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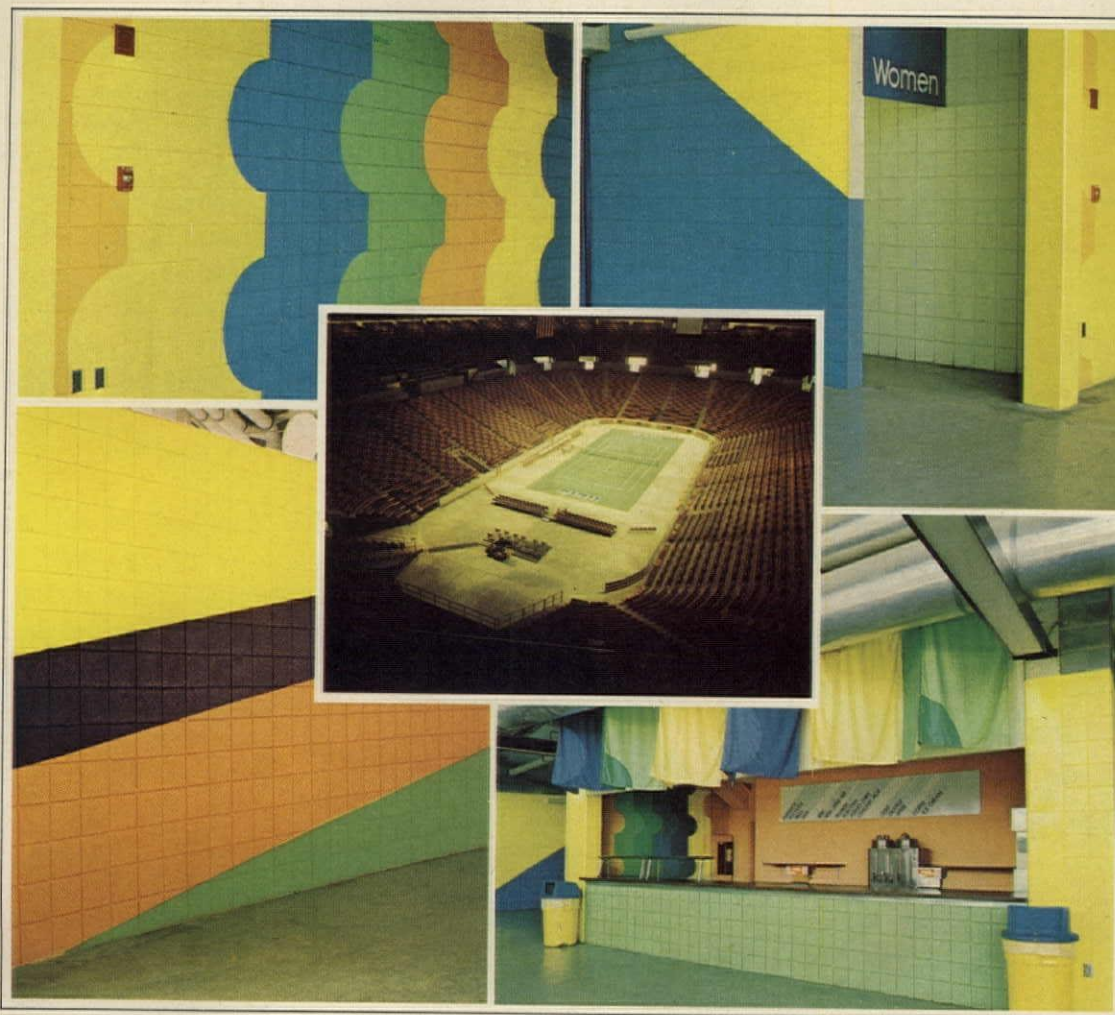
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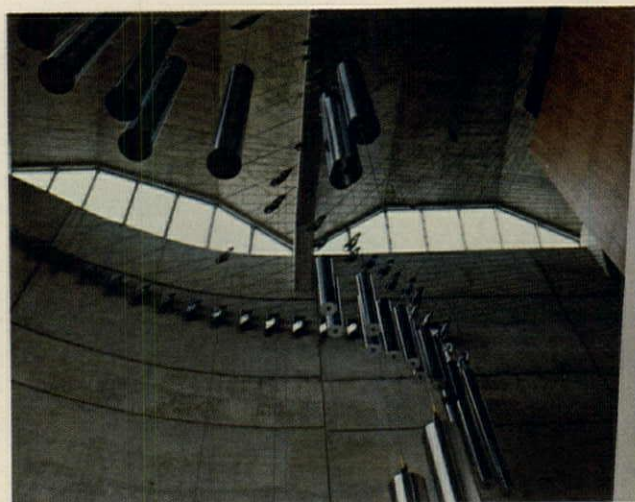
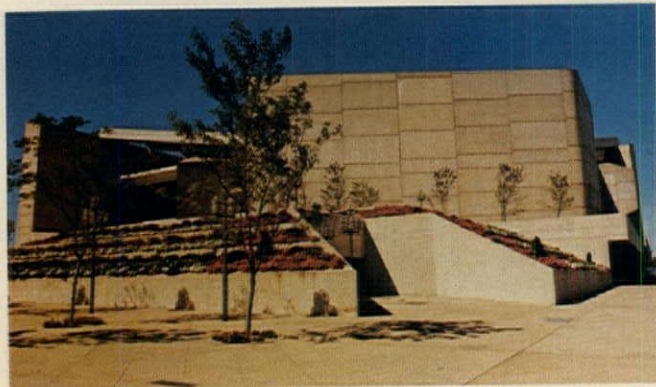
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A commercial office building in Detroit is designed, within the framework of economy and efficiency to conserve energy. By Gunnar Birkerts.

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The Taller de Arquitectura was set up by Ricardo Bofill in Barcelona twelve years ago and since then has produced some extraordinary works.

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Plastics are well-established in architecture, but architects often find it is easier to specify them than it is to understand them.

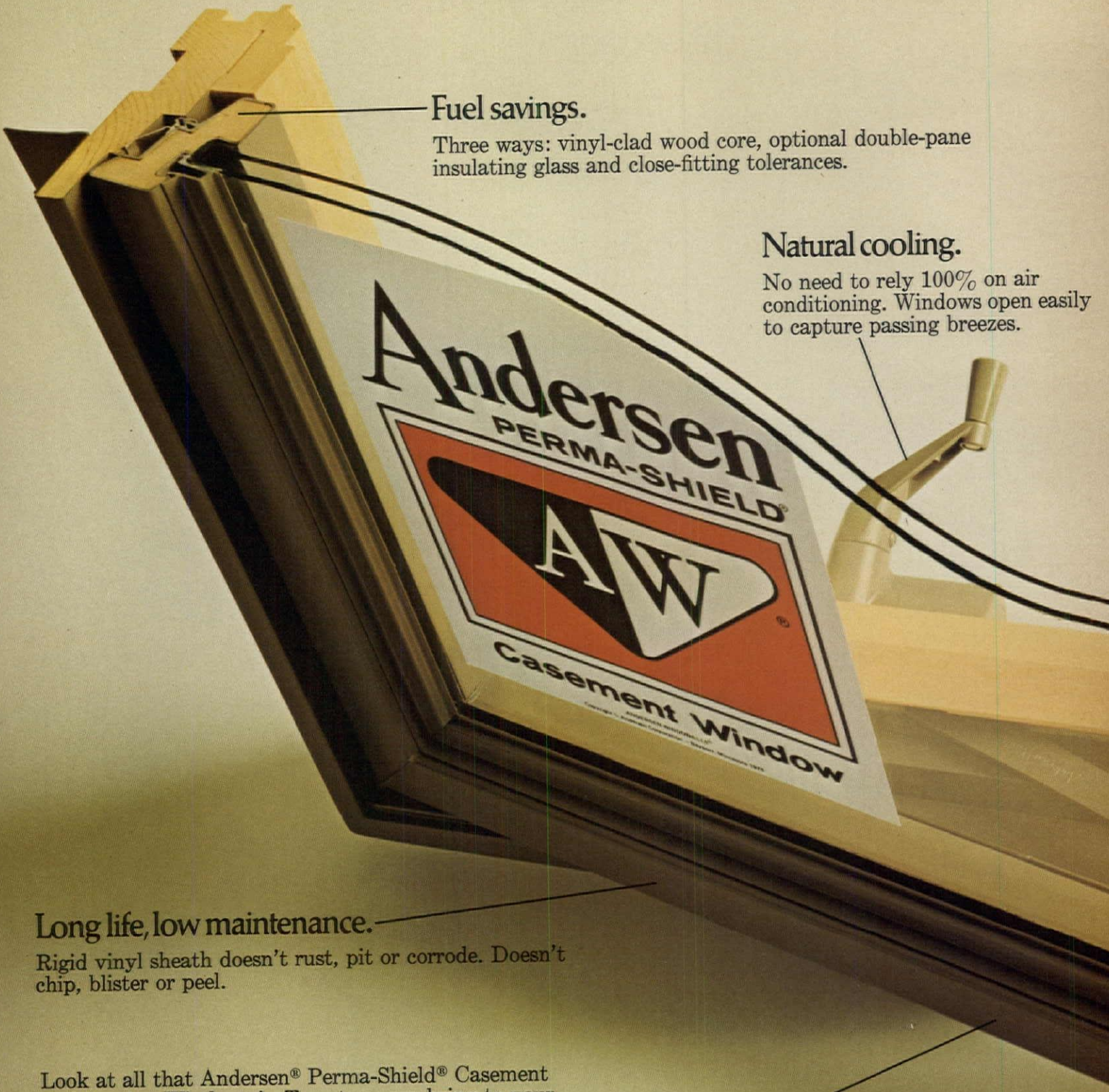
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Photogrammetry reconstructs man's field of vision in stereoscopic photographs which generate precise measured drawings.

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Cover: La Muralla Roja on Calpe Bay in Spain was designed by the Taller de Arquitectura, and can be seen in "The road to Xanadu and beyond," p. 68. Photo: Yukio Futagawa.



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Architecture and magazines

September 1975

Since you read architecture magazines, you may have noticed that you have fewer publications to choose from than you had last year and that they are somewhat thinner—in cross section if not in content.

The magazine *Architecture Plus* has published no issues in 1975 and is now disbanding its staff; launched in 1972, *Plus* purchased the assets of *Architectural Forum* last year (ending the competition between them) but was apparently unable to attract the revenues it required to meet its publication costs. The three U.S. architecture magazines now being published—*P/A*, *Record*, and *AIA Journal*—have printed a total of 17 percent fewer advertising pages and 6 percent fewer editorial pages so far this year than in the corresponding period of 1974.

You have probably assumed, quite correctly, that hard times for architects are not good times for magazines directed to them. This obvious point is borne out by the bound volumes of magazines in our library, which vary in thickness from year to year as building activity fluctuates.

The economics of magazine publication involve a rather complex relationship between a publication, its readers, and its advertisers. A very simplified summary of this mutual dependence may help you to understand the magazines better and appreciate your role in sustaining them.

Architecture magazines, like the great majority of magazines, derive only a fraction of their revenues from subscription fees, depending on advertising for the balance of publication costs—and any profit. To obtain advertising, they must identify advertisers interested in reaching their audience (in this case, mainly building materials producers) and convince these prospects of the value of advertising to their readers (as against readers of rival magazines, or of business, construction or homemaker magazines, or even television viewers). To do this, magazines compile audited statistics on their subscribers and various measures of their influence on the sales of products, which are communi-

cated through nationwide advertising sales staffs.

Advertisers must decide how to interpret the various magazines' presentations in the light of their particular concerns. They must consider, for instance, whether registered architects are more valuable to them than architectural designers, or whether engineers are influential in selection of their products. As an indication of the reader's commitment, they may consider whether he pays for the magazine or not, and if so what percentage of readers *renew* their subscriptions. As a measure of the reader's involvement in product selection and his attention to a magazine, they may consider the number of reader inquiries the magazine attracts in response to ads placed in it.

Your own role as a reader, then—quite aside from your role as an editorial *subject*—is far from passive. By subscribing, reading, and responding, the reading audience does much to determine which magazines flourish and what we publish.

To attract and maintain an enthusiastic audience, the magazine's editorial staff seeks to give you, the reader, valuable information and insights, to update continually your perspective on activity in the field and on technical and design possibilities. We want you to anticipate each issue, enjoy it, and benefit from it.

A critical aspect of our service to you is that we do *not* simply trim our editorial effort in proportion to revenues. When advertisers are forced to curtail their support, as they have been this year, editors and management make sure that editorial standards are maintained. At *P/A*, we actually enlarged our editorial staff in 1974, and we have recently developed a nationwide network of contributing editors as well. And—at *P/A*, only—there has been *no* reduction in editorial pages this year. Nor have we reduced the number of color illustrations, or the quality of our drawings or our printing, or the miles our editors travel for *P/A*. Nor do we plan any curtailment of our editorial effort.

John Morris Diefen

Views

House in nature

Aside from the elitist crap in the text, the Douglas House is something to get excited about. BRAVO Richard Meier.

Rex Mason
Houston, Tex.

When I first saw your July 1975 cover it occurred to me that I had seen that house, Richard Meier's Douglas house, before. I then realized that I had seen it recurring in "popular" architectural periodicals and ladies' home magazines for the past three years. But that should not be true, we are told, because it is "obvious" to anyone who understands P/A architecture that the house "represents an uncommon understanding and synthesis of modern architecture, a vision . . . that is only Richard Meier's." Just like it is obvious that large expanses of glass on an unshaded wall is responsible design.

I suppose I do not understand P/A architecture. P/A is a well constructed publication. Beautiful photographs. And to the ego, being the subject of a P/A article is quite prestigious; but to the intellect it is nearly an insult. "P/A architecture" has become a derogatory adjective to many because it is often unreal and rationalized architecture. It is supported by fashionable architectural theory and masked to appear real and virtuous. Like Meier's house. Like the philosophy behind its design.

Roger W. Harris
Student, Architecture
University of Texas
Austin, Texas

The Douglas house reviewed in your July issue is a powerfully heroic architectural statement developed from a precisely defined concept shared by the designer and his client. For these reasons, it is a successful building solution deserving of notice in your publication.

However, your article's brief discussion of Richard Meier's philosophies neglected to expose the limitations inherent in his conception of the relationship between "artificial" and "natural." Meier's beliefs appear to center on a theoretical incompatibility between man-made objects and entities formed by non-human natural processes. This view is in opposition to the fundamental order of reality described by empirical investigation.

Science has shown that the major difference between inorganic and organic matter is in the degree of structural complexity; and that the examples of these different levels of complexity found in nature constitute a continuum with no clear lines of division. Similarly, the technological expressions of human knowledge have evolved to a high level of organized complexity and belong within this natural continuum. The French philosopher-scientist, Pierre Teilhard De Chardin wrote: "Technology has a role that is biological in the strict sense of the word: it has every right to be included in the scheme of nature. From

this point of view, there ceases to be any distinction between the artificial and the natural, between technology and life, since all organisms are the result of invention. . . ."

Why express an incompatibility that does not exist? From this perspective, architecture that follows the beliefs of Richard Meier can only be described as eccentric.

Richard T. Varda
Madison, Wisc.

[Meier's beliefs do not "center on a theoretical incompatibility between man-made objects and entities formed by non-human natural processes." While it is true that he does make a distinction between the two, he does not consider them incompatible. As the article states, "It is only through this contrast . . . that the building and its natural surroundings can complement and, in fact, enhance each other."

It is the romantic attitude toward nature that Meier wants to avoid; that is, the attitude that gives rise to such a notion as "organic architecture," which suggests that architecture can in fact be "natural." Anything man-made, for him, is artificial, and to suggest that it is not is a conceit he wants to avoid—Editors]

A place for symbolism

We have just completed a new plane of existence that is simply reeking with historical allusions. The shell of our new home consists of soundstage walls and old movie sets purchased at the M-G-M auctions. Within these symbolic boundaries we have built delightful spaces in which our imaginations were allowed to "absorb and enjoy the influences available to us."

- 1 The Living Room is sheer sociological recollection, for we purchased a Pruitt-Igoe artifact from the St. Louis Instant Relic Company and this giant hive stands in all its broken glassed and smoke-darkened splendor within the delicately gradated pinks and oranges on the walls of the actual room. Visitors are awestruck and spend many happy hours sipping brandy and contemplating the "symbolic" destruction.
- 2 The Fun-and-Games Room contains a 77-ft tepee, the skin of which consists of copies of the Dead Sea Scrolls which were enlarged and silk-screened on the backs of rejected Roosevelt Memorial Competition Entries and unused Bicentennial Project Plans. A giant vermillion nose at the top adds to our tremendous enjoyment of the "ordered extension of man's idea about himself."
- 3 Our Kitchen contains the Parthenon with convenience outlets in the stately fluted shafts and the menu for the day displayed in the pediments. A mechanized Proust lounges at one end, dipping strawberries in sour cream, both of which we replace daily.
- 4 The Dining Space contains the Guggenheim Museum with changes in exhibitions every month. "Wonderful hedonism" is enjoyed here by all who wine and dine on the ramps.
- 5 In the Library we have installed the Palazzo dello Sport, the seats being used for shelves, of course. The large central "eye" at the top is purely symbolic, since the ceiling of the actual room is solid. It, indeed, makes it possible to better understand "the context of our situation on this earth."
- 6 The Master Bedroom is really an adventure in symbolic assemblage for in its center we have a clear plastic version of the Pyramid of the Sun,

Teotihuacan. The bed is at the top as are the flag-raisers of Iwo Jima, a clever life-sized sculpture built from 30 million WIN buttons. The ceiling has the complete shooting script of "Citizen Kane" reproduced in Eurostyle, Bold-Extended, l.c.

7 The seven Guest Bedrooms contain the Los Angeles Railroad Terminal, the Cathedral of Notre Dame, the Empire State Building, the Salk Clinic, the Taj Mahal, the Hoover Dam and the Berkeley Campanile. "No nonsense about integrated design" here! "Every part was conceived in separated isolation and made the most of."

8 We installed the Potomac River in one of the many bathrooms. The fixtures float in its lyric waters, Washington crosses every day at noon with a boatload of Plumbers, each of whom carries a copy of the Constitution signed by "Tip" O'Neil. The toilet flush activates the playing of the Battle Hymn of the Republic by the Telegraph Avenue Recorder and Mandolin Corps.

9 The exterior landscaping is magnificent, for the entrance acreage is an exact replica of the battlefield at Borodino complete with fallen and writhing soldiers and horses (all mechanized for a more realistic historical allusionary effect). The solitary Pierre appears, on the hour, from behind a clump of trees (birch, I believe) and walks, inconsolably, surveying the powerful scene.

Do drop in when you are in the neighborhood . . . here in "places that contain the diverse and contradictory experiences which we, as human beings, embody."

C. Kutsenkow
Walnut Creek, Calif.

Tradition without grace

I would like to thank Lebbeus Woods for his letter on the revival of historical image (P/A, June 1975, p. 9). What he said was not only important, but was written with a grace which is rare.

Which brings me to my question, which is, why were the buildings you published so graceless? Why the intentional ugliness of Moore and friends? In their acceptance of traditional image they are still rejecting traditional grace, poetry, beauty. Could it be that not the traditional image, but the lovely image is the ultimate crime against the modern movement?

As you may remember from the cover of January 1974 P/A, Lebbeus Woods not only writes but draws beautifully. I have not seen his architecture, but I am sure it is equally interesting. Instead of Mr. Moore and friends yet another time, perhaps you could publish some of Lebbeus Woods's projects?

Bruce Davis
Santa Fe, N.M.

Energy reading

I was also very pleased to see your recent issue (May 1975) dealing with alternate energy resources. Since Susan Ross's letter (July 1975, p. 8) suggested a "timely addition" to your bibliography, I must add another: *Solar Energy in Architecture, A Guide for the Designer*, is a must for anyone interested in solar-heated and cooled buildings. The reason that I call this to the attention of P/A readers, is that it is the first book I've come across which is aimed directly at the Architect (obvious by the title). I hope that other readers will find as much value in this "how-to" book as I do. *Solar Primer One* is published by [continued on page 12]



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Equally important is the matter of the market forces. Marketing studies indicate that the Georgetown Waterfront has tremendous drawing power for both residential and commercial development. Should the city overbuild on the waterfront because it is "hot" real estatewise? The city's market can absorb or attract, annually only so many dwelling units (in the price range) and just so many sq ft of office and retail space. Should this market be concentrated on the waterfront for the next few years or distributed to other parts of city—in particular, to the ailing CBD, the burnt-out corridors of 1968 or renewal areas? The study finding was that the market should be distributed to achieve a variety of planning objectives for the city.

The problem on the waterfront is not a resident-developer tug-of-war as implied in the article. The problem is the lack of adequate controls to assure that development which is planned for is in keeping with the Historic District established by Congress.

The article is insensitive to the historic preservation movement in many communities around the country. Most developers in those communities could also argue that the city "can no longer afford the luxury of so much prime, in-town land sitting idle and disheveled, that the pressure for development is much too strong." I

know of no historic preservation area in any major urban area in this country where this statement would not also apply. Fortunately, in many of those communities their historic heritage was more important than new development. These preservation efforts, in every instance, are the result of direct concerned-citizens' pressure and involvement. Three cheers for the citizens.

How naive can "responsible architects" be and the author to have naivete' to quote them. "Increased traffic flow should be remedied with sufficient on-site parking." Parking lots and garages are traffic generators—elementary textbooks on traffic engineering point this out as a maxim. One other point on parking, the Georgetown Waterfront Study clearly indicates that because of various physical problems, parking space below the first floor can only be provided at a *premium cost* to the developer. This would seem to indicate, at today's construction costs, that parking will be skimmed, if not eliminated.

As the theme of the June P/A points out, waterfronts around the country need to again become a part of the fabric of community having in many instances outgrown their earlier historic role. Unless the replanning of the use of this valuable environment resource is treated as *urban design* related to the community as a whole, we all stand to lose. Witness the architectural monuments to greed along the oceanfront at Ocean City, Md. and Miami Beach, Fla. Is this what the architectural profession envisions along our ur-

ban waterfronts?

The real battle for Georgetown is one of historic preservation, environmental improvement, sensitive urban design, and preservation of the market—both land and businesses. Overbuilding may win the battle, but Georgetown will surely lose the war.

Martin J. Rody, AIP, Study Director
Georgetown Waterfront Study
National Capital Planning Commission
Washington, D.C.

Most of Mr. Rody's points are covered in the article itself. With respect to limited traffic capacity, the article quotes the Georgetown Planning Group's recommendation of "no new development without major movement-system changes." The article makes clear his point that adequate controls would eliminate the current "tug-of-war" (but to date the tug-of-war has delayed adoption of such controls). The article recognizes the historic preservation movement, but points out that there is no "heritage" to preserve along the waterfront itself. The matter of parking and traffic is very complex: while on-site parking will not, we realize, ease traffic flow, it may reduce the on-street parking problem; on-site parking is not being "skimmed" in the projects now under way, as the writer fears, but amply provided; on-site parking is there because public transportation, which we agree is essential, is by no means adequate now. [Editors]

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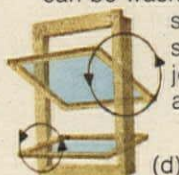
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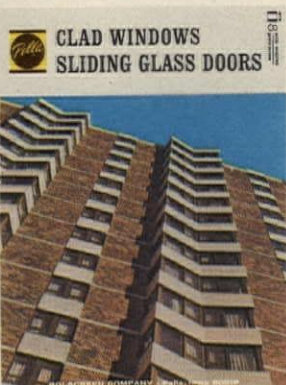


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ing that "Those who did well were those who didn't just pan gold but were there to help build up the land."

If any point could be stressed from the two-day seminar it's the reiteration of how different the Mideast market is—from patent and trademark agreements to the required reporting to the U.S. government of all inquiries from the Arab Boycott Office—and how thoroughly Americans must research the market before making a move. To this end numerous federal agencies and private groups offer services which in their own way are also gold mines.

Michael E. Card called his employer, the Export-Import Bank ("Eximbank") of the United States, "the best-kept secret" in Washington; Robert Pritchard of the Commerce Department was giving out "magic" phone numbers faster than one could write them down; and the U.S. State Department may soon, with its "commercial intelligence," give the CIA a run for the money.

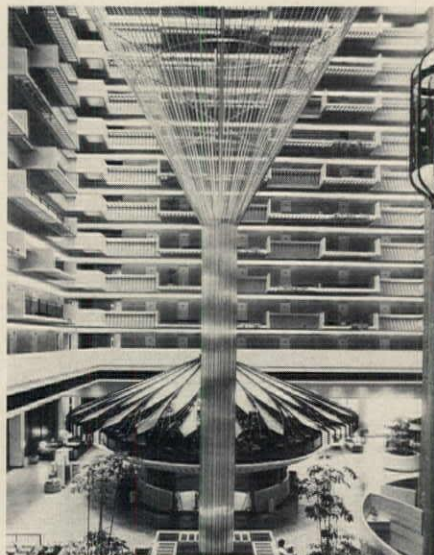
Audio and video tapes of the seminar are available from the sponsors, NABM, 1619 Massachusetts Ave. NW, Washington, D.C. 20036. They will be edited to 60 minutes per session. [AC]

Windows stolen from Wainwright

About 90 pairs of doorknobs and latch sets with the doorplates, stolen from the Wainwright Building, have been recovered, but 15 stained glass windows still are missing. The windows and ornamental hardware were taken from a padlocked 10th floor storeroom where they had been placed when the State of Missouri began rehabilitating the historic building for state offices.

Ralph J. Nagel, an associate of Hastings & Chivetta, architects (associated with Mitchell/Giurgola) for remodeling the landmark building by Louis Sullivan and Dankmar Adler, said that state officials had not heeded warnings that the material should have been stored elsewhere. He said that the firm recommended storing the windows at a stained glass firm and the hardware with a custom hardware manufacturer so that they could be refurbished and kept in safety while work was progressing on the building.

Each stained glass panel measures 4'x4'-6" with a design of squares within overlapping circles. They were from a skylight at the entrance to a first-floor restaurant constructed in the light well. John Celuch, curator of the Sullivan Collection at Southern Illinois University, Carbondale, believes that the restaurant was added within a few years after the Wainwright was completed. [George McCue]



"Flora Raris" by Richard Lippold.

New species for Portman's hotel

The largest sculpture ever erected in an Atlanta building has been dedicated in the main lobby of the John Portman-designed Hyatt Regency Atlanta hotel in Peachtree Center. The sculpture, a delicate, long-stemmed "flower" devised of aluminum and 24 carat gold-plated tubing, was created by Richard Lippold and commissioned by Portman to coincide with the hotel's \$5 million renovation. The 60-year-old sculptor, believing that art and architecture must respond to each other, created "Flora Raris" to complement the over-hanging Babylonian greenery, the bud-like forms of the elevators, and the suspended Parasol Lounge.

Mies office name changed to FCL

Partners of The Office of Mies van der Rohe, Chicago, have changed the name of the firm to Fujikawa Conterato Lohan & Associates (FCL) as a symbol of the major changes in architecture

which have occurred since the death of Mies in the fall of 1969.

"Social, economic, and technological changes have increasingly directed the firm towards a team approach to architectural practice," said the official announcement. The firm acknowledges a debt to Mies "and to a tradition of architectural practice based on the highest standards of professionalism and excellence of design."

The firm originated in 1940 when Mies established his Chicago practice, and in 1969, Mies formalized a partnership with his long-standing associates, Joseph Fujikawa, Bruno Conterato, and Dirk Lohan.

Hotel school seeking help from architects

Architects and firms with a background in hotel, motel, and resort design are invited to submit information on their projects both built and planned to the School of Hotel Administration, Cornell University. The school is preparing a directory of firms here and abroad that have hotel design experience to generate statistics on current hotel development. Interested firms should send a list of projects, date, location, and number of rooms to Richard Penner, School of Hotel Administration, Cornell University, Ithaca, N.Y. 14853.


Crime prevention as environmental design

The Law Enforcement Assistance Administration of the U.S. Department of Justice has picked Portland, Ore., as the site for a pilot study called Crime Prevention through Environmental Design. The program will focus on a 200-block commercial area with a high crime rate. Environmental modifications will include construction of passage corridors linking the shopping area and transit stops with the residential area; bus shelters with toll-free telephones to emergency numbers; new street lighting; and mini-plazas.

The program will be funded with \$780,000 in LEAA money, plus additional local and federal funds. The National Institute of Law Enforcement and Criminal Justice, LEAA's research center, will direct the program.

[News report continued on page 36]

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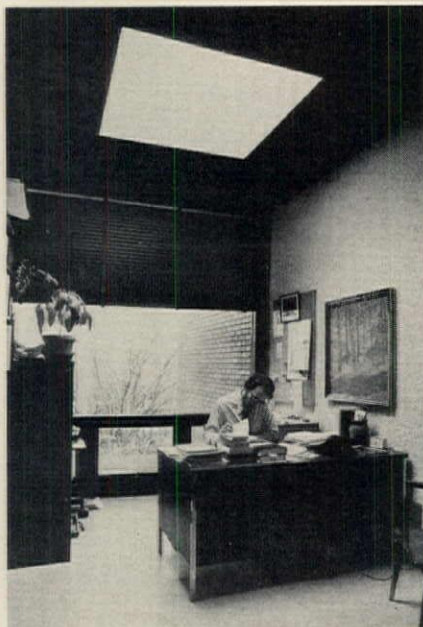
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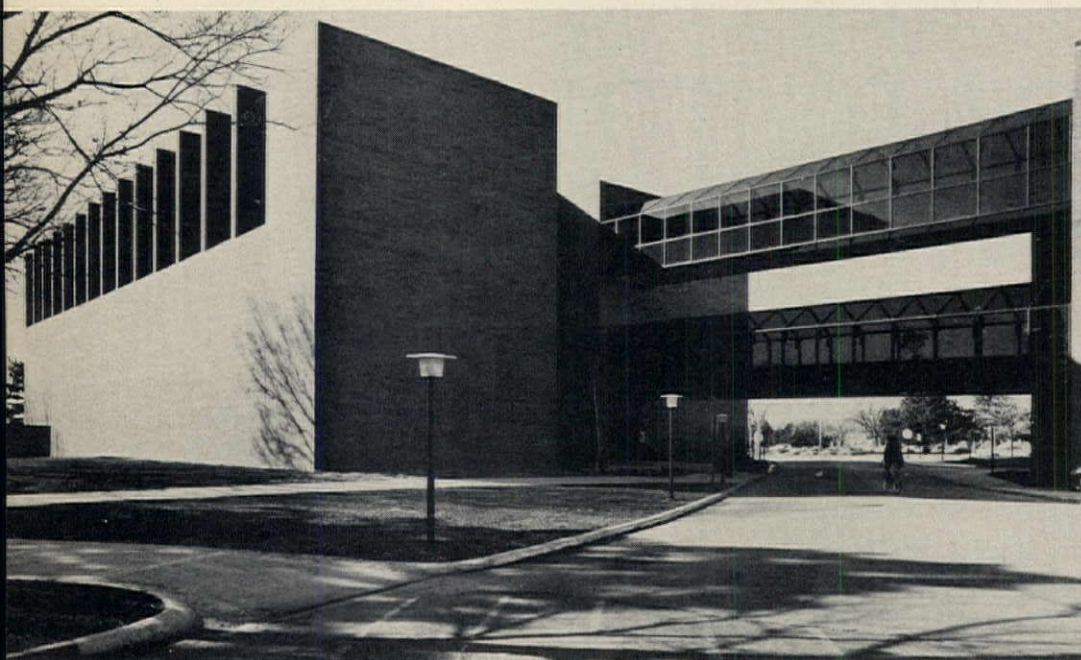
In perspective



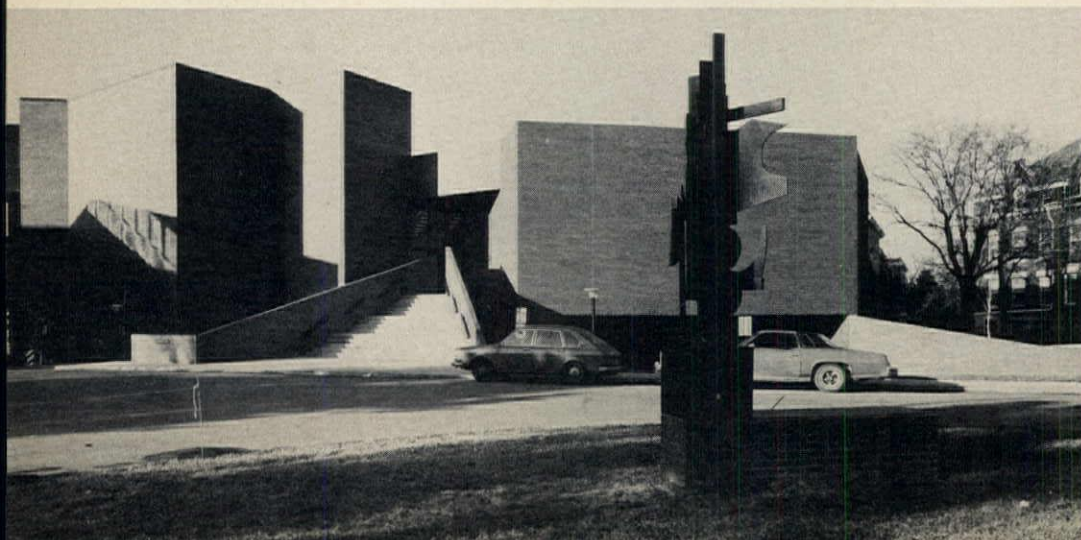
Front view of school wing.



Faculty office/studio with skylight.



School on west connects via glass walkways to east wing, the Edwin A. Ulrich Museum. Louise Nevelson sculpture faces main entry to museum; heated ramp just left of stairs.



Sunsets at McKnight

Among the numerous reasons Kansans give for liking their new McKnight Art Center at Wichita State University is the unsurpassed view of the prairie sunset it offers. During the week of opening celebrations last October, visitors invariably would cluster around the broad windows of the west building in the student and faculty studios to enjoy the 5 o'clock spectacle.

The building was designed by Charles McAfee of Wichita and took one of the four awards in the 1975 Kansas AIA competition. Jury chairman Richard McConnell of Cedar Rapids recalled the jury was somewhat disappointed that it couldn't differentiate among the buildings for top award—which would have gone to McKnight, he said unhesitatingly—since "we were all quite excited about it."

The building actually is two in one and was designed to relate to a third building hastily erected several years ago after a fire destroyed the art facilities. McKnight is the first building ever designed exclusively for the visual arts on campus. Its two parts are joined by a glass walkway at two of its three levels. The east building is a 6000-sq-ft museum with a floor for administration. The west building accommodates large painting workshops and smaller faculty studios with individual skylights. These are located off a corridor which wraps around a skylit central court that provides additional exhibition space for student-faculty work.

Most everybody remarks on the numerous stairs in the building, but nevertheless the building is completely barrier-free to those using wheel chairs. A ramp entrance to the museum is heated in winter to melt snow and ice.

The new structure relates to the existing one by a lower level ramp on the museum wing. Construction took five years to complete during which time the art school enrollment increased 50 percent to 450 majors. The color scheme is black tinted glass and red-brown brick against white carpeted walls and black slate floors.

[News report continued on page 39]

In an office, tile should be seen and not heard.

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DOVER Stage Lifts

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Birmingham-Jefferson Civic Center Theater and Concert Hall,
Birmingham, Al.

Architects: Geddes Brecher Qualls Cunningham,
Philadelphia, Pa.

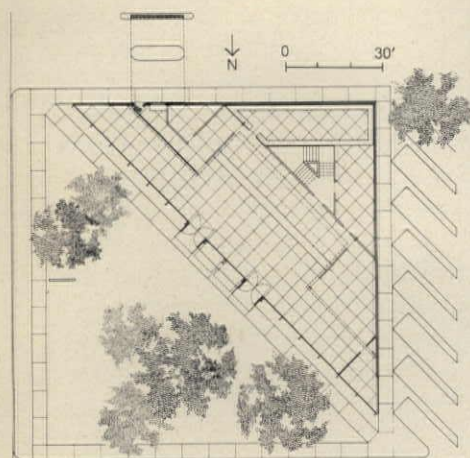
Construction Management/Consultant: Turner Construction
Company, Cincinnati, Oh.

General Contractor: Brice Building Company, Birmingham.

Theater Consultants: Jean Rosenthal Associates, Inc.,
Orange, N.J.

Dover Stage Lifts installed by
Dover Elevator Company,
Birmingham.





Bank sits diagonally on its site.

Triangle plan for difficult site

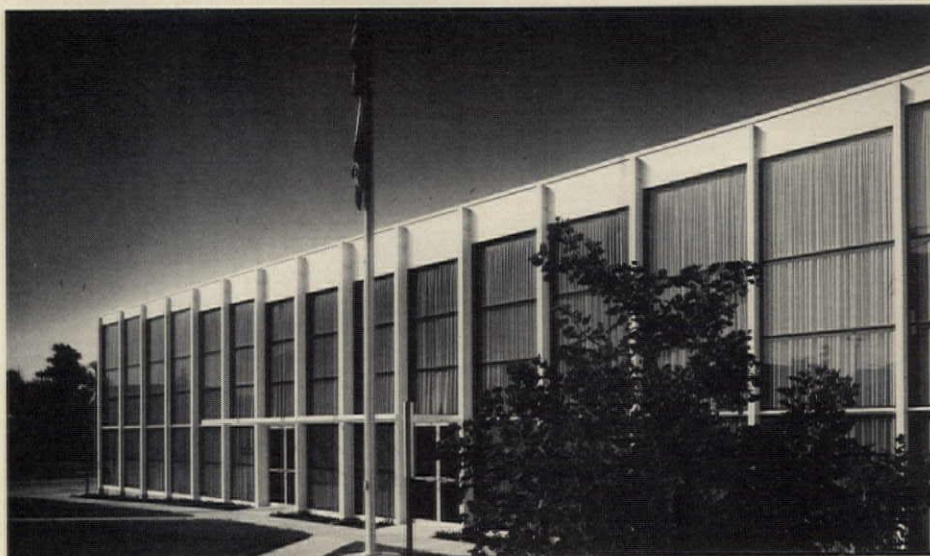
Small branch banks can't disappear into the green; they must be visible from the street, preferably the inside and outside. If the site is a typical run-down Hollywood street, lined with nondescript one-story white plaster commercial buildings, a glass wall has nothing to give or receive.

