campus, including three dormitories, a library, a psychology and education building, and a new laboratory theater. The brick, glass, and concrete structure is to be

built on a sloping site accessible from two road levels. From the upper road level a two-story teaching facility cantilevers out on concrete posts over a museum level accessible by the lower road. This organization responds appropriately to the distinct functions contained within the building and to limitations of the site.



Tour Maine Montparnasse Center

Paris, France
AOM (Beaudouin, de Marien, Cassan, Saubot), architects
A. Epstein and Sons, Inc. of Chicago, Consulting Engineers and Architects

Europe's tallest office building, surprisingly only 56 stories high, is now under construction. Unfortunately, however, this bronzed-tinted aluminum and solar glass skyscraper is planned for Paris, known for its low rooftops where 56 stories will tell, especially on a hill in Montparnasse. The architects, a group specially formed for the project, hope that it will become another landmark along with the slightly higher Eiffel Tower. What the project will accomplish — with its skyscraper, enclosed shopping center (bound by a modified French arcade), elevated plaza and two low-rise buildings — is the introduction of an old American tradition of building without regard to the scale of surrounding neighborhood. In fact the oval tower and elevated plaza seem to be specifically borrowed from Hartford's Constitution Plaza and hardly applicable to these circumstances.

(More buildings on page 39)

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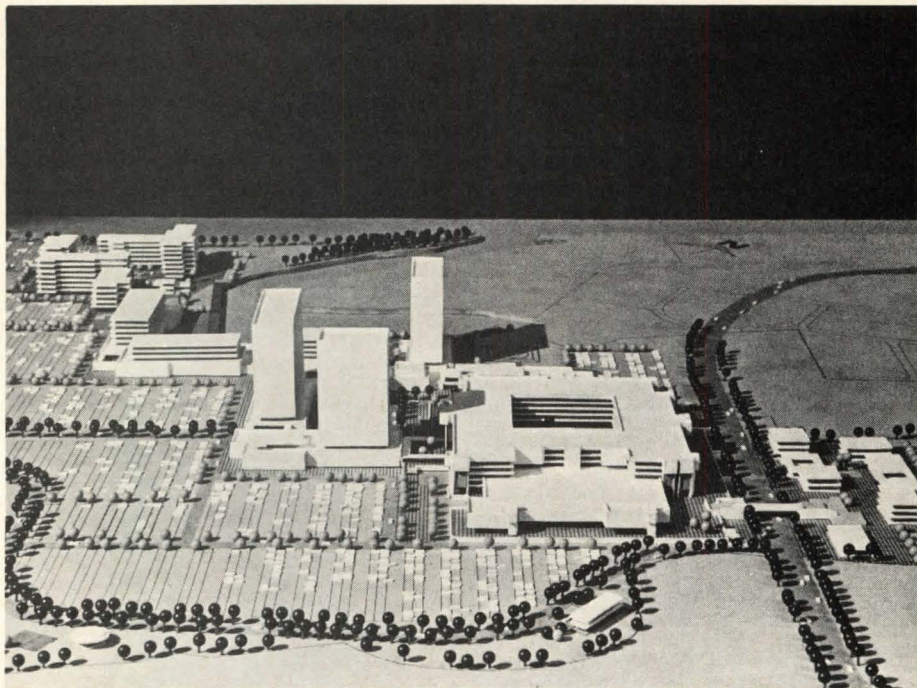
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Buildings on the Way Up



State Street Bank Center

Quincy, Mass.
Welton Becket and Associates

A marshy area filled with chunks of paving stone from old roadbeds and debris from torn down buildings will become the site for a \$100 million commercial and residential development on the outskirts of Boston.

First to be built in this scheme is a 5-story operation center for several departments of the State St. Bank and Trust Co. The pre-cast concrete structure will have an open court in the center onto which offices face for added light and views, and a recessed ground

floor facade with a covered walkway at the building's perimeter. Adjoining the center is a two-story computer wing made windowless as a security and climate control measure. By 1972 the 740,500 square foot center should be finished and construction begun on the rest of the plan. Additional buildings include two 16- to 18-story office buildings, a hotel, two 5-story office buildings, a pedestrian bridge linking with several 3 and 4 story office buildings and in the final phase, a group of four apartment buildings containing 425 units and a marina.



Automobile Club of Oklahoma

Tulsa, Oklahoma
Whiteside, Schultz, Chadsey

The choice and use of materials are quite appropriate for the bold structural form of the building. The natural materials, brick and rough concrete are found throughout: load-bearing interior-exterior brick walls carry concrete floors; ceiling coffers in the ground level — a large public information space — are concrete; columns and partitions are brick.

Mendelsohn at the Museum

Eighty drawings by Eric Mendelsohn, done in the years 1914 to 1929, are currently on view at the Museum of Modern Art. Selected from a larger exhibition organized by the University Art Museum at Berkeley, the sketches include many he executed in the trenches during World War I, and many equally compact and dynamic sketches drawn while listening to music.

Many of the sketches were exhibited for the first time in Berlin fifty years ago, and according to Ludwig Glaeser, Curator of the Department of Architecture and Design of MOMA, they found immediate attention in the revolutionary climate of the day. He states however, that "nothing in his work justifies Mendelsohn's being classified as a German Expressionist architect. He is attracted by the expressive potential of steel and concrete but in much the same way as his *art nouveau* predecessors."

Mendelsohn's first commission, the famous Einstein Tower, a solar observatory completed in 1921 in Potsdam, is also represented in the exhibit by photographs. It was because of this building, Mr. Glaeser asserts, that he received more commissions than any other architect of the modern movement: Mendelsohn's many department stores of the 20's — illustrating his "urbane version of elegantly curved facades and horizontal ribbon windows" — helped popularize modern architecture.

Personalities

William L. Slayton has been appointed Executive Vice President of the American Institute of Architects. He replaces William H. Scheick who held the position of Executive Director for 8 years. (p. 46 for details) . . . Walter J. Monasch has been elected the new president of the American Institute of Planners of Washington, D.C.



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forms, lumber, insurance—are taken care of by Ceco.

Curtainwall construction, furnished mainly by Ceco, was also specified for economic reasons. Ceco aluminum windows and curtainwalls with bronze and black anodized finish call for little maintenance. The wall systems effectively insulate against outdoor noises.

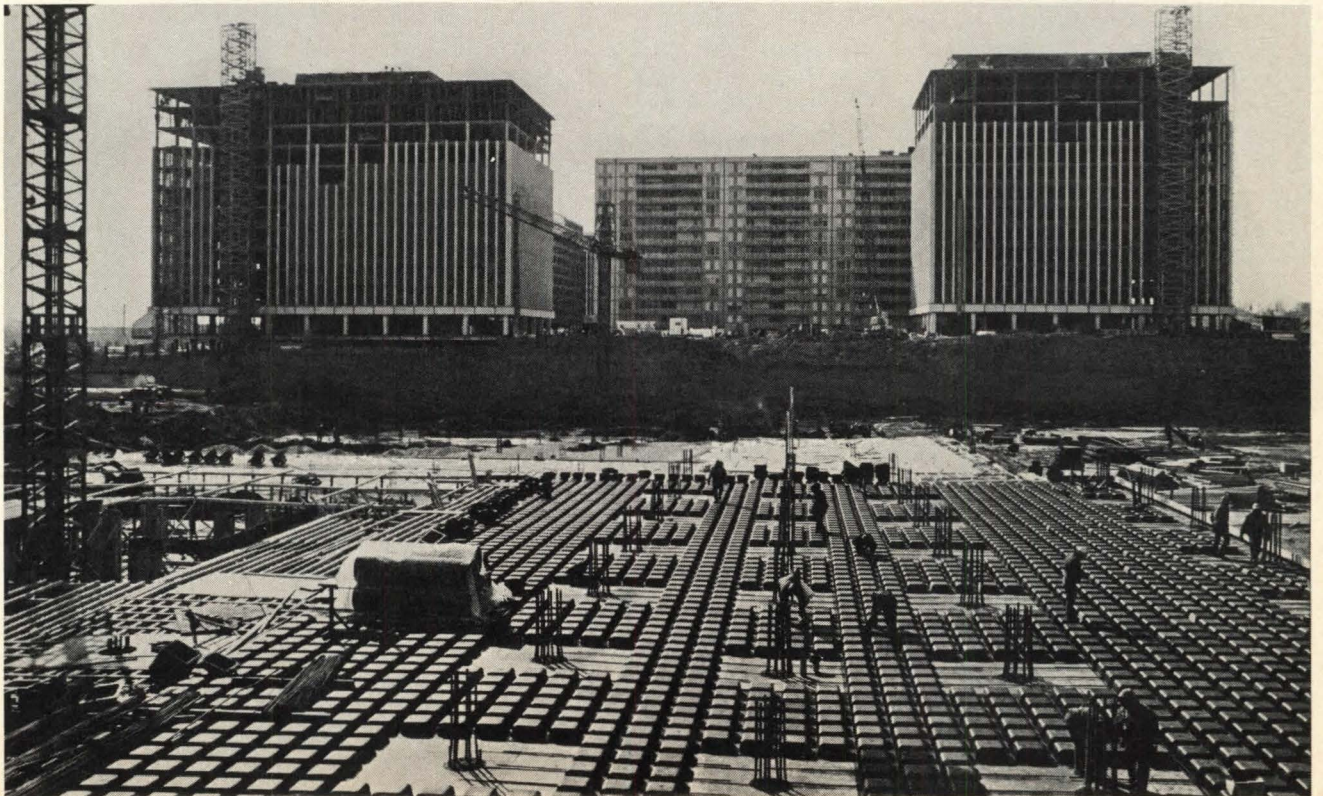
Ceco's specialists can help you plan and build your project from frame stability to outer "personality." Their help can save you money. Fine buildings deserve the advantages offered by Ceco's Experience in construction services and products. The Ceco Corporation, general offices: 5601 West 26th Street, Chicago, Ill. 60650.



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Ceco Steelform Service for 790,000 sq ft of monolithic concrete joist construction
 12,700 tons of Ceco-fabricated Reinforcing Steel
 480,000 sq ft of Cecocolor Anodized Aluminum Windows and Curtainwalls



Foreground—Ceco Steeldomes in position before placement of reinforcing steel and pouring of concrete

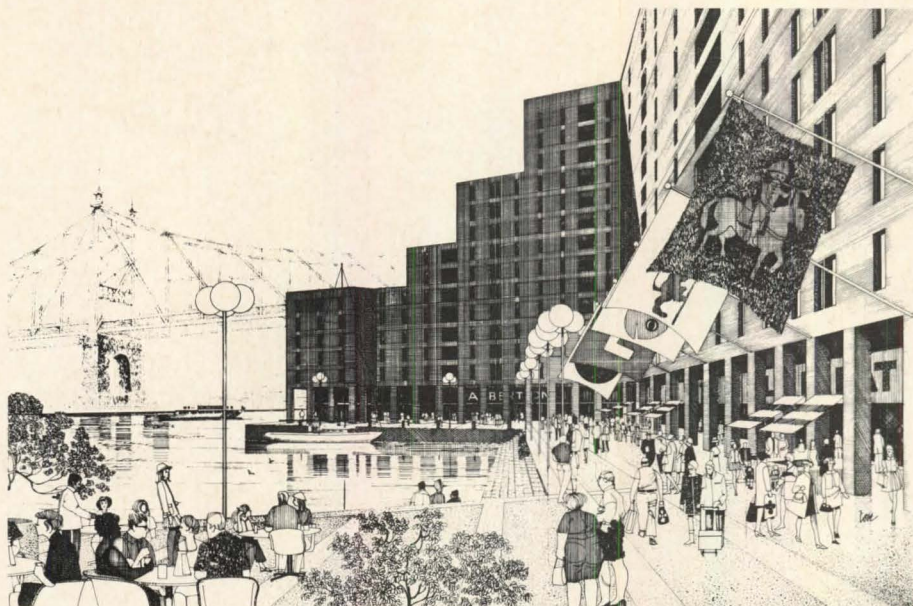
The Development of Welfare Island: The State Steps In.

Relations between New York City and its state government have been admittedly uneasy in the past (many New Yorkers feel that state legislation affecting the city is too often generated by far-flung rural groups who have no awareness of city problems). The New York City Board of Estimate nevertheless has agreed to ratify the 99-year lease of Welfare Island to a state agency, the Urban Development Corporation.

Created by the state in 1968, the purpose of the agency is essentially to override the delays, red-tape and inefficiency of local governments attempting to administer their own urban development programs. This single agency is empowered throughout the state to oversee not only planning, but financing and execution of projects otherwise unattractive to private capital. Although the agency encourages private investment, it has been given a billion dollars of state borrowing power. As required by law the UDC must establish local community advisory committees for its projects, but nevertheless is legally empowered to ignore local zoning laws, building codes and other obstacles.

Despite New York City's financial inability to develop Welfare Island on its own, it has been fearful of the UDC's potential steam-roller tactics. Thus the vote by the Board of Estimate to lease Welfare Island for 99 years (for which the city will receive over a \$1-million a year rent plus the equivalent of any profit earned in future years) became a crucial issue. The city nevertheless has the assurance of being well represented on the Welfare Island Development Corporation which will supervise the actual design, construction and management of the project; it will have eight city members instead of the original four called for in the contract.

The actual plan for the \$200 million development has already been drawn up by architects Phil-



ip Johnson and John Burgee, and was on exhibit during October at the Metropolitan Museum of Art. Two building groups presently on the island will be kept; the Bird S. Coler Hospital at the northern end of the island and the Goldwater Hospital at the southern tip—the city cannot afford to relocate them. Also to be retained (and restored) are several landmarks of interest. The rest of the 147-acre island will consist of park land with a new town in the center of the island.

A park belt separates the new town into two parts. The southern section will contain the town center, a “dumbbell” scheme composed of a glassed-roof arcade connecting a “waterfront” town square on the Manhattan side to a “harbor” square on the Queens side. The buildings, architecturally non-specific at this stage, are clusters four to twelve stories high in order not to impede the view of Manhattan from Queens. The plan also calls for a 2000-car garage to house all private autos, a “minitransit” system, schools, day-care centers, swimming pools, fire and police stations, and a new subway connection to Manhattan and Queens.

Since the lease has now been

approved, detailed designs can begin immediately. By agreement, construction must be underway in 18 months with full completion in eight years. Although the 5000 housing units will be equitably mixed—30 per cent low income (of which 10 per cent will be for the elderly), 24 per cent moderate, 20 per cent middle income, and 25 per cent conventionally financed—already there is critical comment. A member of the Community Planning Board, which has Welfare Island in its territory, claims that nothing has been stated about how residents will be selected for apartments. Furthermore he points out UDC's chairman, Ed Logue is known for his “contemptuous disregard of the community he is dealing with.” A number of hospital patients and residents on the island complain that housing facilities and jobs for them were not spelled out in the lease. Hopefully these issues will be faced by the Welfare Island Development Board. At any rate, the N.Y. Chapter of the AIA fully endorsed the proposed project on this once neglected piece of land, urging, however, that the park space be designed for full recreational use and easy access.

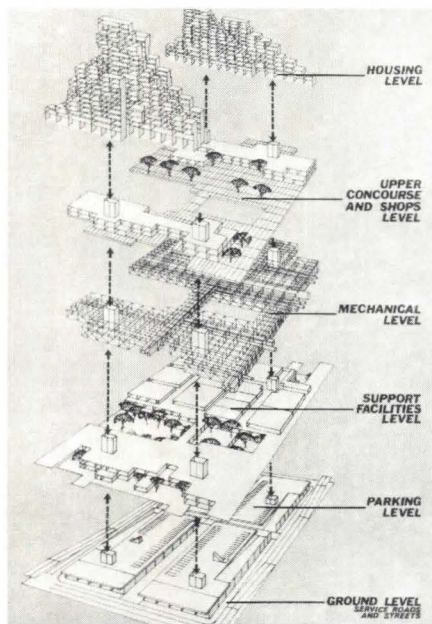


**These light fixtures are 2' x 4'.
Picture them as 1' x 4'.**

Or 1' x 1' or 2' x 2' or 3' x 3'. Fact is, any of these standard troffers fit the new C-60/60 Luminaire Ceiling System by Armstrong. So now a room can have special design and lighting effects or meet a variety of lighting requirements without sacrificing the advantages of an integrated ceiling system. With Armstrong C-60/60, all that need be changed is the lighting function. C-60/60 (the accommodating square) and other ceiling innovations are described in our folio. Please write for a copy. Armstrong, 4212 Watson St., Lancaster, Pa. 17604.

Or on Readers' Service Card circle No. 300.

Armstrong
Ceilings Systems that work



Stratasystem: Renewal without Relocation

Architects Eggars & Higgins recently developed a conceptual system to bring about urban renewal without relocation. The proposal, known as "stratasystem" involves building new self-contained neighborhoods of 4400 persons, each neighborhood constructed on platforms over streets, vacant land, abandoned, or still-occupied dilapidated buildings.

The housing would be supplied with an upper level of shops while underneath the platform, would be trunk space for the mechanical system. Added as relocation progresses upward, are the parking level, and stores, offices, and other community-support facilities at grade (see diagram). The strata-form is nevertheless flexible enough to "descend" to parks, historical sites and areas with existing housing restored.

The system, devised without a client or immediate promise of implementation, envisions a basic minimum area for application at eleven acres, or two New York City blocks. Six to eight of these neighborhoods, linked by pedestrian malls on the concourse or housing level and levels beneath, would form a community. Built on a modular basis, the type of housing is adaptable to any type of construction technique, wheth-

er conventional steel or concrete, or prefabricated methods. Neither high-rise nor low-rise, the four-ft modular town houses rise in stepped increments. The rectangularly planned apartment buildings have dwelling units flanking a longitudinal corridor because of this organization's suitability to either conventional construction or innovative plug-in prefabricated modular units.

The system which could be built on private land with air rights leasing, would have to be government-subsidized for low-rents. Yet the construction of a stratasystem community for 35,200 persons should cost 411 million, 25 million less than a conventionally designed project and without the problems and upsets of relocation.

Paul Mellon Center: A Focus for Controversy

Louis Kahn has been announced as the architect for the new Paul Mellon Center for British Art and British Studies at Yale University. Designated for a site across the street from the Kahn-designed Yale Art Gallery, the center will house the Mellon collection of paintings, drawings, and rare books. It will form what Yale believes to be "the most comprehensive center of British culture outside the British Isles."

Although the scheme has not been projected yet, the plan to build a center has stirred up discussion among faculty and students for some time. Since the site is one containing existing commercial and housing facilities for the town, and at a point where Yale and New Haven life overlap, students and faculty urge that the solution retain existing town amenities in order to have meaning for the entire community, as well as the university. They fear that the new center will express the usual Yale approach of isolating functions behind closed walls, and building "architectural monuments." There is also the suspicion that the building will be se-

verely limited in program to only serve a handful of British scholars. In response to these issues Jules Prown, Director of the Paul Mellon Center has declared he too hopes to make the center a public place for the people, with art, book, and gift shops, to create a "vital urban space."

The Proliferation of Trash

With the problem of garbage accumulation growing more acute every day, studies are being constantly conducted to find new ways of disposal—and some attention is even being directed toward prevention.

In Boston, two residential sections are slated to become laboratories for experiments on better methods of waste and litter disposal. The Ford Foundation-backed program will try out new technological equipment such as individual home garbage compactors, new types of home incinerators, and underground pneumatic tubes to convey garbage to the disposal site. Also part of the experiment is the use of giant vacuum sweepers for the street, and household refuse grinders that would put all trash, except for cans and bottles into the sewage system.

This experiment is being designed and executed by a diverse professional group: Dr. Robert P. Burden, an environmental specialist at Harvard; CIRCLE, Inc., a Boston black leadership organization; the Organization for Social and Technological Innovation, a private research group, and several architect-designers from the Triton Foundation, a nonprofit urban environmental study group. The two sections of the city each involve 5000 people, one a section of row houses, now apartment units, the other a deteriorated section of one-and two-family detached houses. As Dr. Burden states, the study hopes to find out the basic cause of too much litter—people or technology, or both.

(Continued on page 49)



**Visual
Drama
with
PPG
Glass**

PPG Glass helps open up Miami

Mutual of Omaha asked for a dramatic glass wall design for its new building to take full advantage of its view of Biscayne Bay. The architect faced a very difficult design problem: keeping a glass wall building cool in spite of the intense Florida sunshine. He found PPG's *Solarban® Bronze (3)* *Twindow®* Insulating Glass an excellent solution to both esthetic and engineering requirements. The warm bronze tone of *Solarban Bronze* was selected as a handsome color complement for the building's white concrete columns, and as an extension of the bronze tones of the exterior metals and interior color scheme.



The reflecting qualities of *Solarban* add design interest, help keep the building comfortably cool, and significantly reduce the size and cost of the building's cooling system. The functional and design advantages of PPG Performance Glass have made a larger, better view of Miami both possible and practical.

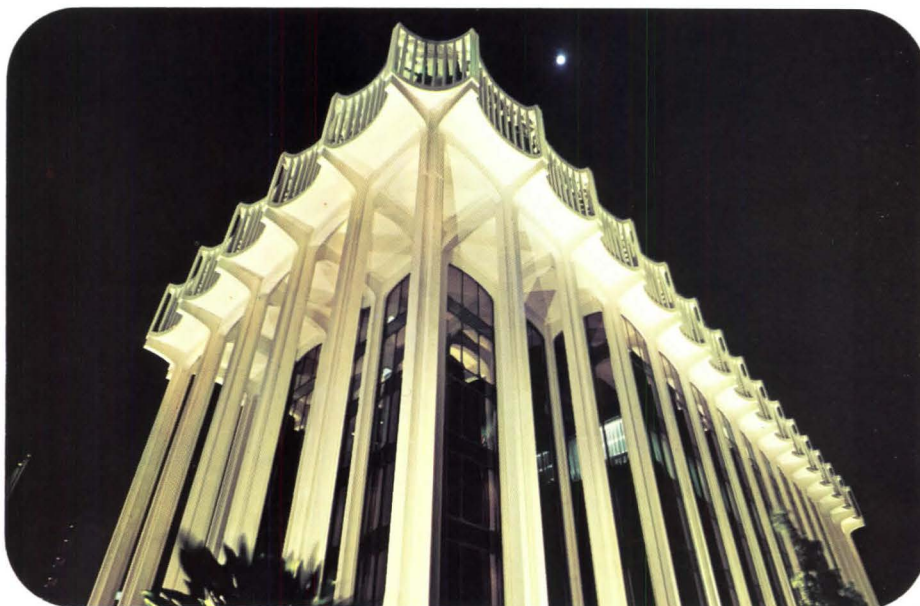
The custom *Twindow* units were fabricated to match exactly the poured-in-place arches. The curves of the window openings correspond with the arches extending from the tops of the building's exterior columns.





With *Solarban Bronze (3)*, sunlight seems only one-eighth as bright to the indoor viewer, an important consideration with light-colored concrete construction in the brilliant Florida sunshine. The bronze hue of these units harmonizes with the warm earth tones selected for the interior decor.

Solarban's reflecting qualities provide a new visual dimension to the building while turning back much of the sun's radiant energy.



Architects for the Mutual of Omaha Regional Home Office found that PPG's Performance Glass solved both their design challenges: it added to the building's beauty while helping to keep it cool efficiently and economically.

Mutual of Omaha Regional Home Office, Miami

Architect: Houstoun, Albury, Baldwin & H. Maxwell Parish, Miami
Interior Design: Houstoun & Parish, Miami
Consulting Design Architect: Leo A. Daly Co., Omaha
Consulting Engineer: Breiterman, Jurado & Associates, Miami

There's a PPG Performance Glass for every design problem

Mutual of Omaha's consulting engineer states, "This glass, *Solarban Bronze (3)*, permitted us to use the air conditioning system we did. If you want to have an open-building design like this in Florida, you would have to figure it with glass like this."

Solarban Twindow units offer a reflective film coating which keeps

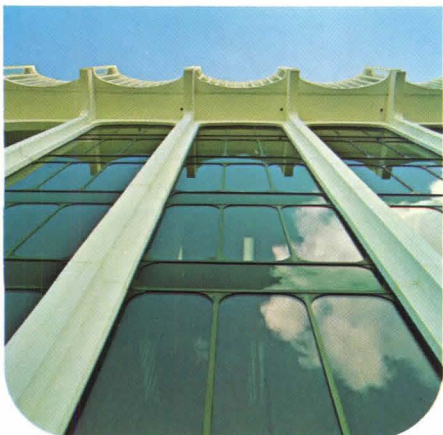
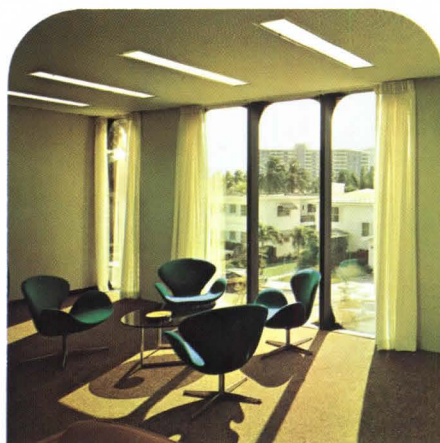
much of the solar radiant energy outdoors rather than permitting it to become a load on the cooling system. This same low-emissivity reflective film enables *Solarban Twindow*, a normal insulating unit with 1/2" air space, to perform like triple glazing in reducing the conducted heat loss during Florida's winter months. Coupled with PPG's *Solarbronze*

Plate Glass in this *Solarban Twindow* unit, the reflective coating reduces the overall light transmission to 12%, thus shading much of the outdoor brightness without obstructing the occupant's view.

Write: PPG Industries, Inc., One Gateway Center, Pittsburgh, Pennsylvania 15222.



PPG is Chemicals, Minerals, Fiber Glass, Paints and Glass. So far.



(Continued from page 44)

Meanwhile in New York City, The City Club of New York is also studying the problem of waste. In addition to searching for better means of waste disposal they suggest adopting methods of waste avoidance. A recent proposal states that too much litter is generated in the packaging of consumer goods, particularly litter that is not easily disposed of, such as aluminum beverage cans and glass bottles.

Their proposal raises a number of questions regarding the proliferation of waste generally. Granted, Americans are consuming more, and more goods are disposable, but it is surprising to realize that one person is disposing three times more waste than he was ten years ago, according to a recent report in the New York Times. Think of all the litter brought into work along with the morning coffee — the cup, lid, the packet of cellophane with napkin, sugar packet and stirrer, cream in an extra packet, and all wrapped up in a paper bag (usually with an extra napkin and packet of sugar). Our concern with "efficiency" may drown us in its by-products.

Calendar

Following its 66th annual convention in New York City, April 11-17, 1970, **The American Concrete Institute** will sponsor a European seminar-technical tour entitled "Systems Building in an Industrialized Society; for information, write American Concrete Institute, P. O. Box 4154 Redford Station, 22400 West Seven Mile Road, Detroit, Michigan 48219.

Competitions

The American Institute of Architects announces the opening of nominations for the 1970 fourteenth annual **R. S. Reynolds Memorial Award** for distinguished architecture with significant use of aluminum; submissions will be accepted until February 2, 1970.

Washington Interest Groups Active at Year End

BY E. E. HALMOS, JR.

Urban Responsibilities

In recent months in Washington, the AIA has been driving hard for a dominant place in the planning and execution of what many consider to be the major current problem in the United States: rehabilitation of the vast urban areas before they collapse or become even greater hotbeds of revolt and disillusionment.

Part of this drive was the appointment of headline-minded organizer William B. Slayton (a non-architect, but with impressive credentials in the field of public works and private and public construction), as Executive Vice President to succeed the retiring longtime AIA chieftain William H. Schieck. Slayton's key job: to push AIA further and faster into the nation's urban problems and expand services of the Institute to the general public.

Another part of AIA's activity is contained in announcements that it would urge members to join VISTA (Volunteers In Service To America), offer other advice and counsel to communities and neighborhood groups.

Civil engineers — a little belatedly — began to get into the act too, principally through a late-October, two-day meeting (sponsored by the National Academy of Engineering) devoted to "The Engineer and the City."

Construction Industry Measures

Amidst much maneuvering for legislative measures to restore control of the industry to owners, design professionals and contractors, was the AIA, driving hard to reestablish the architects' position as top professional. One action taken — this one much disliked by engineers and others — is the support of federal agencies (principally Housing & Urban Development) writing requirements into specifications that will

insure the predominance of the architect among design professionals on the jobsite.

Meanwhile another maneuver in this direction was the quick series of moves by the powerful Associated General Contractors, driving for "management's right to manage," despite the power of labor unions.

AGC continued to voice strong support for the increasing number of legal decisions favoring the right of architects and engineers to specify products for use in buildings — despite labor's objections, for example, to factory-finished items. This organization also opposes proposals (such as joint industry-labor product promotional funds) that it sees as giving labor greater leverage in bargaining sessions.

Broadest approach was a conference in mid-November (mis-labeled an "open shop conference") to discuss ways that construction management could reassert its powers.

Nearly all groups also stood together in tacit support of government moves to force more employment of minority workers in the industry, although the controversial "Philadelphia Plan" to force virtual quota hiring seems to be in trouble.

Meanwhile certain Congressional moves went largely unnoticed: Approval of a \$5 billion housing bill (about \$1 billion under the Senate version) by the House; Senate refusal to grant the architect of the Capitol the \$2 million the House wanted to give for further planning of rebuilding the Capitol's vast front; introduction of House amendments to existing law that would ensure construction of a new dwelling unit for each one destroyed in an urban renewal project; publication of an exhaustive report on planning of off-shore metropolitan airports by the Federal Aviation Administration.

And now — an overhead concealed closer without peer

707

another Century 2000 product from RIXSON

An all weather exterior/interior closer, with adjustable hydraulic back check, absorbs uncommon abuse and requires only standard preparation.



Details?

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On Readers' Service Card, Circle No. 361



PRODUCTS

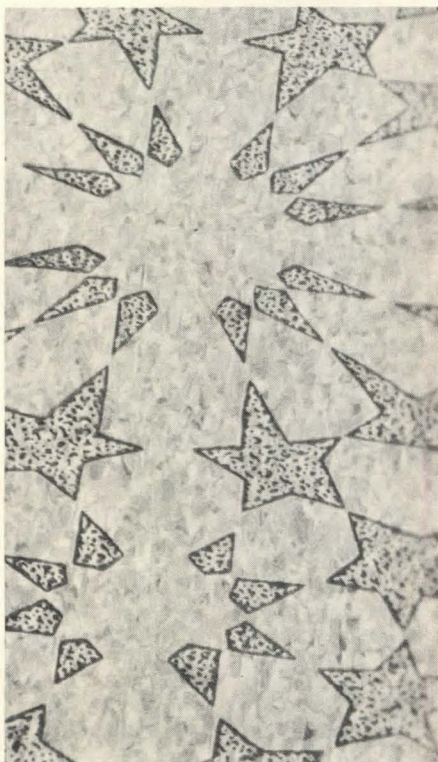


Integra Contract Seating

The Hardwood House has just announced it's new line, The Integra Collection, of contract seating. The Integra Collection was designed by Robert Bernard Associ-

ates of New York and is being manufactured by the recently acquired Cochran Chair Company of Illinois.

Circle 100 on Readers' Service Card



International And Antique Flooring

Congoleum Industries, Inc. has recently introduced a new series of vinyl tile flooring with both international and antique motifs. Congoleum is also introducing a new series of do-it-yourself vinyl tiles that alleviate many of the classical problems with flooring of this sort.

Circle 101 on Readers' Service Card

Controlled Flow Roof Drainage

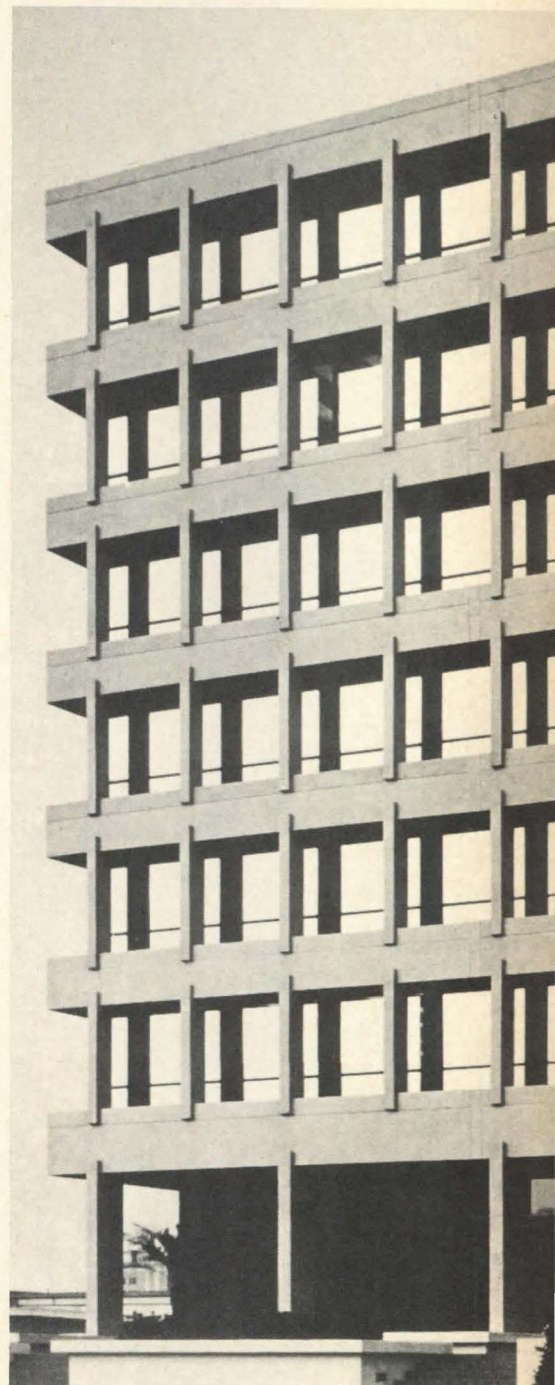
"Flo-Set" is the name of a new line of roof drains featuring a method by which the drains can be precisely adjusted to the required flow control needed. In addition to the body and slotted dome, the drain provides vanes that form a watertight bond between the roofing material and drain. It has an adjustable collar and is marked with 18 weir settings to control discharge flow rates to a maximum of 420 G. M. P. Available in outlet sizes from 2" to 6". Josam Manufacturing Co.

Circle 102 on Readers' Service Card

Foolproof Burglar and Fire Alarm

A wireless, plug-in-the-wall burglar and fire detection system is for home or office. Housed in a finished wood and metal cabinet are probes that totally saturate a given area with ultrasonic patterns which, when interrupted by an intruder (excessive heat or smoke), activate a 100-decibel police warning horn. The Defensive Instruments system connects to floodlight and sprinkler systems as well as to dialing devices for phoning police, fire, or detective agencies.

Circle 103 on Readers' Service Card

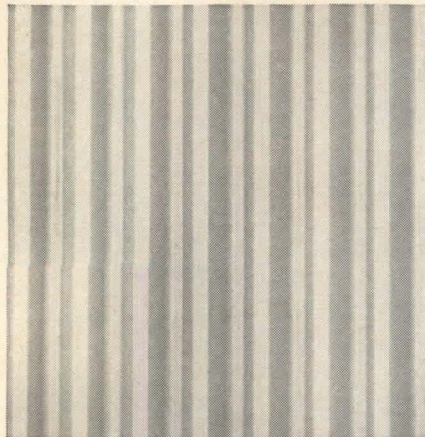


Special Windows Take Big Winds

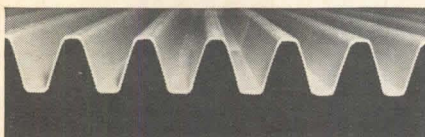
PPG's Solarban Windows proved their worth during hurricane Camille's 200 mph winds. Solarban Windows are not only wind resistant but through the use of a reflective coating on one of the panes, provide an optimum thermal barrier as well, thereby lowering heating and cooling costs.

*Circle 104 on Readers' Service Card
(More products on page 52)*

NEW!



**SYMONS DEEP RIB
TRAPEZOIDAL FORM LINER**

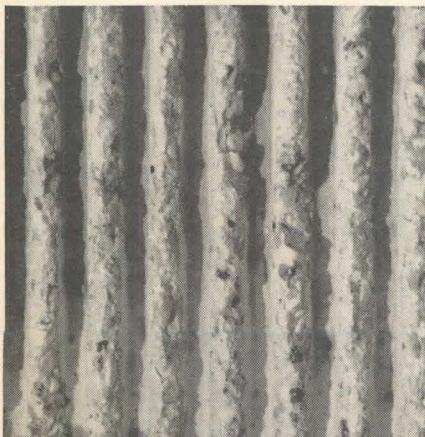


Now, deep and architecturally dramatic ribs can be easily cast into any concrete surface with this new Deep Rib Trapezoidal Liner. As the sun revolves throughout the day, distinctive shadows appear within the ribs, giving the concrete surface strong, clean lines.

The surface imparted to the concrete by the liner may be of a slightly textured finish, shown above, which is standard, or a smooth finish available on request. A rough finish, as illustrated below, may also be obtained by bush hammering or hammer blows.

Ribs are 1½" deep by 2" on center. The liner is made of special ½" plastic material which is highly durable and reusable. Either nails or a neoprene adhesive may be used to attach the liner to the form facing.

Complete information about Deep Rib Trapezoidal Form Liner available on request.



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MORE SAVINGS WITH SYMONS

On Readers' Service Card, Circle No. 368

PRODUCTS

(Continued from page 51)

Concealed Hinge Gives Lateral Movement

A concealed hinge of the rack and pinion pivot type is unique in that it gives a slight lateral movement as the door opens or closes, eliminating the need for clearance provisions required by conventional hinges. In addition, no jamb or door frame is necessary while the flush mounting and minimum clearance makes it possible to install a continuous bank of doors that give the appearance of a solid paneled wall. Includes rolling stainless steel gears in cast brass racks for concealed mount in the head and in the floor. Both top and bottom door mounts contain steel pins engaging the two gears. Mounts require simple mortises. Batz, Hodgson, Neuwoehner, Inc. Circle 105 on Readers' Service Card

Elastomeric Wall Coating Resists Chemical Attack

An elastomeric, thermoplastic wall coating for interior use provides a durable, seamless surface which resists acids, alkalis and other chemicals. Recommended for chemical plants, special processing areas and moist, humid areas such as shower rooms and laundries, it may be applied to most sound masonry backings, including putty coatplaster and painted surfaces. It is said to be harder than most elastomeric coatings because of its catalytic curing system, but stays flexible at both high and low temperature extremes. Desco International. Circle 106 on Readers' Service Card

A Concrete Tradition

Concrete blocks may take a new shape in the future with the introduction of Wedge Blocks by the corporation of the same name. The new concrete blocks are said to be stronger and much easier to lay than conventional concrete block, with the internal cores aligning in such a way as to facilitate plumbing and wiring installation. Circle 107 on Readers' Service Card



See-Through Chair Stool

Tempest-Hoag International has recently introduced its new Peter Hoyte chair; a blend of bronze acrylic and chrome steel base with wool fabric cushion. Circle 108 on Readers' Service Card

Solid State Intercom

The Bogen Division of Lear Seigler Inc. has introduced three new series of solid state intercom systems. The units now feature hands-free operation when called by a master unit, an aspect much appreciated in warehouse installations and the like. Circle 109 on Readers' Service Card

A New Bond Agent

The 3-M company is announcing a new fast-setting general purpose adhesive that will bond almost any type of material. The new glue, known as Scotch-Grip Brand Mastic Adhesive 1897, is readily cleaned with mineral spirits or naphtha. Circle 110 on Readers' Service Card

Irradiated Wood Flooring

A new wood flooring called Gammapar has recently been introduced by American Novawood Corporation. The new flooring is basically oak that has been saturated with a liquid plastic, either colored or stained, which is then solidified with gamma ray treatment. Circle 111 on Readers' Service Card

This Kentile Floor is as posh as it's practical!

In Phoenix, Arizona, Rhodes is a department store renowned for the highest-quality merchandise. And the finest in decors. Six years ago, a floor of Kentile Vinyl Asbestos Tile was installed throughout this magnificent store. Today, as the unre-

touched photograph below

indicates, this Kentile styling exclusive—called Architectural Marbles—looks as beautiful as new. Big reason is the unique monochromatic design that flows through the entire thickness of every Architectural Marbles tile. Here's a thoroughly practical floor for any heavy-traffic area, because its tough, non-porous surface locks out harsh

scuffs, stubborn grime, and floor-ruining grease as no carpet (even our own) can. And all 9 colors are so economical to maintain. For professional, unbiased advice on every type flooring, call in your Kentile® Representative. He's an expert on everything we make, including fine carpet.

BROOKLYN, N.Y. 11215

KENTILE FLOORS



MFRS' DATA



Air-Electric Floor Provides Space Design Flexibility

An "Air-Electric Floor System," which incorporates electrical and mechanical services distribution into thin sandwich floors is described in a 24-page booklet. Photos and detail drawing illustrate how the system integrates lighting, electric power, signal and communication services, air handling, and water into a single space-saving floor system. Granco Steel Products Co.

Circle 200 on Readers' Service Card

Performing Arts Equipment

A 32-page booklet describes stages, acoustical shells, risers, and other performing arts equipment designed for flexibility and for use indoors and outdoors. Wenger Corp.

Circle 201 on Readers' Service Card

Shooting Range Equipment

Electronically controlled pistol and rifle ranges and equipment is described in a 4-page brochure that also illustrates a typical range for use in training police officers, ROTC training, and recreational target shooting. Brochure lists available literature including articles on design of shooting ranges and typical range plans for police, colleges, industrial plants, banks, and clubs. Major Wentworth, Shooting Equipment.

