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A NEW URBAN CENTER FOR HARRISBURG, PENNSYLVANIA
THE BALTIMORE-WASHINGTON INTERNATIONAL AIRPORT
BUILDING TYPES STUDY: EMBASSIES AND CONSULATES ABROAD
FULL CONTENTS ON PAGES 10 AND 11 SEMI-ANNUAL INDEX ON PAGES 157-160

ARCHITECTURAL RECORD

DECEMBER 1980

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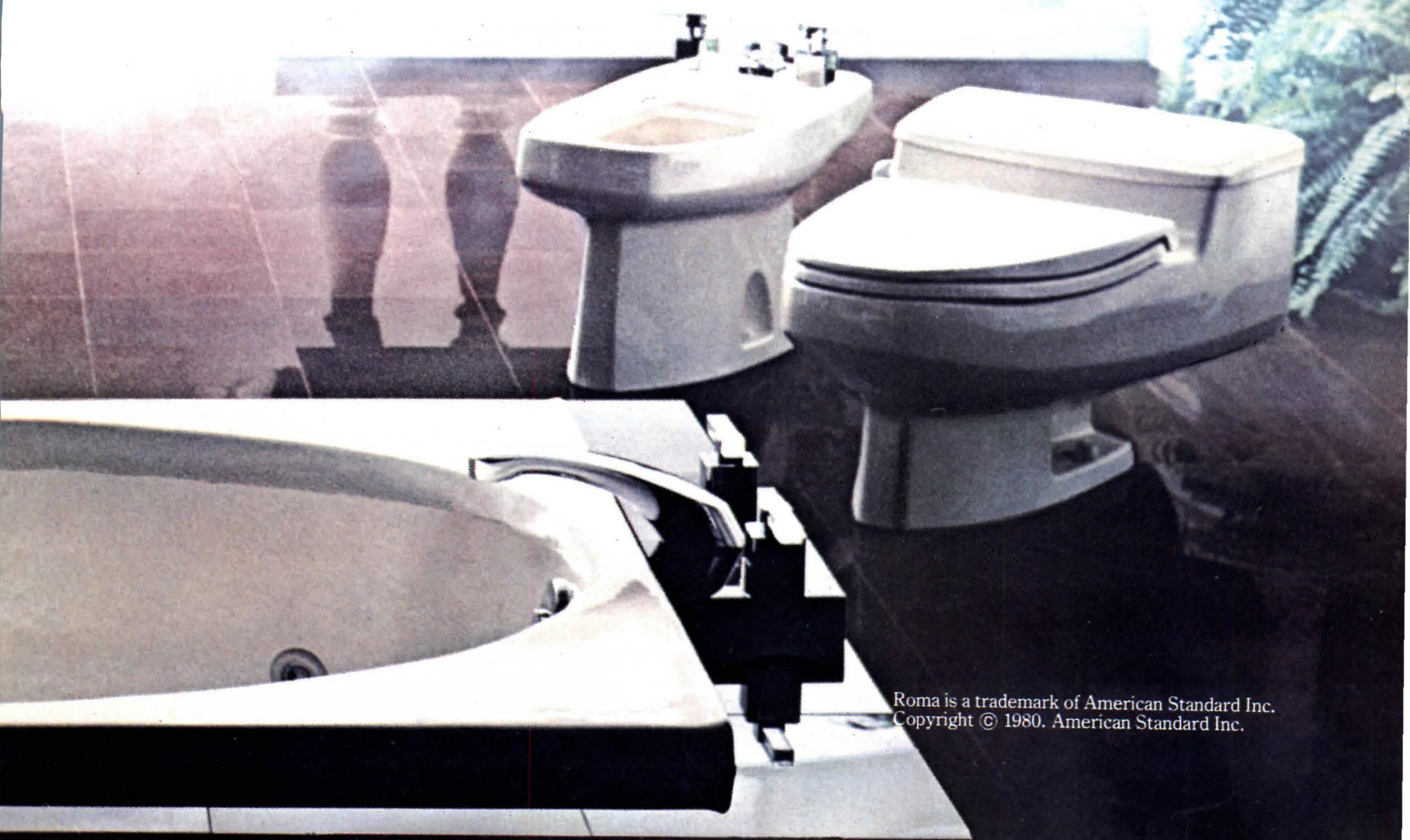
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Letters to the editor

I've long enjoyed your fine magazine, and look forward to your editorials. October's editorial welcoming comments from readers has prompted this letter.

I think I have a unique situation as one wishing to be called "architect." A series of circumstances has prevented me the formal education and apprenticeship required to take the equivalency test. However, with due humility, I have learned to design and build, as I think all architects should be educated before licensing. I built houses and commercial buildings for four years, ran my own cabinetmaking shop (furniture) for ten years, taught drafting at a vocational school for seven years, and now have my own art studio and am a self-employed architectural designer. I'm currently designing a farm machinery building valued at \$250,000. (Please bear with me, I need to tell someone.)

Now, this is not to say I know everything or think myself great, but I have learned a dozen trades, including bricklaying, welding, stained glass, etc., all pertaining to the great art of architecture. And I have learned to design circumspectly and "close up." I understand that there is much more to being an architect, but this is a good start.

I did not learn these things overnight. I'm 43 years old and have spent most of that time building things for people. A lot of the things that make an architect are intrinsic. I will probably never be called an architect, but I am one.

I'm questioning the method whereby we train and come by architects. The town I grew up in and now reside in has only one architect that is registered. He has only a slice of the pie that we call architecture. I know several men that have as large a slice as he, but will never be able to practice because of the inbreeding we call education and because the rules and regulations do not apply in all cases.

Time does not permit me to spell out the pros and cons. Although I understand the need for standards and ethics, there should be some better way to judge who is and who is not an architect. Should I spend five more years in some college learning the prejudices of some professor or playing gopher in some office when I can spend the rest of my life enjoying the challenges of finding the elegant solution to a design problem, touching the materials, and sharing the exhilaration of creating for the benefit and beauty of the world?

I write because I'm hampered on every hand by not having the creden-

tials that the architectural society says I must have.

I wonder how many *real* architects are being ruled and regulated out of the profession. I think it needs more of us mavericks.

W. Whitie Gray
Shelbyville, Kentucky

Some provocative issues were brought up in your October editorial on internship and licensing ["Internship and licensing: Let's think about it from the student's point of view," October 1980, page 13].

Of particular interest was the implication that the architectural profession could benefit from more stringent registration requirements. The article's title told us to "think about it from the student's point of view." As a student, I think we should instead look at it from the profession's point of view: a more tedious and protracted internship and licensing process may in the end produce a system whose survivors turn out to be most methodical and dogmatic but perhaps the least imaginative among prospective architects.

It might be worth noting that the current profession has given us countless buildings that are structurally sound, very few of which have real life or character.

Richard Lanier-Sims
Student
Pratt Institute
New York City

I was appalled to notice that the cover credit as well as the first page of the article concerning the AT&T Building [RECORD, October 1980, pages 106-111] gives credit to me as the sole designer.

The captions should instead read, as no doubt you are aware, Johnson/Burgee Architects since we are jointly responsible.

Philip Johnson
Johnson/Burgee Architects
New York City

I naturally appreciated the extensive and well-thought-out coverage of the Enid A. Haupt Conservatory Restoration in your October issue [pages 72-77]. However, I would like to draw attention to an important omission in the credits for this work.

Carlton B. Lees, senior vice president of the New York Botanical Garden, played a central role throughout the project. He not only got the restoration under way initially by organizing the funds, but was also responsible for the programming of the eleven houses and the detailed design for the exhibits.

Edward L. Barnes, FAIA
New York City

Correction

RECORD regrets its error in both spelling and professional attribution for the firm Rotwein & Blake, Associates Architects, P.A., in reporting the office of the Evans Partnership, Parsippany, New Jersey (September 1980, pages 114-119). Rotwein & Blake were, in fact, the architects of record, not the structural engineers; architects Gwathmey & Siegel were design consultants.

Calendar

DECEMBER

4 through January 9 Exhibition, "Ezra Stoller, Architectural Photographs 1939-1979," at the Max Protetch Gallery, 37 W. 57th St., New York, N.Y.

5-8 Colorado Society of Architects 1980 Annual Meeting, "Emerging Colorado Architecture," at the Broadmoor Hotel, Colorado Springs, Colo. Contact: Trudy McDermott, Executive Director, Colorado Society of Architects/AIA, 1420 Larimer Sq., Denver, Colo. 80202.

8-10 The 1980 International Conference on Noise Control Engineering, "Inter-Noise 80," at the Hotel Inter-Continental, Miami, Fla. Contact: Inter-Noise 80, P.O. Box 3469, Arlington Branch, Poughkeepsie, N.Y. 12603.

JANUARY

7-11 The 1981 Middle East Construction Exposition, Jeddah, Saudi Arabia. Contact: William J. Mason, Director, International Sales, Cahners Exposition Group, 331 Madison Ave., New York, N.Y. 10017.

10 Energy seminar, "Expo 81, Solar & Wind," sponsored by Jordan College. Contact: Linda Bouwkamp, Energy Programs, Jordan College, 360 W. Pine St., Cedar Springs, Mich. 49319.

FEBRUARY

16-20 The 36th Annual Conference and Exhibit of the SPI Reinforced Plastics/Composites Institute, at the Sheraton Washington, Washington, D.C. Contact: RP/C Conference Administration, The Society of the Plastics Industry, Inc., 355 Lexington Ave., New York, N.Y. 10017.

18-20 Conference, "Construction Management," sponsored by the Associated General Contractors of America; Orlando, Fla. Contact: Bill Jayne, AGC (202/393-2040).

19-22 The Institute of Business Designers' regional conference, "Focus: Marketing/Management/Communications," on Santa Catalina Island at the Mount Ada Conference Center. Contact: IBD National Headquarters, 1155 Merchandise Mart, Chicago, Ill. 60654.

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, ARCHITECTURE and WESTERN ARCHITECT AND ENGINEER) (USPS 132-650)

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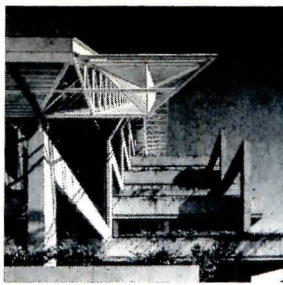
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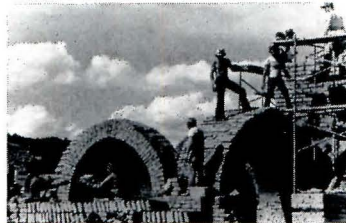
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The Reagan Administration—what will it bring for the construction industry? The GSA's favoring of "small" A/E firms is resulting in some confusion. The Chicago firm of Holabird & Root celebrates its first 100 years with an exhibit at the Chicago Historical Society. Egyptian architect Hassan Fathy brings his building techniques to New Mexico.



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Delphi: An aid in project cost control

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57 Building costs

Rising material costs begin to level off

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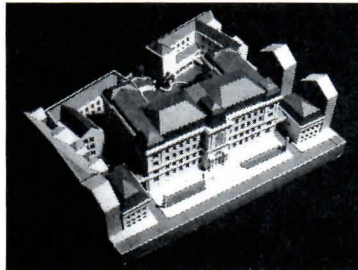


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NEXT MONTH IN RECORD

Building Types Study: College Buildings

As colleges mature, their buildings age. And as student bodies grow and curricula change, old buildings often lose their original reasons for being. More and more, however, universities and colleges treat their old buildings as valued antiques, not simply as a sop to alums' sentiments but to retain the fabric of the campus and to remind students and faculty of the founders' high hopes and ideals. This study will consider four examples of renovation, reconstruction and addition that put old buildings to new use.



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Let's not let Federal programs for design quality fall into any cracks between Administrations

Back in December 1978, RECORD did an issue entitled "Federal architecture: An agenda for quality." That issue was intended, we wrote then, "to describe—without declaring a millennium—some momentum toward achieving quality; and toward achieving it as a matter of routine. This means," we tried to show in the issue, "more than describing a selection of pretty buildings—for architecture is hardly a matter of prettying up what is already decided on, designed, or in place—although many agency and department chiefs think so. This issue, rather, is about the gradual changes that are taking place in policies, programs, guidelines, procedures of professional selection and project administration, and public laws."

The issue cheered the work of the National Endowment's Department of Architecture, Planning, and Design in updating and causing the implementation of the Guiding Principles for Federal Architecture—that excellent document written by then-Assistant Secretary of Labor Daniel Patrick Moynihan and issued by President Kennedy in 1962. The issue also showed some of the results of the Guiding Principles as applied by the General Services Administration—the GSA's efforts to select better qualified architects who could meet the standard of the "finest contemporary American architectural thought"; its efforts to re-use worthwhile older buildings for Federal purposes (instead of building new) wherever possible, and its efforts to create mixed-use Federal buildings incorporating public spaces and amenities.

The issue also showed designs indicating that many other Federal agencies—including the Bureau of Reclamation, ERDA, the Corps of Engineers, the Veterans Administration, the Border Service—were also making an earnest effort, with at least some splendid results, to create buildings that meet perhaps the most important standard set by the Guiding Principles: "The policy shall be to provide requisite and adequate facilities in an architectural style and form which is distinguished and which will reflect the dignity, enterprise, vigor, and stability of the American National Government. Major emphasis should be placed on

the choice of designs that embody the finest contemporary American architectural thought. . . ."

Well, two years later, as a new Administration moves into place, it seems a good time to cast a vote not just for continuation of the good work that has begun, but specifically to argue for careful nurturing by Mr. Reagan's new administration of two policies that are now in their tender formative stages.

First: New Mr. Secretary of State, please note:

One of the still-tender new government policies that needs nurturing is the work of the Foreign Buildings Operation (FBO) of the State Department in improving both the quality and appropriateness of our government buildings overseas—specifically embassy and consulate buildings. In his article (this issue, page 96) on the recent work of the FBO under the leadership of former AIA Executive Director Bill Slayton, associate editor Barclay Gordon argues that the FBO is far from the "insensitive bureaucratic client it once was . . . a place where high hopes went to die. [Rather] it is a program being restored to its former level of achievement by renewed enthusiasm and professional independence." Under Slayton, who is advised on all matters of architect selection and design by a strong panel of architects in private practice, first-rank designers are being retained to design the buildings that represent us in foreign capitals around the world; creating buildings that, again in Barclay's words, "are appealing in their forms, sensitive to climate and culture, and responsive to the social and political goals set for them by their designers and by an FBO leadership recharged and rededicated to excellence."

Second: New General Services Administrator and incoming Congressmen, please note:

As reported in our news section this month (page 34), "President-elect Reagan has no

known position on the proposal [Senator Moynihan's S. 2080] to greatly accelerate the construction of Federal buildings rather than continuing to rely so heavily on leased space for Federal workers [the government currently leases three-quarters of the space it occupies.] But many partisans of an improved Federal building program feel he will embrace the Moynihan bill in the cause of fiscal responsibility. Let's hope so.

That bill, at this writing [mid-November] in joint conference, calls for a new method of financing a greatly accelerated construction program (News, August, page 41); would reestablish again those Guiding Principles; and would create an a powerful and politically insulated "supervising architect" of Federal work.

In a speech of late October to the Building Products Executive Conference sponsored by McGraw-Hill Information Systems Company, present Commissioner A. R. Marschall of the Public Buildings Service reported that the PBS is "on the brink of a \$20 billion to \$30 billion construction program." Specifically, under the plan to replace leased space with owned space, Mr. Marschall said that "We start with 27 major communities across the country that contain 71 per cent of our space inventory. We devise a multi-year plan of action for each of the communities, and each community plan is coordinated with the plan of action for the region it is in. The regional plans are used to prepare a national plan."

And in outlining the plans for these new buildings (indeed, in arguing to justify the undoubted increase in first costs) Mr. Marschall cited goals the government and concerned citizens have been looking for: "a building of higher quality (than a speculative leased building) with higher quality materials . . . an energy-conserving building . . . a building that supports the needs of the people who work in and use it"—in short, one hopes, a building that meets those Guiding Principles.

And *that* is a goal that must not be allowed to slip between the cracks.

—Walter F. Wagner Jr.

Lone Star

The glass-sheathed Hyatt Regency Hotel and its companion Reunion Tower are fast becoming the landmarks of Dallas.

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The construction industry's recovery lost its momentum in September as contracting for new projects slackened. The value of all newly-contracted construction work in September was \$13.1 billion, one per cent less than the year ago amount. September's "hesitation" followed a six per cent gain in August, the first month in 1980 when contracting exceeded its 1979 counterpart. September contracts for nonresidential buildings totaled \$4.4 billion, a one per cent decline from the 1979 September value. Residential building contract value was down two per cent to a total of \$6.1 billion in September, with multi-family building showing more strength than single-family construction. At the end of nine months, the cumulative value of all construction started in 1980 was \$107.6 billion, down 19 per cent from the \$132.1 billion figure for the comparable 1979 period.

A National Policy Center on Housing and Living Arrangements for Older Americans (NHC) has been established at the University of Michigan. The new center is funded by a four-year, \$160,000 grant from the Administration on Aging of the U.S. Department of Health and Human Services and will be administered jointly by the University of Michigan College of Architecture and Urban Planning and the Institute of Gerontology. From offices at the College of Architecture and Urban Planning, the new center will train new and experienced professionals in the housing field, developing "comprehensive data on housing conditions of the elderly, and providing information and technical assistance to elderly citizens."

"To expose those problems and mistakes that have led to building or material failures, as well as give timely and candid information about loss prevention" is the editorial policy of a new monthly publication entitled *Building Failures Forum*—subtitled "The Journal of Forensic Tectonics, Building Pathology, and Loss-Prevention Techniques." Subscriptions are \$60 per year. For further information contact: Building Failures Forum, 121 West State Street, P.O. Box 848, Ithaca, New York 14850 (607/272-8585).

The 34th annual meeting of the Society of Architectural Historians will be held in Victoria, British Columbia, Canada, April 1-6, 1981: this will be a joint meeting with the Society for the Study of Architecture in Canada. The SAH is a 4,800-member international organization, founded in 1940 "to encourage scholarly research... and to promote the preservation of significant architecture." The Society publishes a quarterly *Journal*, a bi-monthly *Newsletter*, and sponsors the Alice Davis Hitchcock book award. For further information contact: Society of Architectural Historians, 1700 Walnut Street, Philadelphia, Pennsylvania 19103.

The American Institute of Architects Foundation has organized an exhibition of fantasy architecture at the Octagon in Washington, D.C. "Architectural Fantasies: Creative Alternatives" includes both built and unbuilt projects. Among the 20 architects and artists represented in the show are: Philip Johnson, Mitchell/Giurgola, Claes Oldenburg, Cesar Pelli, James Rossant, Paul Rudolph, Robert Stern, Venturi & Rauch, and Harry Weese. The exhibition is sponsored in part by a grant from Best Products Inc., and will be on view until January 25, 1981.

Applications will be accepted until December 20, for Loeb Fellowships. The Fellowship provides for a semester or a year of independent study at the Graduate School of Design at Harvard University, and is open to "mid-career professionals in architecture, landscape architecture, planning and urban design, working in key private and public sector positions to improve the quality of cities, design and the natural environment." A resumé and a paragraph describing proposed use of the Fellowship should be sent to: Loeb Fellowship Program, 510 Gund Hall, Harvard University, Cambridge, Massachusetts 02138.

Cornell University's Franklin Hall has been renamed Tjaden Hall in honor of Olive Tjaden VanSickle, a 1925 graduate of the Cornell College of Architecture, Art and Planning. According to K.C. Parsons, former dean of the college, "Ms. VanSickle has achieved prominence in architecture that few have attained and that until recently was inconceivable for a woman." At one time in her career, Ms. VanSickle was the only woman member of the AIA. She presently lives in Florida, where she continues her work as an architect.

The National Sculpture Society welcomes nominations for the Henry Hering Medal for "outstanding collaboration between architect, owner, and sculptor in the distinguished use of sculpture in an architectural project." For further information contact: National Sculpture Society, 15 E. 26th Street, New York, New York 10010 (212/889-6960).

The recovery of the housing industry could be threatened by the conflict between Iran and Iraq, warns Dr. Jack Carlson, executive vice president and chief economist of the National Association of Realtors. Dr. Carlson says that if the fighting persists into 1981, crude oil production could be reduced by more than 3 million barrels a day, causing oil prices to increase as much as 60 per cent during 1981. "As a result," he added, "inflation might increase by 2 percentage points in 1981 and 1982, with employment dropping by 250,000 next year and by more than 1 million in 1982. Mortgage interest rates could rise by more than 1 percentage point, housing starts could fall by 200,000 units next year and by about 400,000 in 1982."



continued from page 35

Hassan Fathy demonstrates ancient construction methods in New Mexico

Egyptian architect Hassan Fathy, FAIA, is author of *Architecture For The Poor* (reviewed in RECORD, January, 1980), and recipient of a \$100,000 award in the first Aga Khan Award for Architecture (RECORD, November, 1980). In September, Fathy and two Nubian masons came to the U.S. to give demonstrations in adobe vaulting and dome roofing to a large group of North and Central American builders seeking to learn the method of erecting roofs of adobe brick without relying on costly wood beams and centering.

The traditional Egyptian method, forgotten during colonization, was revived by Dr. Fathy in the late 1940s when he built the village of New Gourná, near Luxor (described in *Architecture For The Poor*.) Fathy has made a lifetime commitment to further this vernacular process by combining traditional skills with the latest technologies in soil mechanics and structural engineering.

Fifty women and men, Chicanos and Chicanas, Taos and Zapotec Indians, and "Anglos," (people of Anglo-European descent), came from Arizona, Colorado, Massachusetts, Mexico, New York, and Texas to participate with the Egyptians in the completion of a small mosque on a juniper-dotted hill facing the Chama Valley, the New Mexico village of Abiquiu and its volcano, Mt. Pedernal. The small structure is capped with six Byzantine domes, one larger Sassanid dome and two barrel vaults.

This building is the first in a larger scheme commissioned by an American group of converts to Mohammedanism who call themselves Dar el Islam and are located in Santa Fe. They chose Fathy to create the plans for two schools and cluster housing to shelter 50 families.

The two masons from Nubia (Upper Egypt) were hired by the client, but most of those who lent sinew and staying power were volunteers eager to learn the techniques and to participate in preparing the adobe, handling the materials, and constructing the mosque, according to traditional methods used since Pharaonic times and almost lost after colonization.

The New Mexico project was a true cross-cultural case study: turbaned masons were calling in English for bricks while Anita Rodriguez, a professional *enjaradorra* (master adobe plasterer, who was taught her craft in the Taos pueblo) responded in Arabic catchwords learned on the spot.

Abdel Rauf, a member of the Dar el Islam community, told Fathy at a convocation of the Santa Fe chapter of the AIA, that the average New Mexican house built today uses \$6,000 for wood. In 1990 the cost of



Lanza/Musick photos



wood per dwelling is expected to rise to \$30,000. Two builders who use *caliche*, a chalky lime plentiful in Texas, had driven 800 miles from Austin's Center For Maximum Potential Building Systems, to investigate the performance of adobe in maintaining interior temperatures within the thermal comfort zone (68 deg to 76 deg F). They shared with the Egyptians temperature measurement tables which compared favorably between adobe and *caliche* since both materials "breathe," and yield a high performance in temperature lag.

When Dr. Fathy was not speaking at the University of New Mexico, Santa Fe College or to numerous other groups, he held informal on-site seminars under a wood shelter erected by his hosts. The Dar el Islam community, foreseeing the heavy response to their announcement that Fathy would be among them for two



weeks, had also provided visitor-helpers with a campsite in the crook of the hill, equipped with solar-heated water for showering and cooking.

During the fortnight it took to complete the adobe building, scores of Sunday builders and professional people from Albuquerque and Santa Fe came to observe, question, take notes, photograph, and often lend hand and back.

Socorro Velasco, director of the Mexican Department of Appropriate Technology, brought her crew to record the building process on 16 mm film. Bill White, of the University of Arizona, videotaped activities, specific building techniques (such as the fashioning of squinches to support the domes) and the discussions on incorporating passive solar design, so successful in New Mexico, to adobe building.

Beyond continuing construction on the settlement in Abiquiu, Fathy has invited those interested in energy-saving methods to work on the expansion of the village of New Gourná. There, American craftsmen will in return teach their skills in the use of adobe. The 1981 Gourná project comes under the aegis of the International Institute for Appropriate Technology which Dr. Fathy has organized in Egypt. —Simone Swan

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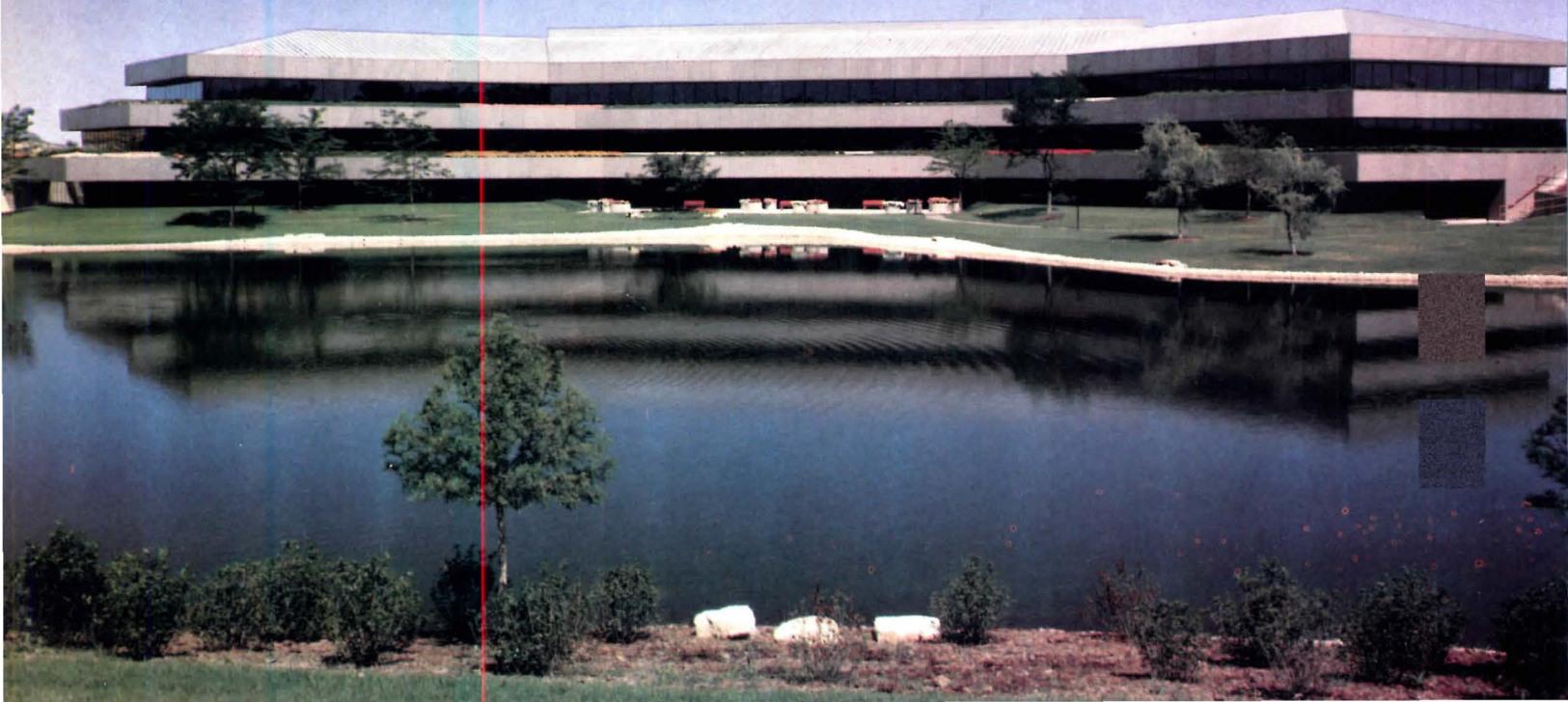
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Holabird & Roche and Holabird & Root: 100 years of Chicago architecture

Hedrich-Blessing photos

Last month, the Chicago Historical Society opened an exhibition entitled "Holabird & Roche and Holabird & Root: The First Two Generations." The exhibition includes drawings, models, and photographs of 30 buildings—ranging from the 1888 Chapel at Graceland Cemetery to the Board of Trade Building constructed in the boom years of the 1920s—as well as drawings of unbuilt projects. The timing of the exhibit is especially propitious—1980 is Holabird & Root's 100th anniversary.

The contents of the exhibition have been culled from a collection of 1.4 million drawings and other materials given to the Historical Society's Architectural Archive by Holabird & Root. Working in conjunction with Frank Jewell, curator of architectural collections, guest curator Robert Bruegmann, who is assistant professor of architectural history at the University of Illinois, chose material that would demonstrate the range of building types, the versatility of design, and the sheer quantity of work executed by the firm.

According to Mr. Bruegmann: "Because architects of the last several decades have often used a single style, whether they were building courthouses or drive-in restaurants, we sometimes forget how much architects of earlier periods depended on different vocabularies for different kinds of building. . . . Of all the building types produced by this firm, only the tall office building has received a great deal of study. The firm's hotels, stores, and public buildings were often published in the architectural press at the time they were constructed, but have been largely ignored since. Its work on houses, apartment buildings, gardens, dormitories, churches, and theaters has hardly been studied at all, and few remember Holabird & Root's graphic designs, work on railroad car interiors, proposals for filling stations . . . or the firm's project for a prefabricated kitchen to be sent to Moscow."

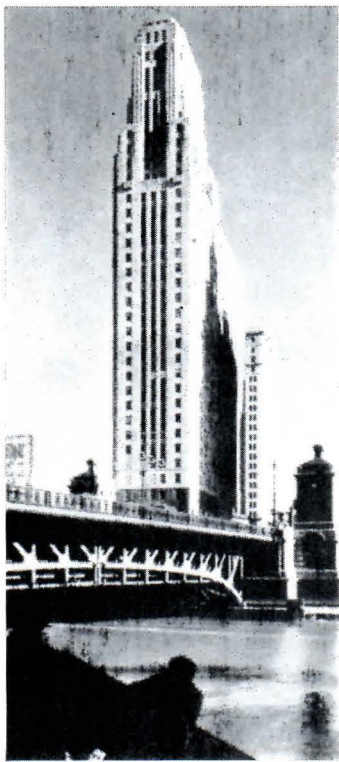
The exhibition will be on view at the Chicago Historical Society until March 31, 1981.



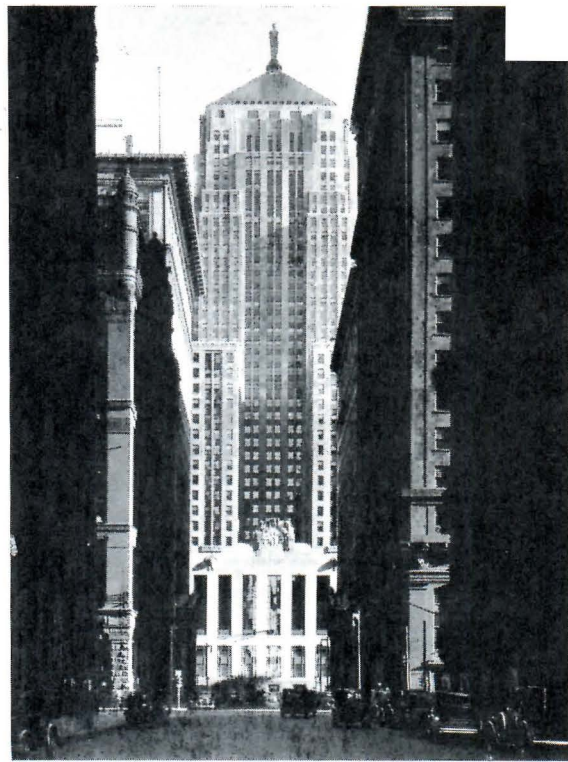
Chrysler Motors, Century of Progress, 1933.