When Security Pacific National Bank came to Craig Ellwood Associates with just this situation, it posed a double problem because Ellwood has an elegant way with glass walls. For a 1958 Manhattan Beach bank, Ellwood filled in the façade with glass and set a metal grille in front of it—there was ample land to do it. But the site for the Hollywood-Western branch of Security Pacific is cramped.

After allocating a strip on one side for an in-drive and on the other for an out-drive, and providing 29 slots for cars in the back, all that was left was a 104-ft square. The problem then was how to design a 5000-sq-ft bank that wouldn't flaunt itself as a silk purse or sink to the mean level of the street.

Ellwood cut the 104-ft square diagonally and planned the triangle at the front as a small park with trees and grass and the other triangle as a two-story bank. The scheme provided good access and visibility because one angle of the bank is close to the street and to the drive-in teller's window; the second angle is by the parking lot.

The north and west walls, of brick, are along the in-drive and the parking lot. The hypotenuse is a glass wall fac-



Photos: Glen Allison

Columns and beams become progressively smaller to reflect loading condition.

ing the park. This northeast exposure is a source of soft natural light for the interior work spaces. The foreground park and unobtrusive building bless pedestrian and street equally: a first step in the direction of friendliness amid commercialism.

The first scheme was to triangulate the framing, but this proved to be fussy and raised the cost. Reluctant to give up the two-story triangular plan because it worked on the site, Ellwood devised present variation. The sizes of columns and beams are progressively reduced and the fascia is stepped to reflect the changing loads. The beams are reduced from 30 in. at the 72-ft span to 8 in. at the 8-ft span. The wide-flange columns are 16 in. at the center of the hypotenuse and dwindle to 4 in. at the brick side walls. The plan and framing are depicted symbolically in a frieze above the tellers' counter.

The 1000-sq-ft mezzanine accommodates a lounge for 15 employees, toilets, storage, and mechanical equipment. Thus the greater portion of the first level reaches the bank's full 21-ft height. [Esther McCoy]

Snowmass-at-Aspen: a grand experiment

The Commission on Environment and Design of the American Institute of Architects experimented by having all 13 of its committees meet concurrently this summer in Snowmass-at-Aspen to take a hard look at AIA operations. Nine topical workshops considered high-priority issues and submitted on-the-spot reports of the findings. When



Frieze symbolically shows the bank's triangular plan and framing.

taken as a whole, these reports pictured a profession lacking clarity and self-confidence—not an uncommon situation these days.

The workshop on Land Use and National Growth Policy decided a new system of public controls should be devised and property rights re-examined. Because the federal government is backing away from land use policy, this gathering recommended the AIA's shifting its policy focus to state and local levels. Some members felt the central city was "totally obsolete" and that suburbs will be the future urban form. Suggested also were stronger and more specific AIA stands on housing.

The group considering the energy question recommended that all entrants in the AIA design awards competition be required to submit energy performance data and that a separate honor award be presented in the energy category.

The federal government—primarily

News report

Ford's administration—received from those in the financing workshop a rebuke for the government's lack of support during the construction crunch. But the architects admit helplessness. "It seemed outside the ability of the group to figure out how to level off the economy even if we could elect the administration . . .," said an unidentified member. It was recommended, however, for the AIA to lobby for longer mortgage periods that would coincide realistically with the life of buildings—as in Scandinavian countries where 50-year financing is common.

Those who discussed future roles for the profession came to the point quickly about the long range picture, where the architect must know what people need (not want) and be skillful in working with scarcity of resources, before turning to a more lengthy discussion of the short range problems. The outlook here was somewhat nihilistic as members suggested the AIA

advise students there are more studying architecture than jobs available.

The workshop on research in design observed that architects "are increasingly uncomfortable with making intuitive leaps in decision-making" and yet there still is not a clear idea of what constitutes good, basic architectural research. They suggested a task force identify needs and form a plan.

Personalities

George Gentoku Shimamoto, AIA of Gruzen & Partners, New York and Newark, N.J., has received the Order of the Rising Sun in the name of the Emperor of Japan for exceptional achievement in culture.

Vincent G. Kling, FAIA of The Kling Partnership, Philadelphia, has been appointed consulting architect for the Metropolitan Atlanta Rapid Transit Authority.

Joan K. Davidson has been named chairman of the New York State Council on the Arts.

Arthur P. Solomon, Department of Urban Studies and Planning at the Massachusetts Institute of Technology, has been appointed director of the MIT-Harvard Joint Center for Urban Studies, Cambridge, Mass.

Hugh A. Stubbins, Jr. of Hugh Stubbins & Associates, Inc., Cambridge, Mass., has received the Gold Medal for Distinction in Design by Tau Sigma Delta, national honor fraternity for architecture and the allied arts.

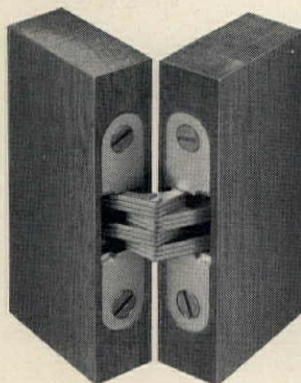
Jean Labatut, Professor of Architecture, Emeritus, Princeton University, was awarded an honorary degree by Princeton.

Calendar

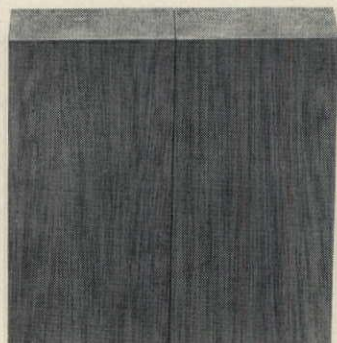
Through Oct. 19. "Art for Architecture: Washington, D.C. 1895–1925" exhibit, Renwick Gallery, Washington, D.C.

Sept. 15. Deadline for entry slips in American Institute of Architects Honor Awards Program, Washington, D.C. [continued on page 45]

The hinge that hides

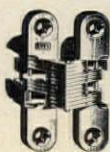


NOW YOU SEE IT

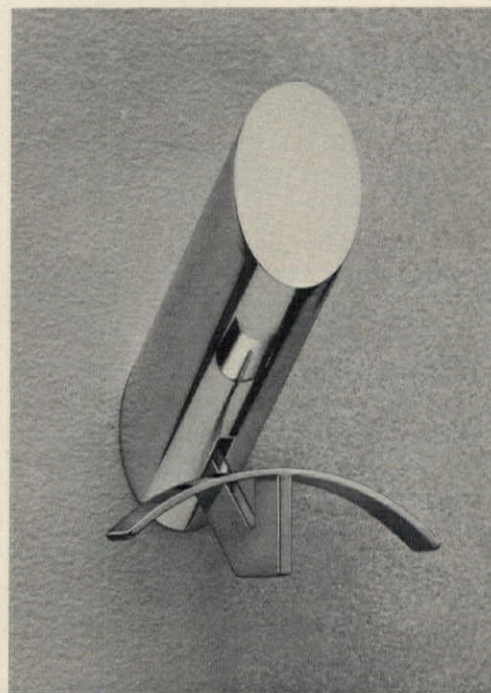


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News report continued from page 40

Sept. 15. Registration closes for competition to design altar stages for International Eucharistic Congress held Aug. 1-8, 1976, Philadelphia. Entry deadline Nov. 1. Write Mario Romanach, AIA, 117 S. 17 St. Philadelphia, Pa. 19103.

Sept. 24-26. National conference on neighborhood conservation, initiated by the National Endowment for the Arts, McGraw-Hill Conference Center, New York City.

Sept. 24-28. Convention of the National Association of Women in Construction, Denver, Colo.

Sept. 26-27. Workshop on pre-stressed membrane structures, School of Architecture-Extension, University of Wisconsin, Milwaukee.

Sept. 26-29. National conference on urban restoration, "Back to the City," St. Paul Hilton, St. Paul, Minn.

Sept. 29-30. Symposium on the arts, University of Texas, Austin.

Oct. 3-4. Paolo Soleri Benefit Show,

Spirit of Earth gallery, Ney Alley, New Hope, Pa. Soleri will lecture and hold informal discussion. Exhibit includes new "Two Suns" series, sculpture, and jewelry.

Oct. 5-11. Fire Prevention Week sponsored by the National Fire Protection Association.

Oct. 6-8. Fourth annual Architects in Industry Seminar, AIA headquarters, Washington, D.C.

Oct. 7-12. Annual meeting of the National Trust for Historic Preservation, Statler Hilton Hotel, Boston.

Oct. 9-10. "Issues 76—Public Policy and the Built Environment" conference, Harvard Graduate School of Design, Cambridge, Mass.

Oct. 9-12. International Building Exhibition, Industry Building, Exhibition Park, Toronto, Canada.

Oct. 10-Nov. 16. Major exhibition commemorating 150th anniversary of the National Academy of Design, New York City.

Oct. 12-18. Conference of the National Association of Housing and Re-development Officials, Biltmore Hotel,

Los Angeles, California.

Oct. 21-23. National Association of Building Manufacturers national building show, McCormick Place, Chicago.

Oct. 27-30. Annual conference of The Producers' Council, Inc., Sonesta Beach Hotel, Key Biscayne, Fla.

Oct. 29-Jan. 4. "The Architecture of the Ecole des Beaux Arts" exhibit, The Museum of Modern Art, New York City.

Nov. 3-6. International Energy Engineering Congress and Exposition, McCormick Place, Chicago.

Nov. 3-7. Annual convention of the American Society of Civil Engineers, Denver, Colo.

Through Nov. 9. "A Modern Consciousness: D.J. De Pree and Florence Knoll" exhibit, Renwick Gallery, Washington, D.C.

Nov. 12-25. Interbuild building exhibition and conference, Olympia Hall, London, England and aboard the Queen Elizabeth 2 passenger ship.

Nov. 15. Deadline for entries in the Concrete Reinforcing Steel Institute Design Awards Program, Chicago.

[continued on page 46]



Cabot's BARN BOARD STAIN

In answer to the demand for a stain that will simulate the weather-beaten appearance of old barns, Samuel Cabot Inc. has developed Cabot's #1299 Barn Board Stain. This new stain is antique gray in appearance, has a darker and more weathered look than the other grays in the Cabot line. Cabot's Barn Board Stain is a uniquely transparent stain that accents the variations and irregularities of the wood surface, producing the soft, aged look of old barns. It is particularly effective on rough-sawn lumber. This new stain has many applications . . . provides rustic atmosphere for interiors or exteriors . . . for paneling, beams, siding . . . for homes, vacation cottages, motels, restaurants.

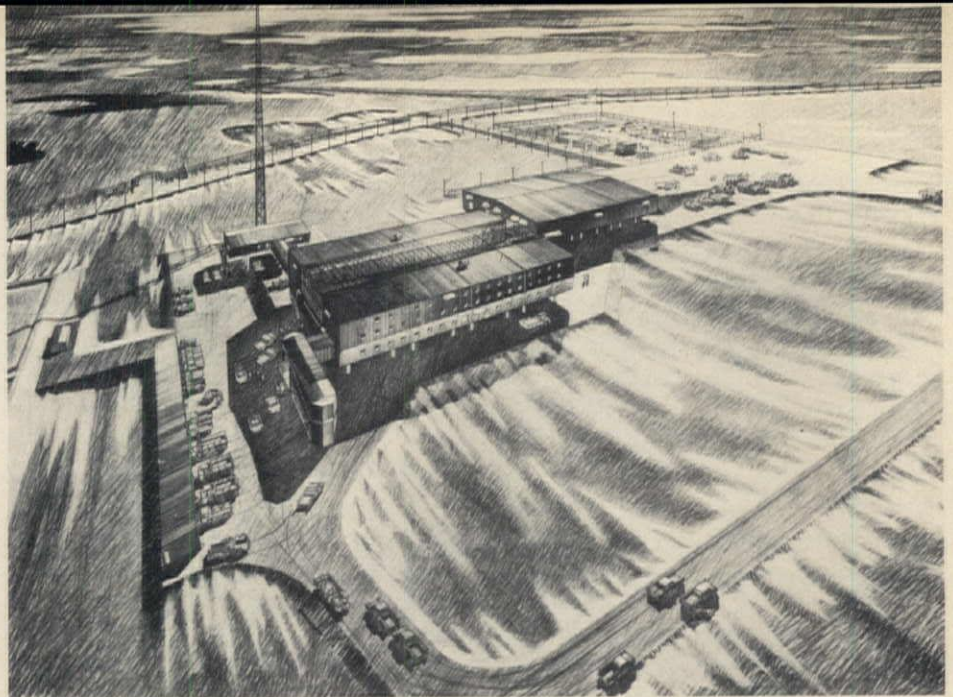
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In progress



1 Arctic base made from "super modules" barged to Prudhoe Bay, Alaska, from Houston.

1 Alaska's snow-bound ship—Frozen tundra of Prudhoe Bay, Alaska, remains covered with snow nine months of the year and has a "vast, oceanlike quality." Thus, when Wallace, Floyd, Ellenzweig, Moore of Cambridge, Mass., approached the design of the BP/Sohio Operations Center at Prudhoe Bay, they sought to give the complex the "feeling of a ship floating on a tundra sea." The three buildings are held seven ft above ground by steel pilings which prevent heat transfer to the permafrost. The architects had to face such physical and psychological extremes as minus 150 F air temperatures, cold which can change the molecular structure of steel, and 56 sunless days in winter. The main building of the three is a residence for 150 individuals tending BP's oil fields. It includes a pool, sauna, greenhouse with a cluster of birch trees and a tall pine tree, and an astroturf game field. Expansion of the year-old facility already is in progress, with WFEM preparing the designs. Included are an emergency services facility to open in December and a main operations building scheduled to be ready in early 1977.

2 UT Art & Architecture Building—The Knoxville firm of McCarty Bullock Holsaple has won a competition to design the new \$8 million University of Tennessee Art & Architecture Building, Knoxville. The building when finished in 1978 will complete a quadrangle of structures comprising the humanities building, the theater, and the music building. The solution is a four-story linear structure with a central, skylit court. The exterior walls will be a combination of precast concrete panels of a textured finish, poured-in-place concrete, metal panels, and heat-absorbing glass. Adjustable exterior shades will protect the glazed areas. The firm was selected from among five finalists; 43 Tennessee firms competed. The jury members were George Anselevicious of Harvard University; Bert Berenson, University of Illinois, Chicago; George Qualls of Philadelphia; Harry Wolf of Charlotte; and Gerald McCue of the University of California at Berkeley. The Tennessee legislature is expected to approve the bonds in early 1976 and construction is to begin in the spring.

3 Downtown dinner theater—John Portman's faith in Atlanta's Central Business District remains strong as evidenced by the new \$2.5 mil-



2 Winning solution for Art & Architecture Building at University of Tennessee.

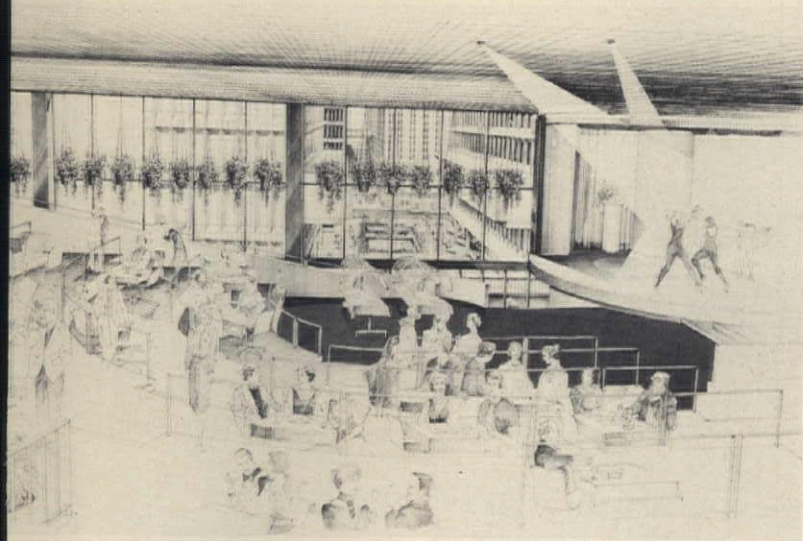
lion dinner theater scheduled to open this month atop Peachtree Center's Shopping Gallery. The 525-seat Midnight Sun Dinner Theater will be operated by a partnership of the Midnight Sun restaurants, and Coastal Theatre Productions Inc. of Sarasota, Fla. It will occupy 20,000 sq ft on three terraced levels.

4 After the freeze—A low- to moderate-income residential community, an \$11 million project delayed considerably by the 1972 federal housing freeze and one of the last 236 interest-subsidy projects to get underway, is under construction in the Bedford-Stuyvesant area of Brooklyn, N.Y. Designed by Harry Simmons & Associates of Brooklyn, (winners of the contract in a local competition sponsored by the non-profit corporation that acted as co-developer), the 267 units are focused inward around a central court with two controlled entries. Three- and four-bedroom duplexes with direct access to the court are for large families; one- and two-bedroom units will be in midrise buildings for small families, the elderly, and the handicapped. Off-street parking will be provided as well as shopping, recreational, and day-care facilities. Completion is anticipated to be January 1977.

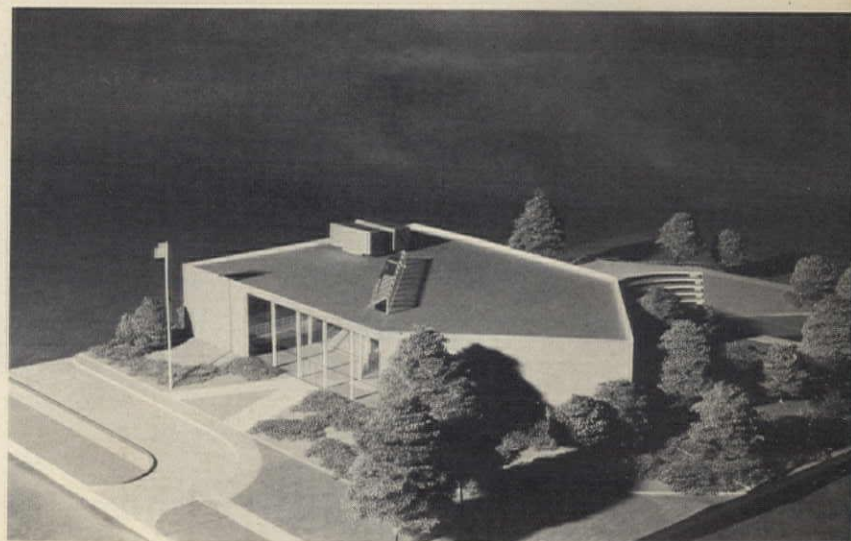
5 Organization man at play—The Community Building for Park Forest, Ill.—that post-war new town south of Chicago researched in depth in William Whyte's *The Organization Man*—is nearing completion and should be ready for a

November opening. Architects for the \$500,000 split-level brick structure are Booth & Nagle, Ltd., of Chicago. From the entry one may proceed into the auditorium or go upstairs to a level containing two meeting rooms or downstairs to an exhibition area and craft workshop. A skylight slit illumines the interior so that those driving by during the day may see deep into the building while at night the opening allows light to shine through, enhancing the building's appeal as an activity center. The structure is designed for gnomic expansion—that is, growth by adding only the minimum number of sides to form an extra room.

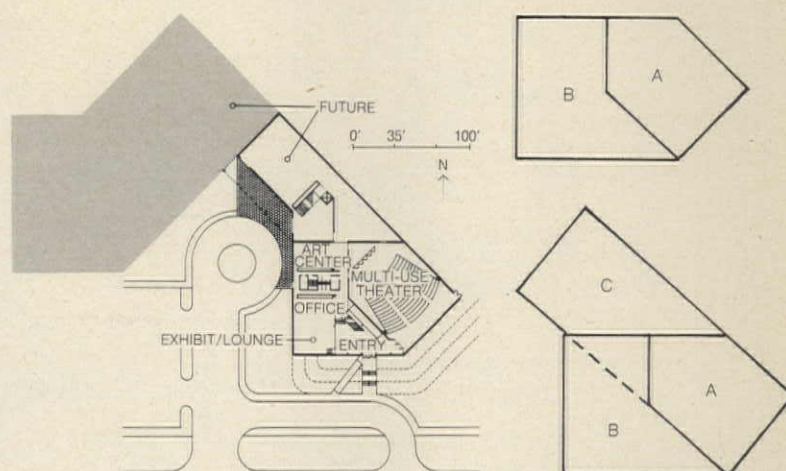
6 Anacostia River Park—The National Park Service is concentrating on the nation's capital for this bicentennial season, and among its projects is a \$2 million improvement of the Anacostia River Park. Located within the District, the park serves a community of families, many of them black. Architects Keyes, Lethbridge & Condon together with the black social planning firm of BLK, both of Washington, after interviewing residents, determined a planning course calling for four "nodes" at access points along the narrow strip of the river's east bank. Each node's construction is of heavy, vandalproof timber and includes basic amenities such as tables, as well as extras like sprinklers for children. Only one node has been built, but construction also is underway on a 140' x 240' multipurpose shelter to be used for roller skating and rock concerts.



3 Year-round dinner theater by John Portman for Peachtree Center.



5 Split-level community center (above) with ground floor plans (below).



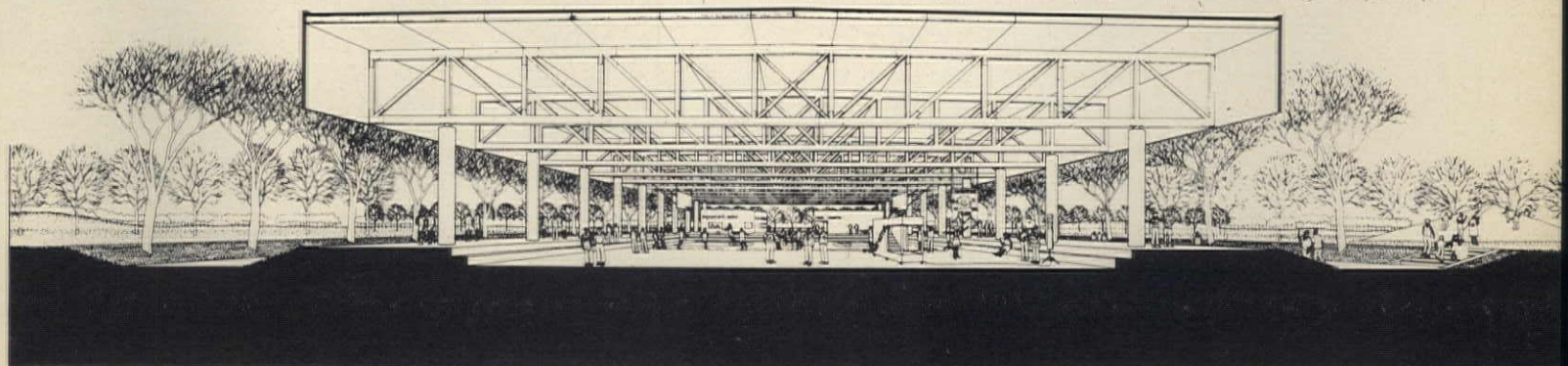
Right diagram shows growth of "gnomon"—theater as prime form A repeated in shape A + B. Part C is not pure but keeps advantages of gnomonic system.



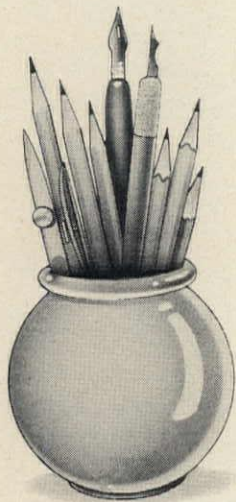
4 Low-rise units (above) part of courtyard 236 development.



6 Activity node (above) for riverfront park; multi-purpose skating rink (below).



THE TEST NO OTHER PAPER CAN PASS.

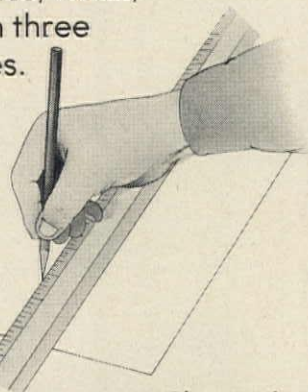


The test is a basic one. There are no special tools required, just a drafting pencil or pen, an eraser and a light source.

What you do is draw, erase and redraw a line —on the same line. Do that once, twice, even three times.

You might even want to fold it or try to smudge it.

Then hold your paper up to the light. Look for ghosts, those erasures that will appear in reproductions.

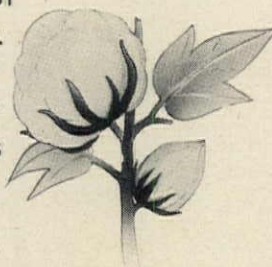


Unless your paper is Clearprint, you will see ghosts, so will your reproduction equipment.

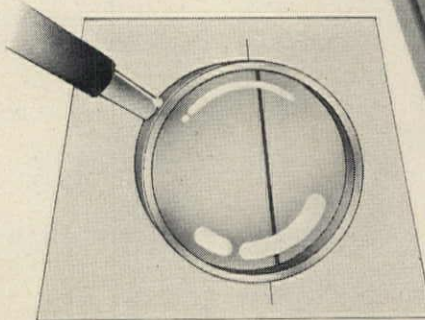
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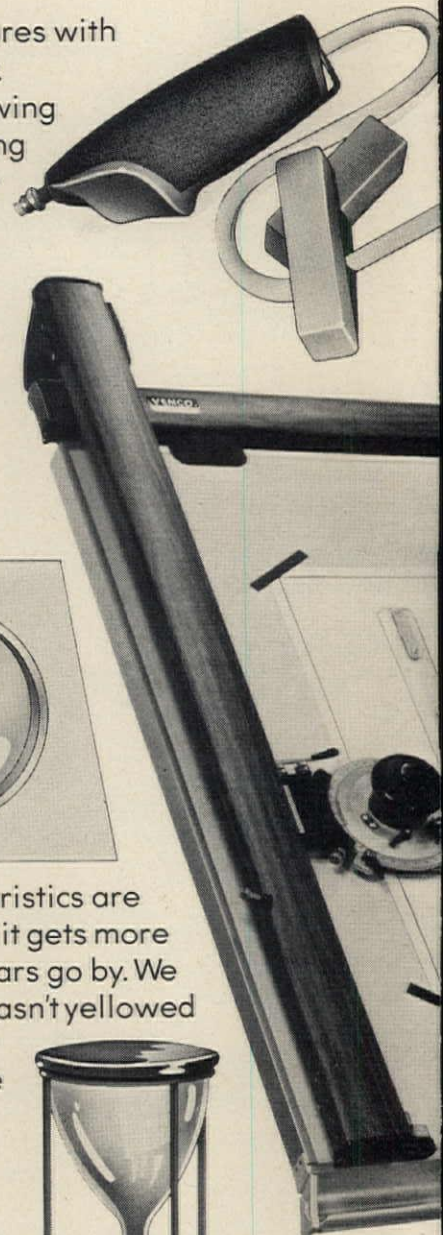
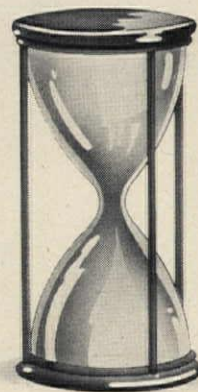


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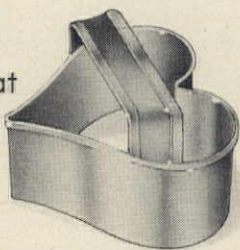
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In perspective

Dayton diagonal

Images are big business, especially for banks. When the Homestead Federal Savings and Loan Association decided to upgrade their identity in downtown Dayton, Ohio, they had several things to consider. First was the soft leasing market—it seemed unwise to go into the market with unneeded office space. With their architects, Richard Levin Associates, Inc., the bank's officers determined that the new facility would not be in a new high-rise. The site chosen, however, was directly across from another banking tower, and in order to keep from being "the little bank across from the big bank," something special was needed.

The corner site, at the junction of two one-way streets, suggested a triangular plan form to the architects, and they wanted to make the bank's presence as dramatic as possible. Reflective glass was ruled out, because there was no desire to mirror the somewhat lackluster surrounding area. It was decided that the dramatic-object effect wanted could best be accomplished in stainless steel. The wall diagonally cutting the corner was conceived as a gigantic minimal billboard, virtually free-standing in front of the building. The main banking area is joined to the wall by a 40-ft-high skylight and glazing band, with ground floor entries at either end, serving each street equally. Views from the second floor areas are into the high main floor space, and through glazing on the bank's north façade, which also serves the other floors. The third floor, for now, will be leased.

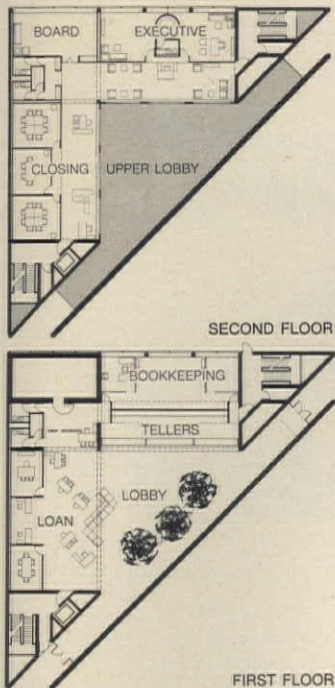
Visual amenities for the neighborhood were carefully planned, as well. For the street-level public, there are trees, benches, a fountain, and a delightful variability of reflective effects from the "billboard." Extremely conscious of avoiding an ugly roofscape for those neighbors above the third floor, the architects and engineers kept the roof as clean as possible. The final touch, designed by Mike Drummer of the Levin office, was a giant painted rack of billiard balls. [JM]



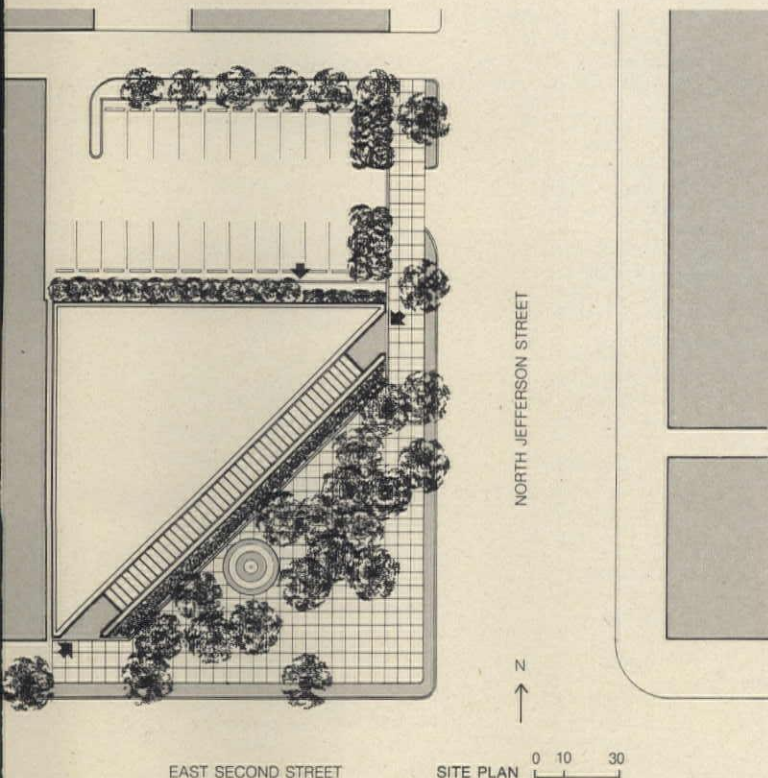
Behind the minimal "billboard" (above), a two story banking space and lobby.



Photos: George Cserna



Billiard balls, racked on a clean roof (above), give the neighbors a multi-colored alternative to standard views.



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In perspective

Bon voyage!

The main buildings of Airport Charles de Gaulle are visible far in the distance as one approaches from Paris. The control and water towers are elegant and aloof, appearing alone on a great flat plain. The terminal building, a large, flat cylinder, looms up and then disappears behind a roadside mound. The road drops slightly, bears right and ducks under an aircraft taxiway. From under this bridge the terminal suddenly reappears, framed by the roadway structure. It presents a powerful image, a highly textured construction of ramps and shaped columns at the base giving way to a solid cap above.

Arrival provides the next set of pleasant surprises; the simplicity, clarity, and speed of the process of arrival is, compared to innumerable bad examples, overwhelming. One approaches the terminal, chooses between the arrival or departure ramps, and moves around the building perimeter until the correct airline name appears. The fact that the road is on the perimeter creates a favorable ratio of road length to building frontage, and helps relieve the standard vehicle congestion. For passengers arriving by private vehicle, parking on top of the terminal minimizes walking distances. The experience is quite direct and gives the traveler immediate respite.

The entrance to the terminal itself is through one of the large glazed openings in the exterior wall; only steps away is the highly visible, automated ticketing and baggage check area.

The check-in process moves travelers naturally toward the center of the building on a radial line. The building is a doughnut with a glass-enclosed circular atrium. Immediately surrounding this atrium, and within the ticketing ring, is a double-height lobby. Within the lobby, departure information displays are equally spaced around the ring. When the departure gate is

posted on the display, one can select any of the three automated pedestrian ramps spaced 120 degrees apart and move across the atrium. The pedestrian ramps are guideways which move through clear plastic tubes rising up to the gate level. Since the gate level overlooks the lobby, the moving process is straightforward, visible, and easily comprehended. The traveler is always oriented (to the atrium) and can move about with ease.

Arrival at the gate level is equally straightforward. Coming off the ramps, one moves circumferentially until finding the desired gate number and then continues radially. For the traveler, this circumferential movement near the center of the ring is relatively short and convenient. The key to the whole complex seems to be in its compactness.

The final movement toward departure is made radially on another automated guideway through a concrete tube to the last departure island. The tube moves out of the upper terminal area over the roadway and then down under the aircraft taxiways and finally up into glass boarding islands. The airplanes can approach these islands from almost any angle. Again, the lack of circulation conflicts eliminates the need for tedious solutions like finger piers and their attendant problems.

Other points worth noting are that arrivals, concession, and parking areas are stacked above and below the departure levels and work in a similar manner. Also, elevators are located at quarter points around the perimeter and supplement more elaborate movement within the terminal complex.

From arrival at Charles de Gaulle Airport until takeoff, the traveler must be impressed with the simplicity, ease, and clarity of the process achieved by chief architect P. Andreu and the Aeroport de Paris committee. [Jeffrey Heller] (Mr. Heller is a San Francisco architect.)



De Gaulle terminal: "a powerful image."



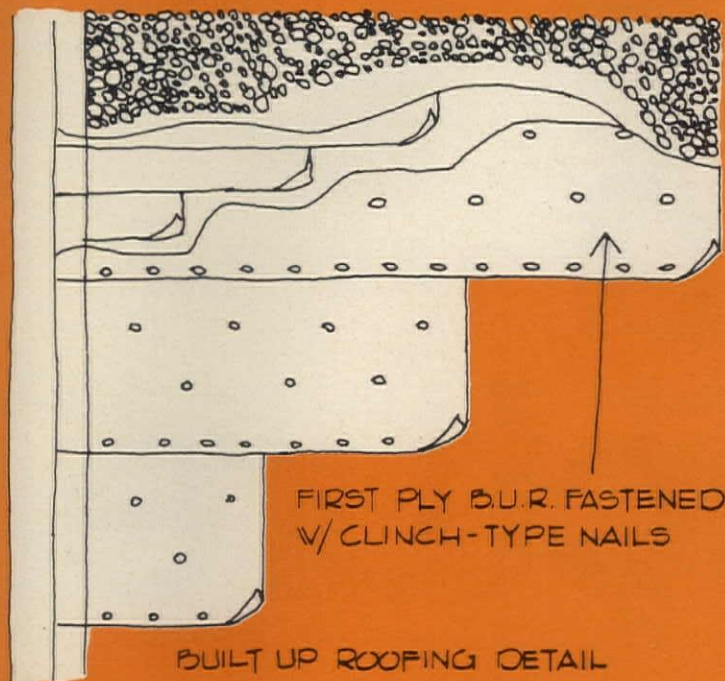
Entry to pedestrian tube across atrium.

Waiting area in a satellite departure island.