Circle 202 on Readers' Service Card

Carpet Adhesives

Brochure on carpet adhesives and sundries describes physical and performance properties, coverage, packaging, and prices of carpet adhesives, seam adhesives, indoor/outdoor carpet adhesives, carpet pad adhesives, contact adhesives, underlayments and cleaners. BFC Division, Essex Chemical.

Circle 203 on Readers' Service Card

Hideaway Fan-coil Conditioners

Descriptions, specs, installation and operating data for a line of "Thinline II Seasonmaker" hideaway fan-coil air conditioners, is available in a 24-page catalog. Includes ARI approved standard ratings, capacity data, sound power ratings and unit descriptions. Special feature of the units is a solid state speed controller which offers infinite speed variations, a voltage compensating circuit, elimination of radio frequency interference, and uniform fan speeds over a wide range at supply voltage variations from McQuay.

Circle 204 on Readers' Service Card

Plastic Compounds

Selection guide on eighteen "Kra-lastic ABS" plastic compounds, contains physical, chemical, thermal, and electrical properties, as well as processing characteristics. The compound is said to rival steel in its range of applications. Chemical Div., Uniroyal Inc.

Circle 205 on Readers' Service Card

Overhead Type Garage Doors

4-page brochure describes sectional steel garage doors for industrial and commercial buildings. Doors are 2-in thick, and feature heavy-gauge stiles and members for optimum strength and rigidity. Construction is by a combination of welding and riveting, with external joints riveted for strength an appearance, and internal joints welded for maximum strength. Raynor Manufacturing.

Circle 206 on Readers' Service Card

Paint Selector Guide

A two-volume color selector for over 1,000 "Napco Paints" for interior and exterior use, is available. Each color sheet contains 12 sample squares, perforated for easy removal, while a color tab guide presents major color groupings. Napco Corp.

Circle 207 on Readers' Service Card

Ice Rink Refrigeration System

New refrigeration system for artificial ice rinks is described in a 14-page brochure. The system is said to be simplified, utilizing a direct-flow process that reduces installation and operating costs through the use of smaller pipe, less equipment, and less horsepower than standard indirect "brine" refrigeration systems. Brochure contains a general cost index for artificial ice facilities, an outline of steps in building an ice rink, types and sizes of ice rinks, and an announcement of a new leasing plan. Holmsten Ice Rinks.

Circle 208 on Readers' Service Card



Building Products on Microfilm

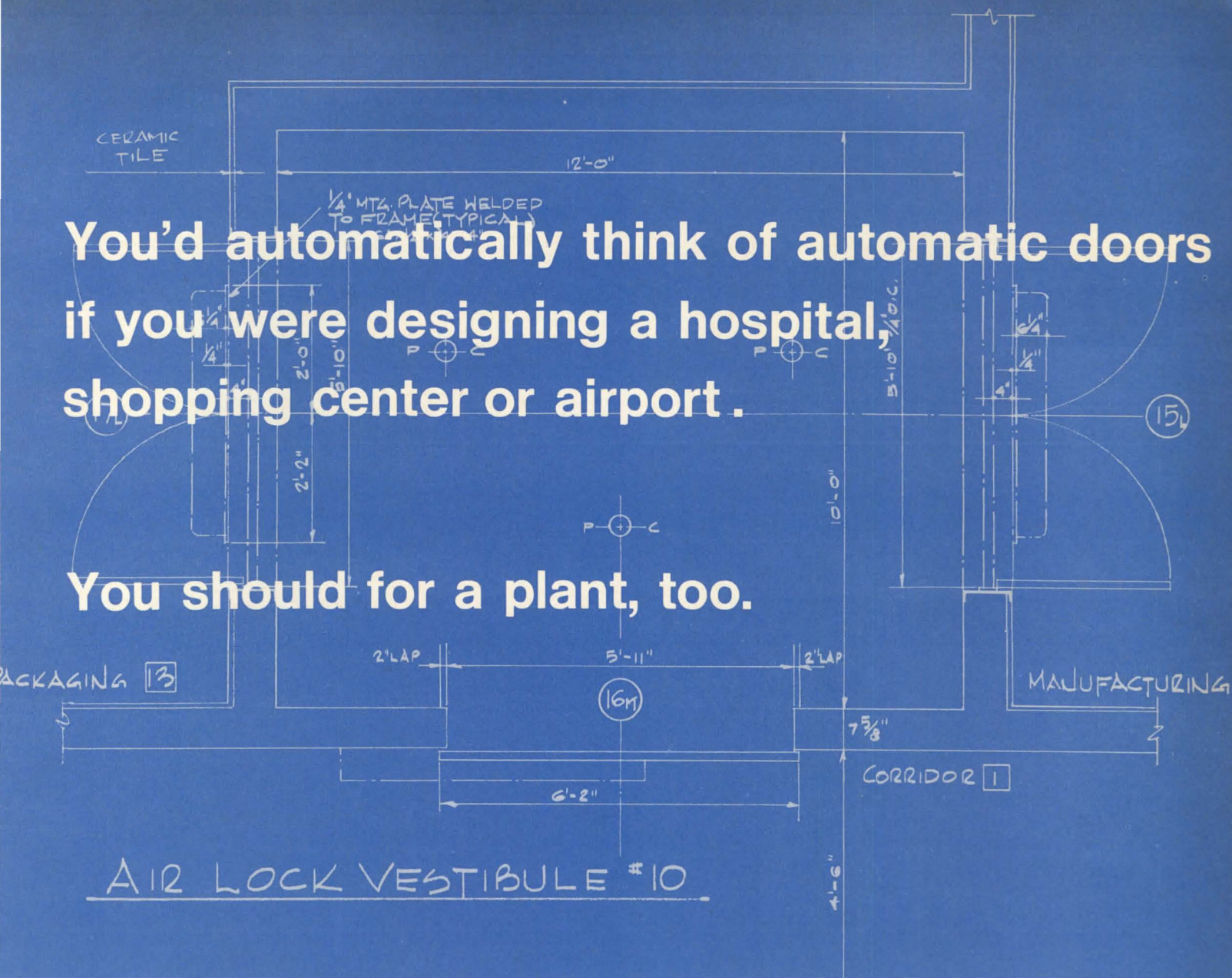
Visual communications firm offers a microfilm library that provides over 120 file drawers of building products literature from over 3000 manufacturers, national associations and institutions, and federal agencies — in 71 microfilm cartridges that fit into a table top carousel. Each cartridge holds approximately 4,250 pages of information. Updated quarterly, the material is arranged in product sequence permitting side-by-side comparison from Showcase.

Circle 209 on Readers' Service Card

(More data on page 62)

You'd automatically think of automatic doors if you were designing a hospital, shopping center or airport.

You should for a plant, too.



Fast acting sliding and swinging Stanley Automatic industrial door packages save on plant labor and conditioned air costs. Pneumatic power makes Stanley Automatic doors up to four times faster than other automated doors—reduces door damage—promotes safety—improves employee morale and comfort—provides better plant fire protection—controls critical production temperature and humidity. The time to consider automatic doors is in the early design stage.

Computer Room—Automatic doors help maintain proper temperature and humidity control, but still allow authorized personnel to move quickly and easily in and out. Enhances the corporate image when computer center is a company showcase.

Air Locks—Air Locks equipped with Stanley automatic doors maintain product integrity during manufacturing process or critical temperature and humidity requirements in manufacturing areas.

Shipping/Receiving—Fast acting automatic Stanley bi-part sliding doors clear an 8' opening in just two seconds—save on conditioned air—labor time—door and product damage—employee comfort.

Fire Doors—Fast acting Stanley Automatic fire doors are left in the closed position to provide better plant fire protection—eliminate cost of second set of doors. UL "A" listed, FM approved.

Employee and Main Entrance—High styled Stanley automatic entrances enhance the appearance of new plants and create better morale and favorable impressions on employees and visitors.

For openers, ask Stanley—Write for our "Self-Analysis" Kit which shows how to determine the return on investment for industrial automatic doors or look for the Stanley Distributor in the Yellow Pages under "Door Operating Devices".

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DOOR OPERATING EQUIPMENT Division of THE STANLEY WORKS
Farmington, Connecticut 06032

On Readers' Service Card, Circle No. 366



Weyerhaeuser® Panel 15 now comes in

But don't let the bright, good looks fool you.

Underneath that 10-mil textured aluminum face there's rugged Structural I exterior-type Douglas fir plywood.

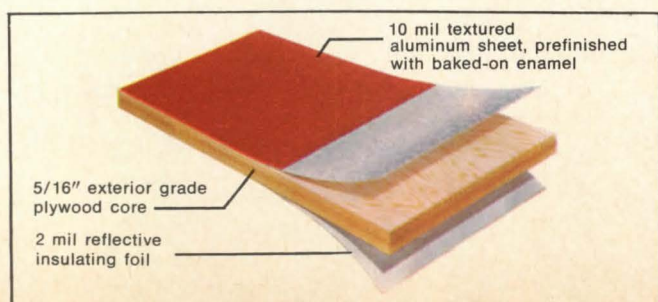
With this combination of good looks and high performance, Weyerhaeuser Prefinished Siding / Panel 15 goes just about anywhere. It's a great siding.

And a hard-working interior paneling that can take it where the going is rough. Bend it, if you like, for a mansard roof. Use it as balcony screening (you can specify double-faced panels for this kind of application). As school lavatory walls. For curtain walls. For soffits. You name it.

And Weyerhaeuser has gone a long way to help



23 basic colors. Or dream up your own.



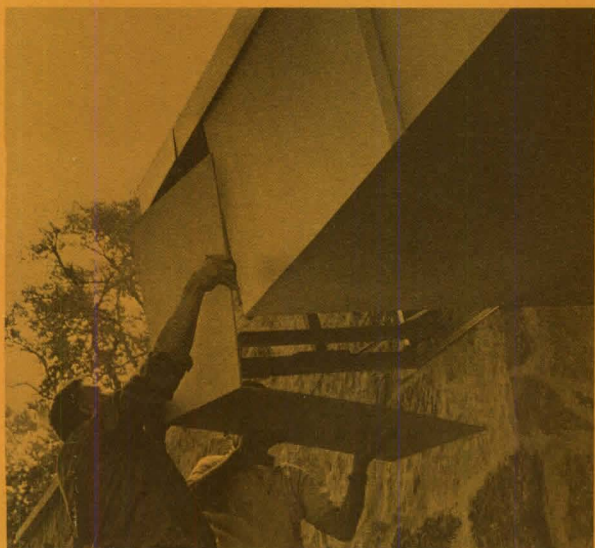
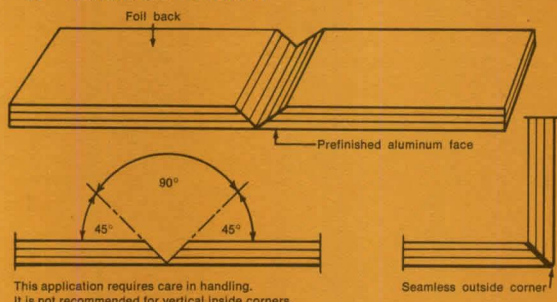
Panel 15 go even further. We have a complete line of accessories. And non-treated Panel 15 carries a Class II flame spread rating. (Panel 15 is also available with a Class I rating when required.)

Want to know more? Just send us the coupon on the next page, and we'll send you our new catalog.

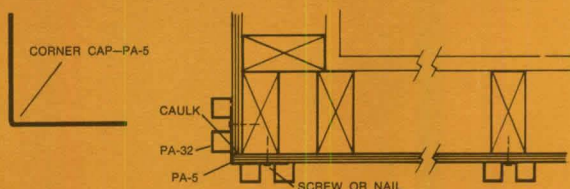


Four ways to turn a neat corner with Weyerhaeuser® Panel 15.

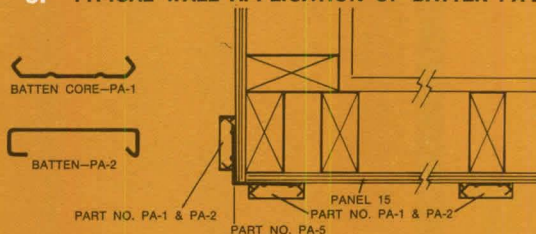
1. SEAMLESS CORNER



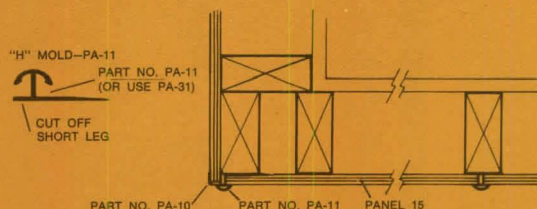
2. TYPICAL WALL APPLICATION OF BATTEN PA-32



3. TYPICAL WALL APPLICATION OF BATTEN PA-2



4. TYPICAL FLUSH TRIM WALL APPLICATION



There's a lot more to Panel 15 than the panel itself.

This is a complete exterior cladding system with a wide variety of useful accessories and trim items. They're engineered to fit the product in almost every type of application.

But the beauty of this panel is that it can stand alone. If your design scheme calls for unique detailing, Prefinished Siding/Panel 15 can be handled just like any other plywood. It works easily. And the pebbled surface texture harmonizes with just about anything, including natural wood surfaces, masonry, fabric and other interior surfaces.

Five new colors that match anodized aluminum colors were recently added to the line.

We would be pleased to provide detailed information about the system accessories, caulking

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Send the coupon. We'll mail you a copy of our new catalog right away.

To: Weyerhaeuser Company
Box B-5734, Tacoma, Wash. 98401

I'd like all the facts on Weyerhaeuser Prefinished Siding/Panel 15. Please send me your new catalog right away.

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Weyerhaeuser

LP-gas on the rocks

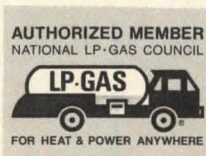
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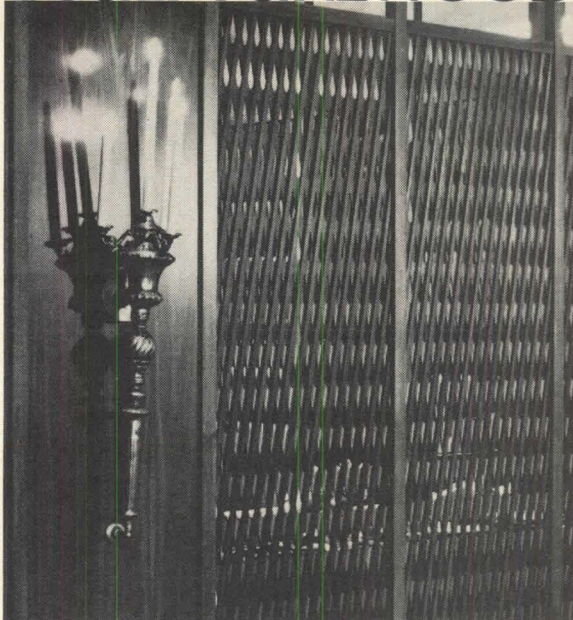
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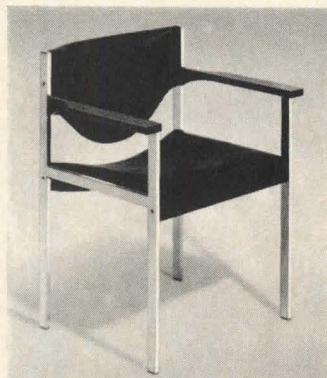
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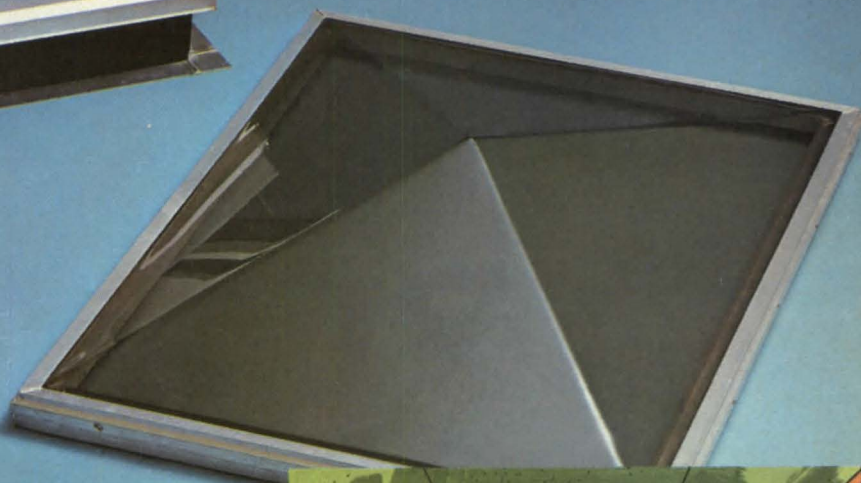
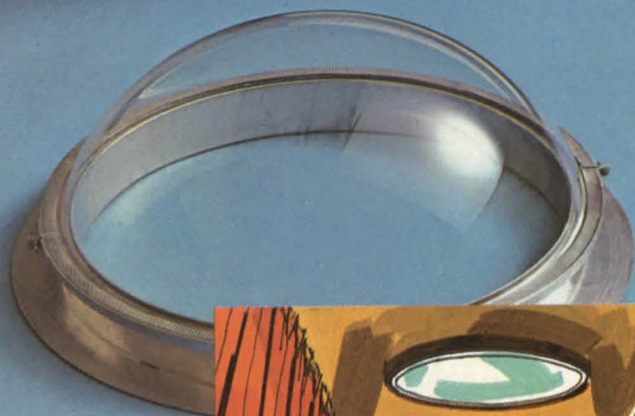
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design: walter müller / karl odermatt / franz hero



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Sizes up to 92" x 92" are available as standards (larger sizes are available on request) from skylight manufacturers across the country. Write for the names of suppliers near you.

MFRS' DATA

(Continued from page 54)

Plastics Pricing Guide

A 14-page plastic pricing guide illustrates and describes plastic sheets, rods, pipe, fittings, tanks, cabinet-type work stations, etc., for corrosion-proof chemical and electrical applications. Contains 38 tables of specs and prices for plastics (PVC, polypropylene, polyethylene, etc.) in standard shapes and sizes. Astec Products. *Circle 210 on Readers' Service Card*

Soil Testing Manual

"Unconfined Compression Testing," a 56-page soil testing manual, includes chapters on the preparation of soil samples, detailed unconfined compression test procedures, recording of test data, computation and the use of the data. Illustrations of unconfined compression testing machines and preparation apparatus are included. Soiltest, Inc. *Circle 211 on Readers' Service Card*

Steam Trap Comparisons

Comparative advantages and disadvantages of impulse, thermodynamic, bucket, and thermostatic steam traps are described and illustrated in a 12-page booklet. Basic criteria that determine steam trap selection are given. Reference charts and tables for estimating condensate, flash steam loss, saturated steam properties at various pressures, etc., are included. Frank D. Riggio Co. Inc. *Circle 212 on Readers' Service Card*

Structural Clay Products

Eight-page catalog gives details on the features of a wide range of structural clay products and describes in particular a new textured structural glazed building unit that provides versatility in the design of load-bearing or veneer walls for interior construction. Glen-Gery Corp. *Circle 213 on Readers' Service Card*

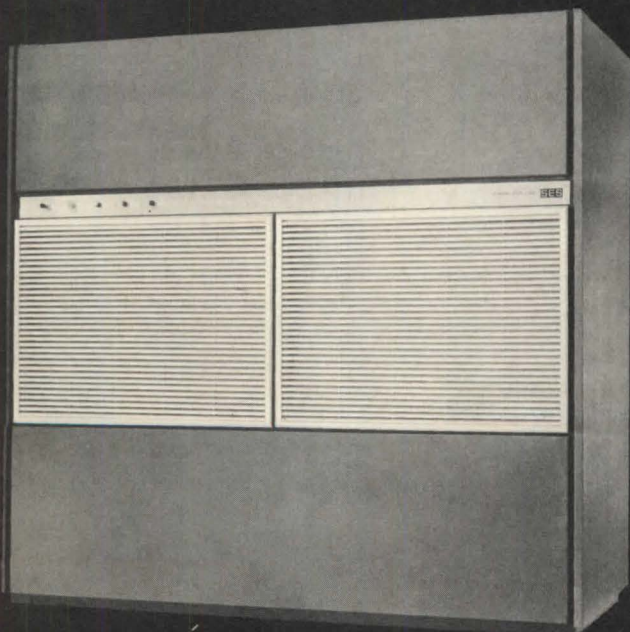
Line Connection Seals

A 24-page booklet gives information on the identification, selection and installation of seals used in both gaseous and liquid line connections, and discusses the three basic types of seals; metal-to-metal seals; mechanical seals; and compression seals. Aeroquip. *Circle 214 on Readers' Service Card*

Lab Equipment and Furniture

A 116-page catalog describes manufacturer's line of steel scientific furniture and equipment for industrial, educational and hospital laboratories. Besides picturing and detailing thousands of items from accessories to waste chutes and work surfaces, it includes installation photos and suggestions on planning and layout to achieve maximum efficiency in utilization of space. NII Laboratory Furniture. *Circle 215 on Readers' Service Card*

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Computers require precise, constant control of temperature and humidity for efficient operation with minimum down time. Units for this application must handle heat loads up to 95% sensible and 5% latent heat generated by computers and maintain 40%-60% RH levels to keep tapes from becoming brittle. *Site Environment Systems perform these tasks precisely and reliably.*

Reliable—Engineered and built to operate continuously. Light and alarm bell indicate need for service. Dual circuits and dual condensers give fail-safe protection.

Precise—Automatic Controls filter, warm or cool, humidify and dehumidify room air to maintain environment within narrow tolerances.

Adaptable—Completely self-contained units in a complete range of sizes, 3, 5, 7½, 10 and 15 tons for use singly or in combination.

Flexible—Available in water or glycol cooled, air-cooled, or chilled water models. Easily altered to duct air up or down through ductwork or floating floors.

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Underfloor Plenum Air Distribution Report

A technical research report prepared by the Bureau of Research for the Forest Service, U.S. Dept. of Agriculture, deals with a feasibility study of a heating and cooling system and is related to middle-income single-family detached residences located in Florida and southern U.S. The system basically consists of a conventional downflow furnace which discharges conditioned air directly into a clean, dry, sealed underfloor space, creating a slightly elevated pressure under the entire house. The air is then introduced to the room space by providing outlets connecting the underfloor space to the room space. Since the conditioned air spreads out evenly and in continuous contact with the underside of the floor, the floor itself becomes an agent of heat transfer, creating a combined forced air and radiant panel system. Report in-

cludes background, observations and design characteristics. Bureau of Research, College of Architecture and Fine Arts 102A AFA Complex, Univ. of Florida.

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Concrete Admixture Performance

Sixteen-page booklet gives data in a number of concrete admixtures — Pozzoloth, a water-reducing, set controlling agent; MB-VR air entraining agent; Stearox integral water-repellent for concrete and mortar; MB-NC water-reducing retarder; and Omicron Mortarproofing, a water-reducing, plasticizing admixture for masonry mortar. Charts and graphs give performance data including strength, durability, volume change, water-tightness, uniformity, and appearance. Master Builders.

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Piping Systems for Medical Services

An extensive, 50-page brochure provides a reference for the planning and installation of medical gas service systems in hospitals. Includes medical gases and their applications, gas supply systems, detail system components, special and custom designed equipment and intensive care areas, and piping design, installation and testing. Profusely illustrated. Puritan-Bennett Corp.

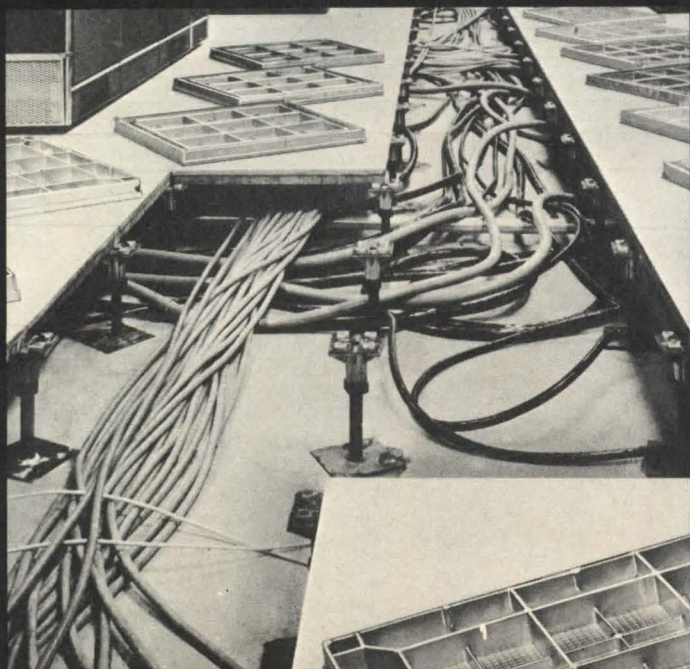
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Work Station Furniture

Console furniture catalog describes 8-pages of interchangeable office work station components and concepts. The line includes adjustable-height steel desks, steel and wood consoles and credenzas, flexible desk-top organizers, returns and tub-file desks. Kwik-File.

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Elevated Floors provide full access to cables and ducts and a pressurized plenum for efficient, flexible, draft-free air distribution. Choose the best. A lightweight, aluminum panel, precision engineered, maintenance-free floor with all the reserve strength you'll ever need, from Floating Floors, Inc.

Precision-made—Floating Floors panels fit perfectly, with complete interchangeability.

Strong—Unique combination of die cast panels and pedestals provide all the reserve strength you'll ever need, without stringers.

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Total Access—Lightweight aluminum panels simply lift out to allow complete access.

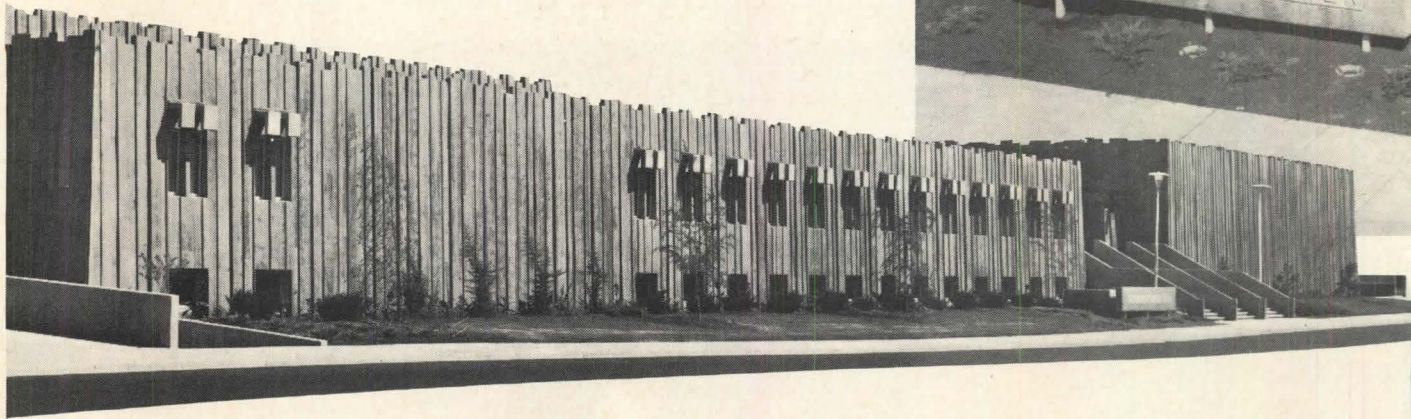
Flexible Air Distribution—The cavity beneath Floating Floors serves as plenum to deliver air. Rearrangement is by moving louvered panels.

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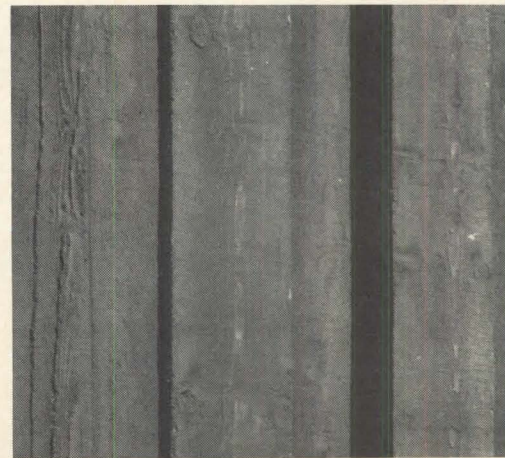
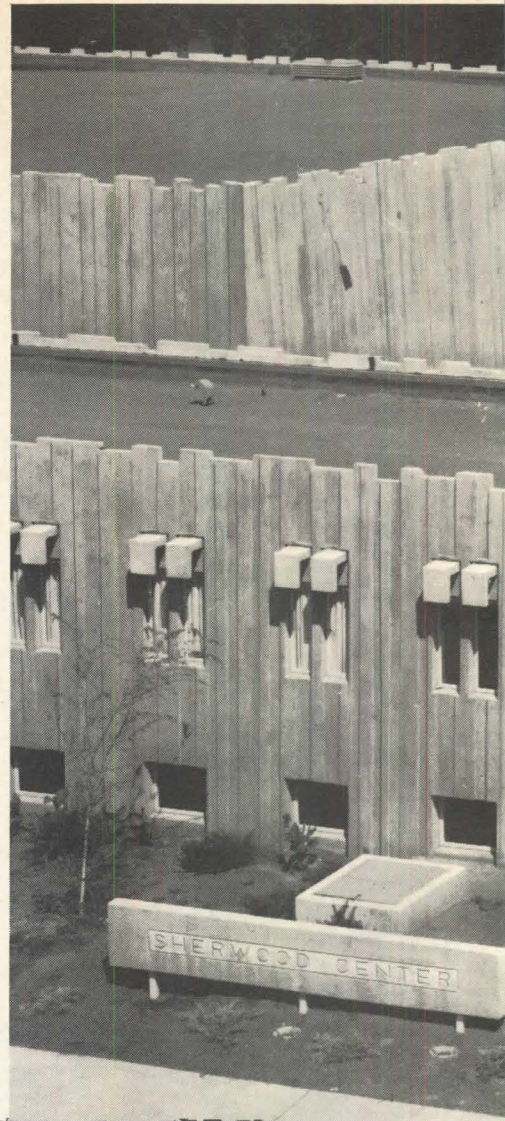
FLOATING FLOORS INC

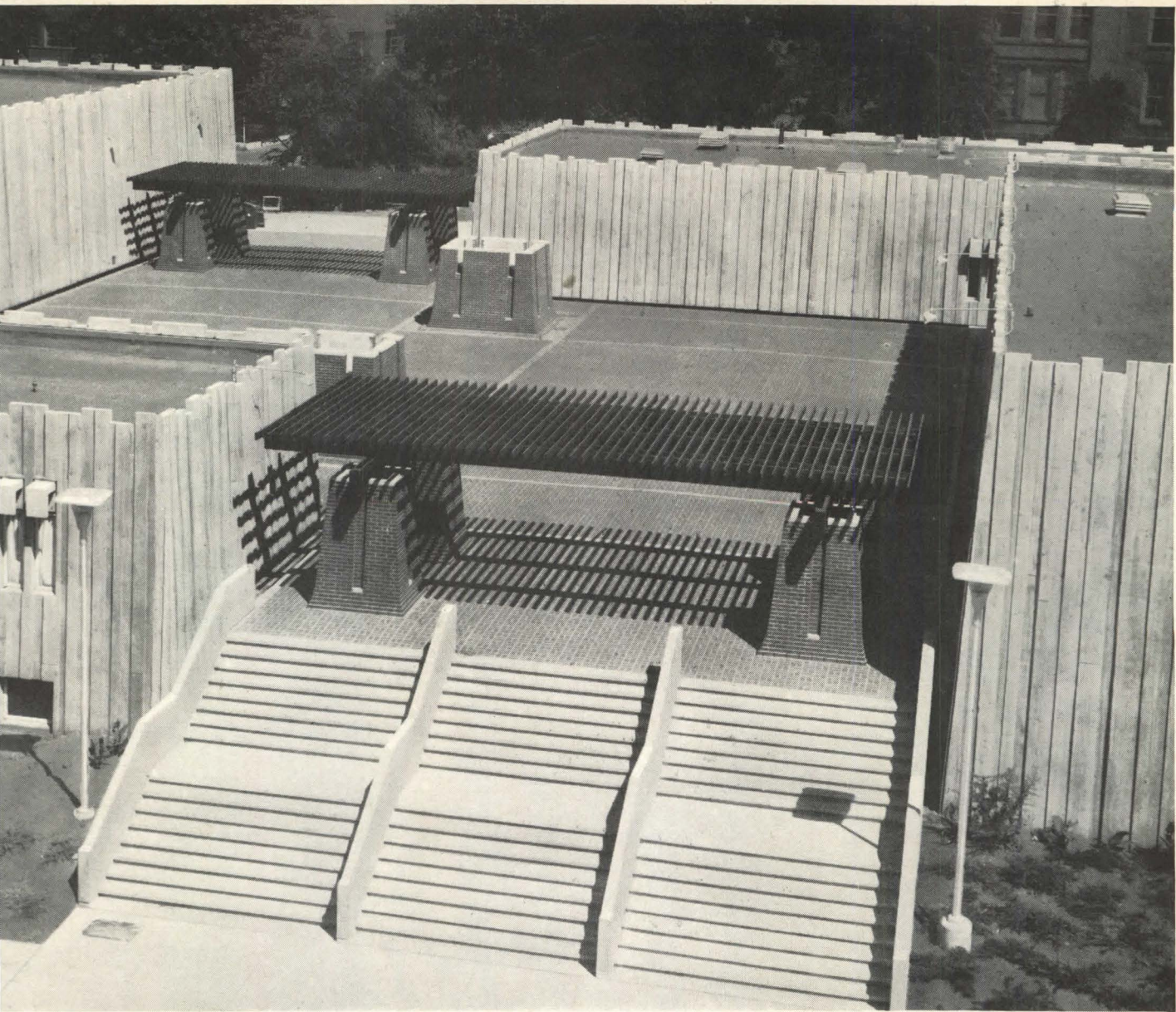
Sherwood Physical Education Center at Whitman College in Walla Walla, Washington, includes a 2000-seat gymnasium, a 6-lane swimming pool and associated physical fitness facilities. The unusual L-shaped sunshades over slit windows are cast concrete. Large concrete sign identifying the building, was cast-in-place. Concrete surrounding the "Sherwood Center" lettering is bushhammered.

Concrete helps shape a new frontier for education.



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Architect: Thomas R. Adkison, Architects, A.I.A. Spokane, Wash.
Structural Engineer: Andrew T. Bingham, Spokane, Wash.
Contractor: J. A. Jones Construction Co., Richland, Wash.
Sub-Contractor for Precast Walls: Boise Stone & Precast Inc., Boise, Idaho
Concrete Supplier: Jones-Scott Company, Walla Walla, Wash.
Precast T's & Sunshade Units: Ace Concrete Co., Spokane, Wash.
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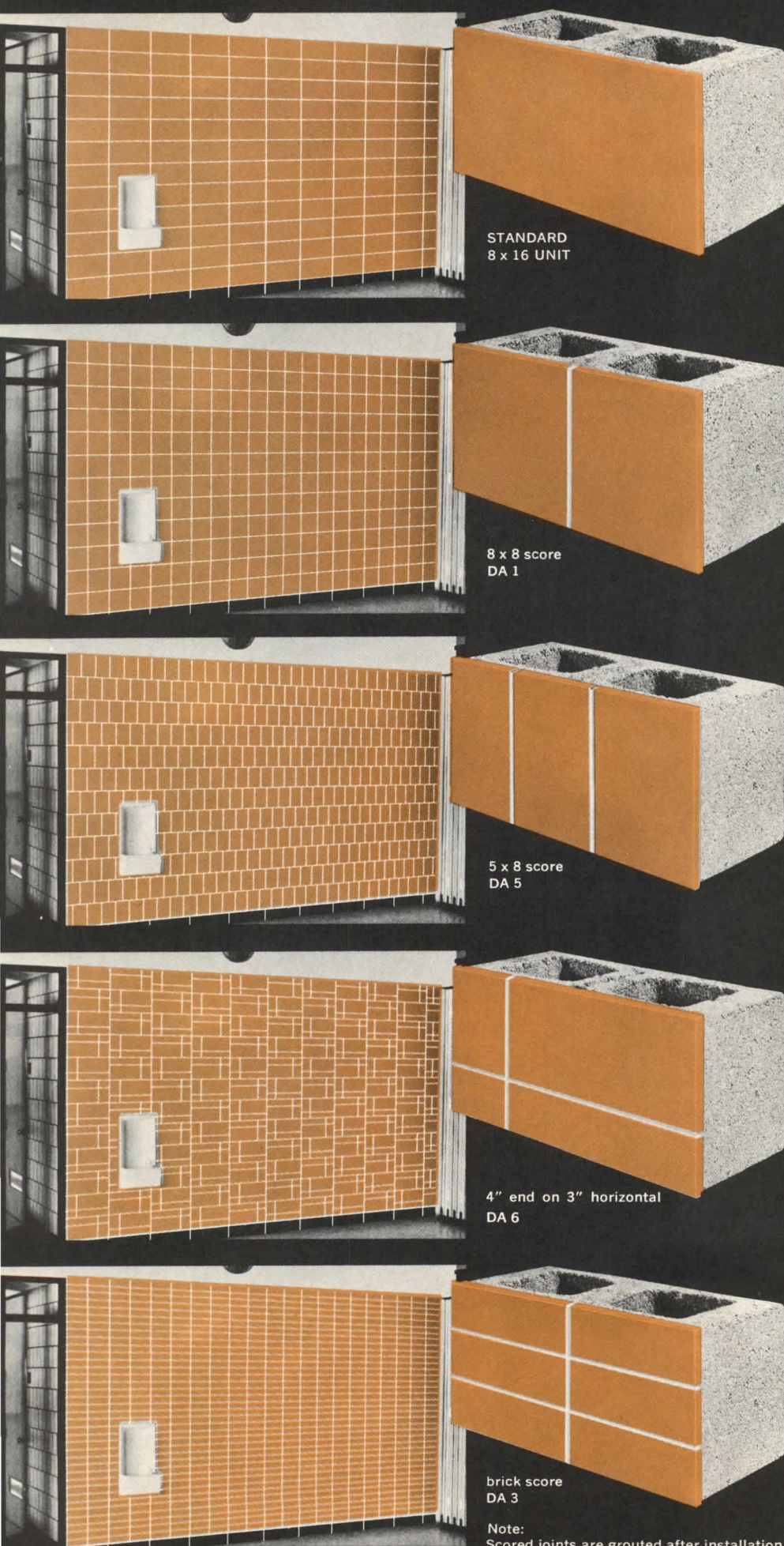
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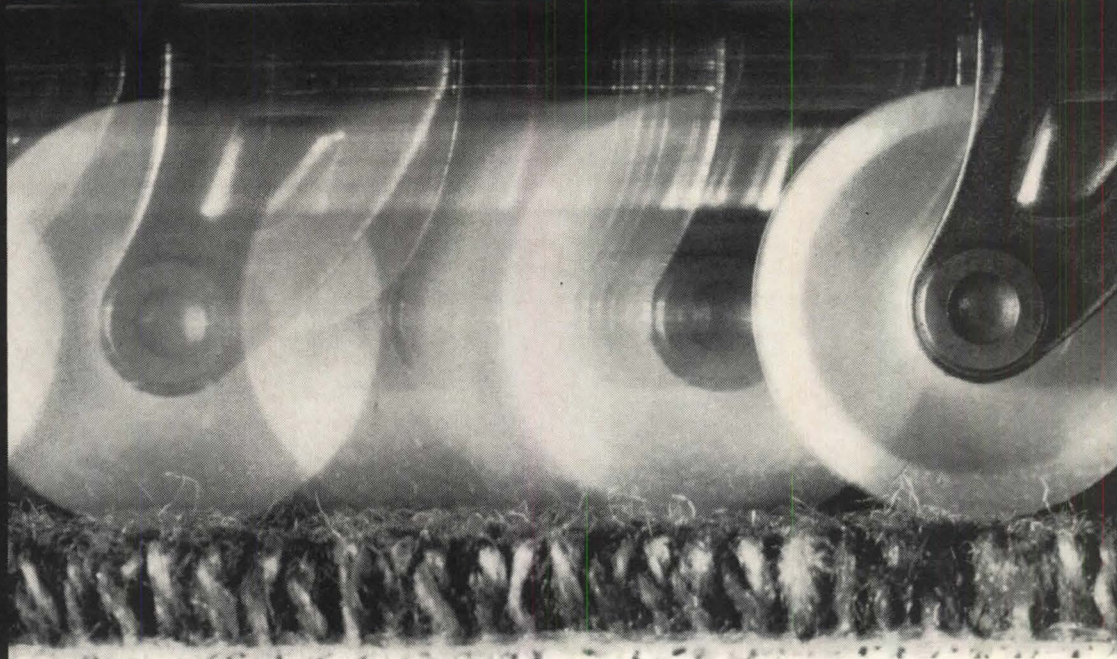
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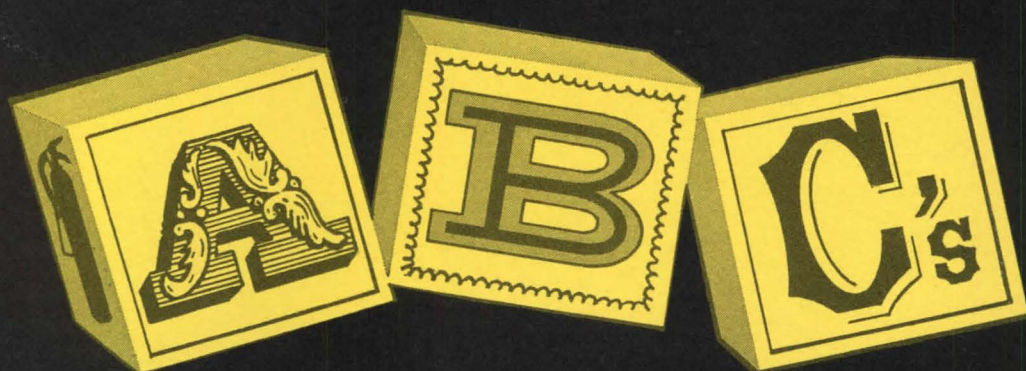
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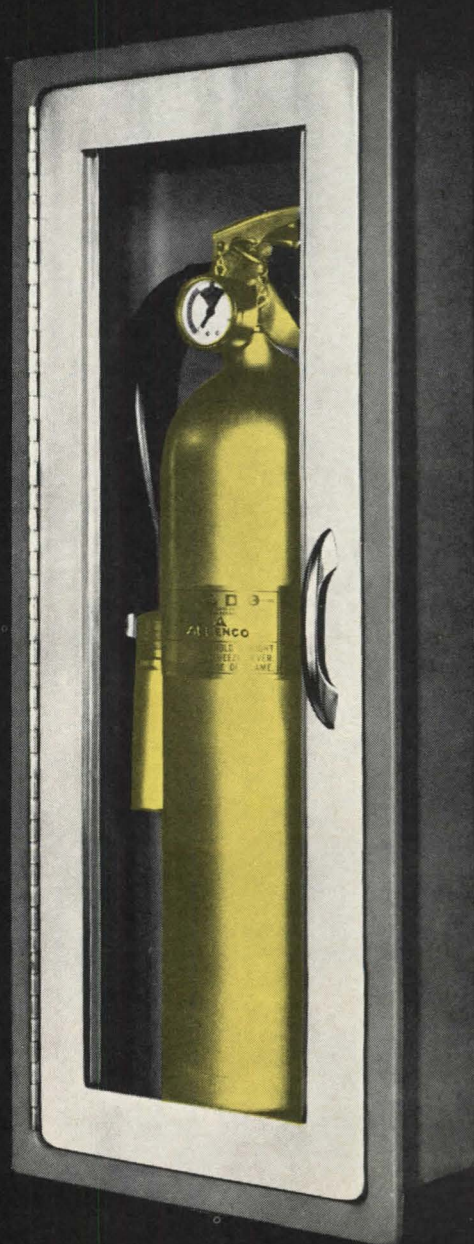
Request the new *total protection* catalog-No. 100

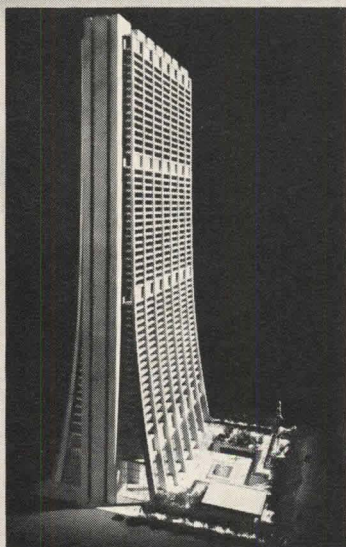
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Thus came our "new dimensions" in door hardware. Functional, of course, and beautiful, versatile, superbly engineered.