Old Colony Building, 1894.



333 North Michigan Avenue, 1928.



Chicago Board of Trade, 1930.

The GSA's attempts to match small firms with small commissions may result in some confusion

The General Services Administration (GSA) has issued a policy statement saying A/E contracts should be awarded to small firms when the design work is for construction expected to cost \$2.5 million or less. Although this sounds reasonable, there are problems with the definition of "small," and the impact it will have. First of all, it is a difference without a distinction since the vast majority of A/E firms are considered

small. And GSA contract officers have traditionally awarded work to firms that would fit into this category.

Contributing to the confusion is the fact that the class of project to be set aside is based on the expected size of construction, while the qualification for "small" designation is based on a firm's average annual gross receipts for the preceding three years.

The Small Business Administra-

tion considers an engineering firm small—and thereby eligible for set-aside status—if its annual gross receipts are less than \$7.5 million a year. But architectural firms are considered small if their gross receipts are less than \$2 million. This differential between architectural and engineering firms produces confusion when either the firm or the services are architectural and engineering.

In any event, most A/E firms

would qualify as small. According to a four-year-old survey conducted by the GSA, 89 per cent of the engineering firms and 92 per cent of the architectural firms qualify as "small businesses."

The GSA threshold figure of \$2.5 million in construction costs, limits the effect mainly to the Agency's repair and alteration projects and to smaller new construction. — William Hickman, *World News, Washington*.

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Architect talk

AMERICAN ARCHITECTURE NOW, by Barbaralee Diamonstein, introduction by Paul Goldberger; Rizzoli New York, \$14.95.

Reviewed by Andrea Barnet

Architects seldom weary of discussing architecture—and their enthusiasm is nothing short of daunting when discussing their own work. But lectures are as ephemeral as they are sporadic, and, unfortunately, very few architects possess comparable facility with the typewriter as the drawing board or the lectern. Consequently, we hear architects speaking mainly through the hopefully benign conduit of journalists—but given the popularization of exclusivist jargon, that can be equal parts confusion and illumination.

Early this year, a series of "classes" was held in New York City at the New School for Social Research/Parsons School of Design, in which Barbaralee Diamonstein interviewed a cross-section of this country's architectural elite. Ms. Diamonstein's format was informal, conversational, and despite sizable audiences (comprised mostly of students and recent graduates), the "conversations" were refreshingly spontaneous. The interviews were videotaped (to be shown on cable television) and the transcripts carefully edited, and now published by Rizzoli.

American Architecture Now is instantly satisfying because it goes directly to the source. It features Edward Larrabee Barnes discussing his designs for the IBM building and Asia House, I.M. Pei on his planned Convention Center for New York City, Cesar Pelli on the Museum of Modern Art condominium tower, John Portman on his hotel currently planned for Times Square, as well as Michael Graves, Frank Gehry, Charles Gwathmey, Hugh Hardy, Richard Meier, Charles Moore, James Polshek, Jonathan Barnett, Robert A.M. Stern and Richard Weinstein speaking about their work. Each addresses architecture as art, sharing his esthetic and theoretical concerns, and as business, providing insights into particular building projects. Much of the success of this book can be attributed to Ms. Diamonstein's carefully researched questions, which not only provide focus and direction, but graciously draw out the personalities too. The interview approach seems particularly well-suited for this reason. It has allowed for the candor and conviviality of private conversation, while also providing the common criterion necessary to take a comparative view. As Paul Goldberger says in his introduction, these interviews restore "the sense of the significance of verbal communication in the making of architecture."

If many of the projects, discussed in the book, are familiar to the profession, to hear each architect defend them, as well as take positions on a number of broader-based issues, is not. Besides stylistic issues, which are central to these discussions, the feasibility of collaboration between architects and artists, the substance and quality of the curriculum at architecture schools, the notion of contemporary architect as real estate developer, and the relationship of architect to client, community, and the profession as a whole to the social and cultural evolution of society, are recurrent themes. The multiplicity of responses to the question of the future of modernism, however, best represents the spirit of this book. The range of perspectives is remarkably various: Robert Stern (predictably enough) emerges as the most outspoken proponent of post-modernism; Richard Meier, with equal conviction and predictability, defends the modernist camp. The rest, however, address

continued on page 47

Andrea Barnet is a freelance writer and reviewer for *Publishers Weekly*.



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the issues from less didactic perspectives, almost aggressively avoiding labels. As Charles Moore answers, when asked how he would describe the *new* architecture—pop, post-modernist, conceptual, post-functional?: "I keep saying I would rather be pre-something than post-anything. I'd rather be paleo. Actually, I'd rather be proto." Moore's orientation toward the particular, the personal, and the participatory, rather than the formal esthetic of a building, the "populist" approach as he calls it, is discussed in light of his design for the St. Matthew's Episcopal Church in Pacific Palisades, in which the parishioners participated in the decision-making process. Mention is also made of the television series he conducted (RECORD, December 1979) in which members of the community were encouraged to telephone in ideas for buildings they wanted to see designed.

Robert Stern pushes Moore's populist approach into stricter historical confines, seeing both Moore and Venturi as "transitional" figures. The architect, he says, must read the cultural events of his time carefully and make reference to them within the "continuity of tradition". He articulates this post-modernist position in terms of contextualism, a building's physical and cultural context; allusionism, the building's cultural implications; and ornamentation, the "strategy" for achieving references implicit in idea allusionism. His theoretical system comes across as a vehement reaction, some might even say overreaction, to the anti-historicism of the Modernists, as well as to their "object orientation."

Princeton architect Michael Graves, takes a broader, more abstract approach, stressing "archetypal conditions" rather than direct quotations. The role of the architect, he says, is to talk about "differences, classifications, the hierarchy of elements and symbols." He discusses the symbol of linkage in the Fargo-Moorhead Cultural Bridge in North Dakota/Minnesota, and the classical references of base, body and cornice in the Portland Public Service Building (RECORD, August 1980).

It is Frank Gehry however, who comes across as the most radical of those interviewed. Unlike Graves, he makes no separation between the pragmatic and the symbolic. Discussing his design for a house in Malibu, he says his intention was to create a "beautiful object," a "shell" which fulfills and at the same time transcends the functional and programmatic issues. Particularly revealing are his thoughts on his own house in Santa Monica. He explains that the dialogue between interior and exterior, the interplay between windows, doors, and walls, sets up a dynamic tension, that balance between the straightforward and the experimental he strives for.

Richard Meier, discussing the Bronx Developmental Center and the Atheneum at New Harmony, Indiana, makes an eloquent case for orthodox modernism: he assails historicism, saying that to pick random elements from the history of architecture and use them out of context is "the stylizing of architecture as mere decoration." He advocates studying history for the principles involved, rather than for particular solutions. Hugh Hardy concurs, stating that it is "morally indefensible" to turn back the clock, though he addresses this issue of historicism from the perspective of preservation and recycling. In speaking of the Madison Civic Center project (RECORD, July 1980), he stresses that its success in revitalizing the major downtown business street was due to "interpretive restoration," rather than to scientific preservation.

But more than any of the others interviewed, it is Pei, in discussing both his work and personal philosophy, who seems to synthesize issues of style, civic activism and commercial compromise most naturally. He discusses the hotel he is designing outside Peking in which he has tried to find a vernacular neither traditionally Chinese nor Western, but a new style which the Chinese will be able to develop as their own. "To capture the spirit" of a building, he says, to create a civilized setting for life, is more important than to satisfy function. "The other day," says Pei, "someone called my attention to the fact that Brunelleschi designed a building called the Foundling Hospital in Florence, in the 15th century. About 89 years later, another architect, named Michelozzo, designed an almost identical building across the square from the hospital. Now, that's civilized. That is very civilized."



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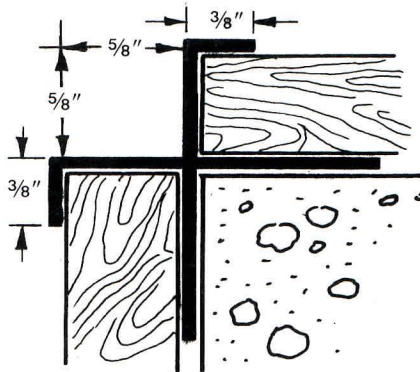
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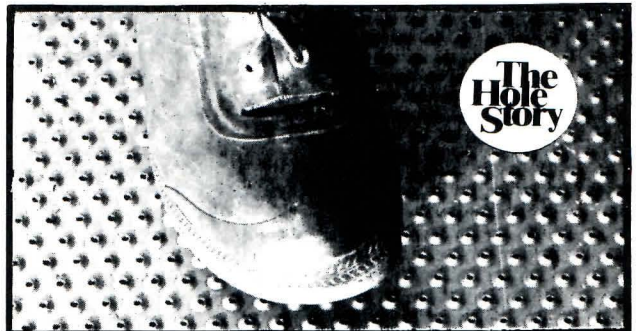
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Delphi: An aid in project cost control

Improved control procedures for capital costs and other life-cycle costs will exert tremendous impact in the coming years. The capacity for identifying design alternatives, modifying facility layouts, and substituting materials and specifications will continue to be essential components of cost control. But the ability to explore these options in such a way that savings potential is communicated to the client as well as to everyone else involved in the design process requires a comprehensive methodology. The following article suggests how a decision-making technique called "Delphi" can help to equip designers for dealing with all stages of project cost control—including the prediction of future obsolescence.

by Stephen J. Kirk, AIA, CVS

A research group at the Rand Corporation developed Delphi in the early 1950s as a means of obtaining ideas and the best estimates from a multidisciplinary group of comparably qualified individuals. The technique has subsequently become a fundamental tool for technological forecasting in government, industry, and service organizations. In the area of management science and operations research, for example, where there is a growing recognition of the need to incorporate subjective information (risk analysis) directly in evaluation procedures, Delphi is now being applied to some of the more complex problems facing society: environment, health, transportation, etc. The American Institute of Architects first proposed the use of this method in building design through a self-help mini-guide published in 1975.

Reaching a consensus

Delphi can be defined as a method of achieving consensus among a group of qualified individuals, by first identifying and then evaluating the outcome of various uncertain design options. This process involves individual contributions of information and knowledge, some assessment of the group judgment or view, the opportunity for individuals to revise and debate their views, and some degree of anonymity for individual responses. In cost control, a multidisciplinary Delphi group might consist of project managers, designers, draftsmen, cost estimators, value engineers, and client representatives. It is recommended that all members of the group have some knowledge of, or experience in, the situation being analyzed.

One of the greatest advantages of Del-

Stephen J. Kirk is an associate and project manager in the Value Management Division of Smith, Hinchman & Grylls Associates in Washington, D. C. and teaches in the engineering department of Catholic University. Mr. Kirk is co-author with Alphonse Dell'Isola of a book entitled *Life Cycle Costing for Design Professionals*, to be published by McGraw-Hill in early 1981.

phi is that it minimizes the bias of personality in obtaining a single group opinion. This method may be used in cost control for:

- Evaluating possible budget allocations;
- Exploring design options;
- Assembling a cost model (for design-to-cost objectives);
- Identifying the pros and cons of potential design options;
- Developing cost relationships in complex facilities;
- Exposing priorities of personal values and design goals;
- Predicting systems or layout obsolescence and taking corrective action.

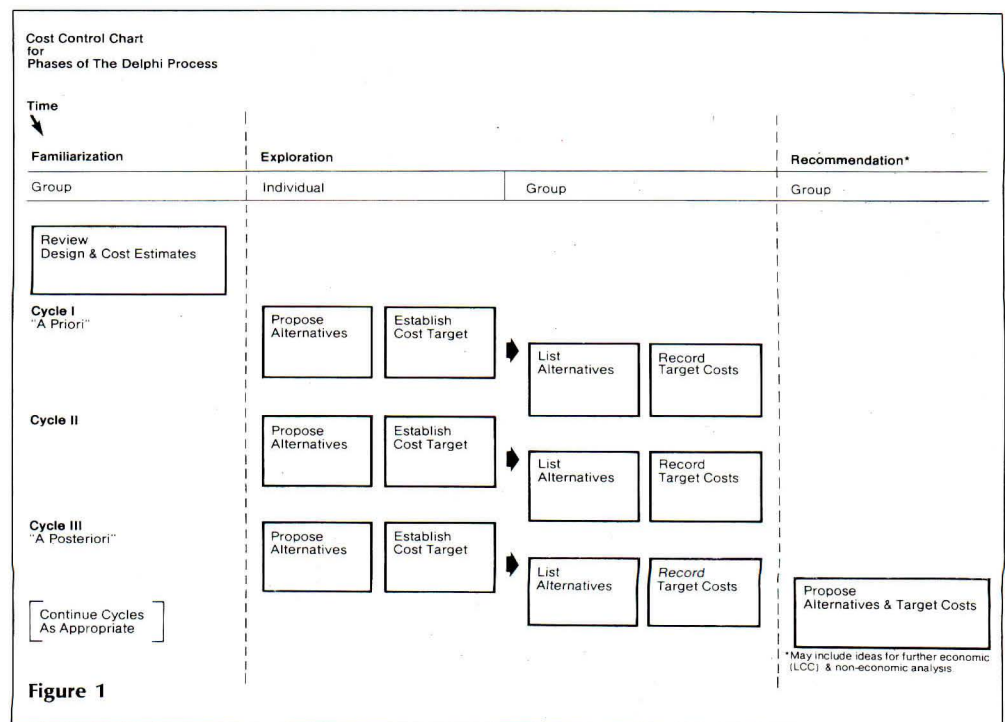
Delphi is particularly desirable for cost control in the early stages of design because there are no precise analytical techniques available.

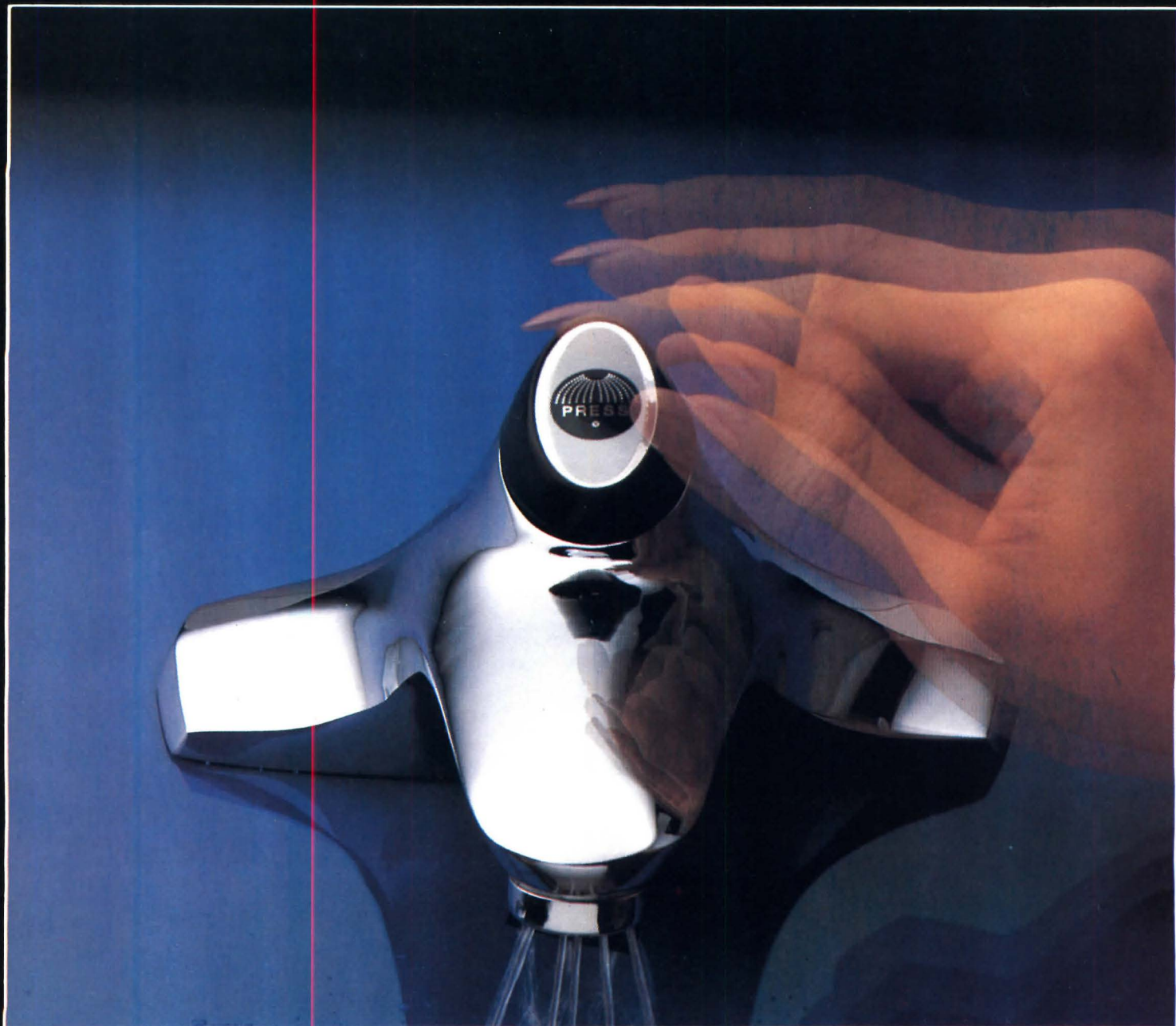
Any group discussion is likely to produce some majority position, but it is most often a compromise rather than a true consensus. In many cases, this compromise reflects the opinion of the most verbal, most dynamic, or simply the most persistent members of the group. In cost control, where a significant degree of uncertainty prevails, it is imprudent to assume that any member's opinion is more valid or valuable than those of the rest of the group. It is more desirable to gain some idea of the range of opinion within the group, and the reasons for individual estimates. It is immaterial whether Delphi participants are actually involved in the design under consideration, so long as each individual provides an honest, reasonable estimate based on firm knowledge of various design alternatives. In fact, once assimilated, these estimates provide valuable information in their differences as well as in their similarities.

Cost targets and design options

Such is the logic of the Delphi methodology that, once inaugurated, it will gradually converge on a set of design alternatives which is judged, by consensus, to provide optimum cost/performance for the system in question. As shown in Figure 1, the Delphi process

continued on page 53





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begins with project familiarization, passes through a number of individual and group exploration cycles, and concludes with a group recommendation. The first Delphi cycle provides the user with an "a priori" set of inputs (subjective in nature) about a desired system. On the basis of these inputs, a set of design alternatives is compiled by the team as a whole. Estimated cost targets are then reviewed—without revealing their authorship—in order to determine the range of target values submitted by individual participants. The group can then begin to "order" the desired system properties into logically consistent and probable design options, each of which is associated with some index of desirability known only to each participant.

A second cycle of the Delphi process allows each participant to digest the group ordering and begin to focus on the most desirable design options and corresponding target costs. Participants can also add or modify design options at this stage of the process, while empirical confirmation of the range of target cost values further reinforces the validity of previous actions. As a part of the searching process, Delphi may be used to predict the obsolescence of building systems or layout concepts. It is then possible to take corrective action by adding features such as flexible layouts or innovative technology.

Once the participants have completed the second cycle of Delphi individually, the group reassembles. Individual responses are fed into a formal group discussion in order to integrate the a priori and a posteriori data, and if the design options remain virtually unchanged (with an indication of which alternatives are more desirable), the group is ready to make recommendations. Usually, however, at least one additional cycle is required before consensus of the team is reached, although cost target values for the system should continue to converge.

The graphs in Figure 2 illustrate conceptually the degree of each participant's confidence in his target estimate for various design courses of action. The a priori estimate (before consensus) greatly improves with the number of Delphi cycles. As the cycles converge to a group consensus (a posteriori) so do the design courses of action. In this manner, design cost control is exercised.

The final step of Delphi involves group participation in the proposal of alternatives and target costs for the system(s) under study. Design options recommended at this stage may still require further economic (life-cycle cost) and non-economic review as details of specific components are identified. As design progresses, monitoring of estimated costs remains the responsibility of the cost-control team.

A Delphi case study

To aid the cost-control team, a one-page form has been prepared for use during each cycle of the Delphi process (Figure 3). A case study of its application follows.

The form is organized to document all pertinent information submitted by each individual during every cycle of the Delphi pro-

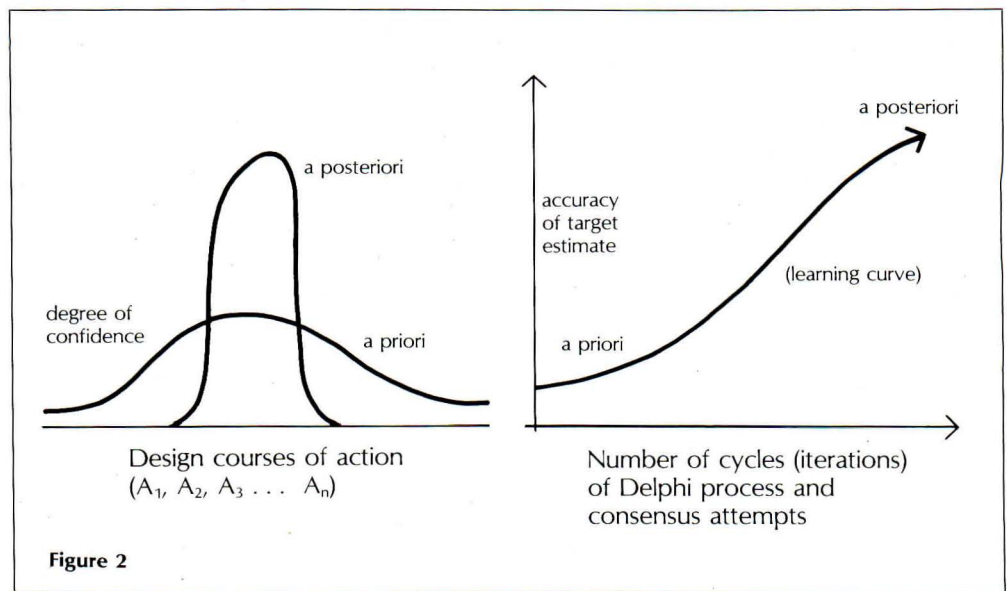


Figure 2

cess. The facility, element, or system being studied is to be described in the block in the upper left. The estimated cost of that element, if known, may also be input and a system component breakdown with related costs, may be listed on the lines below the block. Functions to be performed by the element may be entered as conventional two-word (verb/noun) descriptions.

As each participant begins to understand the design through function analysis, alternatives will come to mind. Space has been provided on the right side of the sheet to record design options. After adequate consideration of alternative courses of action, each participant estimates a target cost felt to be the minimum necessary to perform required functions. The rationale and assumptions that underlie the target cost are noted at the bottom of the sheet in the space provided. Upon completion of the Delphi process of consensus, this target figure becomes the design-to-cost objective for the project.

This format was used recently during a cost-control session for the design of a large office/computer facility to be built in the southwestern United States. Following the Delphi method, a multidisciplinary team consisting of a value engineering specialist, a client representative, the architect, a structural engineer, and a mechanical engineer reviewed floor-to-floor height requirements for the project. Since this study area overlapped all design disciplines, the building cost was treated as the "element" under study. After the design and costs were reviewed, each participant was asked to list ideas for reducing the floor-to-floor height. (Figure 3 illustrates how one individual completed the Delphi cost-control sheet during the first cycle). The estimated costs for the building were provided to the team along with a listing of functions the building was expected to satisfy.

After each participant had completed the worksheet, including a "targeted cost" for reducing the floor-to-floor height, the team was assembled. All ideas were then listed on a flip chart for group discussion. In all, 44 different ideas were listed. Ideas

ranged from increasing the cross-sectional area of structural steel (to reduce depth) to the use of Vierendeel trusses, creating interstitial space for lights and hvac distribution. Coffered ceilings were considered as a means of enhancing apparent height while reducing actual clearance from nine feet to eight. Estimated building costs ranged from a low of \$55.00/gsf to a high of \$62.00/gsf. As group discussion began to organize the random ideas into alternate packages, certain ideas were judged to have significantly more potential than others. Additional study teams were also invited to participate in the discussion, which required approximately 45 minutes for completion.

The second cycle of Delphi began with individual team members excluding some ideas from further consideration, and developing new alternatives. A list of alternatives which met functional criteria was discussed by team members—not without disagreement (the coffered ceiling, for example, was debated at length). The client was also given an opportunity to comment on proposed alternatives.

By the third and final iteration, various team members began to agree on key points. The structural engineer proposed the use of open-web trusses in lieu of spandrel beams. The mechanical engineer balanced air distribution over the space, taking care to integrate this system with the structure. The architect suggested that a nine-foot flat ceiling be maintained for future flexibility within the open-office concept. Along the perimeter, where windows occurred, a coffered ceiling was designed to create a "new space definition" and to reduce the likelihood of future private offices.

The team recommended that the floor-to-floor height be reduced from 15 to 14 feet on each of the three upper floors and from 18 to 14 feet on the ground floor. The basement height was varied to satisfy individual functions. Because of the large floor area involved, this review realized an estimated saving of approximately \$300,000.

Using this same process for each element

continued on page 55

Many architects agree that single-ply is the roofing material of the future because of its cost efficiency and energy savings. But many have also learned through unhappy clients that a single-ply roof is only as good as the company that installs it.

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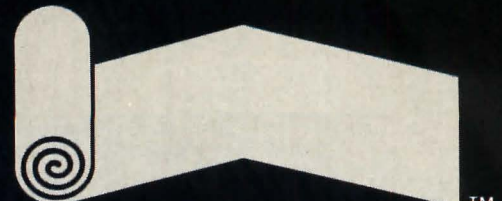
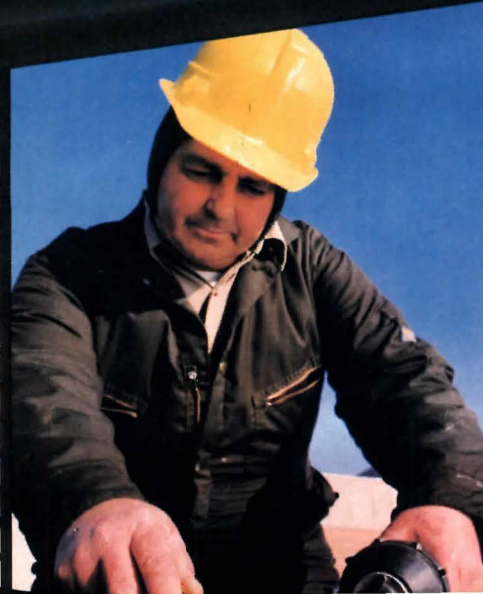
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in a building will lead to the completion of a cost model similar to that shown in Figure 4. For validation of figures and assumptions, one need only refer to the Delphi cost control backup sheets.

With client cooperation, Delphi can net substantial savings

Delphi is a very simple concept that can be employed easily. But before using this procedure, would-be participants should beware of the following pitfalls in its application:

- Attempts to impose individual views and preconceptions of a problem on the reviewing group;
- The assumption that Delphi will satisfy all human communications in a given situation;
- Poor summarization of individual responses to the group;
- Failure to explore disagreements, so that discouraged dissenters drop out and an artificial consensus is achieved;
- Underestimation of the time required for individuals to participate in Delphi cost control. Clients and owners must recognize that because cost-control services are not a normal design function, they require additional compensation.

The Delphi process should be repeated until a satisfactory consensus is reached. However, at times all participants may not agree on a single outcome. Some opinions may be based on significantly different rationales, each of which is so cogent to the individuals concerned that a precise consensus is impossible. Such a situation may contain much merit and it indicates substantial estimating uncertainty involved in the element or system being analyzed. This situation may lead to a more thorough follow-up analysis and revisions to the design program in order to reduce the degree of risk. Sizable savings could be the net result to the owner. Even though the technique of Delphi is relatively new, once the user understands its methodology and potential concerns, he or she may practice its application to project cost control with relative assurance of success.