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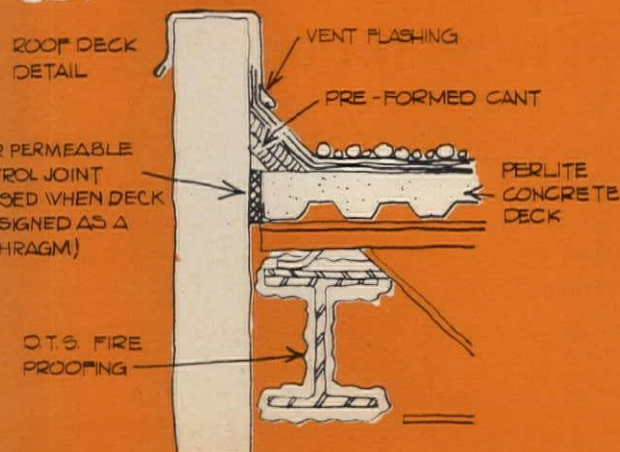
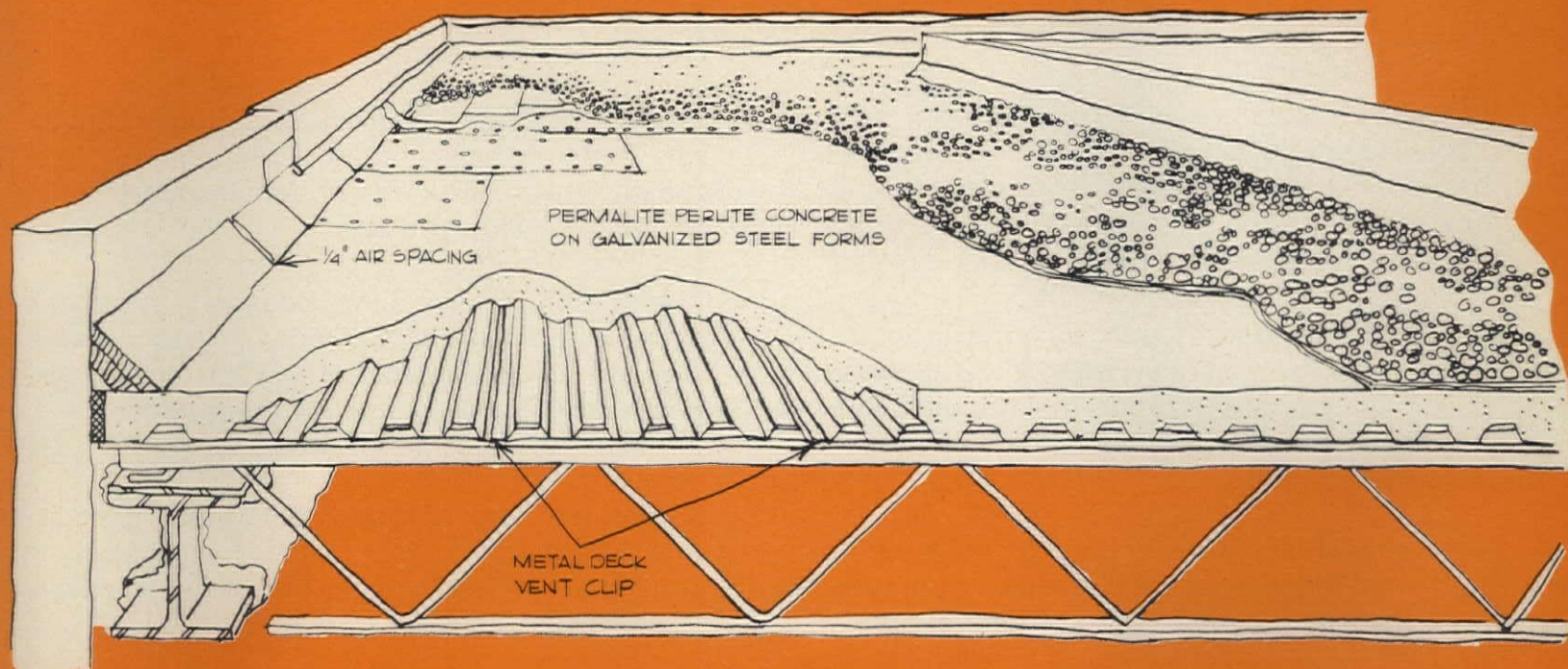


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P/A in October

wood in architecture

Wood in architecture will be the topic of a major **Technics** article in the October issue, which will be complemented by presentations on several new buildings (and an old one) that make outstanding use of this natural resource.

P/A technical editor Roger Yee turns his inquisitive mind to the American **wood industry**, investigating industry organization, market forces, new processes, and exemplary applications, illustrated with details.

The Market Place, Glastonbury, Ct., an 80,000 sq ft **retail-office-restaurant complex** by architects Callister, Payne & Bischoff, demonstrates the skill of this California-based firm in handling wood.

Myott Park, Omaha, by Neil Astle & Associates, Architects, is a 219-unit **housing development** that overcame time, budget, and agency constraints to achieve design distinction — using wood.

The Native American Center, Minneapolis, is the first **neighborhood center** built to serve urban

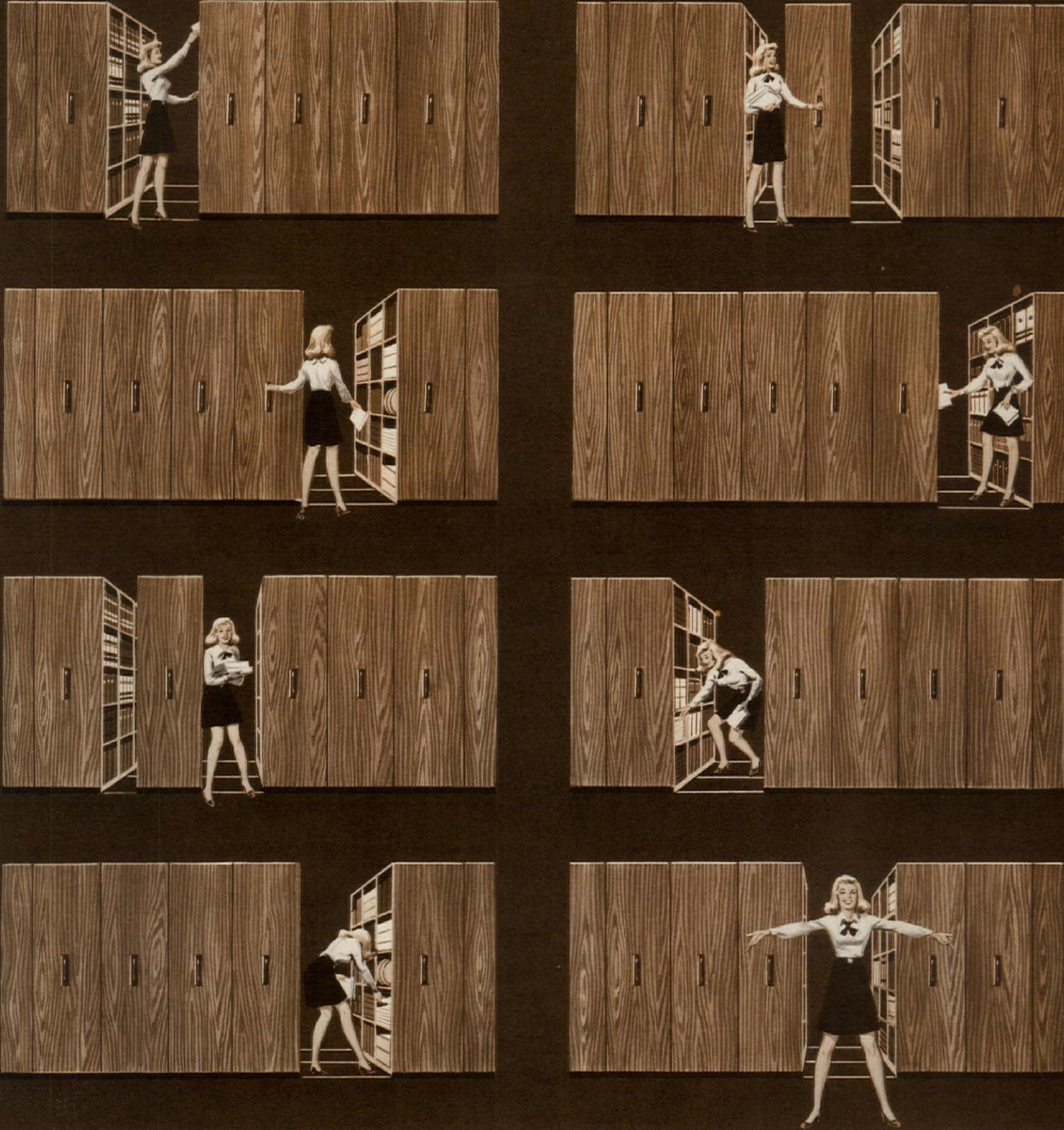
American Indians. The architects, Hodne/Stageberg Partners, have created a dramatic, yet straightforward structure based on concrete columns and wood girders.

Interior architecture: Butler Square, Minneapolis makes brilliant use of the timber structural frame of an **old warehouse**, exposing it in a nine-story atrium which is the focus for 500,000 sq ft of offices. Architects: Miller Hanson Westerbeck Bell.

Corporate design programs will be examined in an article by Ann Nydele, based on interviews with the executives and designers responsible for them.

and in November

The design and function of **performance halls** will be covered in a number of related feature articles: a **Technics** article on **stage design**; an Interior architecture feature on **acoustics** of halls; views of several **new buildings** for the performing arts and one fine movie-palace-turned-concert-hall.



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By reflected light

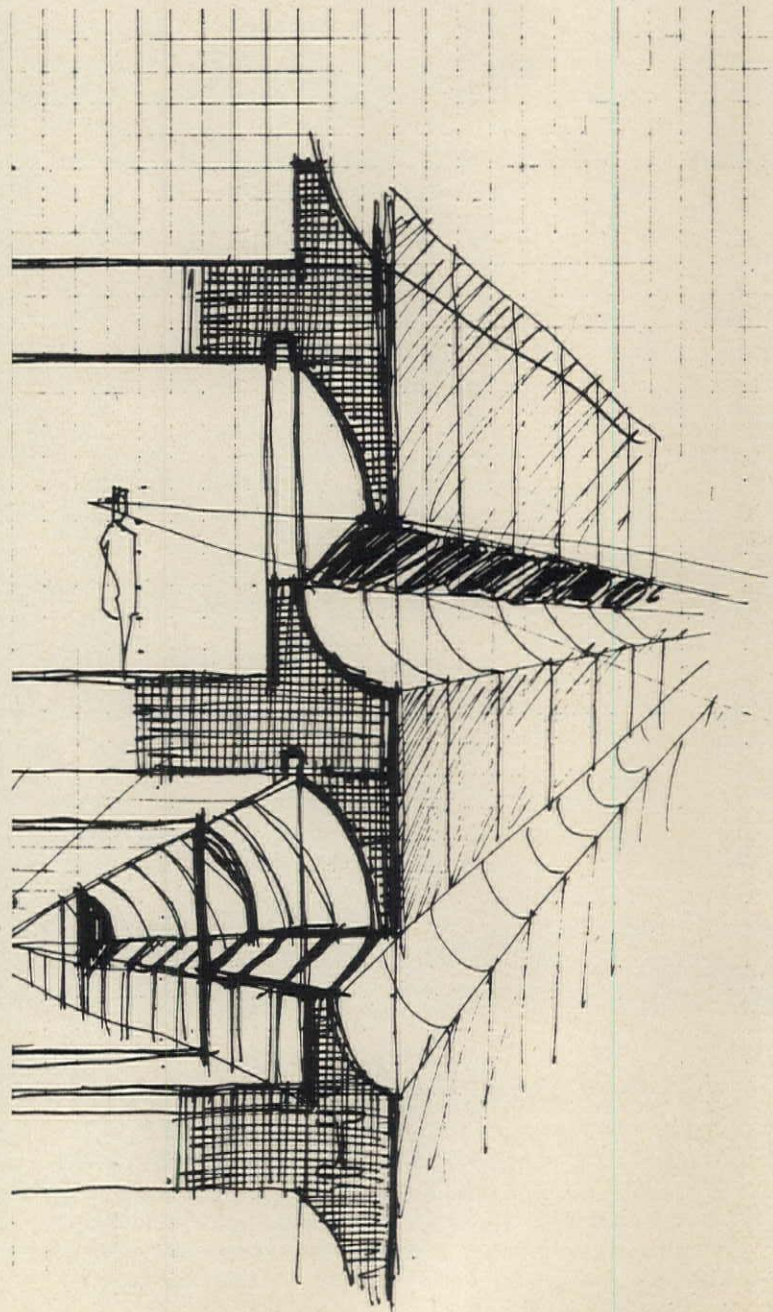
Wall details and considerations of the operating cost offer proof that a speculative office building need be neither a "stripped-down" box nor an energy-waster.

At last. A generation of buildings that are designed to *conserve* energy is coming off the boards and into existence. "There may be a decade of buildings that say 'we were in trouble in 1975,' " noted Gunnar Birkerts during a discussion of a current scheme. The project, an investment office building near Detroit for partial occupancy by a major U.S. corporation, draws most of its design parti from such a statement. "That isn't to say that, in a decade, this building will be obsolete," he cautions. Hardly. But at this stage of our technological development, conservation, rather than production, of energy is feasible and again, at last, is becoming a priority item with the client.

It should be reiterated, for the benefit of other clients out there, that this is a *commercial building*, not a big-budget corporate palace. The program called for those favorite characteristics, economy and efficiency. Birkerts is quick to point out that his corporate client is an enlightened one, however, understanding the balance between first cost and life cycle/operating costs. The building, scheduled for construction this fall, is to be neither prohibitively expensive nor tacky cheap. It is meant to be composed of well-thought-out pieces, each chosen for its relationship to that cost balance.

By far the overriding concern to which the design is addressed is energy conservation, if you haven't guessed. From the beginning, client interest in that aspect ran high; the degree to which the structure responds to that issue is the product of Birkerts'—and his mechanical engineers'—diligence in solving the problem.

"Mechanical engineers are educating us," Birkerts quips. His engineers for this project, Joseph R. Loring & Associates, Inc., began their design input with the assistance of a computer program from the Trane Company, by which alternatives in orientation, glazing percentages, and mechanical/electrical systems could be assessed. Taking all variables into consideration, energy requirements were determined, and building criteria were established to keep the heating and cooling loads at a commendable 54,000



Birkerts' original concept sketch (above) was done on a plane flight, and clearly depicts the exterior wall solution. Perspective (opposite) is of the north and east walls, the "gray sides"; the other two walls are white.

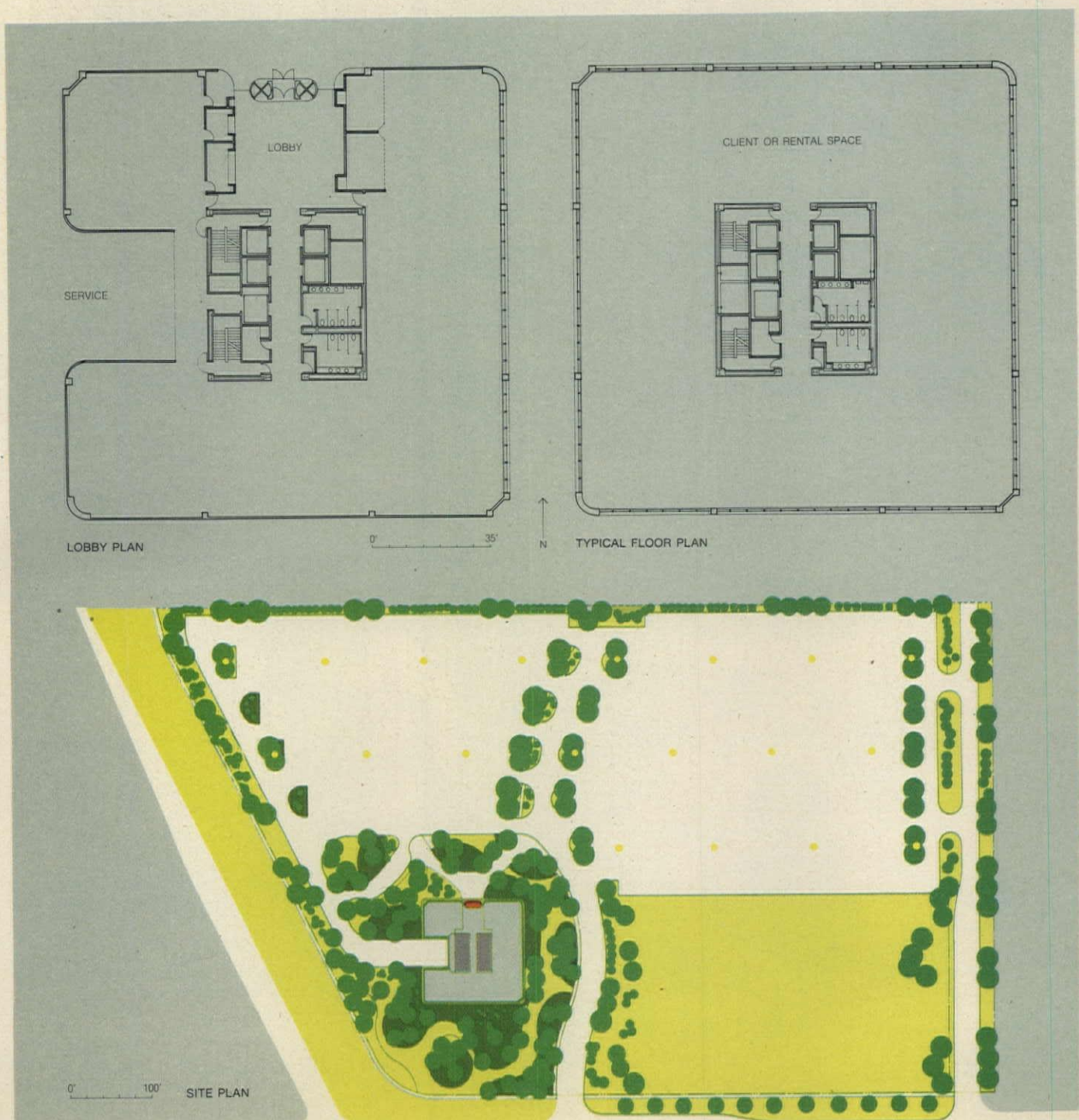


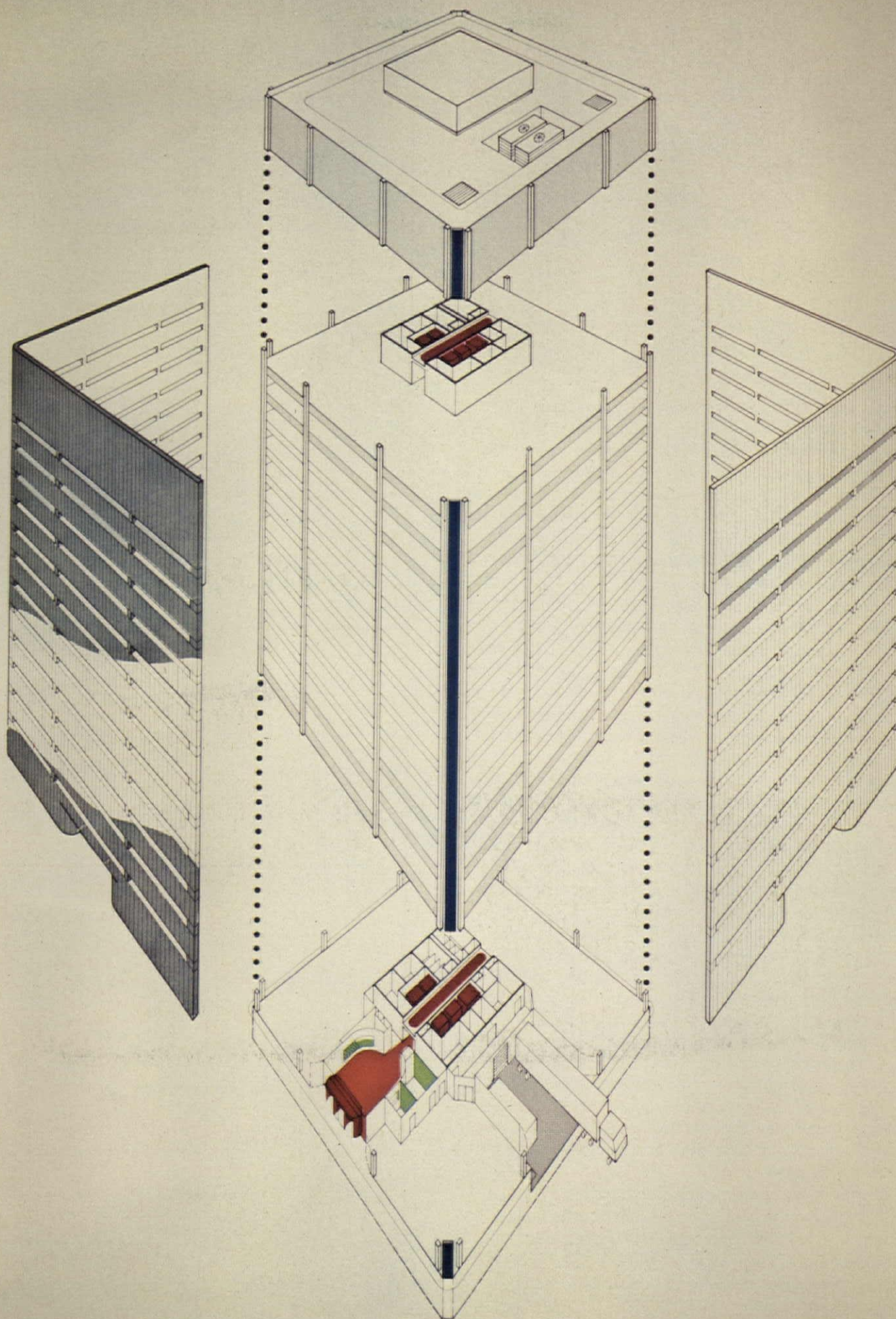
Office building, Detroit

Lobby and truck dock (plans, below, expanded drawing, opposite) are on adjacent sides. Passing through red entry, a visitor is accompanied by red through lobby and elevators; blue stripes separate façade colors.

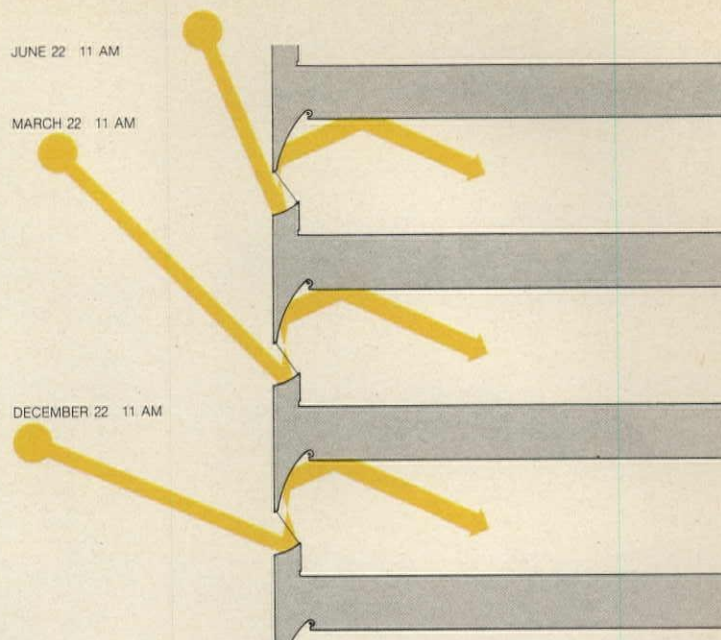
Btu/sq ft/year. Energy and maintenance cost savings were computed as well, and serve to offset any initial first cost premiums.

The heart of the design, not surprisingly, is the skin of the building. Considering all factors—the square building configuration, sited with its entry due north—the exterior walls were designed to be of metal panels, with 20 percent glass, in an 18 percent aperture. No, that's not contradictory, the double-insulated clear glazing is slanted outward from the bottom, within the 24 in. exterior wall thickness. And that's not architectural gymnastics, but part of a unique system for restricting direct heat gain and introducing light, while permitting nearly continuous horizontal glazing bands for vision. Natural light is reflected upward through the angled glass by a curved stainless steel sill reflector, which focuses the light on an internal reflector/diffuser above the





Office building, Detroit

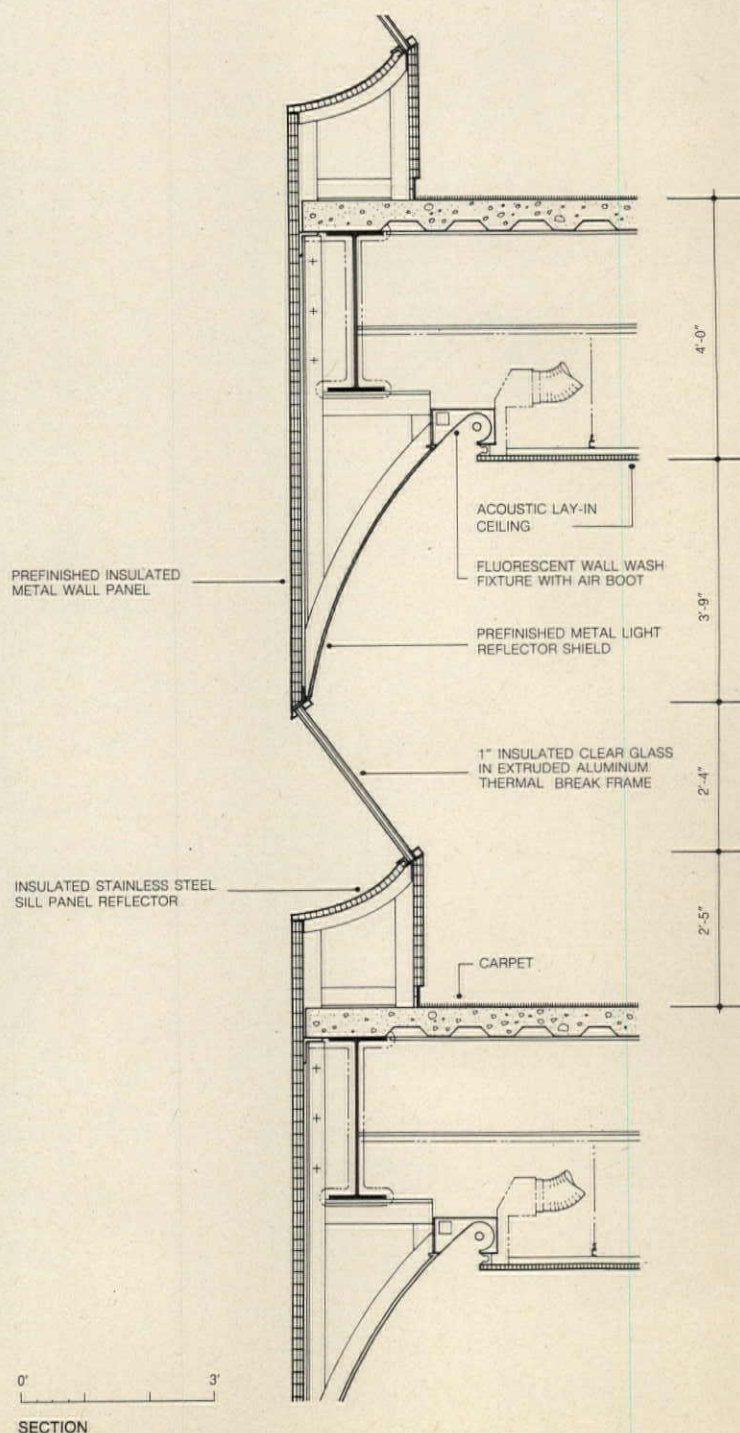


window head. Striking this matte white curved surface, the light is dispersed into the room. The illuminated area over the windows effectively destroys the opening-to-wall contrast which would occur above a vertical window in a flat wall. Continuous fluorescent lighting bands are concealed at the innermost point of the interior reflector all around the perimeter, reversing the light direction at night or on dark days. Interior artificial light levels have been kept around 50 footcandles, or under 2 watts per sq ft.

In addition, the metal skin itself is meant by Birkerts to be symbolic as well as functional. "It is a poster," he says, "a graphic expression of the building's concern. It says that the owners are conscious about the energy issues." To accomplish this, Birkerts has chosen to identify and separate the north and east façades from the south and west by what may, at first glance, seem an arbitrary device, a change in color. Like other decisions, this one too has its rationale, even if not computer-dictated. The paired walls are joined at circular northeast and southwest corners. The other two corners are interrupted by a bold blue vertical stripe the full height of the building. North and east façades are factory finished in gray, south and west in white. The sides on which heat absorption would be most welcome, therefore, absorb. The "hot" sides reflect.

Fenestration does not change with orientation, even though that might seem a logical thing for it to do. Birkerts points out, however, that the reflector/window was designed for the most severe heat gain conditions, and need not be altered for the sake of change. By standardizing the construction details on all four sides, a greater quantity of the same parts system is bid, instead of a lesser order of two or three different systems (investment building, remember). Since the interior reflector changes in brightness at different times of day, Birkerts counts on the window wall to heighten occupants' awareness of time of day, weather conditions, and orientation.

Does the exterior wall represent a premium? Certainly, but by reducing the peak solar load by approximately 40 percent, the architects and engineers project a \$21,000 per year savings in operating costs of various types. This savings, based on a standard vertical window wall 5'-6" high, takes into account the fact that some heat is still transmitted via the reflector. According to their calcu-

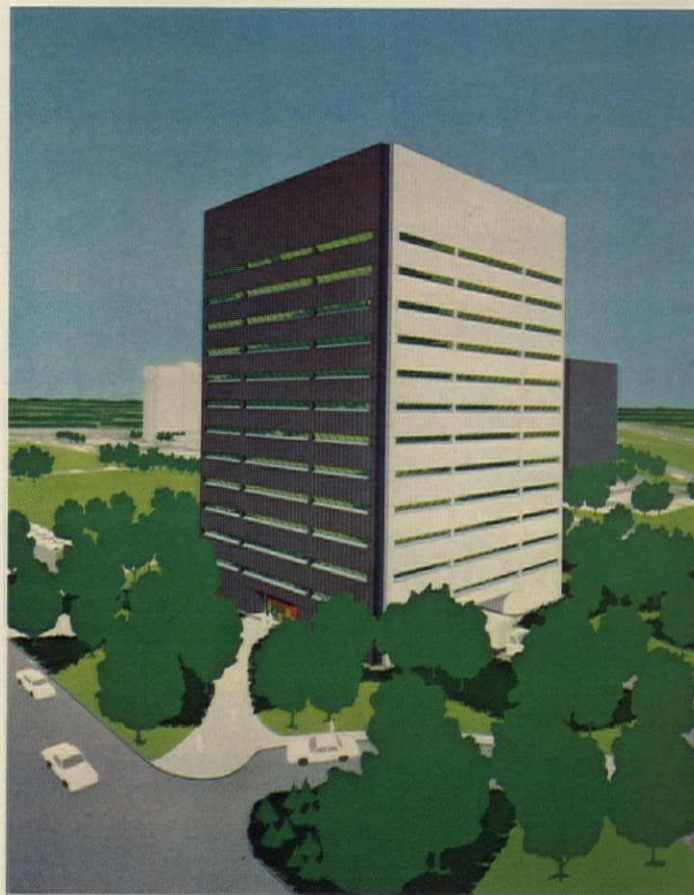


lations, however, the wall premium would be fully paid for in less than eight years by the savings. Beyond that time, the economy would be pure "gravy."

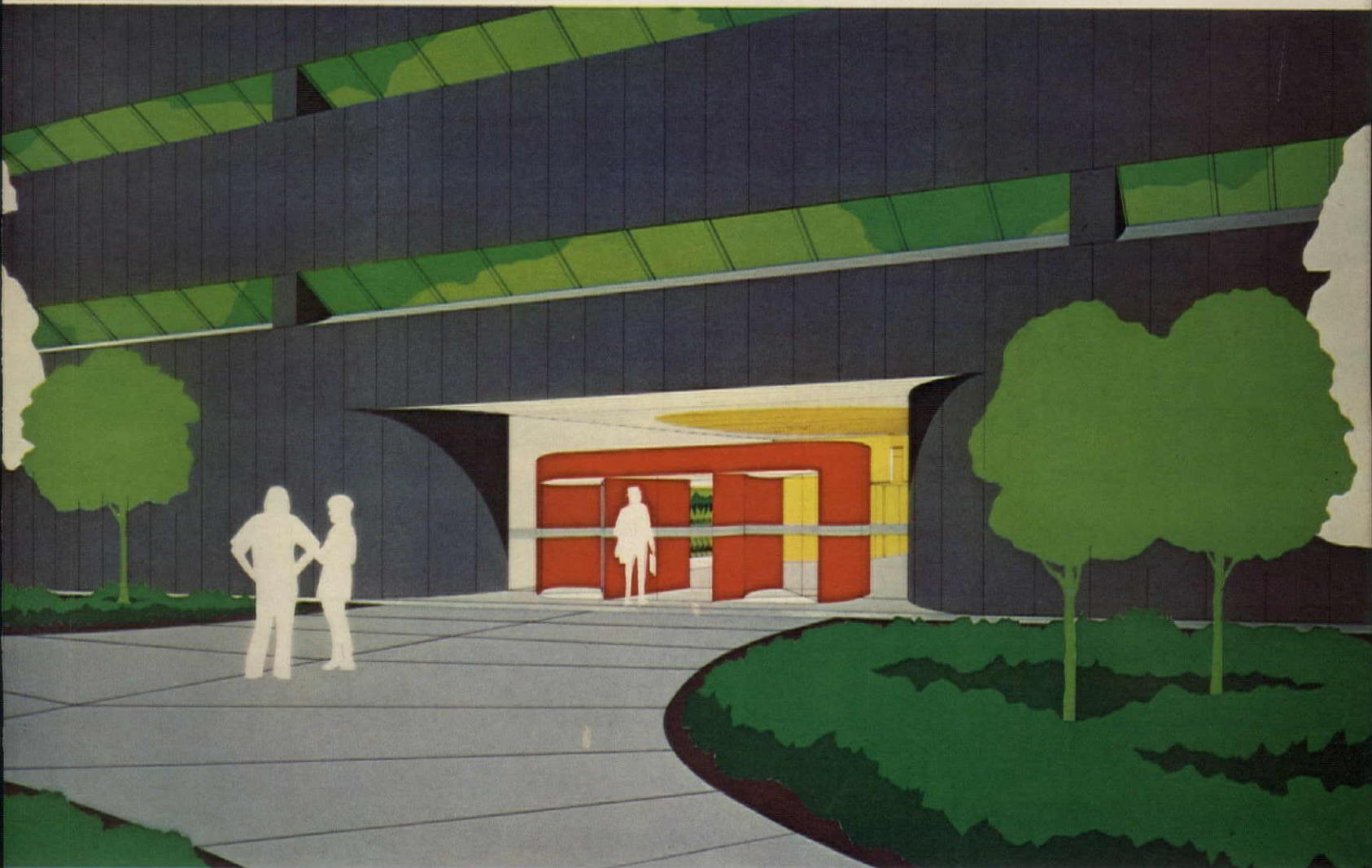
Of course, there are other ways to cut up the energy pie. With his copyrighted wall details (copyright © 1975, Gunnar Birkerts & Associates, Inc.), Birkerts has carried out some of the "skin" ethos that Lumsden (DMJM) and Pelli (Gruen) accomplish in glass. But in some of his recent works, he has turned to the metals as definers of his forms—a major exception being the glazed faces of the Federal Reserve Bank, Minneapolis. The Contemporary Arts Museum in Houston (P/A, Mar. 1975) and the facility for IBM in Sterling Forest, N.Y. (P/A, Dec. 1972), however, while each use glass in some way, are primarily strong, formal, metallic statements. Energy can be wasted in metal-clad buildings or saved in glass-skinned ones. The important aspect is not the membrane material itself, but the fact that creative detailing and an agreeable client can combine to produce an efficient, yet handsome, 14-story rental building. If we are not to continue the "trouble in 1975" into the coming years, we'll need more teams like Birkerts and his client. [Jim Murphy]

Credits

Architects: Gunnar Birkerts & Associates, Birmingham, Mich.
Mechanical and electrical engineers: Joseph R. Loring & Assoc., Inc.
Structural engineers: Skilling, Helle, Christiansen, Robertson.



White-gray junction (above); main entry (below).



From the folks who gave you 20-20 vision

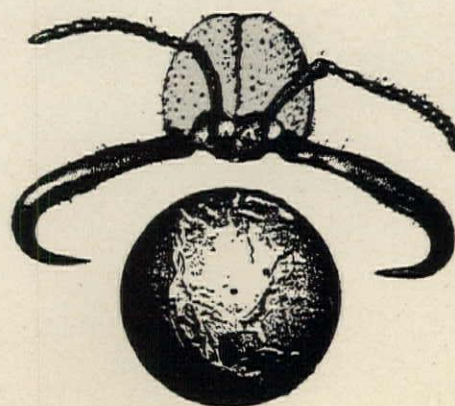
After Cadillac fins, video tape, time capsules, and ferro-cement houses, Ant Farm's last two projects use ordinary materials for other than ordinary designs.