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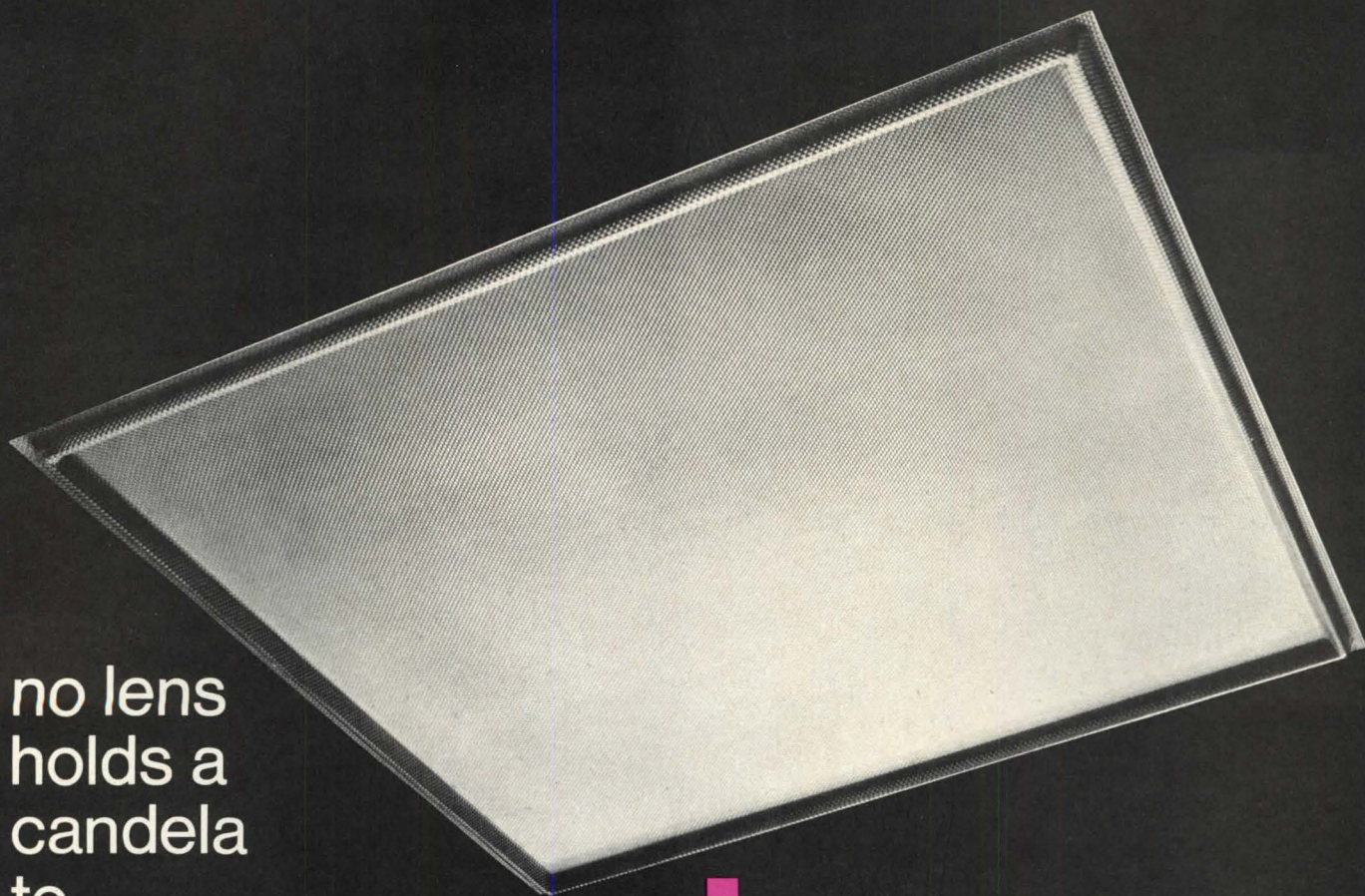
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GENERAL CONTRACTOR: Gust K. Newberg Construction Company
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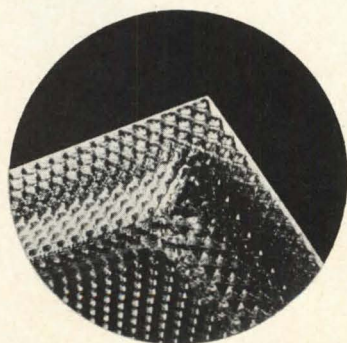


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A home for the arts displays
concrete with **POZZOLITH** admixture



Owner: Atlanta Arts Alliance. Architect: Toombs, Amisano and Wells; Stevens & Wilkinson. Structural Engineer: Chastain & Tindel. General Contractor: Batson-Cook Co. Pozzolith Prestressed Concrete: Concrete Materials of Georgia, Inc. Pozzolith Ready-Mixed Concrete: MacDougald-Warren.

The new Atlanta Memorial Arts Center stands as a monument to 122 cultural leaders lost in a plane crash near Paris in 1962. Designed to house the visual and performing arts, it provides facilities for the enjoyment and teaching of painting, sculpture, music, dance, theatre, and opera.

Situated on a six-acre site, the monumental structure measures 232' x 394' x 50' and provides 296,750 sq. ft. of floor space on five levels. Soaring precast concrete columns surfaced with white quartz chips frame a perimital promenade. The main body of the building is cast-in-place concrete.

Among the Center's many distinguishing features is the striking appearance of the concrete. *POZZOLITH* admixture contributed performance benefits in both precast and job-placed concrete.

POZZOLITH made a more plastic concrete mix that improved workability and placeability and facilitated consolidation in the forms. Shrinkage cracking was reduced to a minimum. *POZZOLITH* contributed to uniform strength development and helped produce a dense, void-free surface of superior appearance.

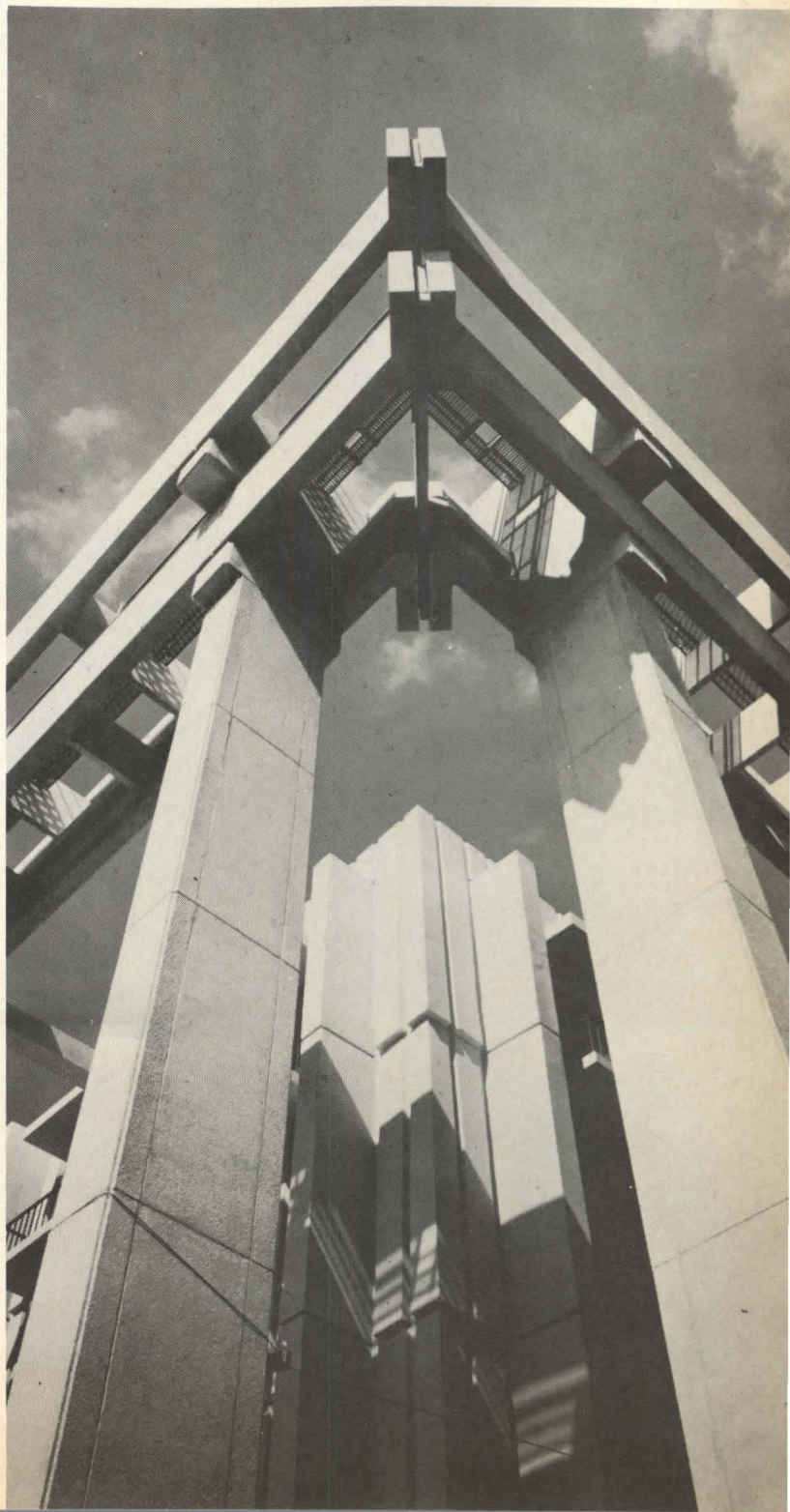
Once again, *POZZOLITH* admixture was specified and used where predictable concrete performance was needed. Most important, *POZZOLITH* delivered its many concrete improving benefits where performance counts — on the job and in the finished structure. That's why, over the years, *POZZOLITH* has earned the name "The Performance Admixture".

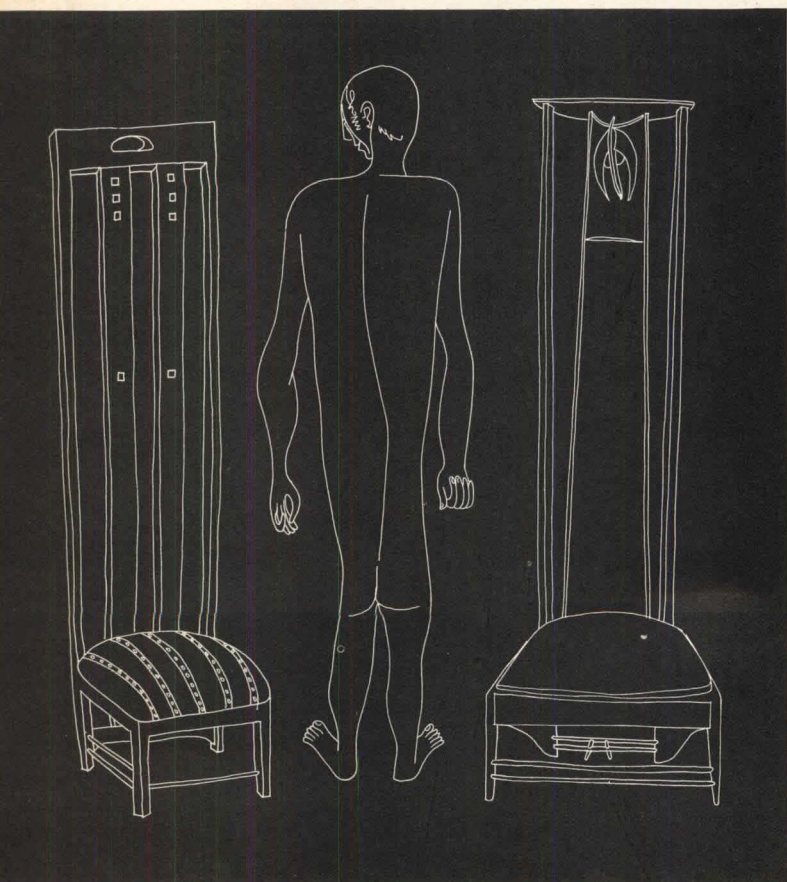
For documentation of *POZZOLITH*'s superior performance, call your local Master Builders field man, or write Master Builders, Cleveland, Ohio 44118.

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On Readers' Service Card, Circle No. 353





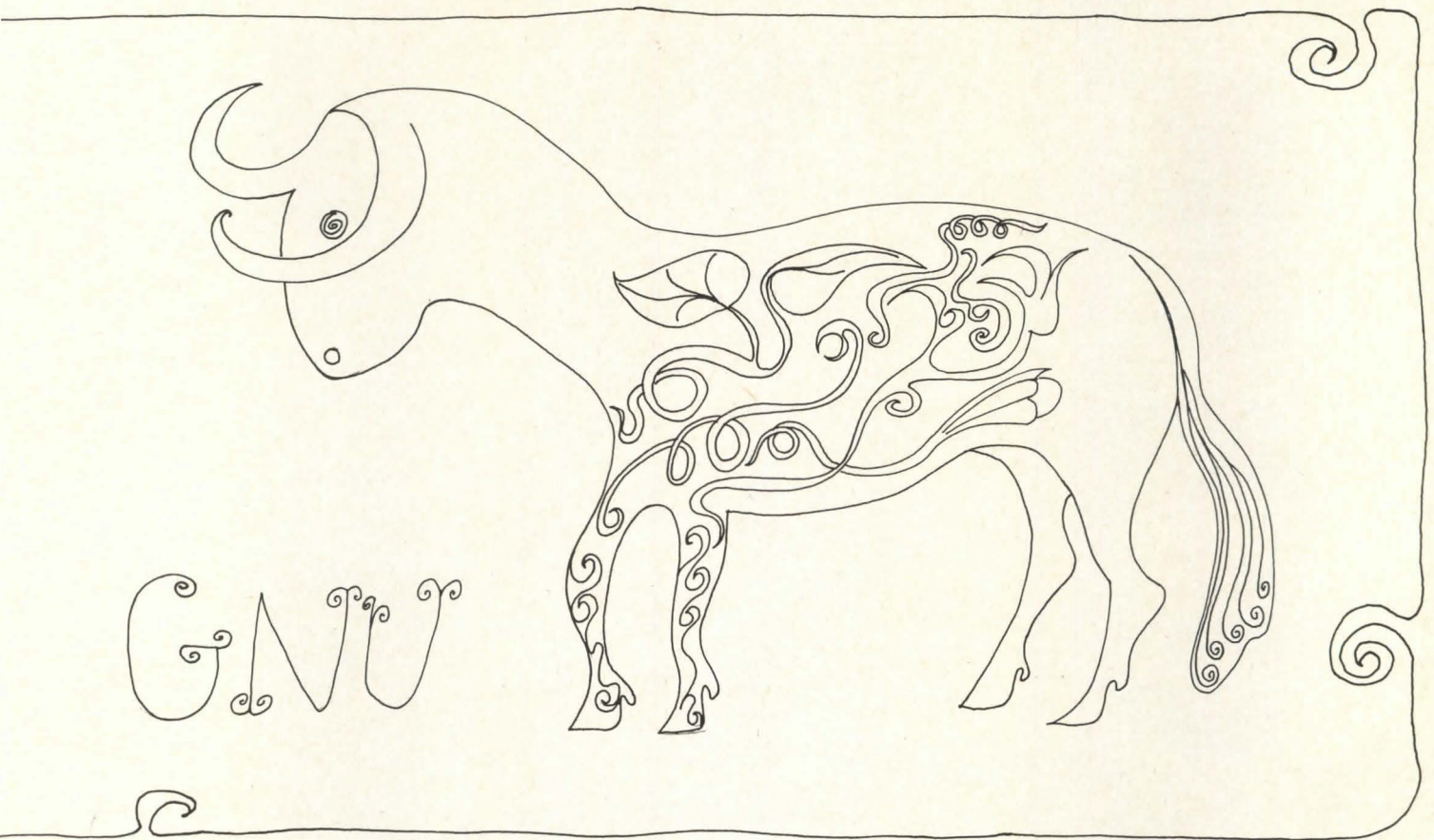
CONTRARY TO POPULAR BELIEF there is an accounting for taste and it determines the contents of museums as well as the form of mass housing. The museum of the past was defined as an exhibition space for scientific and artistic works of lasting value. The key words in this definition are "lasting value." Every museum in the nation, as likely as not, has attics and basements jam-packed with bric-a-brac of no value at all. A thing of beauty is not a joy forever. It is lucky if it lasts the season.

Taste in Fine Arts runs a course of its own. Chronological undulations invariably declare the preceding era bad taste, the one just preceding that good, and anything earlier historically significant.

Since the turn of the century, art has been an increasingly chancy business. Those who vehemently condemned Art Nouveau in the name of Modernism, shortly thereafter were making fortunes salvaging Tiffany lamp shades from garbage heaps. Cubist painting, not critical acclaim, elevated African curios into Primitive Art. Plastics, a few years ago deemed morally reprehensible in comparison to natural materials, are now the primary stuff of Fine Art itself.

In classic times beauty was said to dwell in the object itself. Today it resides in the eyes of the beholder, an arrangement we find convenient since the beholder in an affluent society is also a consumer.

Good taste is an attribute of our consumer society.



It did not seem to exist in the past. Worringer assures us that the Gothic cathedral builders had none of our attitudes about art. Renaissance artists predicted taste on the authenticity of antiquity. Even the superb early American craftsmen did not consider their artifacts tasteful—it took cultivated Europeans to point out their artistic merit during the great international trade expositions of the last century.

The only segment of the design community that seems to be able to turn taste to profitable account are our aesthetic professionals. The anonymous automobile stylist, product engineer, package designer, commercial artist and designer of corporate images are surer of their predictions of taste than any museum curator in the land. Season after season their stylizations prove that culture is the commodity that sells all others.

On the other hand taste dominates technology as we strive to solve the most pressing problem of our time. Taste cannot be manipulated, cajoled, or huckstered when it comes to low income housing. We find that prefabricated housing units for low income groups are rejected because they do not look enough like establishment suburbia.

Major corporations entering the mass housing field strive to duplicate established builder patterns. It is not unusual to find housing research and devel-

opment under corporate marketing vice presidents. Efficiently designed prefabricated housing units have walls of asphalt bricks mitered at the corners and asphalt shingles tacked to their roofs. An ingeniously designed metal-thin sheet load-bearing wall-system will probably be marketed in split-leveled, cape cod, ranch house vernacular, with clip on aluminum shutters to transform it from "contemporary" to traditional. The technical ingenuity of our major housing effort is the handmaiden of apparently immutable housing taste.

Ironically, in the past few years we have seen more technical ingenuity, more mechanical and electrical inventiveness in the museum exhibitions of metal sculpture, light shows, pneumatic structures, and kinetic art than we find in the market place. Our artists are more technically competent than our technicians and our technicians more influenced by popular taste than our artists. In a few years we may well find our better technical accomplishments gathering dust in museum basements with other bric-a-brac.

Of course a museum is a nice place to visit, but no one wants to live there.

Forrest Wilson



Photo: Courtesy The American Museum of Natural History

The Great Museum Debate



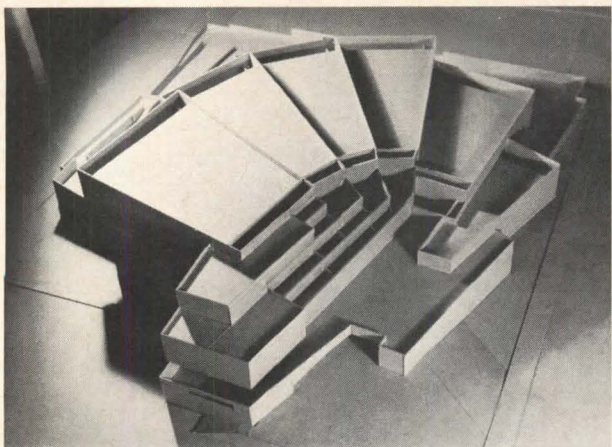
Observing man attempts to participate with "Reconstructions of Early Man."

BY C. RAY SMITH

A great museum debate now rages: monuments vs. nonbuildings, permanent collections vs. traveling exhibitions, glass cases vs. environmental barrages. The 19th-Century institution for collecting and exhibiting paintings, statues, and objects is searching itself for a new identity. As the work of artists and the world of communications change — making giant leaps with stunning precision — the museum also is stepping out in new directions — but with halting, and sometimes faltering, steps. Of all the cultural institutions in our country, the museum is said to be the fastest growing. Guestimates suggest that a

new museum opens every three days. Most of these, admittedly, are historical houses and similarly preserved shrines; in fact, among the 6000 known museums in the United States and Canada, more than half of the 4595 listed in 1965 by the *Museums Directory of the United States and Canada* were housed in buildings not originally planned as museums.

Construction statistics, on the other hand, indicate that of the buildings that have been designed specifically as museums 223 were built between 1921 and 1940 and the years between 1941 and 1960 saw the construction of 174. Between 1961 and 1965, 68 museums were built, 20 more were completed in 1967, and 49 others were in construction by mid



The University Art Museum, nearing completion at the University of California's Berkeley Campus, may become one of the country's most outstanding contributions to contemporary museum design. Comprising a total floor area of 90,000 sq ft, it will include some 30,000 sq ft of gallery space — the largest university museum in the United States.

The building, designed by the San Francisco firm of Mario Ciampi & Associates with Richard Jorasch and Ronald Wagner, Design Associates, consists basically of five cantilevered exhibition terraces that step down the sloping site in five-foot intervals and fan out in an arc, like a hand of cards, from a central lobby. Rising above the terraces are the nine museum galleries that will house changing exhibitions, permanent collections and new acquisitions. Beneath the galleries, at ground level, a restaurant and lounge area will look out through an undulating glass wall toward an outdoor sculpture garden, while a level below ground will include service areas, seminar rooms and a 200-seat theater.

When the museum requires expansion in the future, the terracing system will continue on both levels, providing visual continuity and strengthening the sculptural image of the design.



1968. Approximately 150 new museums, then, will have been built in this decade alone — a figure nearly equal to the number constructed during the entire twenty-year period preceding. There are indications that this activity will continue.

As more architects get more opportunities to design such facilities, however, the procedures seem to be becoming no clearer or simpler. Rather, the opportunities appear more and more complex. The planning and design of a museum is not only an unexpectedly uncharted sea but also a confusing choice of multiple routes that almost rivals the planning and designing of that other showcase building — the theater.

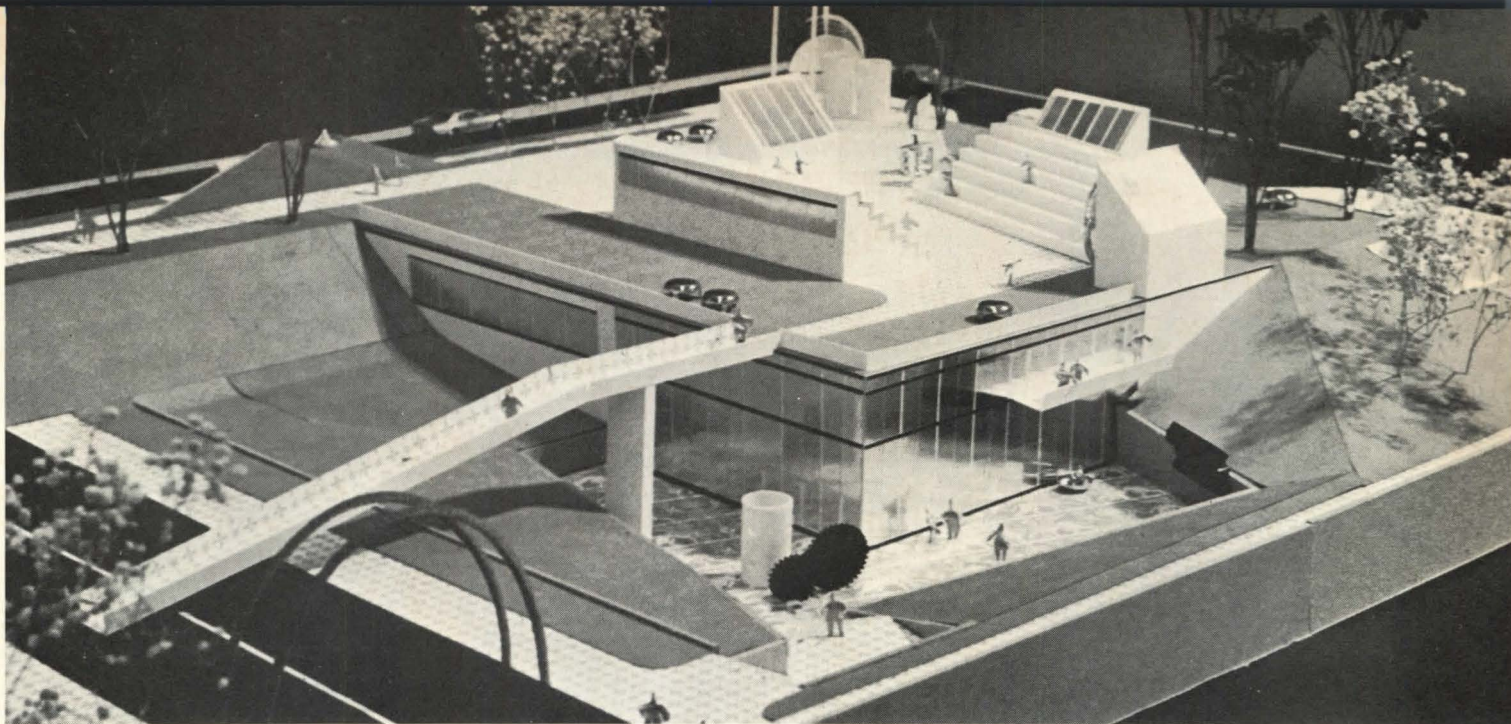
In addition, until they get a museum commission, not many architects give a frame about all those "cemeteries" for easel paintings and dusty fragments of the past. How could it matter to architecture-as-planning whether Cranach or Titian painted the most beautiful Venus, whether Caravaggio or Rembrandt gave greater insights with *chiaroscuro*, whether a prancing marble horse is Etruscan or an Etrurian pastiche? (Let's not confuse this with an interest in contemporary works of art. The best architects of all ages have constantly kept abreast of new, program-free artwork, as early harbingers of architectural spring). To the broad picture of architecture, however, art history is not essential; these systems of art scholarship need interest museum architects only on a personal level. In fact, they interest museum directors only on a personal level. To do his job creatively, a museum director (as opposed to a museum curator) needs to know not much more about the history of art than a hospital administrator needs to know about the history of medicine. Contemporary procedures, directions, and needs are their concerns. So today what museum directors are re-examining — and what museum architects most need to know — are the roles and goals and interior functions of museums.

As architect Gunnar Birkerts observes, while he ruminates about his design of the proposed contemporary arts museum in Houston, "I want to know what the world of the museum is as the client sees it. Is it a collection museum, a participation museum, a museum that makes acquisitions or houses traveling shows? This might be more confusing to museum directors today than it is to architects," Birkerts observed.

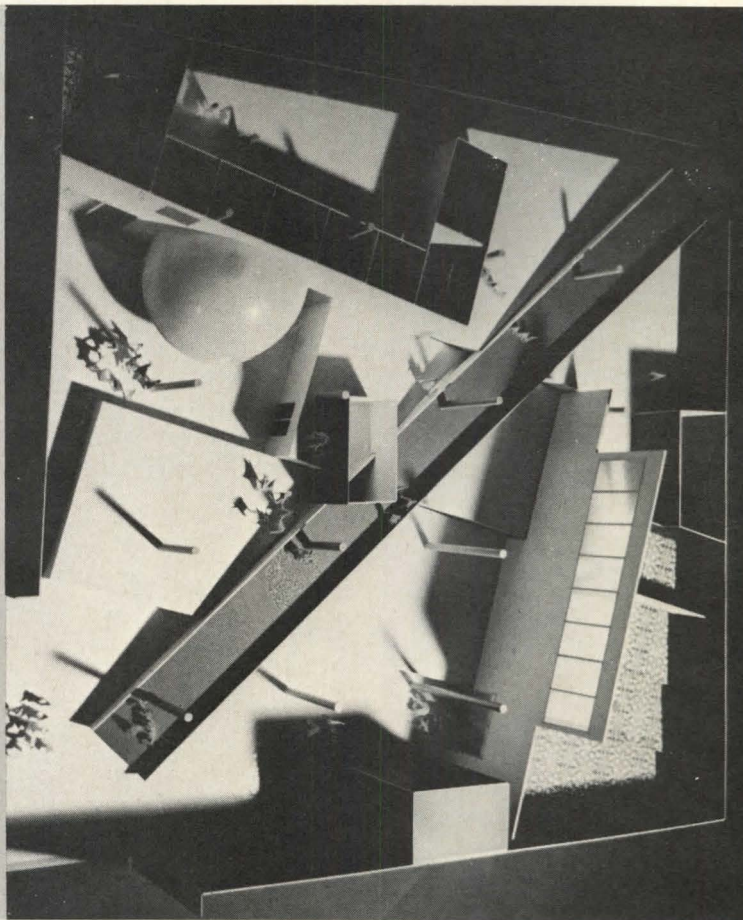
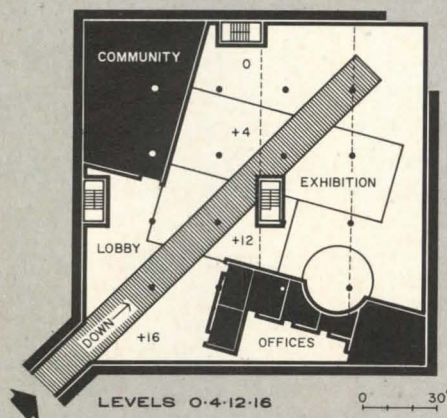
Architects, consequently, may have to become more concerned with these confusions in order to help museum directors sort out ideas about content (which seem an almost ubiquitous confusion among museum personnel) and ideas about the scope and role of museums. More than ever before museum clients need incisive diagnosis from their architects.

Changing Roles

"The whole ritual of going to a museum is changing," Gunnar Birkerts says by way of example. "It used to be a mausoleum like a church, where you



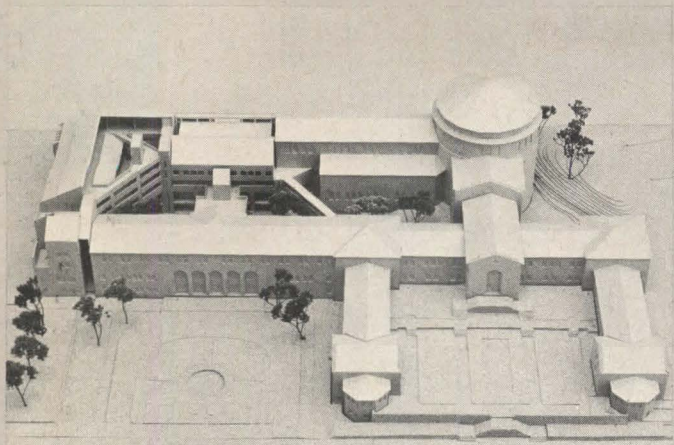
The Brooklyn Children's Museum, designed by Hardy Holzman Pfeiffer Associates, will encourage exploration and interplay between seeing and doing, and will even provide "take home collections" for young museum-goers. The museum was conceived as an underground building covered by a community park.



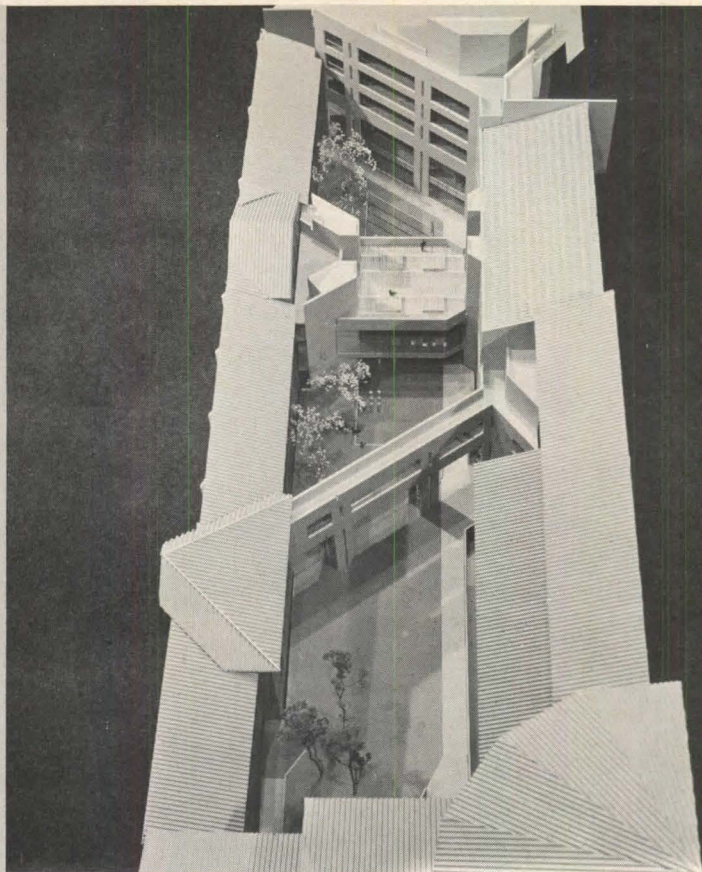
went with some reverence and tiptoed around with a hushed air." Instead, today we are likely to find a museum full of laughter and frolicking, full of rock music and flashing lights. We are also likely to find museums acting as community centers or as performing arts centers. Their scope has broadened considerably from the original contemplative temples for an already initiated, "cultured" elite. It is symptomatic of a changing society's changing relationship to its art.

Where does an architect go to learn about these new ideas? Museum clients alone are not always a sufficient source. Literature on museum architecture is not extensive, and anyone who has looked through it will recognize, as P/A did, that the traditional order of discussing the aspects of museums has been: first, *Buildings*, then *Interior Spaces* (strongly personal vs. freely flexible), next *Lighting*, and last the *Exhibition* and *Exhibition Techniques*.

Every thoughtful architect can recognize that this



The Academic Wing of the University Museum at the University of Pennsylvania, designed by Mitchell/Giurgola Associates, Architects, will enclose a series of sculpture courts with a distinctive atmosphere. While not programmed to contain exhibition space, the wing will house the anthropology department, the University Museum Library and associated facilities. Completion of construction is scheduled for mid-1970 and is expected to cost \$4.7 million.



Photos: Rollin La France

order is completely backwards. What an architect needs to know first about a museum is what is going into it? The biggest problem in recent museum design, as one museum planning firm points out, has been the lack of direct relationship between the architect and the exhibit itself.

Definition

The American Museum Association's "Belmont Report" offers a detailed definition of a museum as "an institution which performs all, or most, of the following functions: collecting, preserving, exhibiting, and interpreting the natural and cultural objects of our environment." It further observes that the mission of a museum is two-fold: "the advancement and diffusion of knowledge, and the enhancement of that awareness which affords pleasure and delight." The functions can also be described as: preservation, interpretation, and tastemaking.

Such a definition is broad enough to encompass a great variety of museums, the largest species of which are art, history, science, and specialized museums. *The Museums Directory of the United States and Canada* (1965) further codifies these groupings into 84 separate categories. For example, science museums include planetariums; specialized museums offer exhibitions as varied as circuses, crime, wax and whaling. These identifications are based on the kind of exhibition housed. Other museums, however, are identified by the specialized concentration of

their audience. Children's museums are the obvious example.

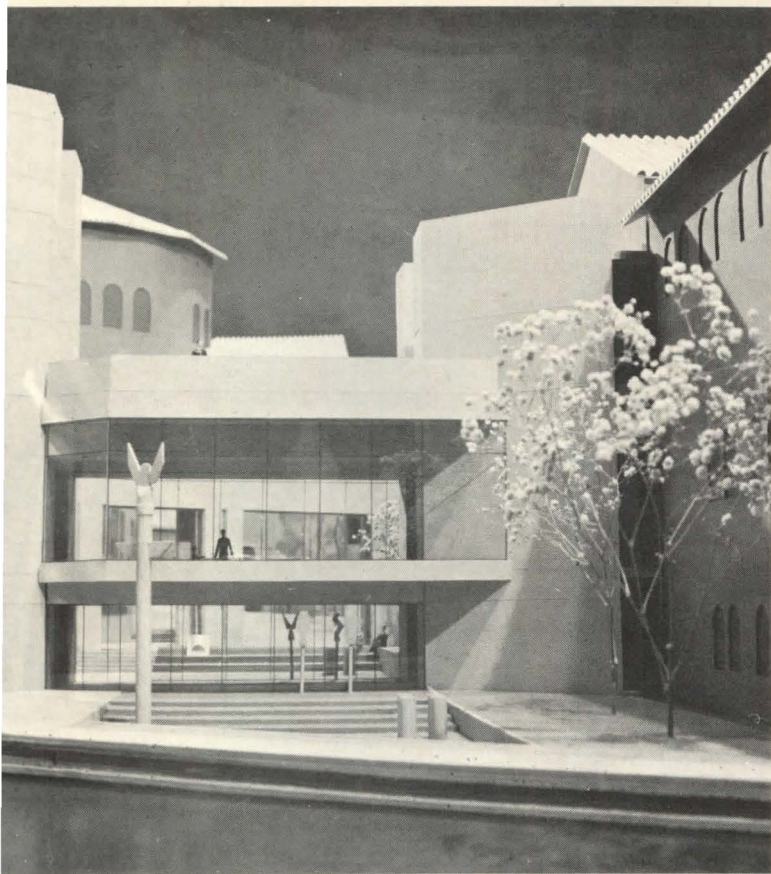
As places where people go to walk around and see exhibits, then, as circulation patterns in an environment for things to look at, "museums" encompass a wide variety of institutions. If planetariums are science museums, such exhibits as zoos, and aquaria further broaden the scope of the term.

The Museum Program

Fundamentally three questions initiate a museum program, as architect José Barnardo of Museum Planning Inc., points out: (1) What is going into the museum? (2) What kind of audience is the museum to get? (3) What is the museum trying to communicate with what they exhibit?