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BUILDING (MESA II) (FLR. TO FLR. HGT. RED.) 57.50/GSF \$62.39/GSF		Element Description Target Cost Estimated Cost	Project APAC - MT. BELL Location MESA, ARIZONA Bldg. Type OFFICE / COMPUTER Const. Type STEEL FRAME	Cycle # 1 Sheet 6 Date FEB. 18, 80 Phase CONCEPT
Functions (Verb/Noun) PROVIDE (COMPUTER) ENVIRONMENT PROVIDE (PERSONNEL) ENVIRONMENT HOUSE (SUPPORT) EQUIPMENT PROVIDE AESTHETICS		Alternatives USE TRUSSES TO RUN DUCTS - ALL FLRS USE DUAL DUCTS TO REDUCE HEIGHT PIPE REFRIGERATED WATER IN LIEV OF AIR REDUCE FLR. TO CEILING HEIGHT TO 8'-0" ELIMINATE RAISED FLOORING RE-LOCATE MECH. TO MESA II:		
Components FOUNDATIONS SUBSTRUCTURE SUPERSTRUCTURE EXTERIOR CLOSURE ROOFING INTERIOR CONSTRUCTION CONVEYING SYSTEM HVAC SYSTEM PLUMBING FIRE PROTECTION SPEC. MECH. & BLD. MAN. ELECTRICAL GEN. COND., O.H. & PROFIT	Cost 1.15/GSF 2.10/GSF 7.93/GSF 2.78/GSF 1.60/GSF 8.07/GSF .84/GSF 8.85/GSF .52/GSF 2.55/GSF 4.07/GSF 14.35/GSF 7.40/GSF	SAVINGS 5% 5% 2% 10% 0 5% 1% 1% 1% 1% 1% 1% 3%	ROOF TDP UNITS FLOOR UNITS RUN DUCTS UNDER BASEM'T FLOOR USE STRUCTURAL SYST. AS PLENUM VARY BASEMENT FLR. HEIGHT FOR FUNCTIONS STEP DOWN CORRIDOR HEIGHT TO 8'-0" INTEGRATE LIGHTING W/ STRUCT. & HVAC USE INDIRECT LIGHTING IN SPACES REDUCE 48" ROUND DUCTS TO 36" CONSIDER RECTANGULAR DUCTS USE HIGH VELOCITY DUCTS SUPPLY AIR FROM DUCTS OUTSIDE BLDG EXPOSE DUCTS & HVAC DIST. IN SPACE USE 50K STEEL STRUCTURAL	
Rational & Assumptions GOALS: CONSERVE ENERGY, SATISFY CODES, MEET (OWNER) PROGRAM, PROVIDE RELIABILITY BASEMENT FLOOR FROM 15'-0" TO AS LITTLE AS 12'-0" (SELECTED AREAS) FIRST FLOOR FROM 18'-0" TO 15'-0" SECOND & THIRD FLOOR 15'-0" TO 14'-0" TOTAL HEIGHT POTENTIAL = 6'-8'-0" (10-15%)				

Figure 3

Construction 65.43 67.59	Contingency N.A.	Escalation 17.5% 11.45 11.83	Construction @ Bid Date 76.88 79.42	Project COMPUTER / OFFICE Location PHOENIX, ARIZONA Bldg. Type COMMERCIAL Const. Type STEEL FRAME Use Units DOLLARS / GSF	Date FEB. 80 Phase CONCEPT NSF 283,200 Floors 4
12 Site 5.20 5.20	Building 60.23 62.39	Legend: Target _____ Actual/Estimated _____		Comparative Ratios: Parameter Target ACT/EST	
Overhead & Profit 1.30 1.30	Structural 10.49 11.18	Architectural 12.95 13.29	08 Mech. 15.31 15.99	09 Elec. 13.96 14.41	11 Equip. .12 .12
Site Preparation .08 .08	01 Found. 1.15 1.15	04 Exterior Closure 2.64 2.78	HVAC 8.85 8.85	Service & Distribution 4.22 4.22	Fixed Equip. SALES TAX 2.27 2.27
Site Improv. 2.48 2.48	Special Foundations N.A.	05 Roofing 1.40 1.60	Plumbing .58 .52	Lighting & Power 2.57 3.02	Furnishings .12 .12
Site Utilities 1.16 1.16	02 Sub-structure 1.89 2.10	06 Interior Construction 8.07 8.07	Fire Protection 1.81 2.55	Spec. Elec. Systems .78 .78	Spec. Const. Job Site Overheads 3.24 3.24
Off-Site Work .18 .18	03 Super-structure 7.45 7.93	07 Conveying Systems .84 .84	Spec. Mech. Systems 4.07 4.07	EMER. POWER & UPS 6.39 6.39	Demobilization Off Expense & Profit 1.89 1.89

Figure 4

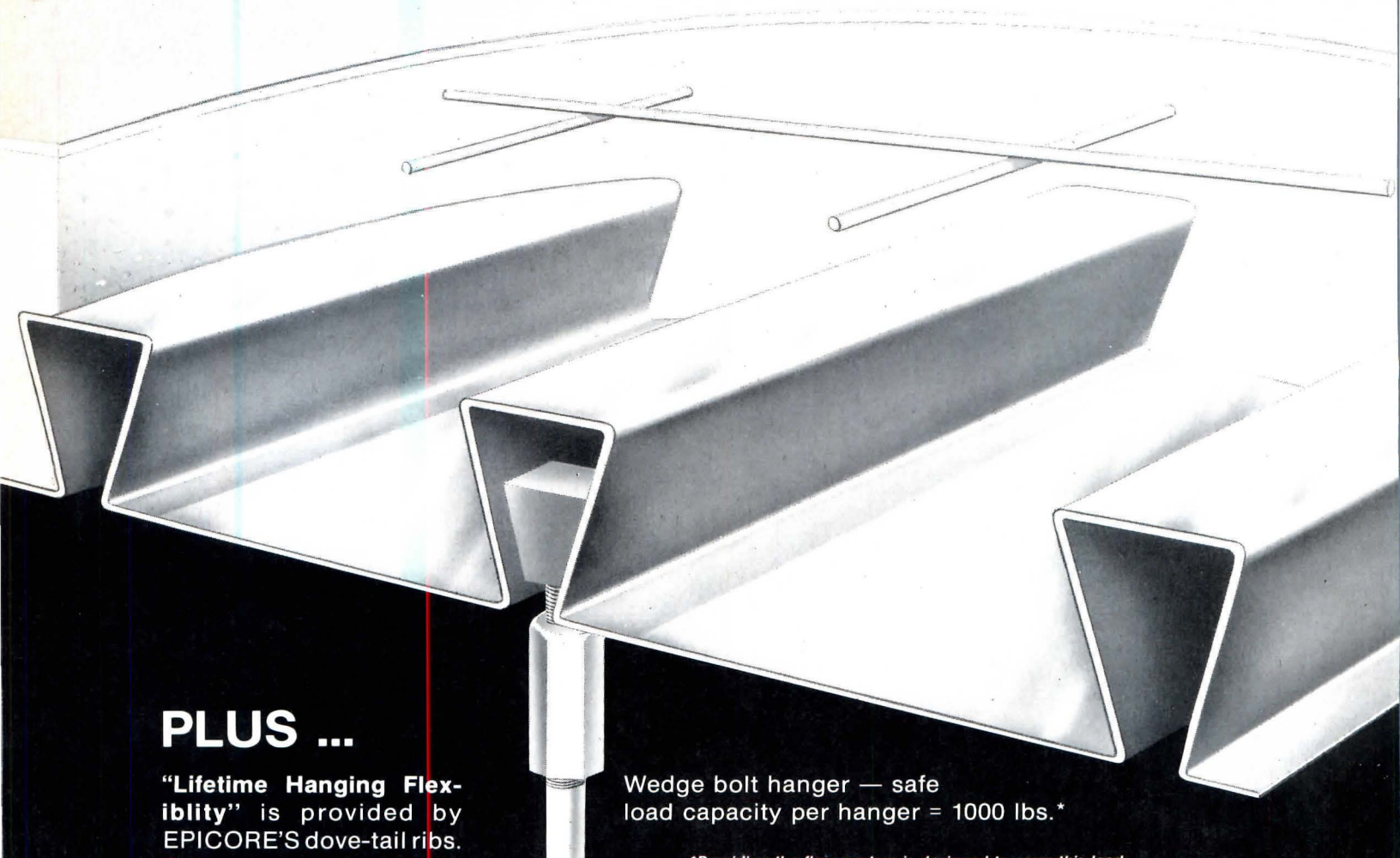
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Rising material costs begin to level off

Based on a survey by the McGraw-Hill Cost Information Systems Division, for the period June through September 1980, the prices of many building materials have fluctuated only slightly. While the cost of concrete increased 1 per cent and concrete block decreased 3 per cent, plywood held its own. Prices for gypsum board and asphalt have remained steady, whereas steel rose 3 per cent and structural steel gained 2 per cent.

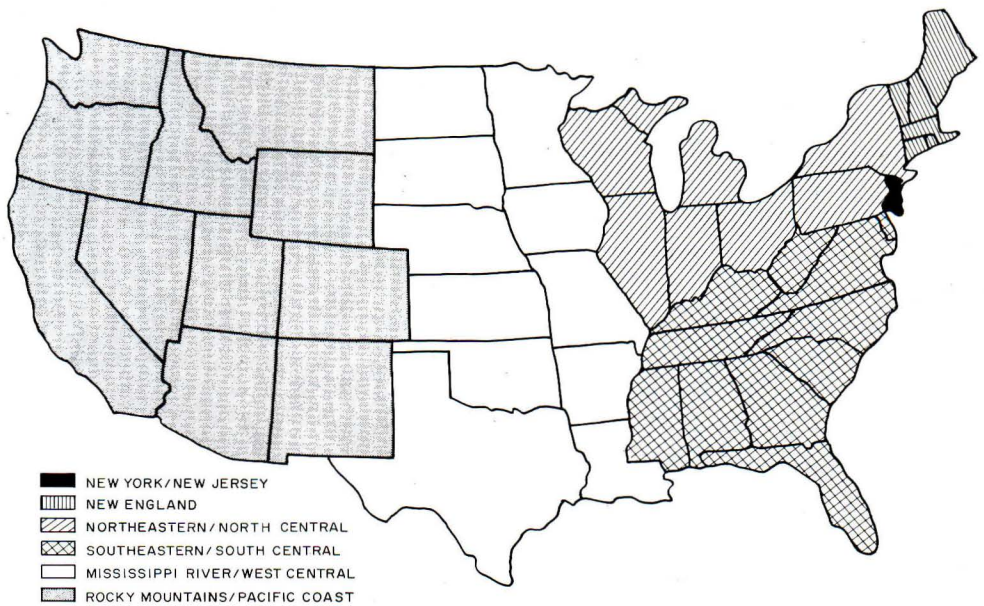
Despite four consecutive months of improvement during the first three quarters of 1980, housing starts are still down 32 per cent compared to the same period a year ago. Private starts through September 1980 declined to 930,000 units versus 1,370,000 in the first three quarters of 1979.

Building permits, on the other hand, jumped from 116,000 in August 1980 to 142,000 in September. Multi-family starts rose

20 per cent from August to September—a stronger increase than single-family starts, which climbed only 2.8 per cent during the same period.

The lumber market, especially in the Western states, has been operating at 82 per cent capacity, and timber salvaging in the Mt. St. Helens area is currently underway. As a result, lumber and plywood production is expected to drop throughout the spring.

Districts	Number of metro areas	3/80 to 9/80 %	9/79 to 9/80 %
Eastern U.S.			
Metro NY-NJ	16	4.9	8.4
New England States	21	3.0	3.6
Northeastern and North			
Central States	46	4.1	4.7
Southeastern and South			
Central States	39	5.8	6.4
Average Eastern U.S.	122	4.45	5.78
Western U.S.			
Mississippi River and			
West Central States	35	5.1	5.8
Pacific Coast and Rocky			
Mountain States	25	3.9	4.2
Average Western U.S.	60	4.5	5.00
United States: Average	182	4.48	5.39

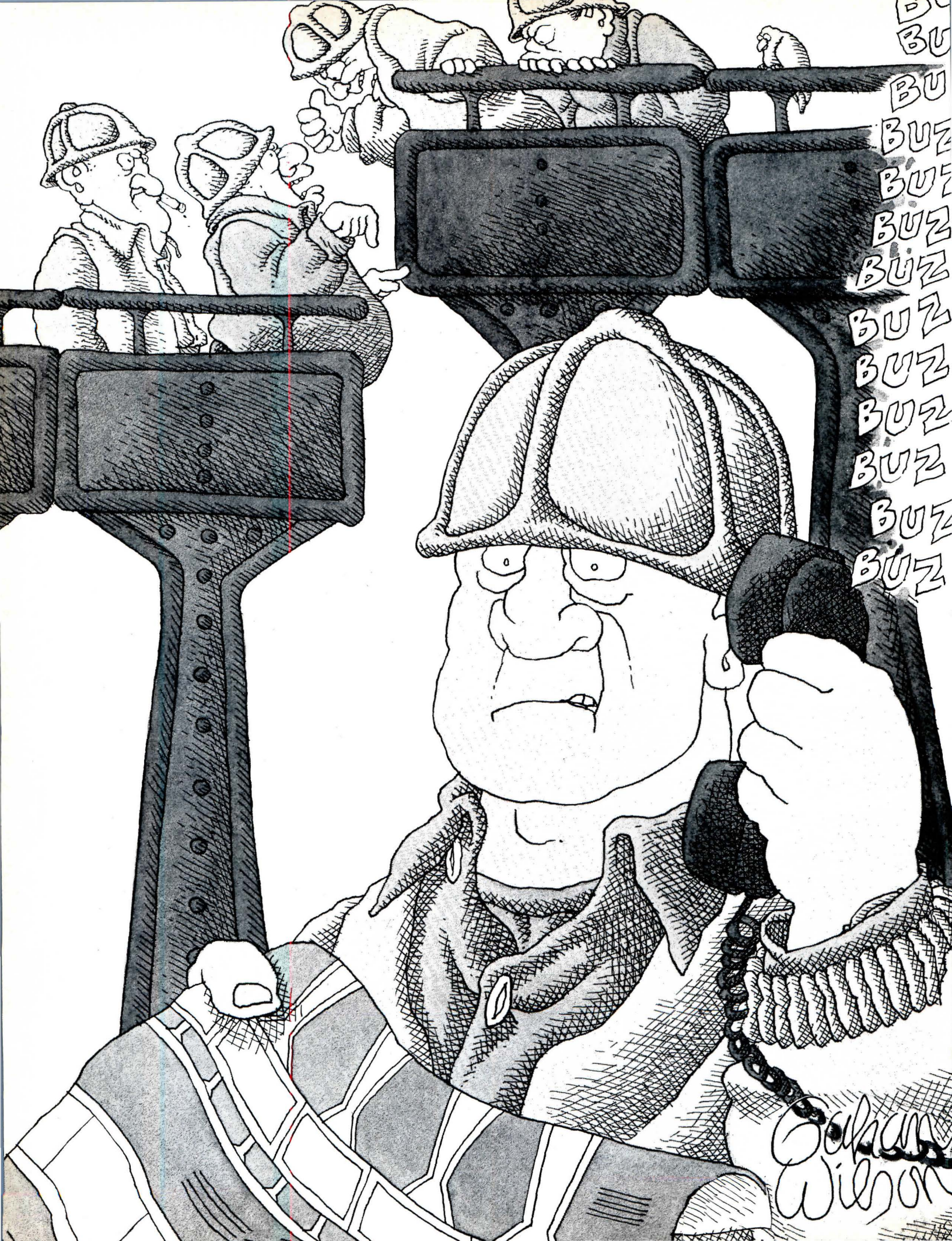


HISTORICAL BUILDING COST INDEXES—AVERAGE OF ALL NON-RESIDENTIAL BUILDING TYPES, 21 CITIES

1941 average for each city = 100.00

Metropolitan area	1970	1971	1972	1973	1974	1975	1976	1977	1978	1st	2nd	1979 3rd	4th	1st	2nd	1980 3rd	4th
Atlanta	422.4	459.2	497.7	544.8	575.0	598.7	657.1	714.2	755.8	819.6	836.0	872.1	904.3	875.6	901.9	935.1	
Baltimore	348.8	381.7	420.4	475.5	534.3	581.1	585.0	635.6	662.2	729.6	744.2	773.6	802.2	779.0	802.4	817.2	
Birmingham	309.3	331.6	358.3	402.1	421.2	448.9	551.9	585.4	609.2	704.1	718.2	724.5	751.3	736.8	758.9	757.4	
Boston	328.6	362.0	394.4	437.8	462.5	513.2	555.9	587.7	759.5	691.9	705.7	718.9	745.4	736.2	758.3	752.4	
Chicago	386.1	418.8	444.3	508.6	529.6	560.1	635.2	689.9	717.3	805.4	821.5	885.9	918.7	889.4	916.1	944.5	
Cincinnati	348.5	386.1	410.7	462.4	500.1	550.6	609.8	656.6	669.5	750.7	765.7	810.0	840.0	823.0	847.7	868.3	
Cleveland	380.1	415.6	429.3	462.2	509.5	531.0	632.9	625.2	653.5	794.7	810.6	853.6	885.1	881.8	908.3	920.6	
Dallas	327.1	357.9	386.6	436.4	477.9	499.6	538.5	615.2	637.6	739.0	753.8	873.0	905.3	787.7	811.3	827.1	
Denver	368.1	392.9	415.4	461.0	510.0	553.6	616.0	703.8	730.5	803.2	819.3	847.4	878.8	905.9	933.1	927.6	
Detroit	377.4	409.7	433.1	501.0	538.7	597.5	617.2	664.2	756.6	840.6	857.4	865.5	897.6	860.5	886.3	911.3	
Kansas City	315.3	344.7	367.0	405.8	444.9	509.1	547.3	603.0	631.8	657.7	670.8	711.0	737.3	735.2	757.3	771.2	
Los Angeles	361.9	400.9	424.5	504.2	531.8	594.1	673.1	756.8	784.2	886.3	904.0	955.4	990.8	978.3	1007.6	1022.3	
Miami	353.2	384.7	406.4	447.2	485.5	558.9	592.5	628.4	649.0	686.1	699.8	736.9	764.1	742.8	765.1	777.0	
Minneapolis	361.1	417.1	412.9	456.1	488.6	538.0	564.1	629.4	651.3	793.4	809.3	824.3	854.8	827.6	852.4	848.3	
New Orleans	318.9	341.8	369.7	420.5	442.1	494.7	534.8	614.7	637.0	697.7	711.6	734.7	761.9	753.8	776.4	785.5	
New York	366.0	395.6	423.1	485.3	515.3	533.5	580.8	619.8	646.3	666.6	679.9	778.9	807.8	793.7	817.5	815.1	
Philadelphia	346.5	374.9	419.5	485.1	518.5	567.5	579.2	658.8	680.0	778.0	793.5	814.6	844.8	830.9	855.8	849.2	
Pittsburgh	327.2	362.1	380.3	424.4	465.6	509.5	526.3	589.6	614.0	692.2	706.0	736.5	763.8	746.1	768.5	773.0	
St. Louis	344.4	375.5	402.5	444.2	476.7	528.9	537.1	617.1	637.4	752.0	767.0	782.8	811.8	786.7	810.3	820.5	
San Francisco	465.1	512.3	561.0	632.3	672.5	753.3	820.8	963.2	990.0	1239.0	1263.8	1200.3	1244.8	1202.7	1238.8	1260.4	
Seattle	341.8	358.4	371.5	424.4	450.2	515.1	570.5	629.6	669.0	700.7	714.7	761.0	789.1	763.3	786.2	807.6	

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



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The grand scale and the complexity of Robson Square and The Law Courts—a horizontal three-block-long complex in the heart of Vancouver—singles it out as one of the most important and ambitious urban re-designs in years. In concept and in reality the project is seen as a three-dimensional park spine bordered by two prime north-south streets (Hornby and Howe Streets) and just south of the prime east-west artery (Georgia Street), a site long proposed as a civic square. Planned in relation to a broader downtown context the project is, in fact, the first major step toward the city planning depart-

ment's objective of lower density and greater emphasis on pedestrian amenities.

Though conceived as an integrated whole, each of the three blocks of the project is distinctive and different. The gradation of the site reinforces a pattern of "movement" that flows from the great inclined glass roof and exposed structural framing of the Law Courts building, across the street via the linear pool of water and cascading waterfalls, to three tiers of zig-zagging steps which lead to a sunken plaza. This plaza continues under Robson Street (see site plan) before rising again in front of the old courthouse, at the

northern end of the three blocks. (These three blocks are locally referred to by the city planners' designations as Block 51 for the old courthouse square, Block 61 for Robson Square and the provincial government offices, and Block 71 for the Law Courts building.)

While the three blocks are owned by the British Columbia provincial government, the old courthouse will be leased to the city for complete interior renovation and some exterior additions to transform it into a cultural center. The rotunda and other main floor spaces will be used for an information center, and exhibition and meeting/conference

rooms. The L-shaped portion of the building will include the Vancouver Art Gallery, a small theater, and other performing spaces, filling out approximately 120,000 square feet. The formal plaza with fountain located on the Georgia Street elevation (again, see site plan) will continue to be used for important civic occasions. Also planned is an underground rapid transit station that will connect to pedestrian-retail malls existing beneath neighboring Pacific Centre and Eaton's department store.

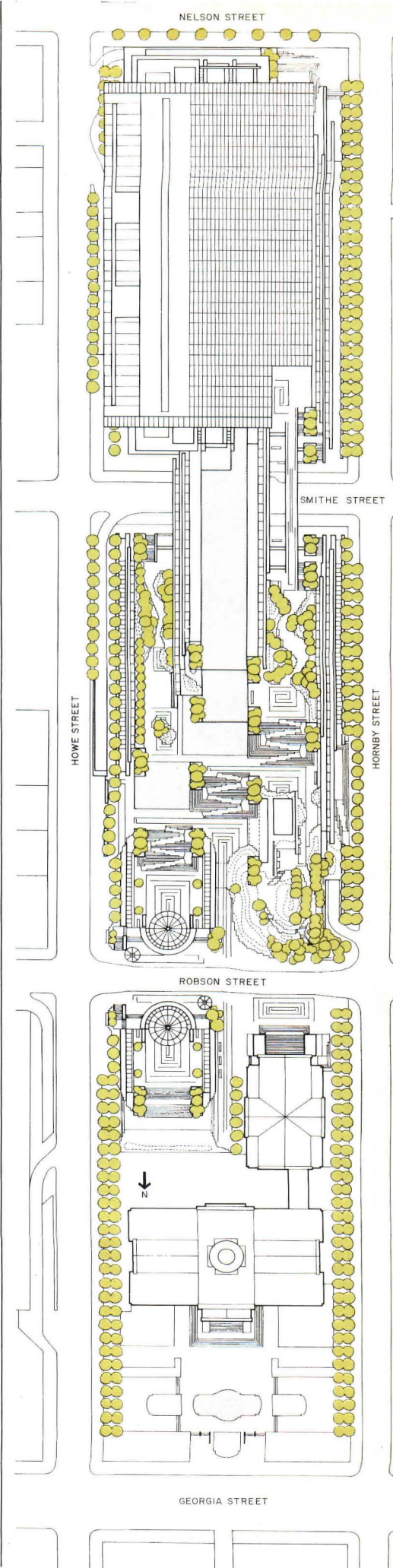
The main outdoor space, and therefore the main public focus, of the complex is Robson Square (right) named after the



19th century British Columbia Premier John Robson. Its sunken plaza is a year-round mecca for outdoor activities. During the summer, it serves as an extension of restaurants bordering the plaza, and as an exhibition space. During the winter, a portion of the larger court is used as an ice-skating arena, protected by a circular dome. Robson Street has been closed-off to automobile traffic and designated for only buses; and street closure may be extended to other selected streets in the neighborhood. Below Robson Square is the Media Centre with display space, meeting rooms, two auditoriums, and related audio-visual equipment.



Dick Busher

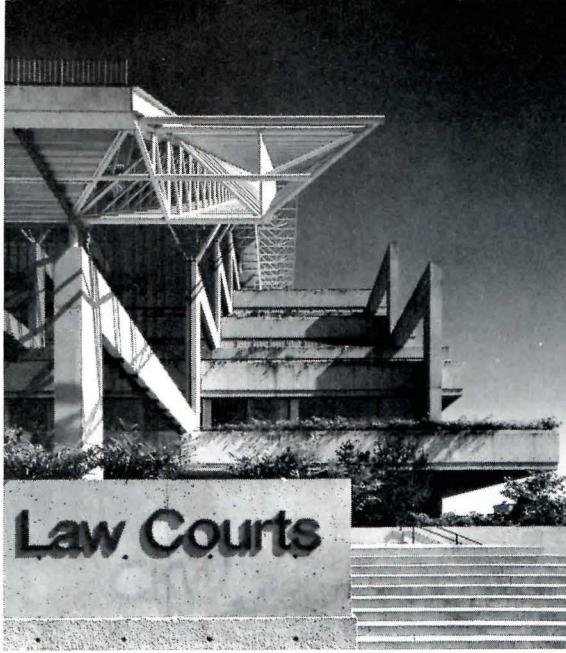
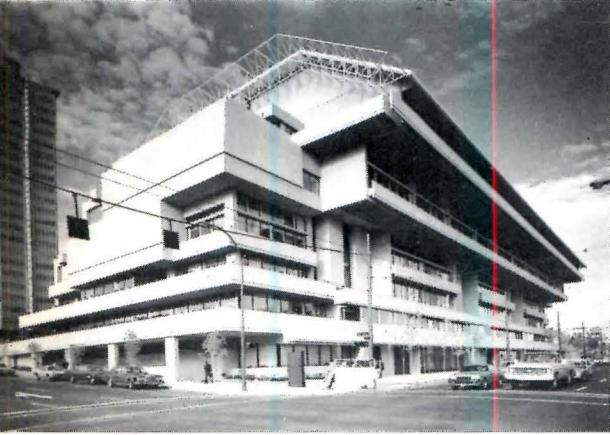


The three-block-long civic complex is anchored by the Law Courts building (top in site plan and photo left), and a landmark courthouse (bottom in site plan and top photo above). In between is the nearly camouflaged provincial government office building, covered by a pool of water, which flows over waterfalls and eventually to an underground pool for recycling. The public space, with unexpected pastoral spots, is intricately woven throughout, and highlighted by its formal sunken arena (center photo above), and cascading tiers of steps (above).

Ezra Stoller ©ESTO photos except as noted

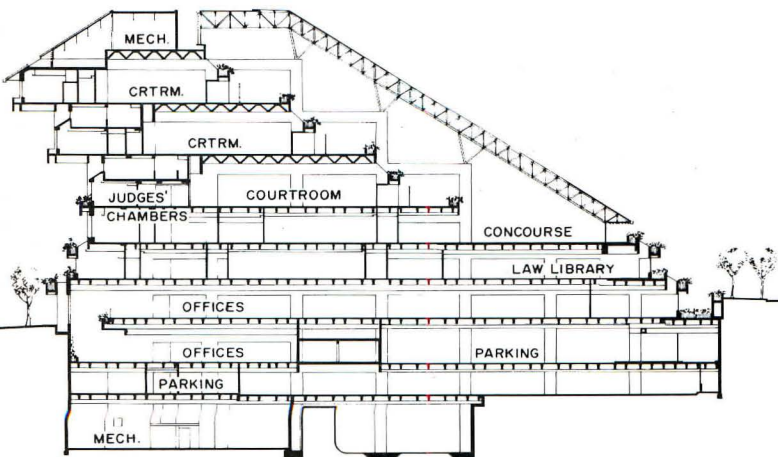
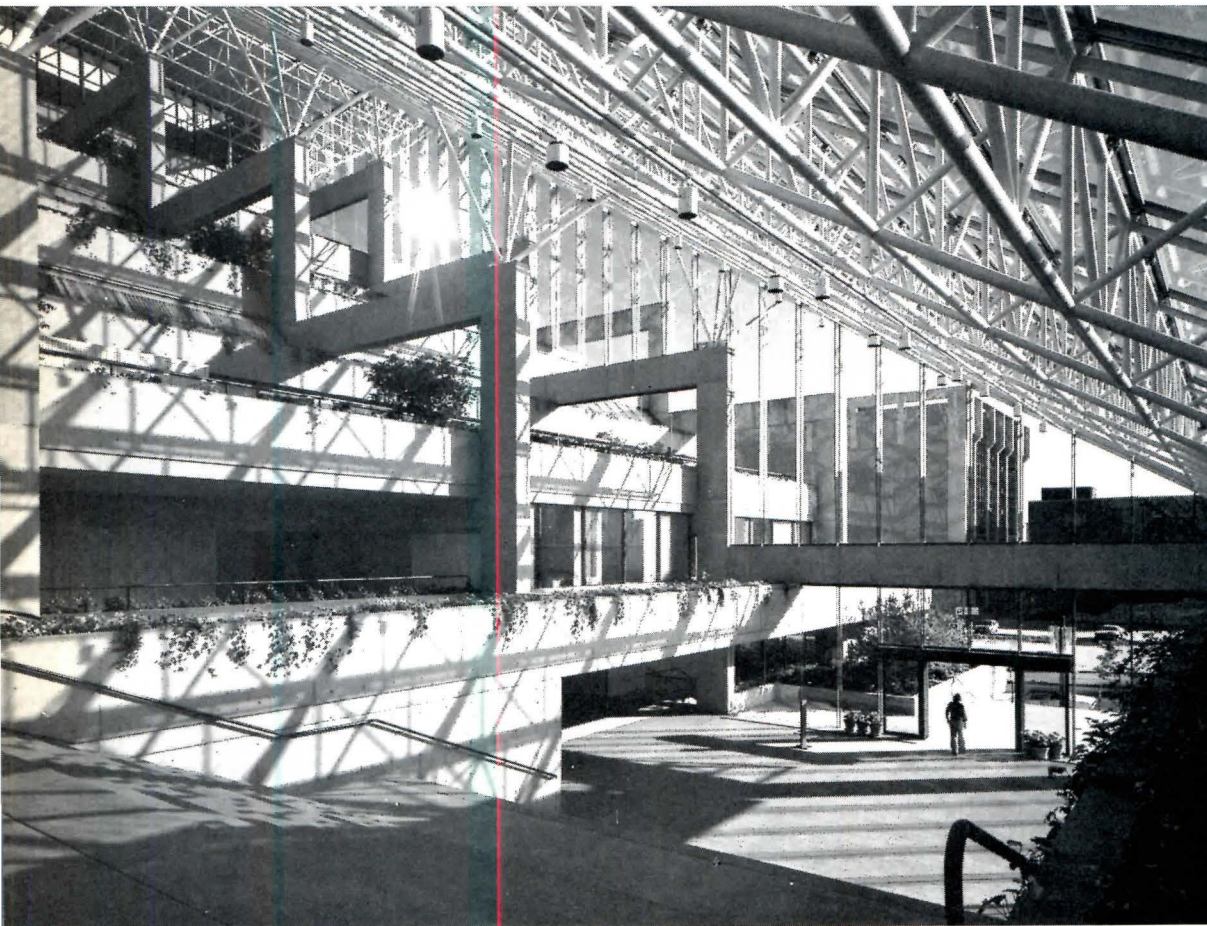


Wayne Thom



Intended primarily for general educational purposes, it will be available to the Vancouver Art Gallery and other civic groups.

The provincial government office building, also located in this center block, maintains a low profile—indeed, it is nearly obscured, except for entrances, by a series of gardens and terraces, and streams of water flowing over the building. This portion is set back 150 feet from Robson Street, and gradually steps up to a maximum of three stories at the south end (near Smithe Street). In total, central Block 61 has 350,000 gross square feet for government offices, media center and support facilities, plus



The focal point of the complex is the Law Courts building, with its strong exposed concrete structural framing and soaring glass roof sloping to the western elevation. The strength of these forms and the terracing so prominent in the design is seen at the Nelson Street entrance (right), and echoed in the interiors (above). This layering is also reflected on the eastern elevation (top left and section.) Careful detailing includes the extension of the open truss as a roof border with sliver-like structural framing (top above).

30,000 square feet of public circulation and retail space fronting the sunken plaza. Of this 380,000 gross square feet total, only 100,000 square feet is above grade.

In contrast, the new Law Courts building is the most striking visual element of the complex (with 669,000 gross square feet). Set upon a podium two stories above street level, at the highest point of the site, the building's glass roof dominates the composition. To maintain the relationship of scale between the new building and the older courthouse at the other end of the complex, the roof level of the new building was kept at approx-

imately the same height of the dome of the landmark building.

The strong exposed post-and-beam structural elements at both ends of the new courthouse only hint at what's to come in the interiors. Once inside, the sharply defined tiers of columns promenade down the full length of a wide public concourse, under the glass roof which is supported by an intricate space truss. The full visual impact, however, is not perceived until one recognizes the public corridor terraces stepping upward. All levels are filled with daylight—even on the notorious number of gray days in Vancouver. On bright, clear days, playful shadows are cast by

the space truss.

While these public spaces were critical to the architects' design concept, they were a generous gesture on the part of the client, for the purpose of the building is, of course, to house courtrooms and support facilities for judges and lawyers. But the gesture was worthwhile: the concourse is a breathtaking experience for the first-time visitor, and a continuing delight for the daily user. The public areas appear virtually free of security restrictions because they are separated from the working areas. Since security was a key factor for the judges, there is a separate high security circulation pattern for them and

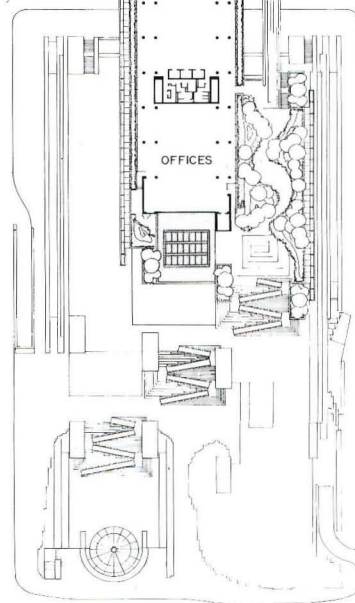
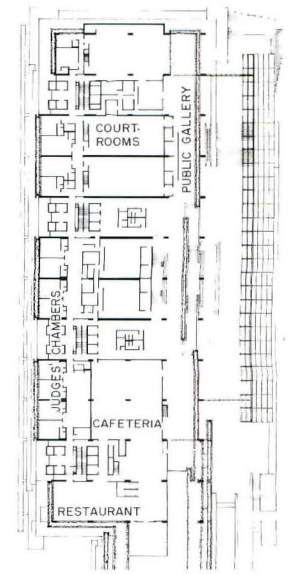
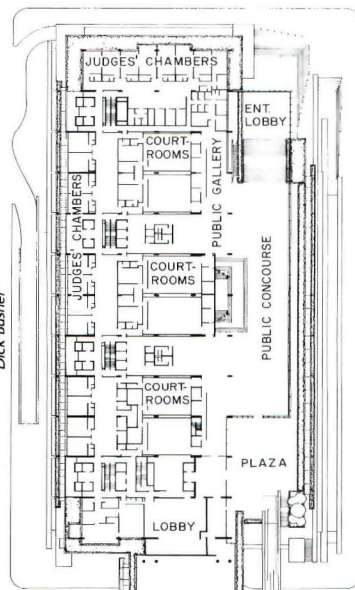
others involved in court procedures.