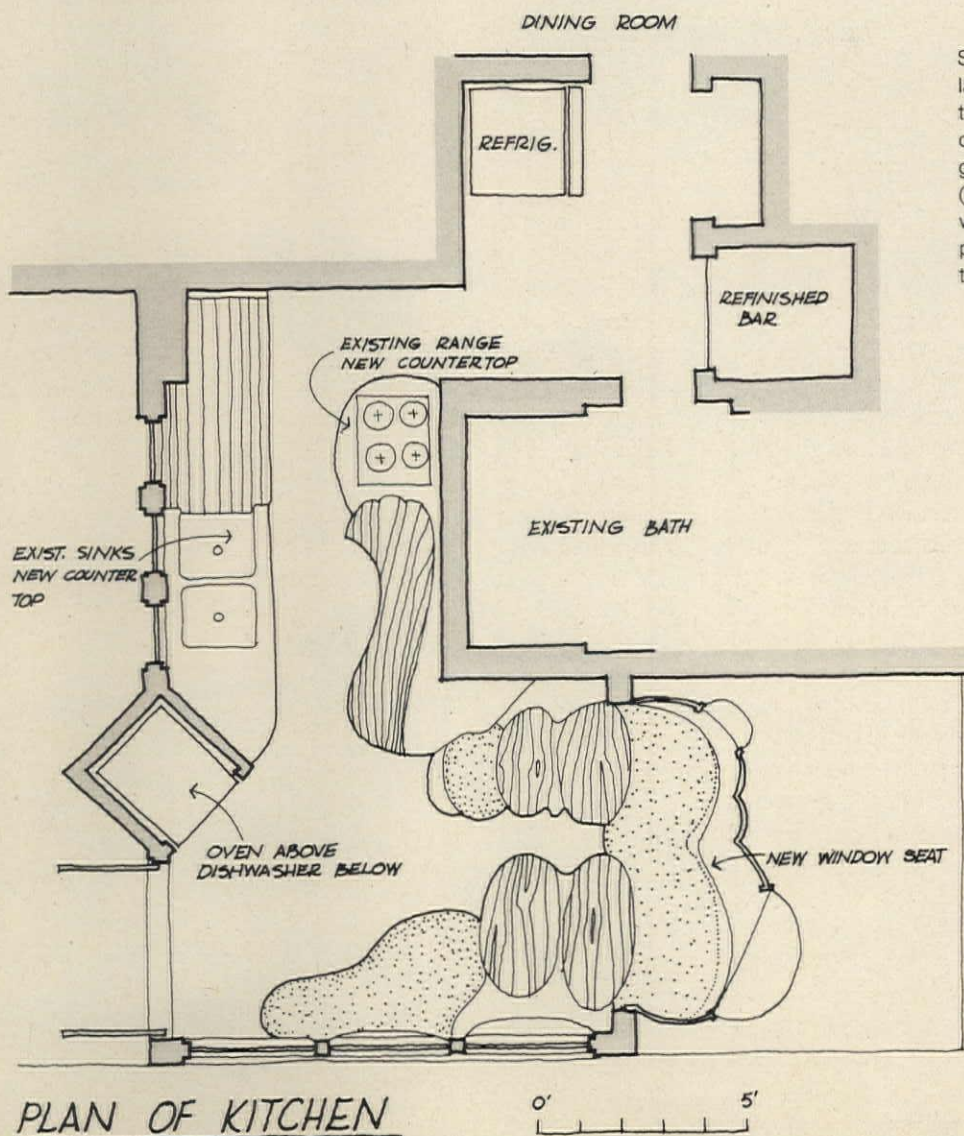
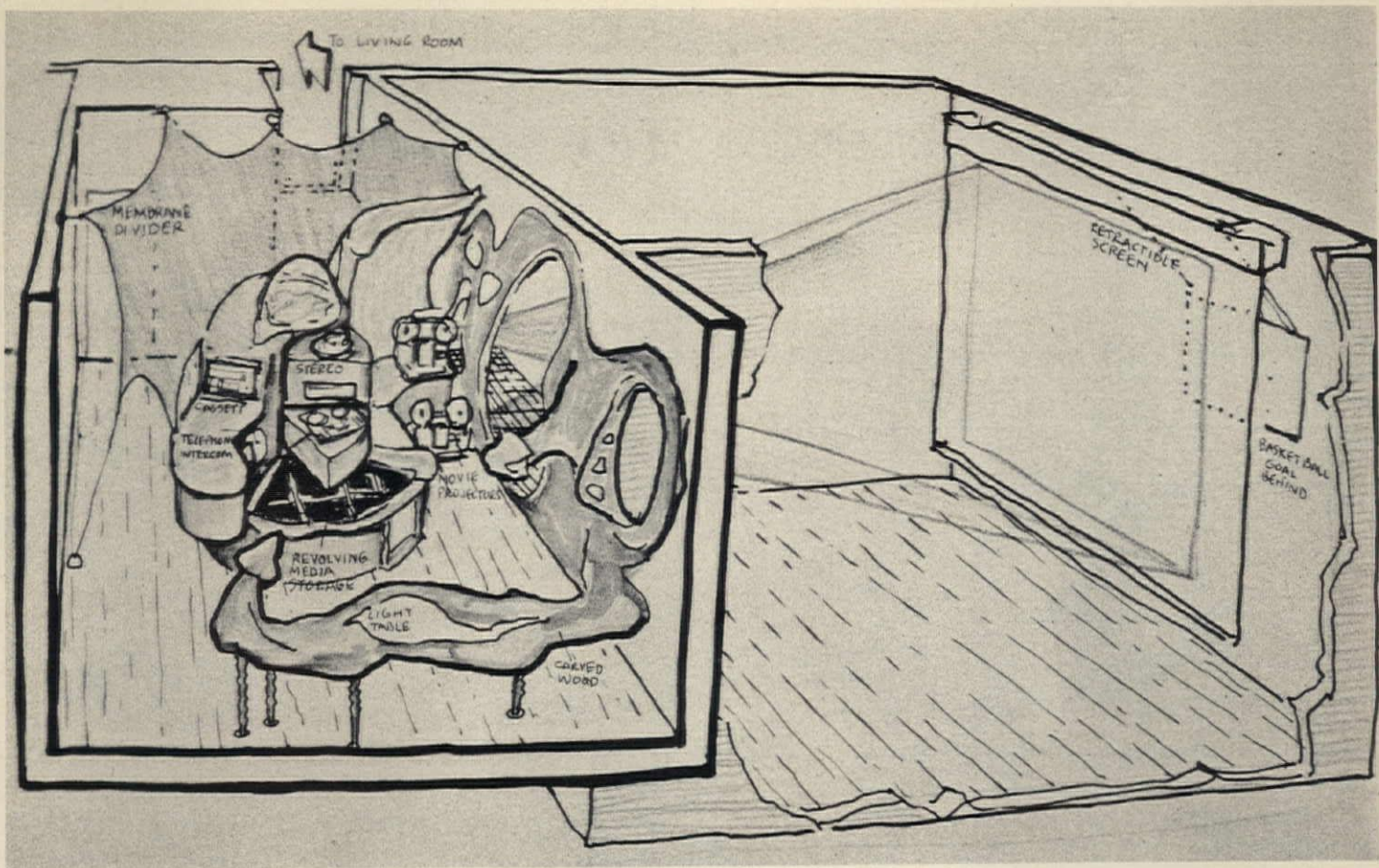
Ant Farm is aptly named. Alias Guerilla Builders, alias Nationwide Builders, alias Fasttrack, this renegade group began with the traditional architectural education (two being from Yale, one from the Rhode Island School of Design). But it has been involved with the profession since 1968 in ways that are far from traditional. They build, realizing their ideas with their own hands, sometimes because no contractor could be found, but mostly because they are craftsmen, sculptors who happen to make architecture (or anything else that seems interesting at the moment). So far, they have been responsible for the House of the Century (P/A, June 73), Cadillac Ranch, 20-20 Vision, and *Inflatocookbook* among other things. Their move away from the traditional practice was a move into the realm of popular cultural symbols, into space-age technology and imagery, into automobile interiors and roadside culture. A little custom Sci-Fi; hardware for living in encapsulated space.

Their two most recently completed projects don't depart radically from previous work. The first, a media studio for film maker James Newman, is in an old wood frame house in San Francisco. A squash court, added to the house after it was built, was converted into a quasi-theater for film viewing, and the media studio, where Newman likes to "hang out," serves as the projection room. The studio contains nearly every conceivable piece of media equipment available—slide projectors, 8mm and 16mm projectors, cassette and reel-to-reel tape recorders, stereo turntable, amplifiers and speakers—all incorporated into a large, handcarved console. The wall unit housing the projectors was constructed of soft pine, laminated, glued and pegged, then shaped with a high speed grinder and finished in clear urethane. The unit incorporating the stereo and tape equipment, with storage beneath for records and tapes, is built using a plywood frame with wood veneers, fiberglass, and hand upholstery. Two acrylic bubbles and a tent complete the assemblage; one bubble over the turntable, one bubble

as a door to a balcony in the theater, and the stretch fabric tent screens a stairwell and probably absorbs any unwanted vibes.

The second project involved less fantasy and more reality; a kitchen in a remodeled shingle style house. The house, originally divided into two apartments, was remodeled for single family use and only one of the existing kitchens was retained. Since the budget was small and no structural changes could be made, the small space was opened up by adding skylights and an acrylic bubble "bay window," installed with neoprene gaskets into the existing window opening. Conceived of as a galley, the kitchen's every last inch had to be used, a functional requirement that didn't inhibit the designers' imagination in the slightest. The "bay window" adds additional seating space, constructed of fiberglass over fabric stretched on a plywood frame. A new laminated oak dining table, tucked into the bay, is rather delicately balanced on axe handles. The food preparation area has a circular cutout in the oak counter, designating the cook's central role and giving more circulation room for errant guests. Adjacent to the prep area are food storage units of plywood with oak veneer which operate like a lazy susan. And above these units are spice shelves sculpted in plywood and topped by a fiberglass planter. Ant Farm is living up to its name. [Sharon Lee Ryder]





Section of the media studio (above) shows its relationship to the former squash court, now film theater. The drawing presumably makes the console design clearer than any of the photographs on the following pages. The kitchen plan (left) shows the small, narrow space within which the designers had to work as well as a plan of the added "bay window" seating area on the lower right.

Lynn Cole

From the folks who gave you 20-20 vision



Bird's-eye view of the media studio (above) and a full view of console (below).

Stereo turntable (above) covered with an acrylic bubble.





Exterior view of kitchen remodeling (above) showing fiberglass bay window and interior view (below) with upholstered seating and free form oak tables.



View of cut-out oak counter (above).

Data

Project: media studio for a film maker.

Architects: Ant Farm, designed and built by Curtis Schreier with Chip Lord, Doug Hurr and Doug Michels.

Major materials: soft pine with urethane finish, fiberglass, upholstery, acrylic plastic bubbles, plywood.

Photography: John Peden, Ant Farm.

Data

Project: kitchen in a remodeled shingle style house.

Architects: Ant Farm with Chip Lord, Doug Michels and Curtis Schreier.

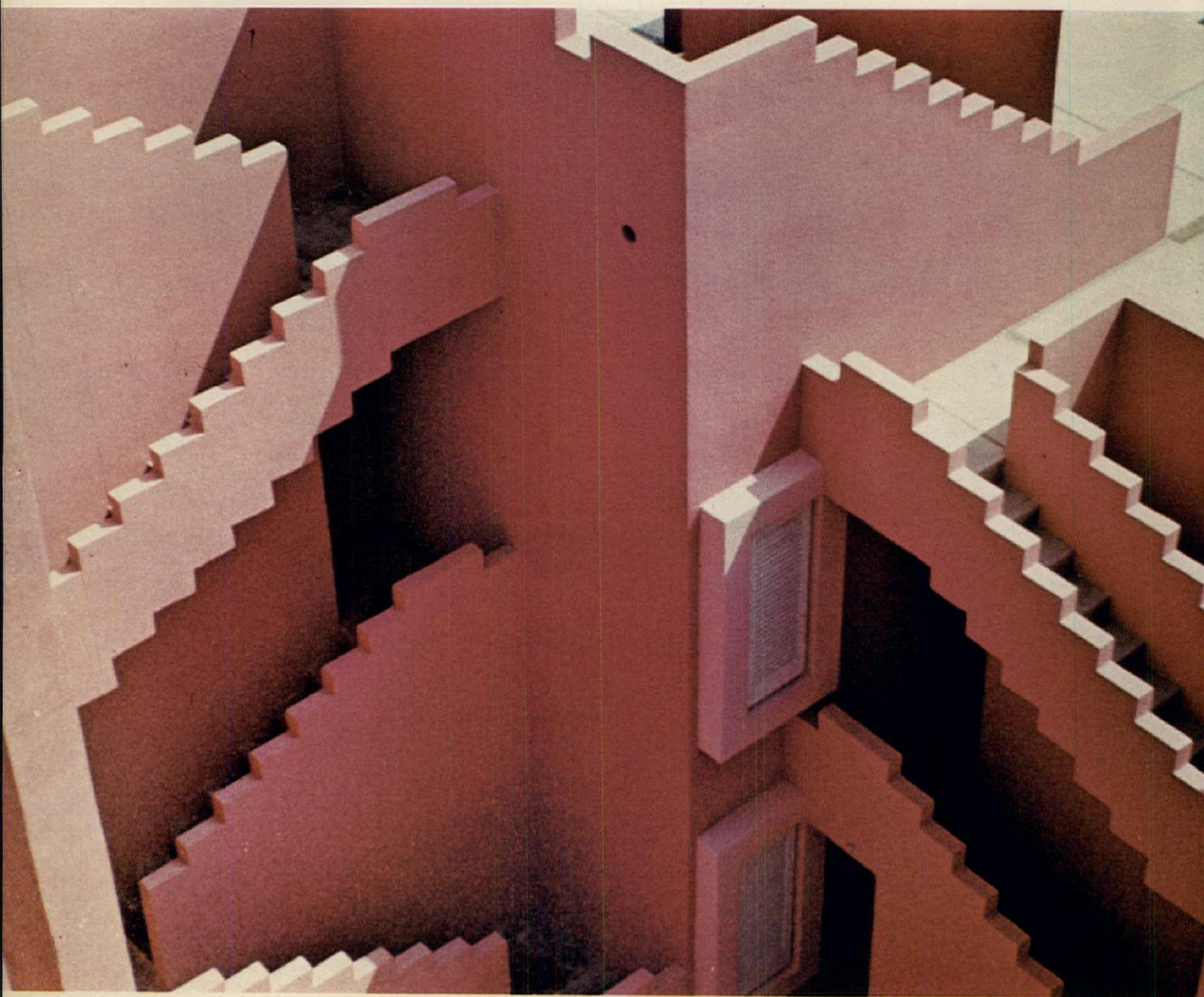
Major materials: laminated oak with urethane finish, fiberglass, acrylic plastic bubbles, plywood.

Photography: Ant Farm.

Taller de Arquitectura

The road to Xanadu and beyond

Geoffrey Broadbent



Stairs, la Muralla Roja, Sitges, Spain.

The Taller de Arquitectura was set up by Ricardo Bofill in Barcelona only 12 years ago; since then, some rather extraordinary works have emerged.

Over the past 50 years or so, responsible architects all over the world have been trying to design functional buildings. No one quite defined what "functional" meant, but it was supposed to derive from a clear statement of the architectural problem and a thorough analysis of the building program which would lead, automatically, to a "correct" design solution. A truly functional building would not only work efficiently, it would also *look* efficient; Gropius and Mies showed how things should be done.

Of course there were rogues: Wright, Saarinen, Kahn, even the Le Corbusier of Jaoul and Ronchamp who, in his earlier years, had codified not only the design of functional architecture—the house as a machine for living in—but rules for the functional city as well, his supremely logical Ville Radieuse.

But all that is history now. It is obvious to anyone who can read the signs that this whole approach, the functional building in the functional city, is assailed on all sides. The people as a whole simply do not like what is offered. That, in itself, is bad enough, but such grass roots criticism is also supported, with statistical evidence, by the physicists, psychologists, and sociologists who have come into environmental research. The so-called "functional" buildings fail conspicuously in two specific ways. In the matter of symbolism, people find them bleak, harsh, and sterile, filing cabinets for living in; and in the matter of environmental control, they overheat in summer, overcool in winter, so that vast amounts of energy are needed to keep them habitable. There are serious problems, too, of noise control. Small wonder, then, that the two major thrusts in the search for another new architecture have been in the direction of environmental control, especially in the drawing of solar and other energy from the environment itself, and in the di-

rection of symbolism; on just how it is—even when the architect thinks he has designed a strictly functional building, devoid of any stylistic connotations—that people will still read meanings into it.

That is the message the Venturis offer, at least in their writings, whatever one thinks of their buildings, and which Charles Moore, not to mention the architects of Disney World, also offers in terms of buildings built. It is also one of the messages offered by Ricardo Bofill and the Taller de Arquitectura which he set up in 1963 in Barcelona, a city which offers an extraordinarily rich culture for the emergence of architecture.

People of the Taller

Bofill is the son of Emilio Bofill, a prominent architect and builder in Barcelona who has always been in the background supporting the Taller. In spite of this background, Ricardo himself refused to qualify as an architect on the grounds that the Beaux Arts education he was offered in Barcelona, the post-International Style education offered elsewhere, even the technology-based course he started in Geneva, would merely equip him with precisely those methods which other architects were using in foisting onto the community the kinds of architecture it simply did not want. Anna Bofill, Ricardo's sister, qualified as a Doctor of Architecture in Barcelona. She also composes mathematically based music. Peter Hodgkinson, an English associate, is another musician (he was the drummer in OM, one of Spain's leading rock groups) but he also qualified fully as an architect at the Architectural Association in London. Of Bofill's other close associates, Salvator Clotas is a literary critic, Julio Romeo an economist, while Manolo Nunez and Roman Collado had no training as architects, coming respectfully from theater and engineering. Jose-Augustin Goytisolo is one of Spain's leading poets.

Usually, Bofill and Clotas make initial client contact; Clotas and Romeo then analyze the financial implications of taking on the job. The client finally is presented with a package consisting not only of alternative designs worked out in considerable detail but also of the costs for each and advice, even, as to how and where to raise the money. Beyond that, however, it is difficult to apportion roles. The Taller think of themselves as a "micro-society," each with a

Author: Geoffrey Broadbent is head of the School of Architecture, Portsmouth Polytechnic, England, and author of *Design in Architecture*.



1 Holiday house, Calpe.



2 Holiday apartments, Castelfels.

Taller de Arquitectura

part to play. In a typical project, they may take the following roles: an "ideas" team consisting of the two Bofills, Clotas and Goytisolo—helped also by Nunez—conduct an extensive brainstorming into the *possibilities* of the project, the site, and anything else which happens to come to mind. Throughout all this, Goytisolo may play the role of "plain man" sensing the implication of what the Taller propose, asking why, and how, they propose to do those things. Anna Bofill and Goytisolo will then summarize the Taller's discussions in the form of a written report while Nunez, an extraordinarily imaginative geometer, will translate them into fuzzy, complex sketches formed out of such a maze of lines that the client—or anyone else for that matter—can read into them whatever he wants. Once the client has decided which alternative he wants, the scheme then passes to Peter Hodgkinson and his highly skilled "professional" team who translate it into tangible, buildable form, and finally it passes to Roman Collado, the "realisateur" who, with his contractual team, actually build it.

Not only does each client presentation contain a number of alternatives, worked through in considerable detail, it also contains notes on the Taller's current preoccupations—thoughts on urban form, spatial arrangements that offer possibilities for new lifestyles, and so on. These latter take the form of complex geometric exercises in which the spaces needed by one, two, or more people for sleeping, bathing, cooking, eating and other domestic acts are permuted together to suggest new dwelling forms. Anna Bofill and Jose Goytisolo do most of this work in which her tough-minded, mathematical approach interacts in some quite extraordinary ways with his soft-edged intuitive one. They think of themselves as urban strategists, constantly preoccupied with the city, its building forms and the life which goes on in them, working back to first principles as to how cities came into being, how they developed as they did, what is wrong with them, what can be put right, what must be altered fundamentally, and so on. All this, of course, meets Ricardo's original aim to make individual buildings, and eventually whole cities, into attractive, sympathetic, life-enhancing places to be.

Early works

The Taller naturally took some time to develop this specific sense of purpose. Their earliest works consist of two tiny, rectangular, white-painted, International Style holiday houses at Calpe (illus. 1), near Alicante on the Spanish Costa Blanca, and a rather larger grouping of rectilinear, color-washed holiday apartments at Castelfels near Barcelona (illus. 2). The Calpe villas form the first stage of La Manzanera, a "Pop-fantasy village" which is meant to act as a vacation-commune for artists, poets, architects, and other professionals who want and can afford to "drop out" for the summer.

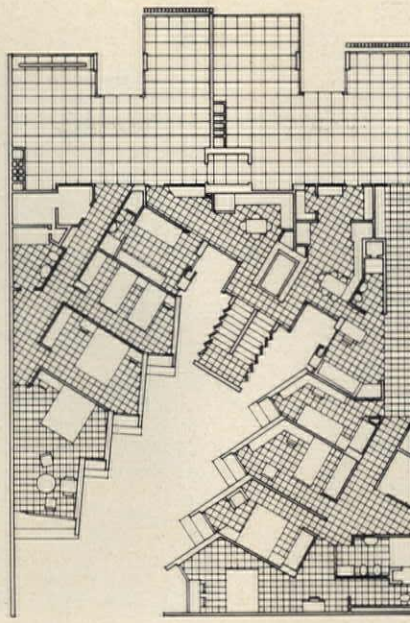
El Castillo

Having built these little villas, the Taller realized immediately that International Style never had and never could offer the relaxed and sympathetic ambience they were trying to create. So their next buildings at La Manzanera were rather more complex villas, built of the local stone and incorporating local vernacular detail (illus. 3), such as pantiled roofs. The villas are grouped to form El Castillo (illus. 4), a tightly clustered village stepping down the hill so that each pitched roof affords protection and visual privacy for the terrace of the villa above (illus. 5). The whole thing is beautifully landscaped with terraces, steps, and retaining walls in swooping, Gaudi-esque curves; and its overall success may be gauged by the fact that even now, almost 10 years later, further villas are still being commissioned.

The Taller's earliest exercises in urban building also confirm their admiration for Gaudi. The first of these, a block of apartments on the Calle Compositor Bach in Barcelona (illus. 6) hardly suggests that externally. It merely offers a skillful composition of planes to the street and an intricate play of textures. But the interior planning is quite another story. The site is hemmed in on three-and-a-half sides by other buildings, yet by designing a diagonal courtyard, with saw-toothed elevations, the Taller ensured sun penetration to no less than 11 rooms on each floor—and with visual privacy (illus. 7). Their apartments on the Plaza de San Gregorio (illus. 8), just along the street, form a much more direct and conscious homage to Gaudi in that the overall massing, on a corner site, is much like the Casa Mila, while the wrought-iron "Seaweed" of Gaudi's undulating bal-



3 Vernacular style, La Manzanera.



7 Plan, apt. house, Calle Compositor Bach.



8 Apt. house, Plaza de San Gregorio, Barcelona.



4 El Castillo villas, La Manzanera.



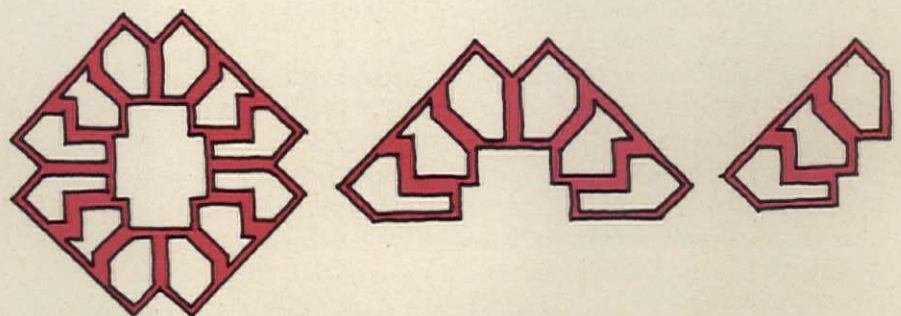
9 Apt. house, Calle Nicaragua, Barcelona.



5 Terraces, El Castillo villas.



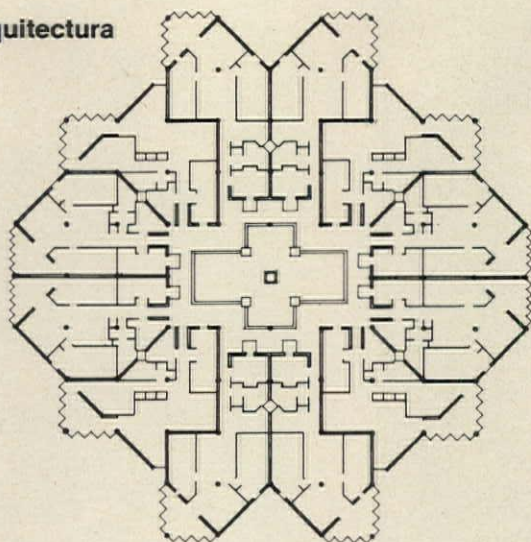
10 Barrio Gaudi, Reus.



11 Unit cluster arrangements, Barrio Gaudi.

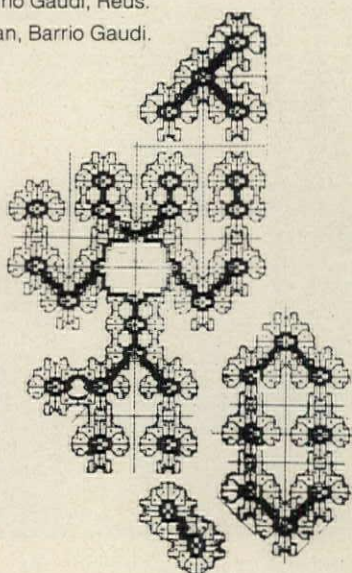
6 Apt. house Calle Compositor Bach, Barcelona.

Taller de Arquitectura



12 Plan, 12-unit cluster, Barrio Gaudi, Reus.

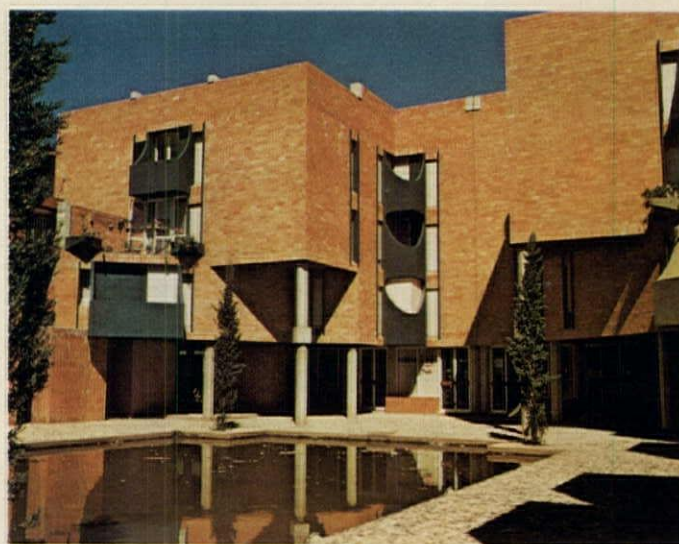
13 Housing development plan, Barrio Gaudi.



conies, the intricate forms of his chimneys and turrets are remade but in a stricter, orthogonal geometry. The Taller's third apartment block in Barcelona, on the Calle Nicaragua (illus. 9), combines elements from each of these; the planning is particularly ingenious in that the sawtooth form, now brought to the front, allows an extraordinary number of apartments to be packed on an exceptionally difficult site, while the chimneys and other aspects of roscape carry the Taller's homage to Gaudi just a little further.

Barrio Gaudi

The Taller's methodology—and its reputation—developed fast with the Barrio Gaudi (illus. 10), a low-cost housing development at Reus, Gaudi's birthplace behind Tarragona on the Mediterranean coast. The Taller's method consisted of working out extensive sets of permutations on ways in which bedrooms, a bathroom, kitchen and so on, could be clustered around a living space. The clusters themselves were then clustered together to form groups of 3, 6, and finally 12 apartments (illus. 11). The apartment clusters would then be checked against planning, environmental, and structural criteria. Any cluster which failed to pass these tests was eliminated. The Taller then found themselves with a range of apartment groups which, as a result of these tests, were *known* to be workable (illus. 12). That left considerable freedom as to how the apartment clusters



14 Ground-level promenade, Barrio Gaudi.

15 Pitched roofs with pantiles, Barrio Gaudi.



16 Roof-level promenade, Barrio Gaudi.



17 New construction, Barrio Gaudi.





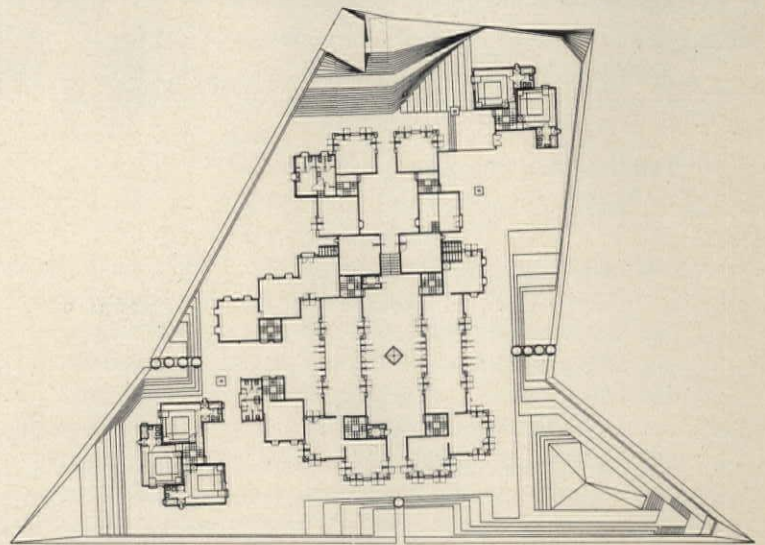
18 Los Tres Coronas, Sitges.

themselves could be grouped together to form the actual housing development (illus. 13). At this point they "tuned in" to the people who would live in the Barrio Gaudi, observed them at work and play, sensitized themselves to the qualities which made the slums of Reus "home" to those who would be moved. They noticed that two things, in particular, were important to people: the intricate arrangement of streets, alleys, and squares (illus. 14) which made up the fabric of the old city, which afforded a setting for the "promenade" (that evening walk around the city by which all good Spaniards see and can be seen), and the fact that "home" to many people was symbolized by a certain form of roof pitched and with pantiles (illus. 15). So the Taller contrived an arrangement of dwelling clusters with plenty of promenade space, which in some places extends to the flat roofs of the lower blocks (illus. 16). In the initial stages (1965), 500 dwellings were built for the quite extraordinary cost of \$3.70 per sq ft; the whole development has been so successful—financially and socially—that 1500 more are now being built (illus. 17).

Kafka's Castle

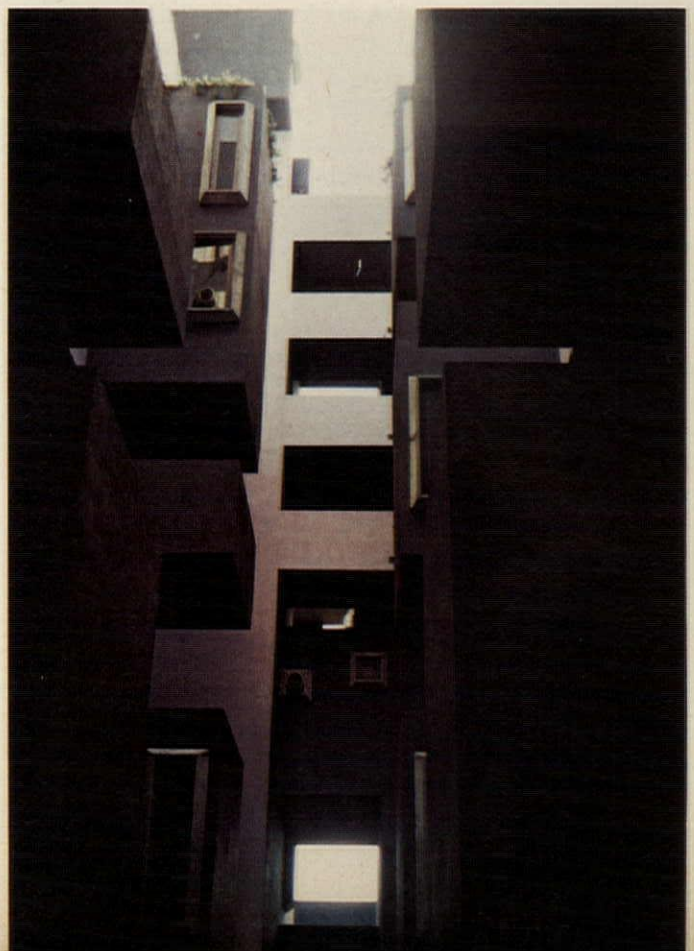
Two things in particular have been developed from the Barrio Gaudi design into their later work: the derivation of apartment-form from a systematic, geometric analysis; and a certain concentration on the spaces *within* a building complex, which are attended to with just as much detail as the apartment-forms themselves.

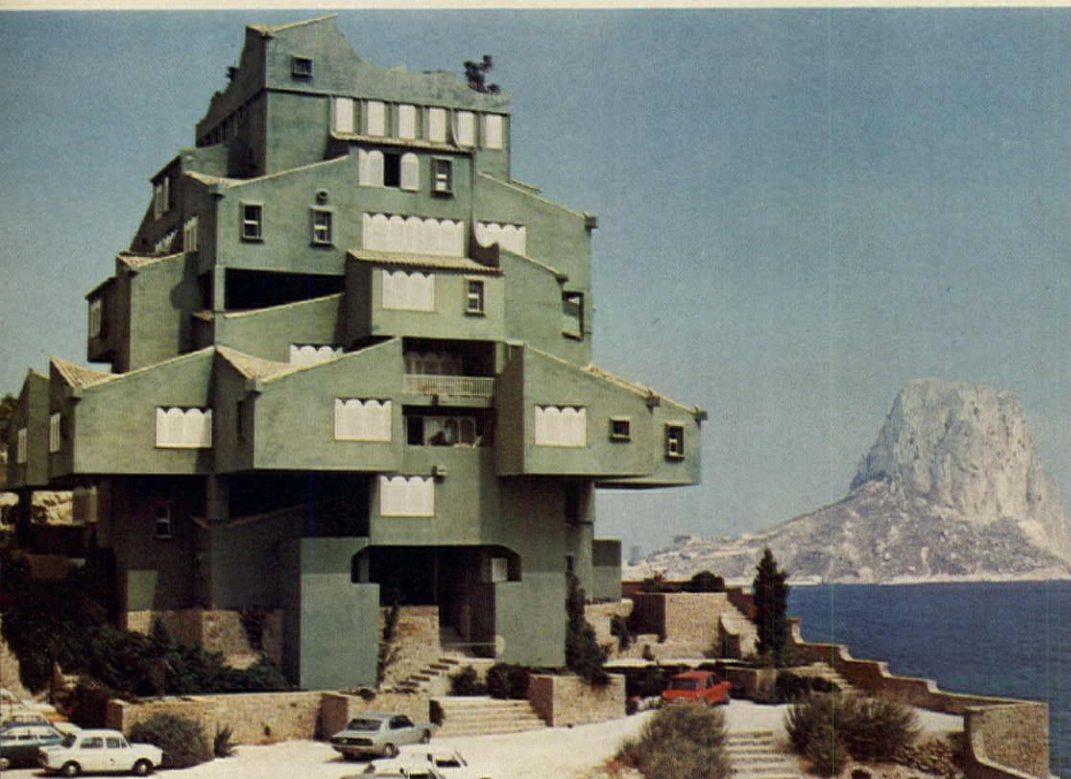
The Taller confirmed their interest in this matter with an apartment hotel behind Sitges which was designed in 1967 (illus. 18). At first glance it is simply a permutation of Safdie's Habitat idea—a case of great minds thinking alike, at the same time in different parts of the world. But there are substantial differences in the manner of design, in certain built forms and, most spectacularly, in costs. The Taller's apartments were conceived as self-contained, "plug-in" units such as Archigram might have devised, each consisting of a square living space, with differences of function, such as sleeping and eating, defined by changes of level. One side of each apartment "plugs" into a central access tower, around which the apartments rise in a spiral formation; two other sides have a bathroom unit and a balcony respectively "plugged" to them (illus. 19).



19 Plan, Los Tres Coronas.

20 Courtyard, Los Tres Coronas.





21 Xanadu, Sitges.

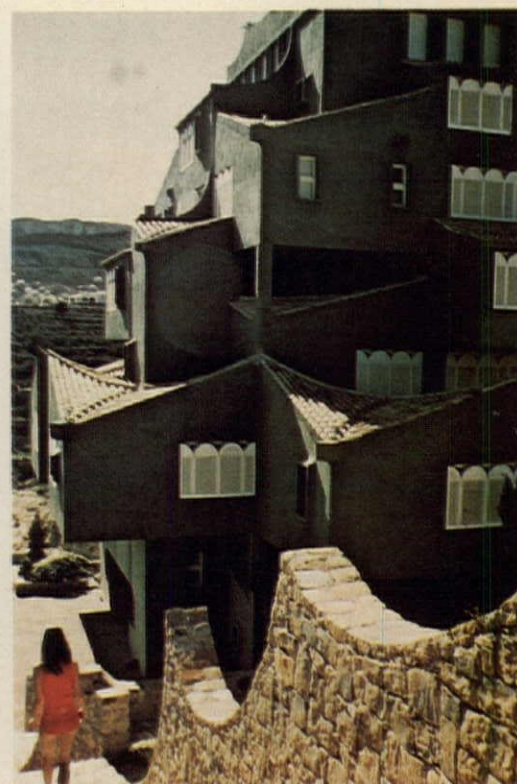
Taller de Arquitectura

Officially it is known as Los Tres Coronas (The Three Crowns) but Bofill himself prefers "Kafka's Castle." One can see what he means; it is painted purple and certainly presents a mysterious, brooding aspect, especially in the courtyards within the building, which are comparatively narrow and rather high set, open in places to the sky (illus. 20). Habitat has nothing to compare with them. Visually, they suggest the interiors of some gloomy, Gothic cathedral, and this cathedral aspect, as we shall see, has played an increasingly important part in the Taller's development. Kafka's Castle also was built very cheaply (\$7.75 per sq ft), while Habitat certainly was not (\$100,000 per apartment).

This difference in cost, of course, is reflected in differences in quality. The Castle, to put it bluntly, was built on the cheap. The Taller exercised a certain ingenuity in using, say, precast manhole units for window surrounds and other openings, but the building as a whole is an assemblage of concrete, brick, hollow tiles, and so on.