The first question is multi-layered. The major consideration for an architect is whether he is to design spaces for a permanent collection or for changing exhibitions. Designing to fit a permanent collection is the familiar static situation in which most architects feel at ease. The goal is to fit spaces to the collection "like a glove," as architect Barnardo says. "I am opposed to designing controlled spaces and then trying to fill them up," agrees his partner Richard Ellis.

Not every museum starts with a strong permanent collection however, nor does every museum director aim to acquire one. Perhaps they should. It would make architecture simpler—but not necessarily more realistic and related to functions. For art mu-



seums especially, the source of supply is so critical that traveling exhibitions may ultimately be their only stock in trade. Unless some yet unknown cache of easel paintings from the four great centuries of painting is miraculously discovered, we can fairly safely assume that no more major collections like those of the Louvre, the Metropolitan or the British and American National Galleries will be assembled in the future. The sources of paintings and statues created between 1500 and 1900 have surely been tapped nearly dry. Although occasional collections like the Hirshhorn or the Rockefeller primitives may come to light, even these rich assemblages do not rival the scope of the great treasure houses of the West. As a consequence, the museums that are built in the future to house permanent collections of past culture will have to resign themselves to being either small and specialized (unpopular periods, minor masters, local artists, or prints and other media) or road houses for traveling segments of the great metropolitan museums.

Spaces for traveling exhibitions, however more difficult to plan than spaces for permanent collections, can be well designed. As Ludwig Glaeser of the Museum of Modern Art points out, large, flexible, loft-like, multipurpose spaces are better coped with by American architects since they cannot, or will not, take the time to design individualized settings for each gem-like work of art in a permanent collection, as Italian architects do. Others point out, none too coolly, that when one designs for changing exhibi-

tions the doors to a 30-ft high space should really be larger than 8-ft high so that one can get large sculptures into that space.

The essential point is clear: no matter whether the museum exhibitions are to be static or changing, the initial question to be determined is: which of the two will it be? In other words, what is going into the museum? Only by resolving this matter first can the unknowns as well as the knowns be established and the planning begin on firm foundations.

Second, a program must ask what kind of audience the museum is to get. An architect may ask what possible difference this fact can make if the exhibit type is constant, but he will not ask again if he understands designing a museum for children versus adults. "It makes a big difference," explains architect José Bernardo, "like designing a restaurant instead of a cafeteria."

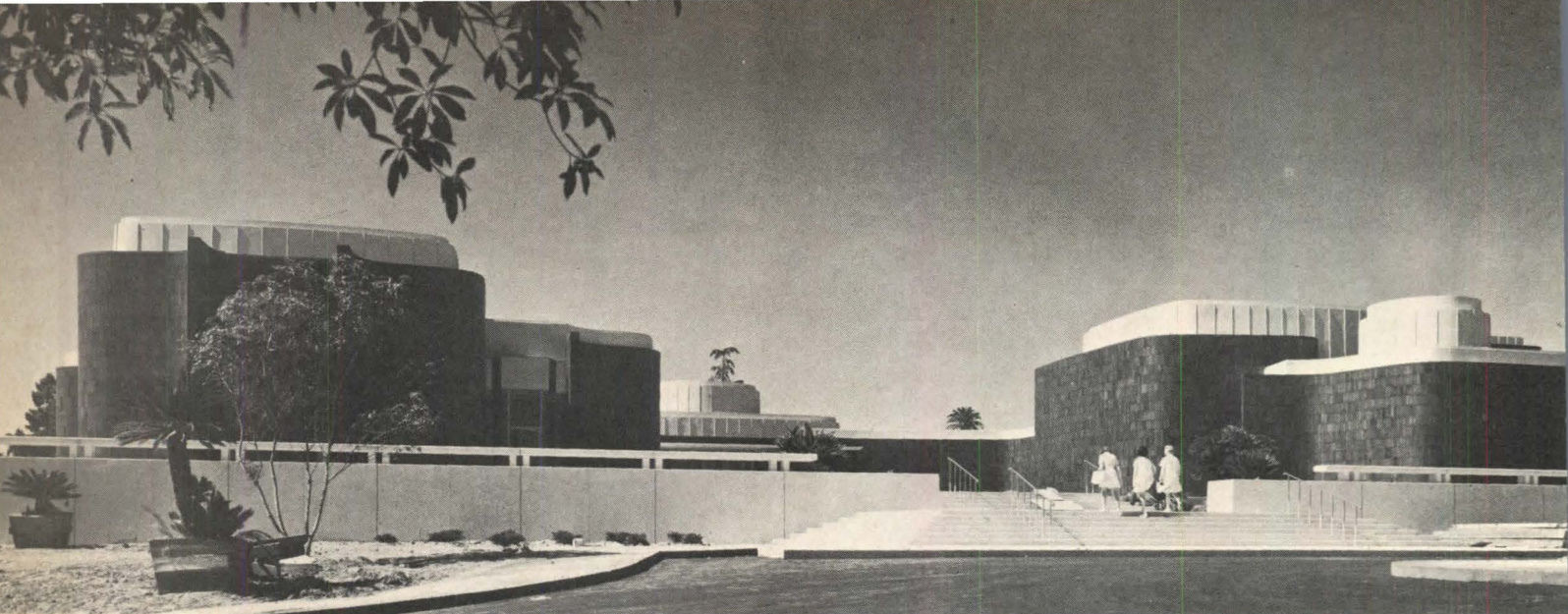
Third, it is essential for an architect to know what the museum is trying to communicate through its exhibits. This is an area formerly neglected by architects as solely the province of the exhibition designer. Not only is there a curatorial decision about how important a painting should look, which was the major consideration of the past, but now there is a more critical question of the interrelationship between the exhibit and the audience, a question of how much involvement can be elicited from the museum audience.

The New, Action Exhibits

In former days, the attitude of most museum directors was typified by notices which read, "Please do not touch." Today we are likely to find progressive museum directors searching for a way of making their institutions places of participatory pleasure, places designed for those who want to enjoy and learn more about past and present cultures by direct and involved means, places where they can "touch" however discontinuously, like the "involved" dancing in discotheques.

The environmental aspects of historical and natural history museums—their dioramas, for example—have been familiar for some years, as the simulated natural outdoor animal environments in zoos have been. Manipulative exhibits in science museums have also been familiar. The "total environments" of historical museums like completely preserved houses (which have not usually been considered as participatory) are also becoming assaults and barrages of involvement and participation.

Today, dioramas and exhibits (like the Metropolitan's recent showing of the Rockefeller Primitive Collection) are accompanied by audience-participation devices such as electronic wireless sets that add aural information to visual exhibit. Visitors can now walk through an aviary cage, can peer at fish from an underwater tunnel at the Houston Childrens Zoo, can experience the pitch-black environment of the nocturnal animals' house at the Bronx Zoo. These are just several of the ways being attempted to extend the impact of the descriptive label that is affixed to



exhibits in museums.

Here is the current dilemma of art museums: how can they become participatory without endangering the static physical quality of easel paintings and sculpture? How can the spectator sport of looking at paintings become a participatory activity?

Today we want art museums to satisfy several of our senses at once. Where is the museum that plays music of the period appropriate to the exhibits? Monteverdi with Bernini; Purcell with Rubens; Handel with Romney; Couperin with Watteau and Romeau with Fragonard; Stravinsky with Picasso; rock with op? Where is the art museum that offers different temperatures or different scents along with exhibited objects?

Recent developments in art, of course, have tended toward sculptures that are more participatory in a walk-through way; paintings even evoke more of a tactile quality than the treasures-under-glass attitude we have toward the paintings of the past. Italian architects in particular have made attempts to involve us once again in "old masters," which we can no longer see, they believe, because of our reverential attitudes. The method of forcing us to *see* revered paintings again, as Ludwig Glaeser explains, is one of alienation through contrast. Carlo Scarpa and Franco Albini notably have used steel I-beams and wood scaffolds as the easels for Renaissance paintings; the contrasting machine-age easel produces an immediate alienation effect that does tend to refocus our vision on the actual painting rather than on its venerable age. As Ludwig Glaeser has written, "The manner of asymmetrical composition, pointed juxtapositions, calculated intervals, and the expression of structure in supports introduces alien elements whose function is to divorce an object from its time and place to make it more intensely visible."

In modern art museums, architects Hardy-Holzman-Pfeiffer look toward some means of participation between viewer and exhibit that will enable the exhibit to react to the viewer. They would have exhibits that change texture or temperature or in some other way respond to touch; they would have exhib-

its activated by the number or weight of people in the space — lights changing, sound increasing or decreasing, and so on.

Multi-media presentations of art objects, through greatly enlarged television images and with Electronic Video Recording (EVR) for example, are also being considered as new means of bringing the viewer closer to the artwork. In architect Edward Barnes' new Walker Art Gallery building, now in construction in Minneapolis, an orientation gallery will use front or rear projection, and Walker director Martin Friedman has also suggested projecting light shows on the exterior of the building as a community orientation program. Soon, we can imagine, a museum may be built that will project the image of the painting hanging on the gallery wall right onto the exterior wall through some rear-screen device so that the Rembrandt covers a 40-ft by 60-ft exterior surface. This kind of new vision of artwork is an extension of the comparative criticism with photographic reproductions that André Malraux discusses in his *Museum Without Walls*.

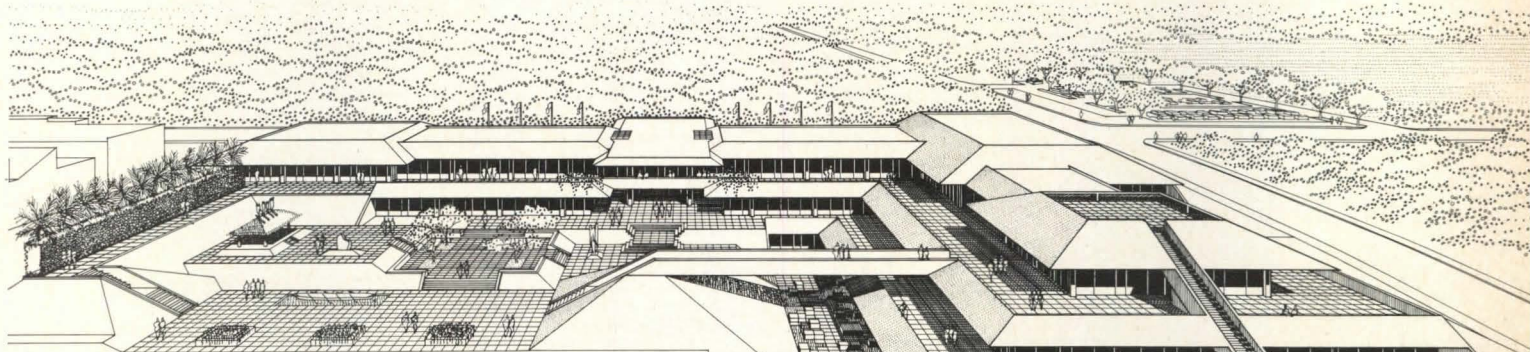
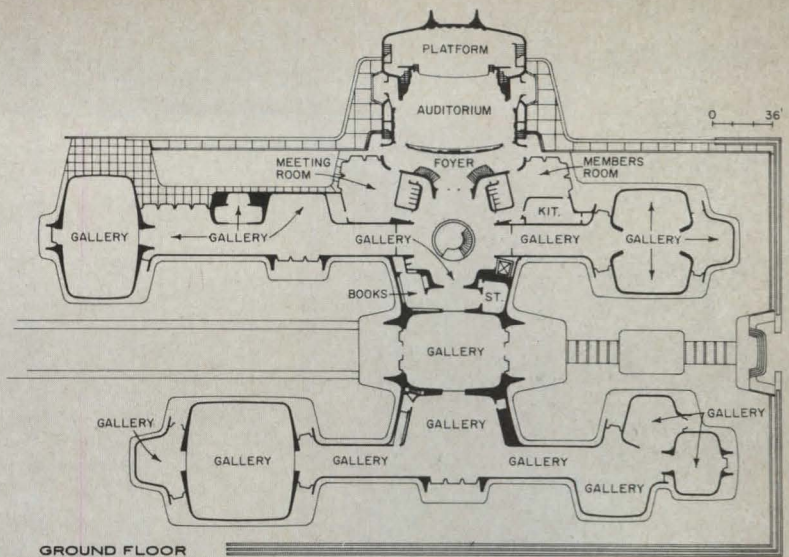
Interior Spaces

It is this direction that may do most to dispel the image of the exhibit as a kind of interior furnishing and refocus the interest of architects on the primary function of the museum at the beginning of his project. Even that new focus on multi-media can reemphasize the proper perspectives of a museum program. As James Gardner wrote in *"International Lighting Review"* (Vol. XV, No. 5/6, 1964) "What we require is a protective shell with interior proportions that make possible a variety of atmosphere and a circulation that is wide and appears free, while leading the pedestrian round a predesigned route; the interior to be unobtrusive, nowhere purposefully elegant and attention-attracting — almost negative. This is a tall order." Many other exhibition designers agree.

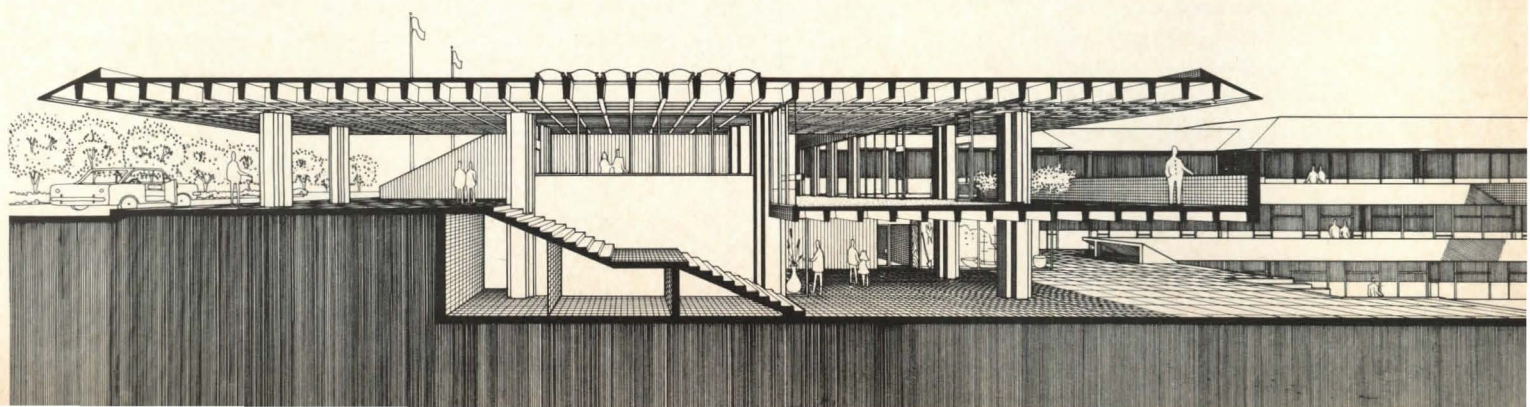
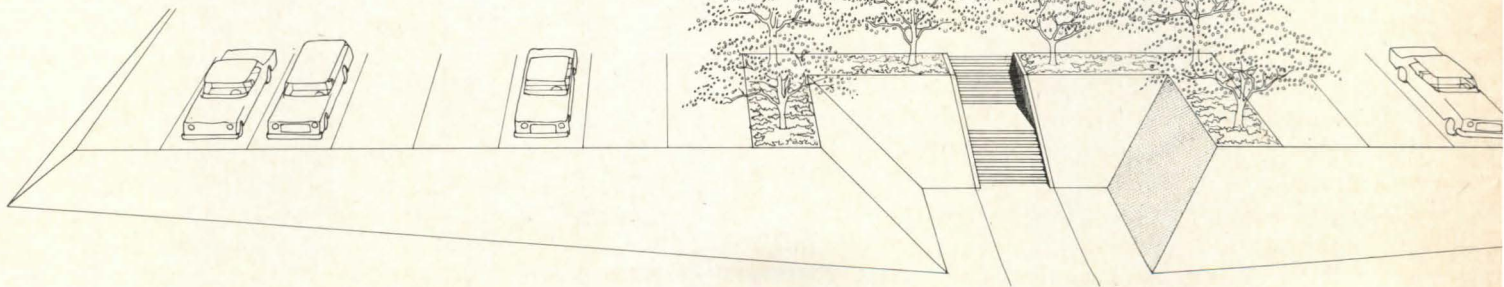
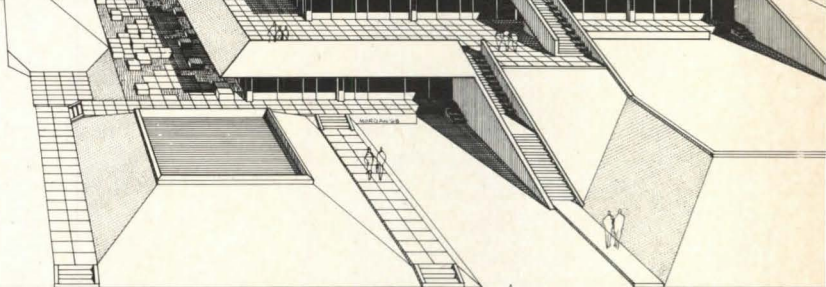
"A museum can be a monument on the outside," says architect Bernardo, "but it should be humble on

The Pasadena Art Museum by Ladd & Kelsey, Architects, is a two-level scheme of galleries, auditorium, library, offices, and service and storage facilities housed in molecule-plan pavilions of varying size and height, which are strung bead-like on a double strand of corridors. The non-monumental cluster is designed to harmonize with the residential scale of its neighborhood. Pavilion interiors are arranged to "enable a continuing and fluid sequence of spaces" for what is considered "the best museum of 20th-Century Art in the West," but are also conceived as being separate and individual enough in scale and height to permit the widest flexibility of modern art exhibits. Lighting is a combination of quartz and fluorescent in finned perimeter troffers; larger galleries have central domed skylights. Temperatures in the \$8.5 million, 85,000 sq ft museum will be automatically controlled at 70°F to 75°F; humidity will be at an average of 50 per cent; and charcoal filters will remove gaseous smog contaminants.

Photo: Wayne Thom



The Florida State Museum by architect William Morgan for the University of Florida in Gainesville will be formed of descending terraces and earth berms following the contours of a southerly sloping hillside. The history and archaeology of Florida will be exhibited in 100,000 sq ft of air-conditioned space and two acres of terraced gardens. Exhibition spaces on the upper level, which comprises one-third of the interior, will be spanned by steel trusses that provide ceiling heights varying from 15 to 21 ft. Middle and lower levels containing research spaces and offices will be of exposed concrete waffle slab with demountable gypsum wallboard partitions. Construction budget and low bid were \$2,143,000.





the inside." This is, they claim, the only way that the exhibition rather than the building can be the star.

To a number of exhibition designers, the variety of the circulation pattern is more important than the architectural character of the spaces themselves. In this regard, the type of audience that the museum is going to seek is significant, for behavior patterns and interest levels should be determinants. Most praised of new circulation plans is I. M. Pei's Everson Museum at Syracuse and Pedro Ramirez Vasquez' Anthropology Museum in Mexico. Most questioned of new plans seem to be Kevin Roche's and John Dinkeloo's Oakland Museum (p. 92) and the late Mies van der Rohe's Berlin Museum (p. 108, Nov. 1968 P/A).

Also more important than the character of spaces, say exhibition designers and museum directors, are the lighting systems and the partitioning systems devised for changing exhibits. On lighting, of course, the controversy is rampant — daylight vs. electricity; incandescent vs. fluorescent vs. quartz vs. a mixture; high light levels vs. conservative levels.

Another aspect of the great museum debate is the quantity and quality of backstage, supporting spaces for the on-stage exhibition spaces. There, where the research, preservation, and operational functions of a museum are carried on, personnel agitate more and

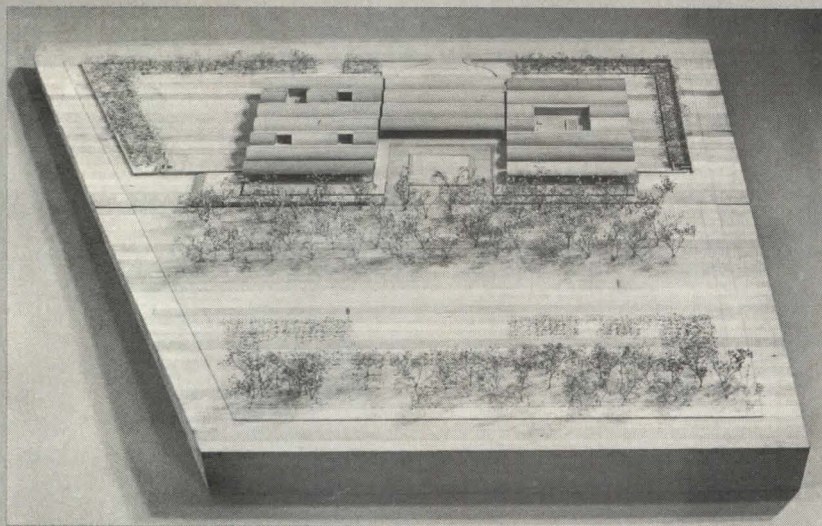
more about facilities provided. The problem is not yet so acute as the backstage problem in theater design, but it may become so in the near future.

Buildings for Museums Use

Finally, then, an architect comes to a consideration of what the exterior of his project will look like. Traditionally, the word "museum" has conjured up an image of a monumentality — justly, since they are prestige treasure houses that express the pride of communities. Here, obviously, an architect has a free hand, and in the facility of their vision, architects have recently designed museums not only as monuments and monumental sculptures but also, turning the tables, as nonmonuments, as invisible nonbuildings.

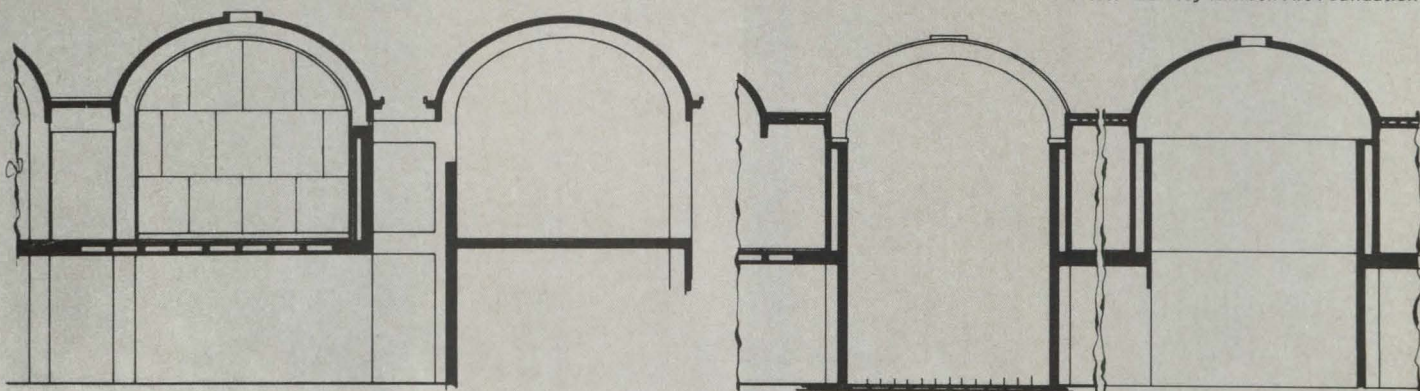
What exhibition designers warn against is turning the tables so completely that a nonmonument also becomes nonhumble on the interior. That, they feel, is detrimental to the museum as museum.

Other nonbuildings may present new parameters for museum design. For traveling exhibitions, mobile museums may incorporate the building as a traveling container for the exhibiton. Such railroad-car or mobile-lounge museums would surely cut down on the operational costs of exhibit installation, though



The Kimbell Art Museum in Ft. Worth, Texas, by Louis I. Kahn is, in its second design phase, still to be an unpretentious, low-scaled building that accepts a 40-ft height restriction so as not to impede the view from Philip Johnson's Amon Carter Museum nearby. The U-shaped plan of the revised design is an arrangement of vaults supported on columns 12-ft high. The vaults themselves are cycloids, which may be derived from the fact that museum director Richard F. Brown envisions most visitors arriving on wheels. Partitions up to column height can give the space an unexpected degree of flexibility, for the few but choice old masters and non-western art that the Kimbell Art Museum will specialize in exhibiting and interpreting. A model of museum pre-programming — for clients and architects alike — is the "Kimbell Art Museum Pre-Architectural Program, June 1, 1966." If such painstaking and perceptive documents were the rule, museum design would take an immeasurably improved turn. Associated with Louis Kahn on the \$6.5 million museum is architect Preston M. Geren of Ft. Worth.

Photos: Courtesy Kimbell Art Foundation



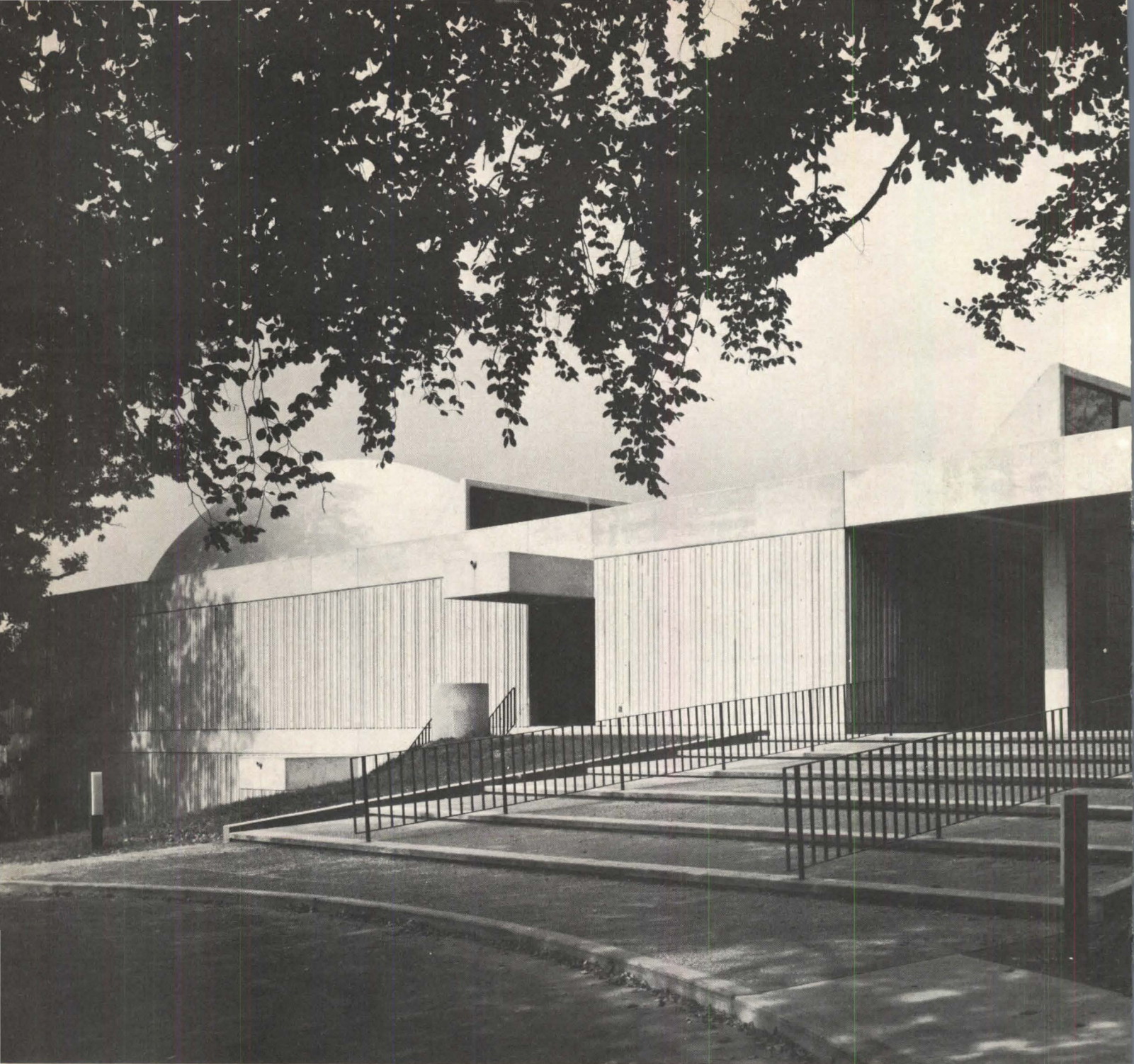
that saving may be offset by the initial cost of the containers themselves. What such an approach to museum design would certainly offer is a consistency of presentation throughout the life of the exhibition and a secure control of the original design of the installation. In Philadelphia, Hobart Williams is reportedly forming an organization to manage traveling exhibitions for all museums and thereby assume the logistical onus for them. His group will surely increase the exposure of important exhibitions and may consequently influence the construction of traveling container-museums to house them.

Museums established in preserved houses or other buildings may also come to be considered major regional museums; they can depict the cultures or lifestyles of individual communities in the best buildings of those communities. In this way, architecture may find its way more forcefully into the realm of the museum exhibit.

Restoration, in fact, appears to be expanding the boundaries of what is normally considered to be a museum. New York City's South Street Seaport Museum is a promising example, like Mystic, Connecticut, but urban and more controlled. In such exhibitions the problem is to fuse the excitement of Disneyland with the truth and significance of the real work of art.

Conclusion

In this fastest growing of our cultural institutions the scope of types and the kinds of exhibitions are steadily expanding. The role in the community is being questioned. And the procedure and focus of planning and design is under close reexamination. Symbolic of this investigation is a report on the roles and functions of museums to be published next year by the Twentieth Century Fund. Focusing on art museums only, the report will examine their history, what they are, what they may become, and what they should become. Directed by Jan C. Rowan, the study will examine the conflict between the treasure house image and the open-ended institution, the museum as a public educational institution, and the ramifications of this changing function to the community. It should be a valuable report for architects interested in doing serious investigation into the behind-the-scenes activities of museums — the problems, the functions, and the people with new ideas. For museums will continue as a part of our culture in however a transformation from their original roles as princely treasuries. With forward-looking vision they can be democratized to fill vital roles as public educational resources for the enrichment of entire communities.



The horizontal roofline of the new building contrasts with the tower and roof of the existing building and provides a visual base for the planetarium dome, while angled skylights reflect the angled turrets, gables and tower of the mansion (above). The building steps down the hill so that, while the higher eastern portion is a single story, the western portion contains three sculptural levels facing the river (left). The building was conceived as a wall enclosing a courtyard in front of the mansion (right).

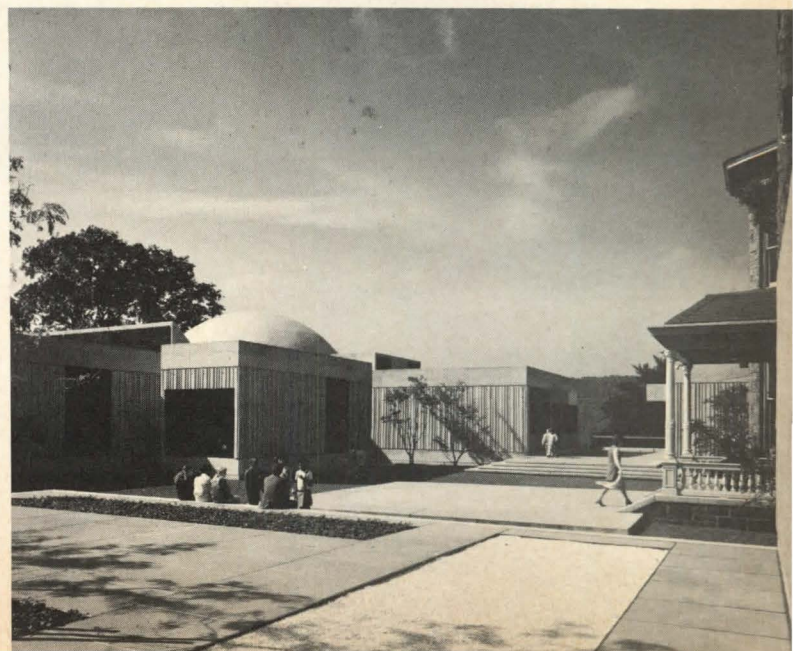
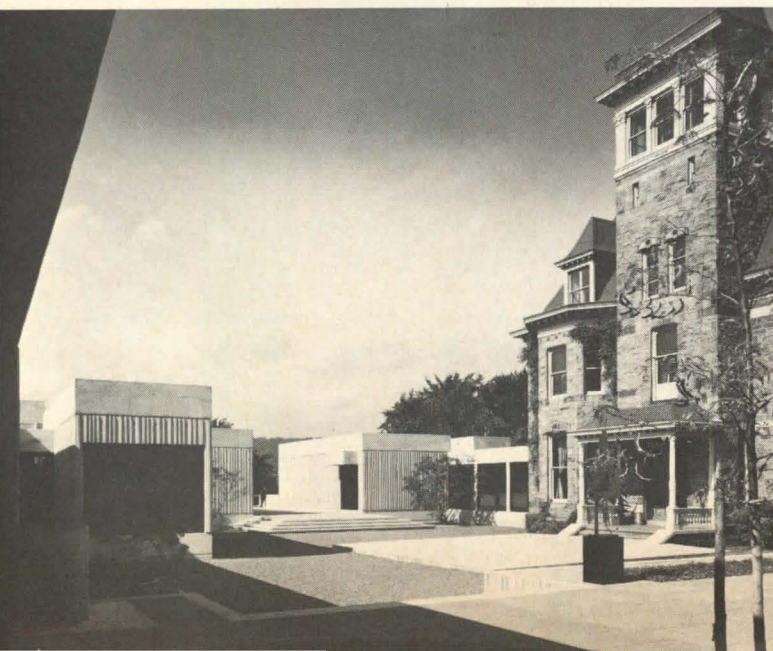


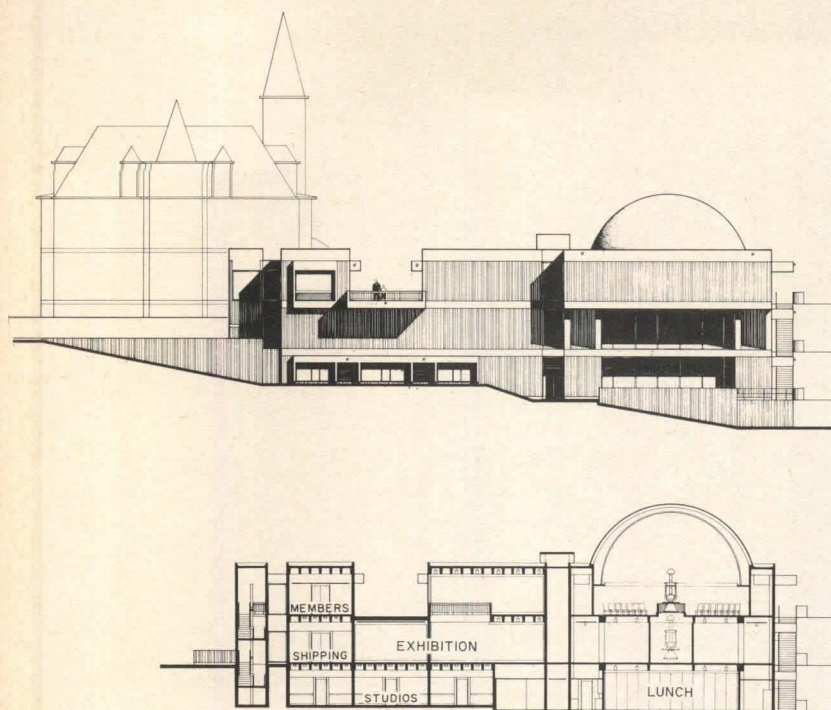
Yonkers' Regional Keep

The SMS Partnership walls in a courtyard to protect and expand an old community museum building.

The romantic fantasy of a three-story, gabled-and-turreted mansion built in 1876 has been candidly joined by a fortress-like addition to expand the Hudson River Museum in Yonkers, N. Y.

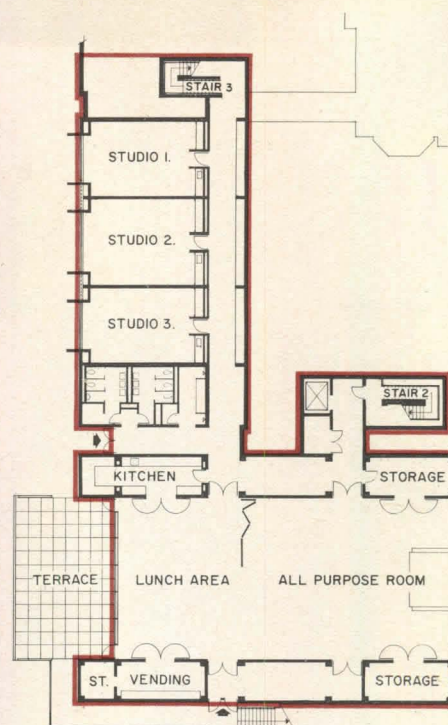
Since its founding in 1923 as the Yonkers Museum of Arts and Sciences (it was incorporated in 1948 under its present name), the museum has included a small collection of art and artifacts reflecting the historical development of Yonkers and the Hudson River Valley, as well as a makeshift planetarium contained in a first floor parlor of the mansion. In order to provide the community with a major focus for both arts and sciences, the museum has expanded its community arts program, added a more sophisticated planetarium, a branch library, and increased





WEST ELEVATION

0 10 20



LOWER FLOOR PLAN

0 20'

its space for an eventually larger art collection.

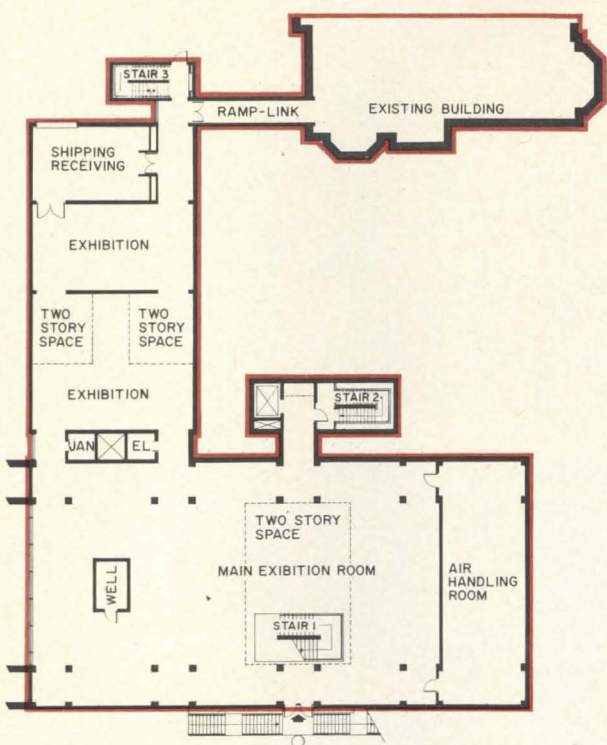
In expanding existing facilities and providing space for new functions, the architects, The SMS Partnership, have created a structure with separate areas for distinct functions, and with flexible exhibition space that will accommodate future growth and acquisition. At the same time, the fine old mansion has been preserved, along with the spectacular views and trees that enhance the property — a city park on a steeply sloping site that commands a sweeping panorama of the Hudson River as well as the Palisades on the opposite shore. The new building steps down the slope so that the lower west side, toward the river, contains three sculptured levels while the higher eastern portion remains a single story.

The new building describes a U-shape plan that encloses a quarter-acre central court in front of the mansion. The court is entered through a skylit covered porch on the south wall (bottom end of the "U"), and will be used for a variety of outdoor events and concerts as well as for sculpture display. Inside the court, a concrete platform situated along the central axis of the mansion will serve as a stage and dance platform, lit from the top of the central tower that punctuates the main facade of the mansion. From within the court, the original mansion is reflected in large expanses of the new building's

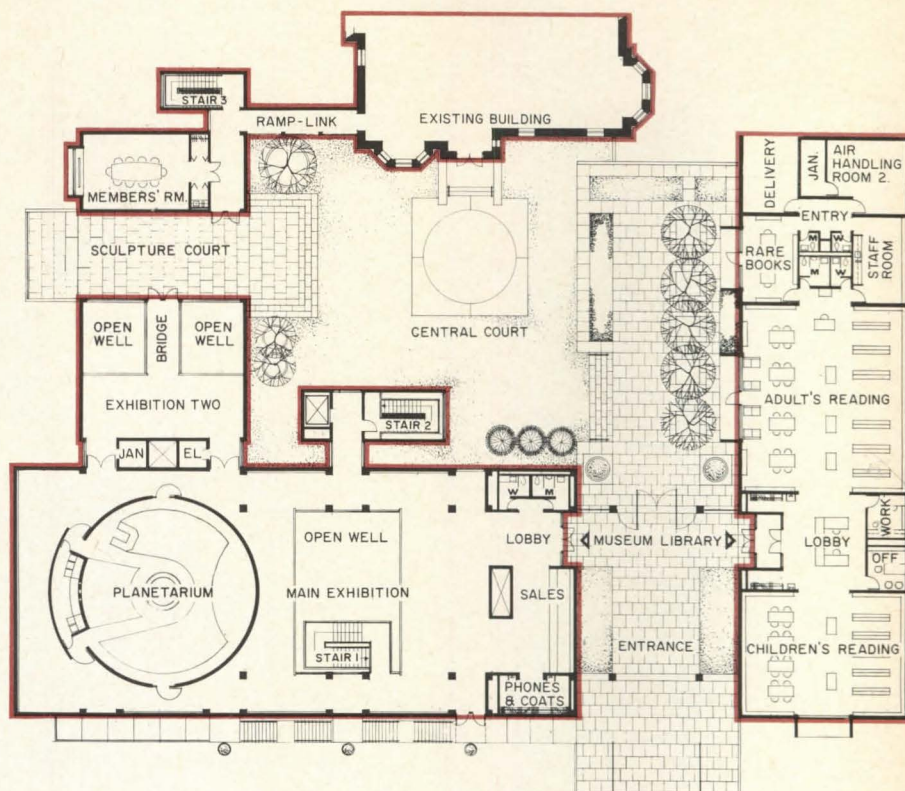
gray-tinted glass windows, visually integrating the old with the new. On the west side of the court, piercing through the left arm of the "U", is a partially cantilevered observation area, that offers visitors a view of the 26-acre site. Adjoining the observation area is a museum members' meeting room that is connected to the mansion by an enclosed ramp with a glass wall facing the central court.