Twenty-six civil and criminal courtrooms are positioned in a central swath of the new building—with access for the public on one side and judges on the other. The judges' chambers are located along the perimeter of the eastern elevation (see floor plans) and all have views. Jury rooms and auxiliary facilities are worked into the plan according to the size of the level. Each is the equivalent of one-and-a-half conventional floor height. By means of an "interlocking" stacking system, a whole floor of courtrooms and related spaces can be accommodated (see sec-





Dick Busher



The interiors arrangement of the Law Courts building reflects the architects' desire to express the importance of public space. The main public concourse (right) continues the spirit of the exterior with its dramatic post-and-beam structure marching through, underneath the tinted glass roof, supported by a space truss. A grand central staircase (left) leads to the upper terraces; each level provides striking views of other terraces while creating waiting areas to the courtrooms. Glass-enclosed corners (above) offer expansive views to the cityscape, especially fascinating at the northern edges which overlook the rest of the complex across the flowing pool of water that covers the government offices. While there is no "typical" floor because of square footage differences on set-back levels, the general plan has public "galleries" relating to the centrally positioned courtrooms, beyond which are judges' chambers.

tions, pages 70 and 74). A large restaurant is also provided just above the connection to the provincial government office building in the central block, overlooking the pool of water.

Like any project of this complexity, and public visibility—indeed, of public importance in an important city—the new center has been subjected to criticism, some of which Arthur Erickson agrees with. For one thing, the open plan offices (designed by another firm retained by the government) in the provincial government building (photo, page 74) are less than successful since the varying partition heights do not relate well to Erickson's

scheme of letting side lighting into the space and creating views out. Another disappointment is the selection of fast-food concessions serving the public next to the Robson Square's major plaza. Erickson had envisioned (and lost the argument for) a series of ethnic restaurants, each with a different environment that would appeal to Vancouver's diverse populations. And even though the complex is clearly landscaped—and indeed may become lushly landscaped as the plantings mature—Erickson hoped for more mature plane trees along the edges of the complex (see site plan) both to define the edges and to soften the con-

crete walls. And of course, the bold and broad use of concrete, as well as the size of the complex, leads to the criticism of "monumentality."

Erickson winces at this last criticism—and while that criticism is probably inevitable, it is surely debatable. On a positive note, the three-block-long complex, with a budget of \$139 million, is of course very large; but that does not make it monumental in the perjorative sense. For one thing, it is surely arguable that monumentality is necessary and desirable in a major public building; it is surely arguable that, appropriately designed, we need monuments. But if this is a monu-

ment, it is one designed for the people, appropriate to its uses and its setting. At any rate, this is a far more sensitive urban solution, especially for the beautiful city of Vancouver, than an earlier proposal by an earlier government and architect for "the highest building in Vancouver" on the present site. It would have been a 55-story skyscraper dominating the skyline, 20 stories taller than the now highest Toronto Dominion Bank tower.

The project's horizontality and terracing, and its use of concrete as the basic material, grows out of its site, its placement, and Erickson's earlier work—particularly Simon Fraser University, the



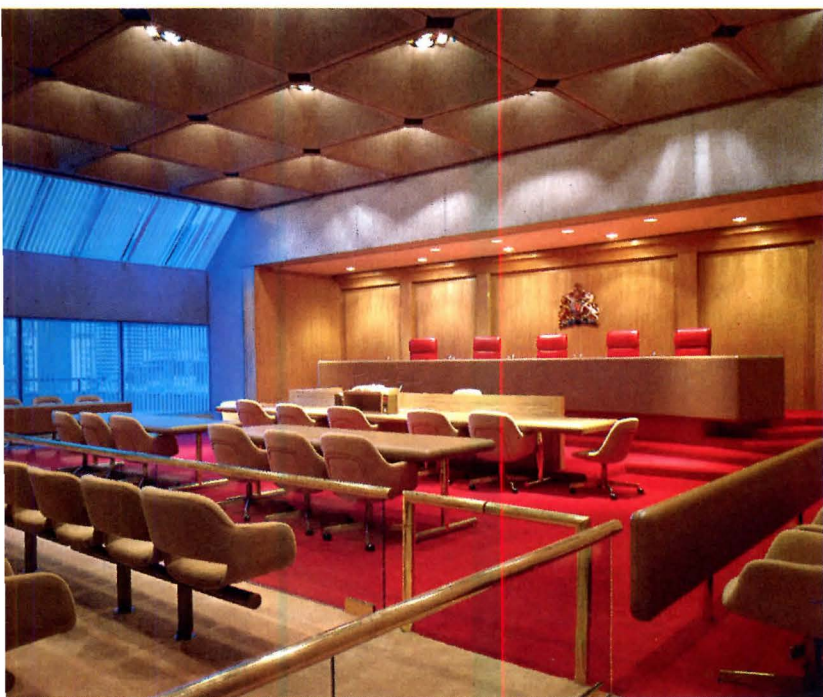
Museum of Anthropology, and most of his private houses—that built his distinguished reputation and his selection for this job. This is also a public building, clearly designed with the public in mind. Its park and promenade spaces invite everyone to use the complex—whether they have business there or not. Erickson sees it as “a mixture of grand spaces and smaller more intimate places, landscaped paths and quiet corners. We used the familiar technique of providing surprises, intriguing views at the end of a walkway or corridor—hoping to draw visitors along.”

As noted at the beginning, this grand complex also es-

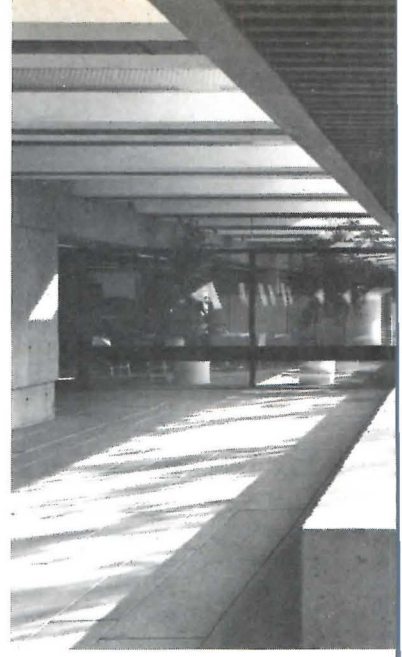
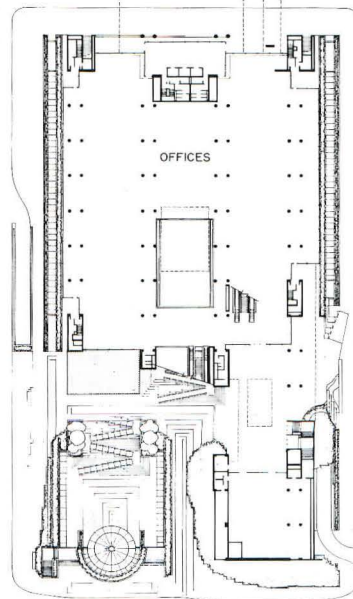
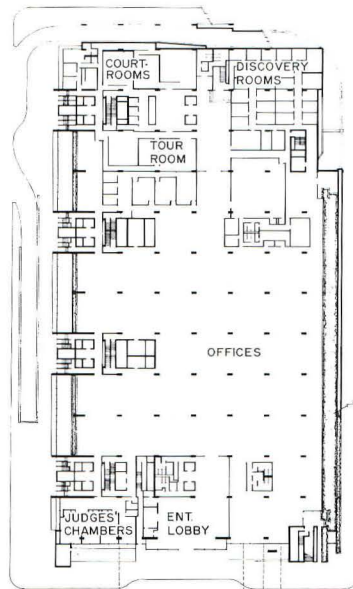
tablishes a new core and character for its city—and perhaps that is the grandest accomplishment of all.

ROBSON SQUARE AND THE LAW COURTS COMPLEX, Vancouver, British Columbia, Canada. Owner: *British Columbia Buildings Corporation—Dr. Gordon Shrum, project chairman; Louis Van Blankenstein, project manager.* Architects: *Arthur Erickson Architects—principal: Arthur C. Erickson; planning coordinators: Bing Thom (1973-76), James K. Wright (1976-77), Rainer J. Fassler (1977-80).* **Robson Square:** *project architects—Junichi Hashimoto, James K. Wright; project team—Randy Jefferson, Barry Johns, Eva Matsuzaki, Shanti Ghose.*

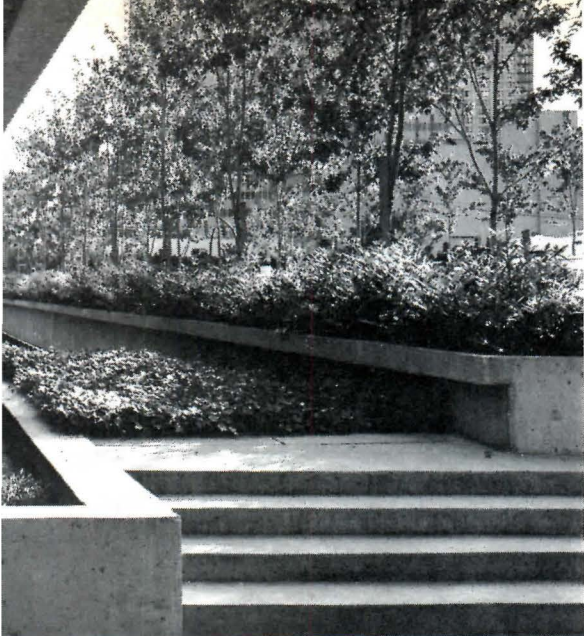
The Law Courts: *project architect—Rainer J. Fassler; project team—Ron Beaton, Nick Milkovich, Rodger Morris.* Consultants: *Bogue Babicki & Associates (structural); Reid Crowther & Partners (mechanical); W.T. Haggert & Company Ltd. (electrical); Arthur Erickson Architects, Cornelia Hahn Oberlander, and Raoul Robillard (landscape); William Lam Associates, Inc. (lighting); Bolt Beranek and Newman Inc. (acoustical/audio visual); Rolf Jensen & Associates, Inc. (life support systems); Eugene O. Toflemire Associates (glazing); John Gallop Associates Ltd. (graphics); The Environmental Analysis Group, and Life Quality Consultants (programming).* Construction manager: *Concordia Management Company Ltd.*



Dick Bushner



Most of the courtrooms are in the center of The Law Courts building, windowless but with striking coffered ceilings, red-and-beige carpeting, brass lighting fixtures and railings, and handsome furniture. A private (and secure) circulation system adjoins and connects the courtrooms with the judges' chambers and administrative offices on the tall eastern elevation of the new building. The majority of the office space in the provincial government building (see photo upper right) is open planned, with most day-to-day business transacted at points along a central corridor (photo above). One most unusual and appealing interior space has been designed into this building—a public atrium (right) with handsome landscaping and an “underwater view” of the rooftop pool.





Rollin R. La France photos

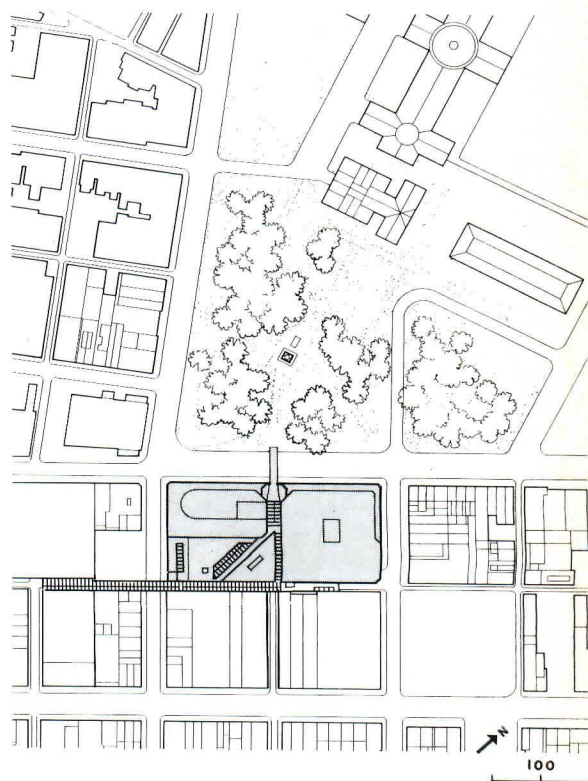
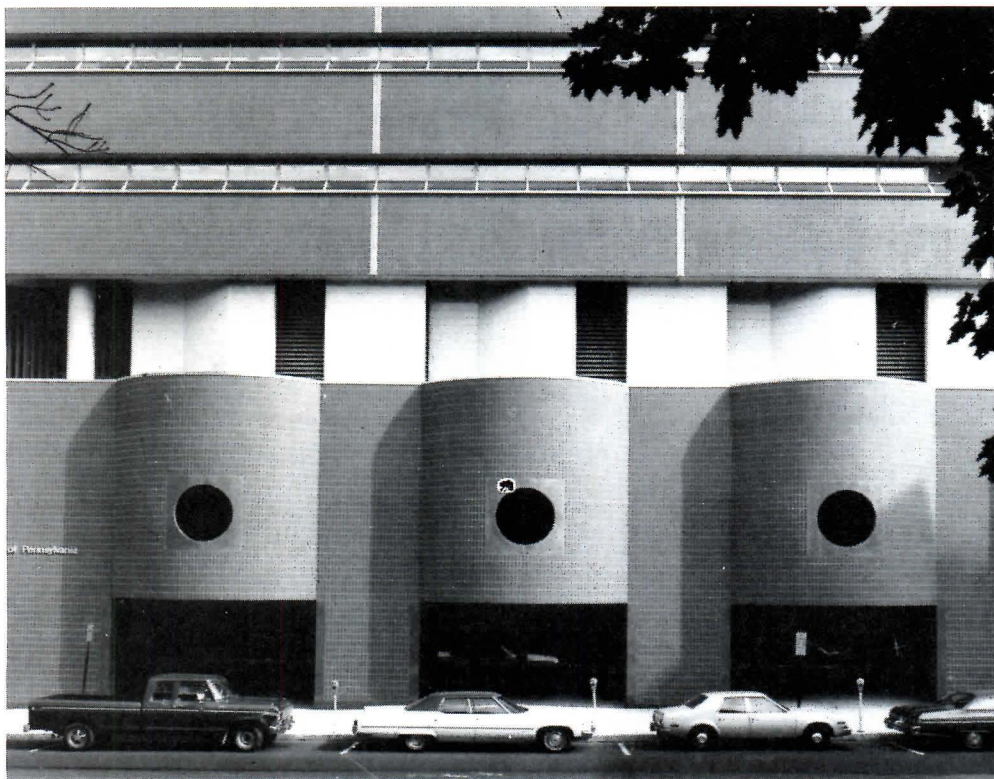
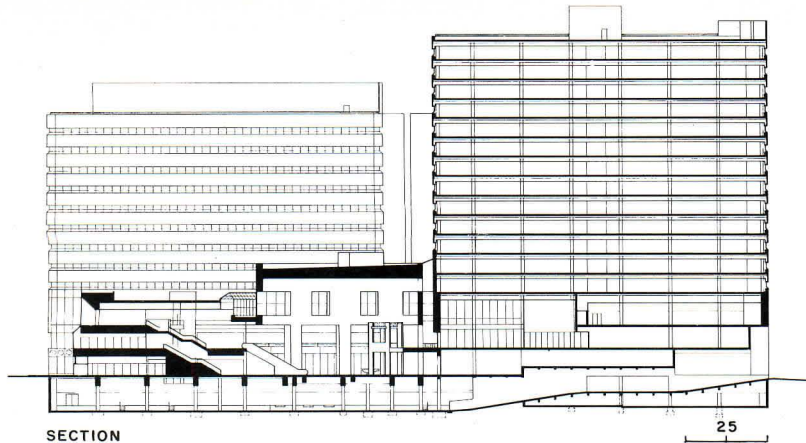
A NEW URBAN CENTER FOR HARRISBURG

"It's either a good beginning or a good end," architect Romaldo Giurgola said recently of Strawberry Square, the office and retail complex in Harrisburg, Pennsylvania designed by the joint venture architectural firm of Lawrie & Green-Mitchell/Giurgola. A good beginning: an auspicious Phase I for the Harristown Development Corporation plan for troubled Harrisburg. Or a good end: the strong massing of the State Capitol Building and the thrust of Capital Park towards downtown have finally been defined and contained by an urban structure of appropriate form. Strawberry Square is a reminder that architecture can still be an eloquent expression of esthetic, social, and economic affirmation.

The city to whom it is dedicated needs more than one new building to reverse a steady postwar decline. Small in population and dependent on the state government for its very survival, the Keystone State's eleventh biggest city (estimated 1980 population is 56,100) has suffered the same benign neglect shared by other state capitals across

the nation. Situated on the east bank of the Susquehanna River, it is encircled by independent suburban townships whose prosperity has come at the expense of the center city. Repeated efforts at slum clearance since 1950 have failed to reverse the deterioration of its housing stock or the blighting of its central business district. Consequently, Harrisburg has lost its market share of office and retail space and hotel rooms to its neighbors—and some 33,000 citizens as well.

Public and private forces, acting as the Greater Harrisburg Movement and the Harristown Development Corporation, worked with planner David Crane to revitalize a 39-block area in the central business district designated as Harristown. The strategy emphasizes new construction: office and retail space, an elevated pedestrian walkway, a convention hotel, parking garages, and new municipal facilities. Strawberry Square, facing Capital Park and the state office campus, was identified as the key block in the plan. As the symbolic wall between state government, the

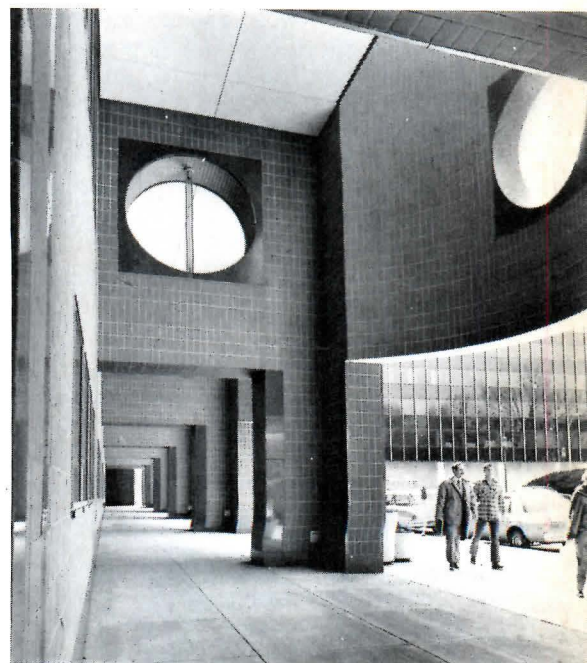


city's chief employer, and municipal government and private enterprise, the 2.2-acre site was scheduled to be the first construction completed of three projected phases.

A program for two major office tenants, the Department of Revenue of the Commonwealth of Pennsylvania and Bell Telephone Company, and retail space for numerous shops and restaurants could have lent itself to the stereotypical configuration, a high-rise tower on a plaza. The architects chose instead to develop a more distinctive parti.

Pedestrian movement through the site from Capital Park on the north to Pomeroy's Department Store and the business district on the south suggested a major corridor cutting the site in half, so the two major office tenants were placed in separate towers on either side of the corridor. A second corridor was envisioned to describe the probable diagonal path to be taken by office workers traveling between Capital Park and a yet-to-be-completed Walnut Street Garage at the southwest corner. When the two corridors

Behind the monolithic "palazzo" facade Strawberry Square turns towards Capital Park is a complex building of tightly interlocking parts. The site plan (upper right), shows the main pedestrian corridors that generated the building plan. The section (top), cutting through the public room, state office tower, and commercial spaces, shows distinct breaks between the functional areas. Facade details include the bisected north facade concealing two different towers (opposite), swelling apses with mechanical floor frieze and window banding (above), and the transitional planes where the state tower's full height is expressed, on east and south facades (center right). The thinness of the apse wall is visible (below right). Precast concrete panels surfaced with ceramic tile have been used for speed of erection and quality of finish. (See RECORD, mid-October 1978, pages 14-16.)





were superimposed on a third one linking the garage and the business district, they formed an isosceles right triangle which Giurgola perceives as a "room with a balcony, like the dome of a church," a three-story-high public space that stands at the center of the vortex of office towers and retail spaces that fill out the remainder of the site.

The resulting composition of tightly interlocking pieces is anything but stereotypical. Thin, taut vertical planes of carefully detailed form, size, color, and texture are hung in close proximity on a steel structure, paradoxically enclosing space and releasing it at the same time. What looks solid one moment looks empty the next.

We could easily interpret the north facade of Strawberry Square as a monolithic 12-story block-long wall faced in red tile, one facet of a rectilinear solid that completely fills its site. As Giurgola describes it, this "palazzo" aspect, the severely detailed wall with narrow recessed window bands, swelling apses, a frieze-like mechanical floor, and a

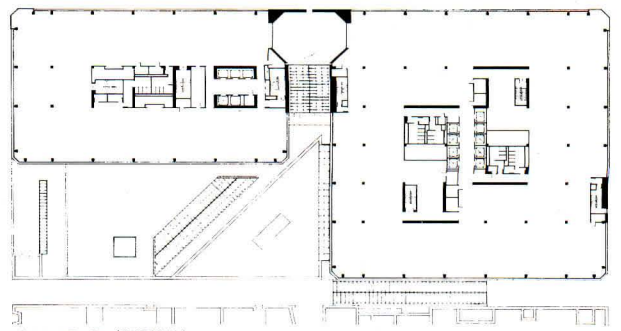
cavernous main entrance, with its second level pedestrian bridge reaching from the park deep into the building, fosters the image of a walled city.

When we study the facade more intently, however, the image of solid geometry begins to dissolve. A thin but decisive vertical break occurs down the middle of the facade which divulges not the interiors we would expect but rather, the sky. Those bays that seem so heavy in relief are punched by circular windows above and an arcade below; they now impress us as thin, stretched skins. The masonry joints show themselves to be thin tile grids instead of brick, denying the weight implied by the window bands. The building's chamfered corners behave in similar manner, clipping off the long deep horizontal reveals of the bands with corner windows that run flush with the surface and cut into the window sills and heads for a fuller view of the park. And sliding up and past the main facade is a secondary layer of gray tile that continues for another three stories on

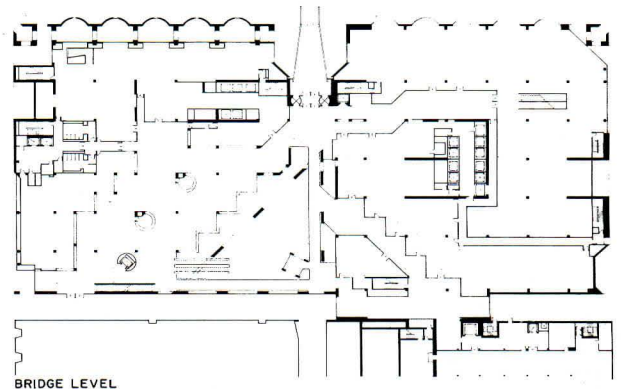
the east half and another story on the west.

These contradictory visual cues tell us that two separate towers of different height and floor area stand behind a bisected curtain wall whose distinct halves are unified by common horizontal elements, including floor levels, tile courses, window bands, and parapets. Why the architects labored to this effect is not hard to follow. In meeting the needs of its clients, ranging from a 12-story office building of roughly 40,000 square feet per floor for the Department of Revenue and a nine-story office building of roughly 25,000 square feet per floor for Bell to 195,000 square feet of retail space on three levels, Strawberry Square turns a very consciously urban face to the city. Seen from the distance of Capital Park, it plants its foundation firmly on the boundary of city and state. Here the city takes its stand, proud enough to answer the Capital building with an urban cornice 12 stories high.

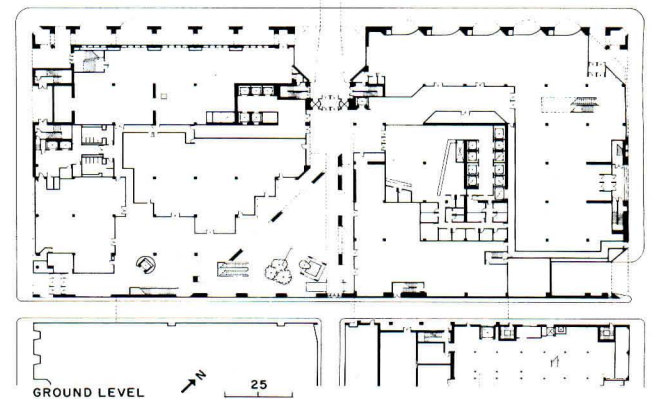
Yet, unlike the great 19th century urban armories it superficially resembles, Straw-



SIXTH LEVEL (TYPICAL)



BRIDGE LEVEL



GROUND LEVEL



Giurgola describes the spacious triangular public room around which revolves the building's circulation as being similar to the dome of a church. Only the south leg of the triangle is fully exposed as an exterior wall (opposite). The hypotenuse (above), is partly enclosed while the east leg is an interior wall. The flow of light and space from light wells cut in floors and skylights and clerestories above allude, however, to a freestanding building. Note how the balcony adds depth to the south and east walls and steps back as a serrated diagonal edge along the hypotenuse. The plans depict a fairly straightforward ordering of spaces. The street level includes office elevator lobbies, the public room, and retail space. The second level includes the bridge from the park (left), balcony and restaurant along the hypotenuse. The typical office floors reveal differing floor area needs.





berry Square carries numerous references to the diversity within its monolith. Behind the rusticated orders of its public facade, the palazzo on the square functions at a second, more intimate scale. Each component of the complex is inextricably tied to the others, yet the two towers, retail space, and indoor plaza—like the community interests that have joined together here—remain distinctly separate entities. From this complex iconography emerges an urban scale that mitigates the trend towards the consolidation of urban real estate parcels into “super block” developments. Strawberry Square celebrates the diversity of urban life.

An urban scale is consistently sustained as we move inside the building by way of the bridge or other street and second level entrances. (The bridge was stipulated in the Harristown plan to overcome a sharp drop in elevation from the park to street level.) The processional transition from low vestibules to the vast public room awash in light occurs with appropriate drama.

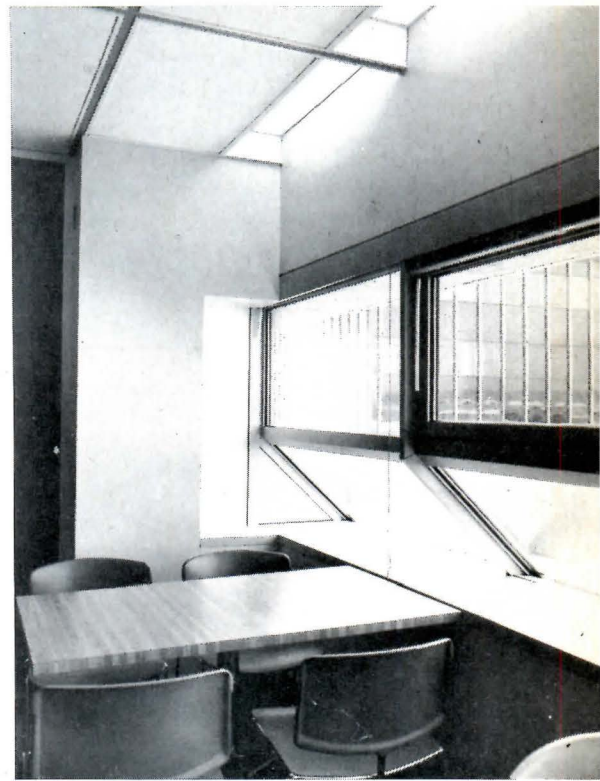
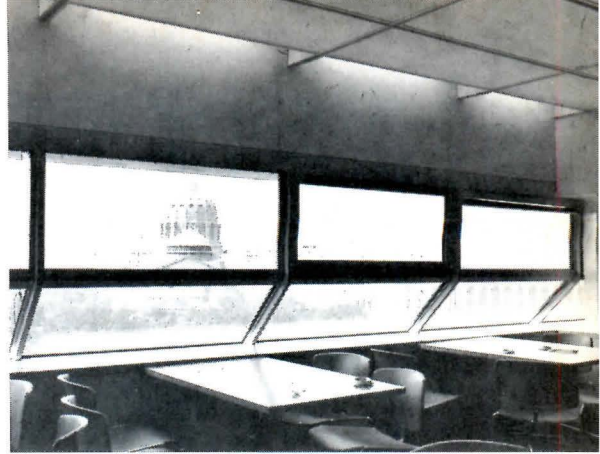
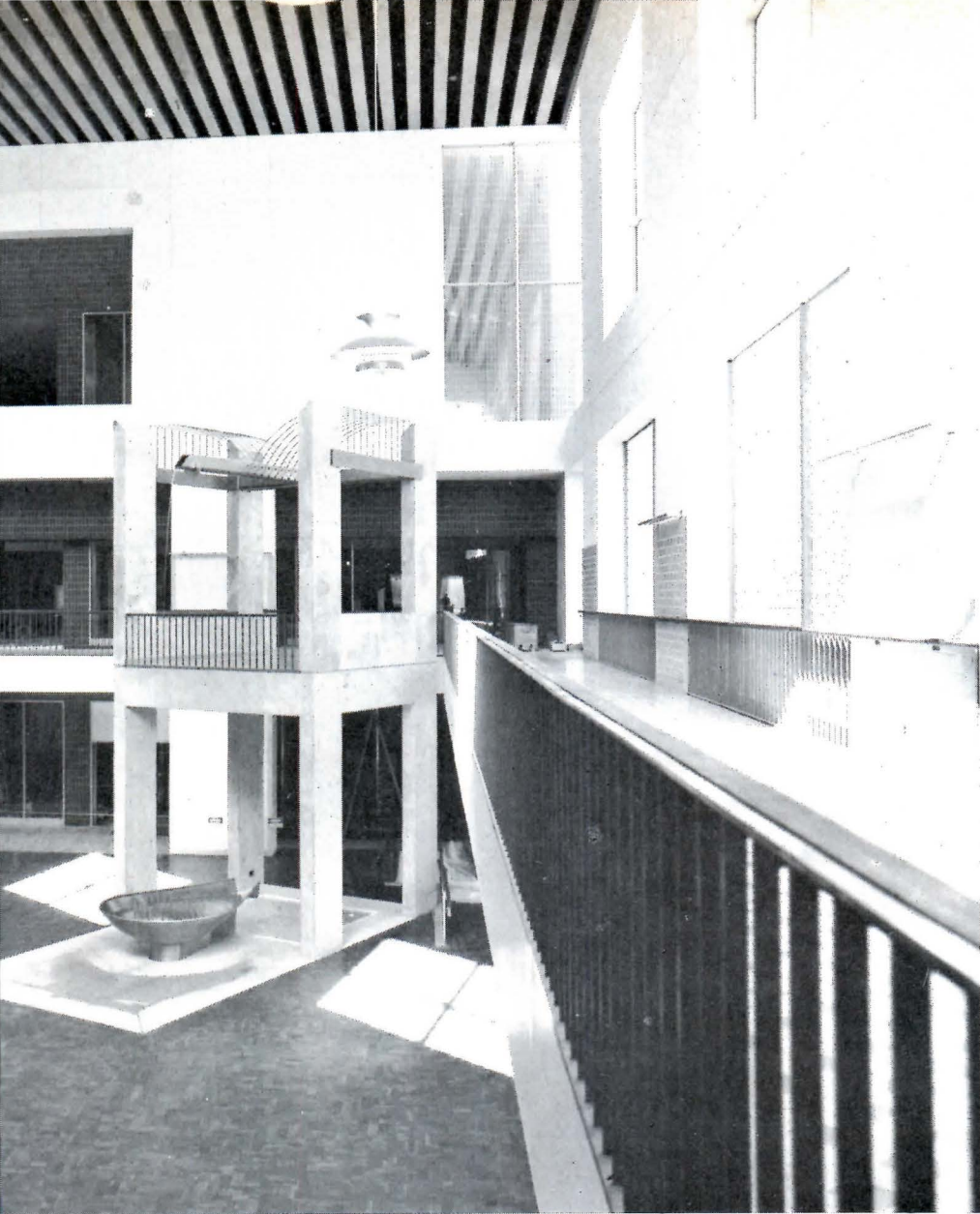
What Harold Guida, project architect, likens to a “great Renaissance room” is boldly set forth in tiled and stuccoed walls pierced by large windows, a ceiling spanned by birch plywood beams with elegantly simple pendant lights, parquet flooring, and a second level balcony. Again, we can see two possible spatial readings. At first glance, the room within the palazzo. Or a freestanding building, isolated from the worlds of government and commerce by great voids cut out of the upper floors along the perimeter to allow space to flow gracefully throughout.