Xanadu

Xanadu (illus. 21), the Taller's best known work, is an eight-story tower farther down the hill. Conceptually, it relates to Kafka's Castle in that a system of apartment units was devised which could be slotted together in various ways. Model studies were used to determine the spatial arrangement of each unit according to orientation, privacy, connection to central circulation, and so on. Once the apartments had been made to "work" at this level, it hardly mattered, from a functional point of view, how they were grouped together, in that apartment units were designed so they could be grouped together in clusters of four to form squares or cross shapes, or in eight to form larger crosses. Given that these could be supported on a steel frame there was no particular reason why they should be stacked on top of each other in any particular formation. So the Taller looked across the bay and the Peon de Ifach—a Gibraltar-



22 Sloping pantiled roofs, Xanadu.

like rock at the far side of Calpe bay—and decided that the overall form of Xanadu should form a visual analogy with the silhouette of that rock. But it was still too cubic so, as at El Castillo, they added local vernacular details with all the sloping pantiled roofs, the Gaudi-esque curves, and painted the whole thing in that brownish-green to which the local landscape burns at the height of summer (illus. 22).

The Red Wall

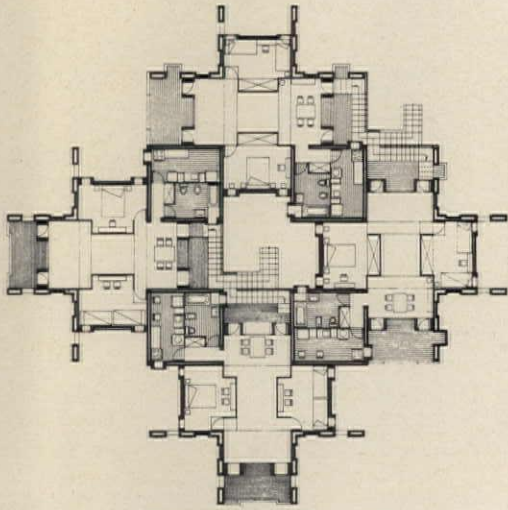
In the latest phase of la Manzanera—la Muralla Roja, or The Red Wall (illus. 23)—the Taller took a quite opposite philosophy, although la Muralla too is based on a geometric system. It started life as a permutation of apartments contained within a system of Greek crosses, each rather like a + sign. These could be clustered in various ways, such as $\begin{smallmatrix} \text{+} \\ \text{+} \end{smallmatrix}$ or $\begin{smallmatrix} \text{+} & \text{+} \\ \text{+} & \text{+} \end{smallmatrix}$ which enables square service towers, containing kitchens and bathrooms, to be located between the arms of adjacent crosses (illus. 24). The center of each cross then formed a main living space which, according to the size of the apartment, could be extended into the four arms. In a typical arrangement two of the arms would contain bedrooms with the other two given over to balconies.

The first phase of La Muralla Roja consisted of a single courtyard planned in this way; the arms of the crosses were four meters wide (13'-4"), but these proved rather inflexible so the remainder were built with five-meter crosses (16'-8"). There are now five courtyards around which a wide range of apartment types and sizes are accommodated.

Once the basic construction and system of apartment types had been established, the contractors found it possible to build La Muralla Roja with no more information from the architects; this is true even of the highly complex color scheme (illus. 25 and 26). As its name implies, La Muralla Roja is painted bright red on the outside; the central courtyard is painted blue, the other courtyards pink, and any elements which fall outside the system—certain staircases, bridges, retaining walls, and so on—are painted purple. As a further refinement in this color system, the reds, pinks, blues, and purples are each used in four differ-



23 La Muralla Roja (right), Xanadu (left).



24 Plan, 4-unit cluster, La Muralla Roja.



25 La Muralla Roja, Sitges (below); 26. Roof terrace (above).



Taller de Arquitectura

ent values, stepping from dark to light. Recesses into the main wall surface are painted darkest of all; the surface itself is one step lighter, the projecting window frames a shade lighter still, with the balconies, which project farthest, painted the lightest shade of all.

In this particular version of the Taller's approach one is reminded, irresistibly, of the system of deep structures by which Peter Eisenman designs. Needless to say, La Muralla Roja is a further example of "cardboard architecture," but like Xanadu, which also had that quality initially, it may also streak and stain in a way that makes it *look* more "real."

Roman I

La Manzanera is still being extended with individual villas at El Castillo and at Roman I (illus. 27), an extraordinary viaduct of apartments which will run back from the sea between El Castillo and Xanadu in two converging arms that will meet in a V-shape away from the sea. It will resemble, if anything, a couple of intersecting Ponts du Garde, the massive piers and arches which will themselves contain the apartments, ingeniously planned on two levels so that each has at least one balcony facing obliquely to the sea.

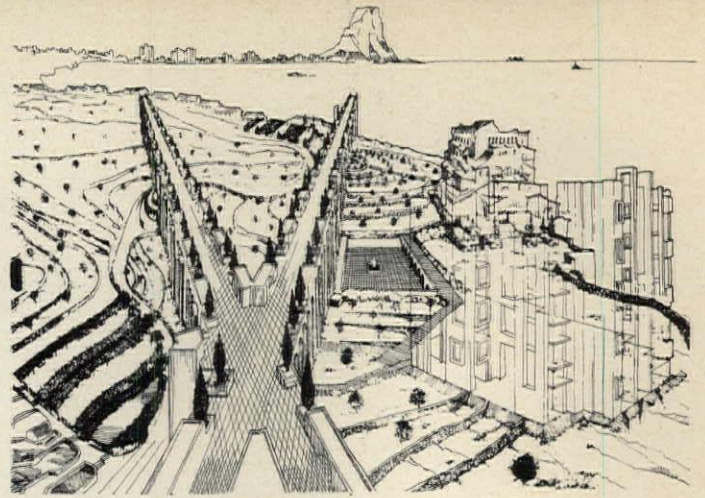
La Manzanera, therefore, represents five distinct phases of the Taller's work; each an act of homage to a period they have admired: in the case of the first two villas, the model obviously is the International Style; in El Castillo it is the local vernacular, in Xanadu it is the Gothic, in La Muralla Roja it is structuralist systems (as distinct from structural systems), and in Roman I it is classicism generally, but with particular reference to Bouleee and Ledoux.

La Maison Verte

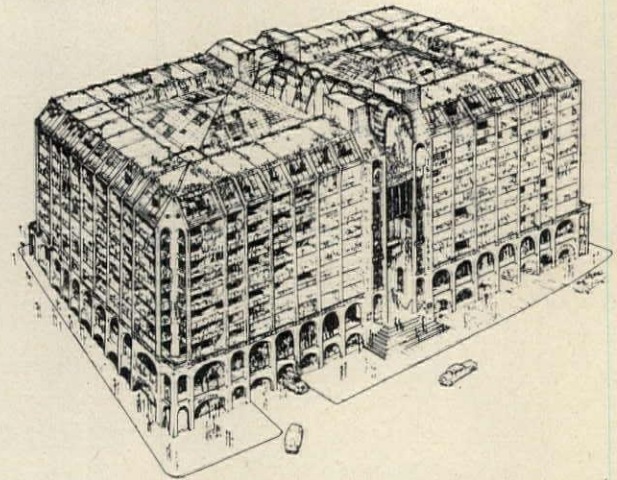
The Taller's most exotic project so far probably is La Maison Verte—a hotel complex for Abidjan on the Ivory Coast of northwest Africa (illus. 28). It extends to a whole city block, some 130'x230', and includes underground parking, while the hotel itself is in a figure-eight formation, around two courtyards, with an arcade of craft workshops running across the center at ground level and shops, a bar, a restaurant, and a drugstore lining the various street frontages. Access to the hotel bedrooms is by balconies open to the two giant courtyards—an arrangement which is quite familiar these days in North America from Disney World and the Hyatt Regency chain. But while in those cases the "courtyard" forms a multi-story lobby, the "jardins tropicaux" of the Maison Verte will have specifically African connotations. They will be filled with flora and fauna of the jungle, including monkeys, parrots, and various other exotic creatures (illus. 29).

Urban strategy

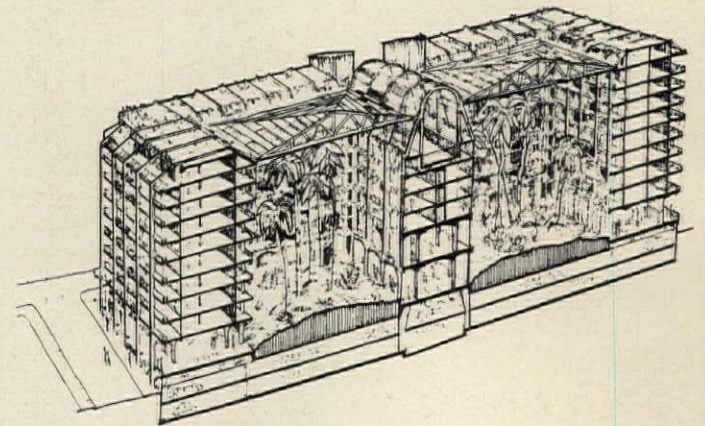
La Manzanera and La Maison Verte of course are "fun" projects and fun, most certainly, is a quality that has been missing from architecture for far too long. But the Taller also has some profoundly serious intentions—the development no less of a complete new urban strategy. In spite of its horrific deficiencies, most town planning these days is still based on a set of premises derived from Le Corbusier's Ville Radieuse. Oversimplifying grossly, one could say that



27 Roman I, La Manzanera.



28 La Maison Verte, Abidjan, Ivory Coast.



29 Section, La Maison Verte.

these were based on Paul Winter's vision of an ideal state for man—of taking exercise in the open air, enjoying the sun, and looking out over green grass and trees. Le Corbusier presented Winter with city and building forms in which this would be possible. The extraordinary thing, of course, is that Le Corbusier's vision has been built, albeit in compromised form. By superimposing Le Corbusier's model *on to the fabric of existing cities* we have made sure that everyone gets the worst of both possible worlds.

The Taller see cities rather differently. They, too, start from the basis of man, and how he could choose to live. They envisage one person doing a single thing: cooking, eating, sleeping, and so on. They keep a constantly expanding set of three-dimensional "possibilities;" one (single person) apartment for instance, has a living space grouped at various levels around a conversation pit, which also contains the bed, or at least, a mattress for sleeping on. A general purpose table (one purpose being for eating) runs along one side of this pit, between rectangular service

ducts, and beyond this again, but in front of a mirrored wall, is the bath, open to the living space. Modesty, however, is catered for; a screen which can be lowered in front of the bath also serves as a projection surface for the showing of slides or films. Not only have such apartments been built to the Taller's designs, they have been bought by people who wish to take part in Taller's experiments.

Cheval de Monaco

This micro-scale, of course, is important, but the Taller also developing their urban strategies on a macro-scale. Their first essay at this scale was the Cheval de Monaco, their entry in a competition for developing part of the sea-front in Monte Carlo (illus. 30 and 31).

The Taller proposed a pluri-functional development, a cluster of houses around a compact, open arena. The houses themselves were to be used in many ways: housing, offices, shops, or anything else that seemed suitable. The arena would be equipped for many things, for fencing, hockey, boxing, basketball, judo, and so on, and it could be used for circus, cinema, for sound and light projections. If one gets bored with the privacy of his own apartment, he might look out of the window and see something interesting going on, and then decide whether to go down and join in, stay where he was, a spectator, or go back into his apartment. The whole concept, therefore, was an embodiment of urban freedom as symbolized by slogans on the Taller's competition drawings: Time for each and time for all; Happiness is a cultural value; Time to love; New sensibility.

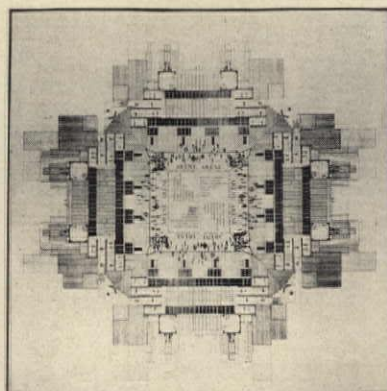
La Ciudad en el Espacio

Unfortunately, the Taller failed to win the Monaco competition. Nor, so far, has their massive embodiment of this concept for Madrid—La Ciudad en el Espacio (illus. 32)—been built, although after six years of delays by the Spanish administration, preliminary planning permission was finally granted in April 1975. This takes the form of an entire new town for 50,000 people grouped around such arenalike spaces so that individual apartment units could be closed off from or opened up to each other as appropriate, according to whatever changes took place in family structure and inter-personal relationships.

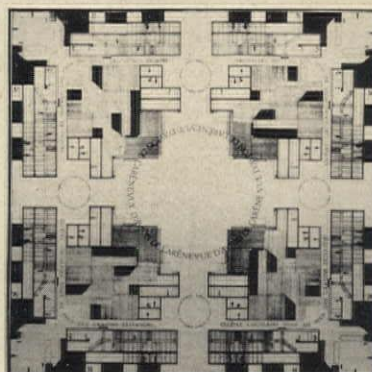
Walden 7

But Walden 7 in Barcelona has been built (illus. 33), or at least the first of five massive blocks (illus. 34), on the Cheval-Ciudad principal. Walden refers to Thoreau's description of a serene, solitary life in the woods. But it also refers to W. B. Skinner, the behaviorist psychologist whose work with rats in mazes and with ping-pong playing pigeons suggested that people could be processed to enjoy *their* lives in urban society as much as Thoreau had enjoyed his around Walden pond. Skinner presented *his* views as to how this should be done in *Walden Two*, in which he also described Waldens Three, Four, Five and Six. Thus the Taller's development is called Walden 7. It is clustered around four "arenas," each of which acts as floor to one of the vast, cathedral-like spaces.

The first phase of the new development, now complete, and with every apartment (illus. 35) sold, consists of a 16-story cluster grouped around five courtyards (illus. 36), each of which contains a pool. With few exceptions, each



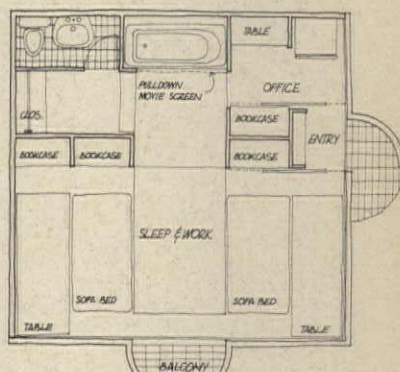
30 Cheval de Monaco.



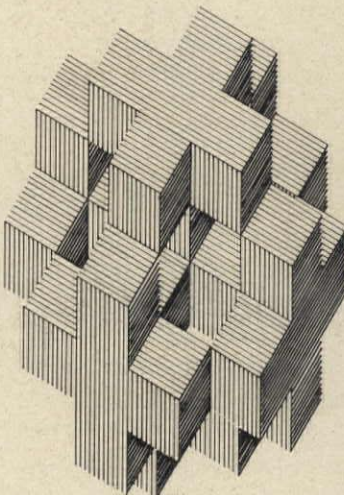
31 Cheval de Monaco.



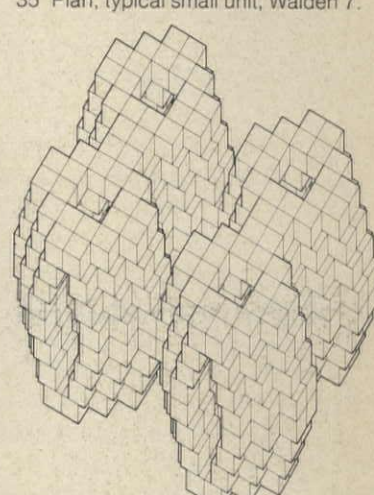
34 Walden 7.



35 Plan, typical small unit, Walden 7.



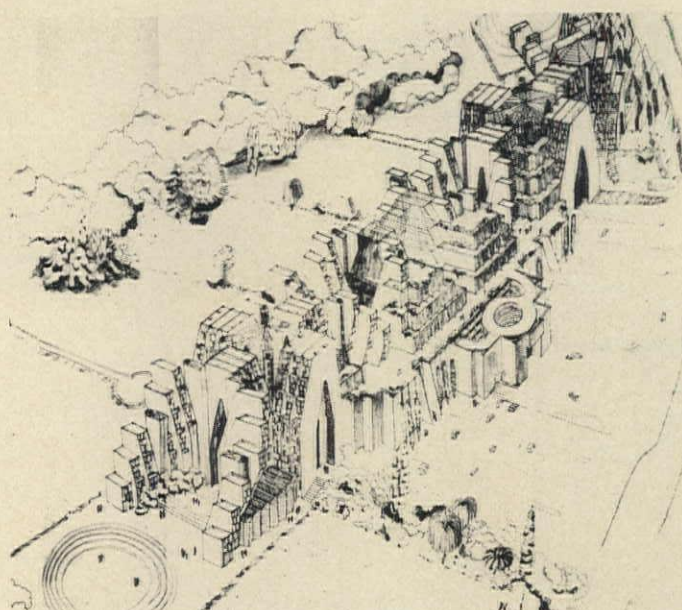
32 Diagram of unit clusters, Ciudad en el Espacio, Madrid.



36 Diagram of unit clusters, Walden 7.

33 First phase, Walden 7, Barcelona.





37 La Petite Cathedrale, Cergy-Pontoise.

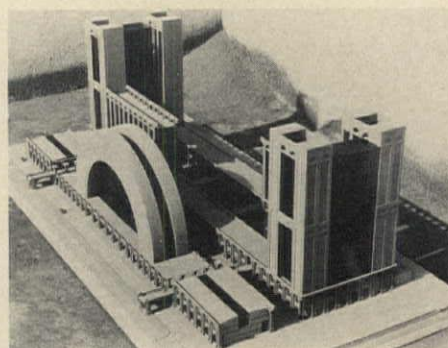
apartment faces both out of the block and into one of the courtyards, while over these courtyards, at many levels, there is a complex system of connecting bridges and balconies for access.

La Petite Cathedrale

The cathedral-like aspect of the Walden 7 courts is being developed even further in the Taller's massive project for Cergy-Pontoise, a new town north of Paris (illus. 37). Bearing in mind that most new housing in the Paris suburbs consists of flat, gray, dull rectangular slabs—"cemetery suburbs" the Taller call them—the problem was to design a whole new neighborhood, including housing, shops, offices, a school and department stores which would give the inhabitants of Cergy-Pontoise a sense of place, a sense of identity with their home town, so that it did not become just another suburb of Paris. From Barcelona, Paris looks to be quite far north, so the Taller decided fairly quickly that however else it might develop, their design for Cergy-Pontoise (actually Les Linandes) should be based for climatic reasons on a covered shopping mall. Like the classic Milan Galleria, the initial designs for Les Linandes also consisted of just such a gallery with shops, department store, and so on at ground level, and housing in the upper parts, curving up and over the vault of the gallery. That seemed to work quite well; the offices, school, and parking could be also accommodated, but somehow the imagery was not quite right. Then suddenly it occurred to the Taller that the cathedral-like image which seemed to be emerging in Walden 7 could be highly appropriate for northern France; for 600 years after all the architectural glory of northern France has been its great Gothic cathedrals. The galleria-like semi-circular arches of the original design could be translated easily into pointed, or rather parabolic arches, while the addition of "transepts" crossing the "nave" at right angles could give the interior a richness and variety which a linear mall simply could not have had. It was around this project



38 L'Avenue de la Grande Armee, Paris.



39 Le Forum Blanc, Paris.

in particular that the two major strands of the Taller's current approach finally began to interweave: the highly systematic methodology by which Anna is constantly developing the geometry of living spaces, and the poetic imagery by which the Taller explore the overall formal possibilities for actually building into a particular context and into a particular site.

And so the scheme for Les Linandes became La Petite Cathedrale with a vast nave, some 1300 ft long, crossed by three main transepts; the crossings themselves would be covered with intricate glass lanterns. In this second form La Petite Cathedrale promised to be one of the world's great buildings, a 1970s' version, as it were, of what Corbu's Unité had been for the 1950s. Unfortunately the client-body—overwhelmed by its magnificence—began to retreat, so that instead of a simple great nave with transepts it has now been agreed that the "Cathedral" shall consist of the three Walden 7-like crossings linked by two great open cloisters surrounded by housing. It is still an extraordinary concept, but not quite so stunning as it might have been.

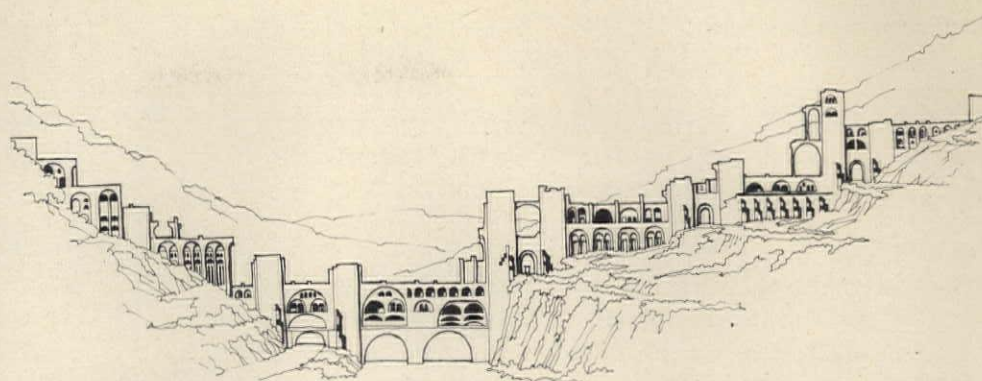
On the face of it, large mixed developments such as these look like simple mega-structures, direct descendants of the Marseilles Unité, Cumbernauld Town Centre, and others. It almost looks as if, like Corbu himself, the Taller have designed a way of life and then made buildings which will *force* people to live in that way. Nothing would be further from such an intention. The Taller's basic aim is to offer alternatives, new possibilities which people can choose if they *want* to experiment with a new lifestyle.

L'Avenue de la Grande Armee

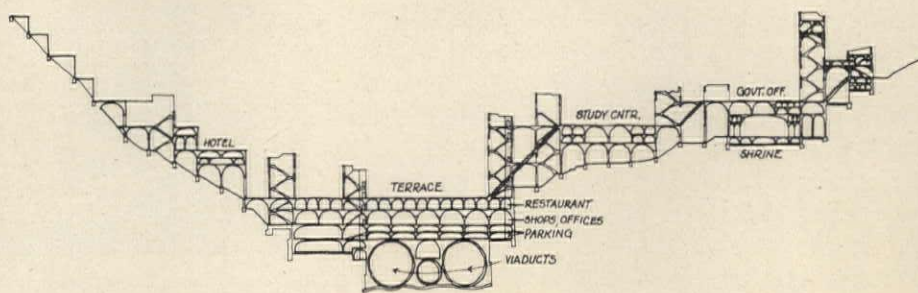
Finally two projects, more than any others, reveal that process of blending in action. The first of these takes the form of a linear park, over six kilometers, no less, of Paris itself—the whole of l'Avenue de la Grande Armee from the Arc de Triomphe to La Defense (illus. 38). To mitigate the worst effects of La Defense, the Taller prepared a comprehensive



40 Bridge of Meritxell, Andorra.



41 Elevation, Bridge of Meritxell.



42 Section, Bridge of Meritxell.

scheme concerned with traffic planning, public transport, and pedestrian ways, also a national model of building developments suggesting heights, widths, depths, façade treatment and so on for whatever new building and rebuilding was to be done over time. They also designed Le Forum Blanc (illus. 39), a multi-level complex of apartments, offices, shops, hotels, and parking to be built on a strategic site which had remained empty because it was bounded already by urban motorways. The Taller's strategy for this building design of course was much as it had been for La Petite Cathédrale and other large building complexes. But because they were designing for Paris rather than for the suburbs, they felt it appropriate to look for some more formal imagery than that of the Gothic cathedral. Their model in this case, therefore, was that notable neoclassical architect of the French revolutionary period, Nicholas Claude Ledoux.

Bridge of Meritxell

The second of the Taller's major new projects is the Bridge of Meritxell (illus. 40), which is conceived on an even grander scale. The client in this case is the State of Andorra, a tiny principality in the high Pyrenees on the border between France and Spain. It is all that is left of ancient Catalonia; the remainder has been swallowed up by France and Spain. Andorra, therefore, is a place of pilgrimage for Catalan nationalists from both sides of the border; and its importance in this connection is symbolized by the Virgin of Meritxell which, until recently, was housed in a Romanesque chapel. The building itself was recently burnt down, but the Virgin, miraculously, survived, so the Taller were asked to enter a limited competition with two other architects from Barcelona for the design of the chapel's replacement. The Taller refused, agreeing instead to collaborate with their closest architect-rivals in Barcelona—Martorell, Bohigas & MacKay. Bohigas himself is a noted Catalan and, between them, the two firms persuaded the

Andorran authorities that instead of merely replacing the Virgin's shrine they should undertake a much more ambitious project, symbolizing Andorra's highest aspirations in religious, political, and cultural terms. This is to take the form of a great bridge or viaduct, an enormous mile-and-a-half Pont du Garde spanning the valley between two peaks that dominate the State of Andorra (illus. 41). It incorporates the ruins of the Virgin's shrine, a range of assembly and guest rooms for the Council of the Valleys (the government of Andorra), restaurants, a theater, craftshops, a hotel, and some student rooms. There will be a national library for Catalonia, with archives and slide collections, a museum, and workshops for the preservation of Andorran crafts (illus. 42).

While all parties are agreed as to the linear nature of the scheme, there is still much discussion about its imagery. The Taller envisage a symbolic progression, of which the main features are to be a mountain path, a terraced amphitheater open to the landscape, and a giant staircase. Andorra's cultural aspirations will be symbolized by a path across the bridge, the crossing, and the arching of the viaduct over an artificial lake. A vertical monolith and the arching of the viaduct over grass will symbolize her political aspirations while, in addition to the Virgin in her new shrine, the ruins of the shrine will be retained for their symbolic value, together with a ruined colonnade. There will be a people's amphitheater and finally a pathway, fading to the east. The purpose of all this is to symbolize for Andorrans and for true Catalonians on each side of her borders the shaking off of a great inertia, the resurgence, not just of Andorra, but of Catalonia herself.

In a literal sense, therefore, the *function* of the Meritxell project is "to symbolize," but the Taller are fully convinced that whatever the architect's intention, *every* building is symbolic—people *will* read meanings into it. If that is so, then the symbolism might just as well be conscious, which is precisely what the Venturis, Charles Moore, and others

Taller de Arquitectura

have been telling us. But the problem now is *how* to think symbolically when, for 50 years or so, we have been told that the only responsible architecture is "functional."

Fort St. Cyr

The Taller's approach to symbolism is nowhere better illustrated than in their project for Fort St. Cyr (illus. 43), the old fortress outside Paris which, for many years until recently, has itself symbolized to the French all that was great in their military tradition. But now, as part of a new town, St. Cyr no longer serves that particular purpose and the Taller were asked to find new uses for it. The Taller's first step was to study the fort itself, its plan and relationship to the surrounding environment, the nature and condition of its existing buildings, and so on. They then considered what could be done, physically, to it. They presented five basic schemes—permutations on how new buildings could be juxtaposed with the existing ones, and how the whole could be altered to serve quite different purposes. In the favored scheme, the fort itself is converted into a hotel.

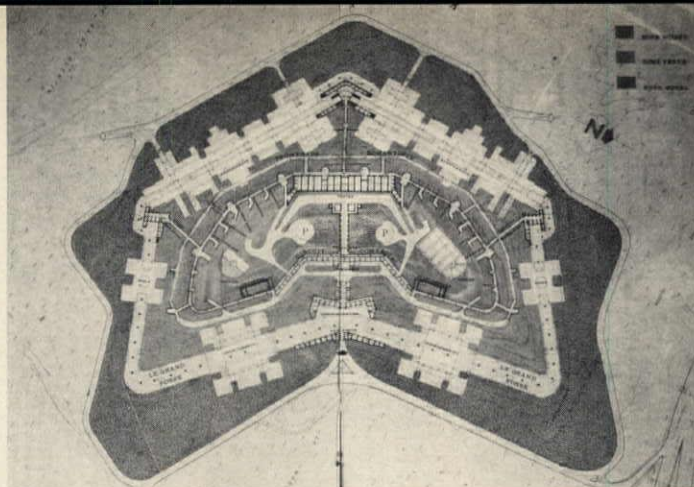
Maison de Abraxas

The proposed new building at Fort St. Cyr, Maison de Abraxas (illus. 44 and 45), is a set of apartments grouped, as one might expect from the Taller, around a set of carefully designed open spaces. Each apartment consists of an assemblage of basic units: one-person sleeping spaces, two-person sleeping spaces, cooking, washing and bathing spaces, sitting/talking spaces, and so on, within a basic set of modular dimensions, thus offering a maximum of flexibility in use. The open spaces are dominated by two huge symbols, a pure white cube and a golden sphere (illus. 46). The whole Maison de Abraxas (House of Magic) is thus meant to manifest in formal architectural terms the fundamental transitions in the life of man, from birth to death. The fort itself represents his passage from nothingness before birth, through life "like a breath of air," to nothingness after death. The great central staircase symbolizes his ascent towards perfection—but with no perceptible advance (illus. 47). The sphere is a symbol of that harmony which is only possible in dreams, and the cube a refuge in that reason which protects man from the hostile world. And the window, finally, which is open to the cosmos, symbolizes his yearning for the nature which he constantly desires but which is always hostile (illus. 48).

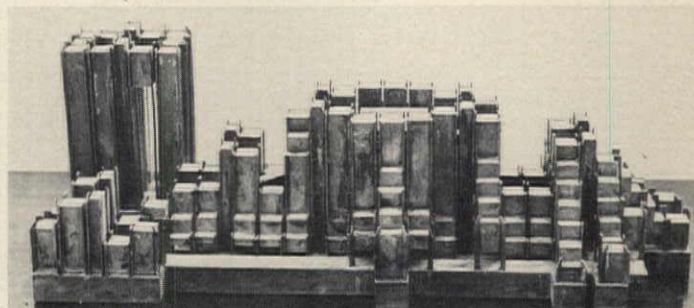
Fantasy? Of course, and why not? The apartments themselves are very well planned, economical, flexible, and truly functional. The sphere, cube, staircase, and window are unnecessary; they will make the project more expensive than it would otherwise have been. In that respect they fall into the same category as those steel, aluminum, or in the case of Seagram, bronze, I sections clipped to the exterior of the typical "functional" mode for no other purpose than to give it vertical emphasis. The Taller's cube and staircase in fact are very much more functional.

Les Halles

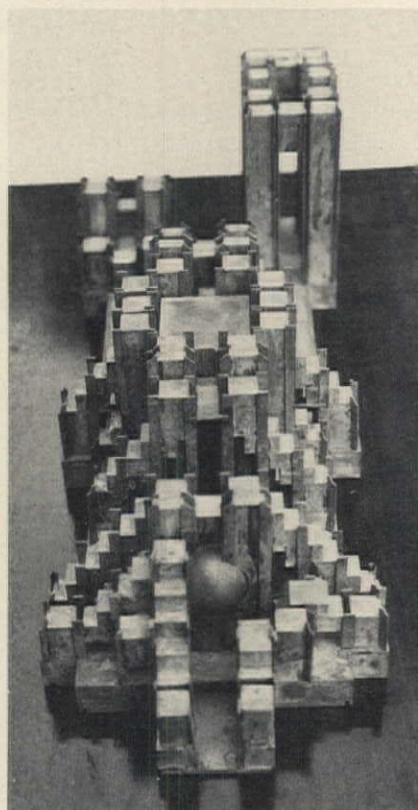
Finally there is the Taller's project for Les Halles (P/A, July 1975, p.22) in Paris—the consummation, as it were, of



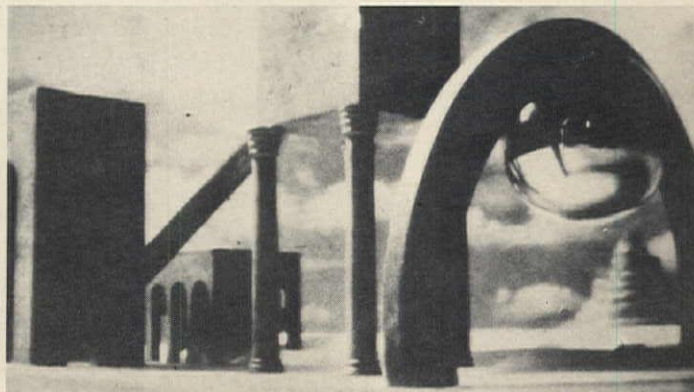
43 Fort St. Cyr, outside Paris.



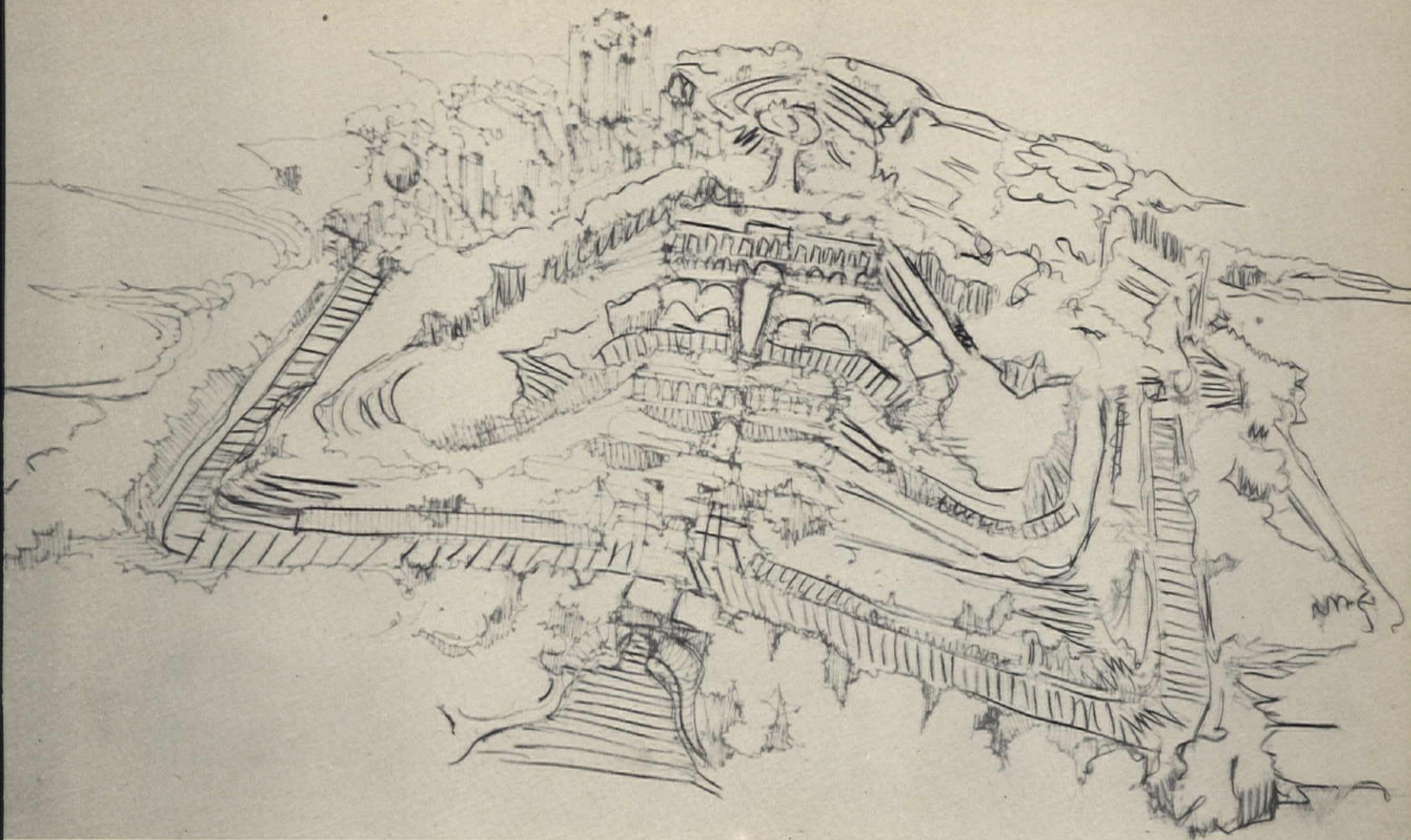
44 Maison de Abraxas, Fort St. Cyr.