The single-story east wing (right arm of the "U") contains a 25,000-volume branch of the Yonkers Public Library, which includes the museum's permanent collection of rare books on Yonkers' history. A genealogy room and staff facilities are provided, while a lobby and circulation area separates an adult's from a children's reading room. The entrance to the library is separate from the museum entrance so that the facility can be used after museum hours.

The museum's two exhibition levels (bottom and left arm of the "U") are opened to each other by means of two well areas. The top floor contains a large and a small exhibition space as well as an entrance lobby and sales area; the lower floor consists of one large and two small spaces. Since parts of the space are two stories high, large loan exhibitions from other institutions can easily be accommodated. Strategically placed windows throughout the exhibition areas offer views of the old mansion, further



MIDDLE FLOOR PLAN



UPPER FLOOR

integrating the old with the new.

The western portion of the top floor exhibition area, and a major attraction of the museum, contains a 140-seat planetarium with a 30-ft-high dome. The planetarium includes an intermediate Space Transit System, one of only five in the country. Developed for training astronauts, it not only simulates time of day and time of year from the earth's surface but can, in addition, show the skies as they would appear from an object orbiting in space. The planetarium's projection equipment can be lowered out of sight into a well, enabling the room to double as a lecture hall. The dark space behind the planetarium and the west wall of the building displays a 48-ft mural executed by the museum's former director, Thomas Voter. The mural, as well as a nearby rotating globe of the moon is illuminated by blacklight.

The bottom level of the building contains a multi-purpose room that will seat 200, a lunch area facing an outside terrace with a view of the river, and an instruction wing with three studios for crafts, painting, and sculpture. Two entrance areas, separate from the rest of the building, enable this level to be used at any required time for community functions. The museum operates a community arts program offering painting, ceramics, sculpture, and music classes for children and adults, a science workshop

for children, and weekend movies, concerts and lectures.

The structural design of the building, alternating wide and narrow bays, was influenced by the sloping site and the need for ground level access along the south elevation for each of the three floor levels. The dimension of the narrow bay was established by the 9-ft width necessary to accommodate one pair of doors at each level. The wide-bay dimension (26 ft) was established by the width necessary to accommodate a run of stairs from one ground level access to another. A second factor influencing the bay widths was the need to provide flexible space for smaller exhibits. By inserting display panels between the bay columns and the outside walls, niches of varying dimensions can be created.

Throughout the building, the architects have relieved the eye-tiring effects of excessive static illumination by using both natural and artificial lighting. Natural light enters the main exhibition area through strategically placed windows, and through two large skylights covering the well between the upper and middle levels. Adjustable cylindrical fixtures (on a 6' x 6' grid) slide along tracks in the ceiling coffers, while fixed quartz lights provide a wash-of-light for paintings along perimeter walls.

A monochromatic color scheme of white linen-

wrapped plywood display panels (along perimeter walls), exposed gray-concrete, gray-tinted glass, olive-gold carpeting, and red-oak trim, is used throughout the museum to "withdraw" surfaces so that the visitors attention is not distracted from the exhibit. In addition, furniture combining chromed steel armatures with black metal, naugahyde, or leather seating serves as a foil to the neutral background. One bright color is used, however. The architects wanted to integrate and expose the air handling system without visually overpowering the spaces. The result is a sort of functional pop-art — air diffusing nozzles painted bright orange, emphasize the terminal points of the system. The nozzles protrude at regular intervals from the perimeter walls and from the inside faces of the well.

Several textures throughout the building result from the poured-in-place concrete forming techniques — boards of varying thickness were used to line plywood forms at exterior walls, beaded boarding was used to form non-bearing interior walls, and smooth plywood was used to form structural columns and beams. The concrete integrates interior with exterior, and harmonizes with the gray-granite of the old mansion.

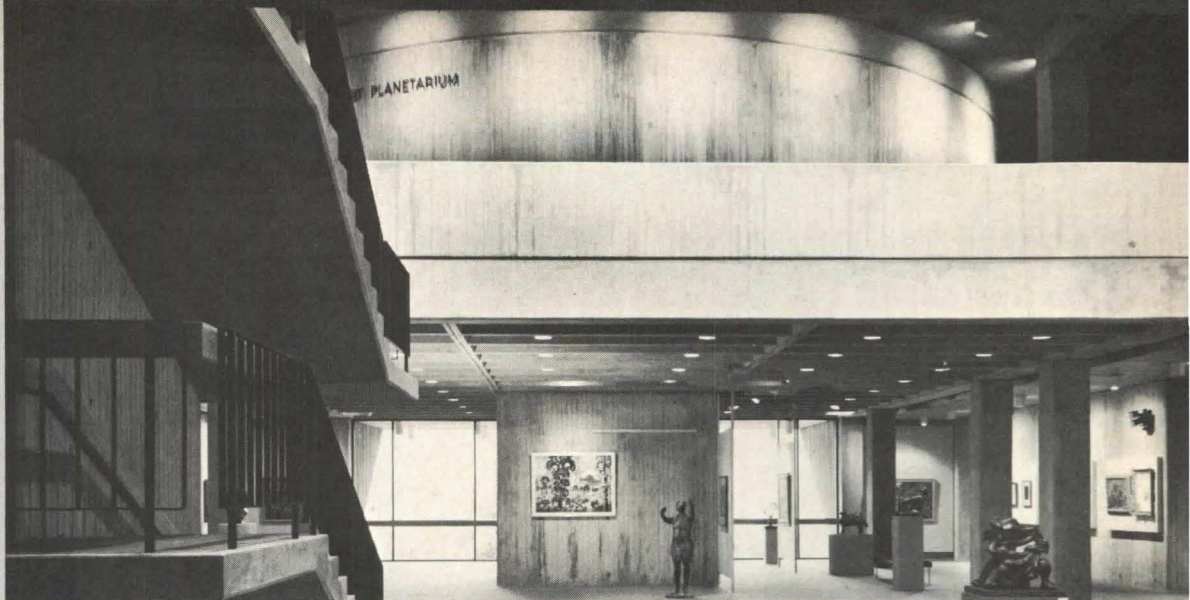
The project fulfills the architect's and client's expectations with respect to siting, formal considerations and public use. "The chief contributions," suggests Willis Mills Jr., associate in charge, "lies with the client's program to provide a variety of use options. . . . under a single roof in a heavily used city park."

The expanded museum serves the community as an educational facility, teaching regional history — even by its very presence — as well as other subjects of scientific and cultural interest. The counterpoint of old and new in the preservation of the mansion as part of the architectural heritage of the Hudson River Valley, while creating the new multiuse expanded structure, shows a thoughtful and sensitive handling of these relationships. The result is a revitalization of the old, and a forceful and direct expression of the new — **C.M.**

HUDSON RIVER MUSEUM, Yonkers, N.Y. Architects: The SMS Partnership; Partner in charge, Willis N. Mills Sr.; Associate in charge of design, Willis N. Mills Jr.; Project architects, Richard Kaeyer, William Briggs Jr., Ramon Lopez. **Site:** Steeply sloping park along the Hudson River. **Program:** Major expansion of existing museum housed in a Victorian mansion. **Structural System:** Poured-in-place concrete. **Mechanical System:** Fully air conditioned with separate air handling rooms serving museum and library. Ducts routed to integrate structural and mechanical system. **Major Materials:** Poured-in-place concrete, natural linen stretched over plywood panels to provide a nailable self-healing wall surface in exhibition areas, carpeted throughout. **Costs:** Budgeted \$1,350,000 (excluding planetarium equipment); bid, \$1,532,376; actual, \$1,590,552; or 75,600 sq ft at \$38.90 per sq ft (not including site-work and planetarium). **Consultants:** Wayman Wing, structural; Abrams, Moses & Solomon, mechanical; Gustave Weiser, electrical; Jack Kilpatrick, lighting; Costello Construction, general contractor. **Photography** (except as noted): Ezra Stoller Associates.



Furniture combining chromed steel armatures with black metal and leather, complements the natural-neutral background in the library (left). The museum's two main exhibition levels are joined by an open well (right and below). Air diffusing vents protrude at regular intervals along the inside faces of the well, and are painted bright orange to emphasize the terminal points of the system (below).



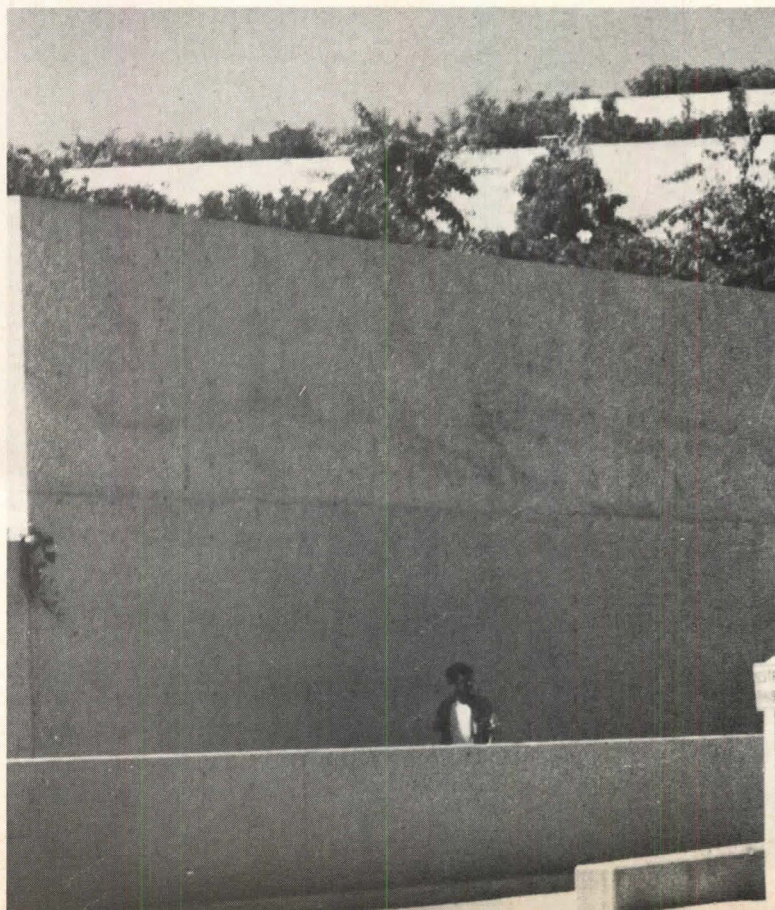
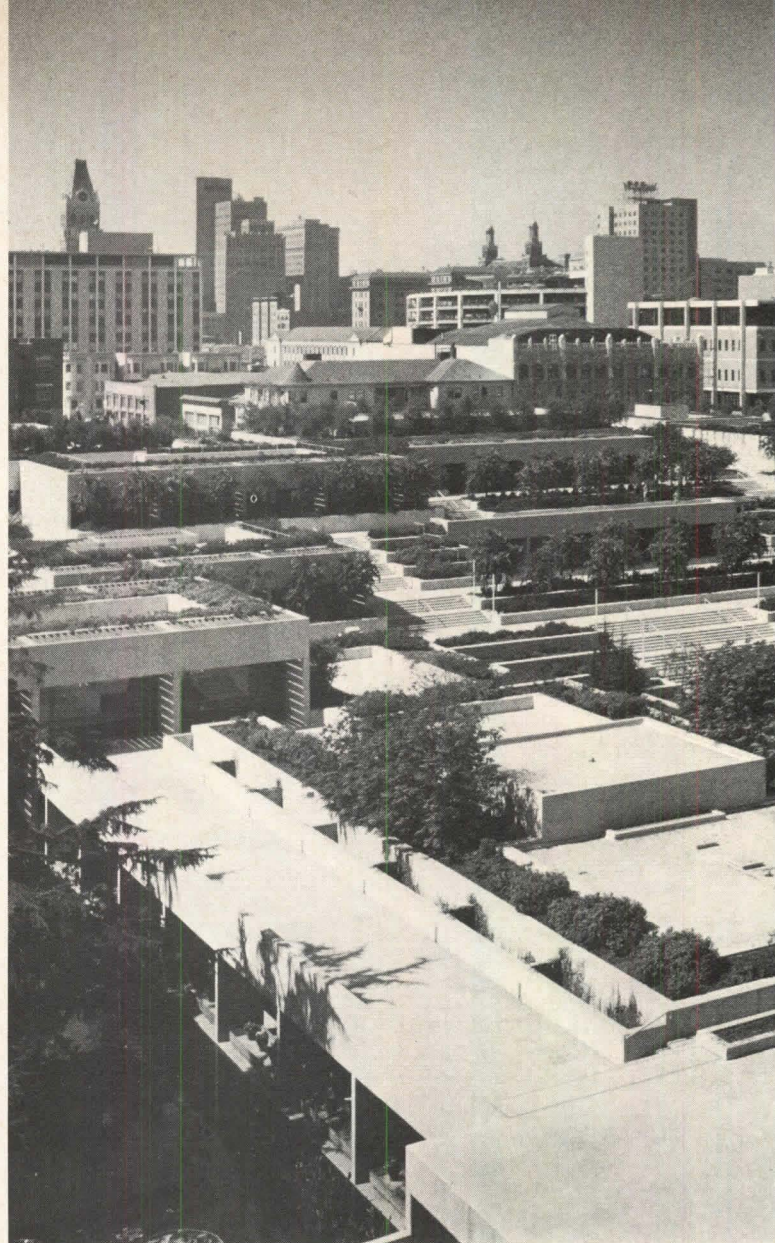
Oakland's Urban Oasis

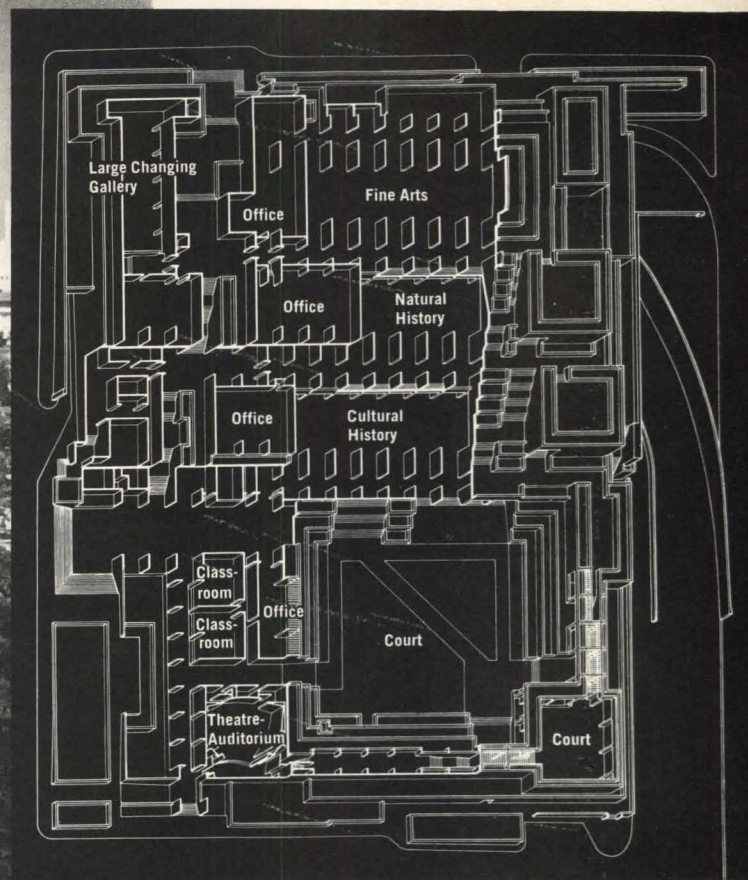
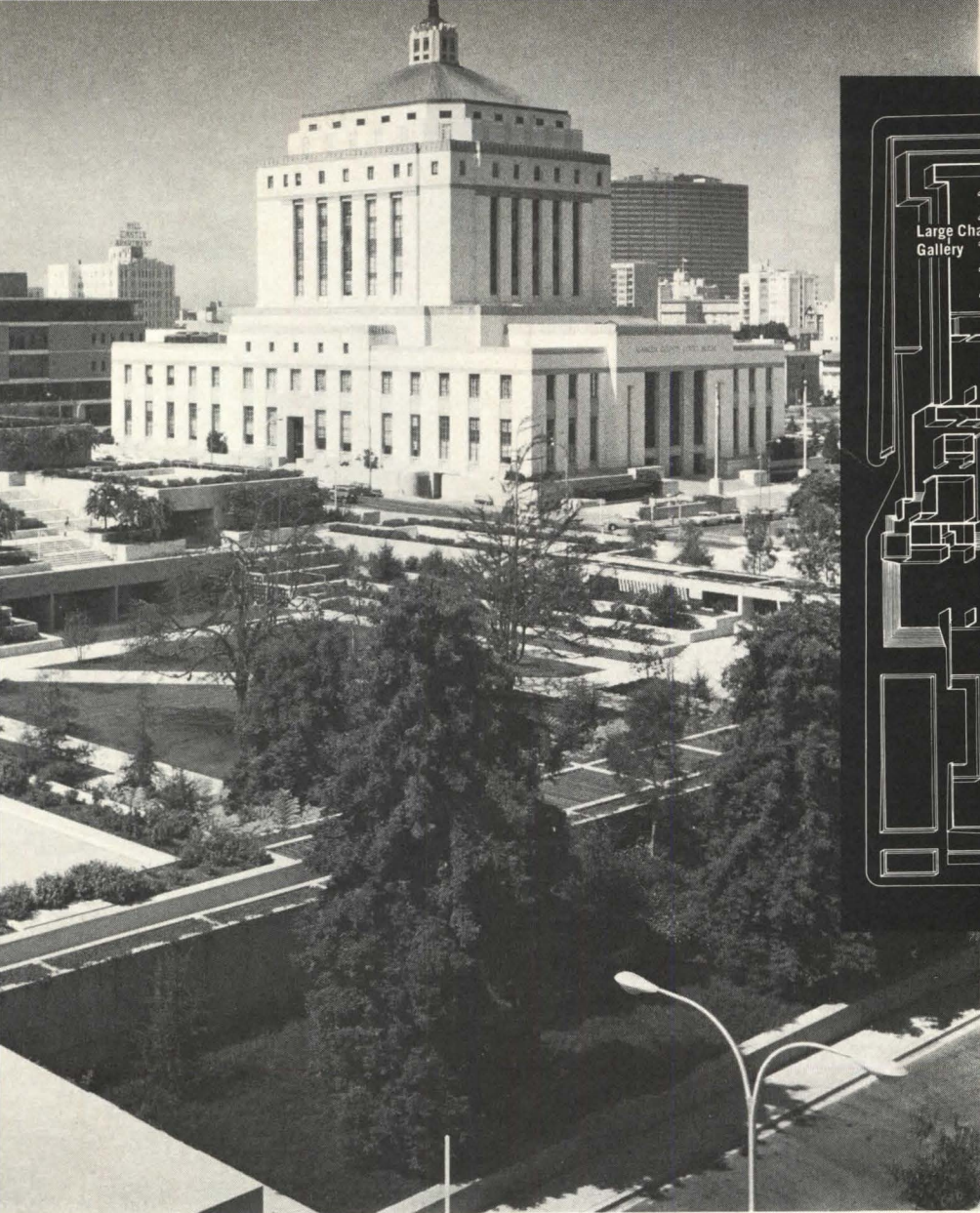
Roche and Dinkeloo's brilliant design provides cloistered calm, filling the ecological void of an urban desert.

The closest parallel to the new Oakland Museum, spiritually if not materially, is The Cloisters, a branch of the Metropolitan Museum of Art located in Manhattan's Fort Tryon Park. Set in a romantic North Italian landscape, The Cloisters discretely combines modern Romanesque forms with elements from real Romanesque ecclesiastical buildings, and houses a very great collection of medieval art. It is hard to believe that the magnificent river views, cool stone walls, and contemplative, cloistered gardens of this northern outpost can be contained within the same urban space as the frenzied canyons of midtown and Wall Street. It contributes not a little to the sanity of the city that residents can pass, in a relatively short time, from one environment to the other.

The Oakland Museum succeeds in providing the same amenity in the more difficult context of a center-city location. To do so it was necessary for the architects to sacrifice certain urban values by turning the complex contemplatively inward so that the facade it presents to the street becomes a barrier against, rather than a grace to, its surroundings. Although the low walls and ramps that enclose the museum compound are not unattractive, they do not reveal and barely hint at the splendid green oasis within. There are good arguments for this approach. No one monument, however beautiful in itself, can significantly transform an otherwise pedestrian, if not actively hostile, urban fabric. Moreover, even had the Museum been part of an extensive and unified renewal scheme, its function might still have remained that of providing a bridge between the citizen's active and contemplative existence.

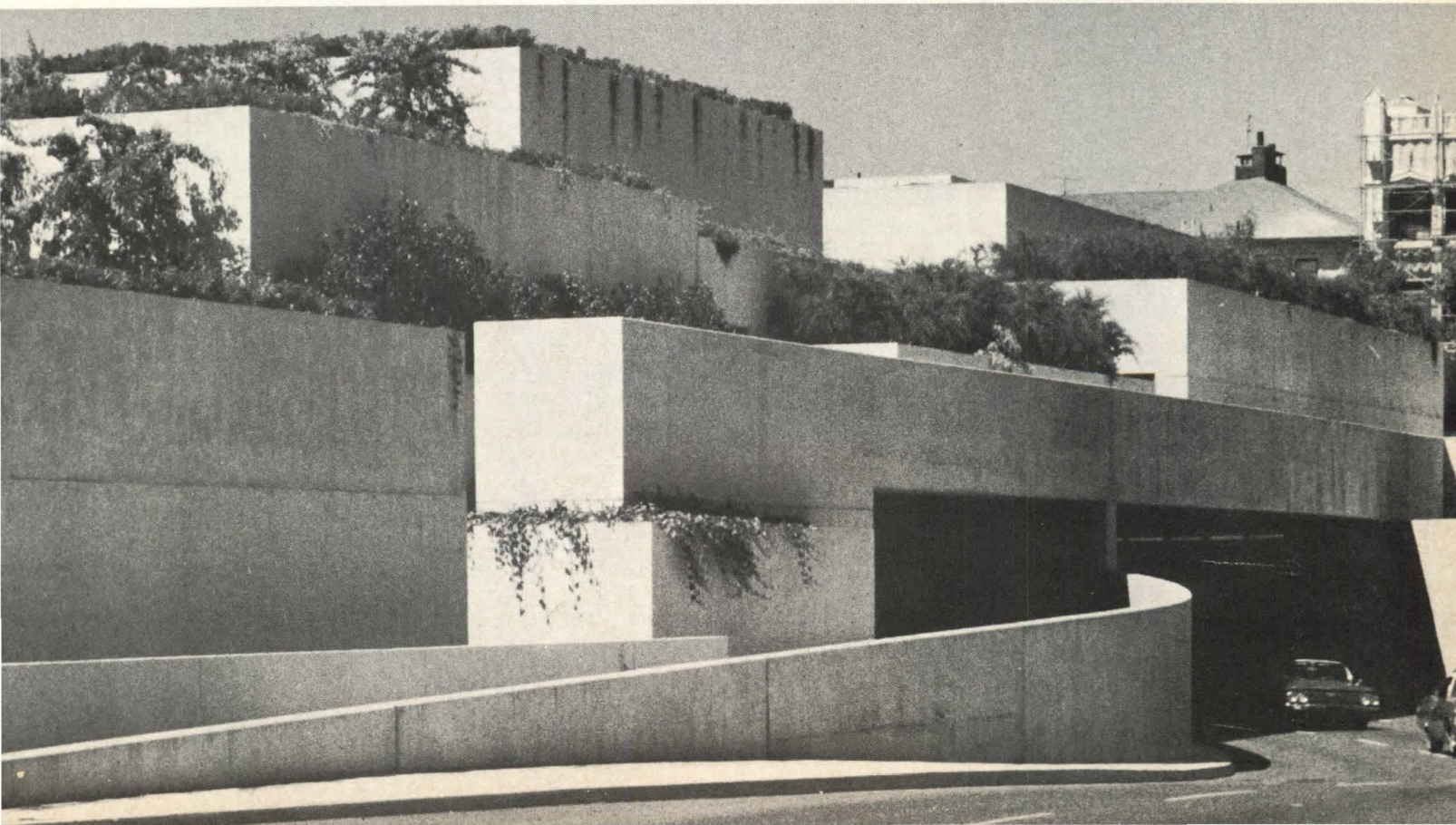
The notion of an inward-turning urban building is an ancient one — exemplified by the Renaissance palazzo — and has a notable companion in the corpus of

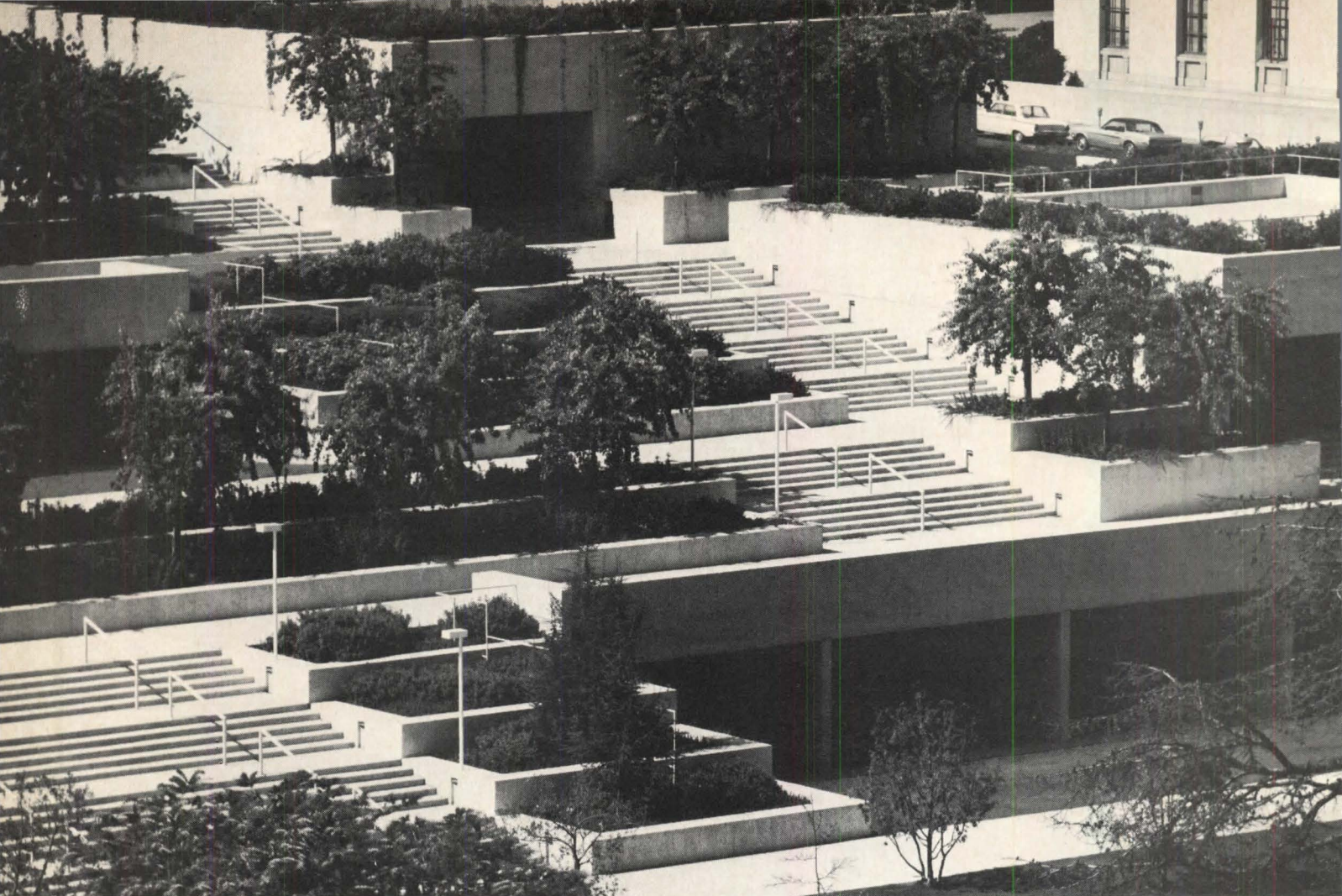




The museum compound offers a contemplative enclave within a pedestrian, if not actively hostile, urban fabric.

The low walls and ramps that enclose the museum which, in its massing of multi-leveled, cubiform shapes has affinities with Wright's early work, barely hint at the splendid green oasis within.





Oakland's great achievement remains its landscaped terraces, each formed by the roof of one of its three museums, and preserving, in essence, the parkland that formed the original site.

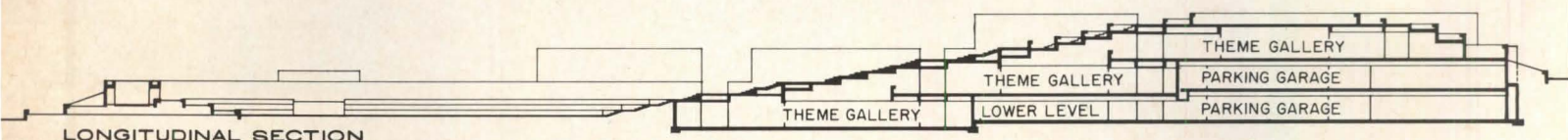
Roche and Dinkeloo's own work. The Ford Foundation Headquarters in New York (completed in 1967, but designed after the museum) was another building focused on an internal garden courtyard. Although its handsome glass and granite facade does create a street-side monument, its chief interest lies in the generous landscaped well whose contours are primarily enjoyed by the occupants of offices that overlook the space. But while the glassy enclosure of the FFB at least reveals the planted terraces within, no such revelation is provided by the discrete concrete walls at Oakland.

There are other important differences between the two. The gardens at FFB are meant to be looked at from above or passed through briefly, since no seating is provided along its paths. But Oakland, built on a much grander scale, provides seating for its visitors so that the delightful change in environment

can be appreciated at an appropriately quiet pace.

In its extensive use of planting, and even in its massing of multileveled, cubiform shapes, the Oakland Museum has strong affinities with Wright. Like Wright's museum work too, the building, which exhibits California cultural and natural history as well as art, may be of greater interest in itself than in its function. As an exhibition space for works of art several problems seem inevitable. First, the 9 ft. 6 in.-ceiling height cannot help but present obstacles considering the scale of contemporary painting. Second, a number of horizontal construction joints have been placed at eye level, disturbing the neutral field considered optimal for viewing. Finally, the compartments into which exhibition areas are divided by wide slab piers are not flexible enough for varied viewing distances.

Several of these problems can be explained by the



extraordinary administrative difficulties the museum has encountered since its inception. Although a bond issue was voted for a museum, the city had no conception of what sort of institution it wanted. The architects themselves had to recommend a commission and involve themselves in the planning and future of Oakland. It remained for them to find a client since, without one, no program could be established. Yet, according to Kevin Roche, "It was only after we had an approved scheme that a director was appointed." When the work was finally completed over a year ago, the opening was delayed by the commission's failure to appoint an exhibition designer. These problems were capped by complicated legal disputes between the contractor, the city, and the architects concerning quality control, although these questions were tentatively settled several months ago.

Oakland's great achievement remains its landscaped terraces, each formed by the roof of one of the three museums and preserving, in essence, the parkland that formed the original site. Dan Kiley, the project's landscape architect, aimed for an "overgrown effect" through an extensive use of ground cover. This includes wild strawberry, several ivies, Japanese juniper, and trailing rosemary. Bougainvillea and the lovely *figus pumila* will soon cover the walls, while varieties of water lilies, lotus, arrowwood, and cattail establish an aquatic garden. Australian tree fern, eucalyptus, and evergreen pear make up the largest number of tall plants, supplemented by fine specimens of live oak, redwood, and cedar.

The gardens are ideal for any leisurely activity, and particularly for outdoor exhibitions. In this respect Oakland is, as Arthur Drexler of the Museum of Modern Art noted, "the most brilliant concept of an urban museum in America." The new building, in effect, is a tribute to Philip Johnson's Museum of Modern Art garden, for the architects have taken that institution's finest architectural feature, the concept of elegantly paved and planted terraces, and extended it to encompass the entire structure. It is equally a tribute to Johnson's underground museum in New Canaan, designed to leave the natural landscape undisturbed.

The great significance of the building as an architectural landmark lies in its extensive integration of landscape and structure. In one sense, of course, this too has affinities with Wright. But Roche-Dinkeloo are city architects, far more sympathetic to the unromantic urban environment than the rural-minded Wright. The tight rectangularity that characterizes the American city is preserved and exploited to yield a variety rarely attained since the top-floor fantasies of art moderne skyscrapers. The landscaping forms



Overwhelming administrative difficulties that conditioned the project resulted in unfortunate problems for exhibition spaces.

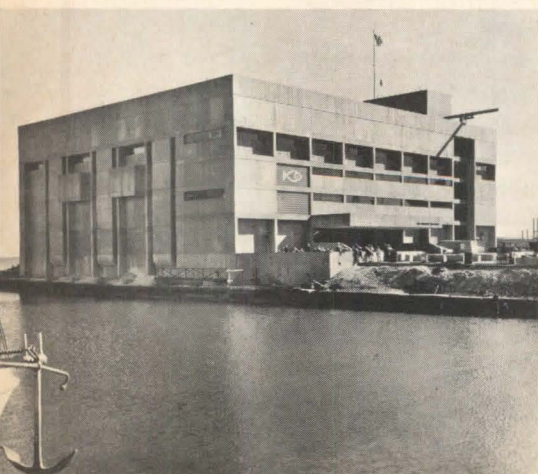
an integral part of this geometric variety (the museum has been called "the world's biggest planting box") and it is definitely not Romantic. However "overgrown" the effect may become, the plants keep their places. Since the architects aimed for a quality of relaxation, this is an important factor. In a very real sense, the orderly urban scene has become the natural environment, so that a convincing simulation of natural randomness cannot help but be discomfiting.

It is perhaps significant that this most urbanized (if not civilized) of societies should be marked by so serious a reconfrontation with the natural world — in science, art, and architecture. For the first time in many years, a macrosience — ecology — is competing successfully on both popular and professional levels with the prestigious microsciences. "Earthworks" and "Ecological Art" are displayed in New York galleries in projects (often possible only on paper) for transforming the natural world at a previously unknown scale. Roche & Dinkeloo have shown that ecological concerns can inform even a highly urban architecture to yield a necessary and refreshing aesthetic experience. — S.A.K.

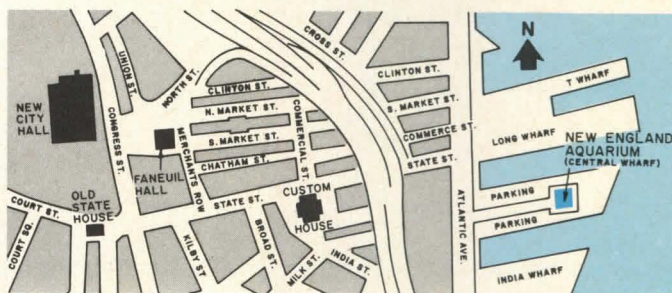
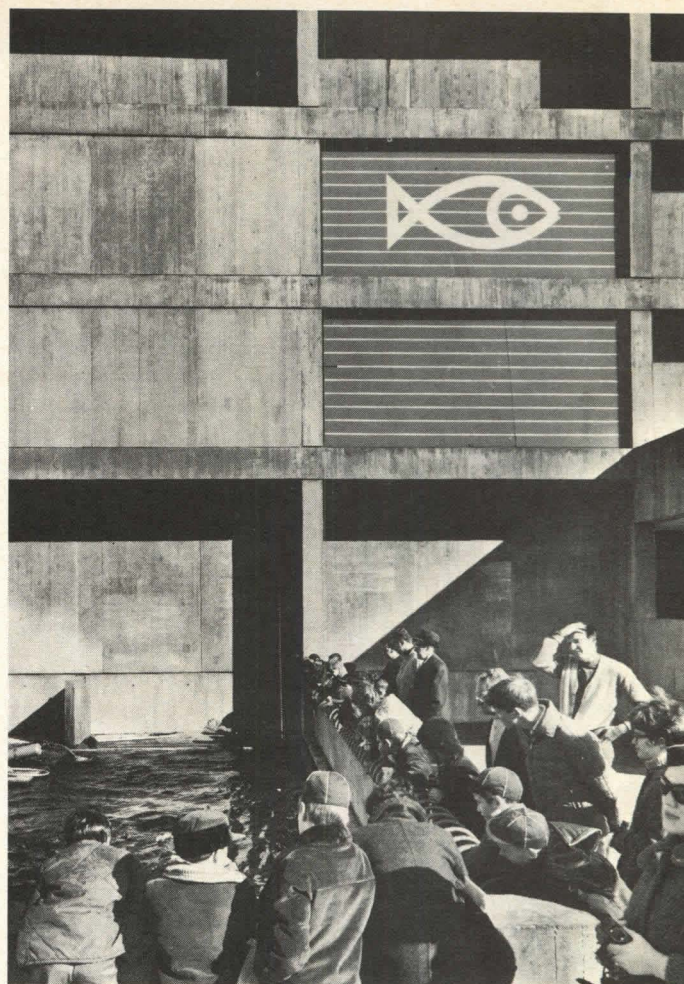
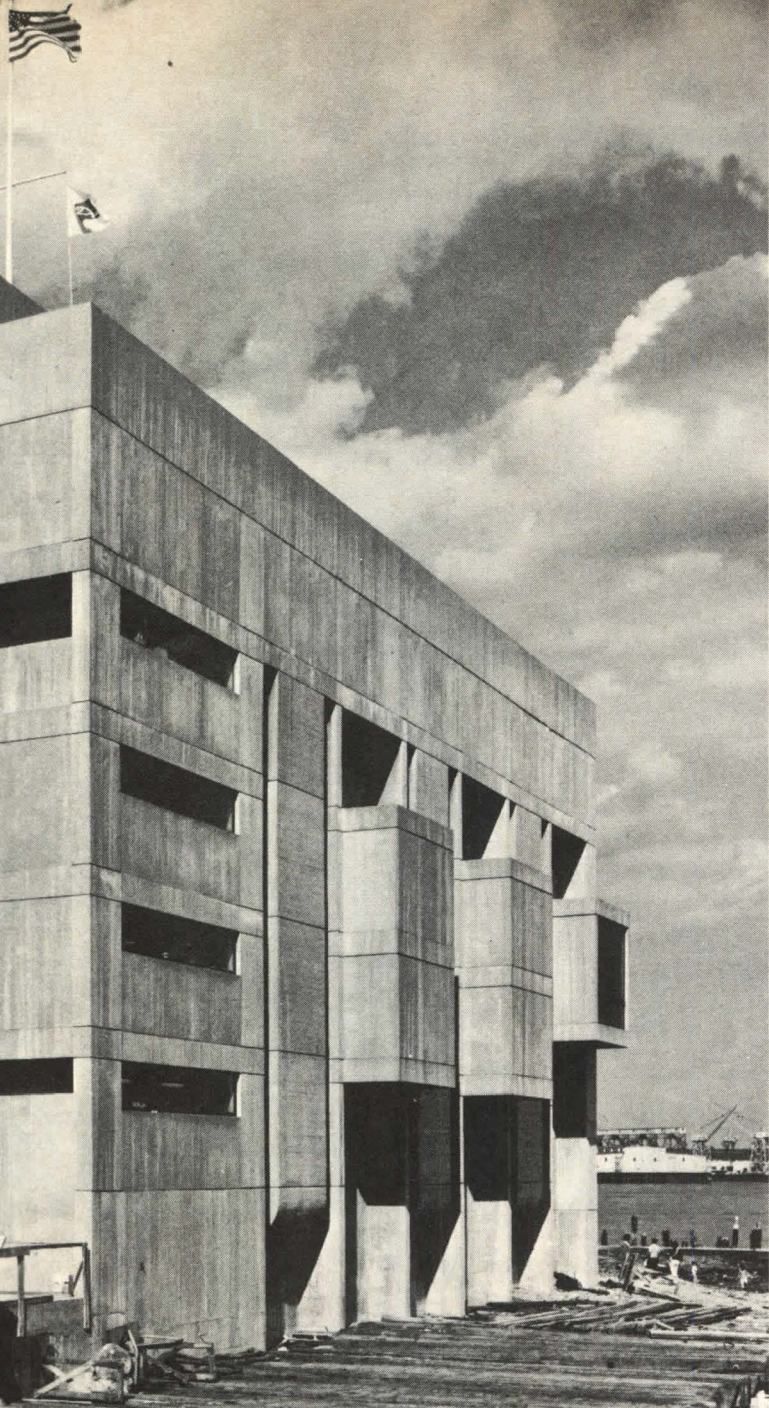
OAKLAND MUSEUM, Oakland, Calif. **Architect:** Kevin Roche & John Dinkeloo. **Structural Engineer:** Severud-Perrone-Strum-Conlin-Bandel, in association with Dalton & Dalton. **Mechanical Engineer:** Alexander Boome. **Landscape Architect:** Dan Kiley. **Photography:** Morley Baer.