This feeling of indeterminacy, of a deliberate shading of surfaces and connections to foster a sense of space both contained and flowing, permeates the entire complex, even continuing up the office towers along the perimeters. There the curtain wall appears to float free of ceiling and floor. However, not everything at Strawberry Square is in motion. A curious little concrete two-story structure sits in one corner of the public room. Within the sturdy posts and

beams of this “pergola” is a graceful fountain whose spout, reminiscent of a gargoyle, pours water from the upper story to a font at street level.

Delicate tracery holds the spout in suspension and provides a trellis for an anticipated ivy arbor. The architects say it is a protected place from which to watch the new urban life of the city unfold. With an urban complex as richly conceived as this, the citizens of Harrisburg have a lot to watch—and think about. —Roger Yee

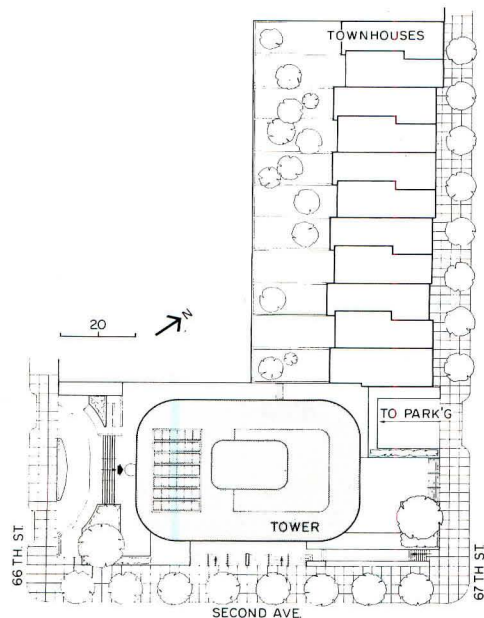
STRAWBERRY SQUARE, Harrisburg, Pennsylvania. Architects: *The Joint Venture Architectural Firm of Lawrie & Green—Mitchell/Giurgola—director of design: Romaldo Giurgola; project architects: Harold Guida, J. Brooke Harrington, Watson Fisher.* Consultants: *Skilling, Helle, Christiansen, Robertson, P.C. (structural); Joseph R. Loring & Associates (mechanical/electrical); Robert A. Hansen Associates (acoustics)—J. Cerami; Howard Brandston Lighting Design (lighting); John O. Meadows Associates (cost).* Contractor: *Mellon-Stuart Company.*



Strawberry Square's interiors have been detailed to a high degree for form and texture. The public room appointments (above, left, right and opposite), include stucco walls with joints suggesting window openings, a birch plywood ceiling, a teak balcony railing, a parquet ground floor and terrazzo balcony inset with glass tiles. Lighting is provided by windows glazed in clear glass or glass block and by brushed aluminum pendant lights designed by Howard Brandston. Walls at pedestrian height are faced in easily maintained ceramic tile in a pattern created by artist Valerie Jandon, with red granite protective edges. The "pergola" is visible in the southeast corner of the public room (above). Note the narrow window bands in typical office conditions set at 30 per cent of wall surface to comply with ASHRAE 90-P building energy budget guidelines; a light cove separates wall and ceiling.



A 46-story apartment tower in Manhattan



Real estate developer/builder Sheldon Solow acquired an L-shaped site on Manhattan's Upper East Side that extends along Second Avenue from 66th Street to 67th Street, and includes 300 feet of the south 67th Street block (see site plan). He then commissioned Gruzen & Partners to design luxury high-rise apartments for Second Avenue, (officially named 265 E. 66), and Eli Attia to design 11 low-rise townhouses (now in construction) for the adjacent property on 67th Street. Mr. Solow's scheme for the development of his property follows the New York tradition of high-rise buildings on the avenues, and low-rise buildings on the cross streets.

By taking advantage of zoning regulations that provide for the transfer of development rights from same-site, less-than-maximum construction (the townhouses), and additional floor area in exchange for the amenity of public space, extra floors were added to the tower. The increased floor area

was exchanged for: 1) a plaza on 66th Street, used as a half-circle driveway and apartment entry (photo below right); 2) an elevated granite terrace on 67th Street that will be used as an entrance to medical offices in the building; 3) the steps and depressed plaza along Second Avenue that lead into twin cinemas (photo top right); 4) the development-rights unused by the 11 five-story townhouses.

The architects were asked to come up with a design for the apartment tower that would make it distinctive. Mr. Solow wanted the building to stand out in the neighborhood, which is densely built in the mid-rise, terraced, tan-brick school of the '50s. The gray curtain wall was chosen because it is "a simple yet dramatic departure from the usual brick-faced high-rise . . . and permitted sweeping vistas. . . ." The architects suggested rounding the corners of the building to further enhance the apartments' views, and the idea was welcomed by Mr. Solow because the unusual silhouette intensifies the tower's distinctive image.

New York City zoning regulations mandate that if a tower part is chosen, the structure cannot occupy more than 40 per cent of its site and must be set back at least 15 feet to secure sunlight for the street. Once the tower design was decided on—over a ziggurat which is permissible along the street line—the architects were obliged by law to set the building back from both 66th and 67th Street. This setback has the unfortunate consequence of exposing the party wall of the adjacent row house on 66th Street, and of compromising the definition of the 66th Street and Second Avenue corner.

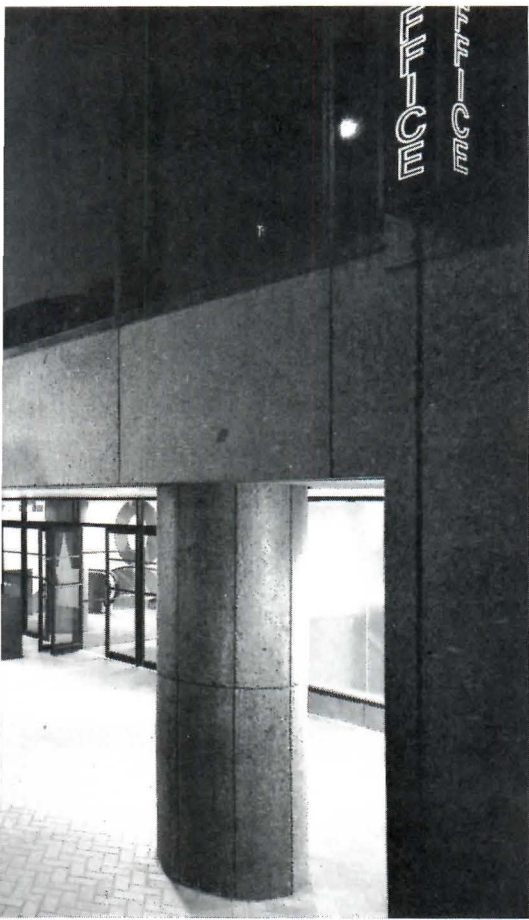
Along Second Avenue, however, the street-level arrangements are successful. The retail shops and the entrance to the underground twin cinemas provide a welcome relationship between the apartment tower and the commercial activity of the avenue.

The large photo at right shows the finished building in its context: the 46-story tower is decidedly out of scale with the neighborhood and the three plazas at the building's base provide questionable amenity for the public.

If you consider this building as an independent entity, as an architectural object, it is an elegant, refined, and admirable example of Modern architecture executed with notable finesse. But within its urban context, this tower points to the pressing need for comprehensive urban planning and more stringent zoning regulations. —Charles K. Gande

265 E. 66, New York, New York. Owner: Sheldon H. Solow. Architects: Gruzen & Partners; partner-in-charge: William D. Wilson; director of design: Peter Samton; senior designer: Robert Genchek. Engineers: Robert Rosenwasser (structural/foundation); Scherr Kopelman Associates (mechanical/electrical). Consultants: Jules Fisher & Paul Marantz (lighting); Ward Bennett (interior design); Chermayeff & Geismar Associates (graphics); Drew Ebersson (theater design); Norman Goldberg (energy); Antoine-Heitman & Associates (curtain wall). Landscape architects: Zion & Breen Associates Inc.



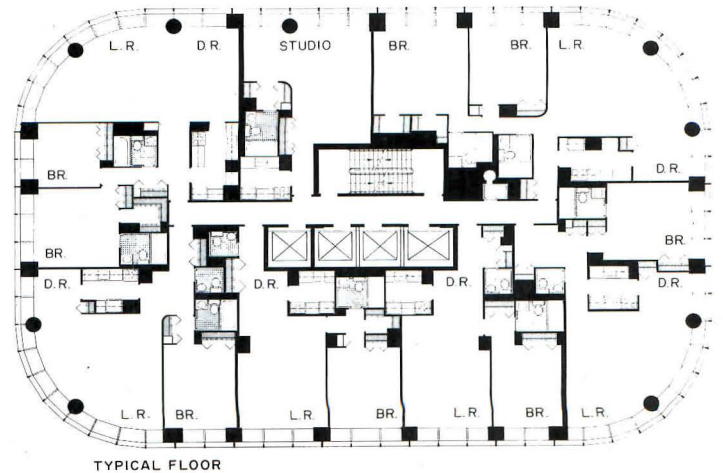
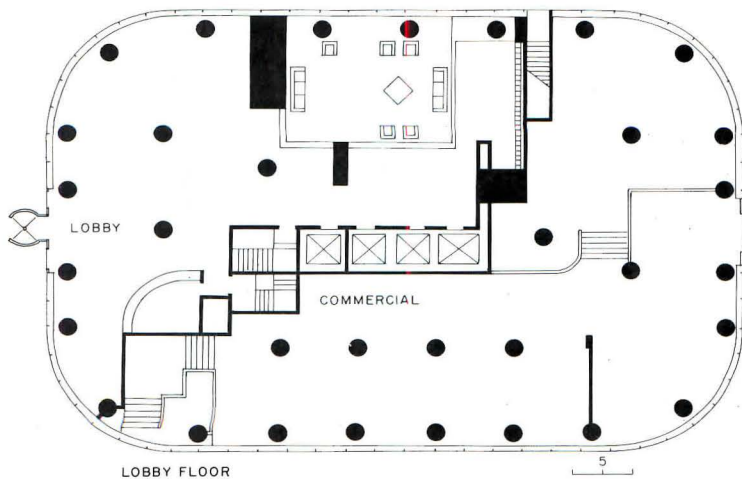


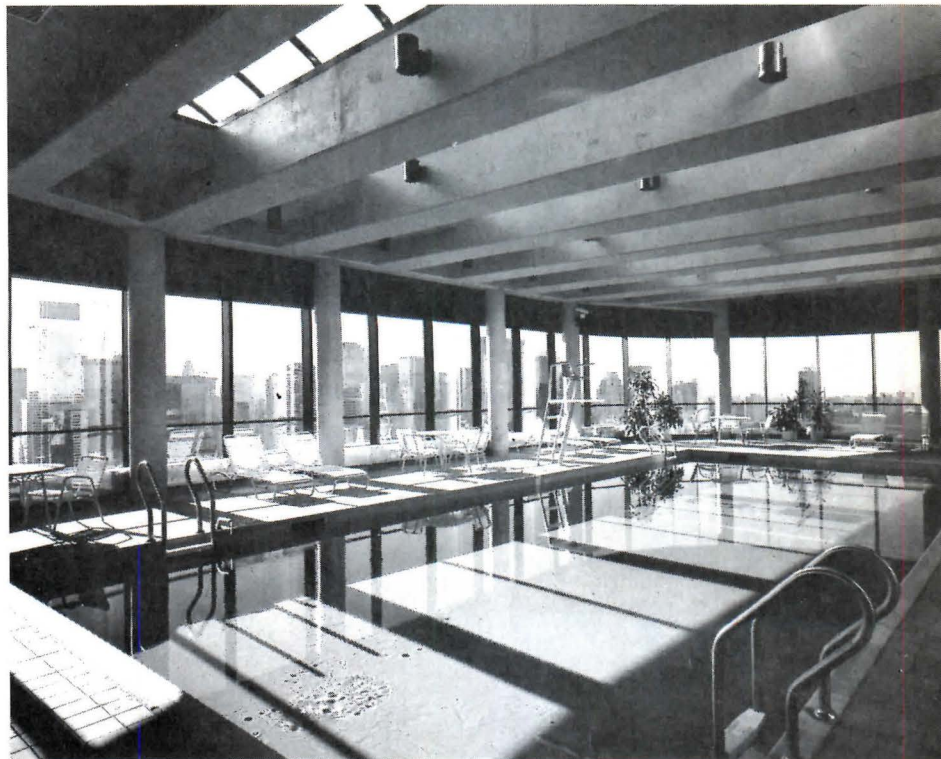
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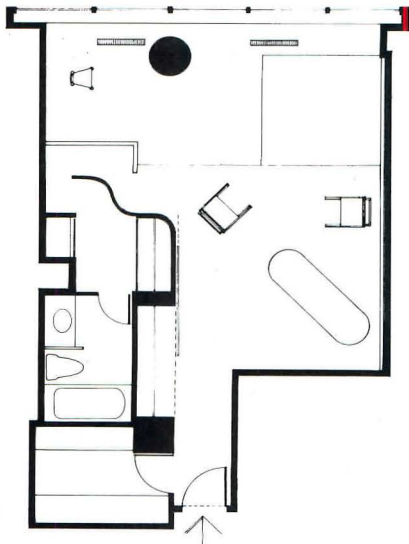
The ground-floor entry is elevated 5 feet on a granite base. Circular doors lead into a spacious reception lobby with 16-foot ceilings. A small seating area to the immediate left is filled with plants: unfortunately, the sleek curtain wall works to a serious disadvantage here, providing views of the side elevation of a neighboring row house. Further inside, a depressed seating area (photo above) is elegant-

ly furnished with leather couches and chairs designed by Ward Bennett. The reflective glass-enclosed mezzanine (photo above and top right) contains an office, and helps define the public entry from the more intimate waiting area. On the 46th floor a skylit pool is available at charge for the tenants. The views of Manhattan, from the pool, are rhapsodic. A typical floor plan is shown below.





A room with a view



The Solow building may be termed "luxurious" by today's standards, but, aside from the spectacular views, the rental apartments (including the one shown here) are only slightly better than average. And while low ceilings, standard details, and small rooms are regrettably a sign of the times, the New York firm of D'Urso Design has become famous by infusing these prosaic spaces with what can safely be described as poetic elements.

To label Joe D'Urso a minimalist is like labeling Richard Meier a "white"—it's more than axiomatic, it's an understatement. D'Urso has built a solid reputation as one of the most influential designers of the '70s by adhering to the two great clichés of architecture—"Less is more" and "God is in the details." His success has been so complete that for anyone familiar with interior design, the D'Urso name instantly conjures up surprisingly accurate associations: industrial gray carpeting, platforms, high-gloss white walls, vertical blinds, drafting lamps, industrial fittings, room-enlarging mirrors, and the obligatory Corbusier chaise. The palette, the materials, and the underlying principles for their application may be quintessential Bauhaus—second nature to architects—but D'Urso's mastery in parlaying ubiquitous materials and a simple palette into perfectly scaled, proportioned, and detailed spaces is inimitable.

D'Urso's approach to design begins with the premise that a living environment should

be serene, restrained, and practical; that complexity and richness can be achieved through simple means, and that space for living should be unencumbered from the nostalgia of memorabilia. It is a purist esthetic with all the tenets intact.

Though D'Urso's clients take less than an active role in the design process, the client for this studio apartment made one request—to include the ladder-back chair that Charles Rennie Mackintosh designed in 1904 for the master bedroom of Hill House in Helensburgh, Scotland. In D'Urso's hands the chair becomes a second, punctured column creating a striking counterpart for the verdigris green structural column. But more conspicuous than the presence of the purely decorative chair (it was never intended for seating) is D'Urso's experimentation with color: the sky blue undulating wall that ensures privacy for the dressing room (with a rigid half-wall, topped and lined with red, to emphasize the curve), the red oversized closet door that creates an independent floating plane, and the sand-colored carpeting.

This apartment represents a bench mark in D'Urso's career: it is the point at which the minimalist precepts that are the trademarks of his work begin to be expanded. —C.K.G.

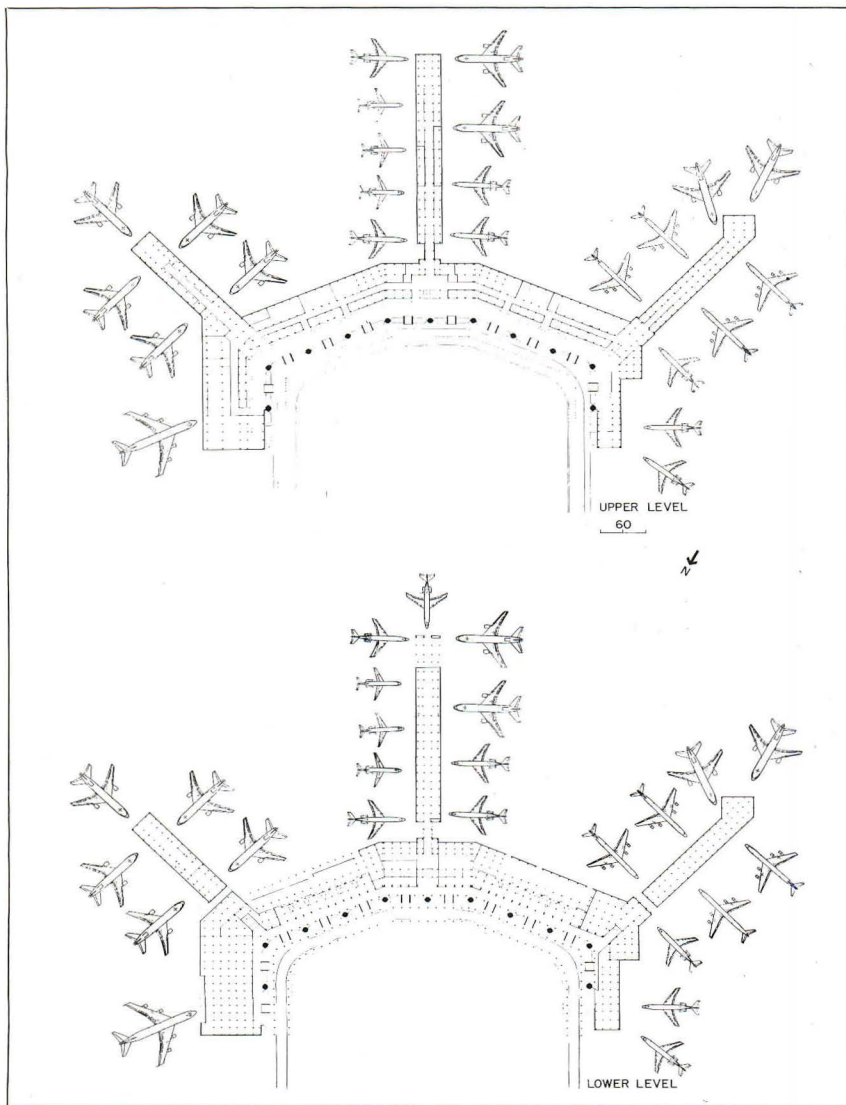
APARTMENT, New York, New York. Designer: D'Urso Design—principal: Joseph Paul D'Urso. Contractor: Sanchez Carpentry.



Peter Vitale photos

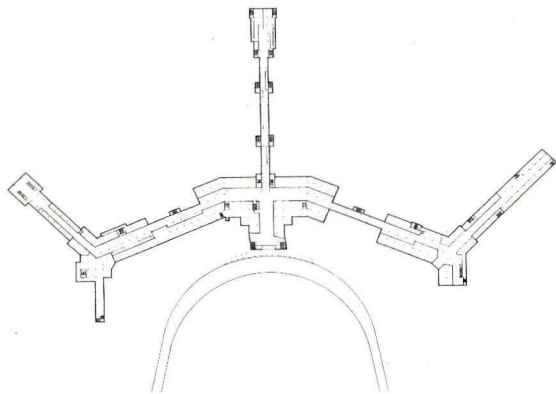






The recent completion of a comprehensive remodeling and extension of Baltimore's airport gives new power to the symbolic concept of the airport as civic gateway. At the same time, it promises to overcome the kinds of problems that made the original airport quickly change from a prototype for the future into an unworkable dinosaur. Altogether, Maryland's recent \$64.5-million investment has produced a stunning return. —Charles Hoyt

BALTIMORE WASHINGTON INTERNATIONAL AIRPORT

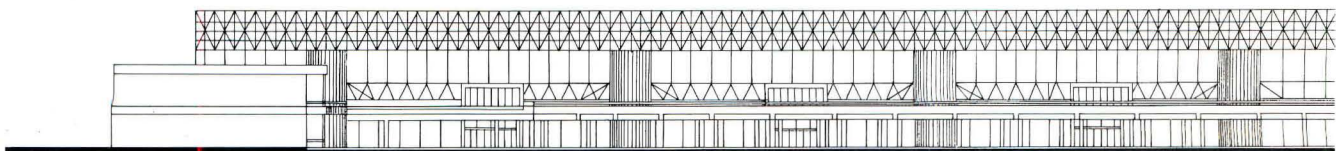
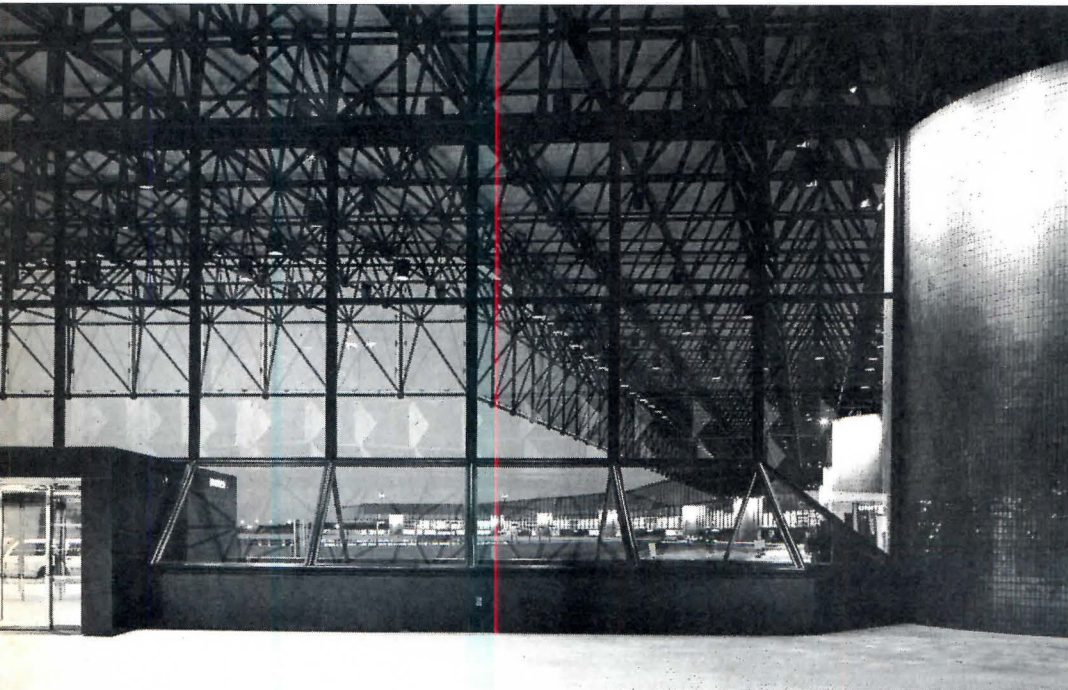
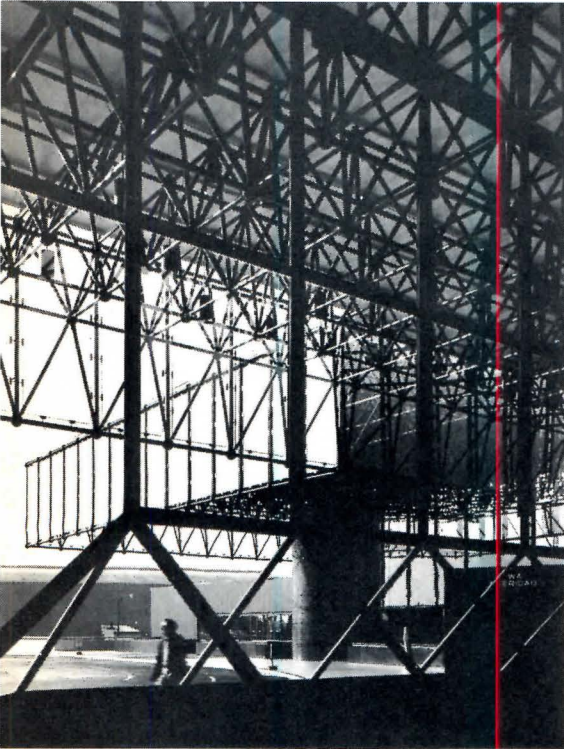


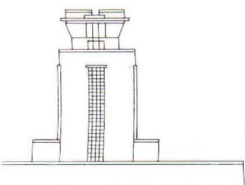
Robert Laulman photos except as noted

The Baltimore-Washington International Airport has been dramatically transformed by partial remodeling and a 70,000-square-foot addition. This transformation took almost six years to complete, because of complicated phasing of construction in a checkerboard fashion to allow ongoing operations. Here, the construction began at the ends, and was carried out by several general contractors and over 100 separate subcontracts. We can expect to see a lot more of this kind of additive construction, as older airports tackle their problems of obsolescence. Fort Lauderdale has scrapped its plans for a whole new terminal for such an additive scheme.

At Baltimore, the result has been well worth the wait. And it is all the more surprising for its fresh imagery. Architects Peterson and Brickbauer were part of a joint venture with engineers Ewell, Bomhardt and Associates and planners Howard, Needles, Tammen and Bergendoff. And they worked closely with Architectural Graphics Associates to make both a civic and a monumental national gateway with a special sense of place. (The new facility is meant to serve both Baltimore and to be a third airport for the Capital.)

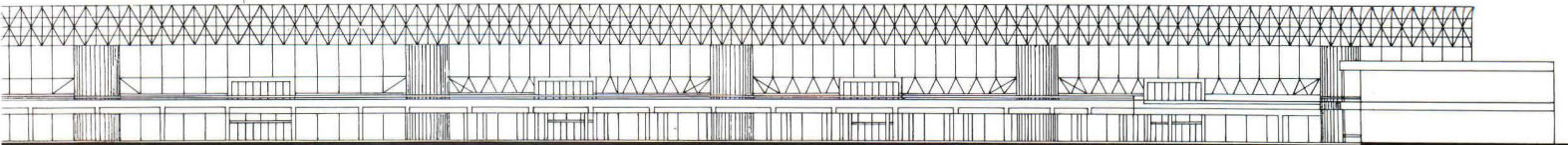
In this first complete phase of construction, the previous narrow piers designed for boarding at the apron level have been widened into concourses with waiting rooms at each gate and ample room for security checks (see plans previous page). To eliminate congestion within the terminal itself, a new grand concourse under a steel space-frame roof was added in front of the original building. On the upper departure level, this allowed the separation of basic passenger functions such as ticketing and baggage

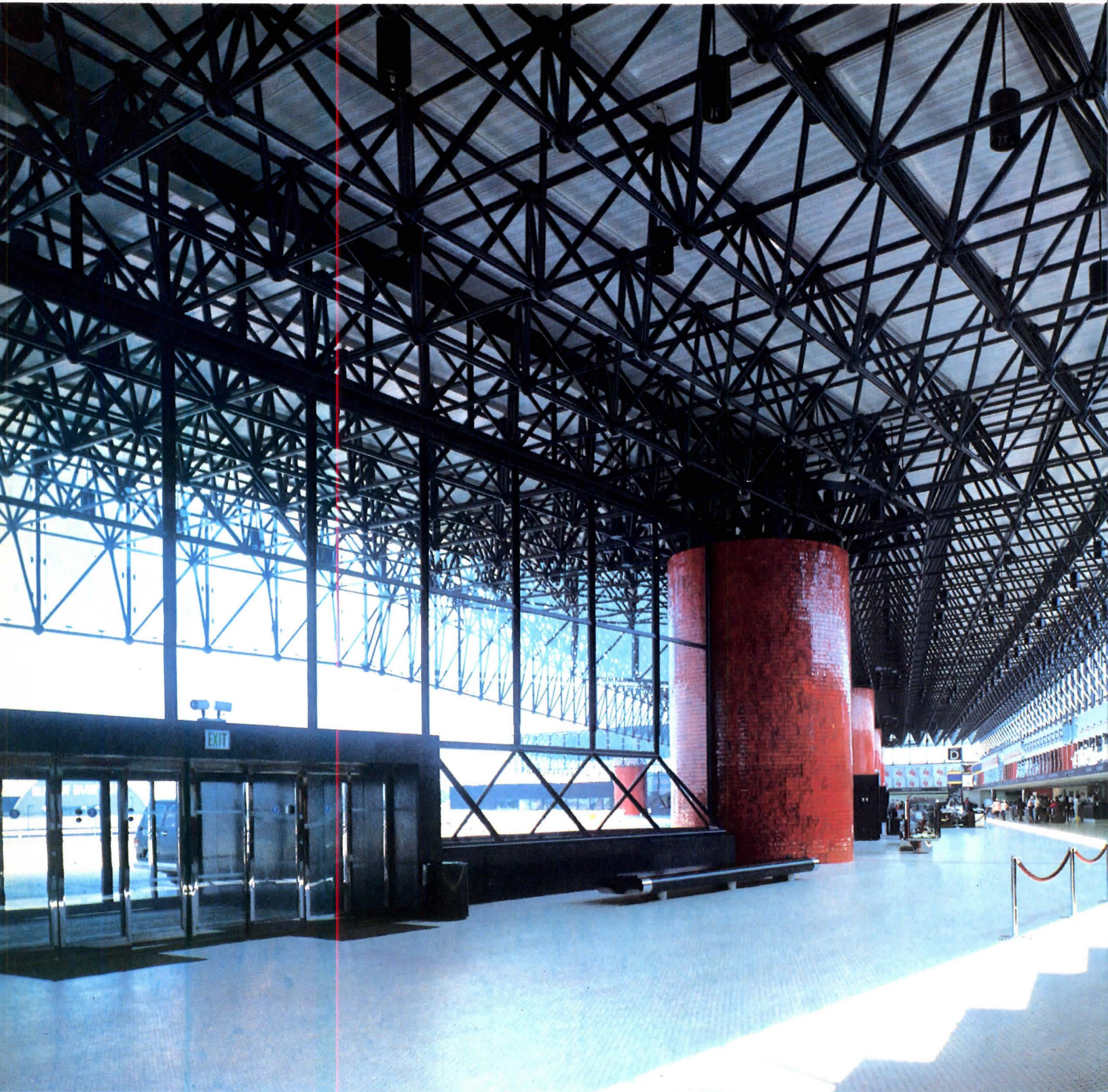




The elegant proportions inside and outside of the new concourse are the result of Peterson and Brickbauer's careful attention, which included the construction of a large-scale model during design development. As a parking garage in front is to cut off views of the lower level of the build-

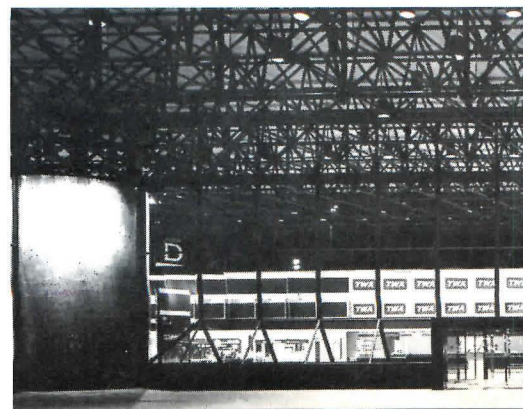
ing on approach, the external proportions are intended to be "read" above the roof of the garage at the departure ramp level (see photos and elevation below); but the present view of the both levels is no less satisfying (previous pages). The tent-like glazing covers the wells (left).