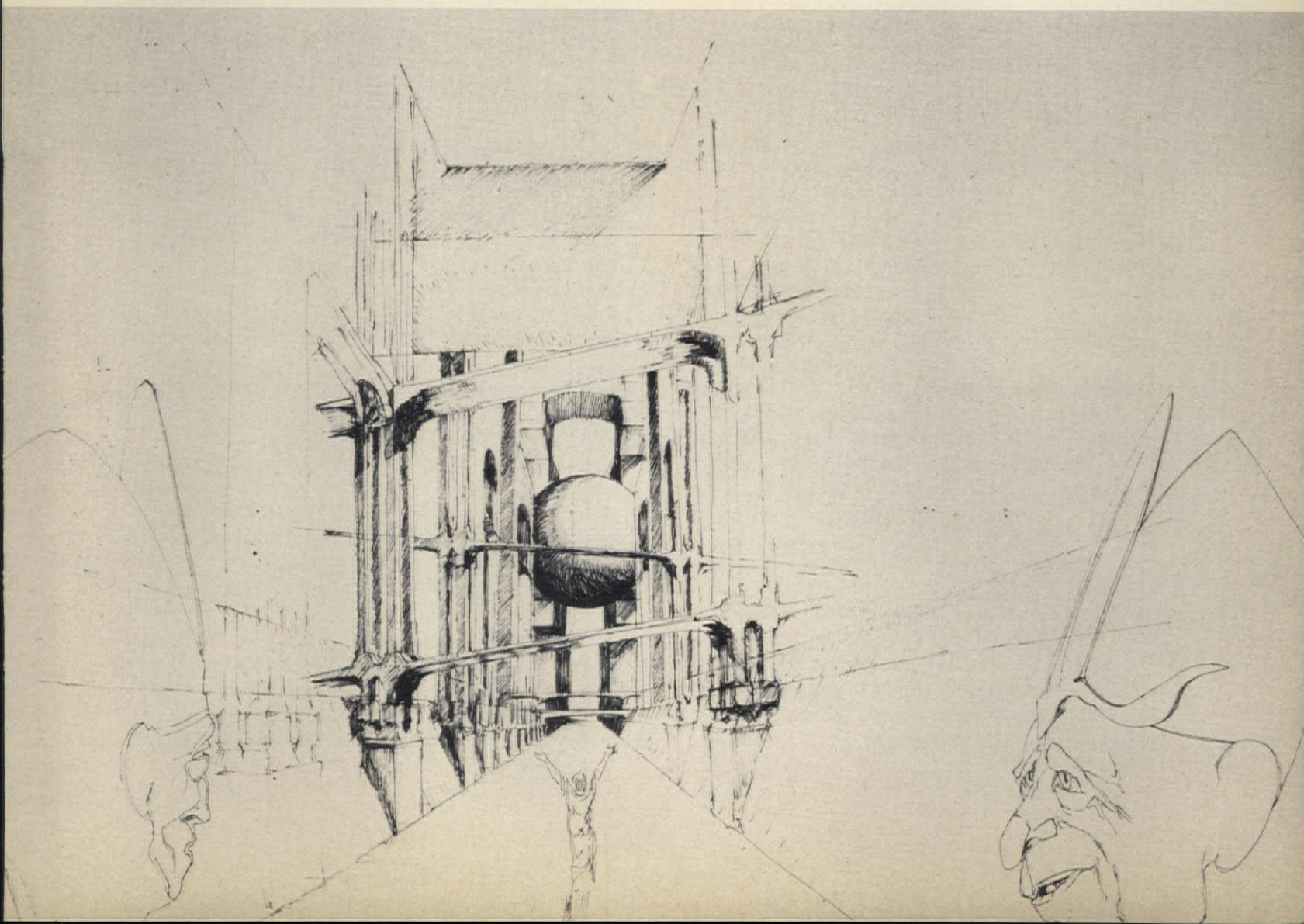
45 Maison de Abraxas.



46 Open spaces, Maison de Abraxas.

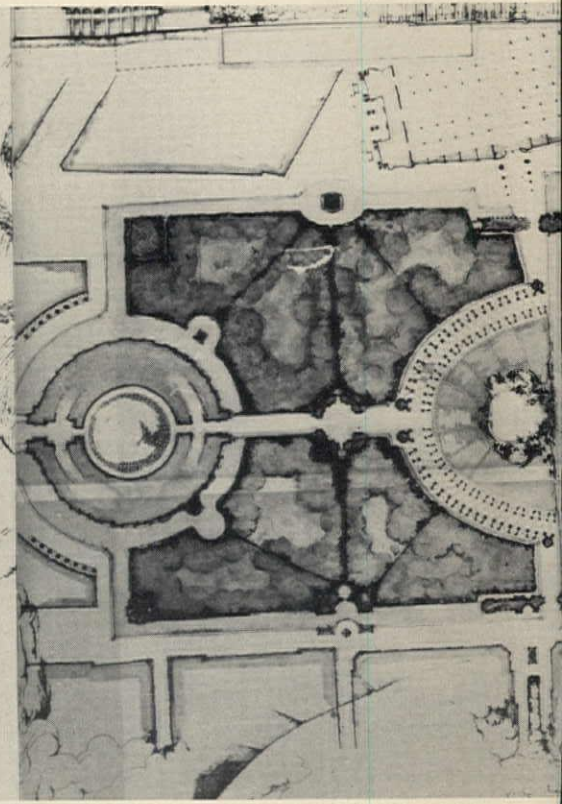


47 Fort St. Cyr and Maison de Abraxas.
48 Sphere and Cube, Fort St. Cyr.





49 Les Halles, Paris.



50 Plan, Les Halles.

Taller de Arquitectura

their urban arena concept and a complex application of their approach to landscape design (illus. 49). The fruit and vegetable markets were housed in glass and iron buildings of great historic importance: Baltard's superb pavilions. These, unfortunately, have been vandalized—demolished by the Parisian authorities in the 1960s—before they had decided what should be done with the site. The Taller deplore the futility of this; they would like to have seen the pavilions preserved, smothered in foliage and put to pluri-functional use in the kind of urban theater they had proposed for Monaco.

The Taller's project is heavily backed by Giscard d'Estaing, who has described Ricardo as "the finest architect in the world." Their proposal consists of a woods, "geometrique et sculptural," bounded by the rues Berger, Sauval, Clemence Royer, Coquillier, The Bourse, and the Church of St. Eustache (illus. 50). It is, of course, no ordinary woods; form, sight, sound, and color will give each part of it a unique and constantly changing sense of place, while into it will be carved an enormous, elliptical arena for pluri-functional use (illus. 51). It will be surrounded by a great peristyle, and a labyrinth of routes and paths through the woods—open spaces and secret places where chance encounters can happen, where very many things can take place—public, private, whatever "the people" happen to want to do at the time they find themselves there.

The whole concept is based on a complex relationship between planning *for* the people and participating *by* the people in what is now being done for them. The Taller see all of this, embedded in the center of Paris, as an evocation

of Parisian history—as a place so steeped in the collective unconscious of Paris that even when it is new Paris will know exactly what to do with it. The Taller's scheme, somewhat modified, has been adopted. Achievement on this scale in the heart of the city will seal their international reputation. But what, in the last analysis, are the bases of this?

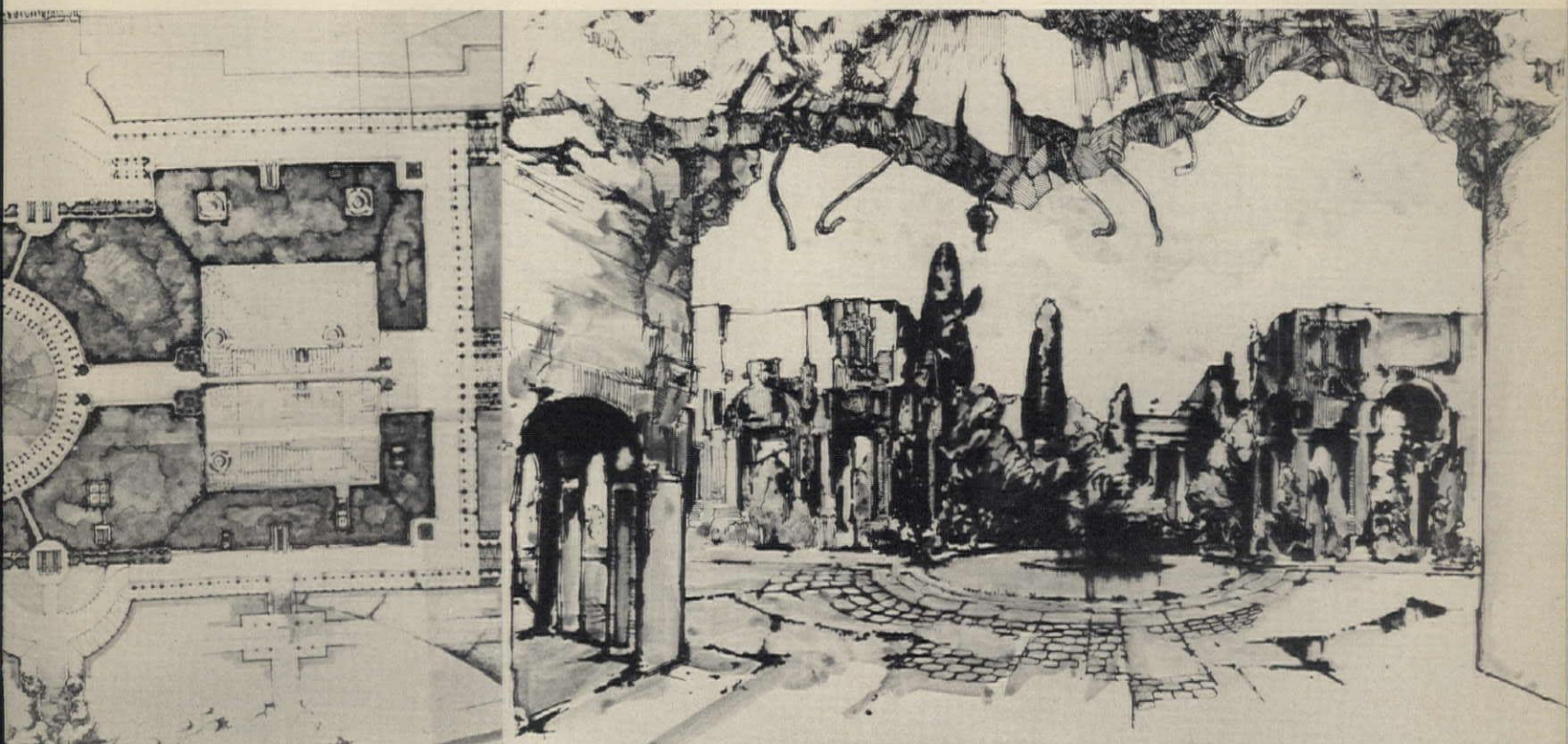
Taller's premises

The Taller was founded on a fundamental premise: That people in the mass need not be housed in gray, rectilinear "classic cemetery suburbs"; that for the same money, or less, the same number of people, or more, could be housed in architecture of a far more acceptable kind with an inbuilt sense of place, of identity, of environment for people. This they have demonstrated, unequivocally, with the Barrio Gaudi, the Ciudad en el Espacio, Walden 7 (although that is more expensive), and the Cathedrale of Cergy-Pontoise.

The alternatives

The Taller have presented creative and viable alternatives, which range in scale from the intimate vernacular of El Castillo to the Gothic monumentality of La Petite Cathedrale. In their manifestos, in fact, they actually advocate monumentality as a counter to the bleak sterility of "cemetery suburbs." In that, it seems to me, they are merely being honest.

There's an ascendant trend these days towards "small is beautiful"—an appealing view to which, other things being equal, one would certainly subscribe. In architectural terms, it goes something like this: before science and technology took over, people all over the world lived in small communities, in harmony with each other and in harmony with nature. As far as buildings were concerned, each



51 Elliptical arena, Les Halles.

place had local vernacular—a marvelous symbiosis of materials, environment, climate, lifestyle and so on. People built for themselves, or with the help of neighbors; this personal, physical involvement developed in them a personal identity, a sense of place, which most certainly was lost when people were moved to large, anonymous slabs.

It can be argued, of course, that the Taller's alternatives are still far too monumental, that in a sense their work would be more significant if they had continued with their developments from the vernacular which they started at El Castillo. But there are a number of reasons, some certainly cultural, why they have not done this. Asked what they would do if commissioned to design housing in England, they said that their first step would be to look very closely at Garden City housing to absorb the scale and texture of it, and to develop new solutions based on that "close to the ground" approach. But things are different in Spain and France, where people's expectations are very much attuned to large apartment blocks. Apart from that there are straight logistic reasons. Since people insist on moving to cities in very large numbers, they have to be accommodated at very high density.

So, in designing high-rise, high-density apartments, the Taller are simply being realistic. But they have demonstrated very genuine alternatives to the large anonymous slab which they despise so much. They have been able to do this, one suspects, *because* their design team includes outsiders—a poet, a writer, an economist and so on—who because of their diverse backgrounds, have *not* been brainwashed in the conventions of established architecture and who can ask the "fool" question which no trained architect would ask, but which throws quite a different light on what should be done and the reasons why.

Such outsiders could not contribute, however, unless there were some framework, some procedure for doing so. The Taller certainly do not have an agreed, rigid, linear sequence of design; but they do have a series of understandings that people will play roles. The Taller insists, however, that this is by no means a concrete definition of roles. The roles are interchangeable and indeed they often are interchanged. Each group, at each stage, uses whatever techniques happen to be appropriate, from the most poetic of brainstorming to the most rigorous of economic analyses. In other words, the Taller succeed in building its visions because, more than any other firm of architects in Europe, it actually uses that which, over the past 15 years, we have come to call Design Method.

Urban theater

There is no doubt that, in forming such a multidisciplinary team, Ricardo Bofill has pioneered a genuine, fresh and new approach to architecture. There is no doubt also that the Taller's concept of "urban theater" is a positive, genuine, new approach to the problems of urban design. Just as le Corbusier's individual, standing alone on his balcony, open to the sun, space, and greenery, formed the basis of a total urban strategy—with the most disastrous results—so the Taller's man, with freedom to choose privacy, involvement, or a spectator's role, has implications of equivalent profundity from which, I have no doubt, new forms of city will emerge. There is no doubt either that in offering identity, a sense of place in the environments they design, the Taller are showing once again that cities need not be bleak, sterile, and hostile places which International Style design has made of them. And that, on its own, would be enough to justify the Taller's existence. □

The metric system—a look to the future

Robert D. Williams

Time is running out for America's conversion to the metric system, despite considerable advantages for our architects, engineers, manufacturers.

A conversion to the International Metric System is long overdue—if the U.S. intends to maintain its high standing in an increasingly competitive international marketplace. Unless we convert soon, we will face ever mounting trade deficits. We are the last major industrial nation to resist.

No better time exists to begin the conversion. With a gradual turnaround in our economy, we are in an excellent position to start making those changes which will relate more closely to international standards and which, at the same time, will meet basic U.S. design requirements.

Although metric conversion is backed by many building design and construction groups, the impetus to date has not been strong enough for Congress to act. An Act "to authorize the Secretary of Commerce to make a study to determine advantages and disadvantages of increased use of the metric systems in the United States" (Public Law 90-472) was approved on Aug. 9, 1968. The study, entitled "A Metric America, A Decision Whose Time Has Come," was published July 1971 by the National Bureau of Standards.

Among the conclusions reported: "That the United States change to the International Metric System deliberately and carefully; that this be done through a coordinated national program; that the Congress assign the responsibility for guiding the change, and anticipating the kinds of special problems described in the report, to a central coordinating body responsive to all sectors of our society; that within this guiding framework, detailed plans and timetables be worked out by these sectors themselves; that the Congress, after deciding on a plan for the nation, establish a target date 10 years ahead, by which time the U.S. will have become predominantly, though not exclusively, metric; that there be firm federal commitment to this goal."

To date, Congress has not even established a target date, much less a firm commitment to proceed with conversion to the metric system. Adapting construction materials and equipment currently manufactured for the U.S. domestic market to the metric system is not enough. The construction market is bearish, but the market is international.

What does all this have to do with writing specifications? Plenty! The building industry must gear itself to a common, basic building module. If we are to follow the international trend, that module would be 100 mm, or approximately four inches. Adoption of such a standard could be accomplished at far less expense now than if it were adopted after the metric system had been in use for a number of years. It would certainly simplify communication of design and construction techniques throughout the world.

On Caudill Rowlett Scott's foreign projects, we have converted sizes of products manufactured in the U.S. to the metric system. For instance, a 2" x 4" wood stud becomes a 5 cm x 10 cm wood stud. Using the basic 100 mm module, the same stud would be 50 mm x 100 mm, or ½ module by one module.

The main reason for doing this is that these projects are in unindustrialized areas of the world. With few exceptions, the products have been purchased here and shipped abroad. Due to the process of selecting products, we have included the weights and measures of both the U.S. system and the metric system in our specifications. In the process of conversion, we have made a few memorable errors, particularly on our first foreign project. Three thousand lbs concrete became a metric unit for which there is no basis of comparison. Luckily, the weights and measures indicated on the drawings were exclusively metric, which made for less chance for error.

The suggested 100 mm module is just a beginning. What about building products such as dryboard, plywood, particle board, plastic laminate, gypsum lath, metal lath, and other large units which are manufactured in sizes which relate strictly to our 16" stud and joist spacing? A good multiple of a 100 mm module is the meter itself, which is slightly less than 40 in. or 10 times the 100 mm module. A piece of dryboard 1 m wide would certainly be easier to handle than 48 in. wide dryboard.

In line with the proposed 1 m width for such building products would be the spacing of studs, joists, hangers, and acoustical ceiling tees. Spacing of studs, whether wood or metal, could easily be stretched to .5 m (500 mm). This would approximate 20 in. spacing, which compared with our 16 in. spacing, saves us 25 percent of studs.

Another method of measurement used by U.S. industry is that for sheet metal: the same gauge of aluminum, stainless steel, and galvanized steel each has a different thickness. How would the archaic systems used for comparing weights of sheet copper or sheet lead be treated under the metric system? Would we simply convert 16 oz copper or 6 lb lead to its metric weight equivalent? A simpler approach would be to manufacture such products to acceptable fractions or multiples of the millimeter. We should forget about gauges in measuring the thickness of any sheet material while keeping in mind the requirements of domestic and foreign construction.

With each day's passing, the change becomes more difficult to make. It's time we stopped dragging our feet and inches—and started pushing meters and millimeters. □

Author: Robert D. Williams, CSI is Specifications Group Leader for Caudill Rowlett Scott, Houston, Texas.



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Pandora's plastic box

All plastics are not created equal. As billions of pounds find their way into architecture, the designer's need to understand them grows. It can be a tough assignment.

There was something suspicious about the billiard balls. They were spherical, of course. But they collided with the sound of blazing pistols. The year was 1863, and the billiard balls were made of an ivory substitute, nitrated cellulose, the world's first plastic. In the following century, plastics have found their way into 13 of the 16 sections of the Uniform Construction Index. However, learning what he needs to know about plastics remains a formidable challenge for the architect.

Architecture's appetite for plastics today consumes perhaps a third of the nation's annual plastics output of some 30 billion pounds. The architect is somewhat speechless in this success story. Like the father of the bride, he is awed, eager, and not a little intimidated.

Plastics have generally remained on the fringe of his education. Even as he tries to comprehend the more familiar materials and methods of the plastics industry, new formulations and new products invade his building materials catalogs. In this brief inquiry, the plastics industry as represented by the Society of the Plastics Industry (SPI), tells P/A what it believes architects should know about plastics.

You look different with your clothes on

To the extent that an architect studies steel, concrete, wood, and masonry he feels quite familiar with them. As well he should. Familiarity has bred respect for what these materials can and cannot do. The architect can afford an intuitive approach to their preliminary design and specification. He knows "what a brick wants to do."

The architect's perception of plastics seems altogether different. Plastics bristle with strange and imposing technological barbs. They vary enormously in chemistry, physical properties, and costs. Their processing ranges from slow, simple, and inexpensive techniques to high speed, complex, and costly ones. Their nomenclature is necessarily uncompromising. A rose may be a rose by any other name; polymethyl methacrylate is neither the only acrylic nor the only clear plastic used for glazing.

Does this oblige the architect to be an amateur chemical engineer? The plastics industry thinks not. Inasmuch as a designer can create steel structures without applying more than an elementary knowledge of steel metallurgy, SPI feels the same should apply to plastics. That is to say, architecture is more concerned with design of the *configuration* of standard building components than with original designs for these components. Materials engineering is not an architectural responsibility.

And then there are fire losses involving plastics in construction. For the architect "burned once, never to specify again," this attitude may taste like a feast of ashes. If plastics chemistry is not his province and plastics fabrication remains an introductory lesson, how can he control the properties of plastics he must approve? Or are plastics really omnipotent?

Driving past the perpetual bloom of plastics trash landscaping our nation's highways, it is easy to forget that plastics are vulnerable to decay and destruction when improperly used. The SPI emphatically states that an all-plastics house is not an industry goal. There are situations for which plastics are most sensible, and those which are not.

The SPI suggests that performance specifications can give the designer his much needed control. What must the material *do*? This places a heavy trust in the manufacturers of raw plastics and finished plastics goods and the numerous private and public regulatory agencies, because the architect alone retains ultimate responsibility. However, an augmented architectural participation in plastics specifications may require an expertise the architect cannot exercise. The more unfamiliar and complex the intended end use of a building product wholly or partially constructed of plastics, the more valuable is the performance method of specification.

Sacred cacaphony

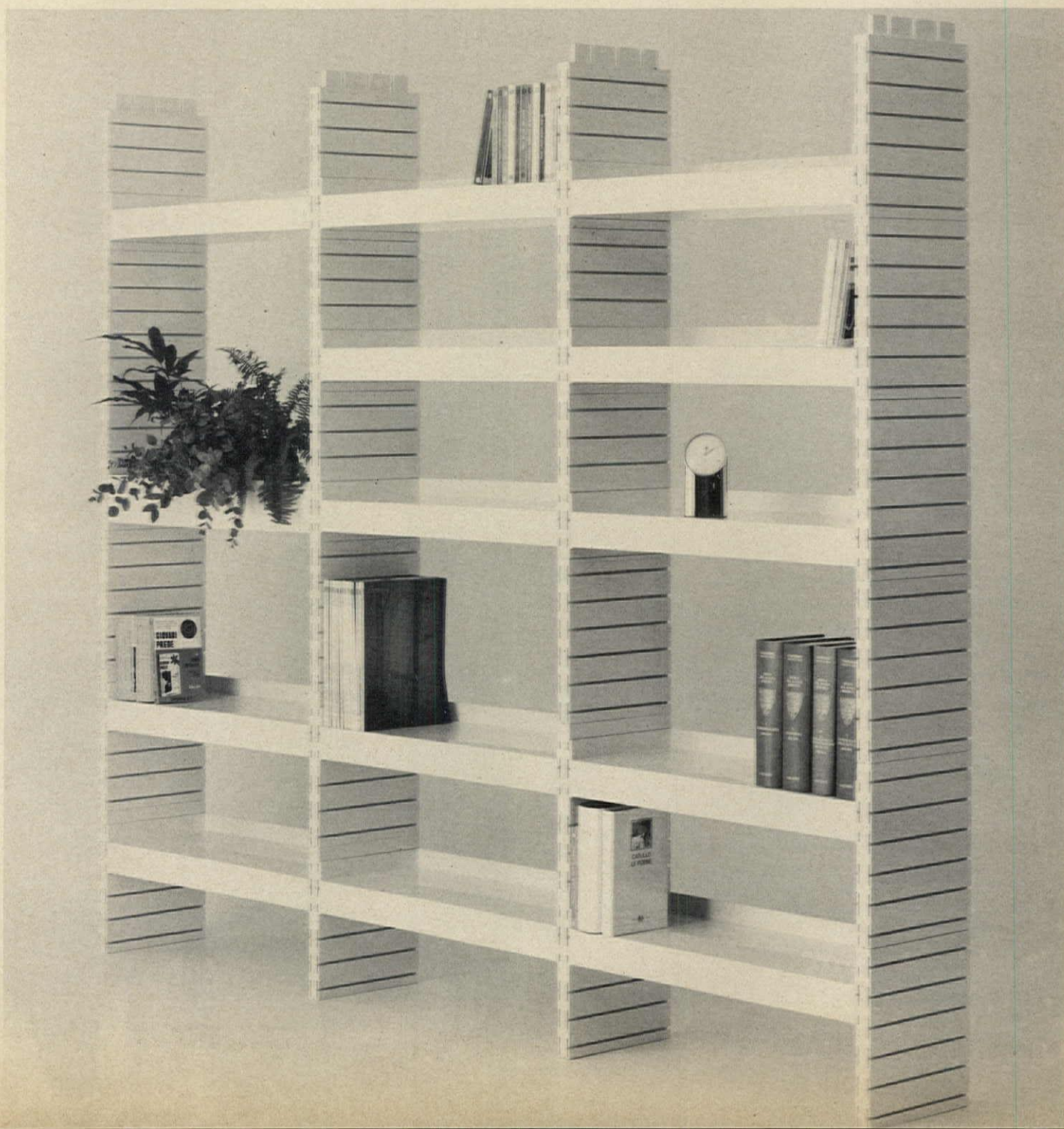
Architects have relied on "bibles" of design data for steel, wood, and concrete construction for years, but there is no "plastics bible." In the absence of a single authoritative source of information on plastics engineering and design detailing, the architect is obliged to seek third party help. There is no equivalent body in this industry to perform the design services of an American Iron and Steel Institute,

Gunnar Aagaard Anderson, Chair, 1966, urethane foam. Urethane foams are frequently used as cushioning for furniture, mattresses, and bed pillows. Available in a broad range of formulations, they can display an extraordinary number of shapes, densities, resiliencies, strengths, and thermal conductivities, to name a few characteristics. Choosing the correct formulation for an end use is essential for economy, function, and safety too—all urethane foams are considered combustible. Urethane foam for interior construction must not be left exposed, but must be covered with fire-rated material. Not surprisingly, the SPI regards this chair of urethane foam, provocative as it is, with concern. Illustrations: all photographs courtesy of The Design Collection, Museum of Modern Art, New York; drawings courtesy of SPI, New York.



Technics: Plastics

Plastics enjoy many uses because of such qualities as formability, light weight, electrical insulation, low thermal conductivity, latitude of color and transparency, water resistance, and amenability to mass production. Examples below demonstrate what plastics design can do, left to right, top to bottom, both pages. Sergio Mazza, Sergesto stacking bookshelves, 1969, ABS plastics, manufacturer: Artemide, Italy. (Acrylonitrile butadiene styrene is a very high impact relative of polystyrene used extensively in automobiles and plumbing fittings.) SPI, graphic summary of basic plastics applications in construction. Rodolfo Bonetto, Magic Drum portable radio, 1968, ABS plastic case, manufacturer: Autovox, Italy. Bombo ice bucket, 1970, acrylic plastic, manufacturer: Guzzini, Italy. (Polymethyl methacrylate is the best known acrylic. Its crystal clarity—a higher light transmission than glass—toughness, lightness, and weather resistance make it ideal for skylights, light fixtures, and illuminated signs.)



American Institute of Timber Construction, or American Concrete Institute, to name a few. As a result, the architect must identify reputable established standards for the plastics products he intends to use.

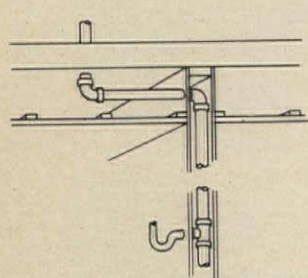
And who are these authorities? Consider that the faces of some of America's most prestigious testing agencies still bear the scars of spectacular fires involving plastic foam. Were there gross failures of judgment or deliberate connivance in these tragedies by the parties concerned? Despite the passionate arguments voiced then, this seems most unlikely. Rather, they were an accumulation of aggravations: poor building industry communications, optimistic readings of test data, and over-zealous end users. Trite as this sounds, not enough questions were asked by end users then. In the opinion of SPI, not enough are asked now.

Dr. Albert G.H. Dietz, Professor of Building Science, Massachusetts Institute of Technology, outlines the basic plastics properties that immediately involve architects in his

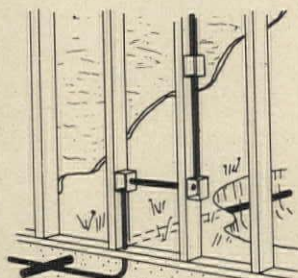
Plastics for Architects and Builders (1969). He lists: tensile strength, elongation, tensile modulus, compressive strength, compressive modulus, flexural yield strength, flexural modulus, hardness, impact strength, thermal conductivity, thermal expansion, resistance to heat, burning rate, effect of sunlight, clarity, and water absorption. This is a firm foundation of inquiry. More discriminating tools are needed, however.

Who are you? Where are you from?

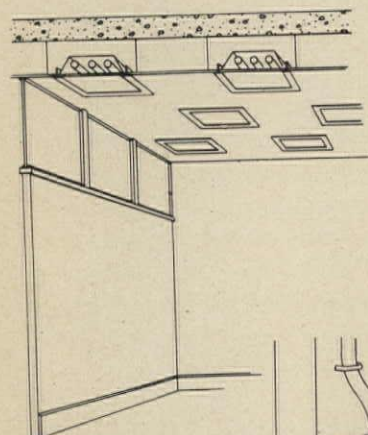
A plastics product is only as good as the agency that approves it. A product lacking any such approval should be handled with extreme caution. The primary resource for the nation's plastics research and testing standards remains the American Society for Testing and Materials (ASTM). For those much bruited misunderstandings that arose like the Phoenix from ASTM fire tests D635 (Burning Rate, a test specific to plastics), E119 (Fire Endurance), and E84



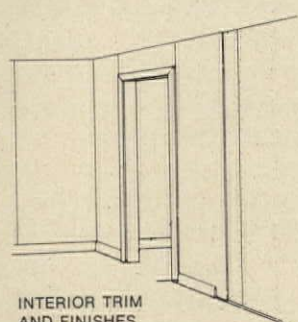
DRAIN, WASTE AND VENT PIPING



RIGID NONMETALLIC CONDUIT



LIGHT DIFFUSERS AND GLAZING

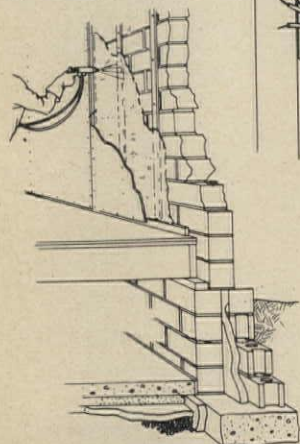


INTERIOR TRIM AND FINISHES

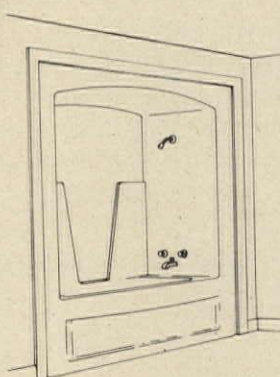


THERMOPLASTIC INSULATED WIRE AND CABLE

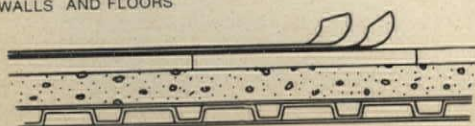
NONMETALLIC OUTLET AND SWITCH BOXES



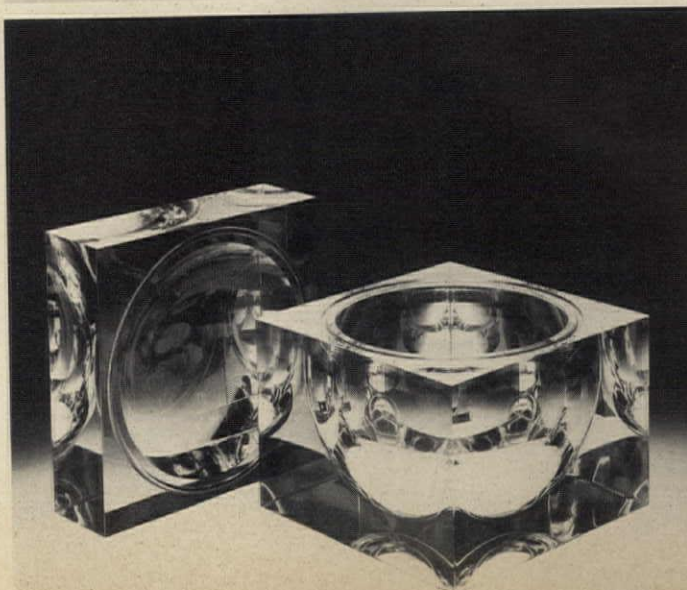
FOAM INSULATION FOR WALLS AND FLOORS



PLUMBING FIXTURES

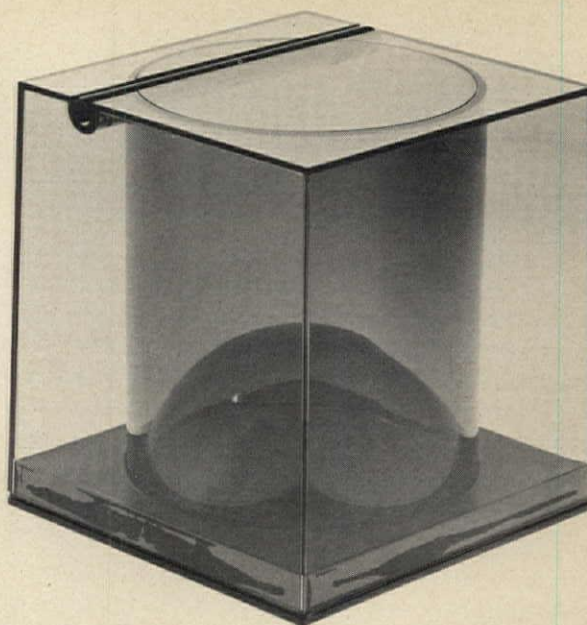


PLASTIC FOAM ROOFING INSULATION



Technics: Plastics

The many (sometimes hidden) faces of plastics, left to right, top to bottom, both pages. Model 123 cubic ice bucket, 1971, acrylic plastic, manufacturer: Cini & Nils, Italy. Carlo Bartoli, Solar lounge chair, 1967, glass fiber and polyester resin, manufacturer: Stendig, New York. (Glass grows significantly stronger when drawn into fibers a few thousandths of an inch in diameter. Adding glass fiber to polyester resin produces a reinforced plastic of increased stiffness, impact resistance, and tensile strength.) Rodolfo Bonetto, Boomerang lounge chair, 1969, polyurethane covered in fabric with chromed plastic braces, manufacturer: Flexform, Italy. (Plastics can be metalized to simulate metal where metal's structural capacity is not required.) Rodolfo Bonetto, Quattro Quarti combinable low tables, 1969, plastic, manufacturer: Bernini, Italy.



(Flame Spread) to haunt end users have spawned extensive procedural reforms and the suppression of problematic terms like "self-extinguishing" and "nonburning" in product specifications.

Model codes, regional codes, and municipal codes, private and government research and regulatory agencies, and SPI provide specific design and specification guidelines and requirements to supplement what is given by manufacturers. The Building Officials and Code Administrators code, the Uniform Building Code, and the Southern Building Code are useful sources of model code attitudes on plastics. Research data can be obtained from SPI, National Fire Protection Association, Factory Mutual Research Corporation, National Bureau of Standards, and Underwriters Laboratories.

Nonetheless, plastics also present the architect with problems currently beyond his control. Communication between the plastics industry, a diffuse group of large raw material suppliers and small processors and finishers, and the architectural profession is far from ideal. (As Dr. Dietz notes, "The industry has the oddest notions of what architects want.") An industry organization specifically devoted to designers' needs is repeatedly requested by architects.

A plague of trade names further beclouds plastics design. As if the generic names were not enough, many manufacturers affix their own labels to the product. For example, polyethylene is simply "Polyethylene" for Dow Chemical, Eastman Chemical Products, Shell Chemical, Union Carbide, and W.R. Grace. But polyethylene also assumes a nom de plume like "Alathon" (Du Pont), "Ameripol" (Goodrich-Gulf Chemicals), "Chemplex" (Chemplex), "Fortiflex" (Celanese Plastics), "Hi-Fax" (Hercules Powder), "Marlex" (Phillips Petroleum) or "Petrothene" (U.S. Industrial Chemicals).

To complicate matters, certain trade names are joining the lingua franca as generic terminology: Formica, Plexiglas, Styrofoam, Fiberglas, and others. This list will undoubtedly grow without decisive industry action. (It is also quite a tribute to the plastics industry, a reassuring measure of plastics pervading our lives.)

Memento mori

More life cycle and combustion data on plastics are sorely needed. Researchers have made significant progress; much remains to be done. One good step in this direction

is the Urethane Safety Group of SPI, which investigates consumer safety and disposal methods for urethane plastics. We have a fairly thorough understanding of combustion theory now. What we need is an equally thorough analysis of actual hazard conditions.

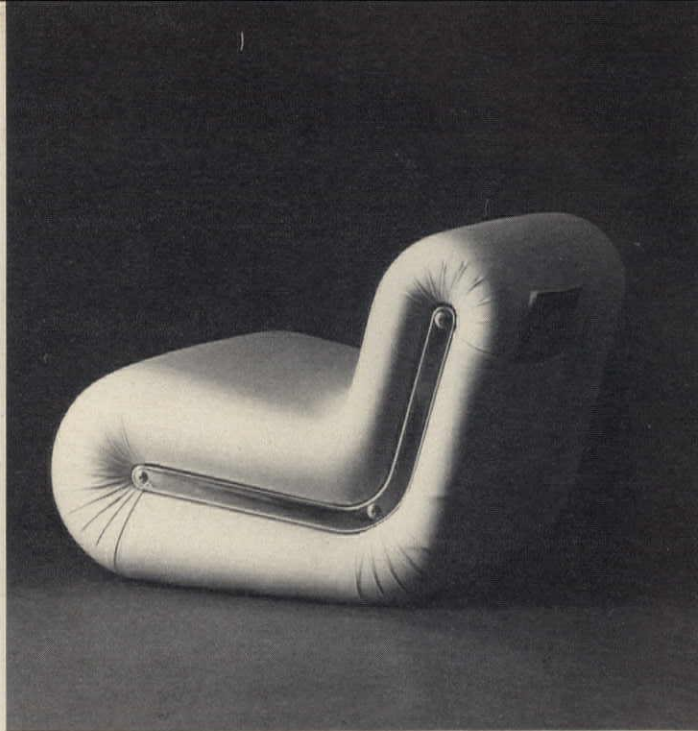
Lacking a comprehensive picture of plastics in the environment, the architect is ill-equipped to negotiate life safety trade-offs. Generally, plastics are hydrocarbons (silicones are an obvious exception) as is wood. Thus, plastics combustion is an inescapable fact of life. But how much fire protection of plastics does society want or need? Is a plastic that resists burning only to succumb with thick toxic smoke preferable to another that burns cleanly but rapidly?