Boston's Underwater Environment



Cambridge Seven Associates' first major building
is a sensational participatory aquatic museum

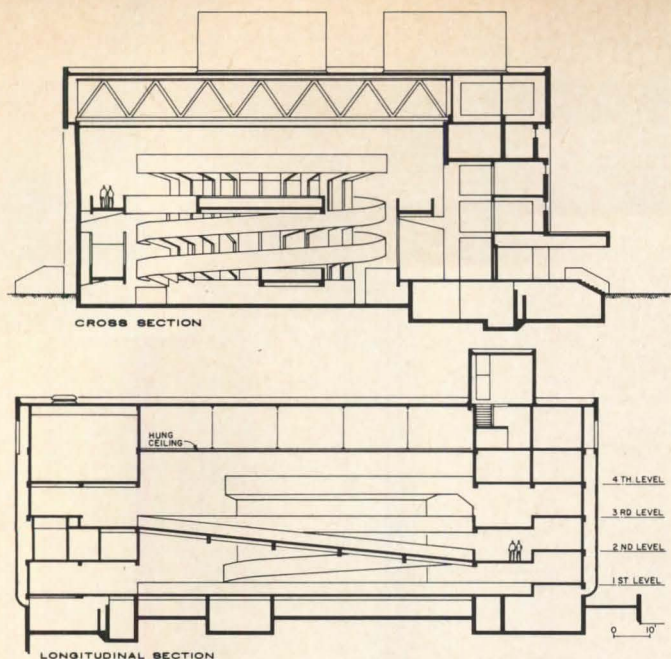


Down in Boston's Harbor, the New England Aquarium has been drawing crowds of up to 6000 per day since it opened in June of this year on Central Wharf. To approach the Aquarium by its plaza out on glistening water and to enter the building is to walk out on water into underwater.

The entire single interior space of the Aquarium is so surrounded by fishtanks on all levels, so floated on the water inside (as well as outside), so illuminated by the gently flowing blue-green tanks (daylight is excluded from the interior), and so punctuated by eerie blue cresting waves of neon and by ocean-deep black light that visitors are virtually immersed in the dark and mysterious environment of the underwater creatures they have come to observe. It is an architectural environment that creates the world we

have come to know so well through Jacques Cousteau — an underwater world pulsing with life of strange and fascinating, colorful and rich variety. The New England Aquarium is as "involving" an environment as one could find outside a discotheque — it may well be our first piscotheque. The architects see the Aquarium interior more soberly as being "in some ways analogous to European churches, where the structure, space, lighting, works of art, and numerous details all combine to create a special atmosphere or mood."

Anticipation for the Aquarium has been high ever since the initial design won a "Citation" in P/A's 1965 Design Awards program (see p. 152 JANUARY 1965 P/A). It is the first major building by Cambridge Seven Associates, who banded togeth-



The Giant Ocean Tank is, according to the architects, "a large basket of glass and concrete. Its precast concrete columns are tied together by compression rings to support the outward pressure of 22 feet of water. The glass windows surrounding the tank are 54 in. wide by 74 in. high. At the bottom of the cylinder, where the pressure on each panel approximates 15 tons, the glass is $3\frac{3}{4}$ in. thick and is made up in four laminations."

Pressure caused some delay in stocking the Giant Tank, not because of its structure but because of its piping system. PVC piping was originally used for the Aquarium's special process system but, according to the mechanical engineers, "was not able to meet pressure test specifications;" as a consequence glass fiber piping was substituted. Glass fiber piping, in use for a dozen or more years in industrial applications, has been made more readily available to commercial installations in the last three to four years due to the availability of standard fittings. Recently other aquariums have been using glass fiber pipings also. Backstage of the exhibits, the Aquarium is a 5-story complex of water and piping. Anyone who has ever worried with a home aquarium will marvel at the complexities of the building's dual water system.

er to undertake the Aquarium commission and who concurrently became renowned for their exhibit design of the U. S. Pavilion at Montreal's Expo '67 (including its interior architecture — platforms, escalators, etc.). In joint venture with Cambridge Seven Associates on the design of the New England Aquarium was LeMessurier Associates, structural engineers, also of Boston.

The Exhibits

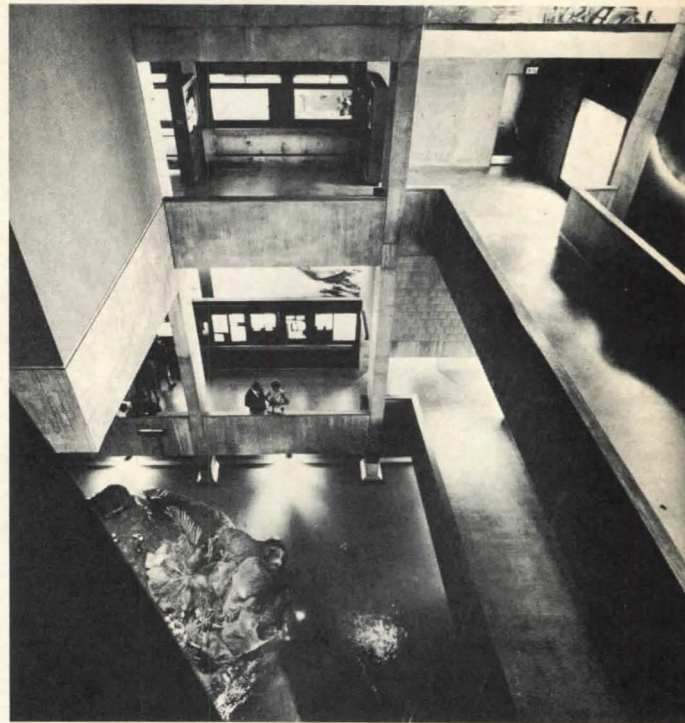
The exhibits at the Aquarium show the same kind of closeup focus and flair for excitement that the architects displayed in Montreal. The first indication of their expanded vision toward the exhibits program in this building is the scope of aquatic environment displayed. Since no aquarium had existed in Boston since 1954, the program was for an institution starting from scratch, but research and collecting of ichthyological materials was done by the curatorial staff while the building was in design and construction. The Aquarium program aims at exhibiting not



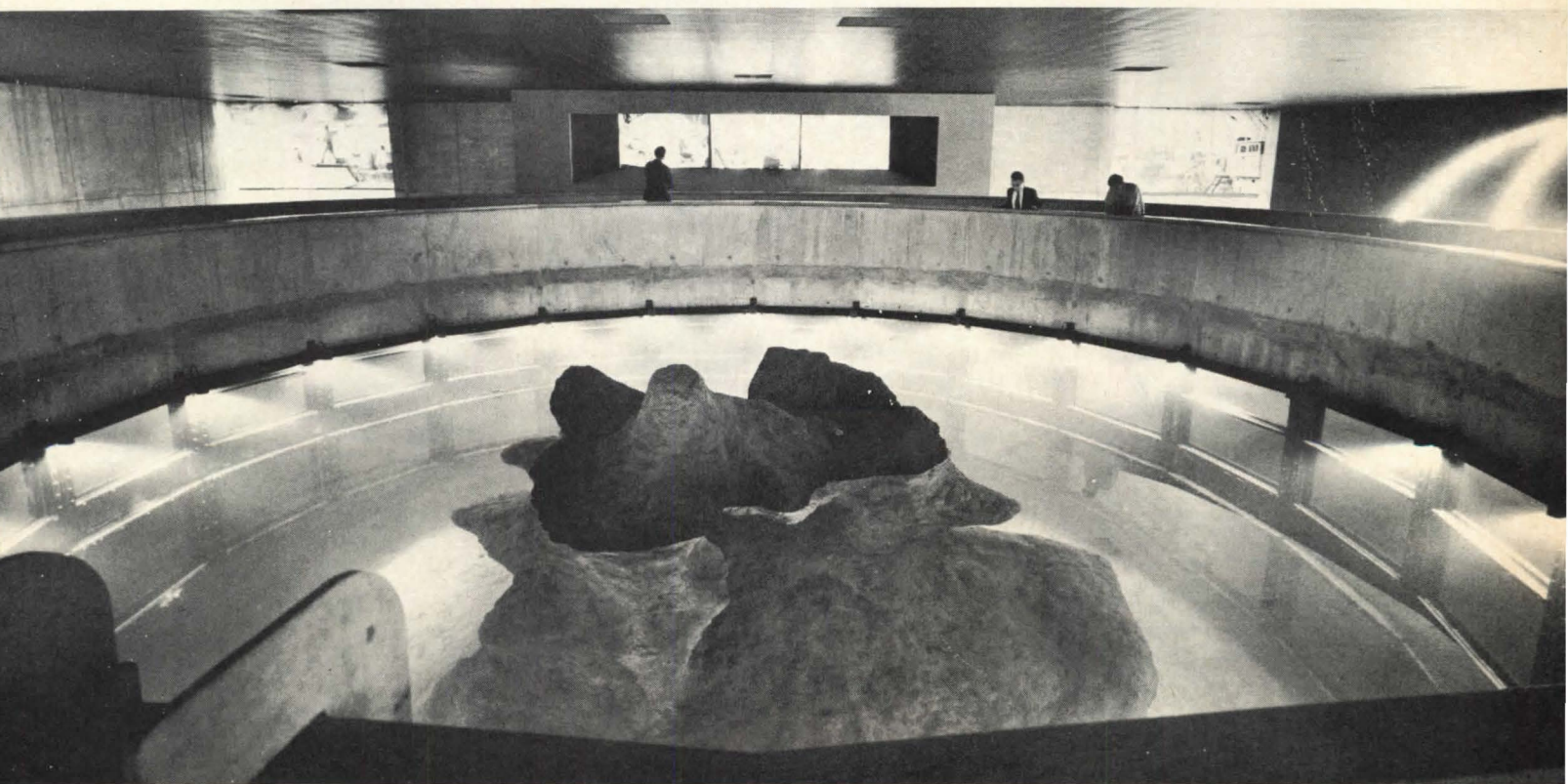
only fish, but as executive director Donald M. DeHart explains, "the world of water . . . as it relates to our communities in the areas of health, recreation, aquaculture, industry, and commerce, since man's proper utilization of water is crucial to his survival on this planet."

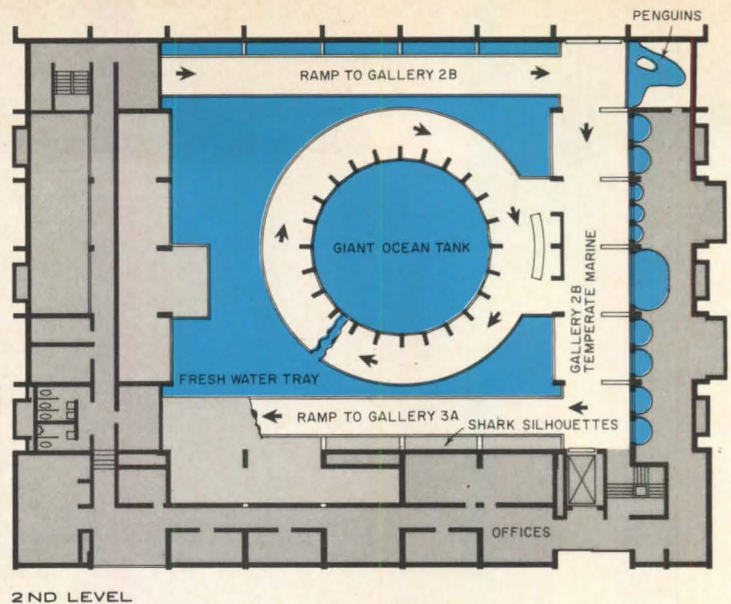
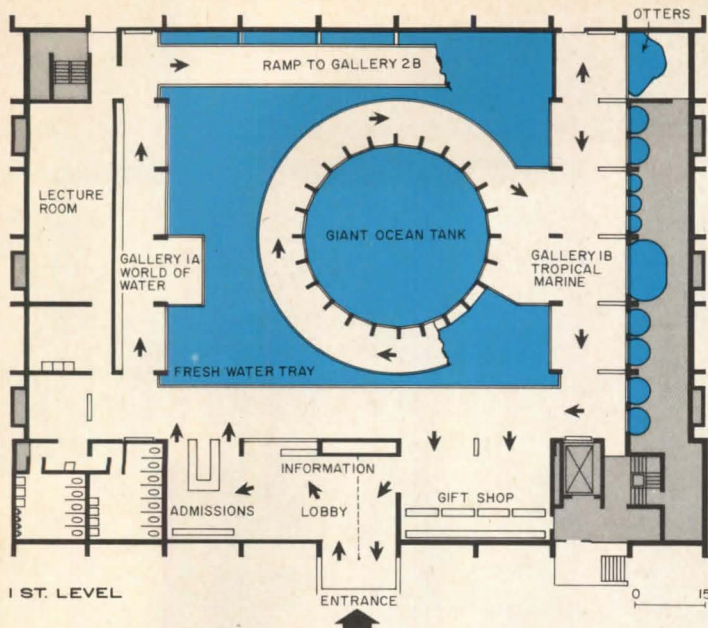
The exhibits in the Aquarium represent a full range of the water environments that cover more than 70 per cent of the earth's surface — fresh and salt water from temperate to tropical to cold climates. The most virtuosic exhibit of the single 5-level interior space, (which contrasts with the long, low halls traditional in aquariums), is a Giant Ocean Tank that is a free-standing cylinder, 40 ft in diameter and four stories high, with windows all the way up and down its 23-ft depth of water. In its 200,000 gallons of salt water live sharks, sea turtles, sting-rays, moray eels, and other marine animals.

Surrounding the base of this tank is a rectangular basin of water — the Fresh Water Tray — which occupies an 80' x 90' area and contains 150,000 gallons of fresh water. Here are exhibited the inhabitants of



A view down to the Fresh Water tray (above) shows the cantilevered childrens aquarium that is seen in the upper right of color photo. At the top of the Giant Ocean Tank (below) a ring platform provides an overhead view of the fish and the simulated giant rock fashioned by the architects.





semitemperate swamps — toads and frogs, lizards and turtles, and wading birds; fish in the basin include catfish and carp, gars and sturgeon.

Circulation

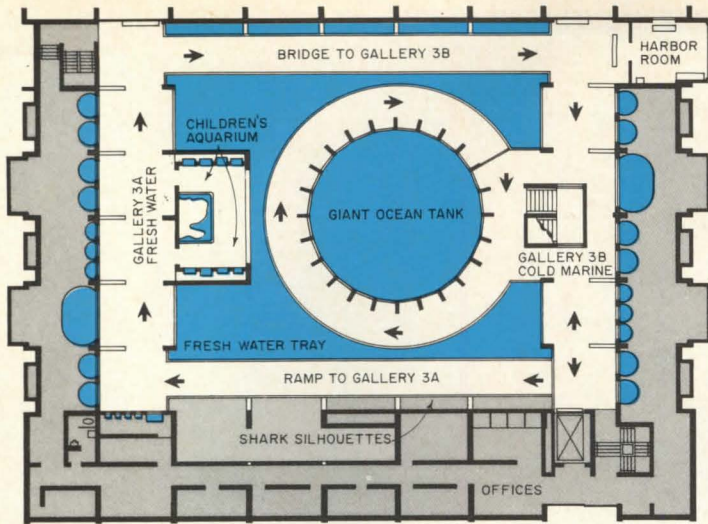
Leading through these exhibits the circulation pattern (which has changed since the initial P/A Citation stage) is basically the LeCorbusier museum scheme of a rectangular spiral of narrow ramps on the perimeter of a rectangular plan for traffic moving upward. The ramps, according to the architects, "minimize the distance of the viewer from the exhibits" as they ascend the four levels past the tanks in the four main exhibit galleries — tropical marine life, temperate marine life, fresh water marine life, and cold water marine life. From the top level, traffic descends via a spiral ramp surrounding the central Giant Ocean Tank. This one-way circulation route speeds overflow crowds on weekends. "It is like putting the Guggenheim spiral inside the Corbu scheme and filling the center space of the Guggenheim with water," Peter Chermayeff, Principal-in-charge observes.

Surrounding the top of the tank is a ring-shaped platform from which the marine life can be fed. Like the Fresh Water Basin, the ring also permits a view of the exhibits from above water level so that fish are not always seen from the side as in the gallery tanks. Elsewhere exhibits are as open as possible, that is without full glass barriers — as at the penguin, otter, and children's tide-pool exhibits — so that the visitor can feel himself a part of the marine-life environments.

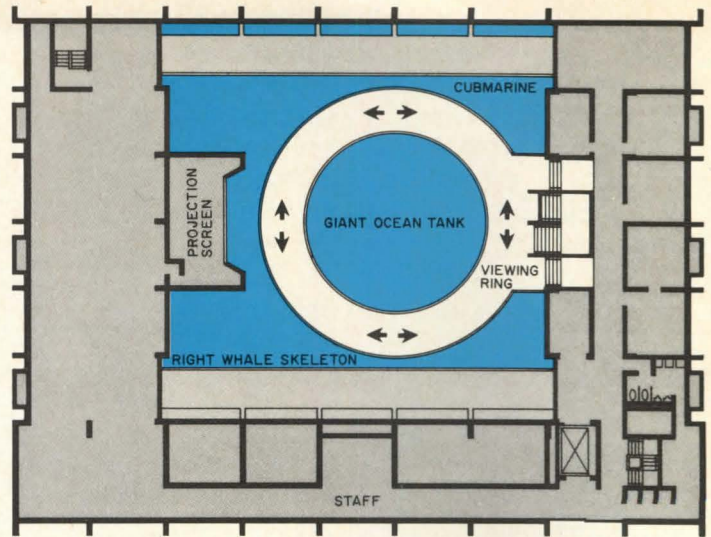
The double spiral route of circulation also affords constantly changing views — near and far, high and



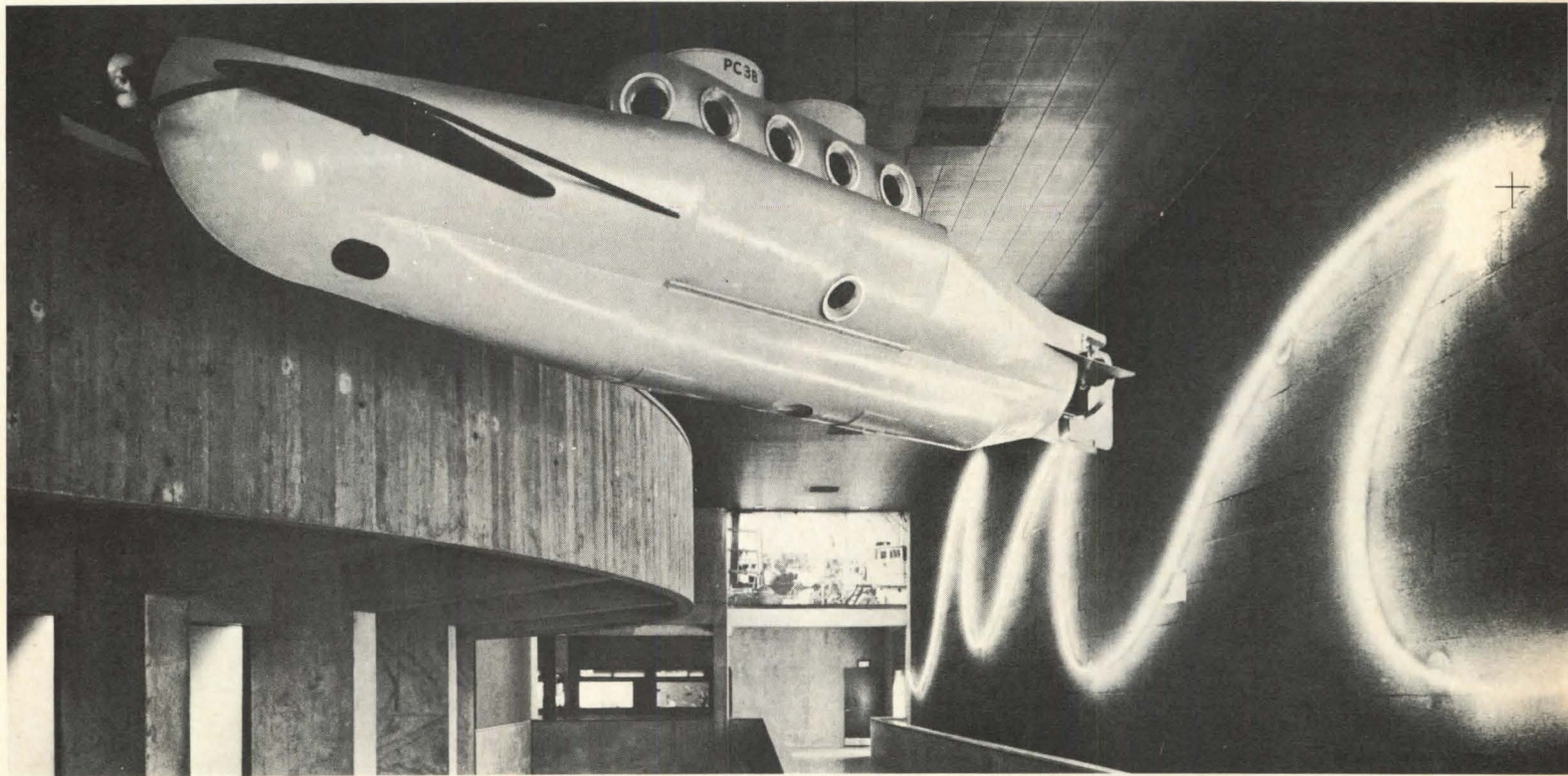
A blacklight mural of life-size shark silhouettes shows the varying species in vibrant ocean-deep lighting effect.



3RD LEVEL



4TH LEVEL



A yellow submarine floats in space among the ramps near a blue neon wave outline against a cork wall.



From the gift shop (left) one can see both the entry counter and the photo transparencies of the introductory exhibit beyond.

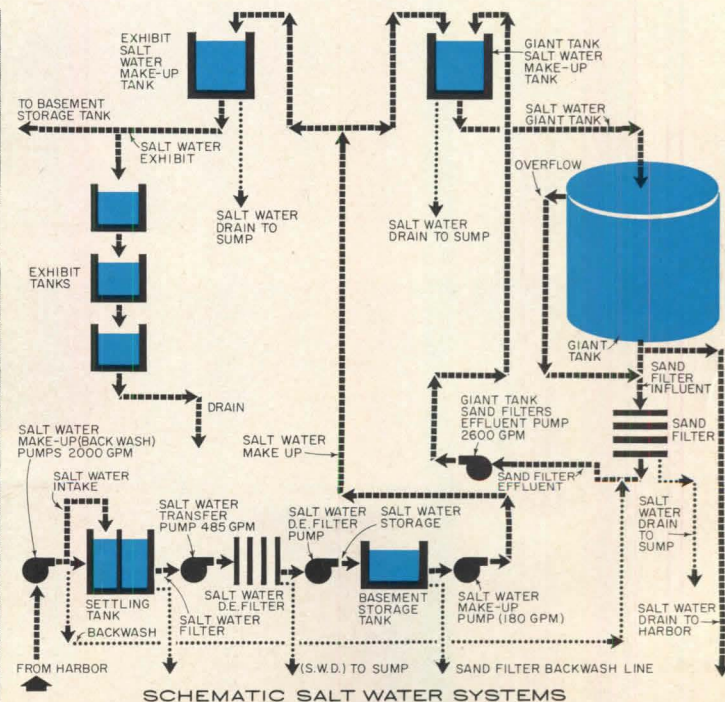
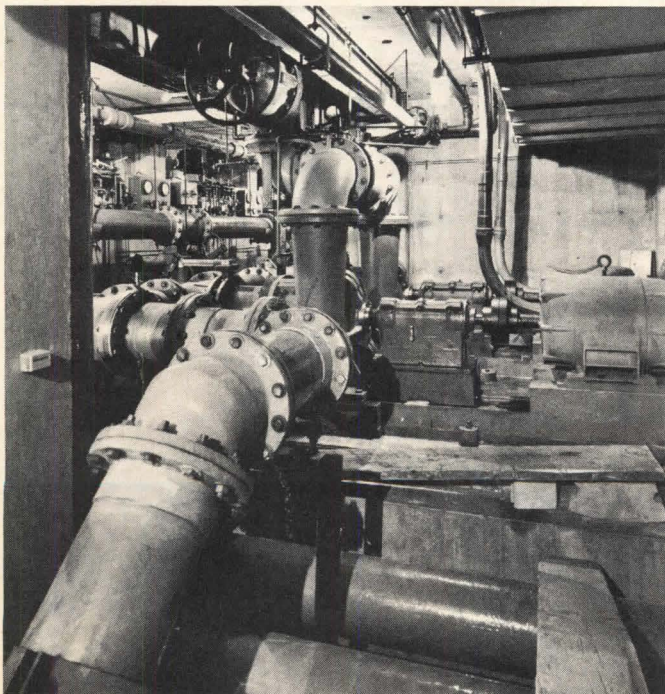
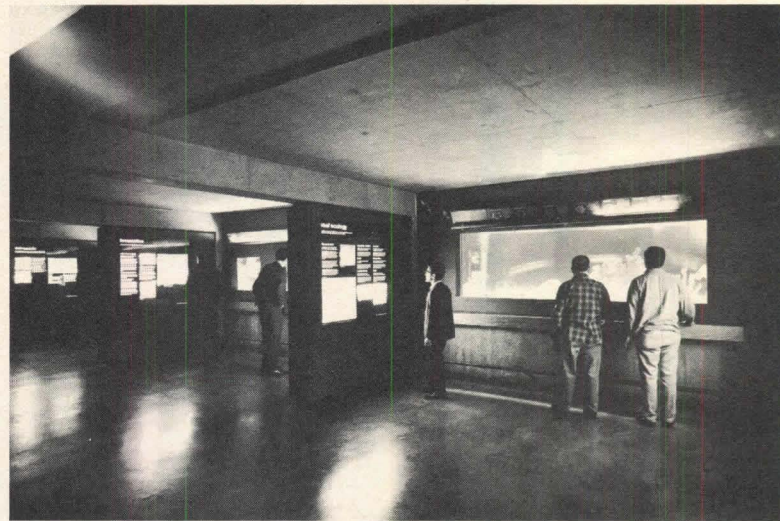
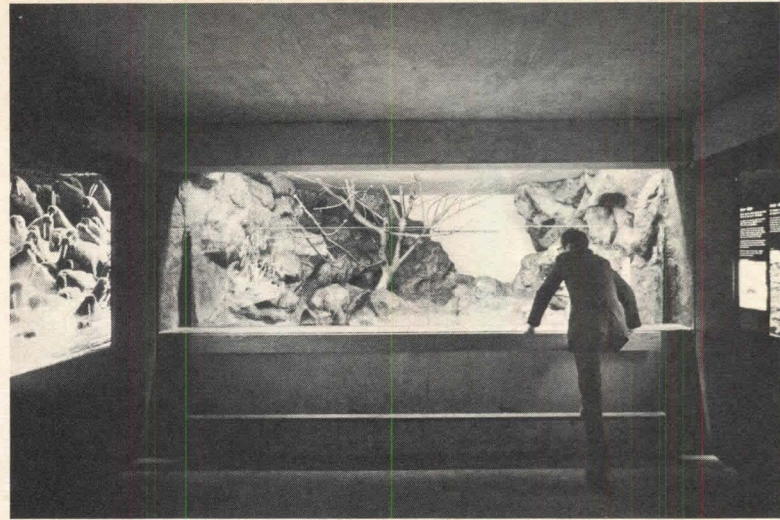
low — of the Giant Tank, the Fresh Water Basin below, and of the smaller tanks and exhibits on all levels. Although the distance between the central tank and the perimeter ramps is not so great as the scale of the original drawings led one to believe, the circulation pattern successfully achieves the architects' goal of "general emphasis on volume and three-dimensionality."

Expanded Labels

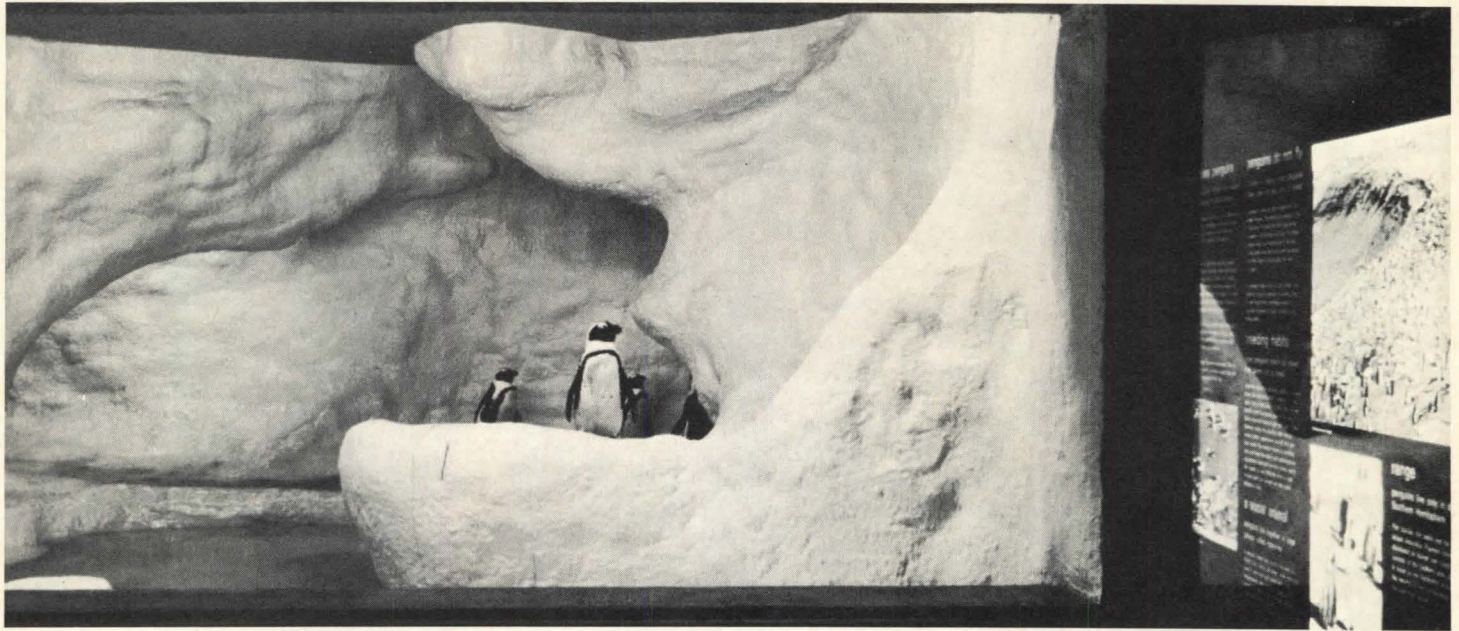
In addition to the fish tanks, exhibits also include graphic displays. Huge color transparencies by wild life and underwater photographers alternate with the tanks, with which they have an affinity since they have the same quality, often related content, and back lighting. The graphic units are most often used to flank two tanks thereby forming viewing alcoves and varying the traffic pattern. In addition, there are large-scale murals and other graphic elements, including the 20' x 45' mural of black silhouetted sharks on a blue ground illuminated by blacklight, which is a major element on the west wall.

The alternation of the rows of tanks and the graphic elements produces a noticeable visual variety along the visitor's route. Side by side in the galleries are the tanks, and at each end are graphic panels or transparency murals placed so that they "terminate the view along the galleries and lead the visitor on from one exhibit area to the other, like illustrations to open and close chapters of a book," the architects say.

The alternation of exhibit tanks containing live animals with graphic displays containing detailed in-



In the bays of smaller fishtank exhibits, (facing page, middle) which are flanked by backlighted color transparencies and labels, are a wide range of marine life. Included is an otter exhibit (facing page, top) and a penguin exhibit (below). The childrens aquarium (right) has smaller tanks on the walls and an open pool that simulates tide effects; children reach down and touch living starfish, crabs, and sea urchins for firsthand experience.



Water Systems

The salt water system of the Aquarium draws sea water through either of two 14-in. intake pipes from a point in Boston Harbor 200 feet beyond the end of the wharf. One of the intake pipes is filled with fresh water to prevent growth of marine organisms; the two intakes will be alternated regularly. The complicated pumping system moves 2000 gallons a minute to two 16,000 gallon settling tanks located in the basement. It also provides the water for backwashing the Giant Tank sand filter system. The water is then filtered by a diatomaceous earth filter system and sent to another basement storage tank. Water is pumped to either of two tanks at the top of the building for aeration and storage. From there it feeds by gravity into displays through two

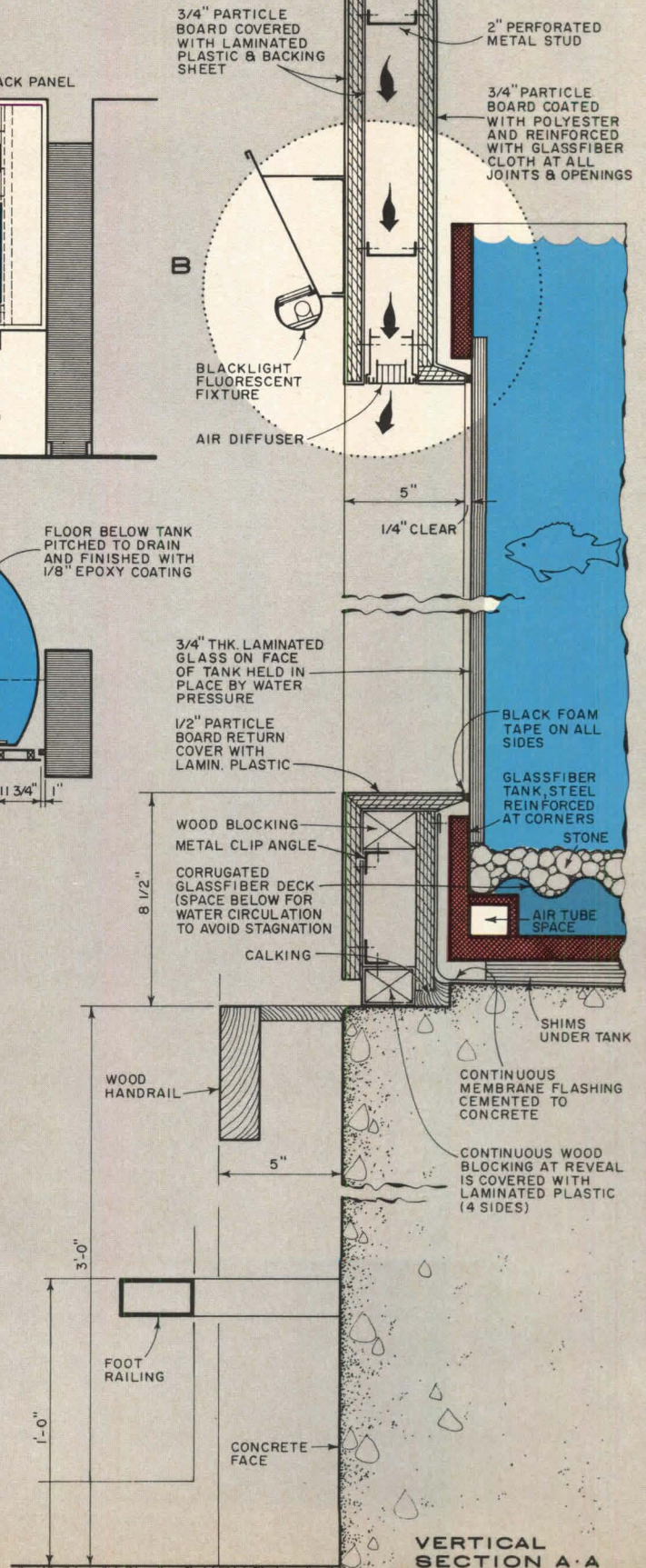
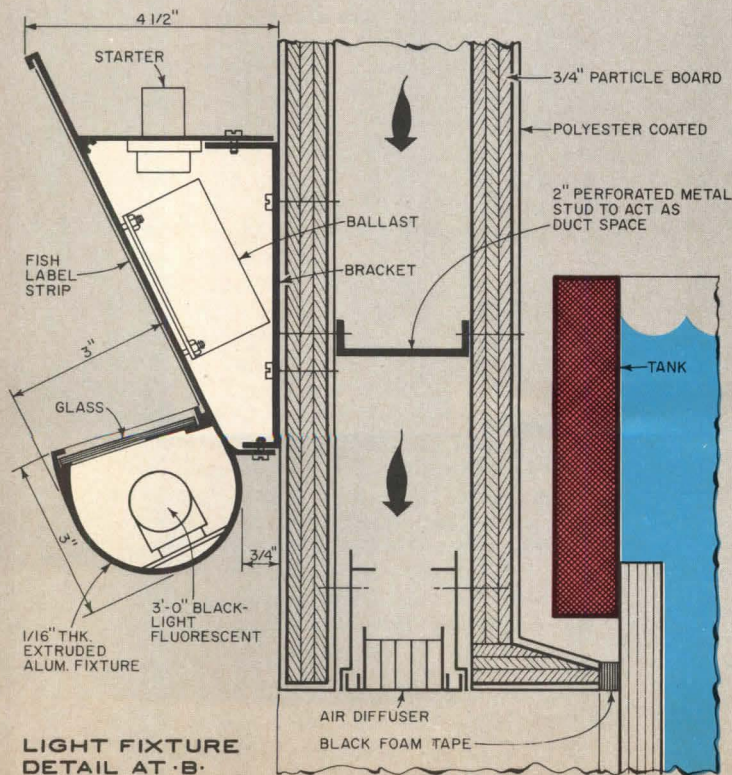
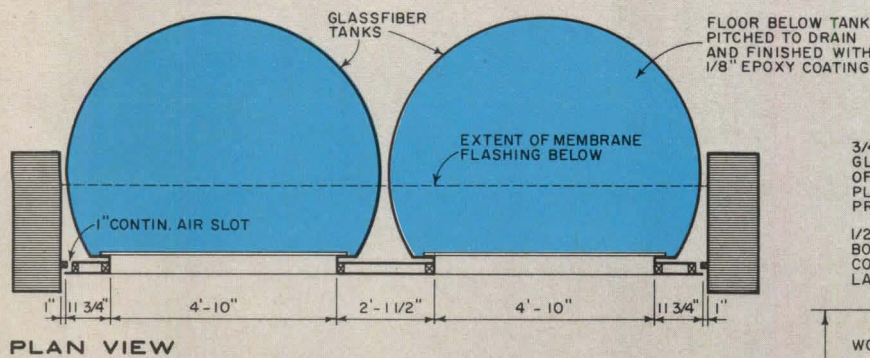
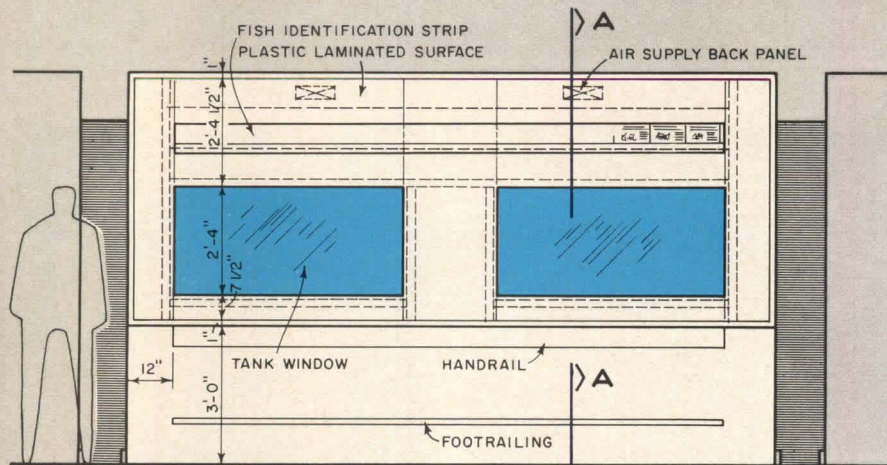
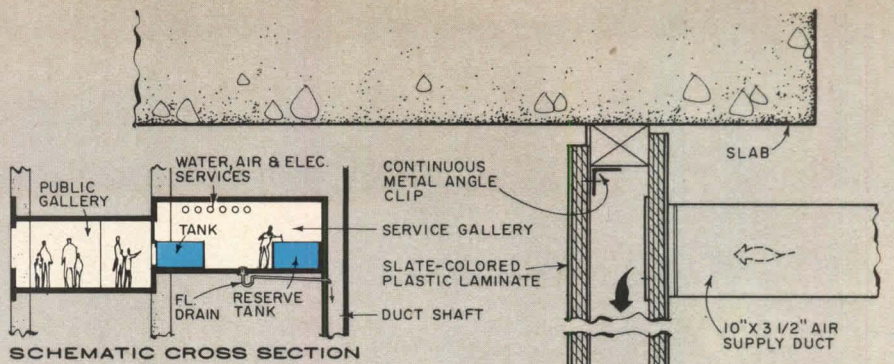
subsystems — one to the Giant Tank, the other to the gallery tanks.