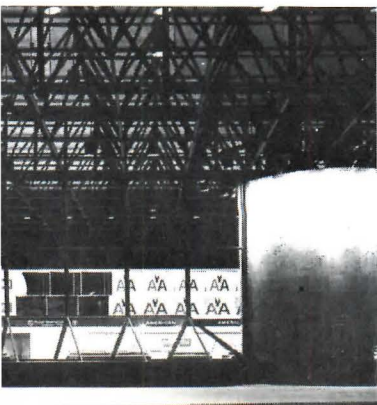




The sequence of entry into a particular departure position on the upper level is explained by the photos (right and opposite page). In the photo at right, the pier designation by nautical flags can be seen on the left hand side, the ticket booth designation in the center, and blank mirrored panels to separate booths or show unassigned booths to the right. The lightweight roof structure was prefabricated off the site, and was engi-

neered with infinitely adjustable beams to accommodate both the varying angles of the struts within the system and those that occur where the prefabricated sections meet. (Because of limitations posed by the original building and the landing field, no two straight sections of the building meet at the same angle.) At night, pools of light from the overhead fixtures add dramatic interest, and a diffused glow (right).

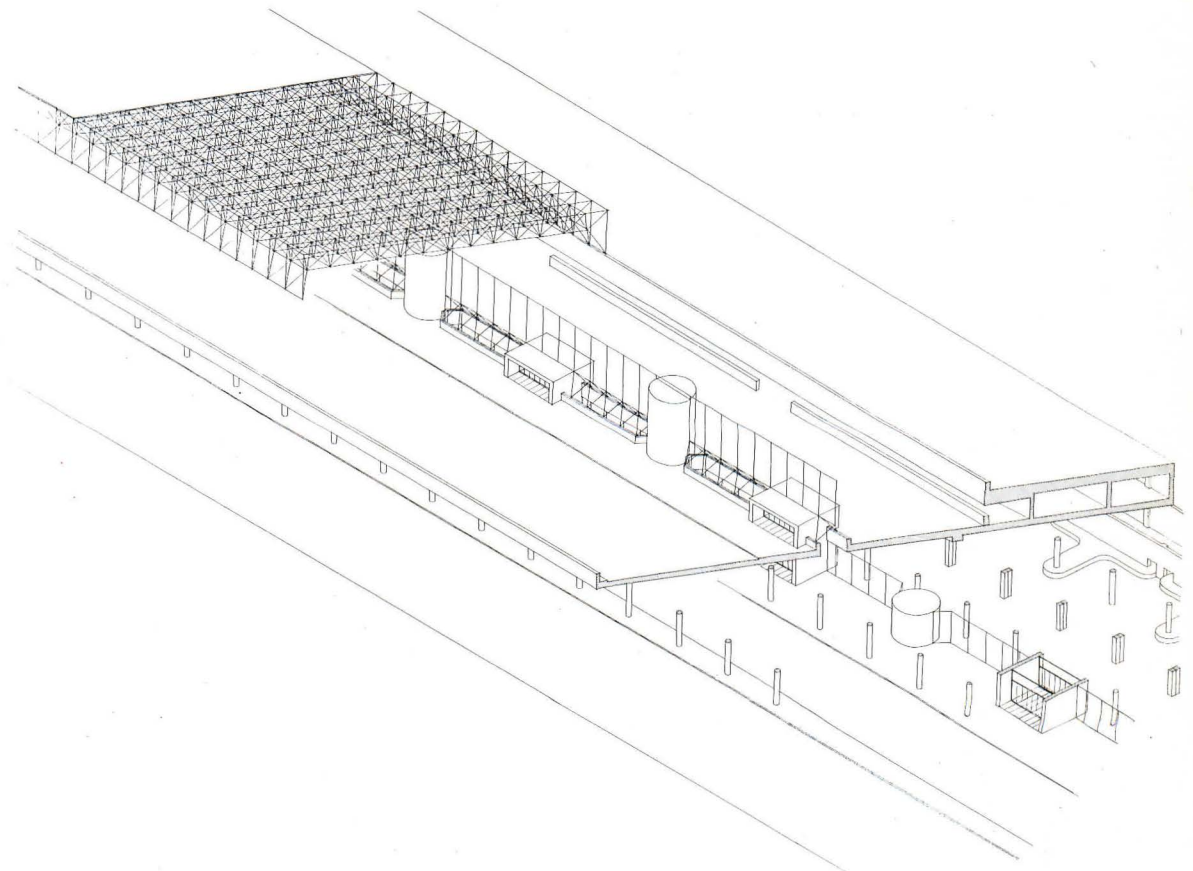




checking from ancillary functions such as lounges and shops. (The latter now fill the original structure). This "up-front" placement allows the travel process to be instantly grasped, as passengers approach the building. And both architects and graphic designers have maximized this benefit in their designs. Indeed, the building becomes a showcase for the informational graphics within. Another benefit of the new grand concourse with its multiple entrances, is that walking distances have been reduced up to sixty per cent. The existing structure may be extended in at least a theoretically indefinite fashion by adding increments of main concourse and corresponding piers. (Graphics have been designed for five piers to date.)

The designers have given this terminal its distinction by providing elegant proportions, an airy openness and a clarity of spatial organization and directions. Passengers are bathed in a flood of natural light in an expansive space. This quality of light and space has been brought to the arrivals area on the lower level, by means of light wells that interconnect it with the upper automobile ramp and terminal floor.

The beauty of the terminal grows from the relationship of the two major expressed structural elements: the massive columns and the lightweight steel space frame that almost seems to float above them. The juxtaposition carries the architects' desired message about the nature of airports in general. According to Charles Brickbauer, most airports appear to be solid, permanent construction that belies their constantly changing, flexible roles to meet ever-changing standards and needs. Still, they do fulfill certain ceremonial roles as





Architectural Graphics Associates designed a continuous band of tetrahedral forms with symbols for the airlines and for the piers applied to angled planes. The other surfaces of the forms are mirrored, so that there is a "kaleidoscope" effect, as the viewer moves along the band. Seldom has information been conveyed with such entertaining and theatrical effect. AGA has long fostered the idea of airports as civic gateways that must have individual identities. Here, they liken the effect for foreign visi-

tors to a combination of American marketing techniques and European elegance. Their work on airports in Tampa, Newark and Miami has shown equally individual approaches to particular civic identity. In the grand concourse, benches and counters have been designed for sleek appearance and maximum efficiency. And the designers intended the concourse to be both ceremonial and for people to pass through easily and directly. They liken it to a street. Comfort is provided by lounges (left).



civic gateways. Accordingly, the architects and designers have combined a shed-like openness with monumental elements: the continuous back wall of graphics and the huge round columns that are in reality the enclosures for such things as elevators.

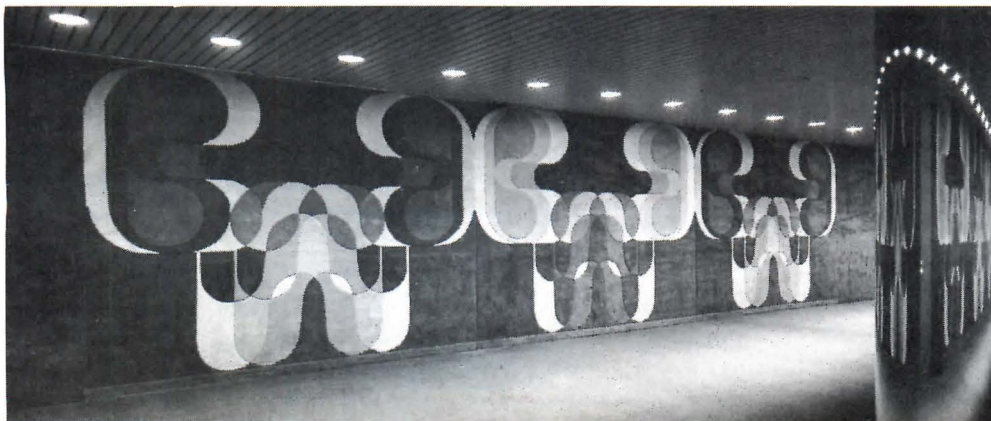
Graphics became an integral part of the architecture because of the early involvement of Architectural Graphics Associates in the design process. According to AGA principal Jane Doggett, "The bicentennial spirit was trying to take off, and I thought we would take flag waving to the zenith. For this purpose, it seemed natural to exploit the International Nautical Signal Flags—Alpha, Bravo, Charlie etc. to signify the piers. To me, these are some of the most beautiful graphics in the purest form, with proven read-out abilities. And since many terminals have stripped away much of the airlines' colors and symbols in a quest for near-military conformity, I thought we could reverse the process, and erect a colossal supermarket display of logos."

The lighting by William Richardson of Jaros, Baum & Bolles is almost theatrical. Peterson and Brickbauer intentionally sought Richardson out for his experience in stage lighting, because the building in its ceremonial role is in effect one enormous stage. Intense lighting was reserved for the columns and graphics, which further emphasizes their seemingly floating character. Brickbauer likes the building best at sunset, when these elements seem to glow, and the rest of the building is still transparent. General lighting for the concourse is achieved by isolated pools of light bounced off the white ceramic tile floors from down lights in trusses high above. "We wanted to avoid a bland blanket light that washes all objects into the same focus." And, of course, the approach saves electricity.

BALTIMORE-WASHINGTON INTERNATIONAL AIRPORT, Anne Arundel County, Maryland. Owner: Aviation Administration, Maryland Department of Transportation. Joint-venture designers: Peterson and Brickbauer, Inc. (architects); Ewell, Bomhardt and Associates (structural/civil engineers); Howard, Needles, Tammen and Bergendoff (programming, airport facility planning, mechanical/electrical engineers). Consultants: William Richardson, Jaros, Baum & Bolles (lighting); Architectural Graphics Associates, Inc.—concept and design: Jane Doggett; project coordinator: Virginia McCormick; project detailer: Bruce Wilkins (graphics). Associated construction managers: Ralph M. Parsons Company and Baltimore Contractors, Inc.



Architectural Graphics Associates



AMERICA TURNS A FRESH FACE OVERSEAS

The Federal program that for more than a quarter of a century has guided the design and construction of U.S. embassies and consulate buildings overseas now pulses with new energy and enthusiasm. Designs now in its pipeline—all by talented American designers—will help to reshape this nation's image abroad.

It was not long ago that the commission to design a United States embassy or consular building overseas came to the architect, like a third martini, as a decidedly mixed blessing. While the prestige of such commissions continued to offer an initial high, lows followed with melancholy predictability. Construction budgets were too often inadequate, necessitating much re-design, and professional fees were skimpy at best. Worse, the program that administered these commissions, the State Department's office of Foreign Building Operations (FBO), though it continued to attract first-rate designers and professional advisors, had gradually become hostage to Congressional oversight committees that were chaired in several instances by Washington's most notorious power brokers. In this frustrating, bureaucratic, and occasionally abrasive climate, a once-proud program came up lame—a program that between 1953 and 1965, with important early help from Pietro Belluschi, had produced a remarkable sequence of distinguished buildings by talented American architects in a host of foreign capitals.

Recovery began in 1976 with a vigorous reshuffling of Congressional responsibilities

In the wake of Representative Wayne Hays' departure from the House under circumstances less than happy, chairmanships of important committees were reassigned to men who apparently understood the need to cut FBO free from all but the most essential political tethers. Another and perhaps even more significant force for change came in early 1978 when former AIA Executive Director William Slayton assumed the directorship of FBO with the title Deputy Assistant Secretary, Department of State. Energetic and Washington-wise, Slayton brought to the post what Hugh Stubbins, a member of FBO's current advisory panel, describes as "high standards, strong managerial skills, and an extensive exposure to both architects and architecture from his experience at the Institute." *Architect William Metcalf adds that "Slayton understands and values the work of architects. He is a strict client in terms of his*

expectations, and he is committed to quality. . . ."

These tributes are not to be skeptically dismissed as pro-forma or self-serving. They amount to a widely-shared, sincere acknowledgement that FBO is no longer an insensitive, bureaucratic client or a place where high hopes go to die. It is a program being restored to its former level of achievement by renewed enthusiasm and professional independence.

Success depends—to an unusual extent—on the abilities of a small panel of advisors

Slayton is advised on all matters of architect selection and design by a three-member panel of architects that, like earlier strong panels, represents diverse viewpoints and wide geographic origins. Appointment to the panel is for a three-year term, but because of staggered starts, one vacancy is created and filled each year. The current panel is composed of Donn Emmons, O'Neil Ford and Hugh Stubbins. Together they review projects at regular intervals in sessions that but for the sensitivity of participants might look and sound like Architecture's version of *The Gong Show*. Instead, the atmosphere is sympathetic, congenial and thoroughly professional. Most architects whose work is under review come away feeling fortified. Joe Esherick, for example, an architect who has been on both sides of the table, is quick to credit the current panel with "substantial help in getting some elements of the La Paz Chancery design (pages 110-111) back on track." George Hartman, offering a similar gratitude, quips: "I used to pay big money in tuition for crits like these. Now I get them free." In fairness, it must be said that a few architects come away from these sessions feeling burned, and O'Neil Ford is frank to admit that he and other members of the panel are a little harsh on schemes that look "opportunistic, capricious, or just plain poorly planned."

Building overseas presents new opportunities but involves a host of difficulties—not all of them foreseeable

The architect who undertakes a commission for FBO faces more than the ordinary range of uncertainties. Not surprisingly, many of the new projects shown in the pages that follow are destined for Third World sites where construction technology is often at least a generation behind Western standards, where bonding procedures may be non-existent, where material suppliers can be unreliable, where inflation rates may fluctuate wildly, and where conventional contract language may be practically meaningless. In addition, when these sites lie within the boundaries of the old British Empire, American architects are expected to provide quantity surveys. Elsewhere, they are often required to draw (in metric) a variety of repetitive conditions that in domestic contract documents would

normally be scheduled. The accumulation of these differences, when coupled with language barriers, differences in local customs, currency restrictions, long and sometimes arduous travel, and FBO's very special requirements can threaten even the highest frustration thresholds and challenge both design architects and FBO's own in-house architectural staff who share in the responsibility for coordination and hammering projects through to completion.

The very special nature of these projects, moreover, makes them especially vulnerable to the currents and cross-currents of international politics. The sudden emergence of a generalissimo or an ayatollah in a far-off land can deflect U.S. foreign policy abruptly and stall or even collapse an FBO project without warning and at any stage in its development.

Surprises can come from almost any quarter. Metcalf and Associates, for example, were hard at work on the remodeling of a handsome but dilapidated mansion on the banks of the Nile, a mansion that, when work was complete, would serve the U.S. Ambassador to Egypt as an official residence. Then Secretary of State Henry Kissinger, in the throes of sensitive shuttle diplomacy—and in what was apparently a spontaneous and magisterial gesture of friendship—gave the property outright to Egyptian President Anwar Sadat. Sadat later returned the property, but not before the mansion had been razed. Metcalf's office is now hard at work on the design of a new Ambassador's residence (pages 98-99) for that same site. FBO, like all good programs, has learned to roll with the punches.

The search for excellence is wide—and ongoing

Slayton's bags are packed much of the time. In the almost three years he has served as FBO's director, he has criss-crossed the United States in a tireless search for design talent and visited some 53 FBO posts in 45 foreign countries. He has found time in-between to initiate a number of reforms in FBO's day-to-day operations, to improve architects' fees, and to project a long-term capital spending program that anticipates construction expenditures that average about \$55 million per annum over the next five-year period.

The new generation of designs upholds the tradition of quality but reflects new perceptions and altered goals

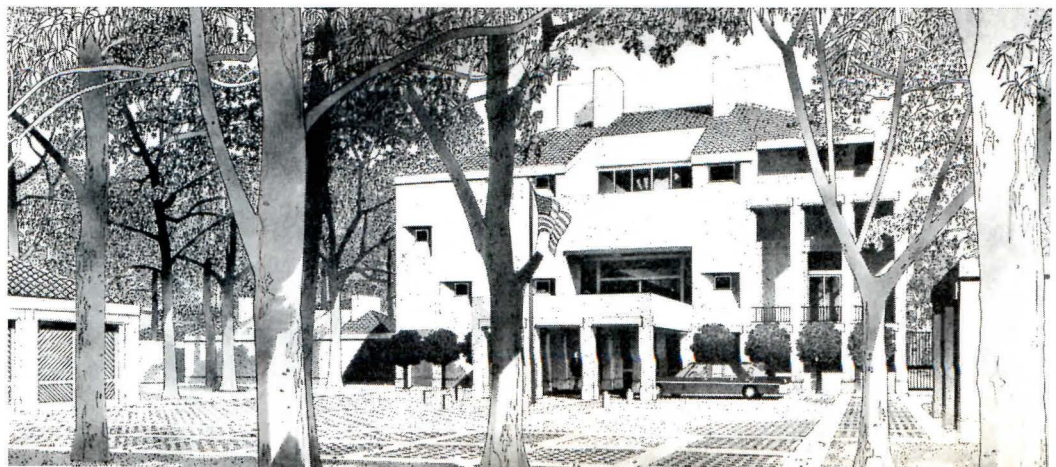
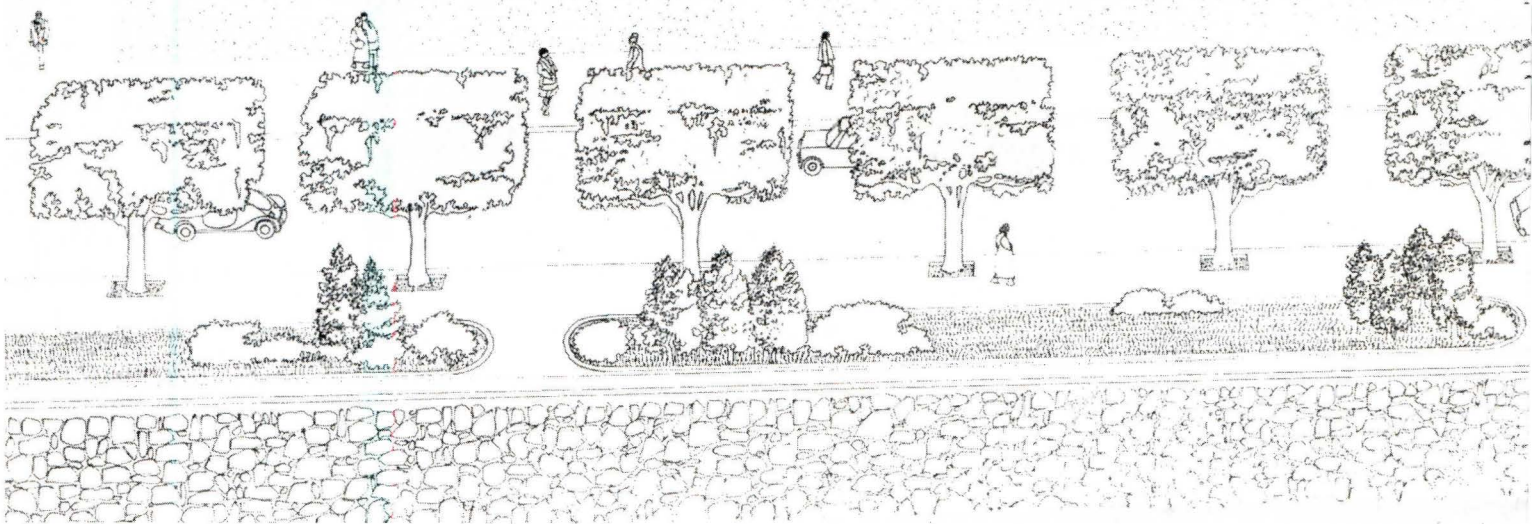
Because of the violence against U.S. embassies in Teheran, Islamabad and Tripoli, and because the danger to diplomatic personnel and property at posts around the world shows no signs of abatement, new designs are more security-conscious. They will have "harder" entrances, and many will be designed with "safehavens" in which a besieged staff could find safety from an angry but lightly armed mob for a period of 12 hours. No more can be asked. Embassies are not

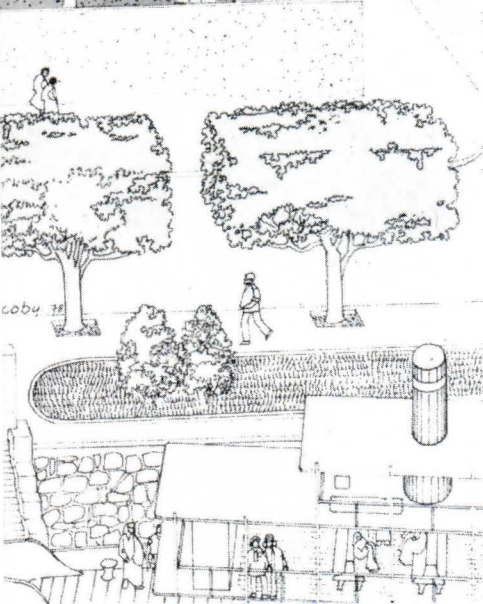
fortresses. Contemporary concerns are reflected too by the degree to which these new designs respond to the needs of the handicapped and to the imperatives of energy conservation. Most important—and this cannot be overstressed—the designs that follow are shaped by undefined and therefore somewhat perplexing questions of image.

Readers who recall FBO's most widely published and successful designs from the late '50s and early '60s—designs like Edward Durrell Stone's New Delhi Embassy, Eero Saarinen's London Embassy, or John Johansen's Dublin Embassy—will remember that each of those buildings, though not unresponsive to local conditions, made no less than a ringing declaration of an American presence. Each was an assertion of American values and an embodiment of sophisticated building technology. In conception and execution, these buildings gave expression to a widely held and for the most part accurate view of America's expanded role in world affairs. Now, at a time when that role may be shrinking, or at the very least changing in its grain and texture, the hunt for more appropriate, less heroic images is underway in earnest.

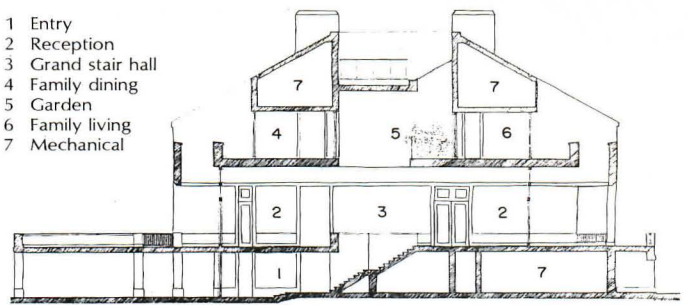
To turn the pages that follow is to see that the hunt is having interesting results. The designs now in the pipeline are neither provocative metaphors for wealth and power nor, at the other extreme, gestures of condescension; for what could be more patronizing—or in the end more self-defeating—than to go to a developing country and build something primitive? Operating in the comfortably broad zone between these two extremes, architects are developing designs that take their cues from their surroundings; designs that work hard at being good neighbors; designs, in short, that have cast off once and for all the cloak of arrogance that from time to time in the past is said to have characterized our image and hampered our efforts overseas.

Some readers may feel at first glance that the cloak has been replaced by a hair shirt. They may wonder whether the State Department, in its desire to turn away potential criticism, has become so sensitized to Third World reaction that it tilts to safe, overly conservative solutions. "Not so," says Slayton. Certainly the current designs are calmer in the signals they send out. Certainly they reflect shifting emphasis in architecture itself. But are they less persuasive than FBO projects that have gone before? Are they leaner in their hopes, or less robust in their convictions? As a group, do they lack energy . . . or insight . . . or substance? We think not. On the contrary, the new designs give promise of being very fine buildings: appealing in their forms, sensitive to climate and culture, and responsive to the social and political goals set for them by their designers and by an FBO leadership recharged and rededicated to excellence. —Barclay F. Gordon

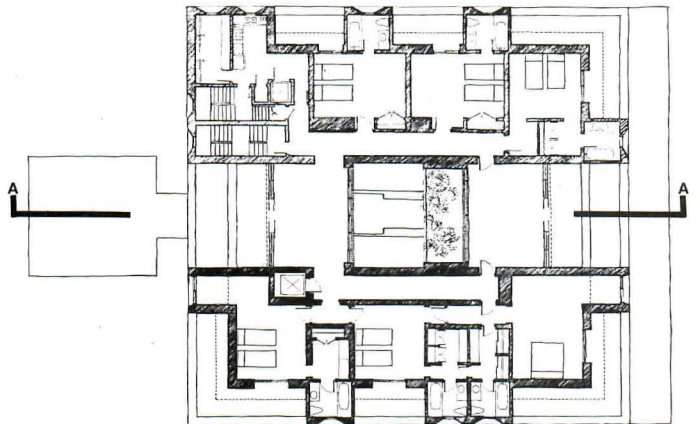




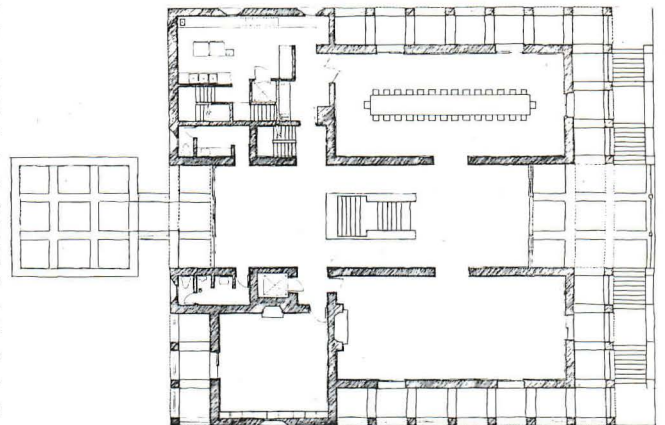
- 1 Entry
- 2 Reception
- 3 Grand stair hall
- 4 Family dining
- 5 Garden
- 6 Family living
- 7 Mechanical



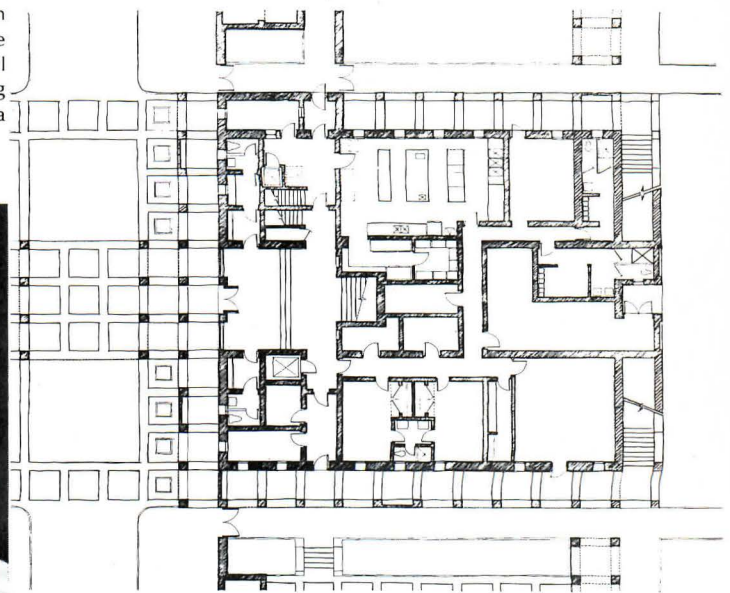
SECTION A-A



UPPER FLOOR



MAIN FLOOR



LOWER FLOOR

**United States Embassy Residence
Giza, Arab Republic of Egypt**

Architects: Metcalf and Associates

The Mississippi plantation house was deliberately selected as a design metaphor because it was a uniquely American image and because, through generations of evaluation in the American South, its forms had become well adapted to the exigencies of a lowland semi-tropical climate. In Metcalf's solution, the ground floor is reserved for service and support facilities, the middle level for official, ceremonial functions, and the upper level for private family spaces. These private spaces, necessarily designed for changing occupancy, carry the scale of a large country house. A two-level atrium (see section) will provide natural ventilation and the opportunity for interior landscape.

The site is closed in on three sides by heavy planting but opens on the fourth to superb views of the Nile. The handsome grounds will include a swimming pool, a potting shed, several gardens, an arbor and a garage.