Paradoxically, a major problem for plastics is that the architect loves them too well. The profession has traditionally been a leader in innovative materials applications. This willingness to experiment with new products has occasionally led to unjustified and sometimes dire extrapolations from approved specifications. A skylight approved for isolated use becomes an entire domed environment, not always with official sanction. The SPI believes that architects who wish to exceed strict, narrow interpretations of product approvals must subject them to an exhaustive analysis with the full cooperation of manufacturers and code administrators. A creative approach is not precluded.

Plastics are a remarkable family of building materials. Architects will undoubtedly continue to specify them, often indirectly through building products that contain plastics in some form. But they need help from the industry for the hard questions society continues to fire at them.

Our ancestors searched for a philosopher's stone. Our generation has found one in plastics. In our iconoclastic era, it seems fitting that this miracle worker has its very real limitations. If the plastics industry gives architects its full support, we will continue to see creative uses of plastics in design. To quote Dr. Dietz, "Plastics are not wonder materials. Nor are they shoddy ones, either. There are few other materials with so many personalities." [Roger Yee]

References: Society of the Plastics Industry, 355 Lexington Ave., New York, N.Y. 10017. Albert G.H. Dietz, *Plastics for Architects and Builders*, 1969 Cambridge, Mass., MIT Press.



Witness for the preservation



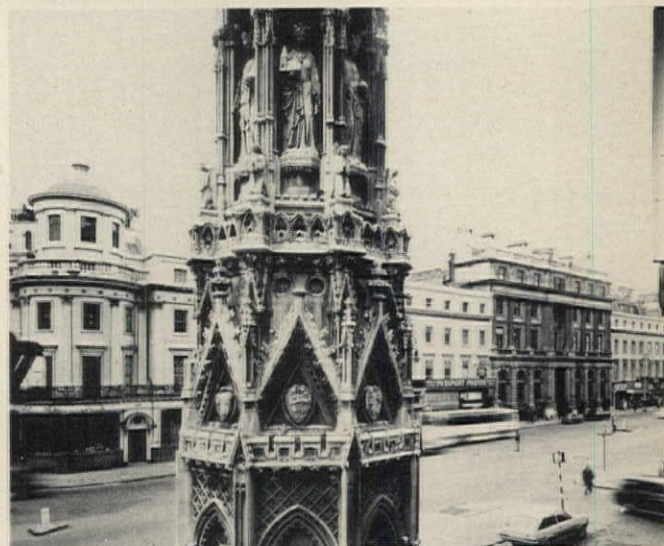
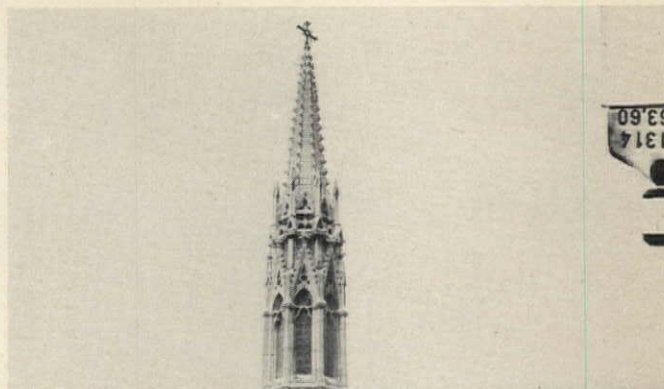
Two instruments of photogrammetry. (Above left) photographer positions stereometric camera. (Above right) operator tends plotting instrument.

Photogrammetry permits a careful visual documentation of existing historic structures through highly precise measuring and drawing of stereoscopic photographs.

"The victim's features were altered beyond recognition." Which is to say, many a historic building resembles an accident report. Refurbishing its design integrity can be frustrating in the absence of original drawings. Now a technique for the graphic documentation of existing structures has been developed by an English concern. Photogrammetry exploits the optical phenomenon called parallax to draw three dimensional data from two dimensional observations.

Parallax does nothing for fish—whose eyes sweep separate visual fields. For man, the apparent displacement of a perceived object seen in overlapping left and right fields of vision generates a sensation of depth. A curious thing happens when man fashions a graphic record of this visual experience. In focusing the image on paper or film, man collapses depth, the third dimension, within the picture plane. A one-eyed world stares back.

Holography restores the lost dimension. But this technologically sophisticated process, a radiation and deflection of laser beams off a selected target, is still basically a scientific novelty. Photogrammetry, a measurement of depth indicated by the parallax effect of stereoscopic photography, has been known and studied for a century or more. With the adaptation of special photogrammetric techniques and plotting instruments, this tool of geology and archeology has been placed in the service of architecture.



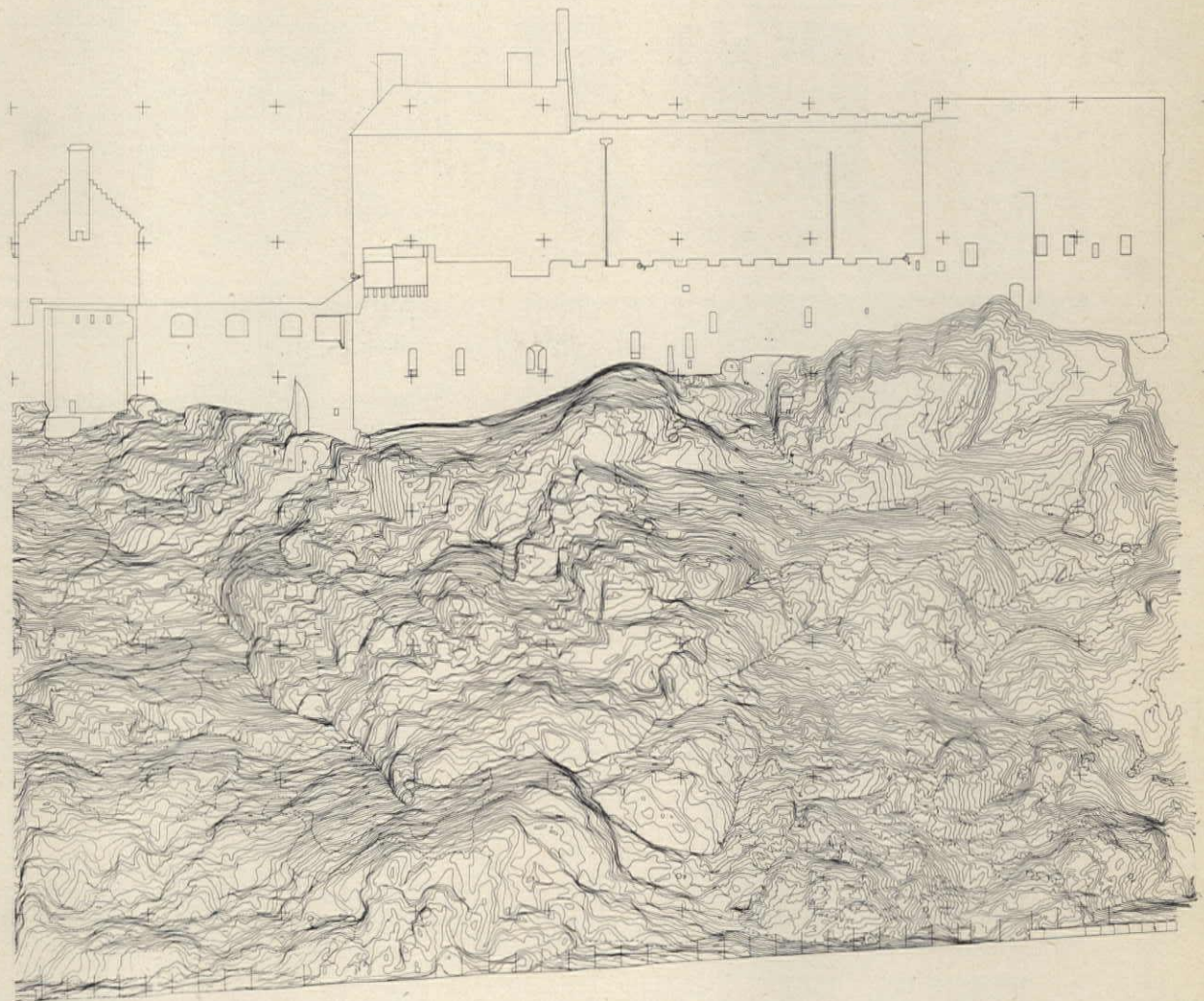
Photogrammetry copes with two unusual assignments. (Left and opposite) show multiple exposures of English Charring Cross monument and subsequent drawing. Below are plate and drawing of Schloss Bruhl and terrain near Cologne, Germany.

It is offered through Meridian Airmaps Ltd. of England.

A photogrammetric record of a building commences when a precision stereometric camera carrying twin fixed focus positive 53 mm lenses mounted astride a long beam is aimed normal to or at a 30 or 60 degree tilt to the façade, preferably from a distance of 30 ft. Certain reference marks and their measurements are noted. Then film is exposed to the façade to the extent needed to cover the entire surface. Two film plates, each $2\frac{1}{2}'' \times 3\frac{1}{2}''$, result from an exposure.

Areas larger than 30 ft sq and elevations higher than 150 ft exceed the camera's field of vision at ground level, but can nonetheless be accommodated. Large surfaces require multiple exposures from vantage points along a straight line parallel to the façade. The subsequent overlapping fragments are reconstituted into a single view.

Where structural heights exceed 150 ft, the client has the



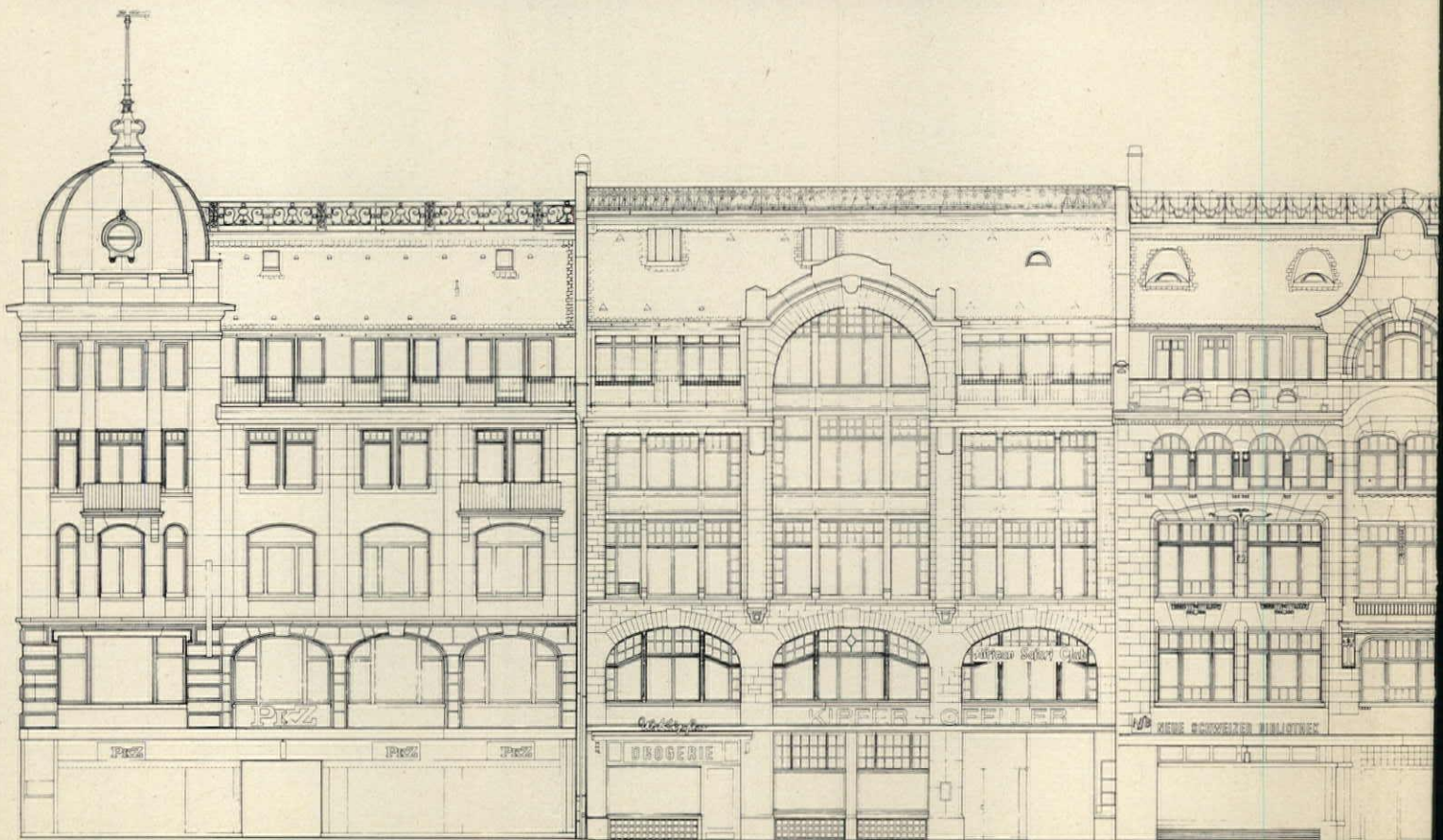
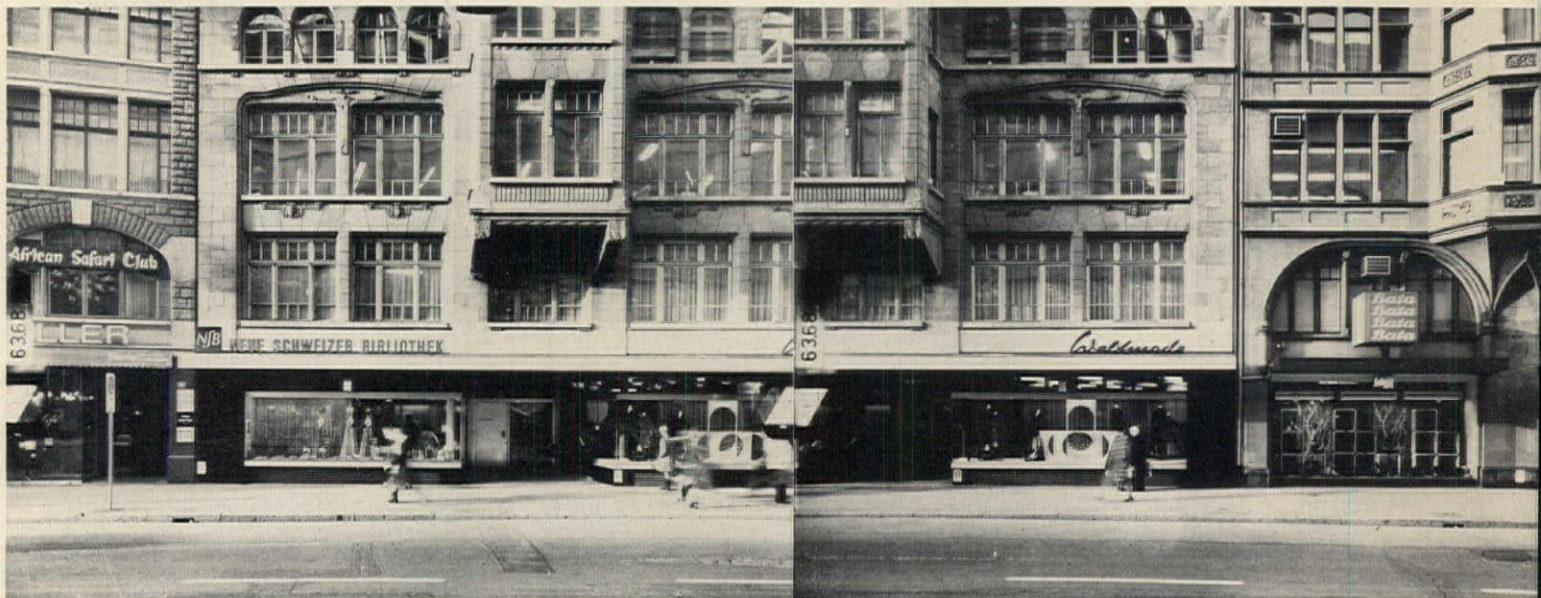
Technics: Photogrammetry

Elevation of entire block frontage on Uraniastrasse, Zurich, Switzerland is produced through series of overlapping views carefully coordinated to produce one complete drawing of meticulous detail.

option of either paying a premium to place the camera on a hydraulic lift (for want of a tall neighboring perch, which may be available), or accepting the possible existence of "blind spots" caused by projecting or recessed surfaces, which tend to cut off sight lines. Tilting a stereometric camera causes parallel façade lines to "converge," but this is corrected later.

Follow the dot

The pair of overlapping film plates is carefully positioned in a photogrammetric plotting instrument. When an operator views these separate left and right hand images, they appear to merge into a single optical model displaying the



third dimension neither image fully has. A tiny "floating" dot, positioned by the operator's hand- and foot-activated controls, traces the linear elements of the model selected. Beginning at a selected visual distance, the dot also can trace the "contours" of an object. (Operators need training and skill to manipulate these plotters.) Simultaneously, a plotting pencil synchronized with the floating dot draws its movement on paper. For topographic studies, the process is repeated for successive distances until the contours are all mapped.

The technique has been successfully applied in historic preservation projects throughout Europe. Because of its great accuracy and versatility, it has made possible a per-

manent record of architectural elevations, sections, and plans where traditional graphic methods have been inaccurate or technically implausible (e.g., topological mapping of hard to reach cathedral vaulting). Though this is small consolation for the heritage we have irretrievably lost, photogrammetry offers us at least one imperishable architectural artifact that neither nature, warfare, nor real estate speculators will begrudge.

(Note: Meridian Airmaps Ltd. has no U.S. offices at this time. Americans interested in securing its services should inquire of Mr. R.H. Smith, AIIP, AMIRT, Meridian Airmaps Ltd., Marlborough Road, Lancing, Sussex, BN 15 8TT, England.) [Roger Yee]



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By James J. O'Brien, 512 pp., 140 illus., ... \$17.95

Outlines the duties, requirements and interests of the construction inspector. Describes the "whys" as well as the "how-tos" involved in observation of construction quality. Including handy checklists to work from, the book shows you exactly what should be reviewed and inspected.

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2 Skyscraper Style Art Deco New York

By Cervin Robinson and Rosemarie Haag, Bletter, 220 pp., illus., ... \$20.00

Illustrated by Cervin Robinson, one of America's finest architectural photographers, this book studies the Art Deco buildings of New York, their European and American sources, their main features and the architects' intentions in designing them. Valuable to the historian of art and architecture, the volume will be especially treasured by city dwellers everywhere.

Circle B602 under Books

3 Perspective: a new system for designers

By Jay Doblin, 68 pp., illus., ... \$7.50

The first system developed to solve the kind of drawing problems encountered by designers. Eliminates the complex mechanical drawing that an architect normally employs in his traditional way of working with plans and elevations. The system offers a simpler method of visualizing any three dimensional object accurately and quickly.

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4 Marinas: A Working Guide to Their Development and Design

By Donald W. Adie, 336 pp., illus., ... \$39.95

Boating occupies an increasingly important position in the major growth industry of leisure. Because boating involves vast expenditures, and the need to conserve and use water resources wisely, these facilities demand high ex-

pertise in planning and design, which this up-to-date guide provides.

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5 Fire Protection for the Design Professional

197 pp., ... \$25.00

This book is an invaluable source for architects, engineers and builders seeking to keep up with the rapid growth of fire protection technology. An anthology of material formerly available only separately, the book combines the expertise of twenty-one contributing area specialists on building codes and standards and on significant contemporary fire protection problems.

Circle B605 under Books.

6 Architectural Rendering The Techniques of Contemporary Presentation

By Albert O. Halse, 326 pp., illus., 2nd edition, 1972 ... \$24.50

This completely up-to-date revision of the most widely used guide to architectural rendering covers all working phases from pencil strokes to finished product — and shows how to obtain the desired mood, perspective, light and color effects, select proper equipment and work in different media.

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7 Construction Design For Landscape Architects

By Albe E. Munson, 256 pp., illus., ... \$11.50

This volume is a complete guide to the preparation of a building site for construction or landscaping. The book was written for use as a rapid refresher for the practicing landscape architect as well as a handy reference guide to short-cut methods that will be of interest to the civil engineer doing site improvement plans.

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8 Residential Designs

Edited by David E. Link, 192 pp., ... \$14.50

Hi-rise or low cost, condo, multi-family, custom or townhouse, here's a design book that shows you the very best in



every class. Complete collection of designs with over 200 illustrations featuring techniques used by some of the nation's leading builders, planners and designers.

Circle B608 under Books.

9 Dictionary of Architecture and Construction

By Cyril M. Harris, 512 pp., illus., ... \$29.50

Prepared by a staff of fifty-two experts, this authoritative and comprehensive dictionary provides definitions of terms encountered in the everyday practice of architecture and construction, as well as the more specialized vocabularies found in such areas as the history of architecture, church architecture, restoration, and art history.

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10 Anatomy for Interior Designers:

Third Edition
By Julius Panero, 160 pp., illus., ... \$9.95

This is a comprehensive book of graphic standards for designers of interiors. It contains all the data the reader needs for designing around people, designing people in and people, designing things for people to use: the basis of design, residential and commercial applications, lighting, material on horizontal and vertical movement, storage space, furniture, windows, and doors.

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11 Designer's Guide to OSHA

By Peter S. Hopf, A.I.A., 288 pp., illus., ... \$17.50

This practical volume translates OSHA's tens of thousands of words into easy-to-use drawings, diagrams, charts and graphs. With OSHA violations increasing, engineers obviously need a working guide to compliance with government job safety and health standards. This book fills that need. All material is presented in the same sequence as the OSHA regulations are written.

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By Thomas S. Hines, 445 pp., illus., ... \$19.50

Daniel Burnham was one of the great entrepreneurs in an era that boasted its Morgans, Vanderbilts, and Rockefellers. He was one of those imperial giants who propelled America to the center of the world stage. Burnham's daring and foresight altered irrevocably the architect's role in modern society. In this first full modern biography, Thomas Hines conveys an excellent sense of the man, his profession, and the vital, fiery America in which he worked.

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14 The Architecture of Frank Lloyd Wright: A Complete Catalog

By William Allin Storrer, \$9.95

The first fully complete catalog of every building designed by Wright that was actually constructed — 433 in all — includes a photograph of practically every one of them, and a descriptive note on the materials used, the plan, and the circumstances of construction.

Publisher will bill you direct before shipping any book.

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15 Five Architects Eisenman, Graves, Gwathmey, Hejduk, Meier

138 pp., illus., ... \$25.00

Because of the ongoing controversy surrounding the work of architects Eisenman, Graves, Gwathmey, Hejduk and Meier, this book is essential reading for the practicing architect and the student. Because the dialogue goes

to the heart of what architecture is all about, the theories presented are of importance to all concerned with how our society will physically live.

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By David Jacobs, 191 pp., illus., ... \$10.00

Stunning modern photographs juxtaposed with plans, cross sections, scale models and historic views form a vivid counterpoint to the authoritative text. A five-page chronology relates events in the history of architecture to other cultural and political developments.

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By George Heery, 192 pp., illus., ... \$17.50

The efficient control of time and cost in the design and construction of large projects is the theme of this new book on construction management. By considering equally the contribution to a project of all the professional disciplines involved, the author presents an economic approach to construction management.

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172 pp., illus., ... \$14.95

Architects, engineers, administrative officers and staff personnel of architectural and engineering firms have found this book to be invaluable in developing and improving a successful professional practice. This revised and updated volume should prove a worthwhile addition to any architectural or engineering library.

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19 Rendering With Pen And Ink

By Robert W. Gill, 368 pp., illus., ... \$6.95

This paper-back edition is a copiously illustrated guide to the techniques and methods of rendering, including sec-

tions on perspective, projection, shadow, reflections, and how to draw cars, ships, aircraft, trees, and human figures. The author also describes the very wide range of instruments and equipment currently in use.

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20 Planning and Design of Airports

By Robert Horonjeff, 460 pp., over 200 illus., ... \$24.95

The second edition of a well-known reference, this volume covers all aspects of modern airport planning and design ... from financing ... through runway planning ... to noise control. It is a useful reference for all transportation engineers, airport consultants, air transportation experts, community planners, and everyone involved with air transportation facilities and their design.

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21 Theatres and Auditoriums

By Burris-Meyer and Cole, 468 pp., illus., ... \$29.50

One of the most utilized and noteworthy reference works. Recognized as one of the major works in the field since the first edition in 1949. The reissued edition will contain an additional 84-page supplement which will be invaluable to all persons concerned with the planning of theatres.

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22 Developments in Structural Form

By Rowland J. Mainstone, 350 pp., illus., ... \$25.00

The seemingly hard and mechanistic world of architectural structures is presented here in a humanistic light. Over 300 photographs and drawings accompany the richly imaged text. Mainstone's real triumph, perhaps, is his simultaneous consideration of the physical principles of structures, materials of which they are made, ways in which they may be built, and the history of man's involvement with them.

Publisher will bill you direct before shipping any book.

Circle B622 under Books.

Discriminatory land use regulations—part II

Bernard Tomson and Norman Coplan

A continuation of last month's discussion concerning the recent ruling by the Supreme Court of New Jersey which declared invalid a township zoning ordinance.

The precedent-shattering New Jersey case of *Southern Burlington County N.A.A.C.P. et al. v. Mount Laurel*, under which the Supreme Court of New Jersey invalidated the zoning laws of a community on the ground that their practical economic effect was to exclude from residence in the township low income, minority, and other groups was discussed last month. Although this determination was based on the constitutional requirements of New Jersey's constitution, its rationale, if followed, would apply to the land use regulations of municipalities throughout the United States.

The township zoning ordinance in one residential zone requires a lot area of at least 9375 sq ft and in another residential zone 20,000 sq ft, with required frontage of 75 ft and 100 ft respectively. As to building size, the township required a minimum dwelling floor area of 1100 sq ft for all one-story houses and 1300 sq ft for all homes of 1½ stories or higher. Based on these and other restrictions applicable to other zones, the Supreme Court of New Jersey accepted the findings of the Trial Court that the township had "acted affirmatively to control development and to attract a selective type of growth and that through its zoning ordinances, has exhibited economic discrimination in that the poor have been deprived of adequate housing and the opportunity to secure the construction of subsidized housing." The legal question, as stated by the Court, was whether a developing municipality may validly, by a system of land use regulation, make it physically and economically impossible to provide low and moderate income housing in the municipality for the various categories of persons who need it and want it and thereby exclude such people from living within its confines because of their limited income and resources. In considering such legal issue, the Court stated:

"We conclude that every such municipality must, by its land use regulations, presumptively make realistically possible an appropriate variety and choice of housing. More specifically, presumptively it cannot foreclose the opportunity

of the classes of people mentioned for low and moderate income housing and in its regulations must affirmatively afford that opportunity, at least to the extent of the municipality's fair share of the present and prospective regional need therefore. These obligations must be met unless the particular municipality can sustain the heavy burden of demonstrating peculiar circumstances which dictate that it should not be required so to do."

In support of this conclusion, the Court pointed out that a zoning regulation, like any municipal enactment, must promote public health, safety, morals, or the general welfare. In considering whether the zoning ordinance promoted the "general welfare" of the community, the Court dramatically extended the scope of that concept. It said:

"The demarcation between the valid and the invalid in the field of land use regulation is difficult to determine, not always clear and subject to change . . . This Court has plainly warned, even in cases decided some years ago, sanctioning a broad measure of restrictive municipal decisions, of the inevitability of change in judicial approach and view as mandated by change in the world around us . . .

The warning implicates the matter of whose general welfare must be served or not violated in the field of land use regulation . . . So, when a regulation does have a substantial external impact, the welfare of the state's citizens beyond the borders of the particular municipality cannot be disregarded and must be recognized and served.

"This brings us to the relation of housing to the concept of general welfare just discussed and the result in terms of land use regulation which that relationship mandates. There cannot be the slightest doubt that shelter, along with food, are the most basic human needs . . . It is plain beyond dispute that proper provision for adequate housing of all categories of people is certainly an absolute essential in promotion of the general welfare required in all local land use regulation. Further the universal and constant need for such housing is so important and of such broad public interest that the general welfare which developing municipalities like Mount Laurel must consider extends beyond their boundaries and cannot be parochially confined to the claimed good of the particular municipality. It has to follow that, broadly speaking, the presumptive obligation arises for each such municipality affirmatively to plan and provide, by its land use regulations, the reasonable opportunity for an appropriate variety and choice of housing, including, of course, low and moderate cost housing, to meet the needs, desires, and resources of all categories of people who may desire to live within its boundaries. Negatively, it may not adopt regulations or policies which thwart or preclude that opportunity."

The township had argued that it was entitled to adopt a zoning plan which provided an appropriate economic balance for the community vis-a-vis educational and governmental costs, which would, of course, be directly affected by the nature of residential development. The Court, while recognizing the increasingly heavy burden of local taxes and municipal, governmental and school costs on home owners, stated that relief from the consequences of such a tax system would have to be furnished by other branches of the government and that it could not "legitimately be accomplished by restricting types of housing through the zoning process in developing municipalities." □

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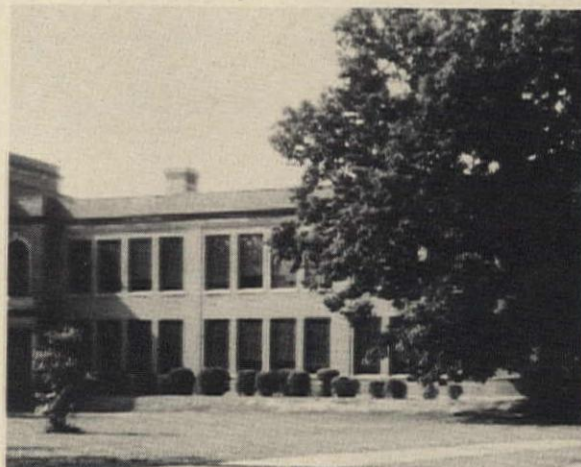


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Books

Corbu: method and content

Le Corbusier and the Tragic View of Architecture by Charles Jencks. Cambridge, Harvard University Press, 1975. Illus., 191 pp., \$13.95, \$5.95 paper.

Reviewed by Mario Gandelsonas, Professor of Architecture, University of Buenos Aires; Fellow, IAUS, N.Y.

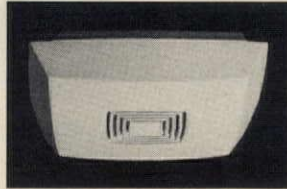
This book appears at a time in architectural practice when Le Corbusier's work in particular, and rational architecture in general, constitute a central subject for discussion. Thus, Jencks' book could be characterized as symptomatic of the revival for this fashion in architecture—a movement which began in the 1960s with the publication of Reyner Banham's *Theory and Design in the First Machine Age*. In his book, Banham proposed a reassessment of Italian futurism, Russian constructivism, de Stijl, and Buckminster Fuller as some of the more polemical and creative movements within the reaction against the "laws" of classical architecture that marked the beginning of the century. In contrast to these groups and individuals, Banham presented Le Corbusier, Mies van der Rohe, and Gropius as more conservative figures, because of their self-conscious application of what they considered to be essential notions of architecture (which were obviously linked to principles of classical architecture.) The impact of Banham's book on the architectural practice of the 1960s can be seen in the critique that polemical groups, such as Archigram and Superstudio, addressed to the ideology of modern architecture; this paralleled the critique the early polemical groups had addressed to classical architecture.

Jencks' book does not have this kind of influence on that particular architectural analysis and practice of today which seeks a "retour" to the modern movement, and in particular to its *language*. His book succeeds and at the same time takes part in a current situation that is characterized by an emphasis on the search for a theoretical basis as a means for establishing a language, rather than reacting against a particular language.

Such a book, then, on Le Corbusier's work, which itself represents a paradigmatic contribution to the foundation of the modern language of architecture, provokes considerable interest. Until now, an analysis of Le Corbusier's complex work that progresses beyond the descriptive and sometimes banal level has been lacking. This problem de-

[continued on page 104]

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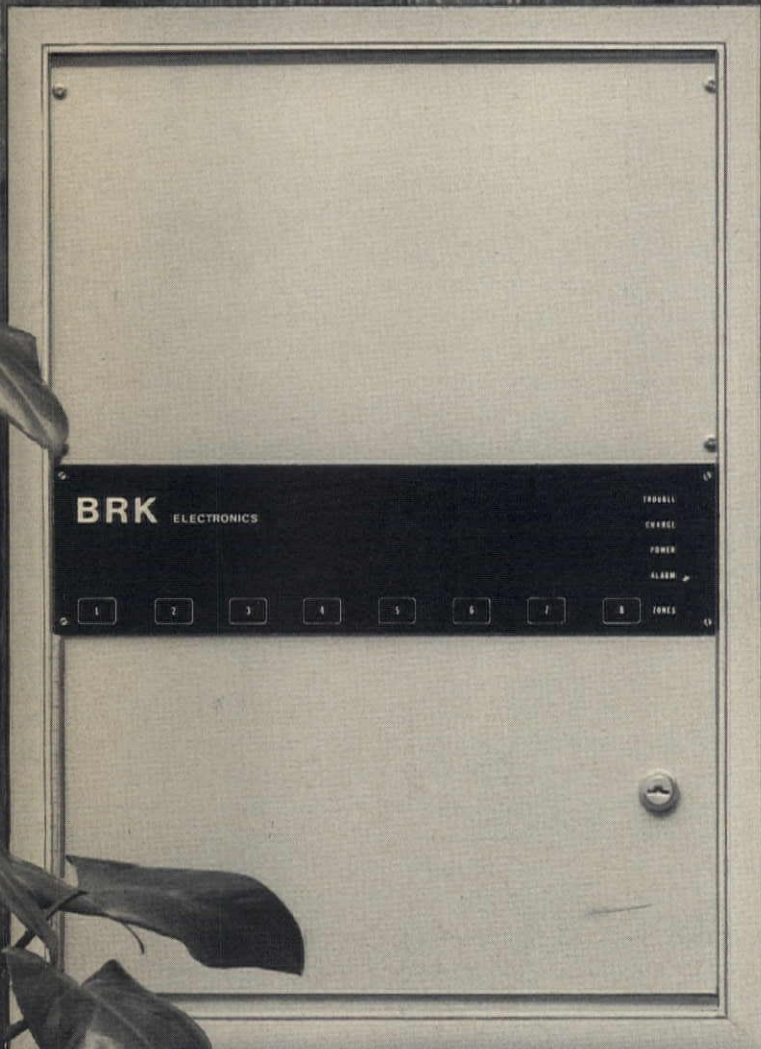
Other features include remote annunciation, battery backup power and float recharge system in the control panel, UL listing of detectors and panel, easy installation, and reliable operation. For more facts write or phone BRK Electronics, Div. of Pittway Corp., 525 Rathbone Ave., Aurora, Ill. 60538. Phone: (312) 892-8721.



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Books continued from page 104

language, the ideas presented in his books and the images articulated in his paintings, are condensed, as Jencks shows, in Le Corbusier's major built production of that period—the villas at Garches and Poissy.

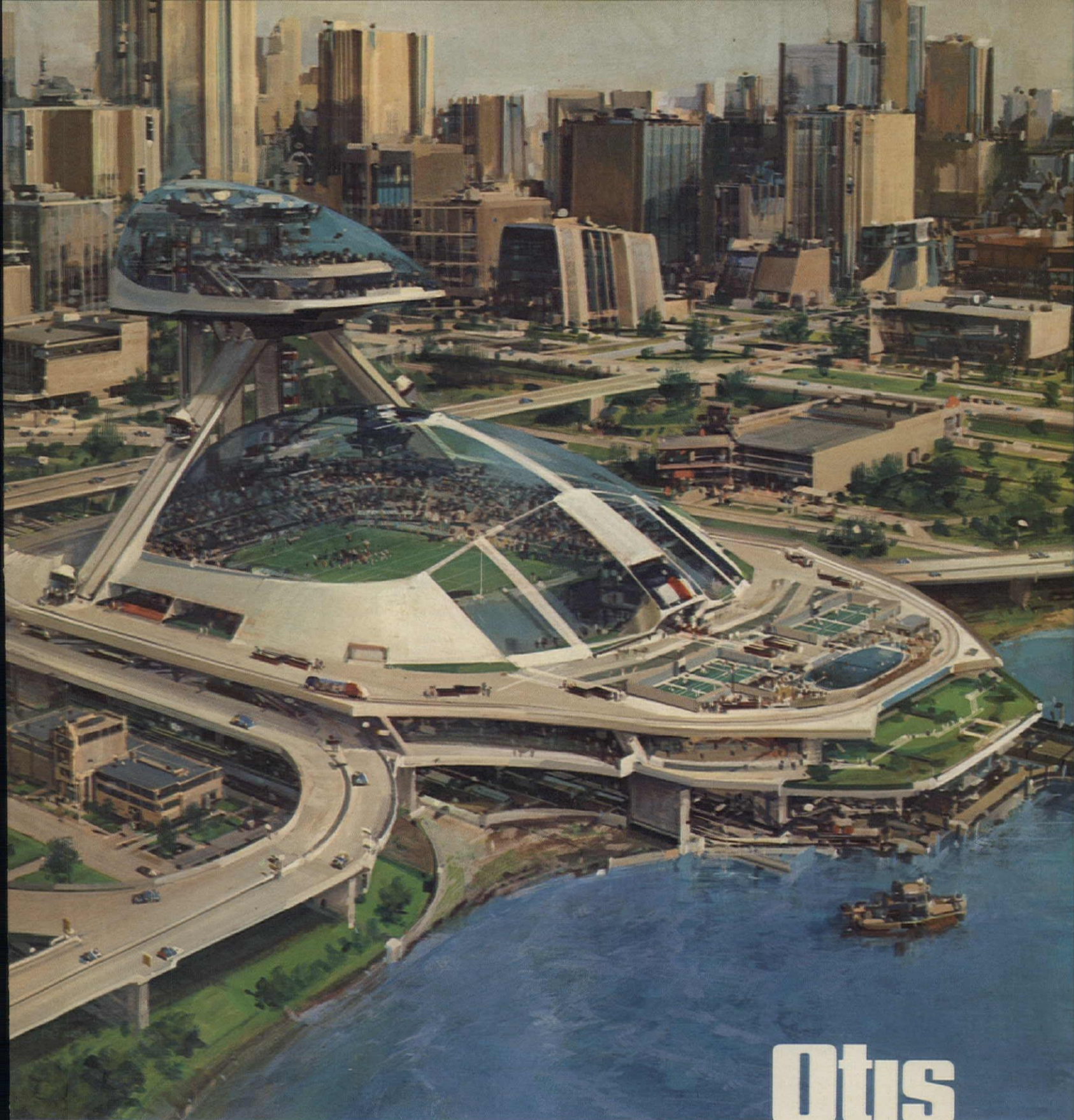
While the first two chapters present both new material and a structured interpretation of Le Corbusier's early period, the third chapter, "At War with Reaction, 1928—1945," which is supposed to deal with his personal and political life, is less successful. Interesting material is presented, but the problems and line of analysis developed in the first half of the book are not carried through. This material could have provided the basis for a discussion of the social influences and subjective determinations in Le Corbusier's creative activity. Instead, what could have been an analysis of the paradigmatic examples of the transformation of an architectural ideology remains on an anecdotic level.