The recirculating subsystem for the Giant Ocean Tank, which contains 260,000 gallons, flows by gravity from the upper storage tank to the Giant Tank, then passes by gravity through sand filters and is then pumped back again to the upper storage tank, completing the cycle. The smaller gallery tanks are recirculated by airlift pumps through individual filters, each of which consists of a layer of sand held on a perforated sheet of Fiberglas a few inches above the bottom of each tank. The sand acts as a filtering medium, allowing the water to pass through to the space below. It is then drawn into a vertical tube in one corner of the tank and is recirculated with aid of compressed air. Fresh water for the Fresh Water Tray and the fresh water exhibits on the galleries is filtered through a separate diatomaceous earth filter

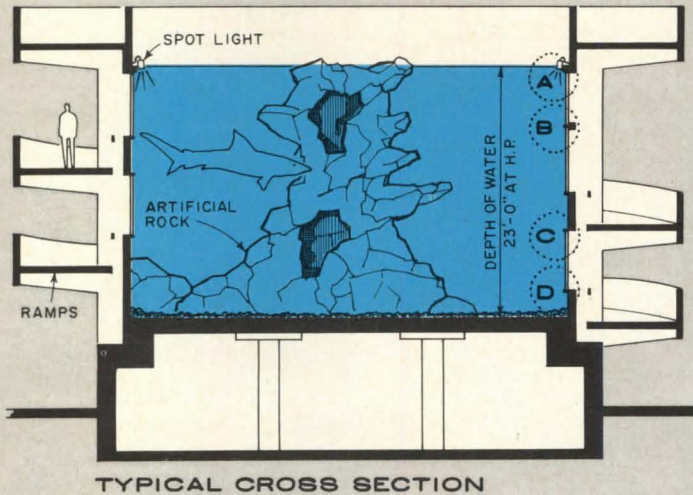
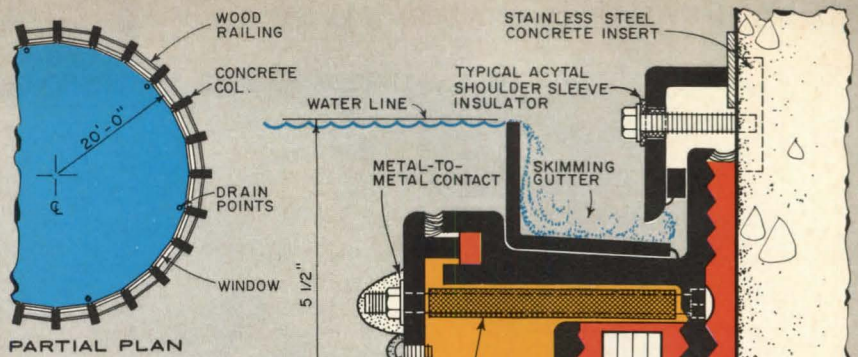
as it is recirculated continuously; makeup water is provided through a piping system from the fourth floor aeration and storage tank.

Water temperatures range from 50 degrees for cold water fish tanks to 80 degrees in the tropical tank. The cold water exhibit tanks are maintained by circulating chilled water through karbate heat exchange units in the tanks and warm water with quartz immersion heaters. The penguin and otter tank exhibits are supplied through separate diatomaceous earth filter systems. Water from those exhibits flows by gravity to the diatomaceous earth filters located in the basement under the Giant Tank and after passing through a filter it is pumped back to the exhibit. Water to the penguin exhibit is pumped through a karbate shell and tube heat exchanger located adjacent to the exhibit in the services gallery and cooled to 50°F before being introduced to the exhibit.

TWO TANK BAY DETAILS



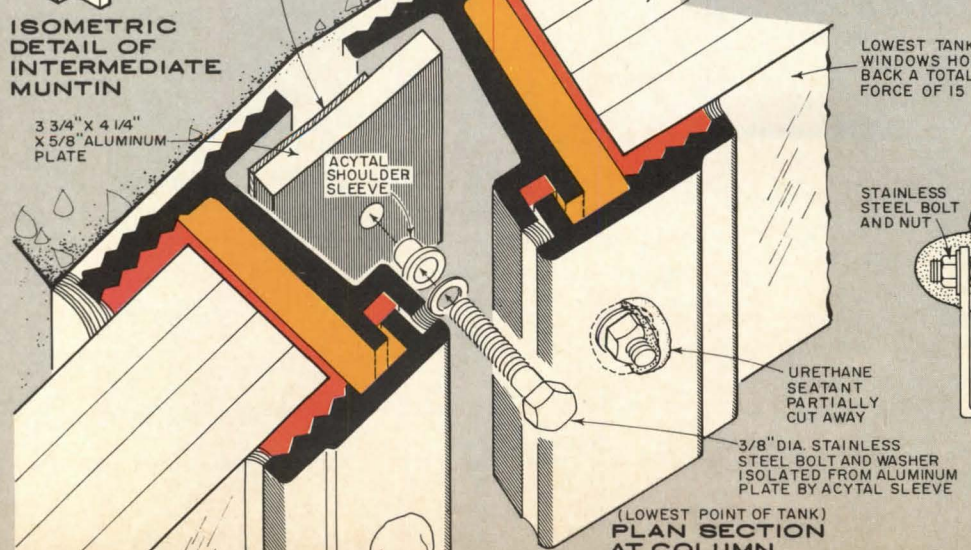
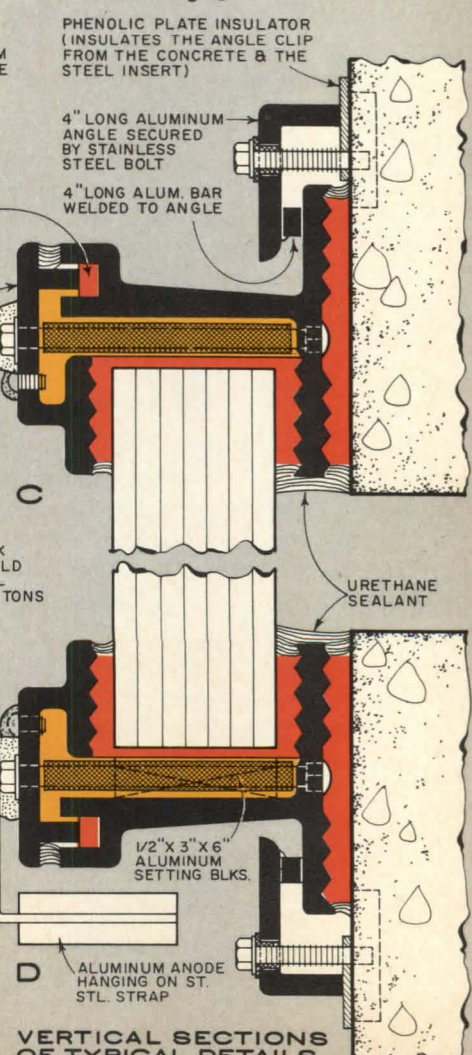
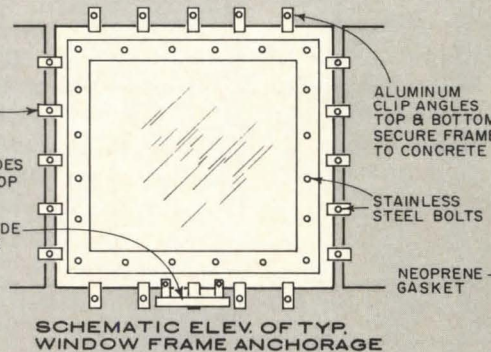
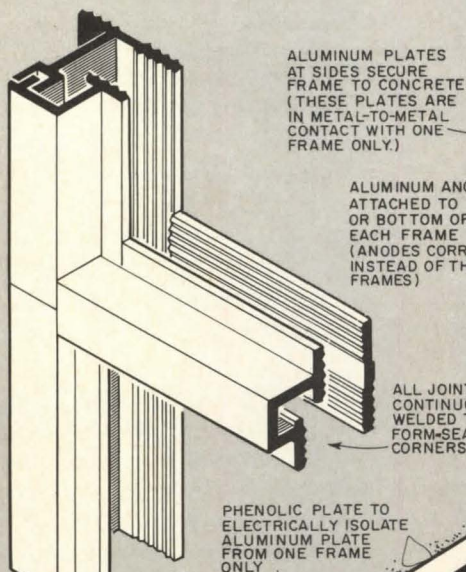
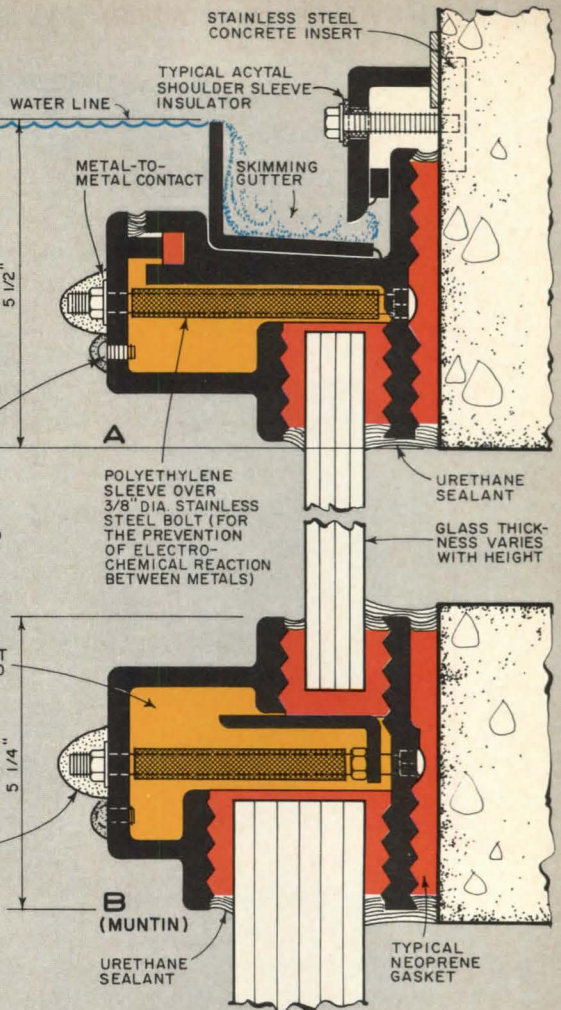
GIANT TANK DETAILS

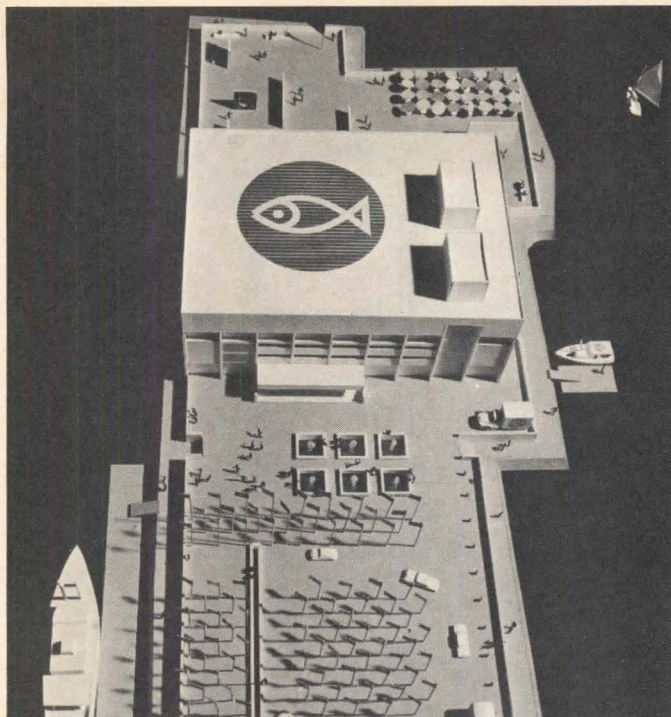


3/8" DIA. HOLE IN FRAME FOR INJECTION OF POLYMER GEL. HOLES PLUGGED WITH NYLON MACHINE SCREWS AFTER INJECTION AND THEN SEALED WITH URETHANE

POLYMER GEL FILLER INJECTED INTO VOIDS OF FRAME TO PREVENT CORROSION CAUSED BY SALT WATER LEAKS, AND TO PREVENT THE GROWTH OF ANEROBIC BACTERIA (HARMFUL TO FISH)

BOLT END AND NUT COVERED WITH URETHANE SEALANT





Model of the aquarium plaza, which is still to be completed, shows the unrealized logo on the roof.

formation is a small-scale version of the alternation of "small and detailed exhibits with the large and undetailed main space" as the architects point out. These alternations produce an intricate ABABAB rhythm that was a conscious design goal. As Peter Chermayeff explains, "A is the exposure to the main space (with large-scaled, undemanding, simple exhibits) and B is exposure to the alcoved galleries (with smaller-scaled, demanding, detailed exhibits). Whereas A's purpose is environmental or mood setting, B's purpose is to provide content that can be explored in depth. Neither one works independently without the alternating intervention of the other. This rhythm is the basic organizing principle of the design."

An Aquaseum?

"This is a new kind of institution," Chermayeff continues, "really more an Aquatic Museum than an Aquarium. Perhaps it is obvious, the moment one thinks about it, for museums and zoos to get together, but to my knowledge they have never been combined at a decent scale or with adequate emphasis. On the one hand most aquariums (and zoos) fail to develop their educational function adequately. Since live animals are inherently entertaining or fascinating by themselves, zoos and aquariums attempt little more than to identify the animals and the part of the world they come from. This is a terrible waste of an opportunity. The visitor's latent curiosity about an animal's habitat and anatomy and behavior, and its relationship to other animals and to man should be exploited. On the other hand," he continues, "natural history museums do develop these subjects, since they take their educational functions seriously, but

they manage, with few exceptions, to be dry, static, and relatively dull. They fail, for example, to display live animals in any substantial and integrated way. The communication potential of a complementarity of so-called live exhibits and museum exhibits is what this building is all about."

In contrast with the vibrantly illuminating mysteries of the Aquarium interior, the exterior of the building is a crisp, simple, and reticently sophisticated rectangular box. The poured-in-place reinforced concrete structure is enclosed with precast-on-site concrete panels. The textural mixture of the board-formed concretes is varied and telling. Recessing of some of the panels has articulated the exterior, which is accentuated by recessed night lighting. A large quasi-supergraphic logo by Ivan Chermayeff and Thomas Gesimar — a white-outlined fish on a white-lined field of blue — and a permanent overhead crane above the service stair provide pop-like ornamentation. Even on the exterior, then, the admixture of the pure and tasteful with the involving and participatory is carried through.

Sociology

Urbanistically, the New England Aquarium is sited with magnificent appropriateness. Out on a wharf created by Boston's now almost completely departed fishing industry, the Aquarium is not far from downtown — from the Custom House, Faneuil Hall, and the new Boston City Hall. The Aquarium is the focus of the Boston Redevelopment Authority's renewal plan for the waterfront, which is to include the restoration of the granite bulkheads of the wharves, which will provide a promenade along the water's edge. The BRA refers to this walkway as a "public edge" that will make the water accessible to the people — rather than to automobiles as in so many cities.

Other aspects of the BRA waterfront renewal include approving the restoration of old granite warehouses and other buildings nearby and the building of a three-tower office-motel-garage complex, waterfront town houses, and apartment towers. As the architects observe happily, "An area of the city that has been neglected in recent years is being made once again into a lively center of activity within walking distance of downtown."

Throughout its planning and design then, the New England Aquarium is a mixture of sober deliberation and thoughtful vision on the one hand, with lively, sprightly, involvement on the other; it combines rigorous discipline with the swinging show. And that is what museums are aiming to do in our day — to link the liveliest educational methods with serious fun.

— C.R.S.

NEW ENGLAND AQUARIUM, Boston, Mass. **Architects and Designers:** Cambridge Seven Associates, Inc. Principal-in-charge: Peter Chermayeff. Job Captains: Erling Falck and John Chrisholm. **In Joint Venture with:** LeMessurier Associates, Inc., structural engineers. **Consultants:** Francis Associates, mechanical engineers. **General Contractor:** Jackson Construction Co. **Mechanical Sub-Contractor:** P.J. Riley Company. **Electrical Sub-Contractor:** William Gens & Son. **Photography:** Norman McGrath, except photo p. 105 by Bill Wasserman/Boston.



Parameters for a Computer Program

Preparation of specifications by means of a computer and its attendant advantages and problems is discussed by the chief specifications writer of Skidmore, Owings & Merrill, New York.

Several architectural and engineering firms have now had about two years' experience in the preparation of specifications by means of computers. Each one of these firms has experimented with differing computer programs. Some of them with in-house 1130 computers have developed their own programs, each in its own fashion. Others have accommodated their requirements to language programs such as the IBM Text 90, or the IBM Data Text which are not specifically programmed for the needs of specifications. These latter programs are workable, but do not have certain built-in parameters that permit easy computer manipulation of required tasks.

At the outset, several factors inhibited the development of a program that was ideally suited for the production of specifications by a computer. Manufacturers of computer hardware and software were not familiar with the requirements of architectural and engineering specifications. Conversely, few architects and engineers were conversant with computer hardware, software, and programming that enabled them to assemble the right equipment and programs that would satisfy their requirements. In addition, cost constraints prevented the individual office from pursuing research and development of equipment and programs.

Fortunately, several larger firms were able to pioneer with in-house computers. These computers were available as a result of their firm's need for computations of engineering problems. In-house engineers were able to develop simple language programs that

were designed to manipulate text. However, these early programs were not sophisticated and did not solve all of the problems. With the advent of the IBM Data Text time-sharing language program, major architectural firms that were able to absorb the development costs prepared master specifications and began to utilize the Data Text Computer program in spite of its shortcomings. As a result of these pioneering efforts two trends have emerged. First, is the fact that master specifications can be prepared based upon the firm's general practice. Second, the parameters of a program designed to meet the requirements of specifications writing can be set forth more clearly.

Master specifications can be altered and tailored to meet project requirements with the computer. They can be quickly updated in the computer to encompass new materials developments and construction practices. The former odious connotation that master specifications are "canned" and "frozen" has been dispelled. The computer permits easy, frequent, and instantaneous updating once the decision has been made on the required changes.

The parameters for a language computer program have evolved and can be set forth as follows:

1. Ability to edit text by adding, deleting, or changing on a line or a paragraph basis.

2. Provide "disappearing" notes on master specifications for the following applications:

- a. Notes for draftsman to indicate items which appear on drawings.
- b. Notes to specifier identifying necessary coordination with other sections.

c. Notes to specifier for a single selection from a group of choices.

3. Provide for upper- and lower-case letters.

4. Paragraph renumbering automatically.

5. Page numbering automatically.

6. Indenting, underlining, and spacing of text.

7. Ability to provide headings and footings on each page for job numbers, section titles, dates, etc.

8. Automatic generation of specific information separately as follows:

a. Table of Contents.

b. Samples.

c. Shop Drawings.

d. Guarantees.

e. Certificates.

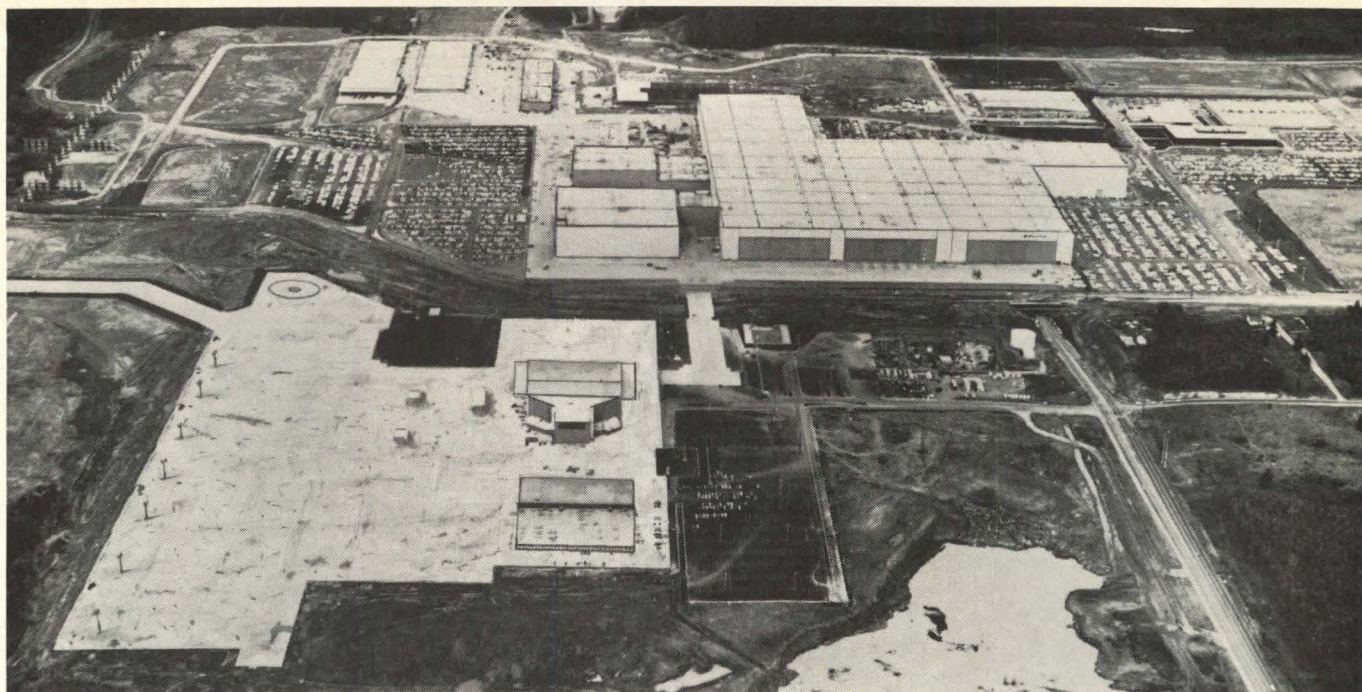
f. Tests.

9. Special characters to include °F, ±, L, W, and other symbols peculiar to specifications.

10. Reference code numbers on masters to provide a key for use of typist to facilitate revisions.

These parameters for a computer specifications program are coming into being as a result of the interest on the part of computer service bureaus that are interested in attracting architects and engineers as clients, and now understand their needs and can write programs accordingly. In addition, a professional organization of engineers, APEC (Automated Procedures for Engineering Consultants), has virtually bypassed both CSI and AIA in developing a computer program for specifications writing. This association has outlined the parameters for a specifications writing program which is being prepared by a computer programming organization. The program, which will be available to members of APEC in 1970, embodies many of the parameters outlined here.

As of now, this program appears to offer the best that will be available for the handling of specification text on computers. APEC is located at 627 Salem Ave., Dayton, Ohio 45406.



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First 747 jet, the world's largest commercial jetliner, on the apron before Everett plant.

Boeing 747 Manufacturing Facility

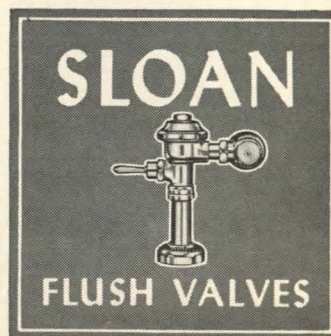
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Updating Legal Principles

A legal case involving a construction company's liability for damages as a result of blasting, points up the slow response of old laws changing course to satisfy existing situations.

The law is not static and it is common for legal principles to change course and direction over a period of time. However, the law in its evolution often is slow in responding to existing needs and the requirements of a changing situation or to satisfy the goals of substantial justice. The foregoing is true of those legal principles which relate to the rights, remedies, duties, and liabilities of those engaged in the construction industry as in all other fields. Illustrating this is a recent case in New York involving liability for damage resulting from blasting (*Spano v. Perini Corporation*, 25 N.Y. 2d 11).

The overwhelming majority of American jurisdictions at the present time have adopted the rule that one engaged in blasting is absolutely liable for any damages he causes, whether or not he was negligent, and independent of whether or not there was a physical invasion (as distinguished from concussion) of the injured party's property. Some states, however, have adopted a much more limited rule of liability. Thus, for example, the Court of Appeals of New York, in 1893 in the Booth case, enunciated the rule that a contractor would not be liable for damages caused by blasting unless there was proof of negligence or unless the blasting was accompanied by an actual physical invasion of the damaged property by, for example, rocks or other materials. This principle was adopted despite the fact that in earlier decisions New York courts had found liability on a much broader theory of liability. The courts in these earlier rulings concluded that if an area was of

such nature that any explosion was likely to cause damage, the blaster would be liable regardless of the manner in which the damage was caused. The highest court of New York in the Booth case, rejected this rationale, stating that "to exclude the defendant from blasting to adapt its lot to the contemplated uses, at the instance of the plaintiff, would not be a compromise between conflicting rights, but an extinguishment of the right of the one for the benefit of the other. . . . This 'sacrifice'" said the court, "the law does not exact. Public policy is sustained by the building up of towns and cities and the improvement of property. Any unnecessary restraint on freedom of action of a property owner hinders this."

For more than seventy years this rather rigid and harsh rule constituted the law in New York, although attempts were made to mitigate its application to certain factual situations. Thus, for example, the courts of New York held that even though negligence was required to be proven under the doctrine of the Booth case, it could properly be inferred from the fact that a blast had caused extensive damage even if the plaintiff was unable to show the method of blasting, the character of the soil or the strength of the charge. However, even under such a liberal interpretation of the Booth case, an excavating contractor could avoid liability by showing that he had exercised reasonable care.

In November, 1962 a garage was wrecked by a blast resulting from an explosion which occurred in connection with the construc-

tion of a tunnel in the vicinity. The excavating contractor had set off a total of 194 sticks of dynamite at a site approximately 125 feet away from the damaged premises. The garage owner instituted suit and claimed during the trial that he was entitled to a verdict even though he made no attempt to prove that the blaster had been negligent. This was a direct challenge to the rationale of the Booth decision. The trial court awarded damages to the plaintiff, which verdict was reversed by an intermediate appeal court. On further appeal, New York's highest court reinstated the verdict and directly overruled its 1893 decision in the Booth case. The court said:

"In our view, the time has come for this court to make that 'announcement' and declare that one who engages in blasting must assume responsibility and be liable without fault, for any injury he causes to neighboring property." The court went on to state that the rationale of the Booth case could not withstand analysis.

"The plaintiff in Booth was not seeking, as the court implied, to 'exclude the defendant from blasting' and thus prevent desirable improvements to the latter's property. Rather, he was merely seeking compensation for the damage which was inflicted upon his own property as a result of that blasting. The question, in other words, was not *whether* it was lawful or proper to engage in blasting but who should bear the cost of any resulting damage—the person who engaged in the dangerous activity or the innocent neighbor injured thereby. Viewed in such a light, it clearly appears that Booth was wrongly decided and should be forthrightly overruled. ". . . Since blasting involves a substantial risk of harm no matter the degree of care exercised, we perceive no reason for ever permitting a person who engages in such an activity to impose this risk upon nearby persons or property without assuming responsibility therefor."

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Architecture and Politics in Germany 1918-1945

By Barbara Miller Lane

Harvard University Press, Cambridge, Mass. 1968. 278 pp., illus.

Reviewed by Peter Collins. *The reviewer is Professor of Architecture at McGill University, Montreal, and Editor of the Journal of the Society of Architectural Historians.*

This remarkable and opportune book is concerned with two major themes, both of which refer essentially to the relationship between political radicalism and 20th Century architecture. The first illuminates the extent to which an architect's career has come more and more to depend on his ideological acceptability to the ruling political party. The second, by contrast, illuminates the extent to which good architecture will persist and develop despite radical changes in a nation's political policies.

Professor Lane has strictly limited her study to the era indicated by the title, and has wisely avoided hypotheses. But since her work constitutes such a valuable contribution to the whole spectrum of modern architectural history, it cannot be isolated from its wider context. For example, it is surely significant that in the first modern political revolution to be followed by a conservative reaction — namely the French Revolution — the leading architects were not automatically replaced either when the Empire displaced the Republic, or when the Bourbon Restoration displaced the Empire. Similarly, one might profitably speculate as to what would have been the course of German architecture after World War I if President Wilson had not called upon Germany to rid itself of its "monarchical autocrats" or, alternatively, if the Spartacist insurrection had overthrown the broadly-based Weimar Republic.

Initially, the German Pioneers of the Modern Movement seem to have been sympathetic to the Spartacists. In 1919 Walter Gropius formed an "artists' soviet" (*Arbeitsrat für Kunst*) and as late as 1927 was designing a

"Proletarian Theatre" in accordance with Erwin Piscator's theory of drama as an ideal form of communist propaganda. Similarly it was Ludwig Mies van der Rohe who was chosen to design the monument to Spartacist martyrs, Karl Liebknecht and Rosa Luxemburg. Yet Professor Lane also shows that in June 1934, Gropius was "still hoping for aid from Goebbels," whilst (as Sibyl Moholy-Nagy has proved) Mies van der Rohe was a signatory to Paul Schultze-Naumburg's 1933 appeal to support the Nazi *volkische Kulturpolitik*.

To what extent, then, was the best German architecture between 1919 and 1933 really "radical" (to use Professor Lane's carefully chosen term)? Here we come to the main difficulty presented by a political history of architecture, for its phraseology may well lead the reader to assume too readily that architectural ideals somehow correspond to political ideals. There may, of course, exist, in architectural theory, an antithesis between liberals and conservatives, or between democrats and republicans, whereby architecture can justifiably be classified in conformity with the terminology of political science. But the most valuable feature of Professor Lane's book is her well-documented evidence that the development of German architecture changed little after the establishment of the Nazi regime, and that hitherto far too much emphasis has been given to the widely-publicized gargantuan stage-sets provided by Albert Speer for party rallies.

Probably the best way to read this absorbing book without losing historical perspective is to ask oneself, at the end of each successive controversy: "Which arguments between the antagonists would Frank Lloyd Wright have

favoured at that particular date?" By such a device, the fallacious identification of German architectural ideals with German political ideals (a fallacy which it is Professor Lane's purpose to expose) may more easily be avoided in the first five chapters of the book; for it would be rash to dismiss Hogg, Senger, or Schultze-Naumburg as "racist" because they preferred sloping roofs to flat roofs, traditional building materials to stuccoed reinforced concrete, or rural environments to high-rise apartment buildings.

The fact that Albert Speer's autobiography will soon be published in English may shortly give Professor Lane's book an even greater importance than it now possesses. But its great significance at the moment, apart from the importance of its topic and the skill with which it is written, lies in the unusual qualifications of its author. Mrs. Lane is a professor of history, not of art-history, and architectural historians are becoming increasingly aware that it is not *Kunstwissenschaft* but the disciplines and techniques of pure historical scholarship that are providing the most fertile contributions to their own specialized research.

Hotels, An International Survey


By Herbert Weisskamp

Frederick A. Praeger, New York, N.Y. 1968. 212 pp., illus.

Reviewed by Jeffrey Ellis Aronin, *AIA. The reviewer is an international architect headquartered in New York.*

Hotels today are assuming such dominant positions on the maps of the world's cities that even principal historic attractions are often given less attention. This book illustrates and describes some of

(Continued on page 118)



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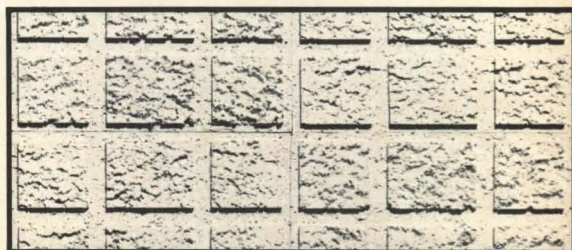


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Domino pattern in ACOUSTONE Tile, $\frac{3}{4}$ " thick, 12"x12". Millionaires Club, Chicago, Ill. Designer: James Efston.

UNITED STATES GYPSUM

On Readers' Service Card, Circle No. 372

*Reg. U. S. Pat. Off.

(Continued from page 112)

the best hotels on every continent. They are the sort of hotels tourists will, in some instances, talk about more than the culture of the regions they serve. It is therefore unfortunate that this book, while featuring the architectural characteristics and merits of each hotel, fails to record the reactions of the user.

Would it not be valuable, for example, to have a critique for each hotel from a tired businessman arriving late in the evening, from a honeymooning couple, or from a family with children? One would like to know something about the cleanliness of service elevators, and corridors, and the thoughts of doormen, bellhops, chambermaids, and managers. Only one instance—the Tamanaco Hotel in Caracas—was mentioned as an example of a hotel with house-keeping difficulties.

Hotels are the focal points of a town, the place for large conventions and big exhibitions. Politicians address huge dinner gath-

erings in hotels, not in government buildings.

It would have been worthwhile to the architect if this book had described the thinking and decision-making process that evolved into the solutions shown. What were the financial characteristics in setting up the operation? What were the limitations imposed upon the architect? Most students graduating today, and most successful architects, must have acquired a good sense of design, and will concur that, aesthetically, there is indeed a fine selection of hotels in this book. But there are other perhaps more fundamental questions that the book does not answer.

For example, what is the desirable ratio of room area to public space? What was the influence of the building codes? What finishes should be used on walls? How are slip-proof bathrooms best designed? Where do you hang your drip-dry shirts after you wash them? Hotels do not give regular hangers these days for fear that

they will disappear, and shirts usually just drip onto the carpets and mar the walls in the closets.

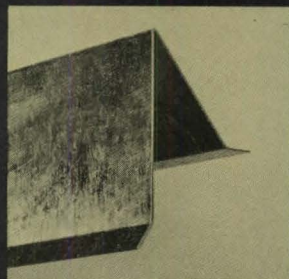
Admittedly, the first 19 pages (half in German) discuss such fundamentals as the relative sizes of international hotels, design of typical rooms, how to place column-free ballrooms under high-rise slabs of guest rooms, how to avoid endless hallways, and what to do about guests' shoes outside room doors at night. "The main task of hotel designers should be to cater within the limited area of a modern hotel apartment for all those activities which cannot be relegated to the public spaces below: reading, writing, intimate conversation, listening and relaxing in private."

These first pages also describe the trends in motor hotels and the location of parking spaces. Resort hotels are dismissed with a simple statement: "The vacationer of the late sixties may be ready to shed his pretensions and opt for architectural simplicity placed in a nat-

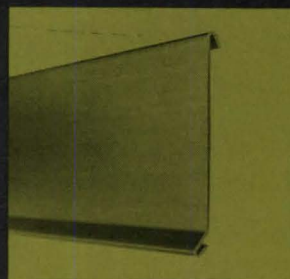
(Continued on page 120)

HICKMAN DOESN'T JUST MAKE A GRAVEL STOP. IT'S A COMPLETE SYSTEM.

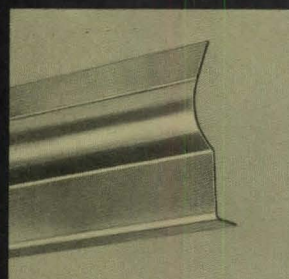
The Hickman Gravel Stop System is 3-piece . . . galvanized steel water dam, extruded aluminum fascia and exclusive compression seal. Sounds complicated? It's not. It's just efficient. Here's why:



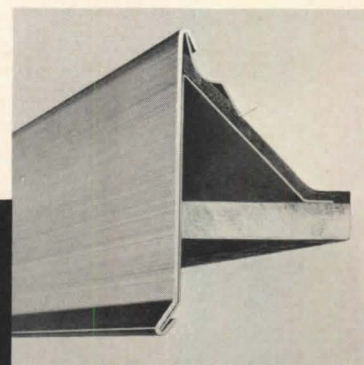
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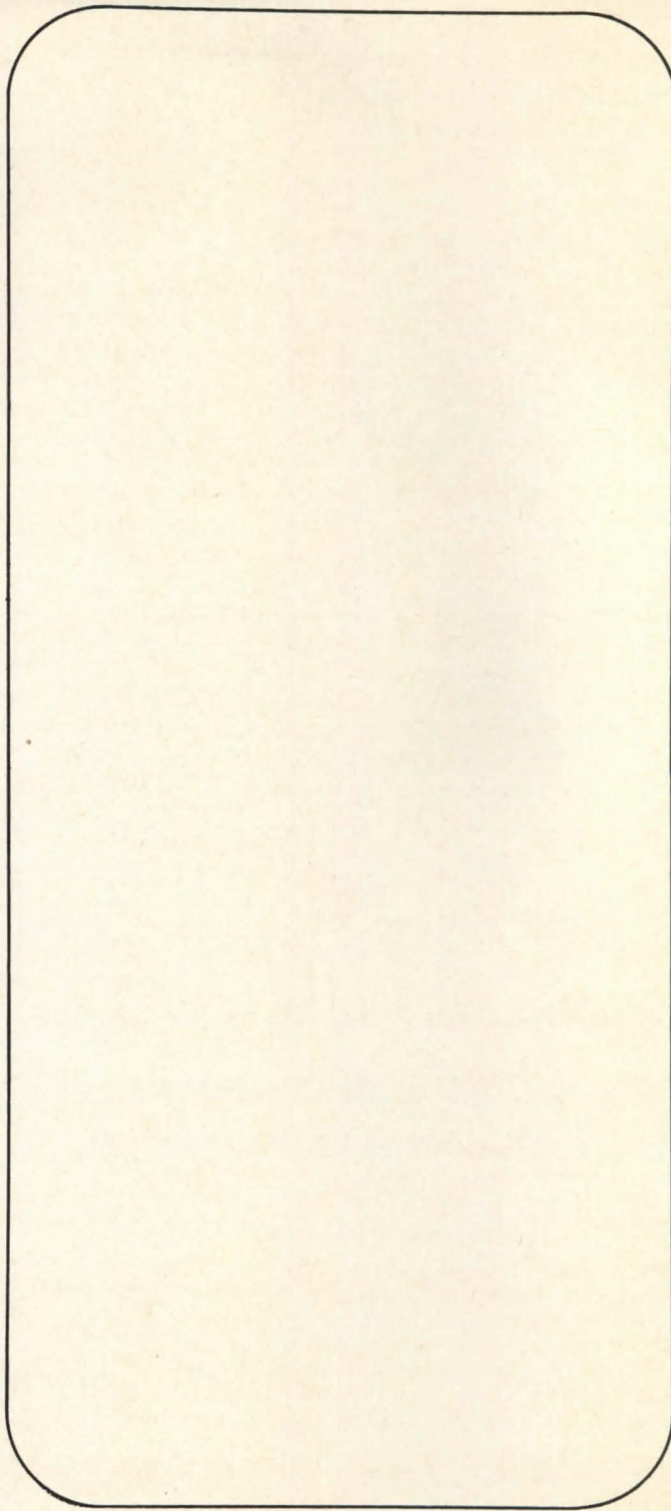
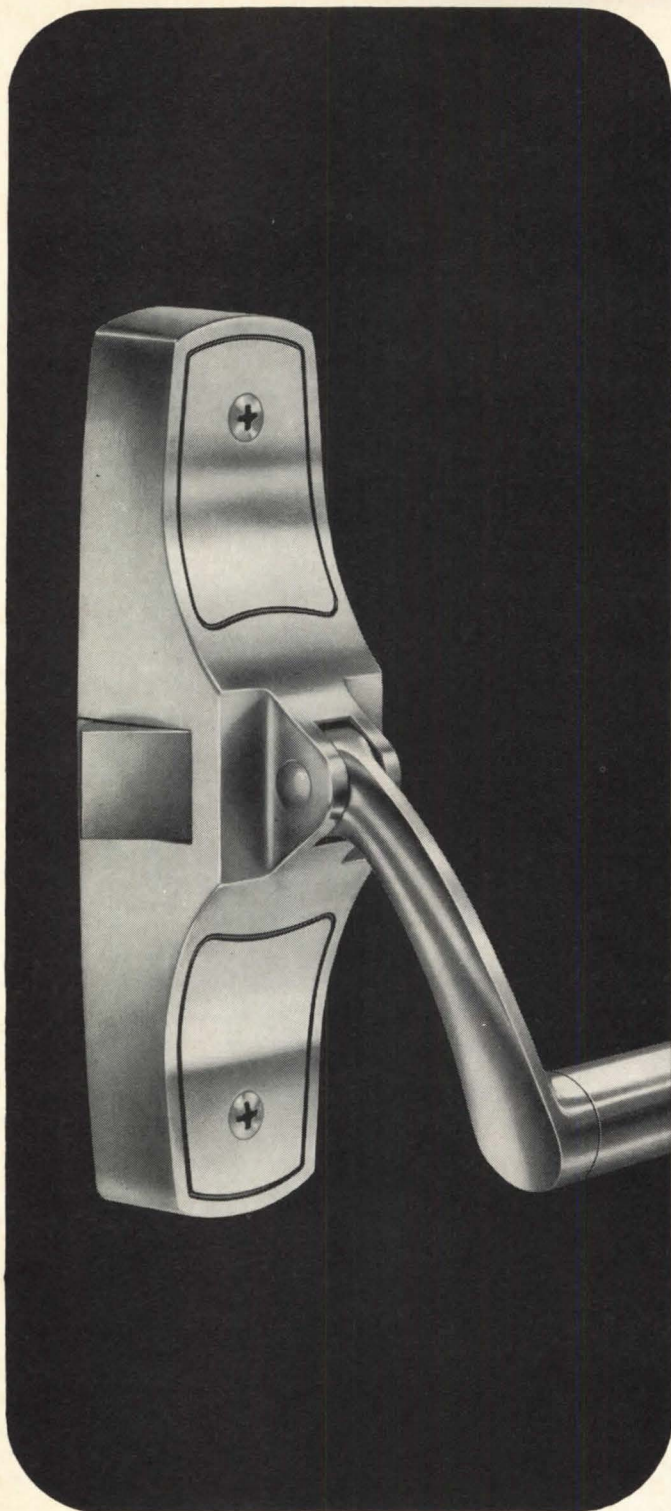


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(Continued from page 118)

ural setting." The best examples, claims the author, are "clean-cut rectangular buildings with almost no hint of regional style, but having complete respect for the nature of their site." He describes the Byblos Hotel of St. Tropez, which I have visited and enjoyed, as an "anti-hotel" with balconied rooms grouped village-like around a plaza. A new 6000-bed Moscow hotel, and a \$100,000-per-room Hawaiian hotel, booked years in advance, are given as new examples of creative design by the

world's architects.