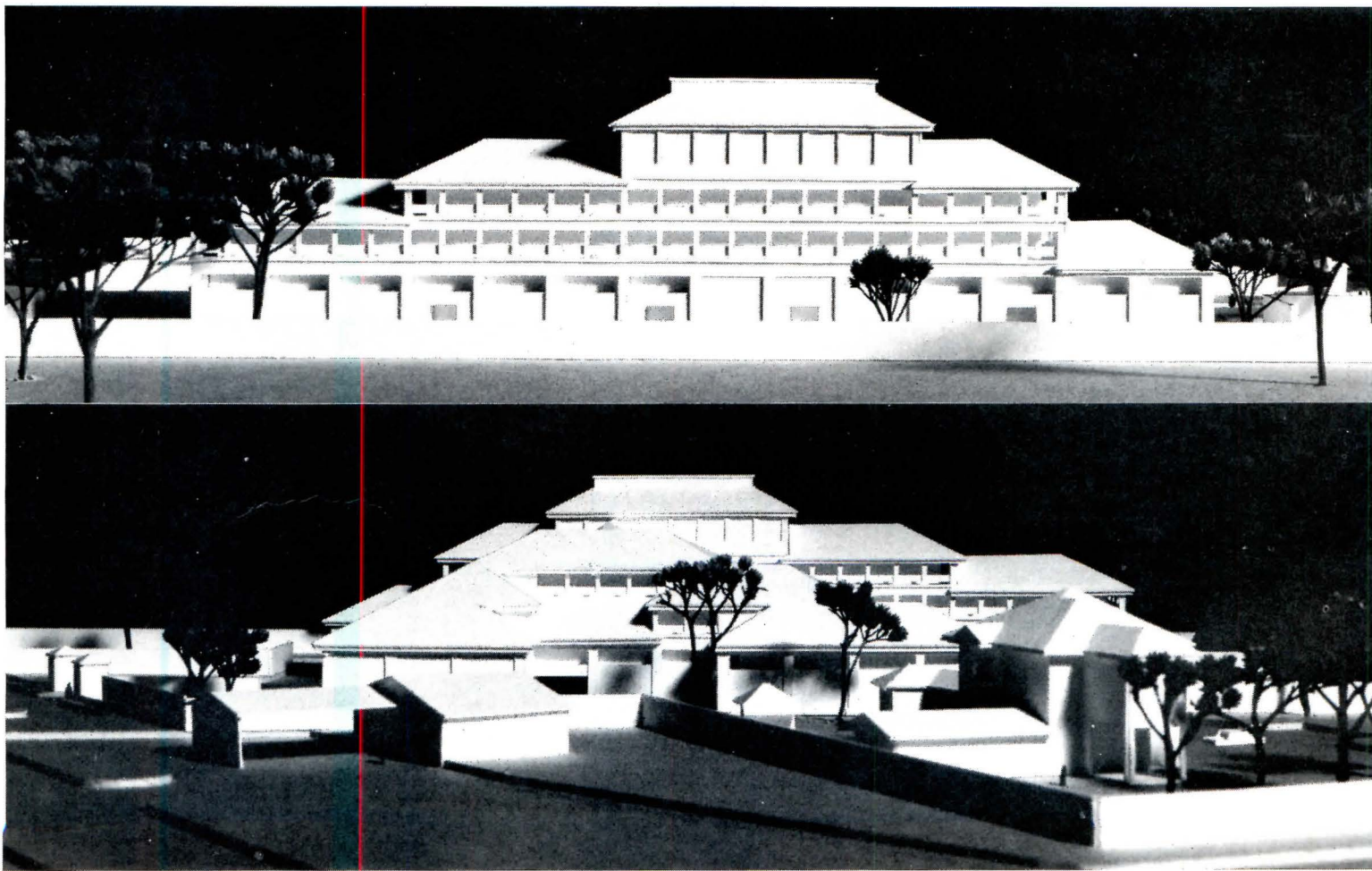
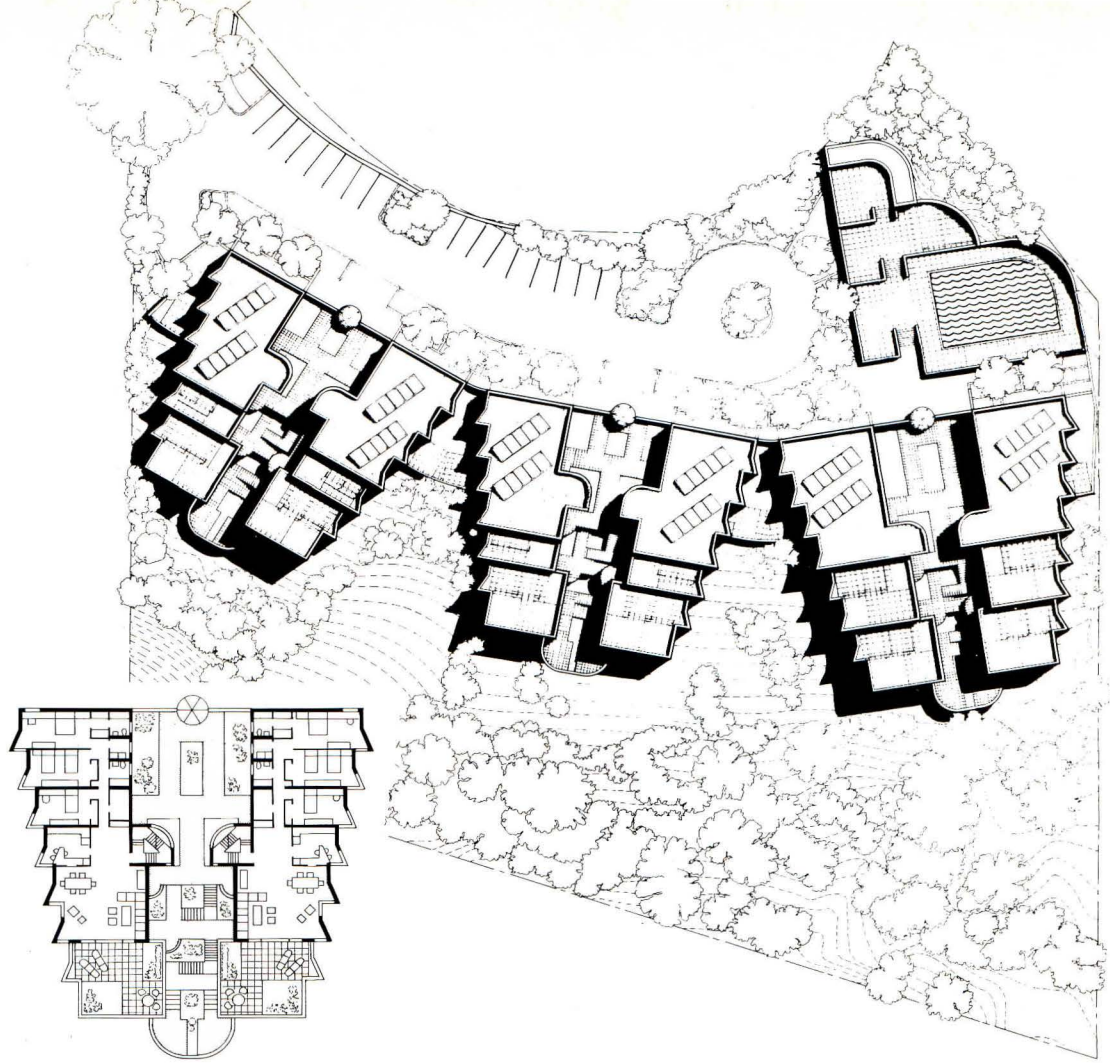
FBO Project Manager: Charles Hellmann

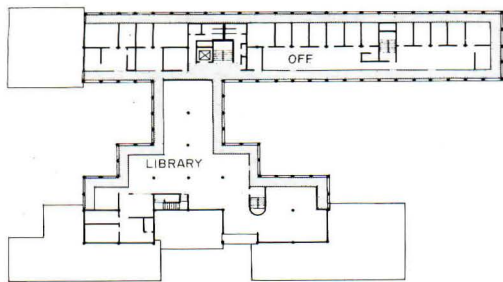
U.S. Consulate Staff Housing
Hong Kong

Architects: Davis, Brody Associates

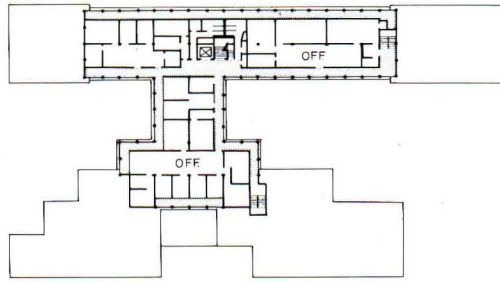
Because rental space of any kind is so expensive in Hong Kong, the U.S. government welcomed the chance to provide 34 units of housing for a portion of its consular staff on this steeply sloping site facing the South China Sea. The architects produced a three-story design that follows the site's rapidly falling contours in steps so that most roofs become roof terraces for the units above. The apartments will be air-conditioned. Hong Kong's building code and climate both influenced the design significantly. Because the site is so steep and mudslides a continuing menace, caissons will be used at the foundations and all surface run off carefully collected. Large glazed areas on the down hill side will be fitted with metal screens to protect against the wind and wind-driven rain of the local monsoon. Construction is expected to begin early next year.

FBO Project Manager: Owen Henden

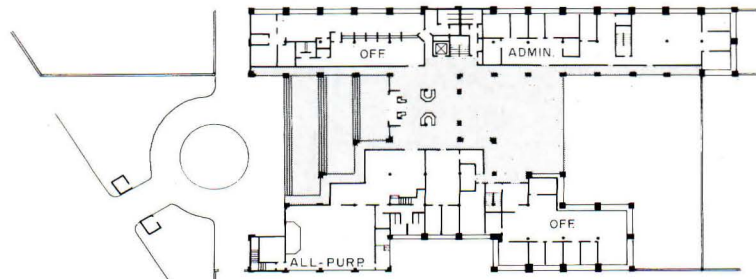




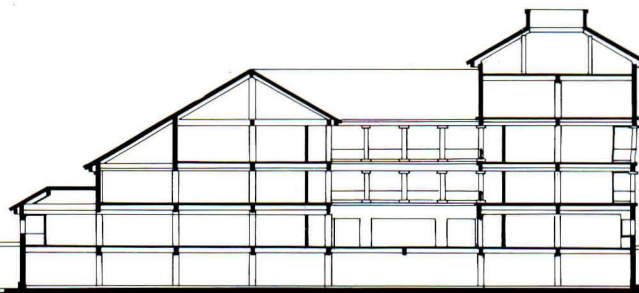
SECOND FLOOR



THIRD FLOOR



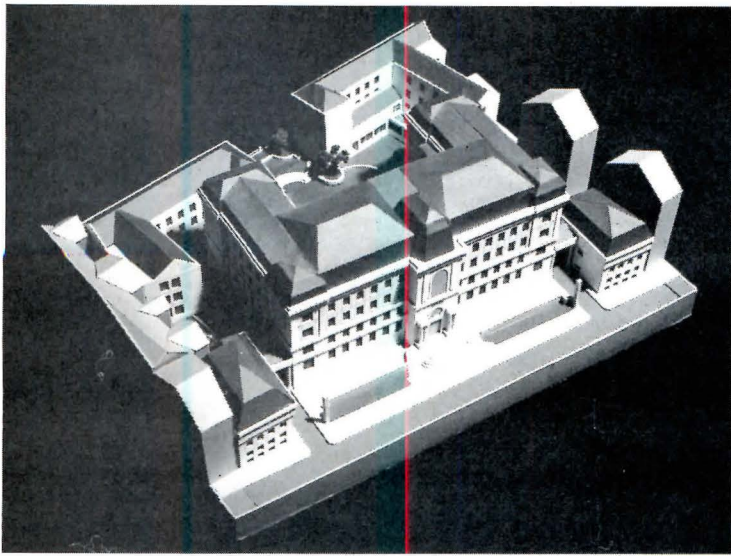
MAIN FLOOR
25



U.S. Embassy Office Building
Kuala Lumpur, Malaysia
Architects: Hartman-Cox

The east-west orientation, the deep verandahs and the broad sheltering roof forms are all design responses to Kuala Lumpur's blistering equatorial sun. In developing their design, the architects were also sensitive to the forms and materials of Malaysian classical architecture: elevations given their formal rhythms by articulated columns and lightly decorated masonry railings; the keen sense of a building's division into base, middle and cap; and the use of traditional materials like half barrel clay tile and fine, hand-troweled lime plaster ("Shanghai plaster"). Because the site is small for so heavy a program of spaces, and because the surrounding districts are chiefly residential, the architects were careful to break up the scale of what will be, after all, a large building. In the process, they have created a design that is very lively in its massing and respectful of local custom and tradition.

FBO Project Manager: Owen Henden



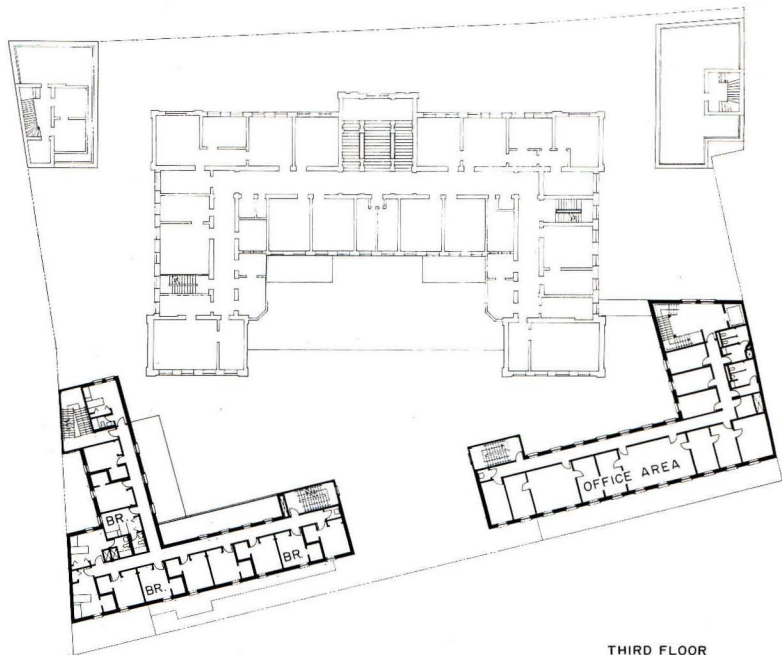
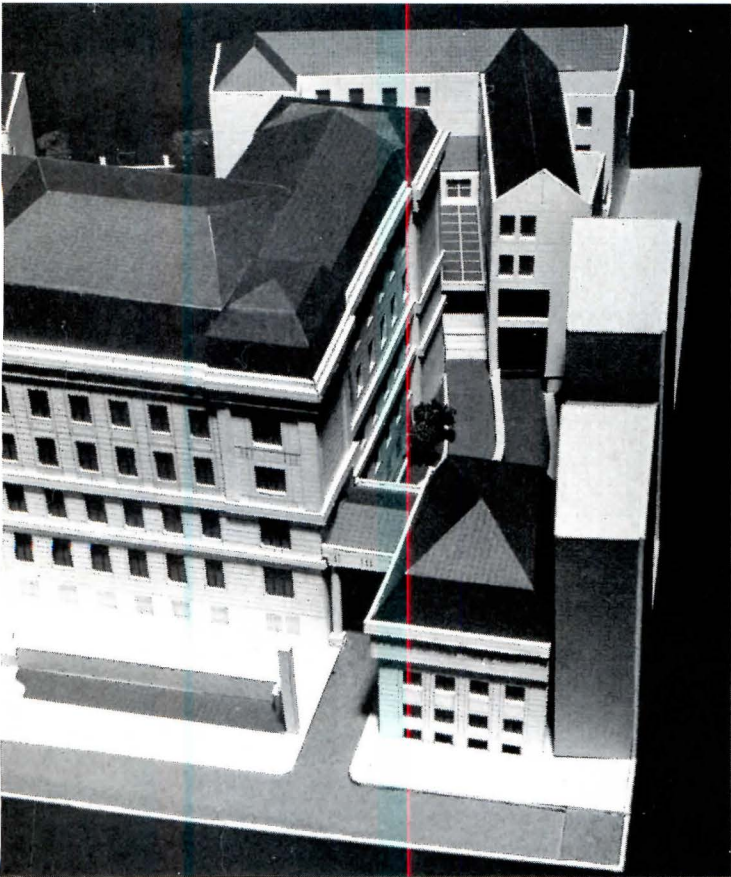
**U.S. Embassy Addition
Vienna, Austria**

**Architects:
Zimmer Gunsul Frasca Partnership**

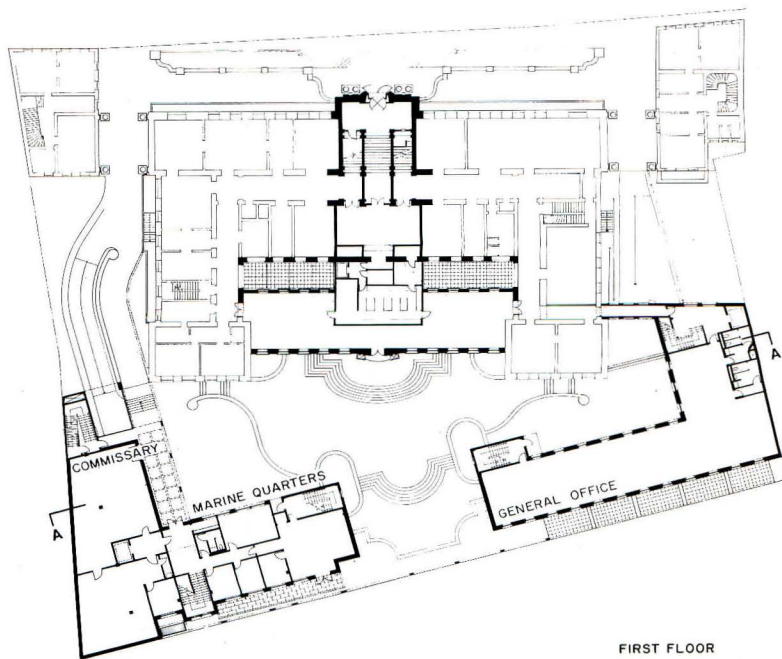
"Not a rip-off of Austrian baroque, but something compatible" says Bob Frasca in describing the 65,000 square-foot addition his firm is planning to a 1903 structure that now serves the United States as an embassy in Vienna. Just half a mile from the Ringstrasse, the very seat and symbol of Hapsburg splendor, the existing structure was shaped by the monumental buildings, parks, narrow

streets and tree-lined pedestrianways that surround it. Mindful of all these influences, the architects are adding new marine quarters and a commissary as a four-story addition on the site's southeast corner, and new office space in a three-story addition at the northeast. The two new wings, scheduled for completion in 1983, will frame a baroque courtyard. The new exteriors will be constructed in precast rather than stone, but new roof tiles are being selected to match the existing.

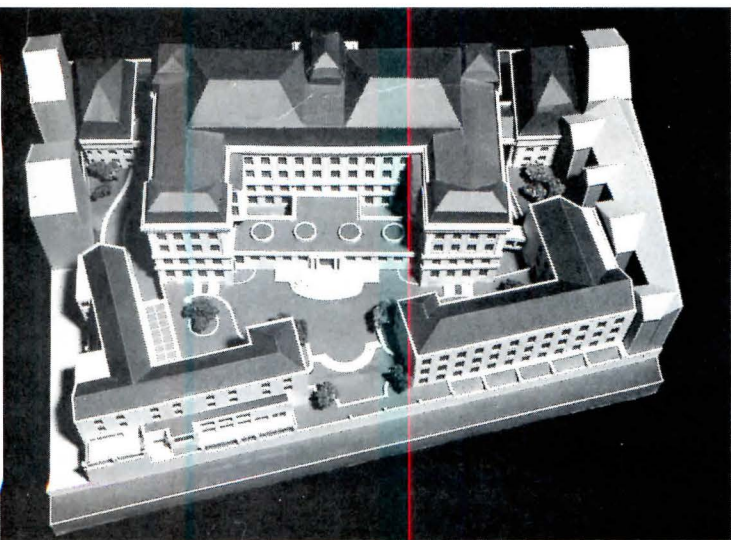
FBO Project Manager: Charles Hellmann

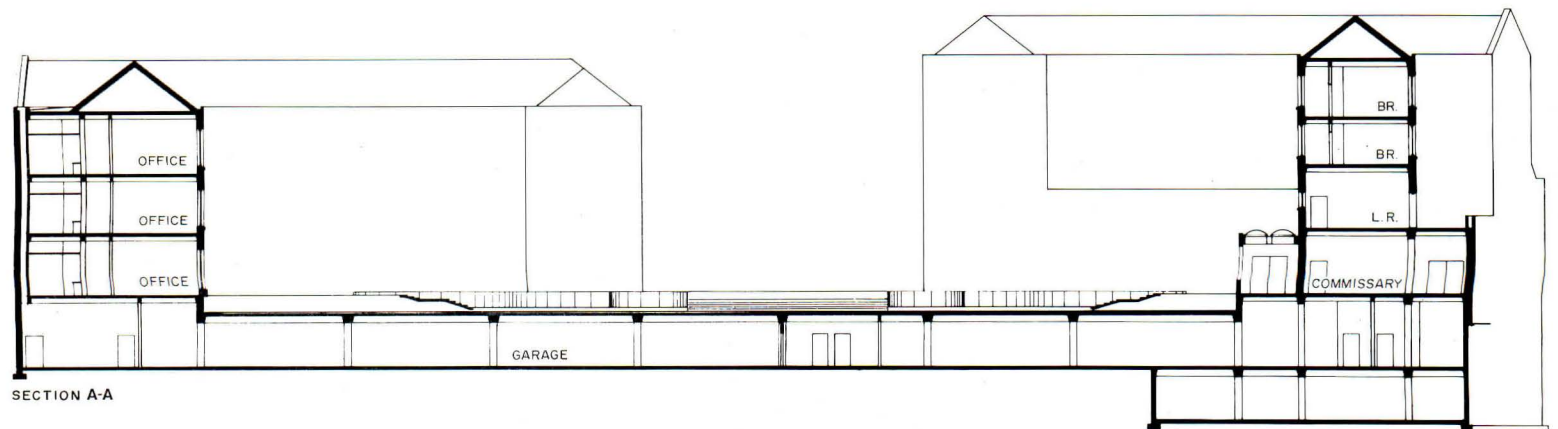
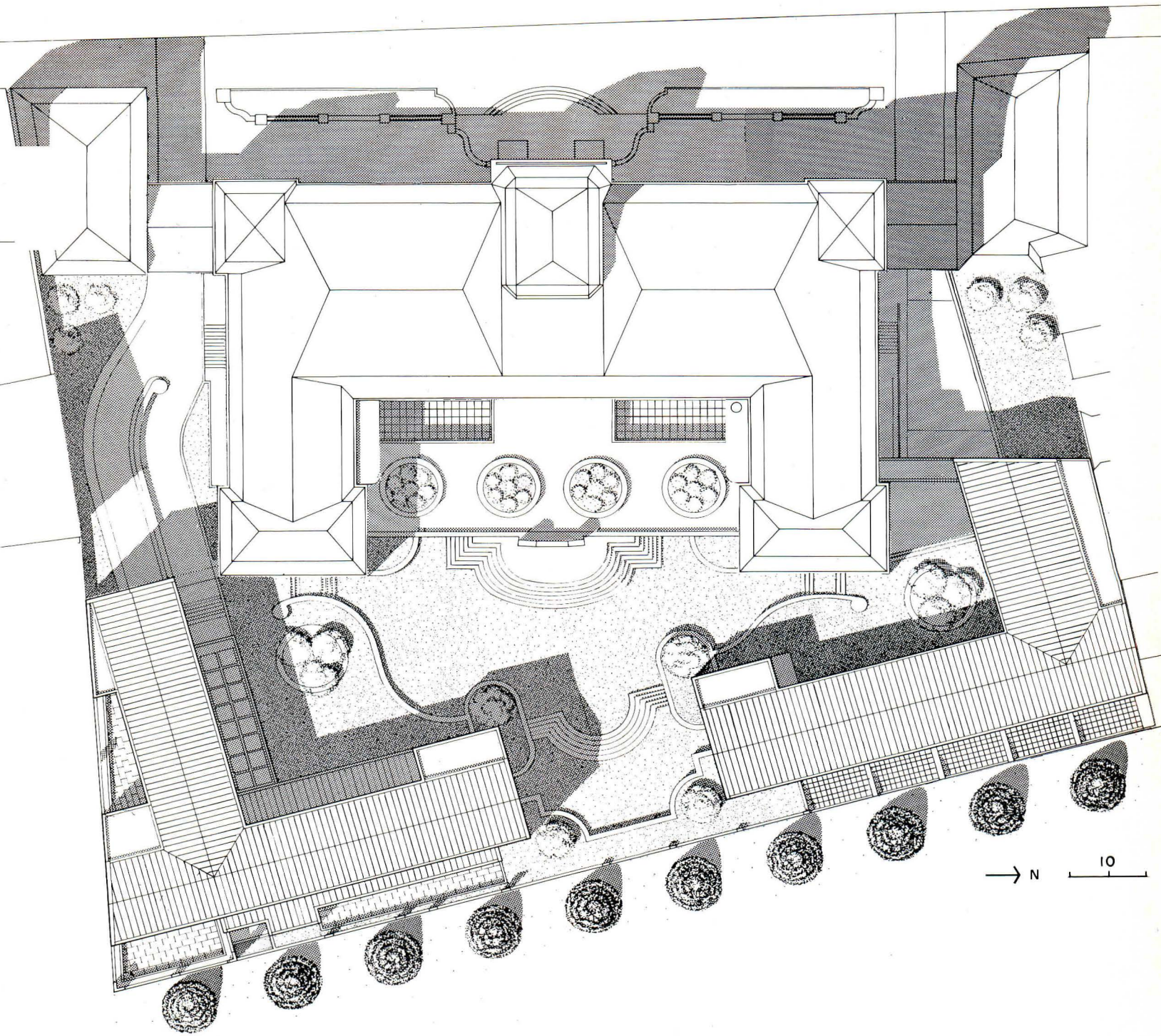


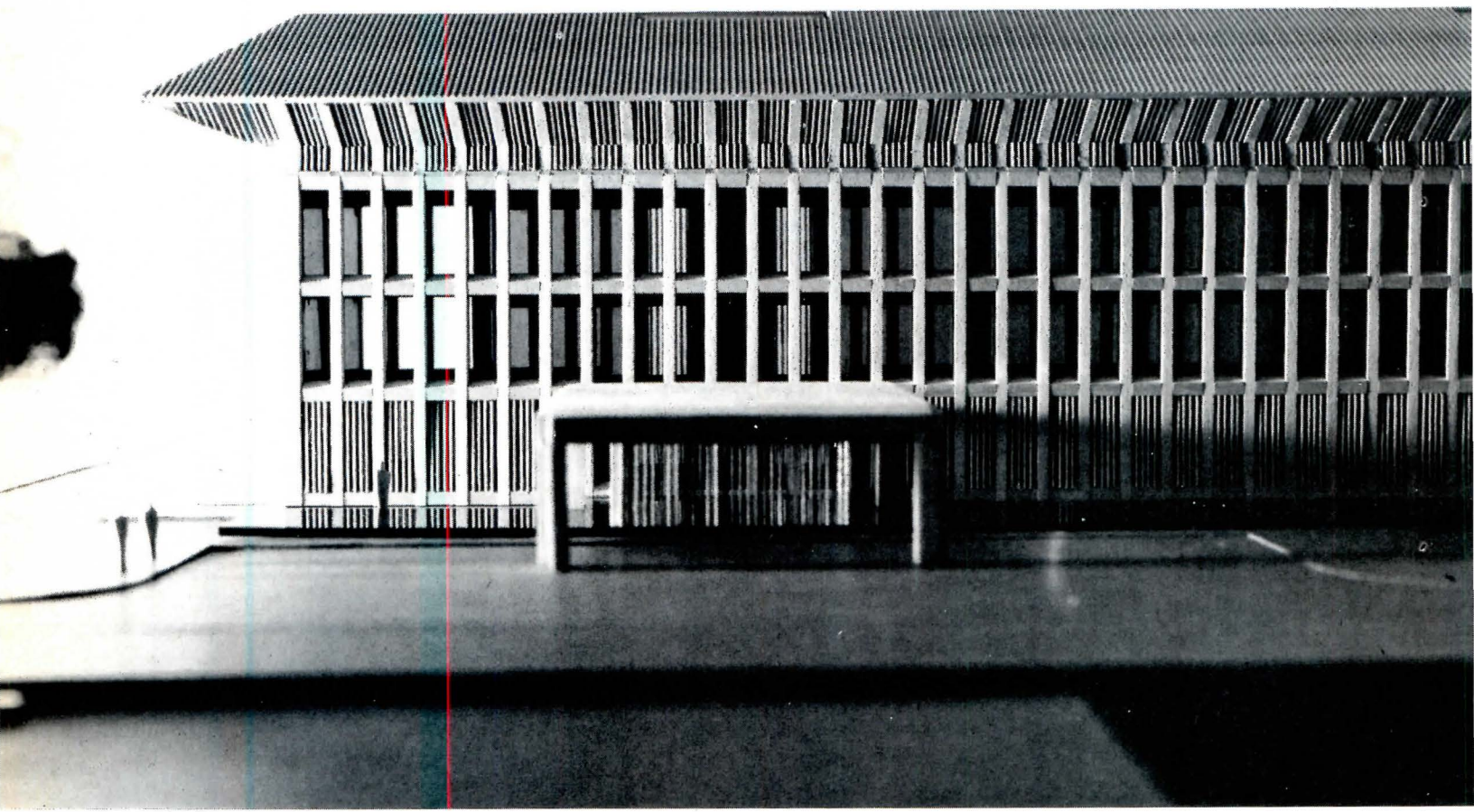
THIRD FLOOR



FIRST FLOOR

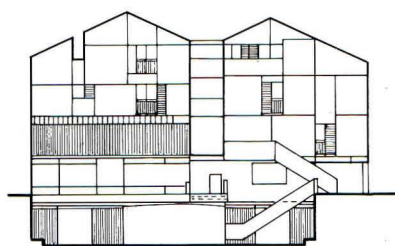






**U.S. Embassy Housing
Tokyo, Japan
Harry Weese & Associates**

The program required a total of 173 units of embassy housing on a prominent 12-acre-site in central Tokyo. The architect's solution was to distribute these units between clusters of townhouses and three high-rise structures, a solution that left a suitable amount of open space to be developed as tennis courts, a swimming pool, on-site parking and a separate recreation building. Tokyo's sunshine-shadow codes sensibly restricted the height of the high-rises to 14 stories. The buildings will be heavily structured because the city is located in a region of high seismic activity. In other ways the design is American in its images, in its space standards, and in its level of amenity. An earlier scheme with triangular windows in the high-rise units had to be abandoned because the site had such high visibility. Construction began in September. FBO Project Manager: Owen Henden

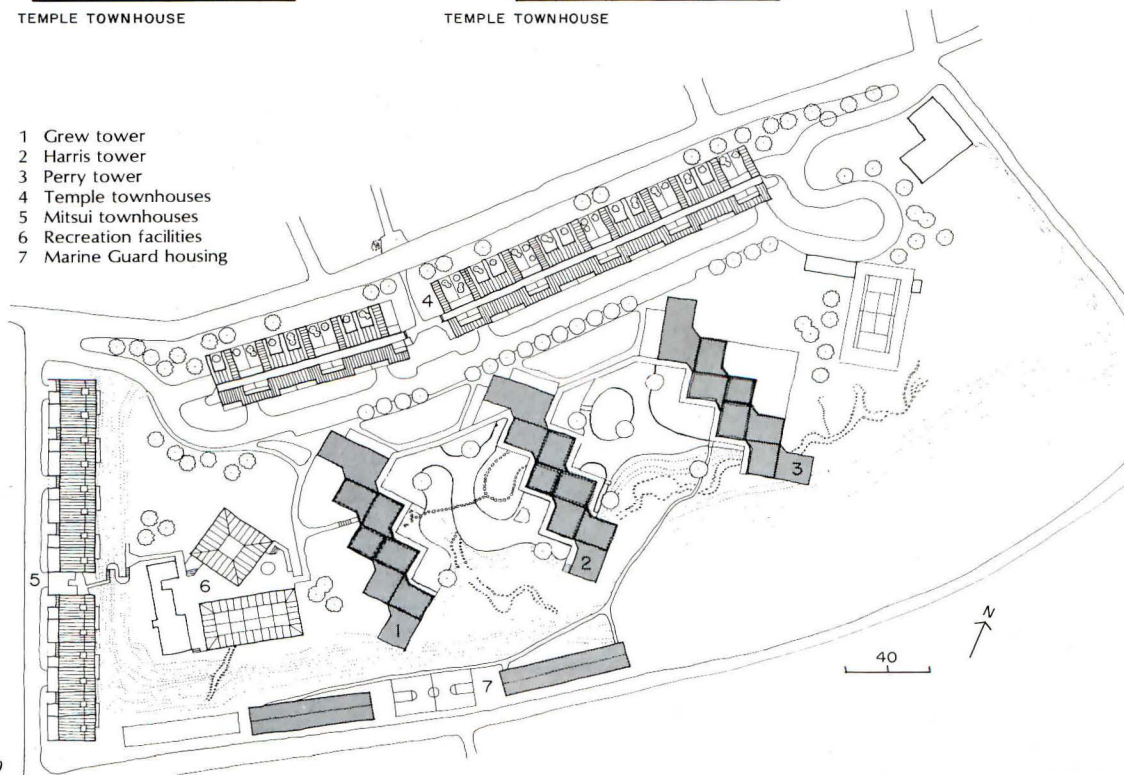


TEMPLE TOWNHOUSE



TEMPLE TOWNHOUSE

- 1 Grew tower
- 2 Harris tower
- 3 Perry tower
- 4 Temple townhouses
- 5 Mitsui townhouses
- 6 Recreation facilities
- 7 Marine Guard housing



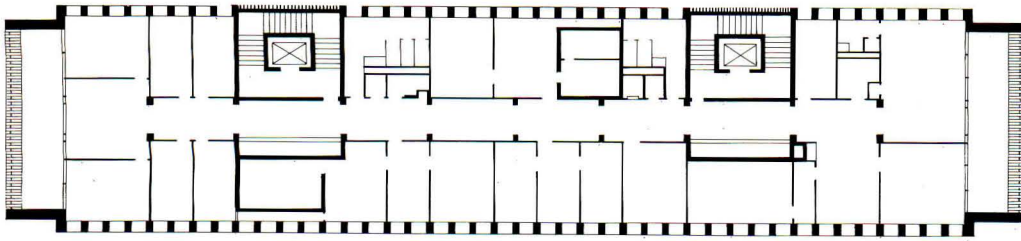
U.S. Embassy Office Building

Colombo, Sri Lanka

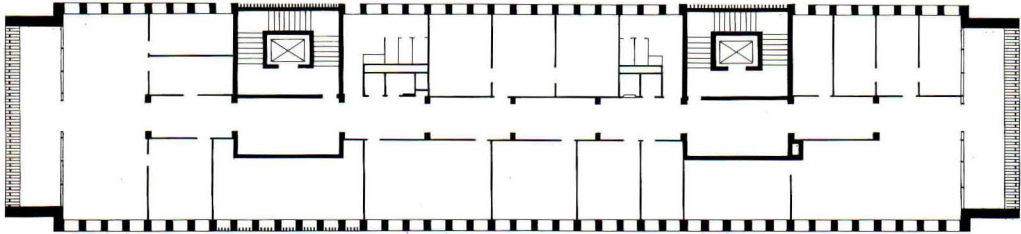
Architect: Victor Lundy

Victor Lundy's task was to meet FBO's strict program and security requirements with a design that was American in flavor but accorded well with the island's long and significant architectural tradition. Lundy chose Burma teak for the exterior grillwork (see photo) and a sand-colored granite quarried by hand in southern India to cover the areas of reinforced concrete. The monumental granite slabs will be hand finished and barged across the Bay of Bengal. (Lundy says he has volunteered to ride the first barge. "If it goes down, I'd better go too!"). Both of these materials, teak and granite, are highly resistant to the relentless exposure to salt sea air. The huge roof with its deep overhangs offers protection against an equally relentless sun, and the clay tiles that form the roof's finish are expected to age beautifully.