In the final chapter, "Other languages of Architecture, 1946–1965," where the method of Jencks' analysis of architectural language is more explicit, one can perceive the nature of the limitations of the book. The book is the product of the conjunction of two interesting ideas—the relationship between Le Corbusier's work and Nietzsche's philosophy—which have not been developed. And we find now, in the last chapter, that the method used for this development is not fully applied. The simplistic definition of notions such as "architectural signs" or "significations" applied to certain architectural elements are a clear symptom of this problem.

This limitation, due to the lack of consistency in the methodological development of the analysis, does not, however, obscure the positive contributions of this book. The presentation of unpublished material supplies new information for the reassessment of Le Corbusier's rich and complex work. But perhaps the more significant contribution can be seen in the methodological implications of Jencks' book. *Le Corbusier and the Tragic View of Architecture* suggests an alternative to more traditional approaches to architectural theory and criticism. Moreover, it generates new problems and it forces the critic to abandon easy solutions and to search for more creative ones.

Dictionary of Architecture and Construction, edited by Cyril M. Harris. New York, McGraw-Hill Book Co., 1975. 553 pp., 1775 illus., \$35.

This authoritative and comprehensive one-volume compilation of architectural and construction terms also includes all the major definitions from associated fields. The dictionary's coverage features terms found on drawings and in specifications, those of building products and materials, and related terms dealing with their design, appearance, performance, installation, and testing. Traditional building materials are included, as well as recently developed materials and components fabricated from them. In addition, various types of units, assemblies, systems, and modules are defined, along with equipment for their assembly and construction. Among the specialties covered are those that have undergone considerable development within the past decade, such as building environmental control, acoustics, and fire protection.



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Wall coverings. "Stereogram" is one of over two dozen stock designs offered in Genon Elevations. The full design measures 34" x 78" but can be repeated to cover an entire wall. The elevations are created with sculptural elements cast in acrylic resins on a background of vinyl wallcoverings. The flexible vinyl can be applied to curved walls and even support columns, and can be rolled for shipment to site. General Tire and Rubber Company.

Circle 101 on reader service card

Sofa/table group. Matched veneers of olive ash burl are used for the tables and sides and back of sofa. Loose sofa cushions are filled with foam and bonded polyester fiber. Recessed bases are of mirror chrome. Thayer Coggin Institutional.

Circle 102 on reader service card

Caulking and glazing sealants. Maker states butyl sealant is designed as an intermediate sealant for general-purpose uses such as caulking and sealing joints where maximum total joint movement of 10 percent can be expected, but-tering of mullions and thresholds, various curtain wall applications, and secondary glazing seals, including sealing against neoprene gaskets. Acrylic latex caulk is an acrylic emulsion compound formulated to provide a fast-setting pliable seal with minimum shrinkage. Recommended uses include acoustical seals to reduce sound transmission in dry wall or plastic wall systems, interior door and window frames, and more. Available in standard white and aluminum/stone colors. Tremco, Inc.

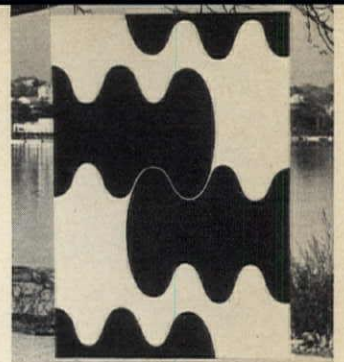
Circle 103 on reader service card

Energy management system is a solid state logic controller that monitors and compares the actual rate of electrical demand usage with an ideal rate—the demand set point. According to the maker, if the controller determines that the demand will exceed the demand set point it will shed additional loads in a predetermined sequence. When the demand is equal to or lower than the demand set point, the loads are restored. Monitrol cycles a pre-selected number of loads continuously to balance heating or cooling needs at an optimum low level. Three models are available. CSL Industries.

Circle 104 on reader service card



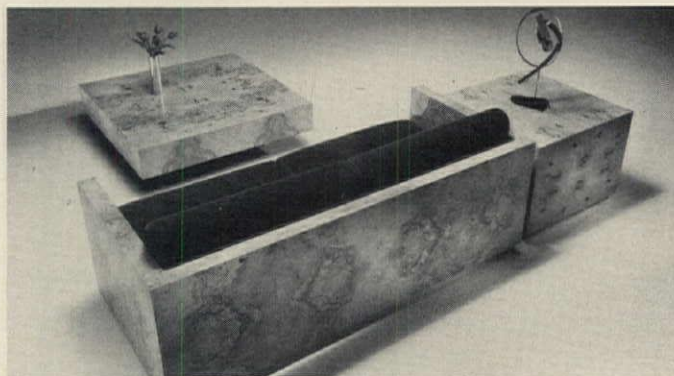
Wallcoverings



Ready-to-hang banners



Classroom furniture



Sofa/table group

Classroom furniture. Line includes stacking chair, chair desk, tablet arm chair, and study top desk in size ranges from 12 in. to 17½ in. for preschool through high school age students. Chairs have sculptured seat shell of high-impact plastic and flexible deep arched back in three color choices. Tubular steel frame equipped with self-aligning glides and optional steel-rod book-rack can be had in bright chrome or black enamel. American Seating Company.

Circle 105 on reader service card

Lamps. A 400 w. Metalarc lamp is directly interchangeable with 400 w. mercury lamps in lighting installations where constant wattage or constant wattage autotransformer ballasts are used. The Metalarc Swingline provides 34,000 initial lumens in vertical operation and 32,000 initial lumens when burned horizontally. Available in both clear and coated versions, it is said to have a 12,000 hour average rated life. GTE Sylvania.

Circle 106 on reader service card

Drywall partitions. Basic structural components are a base rail, ceiling line, and stud of aluminum with a baked enamel finish, and a 4-ft-wide panel of any material, from treated wood to plastic, from burlap to carpeting. All parts of the system can be pre-cut. Includes floor to ceiling doors and glass units. All parts and materials are available from one source. System is totally demountable, states manufacturer. Richwall partition systems.

Circle 107 on reader service card

Wood gliding door. Double pane insulating safety glass is standard, and a full-length interlock with rigid vinyl spring tension type weatherstripping pulls the meeting stiles together for a weathertight seal. Dual rollers have self-contained leveling adjusters; anodized aluminum sill track with stainless steel track resists stain, rust, and denting. A thermal barrier in the sill reduces conductive heat loss. Andersen Corporation.

Circle 108 on reader service card

Ready-to-hang banners. Based on the Fujie Collection of Japanese prints by Isabel Scott, the ready-made banners come in eight patterns and 21 colors. Each one is a repeat or more of a giant graphic design or an all-over pattern ranging in size from 52" to 64"x4". Each banner has a dowel at top and bottom with monofilament clear nylon yarn which can be suspended from wall or ceiling. Isabel Scott Fabrics Corp.

Circle 109 on reader service card

Joint sealant. Polymeric foam, Polycel One is said to stop air, moisture, and dust, insulate and reduce sound transmission through joints. Product is available in disposable pressurized cylinders and applied as a partially expanded aerosol froth. It can be applied vertically or overhead without sag and in joints up to three inches in width. Maker states that the product is impervious to mildew or rot, resistant to vermin or insects. Coplanar Corporation.

Circle 110 on reader service card

[continued on page 110]

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Mercury lamps. High intensity mercury vapor discharge light bulbs extinguish themselves after the bulb is broken. According to manufacturer, intense ultraviolet radiation may cause severe burns to eyes and skin. Such exposure occurs after an outer bulb is broken and the inner quartz arc tube continues to burn. One solution is a new bulb called the "Safe-T-Vapor," which contains a fail-safe device inside that disintegrates quickly after the bulb is broken and air enters. Lamps are available in 175-, 250-, 400-, and 1000-watt sizes in clear and deluxe white types and fit into any standard mercury lamp fixture. Duro-Test Corp.

Circle 112 on reader service card

Planning kits come in two sizes, with the larger one directed at the architect and the interior designer. There are enough magnetic pieces to do a 50 office layout. Ideas for Planning.

Circle 113 on reader service card

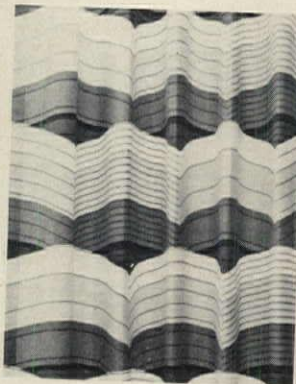
Solar energy collector. Daystar 20 is a flat plate collector using a heat trap that enables the unit to collect and retain solar energy in the form of heat. Unit has 20 sq ft of clear aperture in a fully insulated and weatherproof case. Water and nontoxic antifreeze solutions are used as the transfer medium. Daystar Corporation.

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Desert Scapes is the name of a collection of graphic prints in fabric and related wall coverings inspired by the desert of the Southwest. Fabrics are flame retardant verels and fiberglass and a 100 percent cotton which can be treated with a permanently flame retardant finish. Ben Rose.

Circle 116 on reader service card

Fire signaling system for high-rise office buildings is designed for installation in existing buildings or in buildings under construction. The console which can be designed either as a wall-mounted or free-standing unit is modular to permit expansion of the system. Included at the console are panels of annunciator lamps which—along with an audible signal—will alert security personnel to a fire emergency. American District Telegraph Company.

Circle 117 on reader service card

Insulated wall panel system features concealed fastener design and is available in three architectural designs. System has an overall "U" value of 0.13 using the CFP exterior panel, standard fiberglass insulation and flush-surface interior liner panel. Exterior panels are produced in 12-in. coverage widths in metal gauges and thicknesses to meet structural requirements. Exterior wall panels have color coatings over galvanized steel. Steelite Buildings, Inc.

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Wall coverings. Flexi-Wall, Plaster-in-a-Roll covers rough surfaces and spans voids permitting direct application over concrete blocks. An anti-graffiti coating provides further protection against defacing in high abuse areas. Product combines woven jute with partially set-up gypsum sealed with a soil-resistant, clear acrylic coating. It is produced in a basic unbleached-jute version and in a variety of others in which jute, gypsum, or both are colored to give a wide range of choices. Finish is free of lead content, passing HUD's and the Bureau of Standard's laboratory tests, meets all standards for inflammability with an incombustible Class A rating as per ASTM-E-84-61, comes in rolls 4-ft wide. Flexi-Wall Systems.

Circle 119 on reader service card

Carpet



Executive chair. Polished stainless steel tubular frame supports the molded latex foam rubber cushions. (Two cushions form a low back version; three, a high.) Arm frame is a continuous span of polished stainless steel tubing with upholstered cylindrical pads, visually separated from chair by nylon spacers. Other details include a swivel/tilt mechanism and a variety of bases. Chairs may be upholstered in either leather or fabric. Scope Furniture, Inc.

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Carpet. Smooth velvet and level loops in Antron III continuous filament nylon create small check-like appearance. Comes in subtle two-tone or more distinct two colors—12 colors in all. Firth Carpet.

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Circle 122 on reader service card

Ash tray and waste receptacle. Made of type 304 stainless steel with all welded construction. Exposed surfaces are satin finish; companion model has satin bronze tone. Flip top ash tray pivots at the top for servicing. The 3 3/4 gal capacity stainless steel waste receptacle is secured by a tumbler lock; can be removed for custodial servicing. Unit was designed for installation in building corridors, elevator lobbies, and theater lobbies where wall space is limited; it measures 11" w x 23 3/4" x 5 3/4" deep. Bobrick Architectural Service Dept. Bobrick Washroom Equipment, Inc.

Circle 123 on reader service card
[continued on page 112]

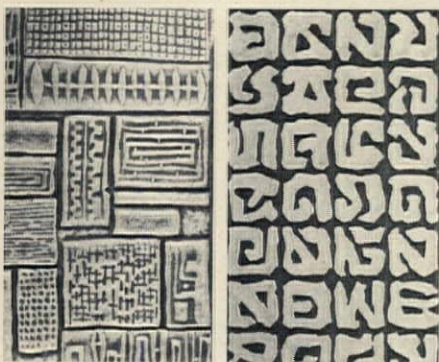


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Tempered lens specially designed for use in high intensity discharge lamp fixtures is a flat, prismatic lens with engineered optics that can be used with indoor HID sources up to 250 w. or in fixtures for incandescent lamps up to 750 w. Lens has a mounting ratio (flush-mounted) of 1.5. Corning Glass Works.
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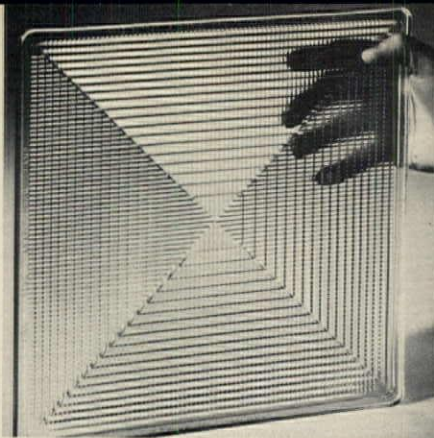
Literature

Structural waterproofing membrane.

Brochure contains data on Bituthene's physical properties, application drawings, and instructions for installing membrane on vertical or horizontal structural concrete and masonry surfaces such as decks, tunnel envelopes, floor drains, T-beams and other areas. W.R. Grace & Co.
Circle 201 on reader service card

Metal building systems. Fact book includes data on the size and growth of the industry, markets it serves, cost factors, financing, insurance, and the advantages of metal building systems. Illustrations chart sales growth and a comparison of on-site vs. factory costs over past decade. Illustration shows breakdown of various end-uses of metal building systems—commercial, manufacturing, community, agriculture. Metal Building Manufacturers Associations.
Circle 202 on reader service card

Epoxy surface coating. Compound is sprayed on, then rolled or troweled for a three-dimensional textured pattern. It may be applied over plaster, stucco, pre-cast concrete, metal, stone, drywall, and gypsum board, and is waterproof. It is available in black, white, and a wide range of standard and custom colors as well as metallics and bright enamels. Brochure and color samples are available from Mitsubishi International Corporation.
Circle 203 on reader service card



Tempered lens



Solar screen. Brochure contains charts and graphs which detail energy savings gained with solar screens used in conjunction with plate and/or tinted glass. Screens are made of specially woven fiberglass screening and come in gray, bronze, or black. They are custom made to exact specifications to fit each window. Sun Chek, Inc.
Circle 204 on reader service card

Coatings. Full-color brochure, *A Decade of Kynar 500* commemorates 10th anniversary of polyvinylidene fluoride resin base. Included are depictions of the major social events, political events, and influential public figures during that time as well as photos of structures using coatings with this base and technical information. A poster "Decade of Progress" is also available. Pennwalt Corporation.
Circle 205 on reader service card

Glass tiles which are composed of feldspar, kaolin, silica, and mineral colorants are illustrated and described in color brochures. Product is non-porous and non-shrinking, is unaffected by chemical or physical agents, cannot be scratched by the point of a knife, states maker. Tiles are supplied back-mounted on nylon mesh sheets. Wide range of shapes and colors suitable for interior and exterior applications, even freezing climates, are available. The Briare Company Inc.
Circle 206 on reader service card

Sheet vinyl. A full-color brochure contains product specifications, advantages, descriptions, and general information about the four basic types of resilient sheet vinyl floorings: Acoustiflor Gym-flor, Multiflor, and Conducti-flor. Tarkett.
Circle 207 on reader service card

Stone and masonry anchors. 20-page brochure explains why stainless steels are preferred, most frequently used steels are identified, and mechanical properties are given. Brochure also gives stress tables, shows typical installations, and gives calculations for typical installation. American Iron and Steel Institute.
Circle 208 on reader service card

Metallized acrylic tubing. Mirron is extruded from clear acrylic, then mirrorized with a first surface coating and, according to maker, it can be cut with a saw or drilled without chipping the metallic coating. Six-page color brochure illustrates 19 different fittings and specially designed shelf and panel clips and shows various methods of fabrication and some of its applications. Thermoplastic Processes, Inc.
Circle 209 on reader service card

Fire Resistance Design Manual contains data on fire resistance and sound control plus related information on partition heights, design weight and thickness, technical data describing a variety of wall, ceiling, beam, and roof deck assemblies using gypsum products. Manual is referenced by the three major model codes and has also been approved for use by many major city and county codes. Single copies are available at no charge from Gypsum Association.
Circle 210 on reader service card

Carpet. A kit containing color photographs and specifications of many makes of carpet made with Enkalure II is available to architects, designers, builders, and specifiers. American Enka Company.
Circle 211 on reader service card

Plumbing fixtures. 12-page catalog covers various models of washfountains, gives comparative costs, lists different styles and wide range of colors available, also describes various types of showers and equipment combinations. Bradley Corporation.
Circle 212 on reader service card

Data desks. A modular system, for any equipment packaging application. Desks come in 28 in. to 72 in. widths and 26 in. to 35 in. depths. Two sizes of 19 in. electronic bays can be fitted below the surface in many variations. Units can be shipped either assembled or unassembled. Literature on Specialty II Data Desks is available from Systems Furniture Co.
Circle 213 on reader service card

Direct glazing panel system. 8-page color brochure describes Panel Mullion 450™, outlines glazing method, covers concept of putting glazing pockets directly in units. Drawings illustrate the structure of the 4½-in.-deep panel mullion units. Kawneer Architectural Products.
Circle 214 on reader service card

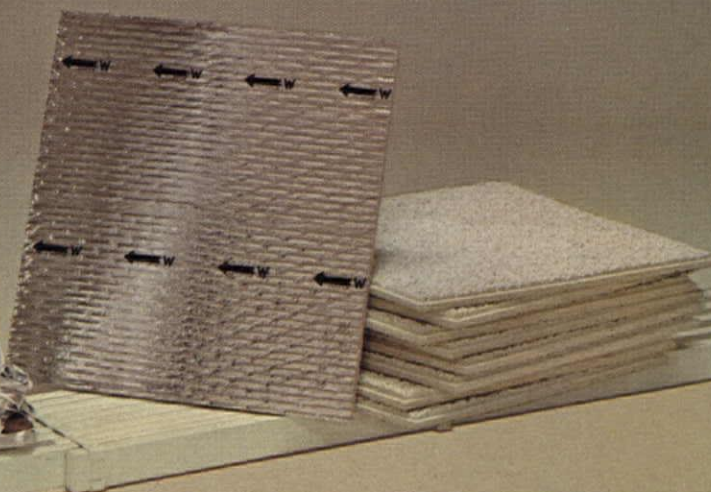
Ceilings. Boldface is a rough-textured acoustical lay-in panel for exposed-grid ceilings. It comes in 24"x24" and 24"x48" lay-in panels. Armatuff has an overlay of a tough mineral material, making it suitable for use where it could be subject to abuse, states maker. Two 4-page brochures describe both and give specifications and installation information. Armstrong.
Circle 215 on reader service card

Outdoor lighting. Full color brochure describes company's new luminaire, shows performance data, and cutaway photos. Available in three sizes, it is suitable for walks, drives, planned communities, and architectural and landscaped spaces. Will accommodate HID sources. J.H. Spaulding Company.
Circle 216 on reader service card



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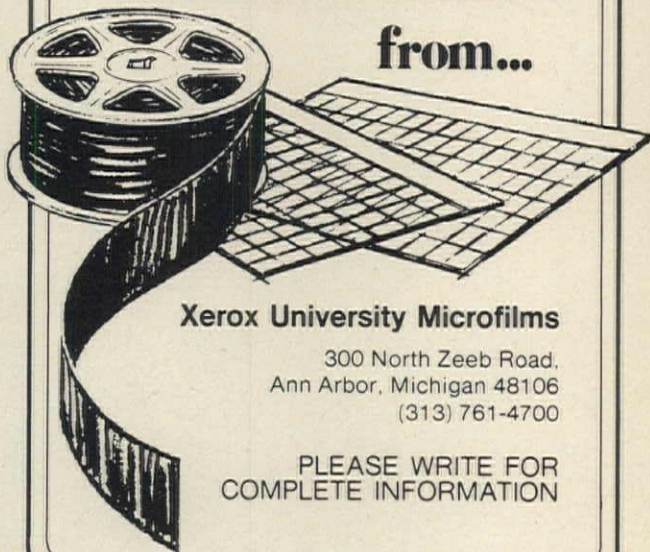
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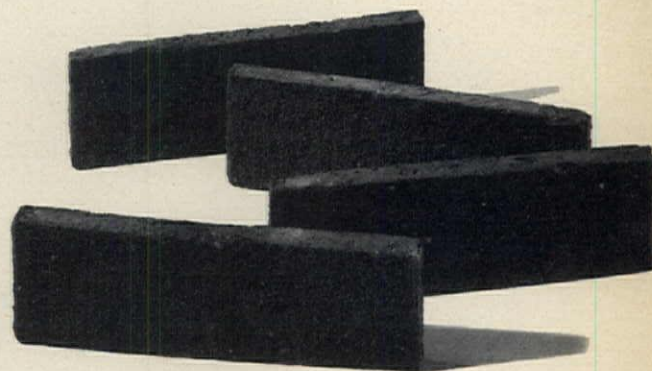


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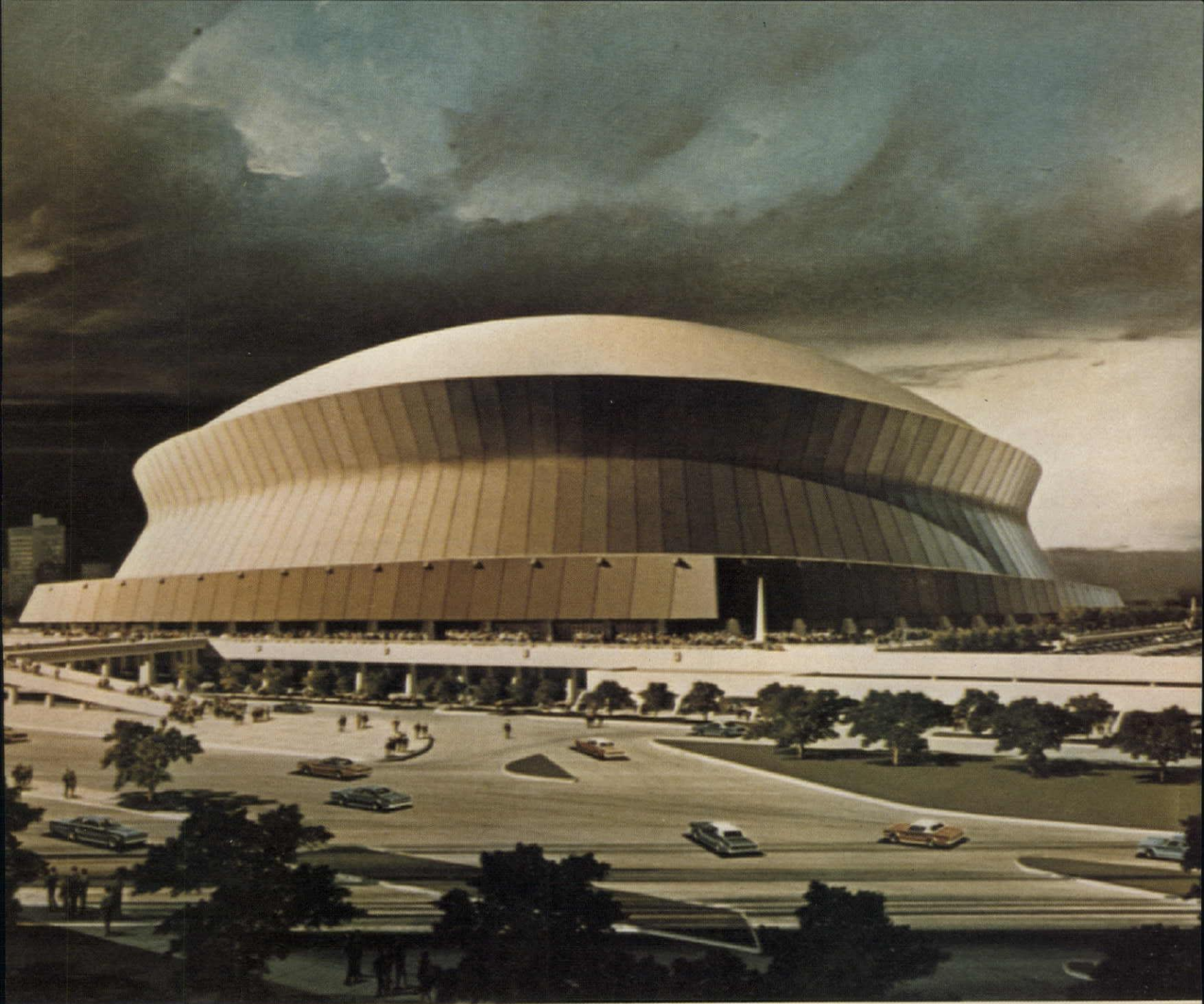
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When the specs call for real bricks, specify Brickettes or equal. Because kiln-fired Brickettes are thinner than regular-size brick, they provide your clients with more usable floor space. This means Brickettes actually pay for themselves in just a few years.

Brickettes are available in a wide variety of decorator colors and have been used for many commercial installations: Holiday Inn, McDonald's and Zales to name a few.

For more information and the name of your nearest Brickettes supplier, write Modern Methods Inc., Owensboro, Ky. 42301.

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Check these cost saving facts. It takes eight lavatories to serve eight people. Or just one Bradley Washfountain. The difference adds up to around \$1,400, (including all materials). Now add floor space savings of up to 25% and you see why Washfountains belong in all kinds of buildings.

The same Washfountains save up to 80% on water consumption and water heating energy. And each Washfountain eliminates seven sets of plumbing connections. At the Superdome elimination of double wall construction and pipe chases was vital. Maintenance?

Just think what happens when you cut the number of bowls by 86%. Non-liming spray heads and self-closing valves without gimmicks keep Washfountain operating costs low. For the Superdome we even incorporated special towel dispensers on each Washfountain.

If you've got to clean a lot of hands, remember the Superdome. Contact your local Bradley representative, or write Bradley Corporation, 9107 Fountain Boulevard, Menomonee Falls, WI 53051.

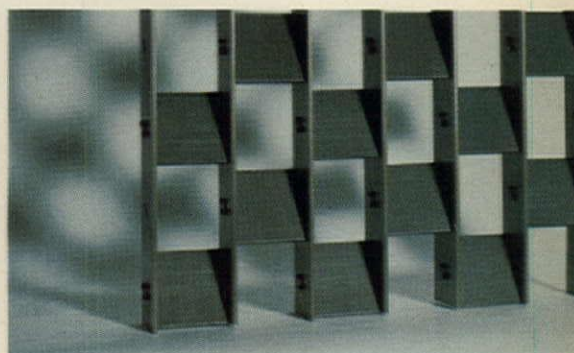
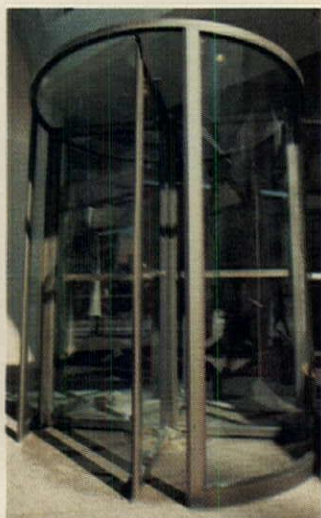


Bradley  **Super problems solved with savings.**

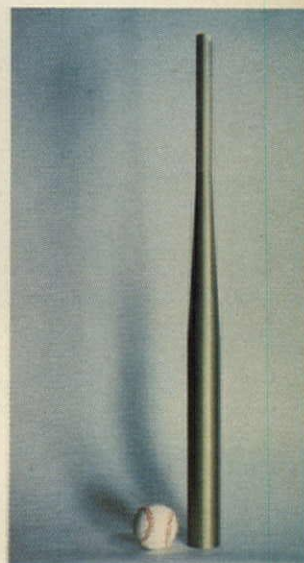
Architects: Curtis and Davis Associated Architects, Inc., Edward B. Silverstein and Associates, Nolan, Norman and Nolan, Sverdrup, Parcel and Associates, Inc.
Mechanical Contractor: Limbach Company. Wholesaler: American Plumbing Supply, Inc.

Circle No. 323, on Reader Service Card

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From windows and entrances to sunscreens, rapid transit stations and baseball bats, Kalcolor aluminum is chosen for its enduring finish and beauty.



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This finish is produced by an exclusive, integral (self-coloring) anodizing process developed by Kaiser Aluminum. Every step—from basic alloys to mill fabrication to the reagents used in the electro-chemical bath (shown at right) is rigidly controlled. Result: An excellent hard finish that's corrosion-resistant, abrasion-resistant and sun-resistant.

No dyes are used. The hardcoat anodic finish is an integral part of the aluminum in thicknesses of 0.7 mil or greater, thereby

a Class I architectural coating. You might be satisfied with something less now. But how about later?

You'll find the uniformity of color very satisfying, too. Our lineup of colors includes champagne, gold, light amber, amber, statuary bronze, black and three subtle shades of gray.

For more details about Kalcolor aluminum send for our new catalog. Write to Kaiser Aluminum, Room 776-PKB, Kaiser Center, Oakland, Ca. 94643. Or contact a member of our Kalcolor team of trademark licensees. They're winners.



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Progressive Architecture

Notices

Appointments

Donald C.G. Nelson has been elected president and chief executive officer of Ellerbe Architects, Engineers, Planners, Bloomington, Minn.

S. Thomas Wheatley III, AIA has been elected to the Board of Directors of RTKL Associates, Inc., Baltimore, Md. Gary A. Bowden, AIA, Donald D. Potter, AIA, Dennis H. Still, AIA have been named associate principals. Thomas Caisley, Warren D. Davis, AIA, and John F. Dempsey are new associates.

Kenneth R. Tate and Terrance J. Short have been elected vice presidents of K/M Associates, Inc., Architects, Engineers, Planners, Elkhart, Ind., Chicago, and Baltimore.

Barry Baker and Sylvain Bournhonesque have been named associates of Esherick, Homsey, Dodge & Davis, San Francisco.

Bernard J. Cywinski, AIA and John Robertson Cox, RA have been named partners of The Kling Partnership, Philadelphia.

Robert H. Murray has joined Skidmore, Owings & Merrill, Portland, Ore., as energy systems engineer.

William C. Louie has been named to the new position of director of research and development environmental engineering for Smith, Hinchman & Grylls Associates, Inc., Detroit.

Organizational changes

The Office of Mies van der Rohe, Chicago, has changed its name to Fujikawa Conterato Lohan & Associates (FCL).

Hutton + Rostron, Architects of Surbiton, Surrey, England and Zurich, Switzerland has opened an office at 93 Granite St., Rockport, Mass.

Ellis/Naeayaert Associates, Inc. has opened an office at 553 E. Jefferson, Detroit, Mich.

Hellmuth, Obata & Kassabaum, St. Louis, Mo., has acquired Walker, Sander, Ford & Kerr, Architects & Planners, Princeton, N.J. The Princeton organization will be called Hellmuth, Obata & Kassabaum, P.A.

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Architect: Graduate registered architect preferably with experience in medical architecture. Would be required to monitor and review ongoing and future programs of health oriented construction, as a member of the University Facilities Management team. Would also be required to develop and coordinate alteration and renovation programs on existing facilities. Office would be located in the University Health Science Center. **SEND RESUME:** University Personnel Services, 105 W. Brandeis Street, Louisville, Kentucky 40208. An Equal Opportunity/Affirmative Action Employer.

Architect/Designer: Young, active Architectural firm in New England seeking experienced Associate. Small community with wide range of interesting projects. Reply with complete resume to Box #1361-856, *Progressive Architecture*.

Architecture faculty: Southern California school invites applicants for teaching positions 1975/76 in architectural design, structural design and environmental controls. Undergraduate and graduate programs. Minimum requirements: master's degree, professional registration and some teaching experience. An equal opportunity/affirmative action employer. Send resume by December 1, 1975 to: Chairman, Department of Architecture, School of Environmental Design, California State Polytechnic University, Pomona, California 91768.

Engineer: We offer a rare opportunity to a unique individual—one who can handle mechanical as well as structural designs for an in-house design and build group. Exciting projects. Please send resume to: Phil Phillips Casa Bonita 6715 W. Colfax Denver, Colo. 80214

Engineer II: Performs responsible technical engineering or architectural and administrative work in the enforcement of the City Building Codes and related work. Ability to read, interpret, and analyze engineering and architectural plans and specifications for construction of buildings for safety and for compliance with building codes and to conduct technical research and prepare

technical reports. Bachelor's degree with a major in Engineering or Architecture and two years of experience in engineering or architecture work. Starting monthly salary open depending upon qualifications. Send Resume to Director of Personnel, City of Corpus Christi, P.O. Box 9277, Corpus Christi, Texas 78408.

Experienced Architectural Draftsman: (minimum 5 years) to work in Virgin Islands. Send complete resume and examples of work by air mail to Frank Blaydon, AIA, 5 Company St., Christiansted, C.I. 00820.

Head - Department of Architecture Position to be filled December 1, 1975. Combines administration, teaching and counseling, Masters of Architecture or equivalent, licensed, N.C.A.R.B. Certification. Ten years experience, some teaching experience desirable. Cut off date November 1, 1975. Apply to: Jack Beard, Acting Director, School of Art and Architecture, Louisiana Tech University, Ruston, La. 71270. An Equal Opportunity Employer.

Head of Department - University of Cincinnati Position carries the rank for Professor with administrative responsibilities for a student body of 500 and 24 full-time equivalent faculty. Qualifications: a) Master of Architecture or equivalent, b) Administrative experience desirable. Send resumes to: Professor David Niland, Chairman, Search Committee, College of Design, Architecture, and Art, University of Cincinnati, Cincinnati, Ohio 45221. University of Cincinnati is an Equal Opportunity/Affirmative Action Employer.

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Situations wanted

Architect: AIA, NCARB, M.Arch., 14 years experience. Five years own practice in the Mideast. Fluent in Arabic. Seeks position with firm doing, or would like to acquire, work in the Mideast. Prefer position where contacts and experience there would be of use. Write 1361-859, *Progressive Architecture*.

Architect: A.I.A., NCARB, 18 years experience, strong in administration and project coordination. Seeks affiliation or position with

architect, engineer, or developer. Reply to Box #1361-813, *Progressive Architecture*.

Architect - A.I.A. 24 years experience all phases, large diversity of project types including Army, Navy, and Air Force. 47, 5-11, 155, excellent health, active, energetic. Will travel or relocate. Present Principal in small firm. \$32,000. Reply to Box 1361-863, *Progressive Architecture*.

Architect: Registered N.J., N.Y. (Britain-Lapsed). 25 years in diversified U.S. and British experience in design, specifications, working drawings, coordination, projects administration and management. Field supervision for educational, commercial, industrial, ecclesiastical, health and transportation architecture. Seeks position of scope, responsibility, preferably N.Y., N.J. area. Willing to travel for short durations. Resume upon request. R. Brzezinski, 24 Overlook Road, Caldwell, New Jersey 07006. Tel (201) 228-0284.

Architect: NCARB, CSI. 28 years comprehensive experience in diversified practice. Florida, California registry. Strong engineering background coupled with cost awareness. V/E familiarity. Extensive organizational and motivational experience. Desire partnership or equivalent in small to medium-sized office. Prefer Florida but will consider southern California. Reply to Box 1361-860, *Progressive Architecture*.

Architect: 32, Family, Illinois Graduate Registered, NCARB Certificate, 8 years diversified experience. Seeking position as Project Architect and/or Project Manager. Resume on request. Orlando Orraca-Yon WO-20 Gardenia Street, Los Angeles Extension, Santurce, Puerto Rico 00913.

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Architect/Planner: 35, A.I.A., registered, NCARB, M.Arch, M.C.P. (Penn), AIA Urban Design fellowship. Board, responsible experience in regional, urban planning, urban design. Seeking partnership potential position in top quality design firm to direct comparable quality planning and urban design program. Presently New England, consider any location. Box 1361-858, *Progressive Architecture*.

Architectural Designer, Draftsman, Delineator: Married, children, 20 years total involvement, all building types. Desire versatile opportunity with mature office, quality standards. New York State or New England area. Reply to Box #1361-851, *Progressive Architecture*.

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