Aside from these criticisms, however, much of the information and many of the photographs in this volume are certainly worthwhile, and offer a number of fruitful ideas. If only one idea results — if it helps the reader's wife, bride, children, or girl friend to select their next vacation spot (where they can use service elevators to get to the swimming pool) it will have been worth it.

I just like to think what it *could* have been.

Office Planning and Design

By Michael Saphier

McGraw-Hill Book Co., New York, N.Y., 1968. 190 pp., illus. \$14.

Reviewed by Arnold Friedmann, Professor of Interior Design at Pratt Institute, Brooklyn, N.Y.

Office planning or space design has emerged as a distinct design specialty only during the past 20 years. Surprisingly, this book is the first serious one written on the subject, which is the main concern of many interior design firms and a significant aspect of the work performed in a number of architectural offices. The author is chairman of the space planning and design firm of Saphier, Lerner, Schindler, Inc. (a subsidiary of Litton Industries), one of the nation's leading and largest firms specializing in office design. *Office Planning Design*, written to serve as a textbook introduction and guide to office planning for architects, interior designers, and students, covers all phases of procedure required in the planning and design of office space for business, institutions, and public agencies.

The book is organized into chapters that clearly explain the procedural steps that should be followed by a firm engaged in the design of offices for business corporations. The variety of physical needs, the budgetary considerations, and the inherent organizational problems involved in dealing with a large or small corporation are reflected most clearly in the sample checklists provided at the end of chapters. Few students and few practitioners of interior design or architecture realize the complexity of planning large business firms. Saphier shares his vast experience in this field with the reader and indeed provides an excellent textbook that, however, does not attempt to deal with aesthetic, technical, or mechanical problems other than to list their need for consideration.

The fact that office planning has become a highly specialized field with clearly established routine procedures has discouraged many creative designers and architects. For example, the chapter

(Continued on page 126)

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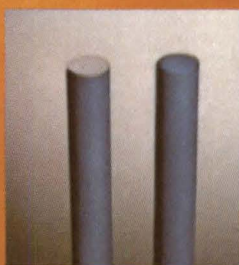
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(Before the fiber is a fiber.) That way the color is actually a part of the fiber.

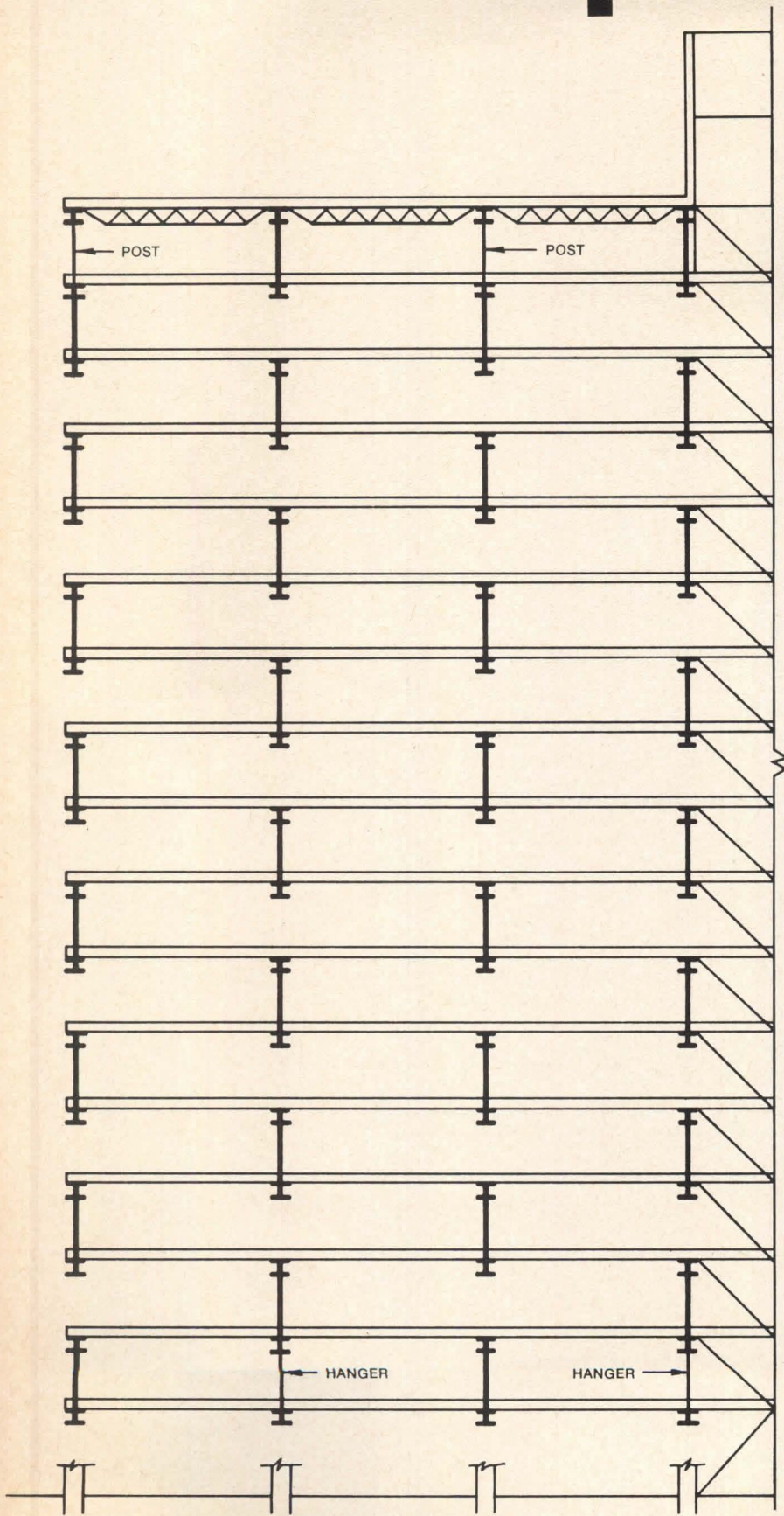
So much so, Monsanto has set 2000 as the minimum rating acceptable on the wet weatherometer test. So no matter how much wear it gets, the color won't wear off.

And even the strongest cleaning agents can't bleach the color out.

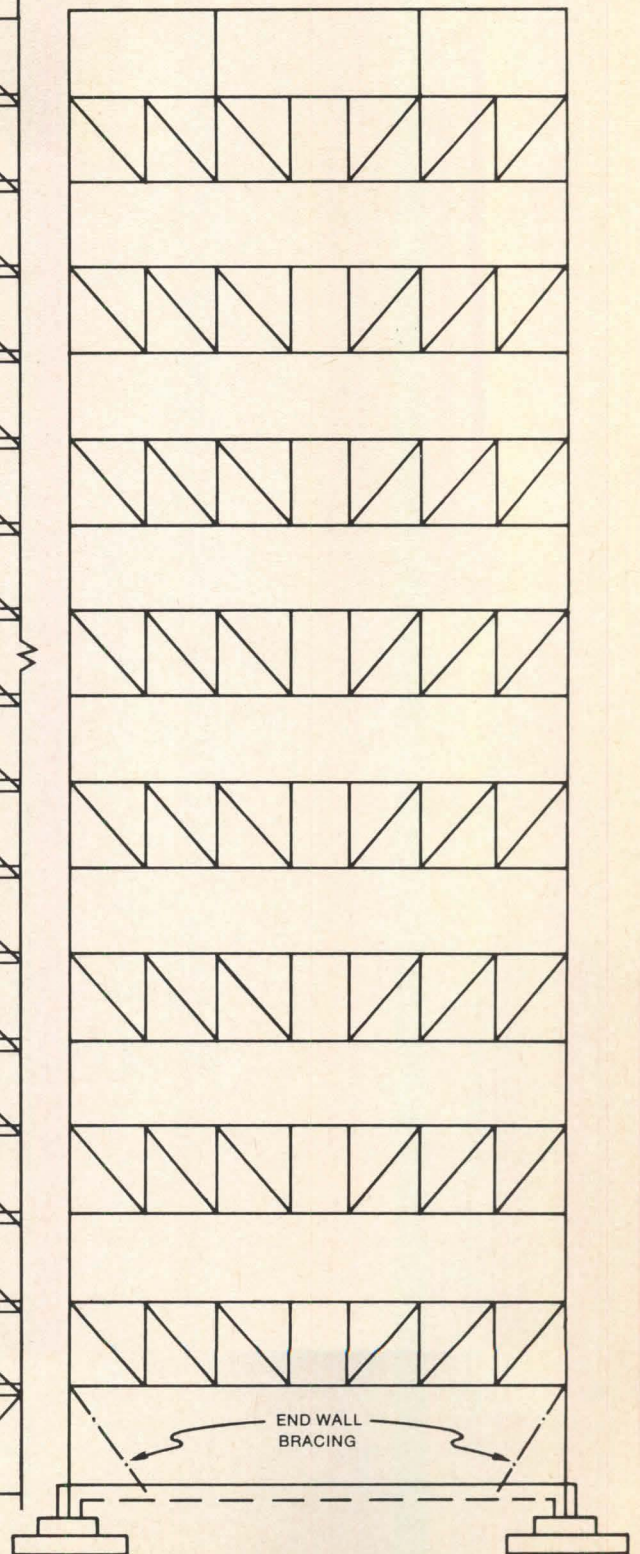
Acrilan 2000+. It deserves a place in the sun.



Apartments:



Half longitudinal section:
staggered trusses.



Cross section:
(Note corridor space in center of truss.)

when steel goes up costs come down.

First cost is just one of the ways to save with steel. This 186-unit apartment building shows how imaginative design with steel brought a project in at \$59,580 below budget.

The building is a low rent housing project for the elderly. Two 17-story towers flank a service core. Each apartment contains 455 sq. ft. The assignment was to design a building for pleasant living within a modest budget.

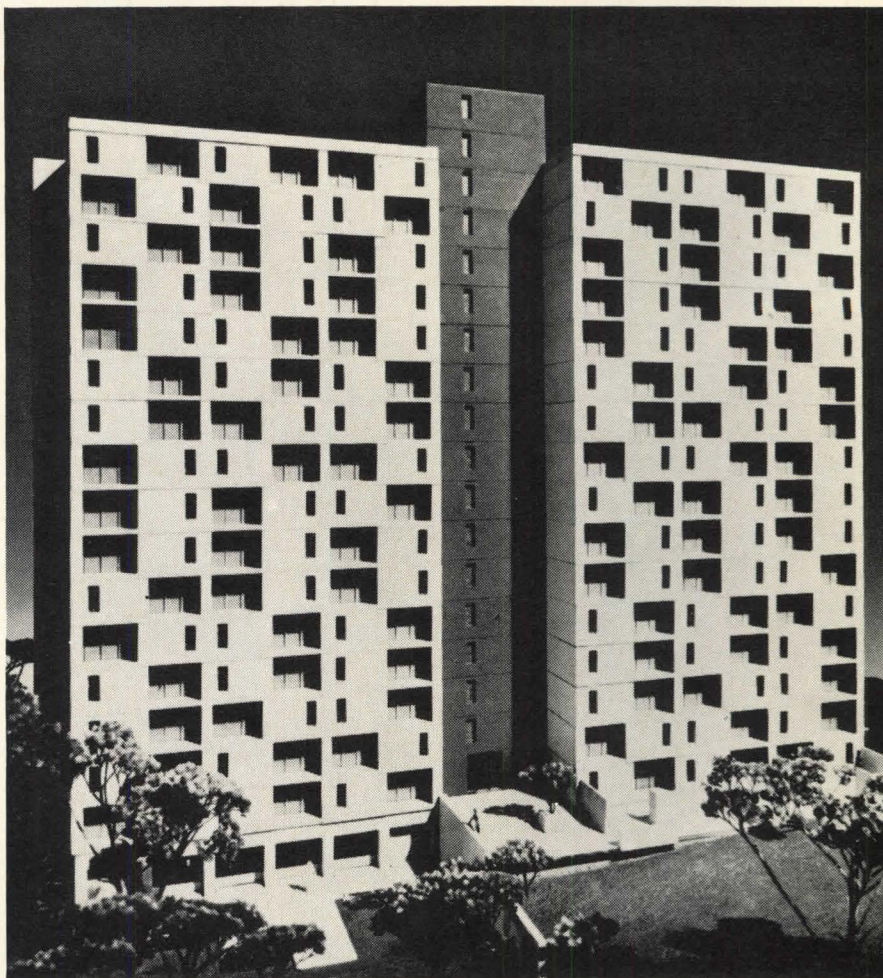
After evaluating several structural systems, the architects found their answer in a *staggered steel truss system*. This is the first use of the staggered truss system, which was developed at MIT in a research program sponsored by U. S. Steel.

Story-high trusses, spanning the building's 52'0" width, are set in a staggered pattern (see diagram). They are located within the separating walls of alternate apartment units. Precast concrete floors rest on the top chord of one truss and on the bottom chord of another truss. The floor slabs act as diaphragms together with the trusses to effectively resist wind loads.

Total steel requirement for the building was about 480 tons for an average weight of 6.8 lbs. per sq. ft. The A572 steels used in the welded trusses are USS Ex-TEN 50 and 60 High-Strength Low-Alloy Steels (50,000 and 60,000 psi min. yield points respectively). Construction cost, including mechanical and electrical bids, was \$2,282,870. Sq. ft. cost: \$16.31.

Structural Report

This is one of many ways to keep costs down with steel. Used imaginatively, steel usually wins out in



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first cost compared with other building materials. In the long run, there's no question. Only steel-framed buildings can be altered at low cost when it comes time for major remodeling.

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tural Report," which details its use in this building, by contacting a USS Construction Marketing Representative through the nearest USS sales office. Or write U. S. Steel, P. O. Box 86 (USS 5796), Pittsburgh, Pennsylvania 15230. USS and Ex-TEN are registered trademarks.



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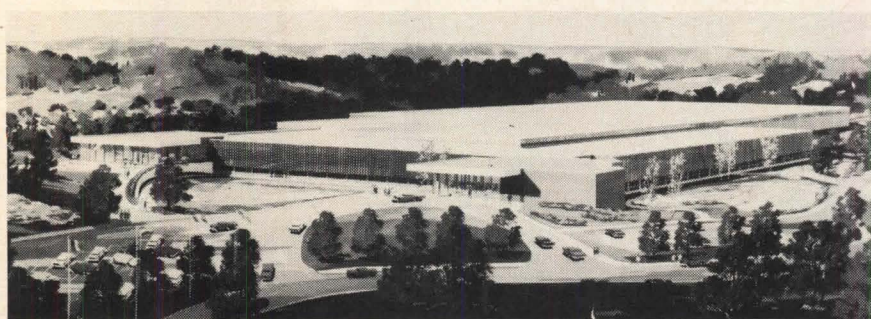
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Architects: Kahn and Jacobs

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(Continued from page 120)

devoted to presentation touches on some aspects of work that forces designers to deal with clients in a business vocabulary approaching sales presentations, not unlike that of high-pressure advertising agencies. The author makes no attempt to romanticize this specialty; he presents the material clearly and concisely. It is perhaps unfortunate that the basic philosophical question regarding the validity of intense specialization in design is nowhere raised. In his last chapter, Saphier describes the organizing of a design company and, by implication, suggests that more and more firms of office planners will arise. Saphier's own company has pioneered in the field of office planning. Its recent acquisition by Litton Industries, as well as the fact that a number of large business corporations maintain their own facilities planning offices, suggest a new direction for office planning and design that integrates business-oriented designers into the very fiber of the world of business, possibly with managerial responsibilities.

The author's crystal ball seems somewhat clouded when he projects the future of office design. Undoubtedly, the computer will become an increasingly important tool in the world of business, as well as in the world of design. However, the discussion of the immediate future of office planning seems incomplete without making mention of the concept of *Bürolandschaft* (office landscape), developed by the German Quickborner team and recently introduced in a number of important installations in the United States. Another significant omission is that none of the illustrations show work by any of the other distinguished designers in this field. Saphier, Lerner and Schindler, Inc., has completed many handsome jobs and some are pictured in the book. It would have been interesting—to students in particular—to see a variety of different design approaches to similar problems. Saphier, and those of his colleagues who have pioneered in this field, have done much to improve the level of recent interior design in America. Good contemporary design has

(Continued on page 128)

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(Continued from page 126)

finally been accepted as the norm in the world of business, and through it, has done much to turn the public away from its strange predilection for pseudo-traditional design in American homes. The merits of Saphier's book far outweigh any of the minor omissions mentioned. It is a book that can be recommended highly to students and professionals alike.

NOTICES

ELECTIONS—APPOINTMENTS

ADELMAN SIEGEL AND ASSOCIATES, environmental designers, Philadelphia, Pa., have appointed LEONARD G. SIEGEL as partner in the firm and MARVIN I. ADELMAN has been appointed to the Executive Board of Directors, Pennsylvania Group of the Atlantic Chapter, Sierra Club.

AMERICAN INSTITUTE OF INTERIOR DESIGNERS, New York, N.Y., has elected a new slate of officers: EDWARD J. PERRAULT, president; CHARLES LEHMAN, chairman of the board; RITA ST. CLAIR, treasurer; E. WILLIARD SCHURZ, secretary; L. RAYMOND TOUCHER, assistant secretary treasurer.

DANIEL, MANN, JOHNSON & MENDEN-

HALL, planners/architects/engineers/systems, Los Angeles, Calif., have appointed PETER J. McMAHON Chief Economist.

DeLEUW, CATHER & COMPANY, engineers, Chicago, Ill., have appointed NORBERT J. POINTNER as a planner in the Community Planning and Development Division.

FRUCO & ASSOCIATES, architects & engineers, St. Louis, Mo., have named RONALD L. L'HOMMEDIU as president of the firm.

GRUEN ASSOCIATES, architects, planners, engineers, Los Angeles, Calif., have named HENNOCK SOOT as head of its newly expanded Computer Division.

MICHAEL H. SPECTOR, architect, Great Neck, N.Y., has announced that WALLACE CHU has joined the firm.

SASAKI, DAWSON, DeMAY ASSOCIATES, INC., Watertown, Mass., announced that JOHN ADELBERG has been made a principal.

SKIDMORE, OWINGS & MERRILL, architects, New York, N.Y., have elected DONALD C. SMITH and WALTER A. COSTA as general partners of the firm.

SOUDER, CLARK & ASSOCIATES, INC., consultants for health care planning and architecture, Tarzana, Calif., have elected RAYMOND W. GRIFFIN as vice president.

SVERDRUP & PARCEL AND ASSOCIATES, INC., engineers/architect, St. Louis, Mo.,

has announced that ROBERT BENCE is now in charge of architectural production and ARCH H. HOSIER, JR., is now in charge of architectural design.

RESEARCH COUNCIL OF THE GREAT CITIES PROGRAM FOR SCHOOL IMPROVEMENT, Chicago, Ill., has named DR. ALVIN G. SKELLY as executive vice president.

WALLACE HOLM AND ASSOCIATES, architects, Monterey, Calif., have appointed WESLEY L. HESSLER as senior associate.

WILLIAM L. PEREIRA & ASSOCIATES, architects, Los Angeles, Calif., have named JOHN C. KNIGHT as executive architect.

JOHN CARL WARNECKE AND ASSOCIATES, architects/planning, San Francisco, Calif., has named DONALD M. ROLPH vice president and associate director of the San Francisco office.

K. STANLEY SOKOLOVE has been promoted to administrative director of LBC & W Associates of Virginia.

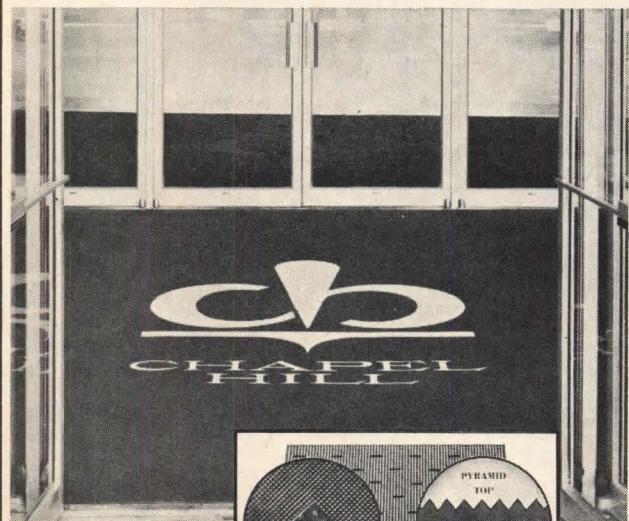
HARPER RICHARDS ASSOCIATES, LTD., Chicago, Ill., has announced that JAN PAUL HENRY MILEWICZ-REIM has joined the firm as senior designer.

NEW FIRMS

JENKINS, WURZER, STARKS, architects & planners, has been formed by the merging of two Rochester, N.Y. architectural firms and by a former corporate architect; 1545 East Ave., Rochester, N.Y. 14610.

(Continued on page 130)

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(Continued from page 128)

ROBERT M. THOMAS & ASSOCIATES, Newport Center, Newport Beach, Calif.

TERRY H. PARKER, architect, 40 E. Main Street, Little Falls, N.J. 07424.

NEW ADDRESSES

CRAIG AND KOHLER, architects, 33 River Road, Vanier City, Ontario, Canada.

D. GREEN ASSOCIATES, interior and industrial designers, 5171 MacArthur Boulevard, N.W., Washington, D.C. 20016.

DEELEY-BROWN ASSOCIATES, architects, 319 Baker Building, Fort Worth, Tex. 76102.

FRANK SCHLESINGER, architect, Penthouse Eight, 210 Locust Street, Philadelphia, Pa. 19106.

GODFREY L. DUKE, architect, 925 North Milwaukee Ave., Wheeling, Ill. 60090.

PAUL M. GARRETT, architect, 36 W. 83rd St., New York, N.Y. 10024.

PECKHAM-GUYTON-ASSOCIATES, architects, # 73 Maryland Plaza, St. Louis, Mo. 63108.

RESEARCH COUNCIL of the GREAT CITIES PROGRAM for SCHOOL IMPROVEMENT, 1819 H. Street N.W., Washington, D.C. 20006.

RICHARD MEIER & ASSOCIATES, architects, 136 East 57 Street, New York, N.Y.

WEISS WHELAN EDELBAUM WEBSTER, architects, 527 Madison Avenue, New York, N.Y.

NAME CHANGES

BOLT BERANEK AND NEWMAN INC., Consultants, Cambridge, Mass., and GRAPHIC CONTROLS CORPORATION, Chart Makers, Buffalo, N.Y., have combined into a new enterprise to be called BBN-GRAPHIC CORPORATION, 50 Moulton St., Cambridge, Mass. 02138.

OLIN BOESE & DEELEY-BROWN, architects, 319 Baker Building, Fort Worth, Tex.; formerly DEELEY-BROWN ASSOCIATES.

KETTLE MORaine ASSOCIATES, INC., architects/engineers, PO Box 248, Fort Atkinson, Wis. 53538; formerly WATERMAN, FUGE & ASSOCIATES, INC.

MURPHY & SMITH, architects/planners, 53 East Main St., Morristown, N.J.; formerly SIDNEY SCOTT SMITH.

NEW PARTNERS—ASSOCIATES

BEARDSLEY AND BEARDSLEY, architects, Auburn, N.Y., has named ROBERT G. STEVENS an associate in the firm.

BRADLEY & WONG & ASSOCIATES, Honolulu, Hawaii, has announced that JOHN B. SJOBERG is joining the firm as a partner; the firm will be known as BRADLEY, WONG, SJOBERG & ASSOCIATES, INC.

CLOVIS HEIMSATH ASSOCIATES, architects/planners, Houston, Tex., announces that JOSEPH W. SANTAMARIA has joined the firm as an associate.



When it comes to setting thermostats, the girls in Martin Dorm each do their own thing.

Midwestern College, Dennison, Iowa, is a brand-new coeducational school that began in October of '65.

Now, when you start off new like Midwestern did, you can have the latest of everything.

Take Martin Dorm, for instance. Wall-to-wall carpeting, panelled walls in each room.

And to really spoil the gals, each room has its own GE Zonline heating/cooling unit. So the coeds can set any temperature that pleases them. How's that for individuality?

But don't get the idea this is a rich kids' school. Not so. Midwestern is run on a taxpayers' budget. It's a gem of architectural efficiency.

That posh Zonline comfort, for example, actually cost Midwestern a good bit less to install compared to traditional heating

and air-conditioning systems.

True, any good zonal heating/cooling system could have done the job for Midwestern. So why was GE Zonline the choice?

For one thing, GE service is nearby—a comforting thought to the building maintenance staff. Although with Zonline you can keep a spare unit on hand for instant replacement. What could be easier?

The architects naturally considered GE exclusives in choosing Zonline.

The GE rotary compressor, for instance, is much quieter than the reciprocating type generally used. Quiet enough to save a midnight complaint because of noisy air conditioning. For quietness, too, GE has a special low-speed blower.

Also nice to know, the unique GE Spinefin coils use continuous tubing to eliminate many of the brazed joints found in most air

conditioners. Every brazed joint is a potential refrigerant leak. Who needs headaches like this?

Zonline controls are prominently located on top of the chassis, and so simple, a coed's little sister can operate them.

For added reliability, GE keeps the electrical connections of each unit on the room side of the weather barrier. Why give weather a chance at them?

There are many more GE features the architects liked. The attractive grille, the washable air filter, the unique interior baffle, the positive seal air vent and so on.

Maybe the same features are what you're looking for in your next dormitory or office building. Find out. Check out a Zonline application near you. Your GE Central Air Conditioning Distributor will tell you where.

Zonline Cooling and Heating Systems.

GENERAL  ELECTRIC

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JOBS AND MEN

SITUATIONS OPEN

ARCHITECT—Major midwestern architectural firm has opening for a project manager with proven administrative and design ability. The position involves supervision of project teams, client contact, and coordination of engineering and other disciplines through to project completion. Diversified, nationwide practice includes highest quality educational, industrial, institutional and urban projects. Superior opportunity to progress with the firm and move into key position. Moving expenses paid. Salary open, but commensurate with qualifications. Send resume in confidence to Box #1361-910, PROGRESSIVE ARCHITECTURE. An Equal Opportunity Employer.

ARCHITECT—Medium-sized, diversified practice, established, expanding A-E firm has permanent openings; experienced design and working-drawing project managers and personnel. Registration not mandatory. Initiative to grow into supervising positions of associateship and eventual partnership. Salary, profit sharing, fringe benefits commensurate with experience and ability. John Fodor and Associates, Architects—Engineers—Planners, 64 Wall Street, Norwalk, Connecticut 06850—Attention: Mr. K. J. Cave.

ARCHITECT—Or Architectural Graduate—Three years experience. Position open in small expanding office in Central Connecticut. Must be able to design and produce working drawings. Qualified man will work directly with clients and supervise construction. Send complete resume. Box #1361-911, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Or qualifications leading to registration for key position in established, small office with diversified practice. Central Florida location with dramatic growth potential. Associateship or partnership assured for proper individual. Box #1361-912, PROGRESSIVE ARCHITECTURE.

ARCHITECT—University of Kentucky, Lexington, Kentucky is in need of an Architect with a strong interest in Campus Planning as well as Building design. Would assist in coordination of these areas with private outside consultants; do considerable liaison and programming work with Administrative and Academic Staff. Ability to think and communicate well; good character and habits essential. Please send resume of background and experience to: Clifton J. Marshall, A.I.A., Executive Director, Physical Plant Development, University of Kentucky, Room 222 Service Building, Lexington, Kentucky 40506.

ARCHITECTS—Immediate openings for career-minded professionals in our major architectural offices. License, registration and a minimum of 5 years' experience in commercial design of retailing, warehousing and shopping center facilities, plus U. S. citizenship required. Office is progressive, staffed with highly-motivated pro-

fessionals who are master planning and providing comprehensive architectural and design services for our facilities worldwide. Also, there is opportunity for future transfer to our European or Far East offices. Salary is \$14,600. Outstanding fringe benefits and the opportunity for work on challenging assignments are part of the package. To apply, rush your resume, which must include your salary history, to: Mr. Chris Ciampaglia, Dept. PA-12, Army Air Force Exchange Service, 3911 Walton Walker Blvd., Dallas, Texas 75222.

ARCHITECTURAL DESIGNER—Design oriented, medium-size architectural and planning firm, located in the midwest area, has opening for a creative designer to develop outstanding concepts, work with clients, direct design teams and control design development through production phases. Diversified and expanding nationwide practice includes significant educational, industrial, institutional, housing and urban projects. The position offers excellent opportunity for professional development and associateship. Liberal salary based on talent, capability and experience. Replies will be handled confidentially and should contain sufficient information to establish a basis for further discussion. Box #1361-913, PROGRESSIVE ARCHITECTURE. An equal opportunity employer.

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ARCHITECTURAL GRADUATE—Small firm engaged in progressive architecture has opening for architectural graduate qualified to manage production. Experience as job captain and registration preferred. Will be exposed to all phases of architectural work. Send resume and expected salary to: Architect Willoughby Marshall, 145 Austin Street, Cambridge, Mass. 02139.

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PROJECT ARCHITECT—A leading midwest architectural firm with a nationwide practice needs imaginative and ambitious architect to direct and coordinate project design teams on a wide variety of large-scale institutional, industrial, educational, housing and urban design projects. Excellent salary and meaningful opportunity for advancement. Applicant must possess high professional standards and leadership capability. Send confidential resume to Box #1361-915, PROGRESSIVE ARCHITECTURE.

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SITUATIONS WANTED

ARCHITECT—MBA, AIA, NCARB—Seeking interdisciplinary position requiring
Continued on page 134

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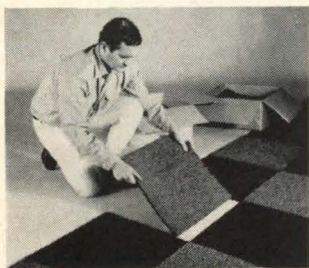
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JOBS AND MEN

Continued from page 132

skills of an architect and financial manager. B. Arch-Cornell; MBA (finance)-Columbia. Equipped for aggressive innovation in representing equity interests. Experience in New York City; will consider all locations. Box #1361-917, PROGRESSIVE ARCHITECTURE.

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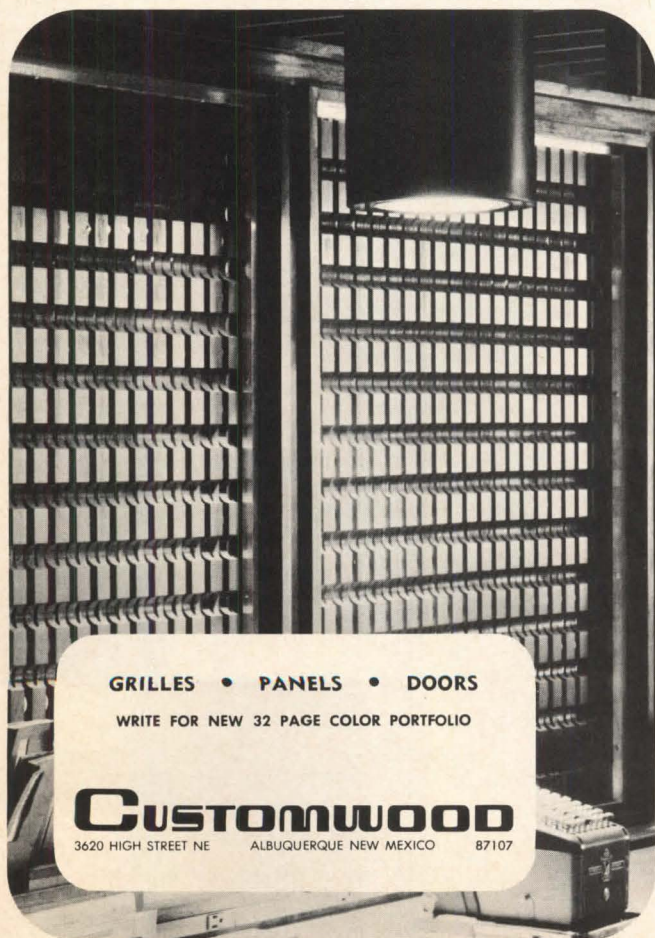
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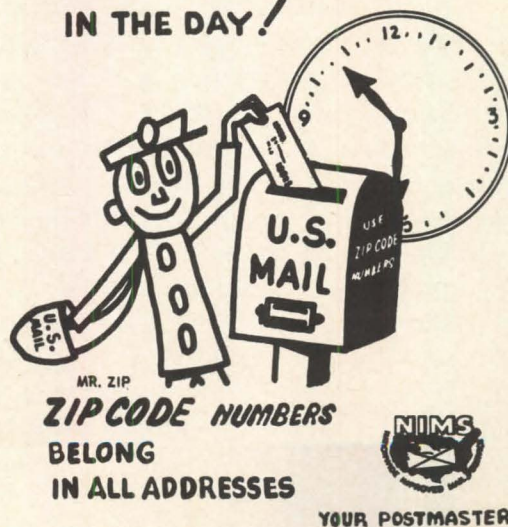
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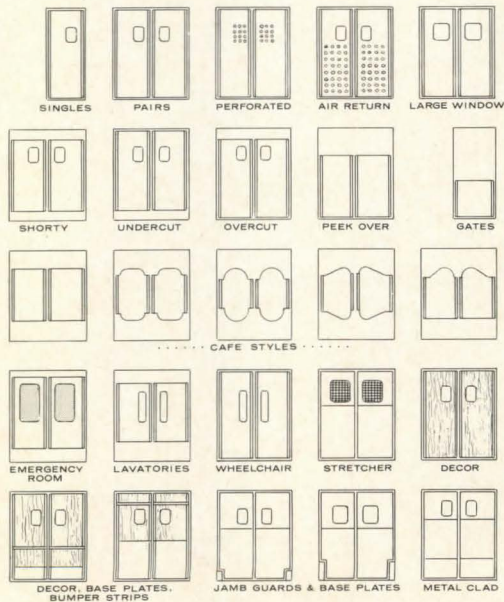


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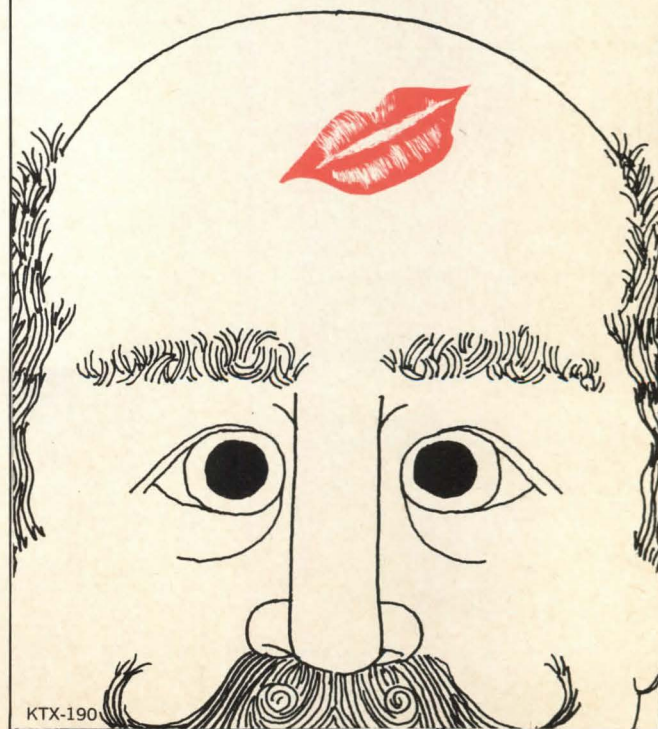
Robert Tolkan is a fictitious name, but it's a fact that almost half the women today prefer tampons. And half still use napkins. That's why it's a good deal for the gals when you specify built-in *dual-vend* dispensers. Bobrick Dispensers, Inc. makes some beauties. We'll be happy to send you a free catalogue. Or see Bobrick, in Sweet's.



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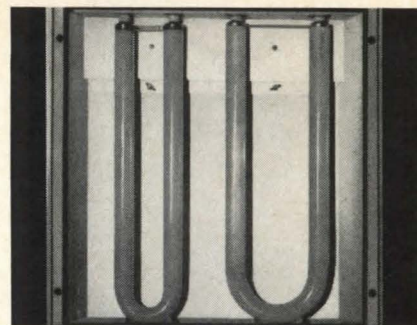
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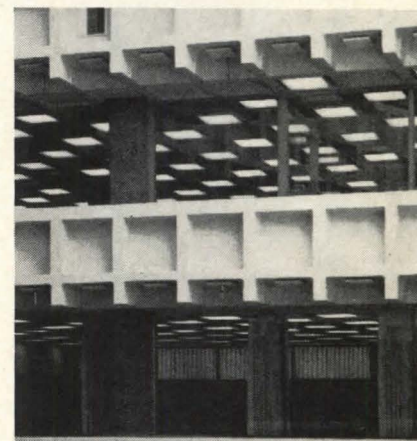
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Braniff International Terminal, Dallas, Texas;
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BR 104	Y	100.00	10.00	110.00	OK
BR 105	Y	100.00	10.00	110.00	OK
BR 106	Y	100.00	10.00	110.00	OK
BR 107	Y	100.00	10.00	110.00	OK
BR 108	Y	100.00	10.00	110.00	OK
BR 109	Y	100.00	10.00	110.00	OK
BR 110	Y	100.00	10.00	110.00	OK
BR 111	Y	100.00	10.00	110.00	OK
BR 112	Y	100.00	10.00	110.00	OK
BR 113	Y	100.00	10.00	110.00	OK
BR 114	Y	100.00	10.00	110.00	OK
BR 115	Y	100.00	10.00	110.00	OK
BR 116	Y	100.00	10.00	110.00	OK
BR 117	Y	100.00	10.00	110.00	OK
BR 118	Y	100.00	10.00	110.00	OK
BR 119	Y	100.00	10.00	110.00	OK
BR 120	Y	100.00	10.00	110.00	OK
BR 121	Y	100.00	10.00	110.00	OK
BR 122	Y	100.00	10.00	110.00	OK
BR 123	Y	100.00	10.00	110.00	OK
BR 124	Y	100.00	10.00	110.00	OK
BR 125	Y	100.00	10.00	110.00	OK
BR 126	Y	100.00	10.00	110.00	OK
BR 127	Y	100.00	10.00	110.00	OK
BR 128	Y	100.00	10.00	110.00	OK
BR 129	Y	100.00	10.00	110.00	OK
BR 130	Y	100.00	10.00	110.00	OK
BR 131	Y	100.00	10.00	110.00	OK
BR 132	Y	100.00	10.00	110.00	OK
BR 133	Y	100.00	10.00	110.00	OK
BR 134	Y	100.00	10.00	110.00	OK
BR 135	Y	100.00	10.00	110.00	OK
BR 136	Y	100.00	10.00	110.00	OK
BR 137	Y	100.00	10.00	110.00	OK
BR 138	Y	100.00	10.00	110.00	OK
BR 139	Y	100.00	10.00	110.00	OK
BR 140	Y	100.00	10.00	110.00	OK
BR 141	Y	100.00	10.00	110.00	OK
BR 142	Y	100.00	10.00	110.00	OK
BR 143	Y	100.00	10.00	110.00	OK
BR 144	Y	100.00	10.00	110.00	OK
BR 145	Y	100.00	10.00	110.00	OK
BR 146	Y	100.00	10.00	110.00	OK
BR 147	Y	100.00	10.00	110.00	OK
BR 148	Y	100.00	10.00	110.00	OK
BR 149	Y	100.00	10.00	110.00	OK
BR 150	Y	100.00	10.00	110.00	OK

Why?

Because Portland Cement Terrazzo is tough and it's beautiful. Nothing else compares with it in cost, durability, maintenance and design latitude. The finest terrazzo is being made with Trinity White Portland Cement.

Trinity White

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For one building or a complex— specify the control center designed for systems expansion

Environmental control of building complexes can be a complicated job. But Johnson solves the problems daily. With solid state control centers and advanced control systems that readily adapt to changing needs. And to building additions. The new three-building Science Center at Beloit College* is a good example.

We started by teaming a Johnson T-6000 control center with our new T-9000 fluidic controllers to monitor and control over 150 points in the complex. Then monitoring and start-stop capabilities were added for the campus refrigeration and steam plants, including a telephone system that automatically dials the campus security office if an alarm occurs during off-hours.

Next, five dormitories, the dining hall and the library will be integrated into the central system. And plans call for connecting all future buildings (as well as other existing buildings) to the control center. The 3000 point capacity of the T-6000 will easily accommodate all presently planned expansion, and then some. If present space allocations or

uses change, the system can be adapted easily and economically.

Man-hour savings in the Science Center alone will quickly pay for the system, to say nothing of heating and cooling savings. And savings in mechanical equipment life.

Specify Johnson T-6000 control centers, and give your client the freedom to change or expand his control system to match changing needs.

**Architect: Harry M. Weese & Associates, Chicago. Consulting Engineer: Samuel R. Lewis Associates, Inc., Chicago. General Contractor: Cunningham Brothers, Beloit, Wisconsin. Mechanical Contractor: Cenco Piping Corporation, Janesville, Wisconsin.*

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