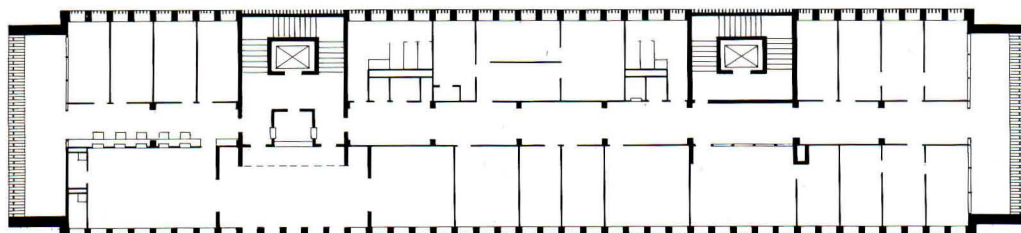
FBO Project Manager: Charles Hellmann



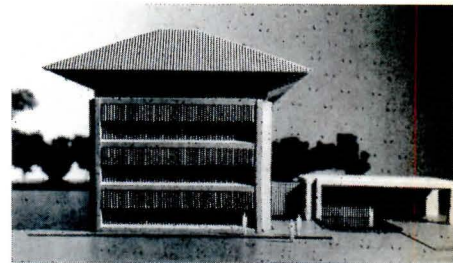
THIRD FLOOR

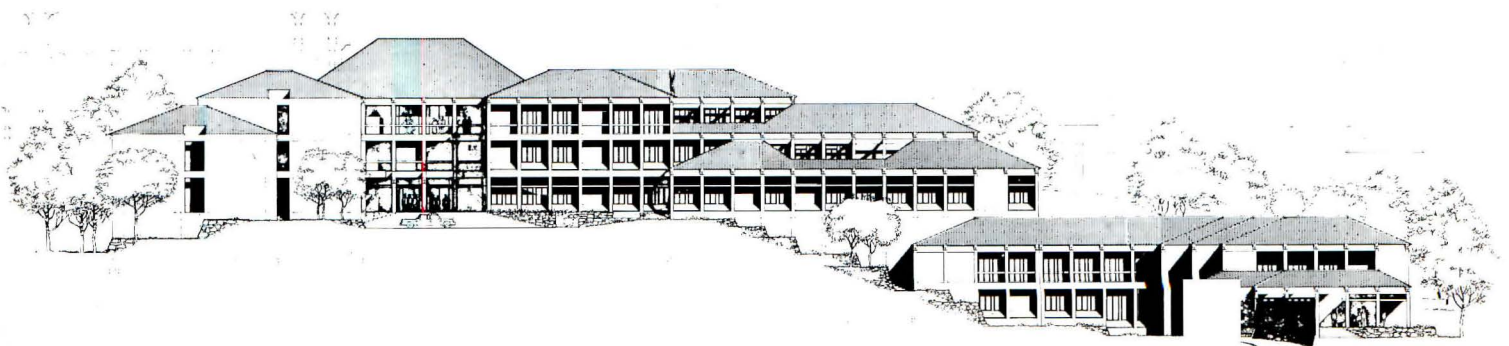
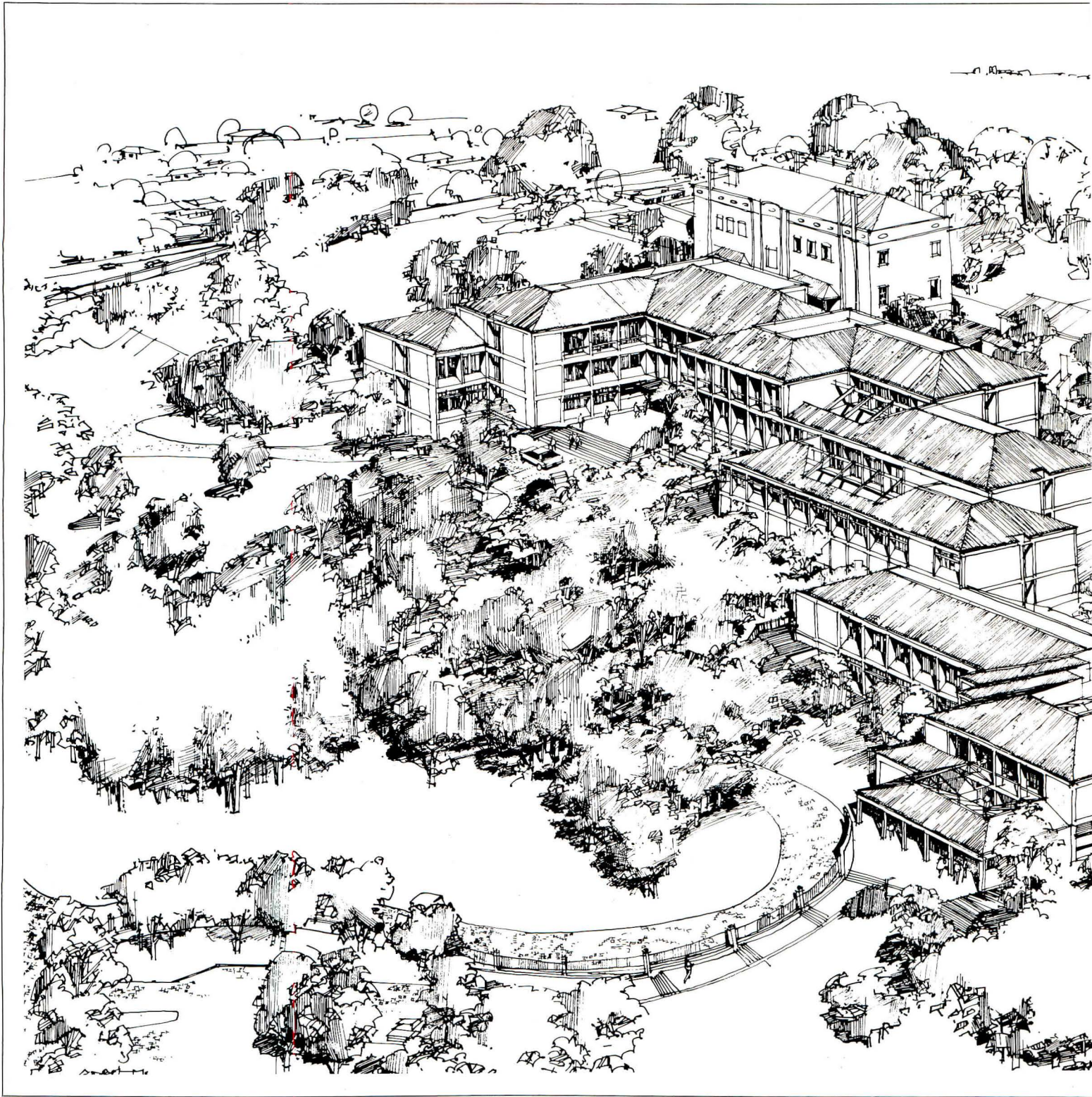


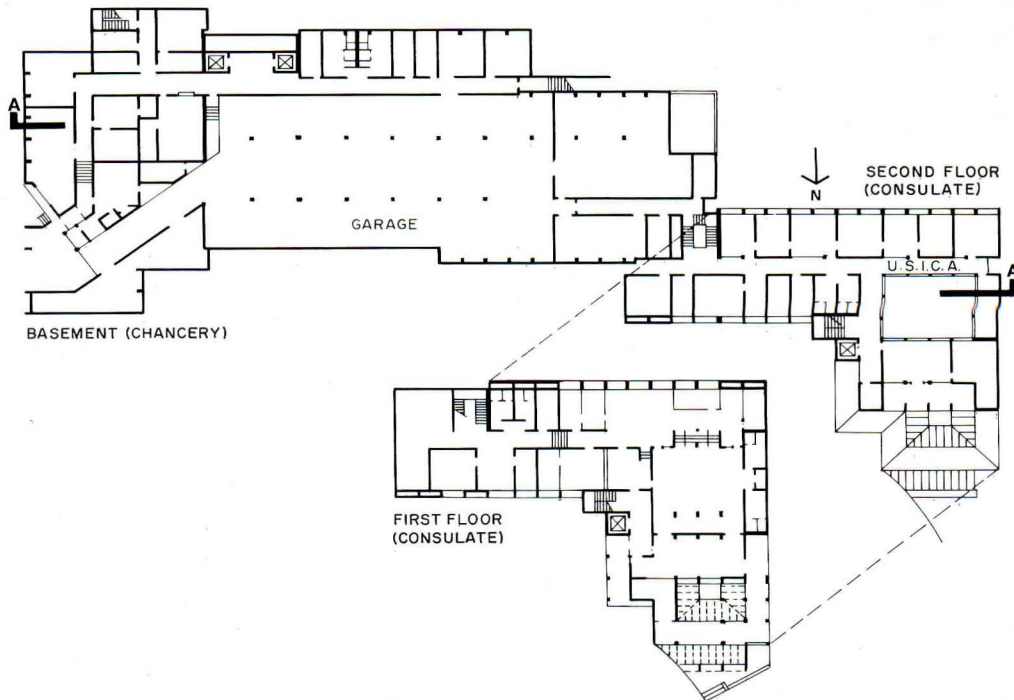
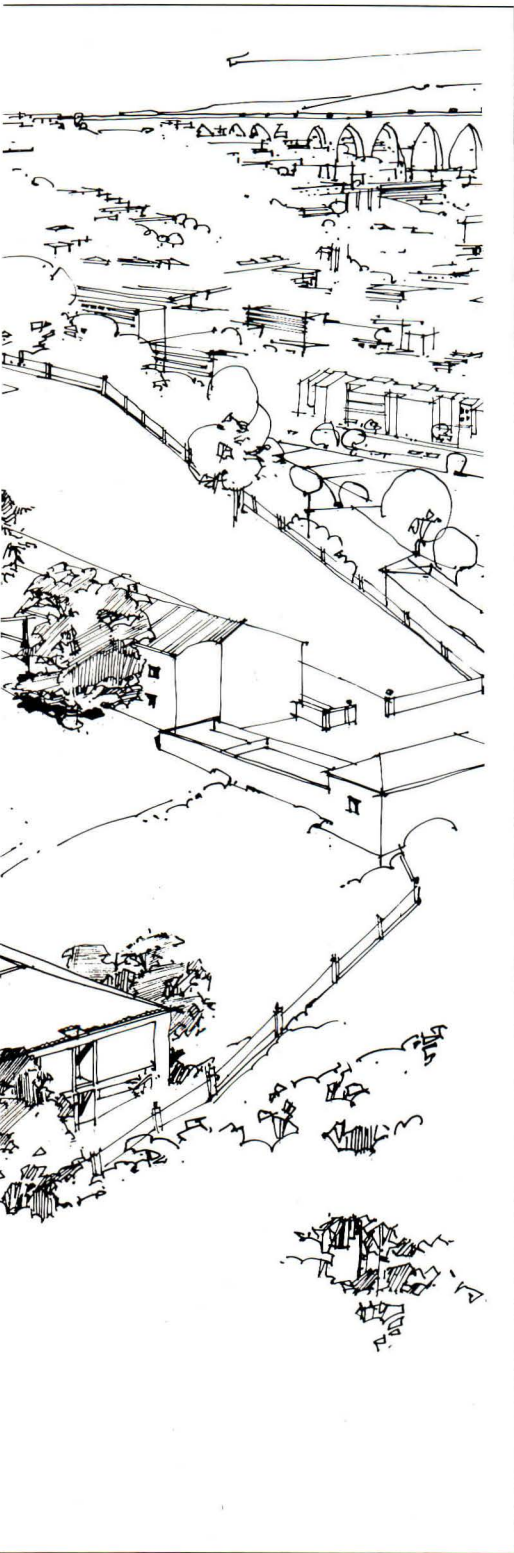
SECOND FLOOR



FIRST FLOOR





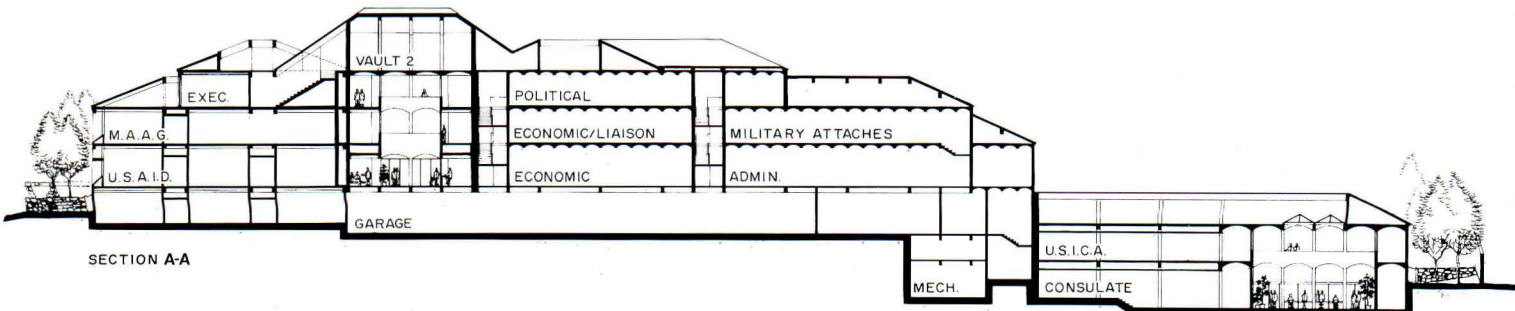
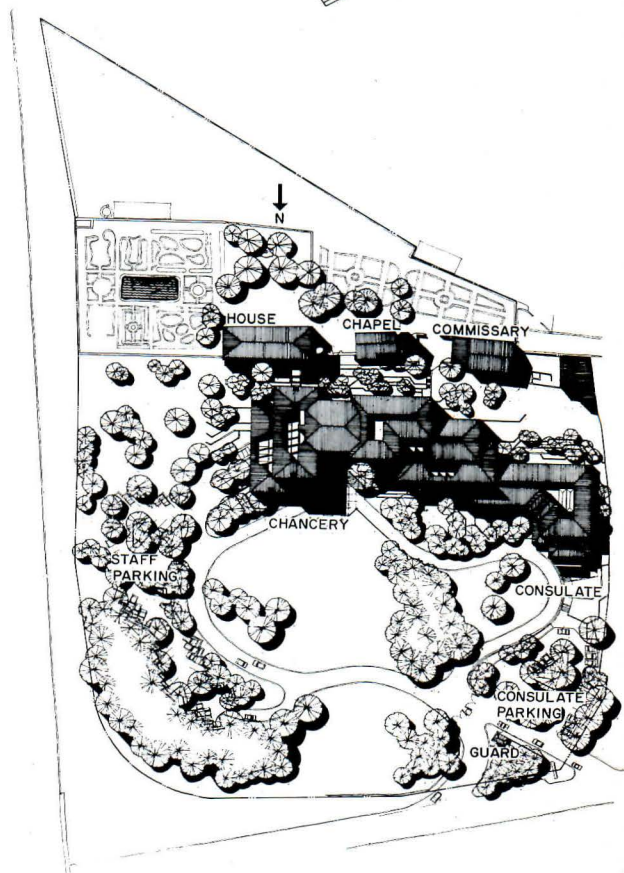


**U.S. Embassy
Lisbon, Portugal**

**Architects:
Bassetti Norton Metler Rothschild**

The site is a 12-acre former estate and monastery that includes a manor house, chapel, stables, formal gardens and assorted outbuildings—all sharing the crest of a hill and overlooking the city of Lisbon to the south. The architects faced a web of difficult site and adjacency problems, the most vexing being the question of how to insert a contemporary office structure in the midst of fragile old residential buildings that already made a handsome grouping. The solution was to build the new structure on the north flank of the hillside and to press the low-rise structure into the hillside's falling contours. In this manner, the hill itself acts as a visual buffer. The new structure will be executed in exposed concrete frame, wood and marble infill, tile and plaster interiors, clay tile roofs, and concrete barrel vault ceilings. The old structures are being carefully remodeled or restored.

FBO Project Manager: Charles Hellmann

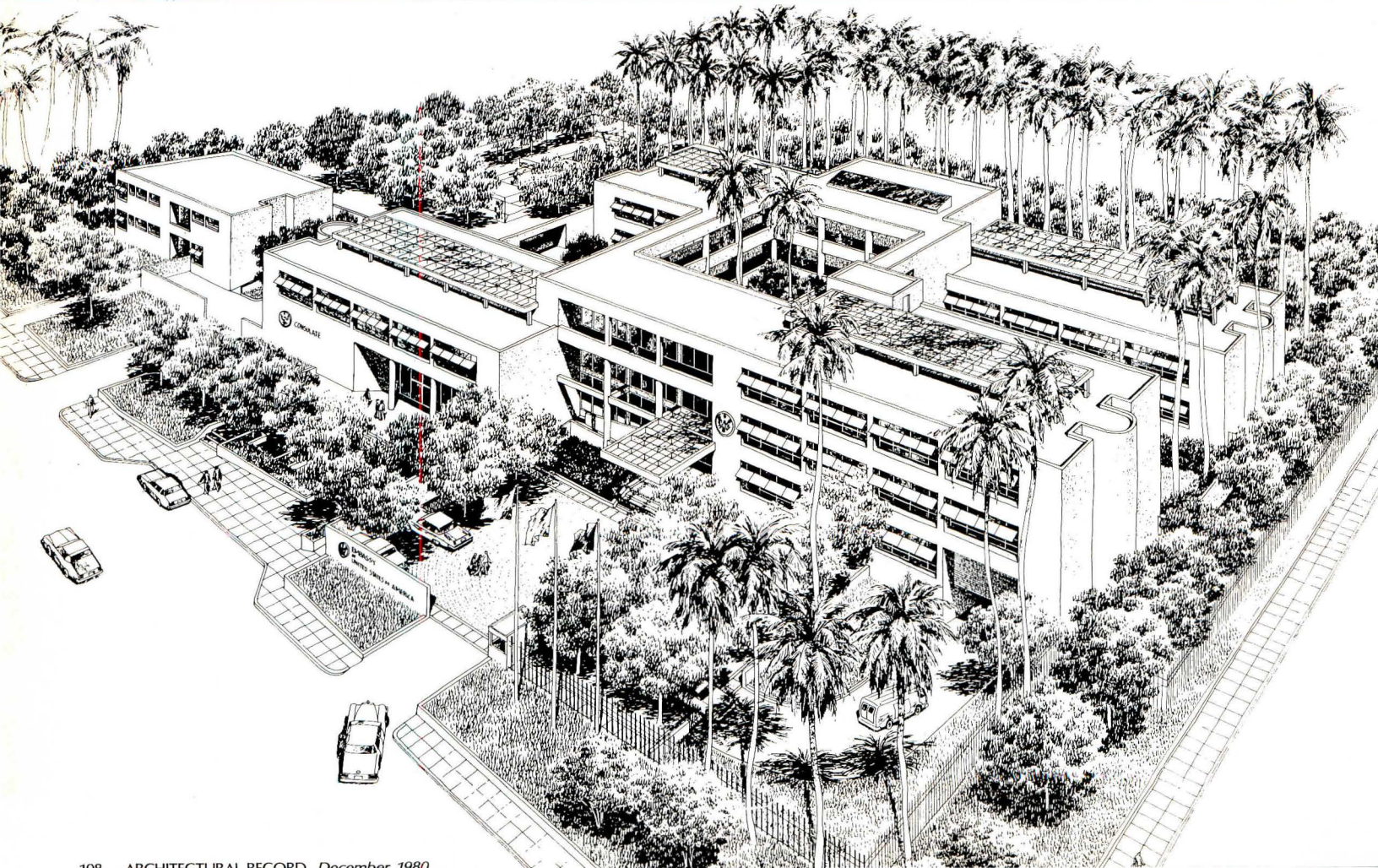
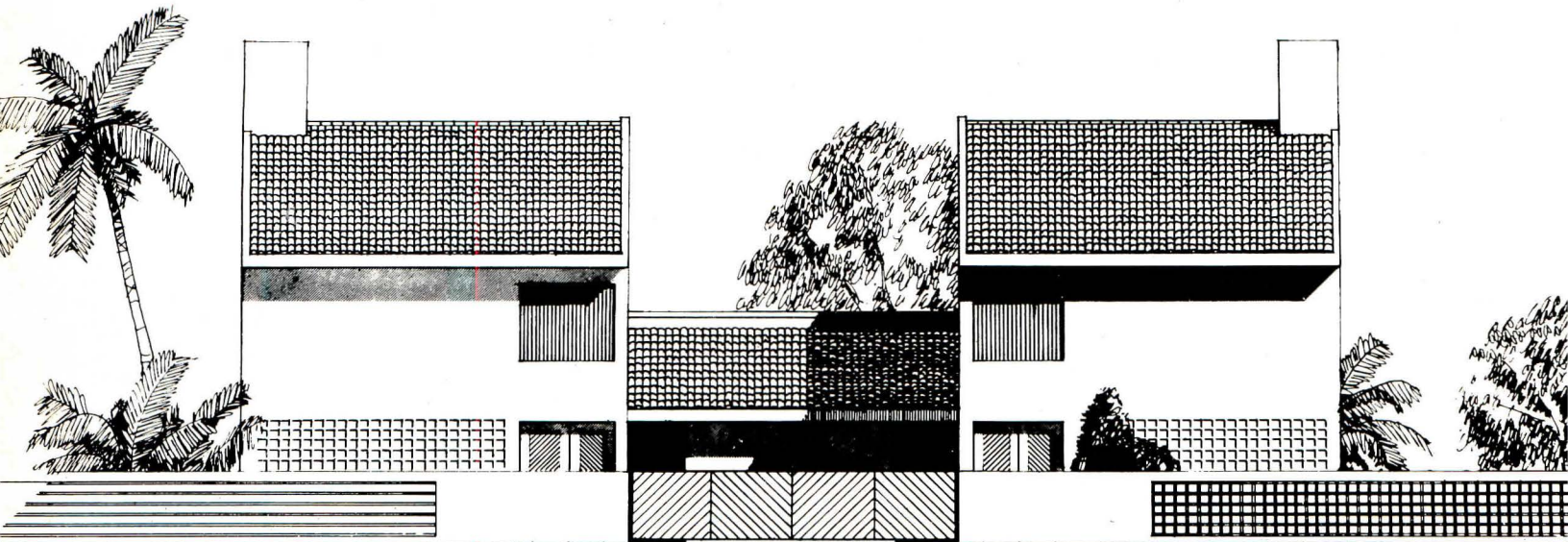


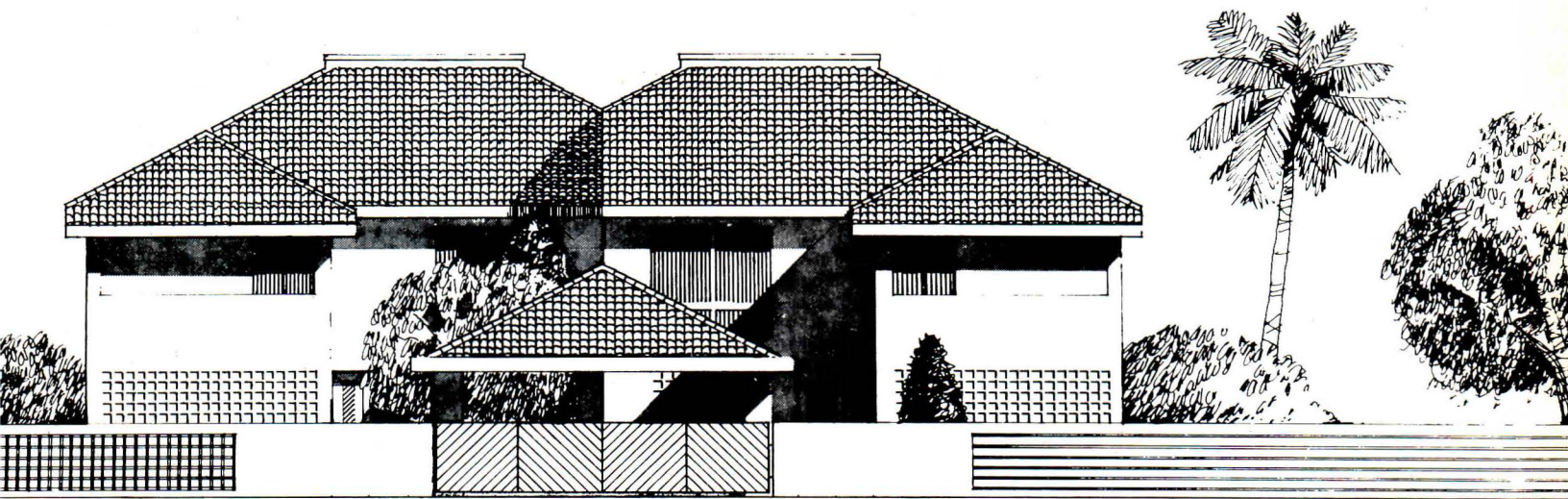
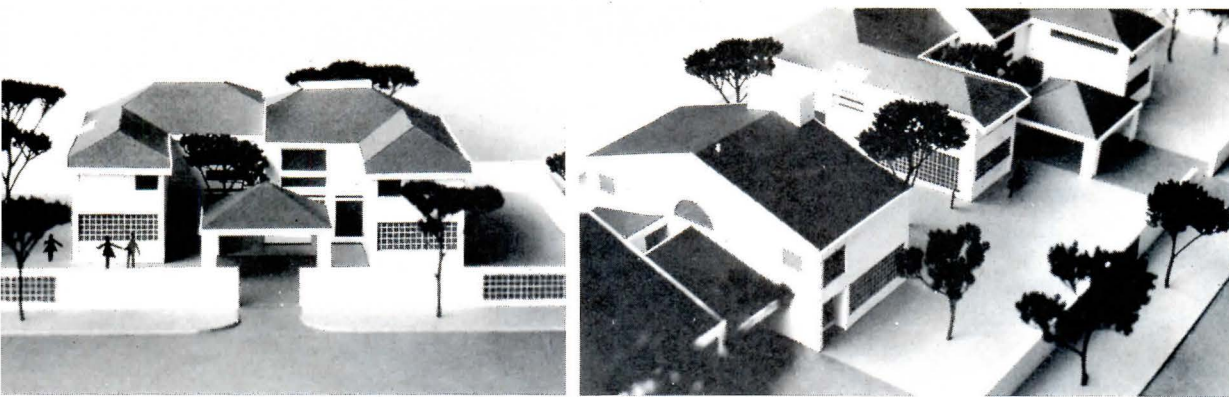
**U.S. Embassy Staff Housing
Jakarta, Indonesia**
Architects: Wilkes & Faulkner
Associates

Fourteen semi-detached houses and a recreation building were required for embassy personnel in Jakarta. Eight of the houses are four-bedroom designs, the remaining six are three-bedroom. Together they make a small but lively-looking compound, comfortable by any standard, but

built using local materials—sand finished stucco walls, teakwood grilles, and concrete roof tiles in a deep blue. All houses will have screened porches and separate cooling and ventilating systems to conserve energy. Domestic hot water will be heated by roof-mounted collectors. In keeping with local custom, a five-foot-high masonry wall surrounds the complex.

FBO Project Manager: Owen Henden





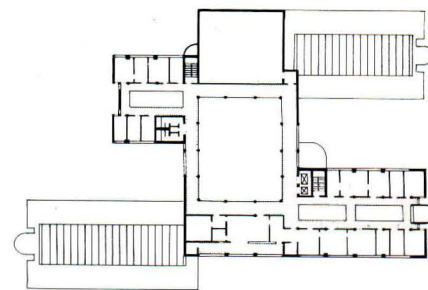
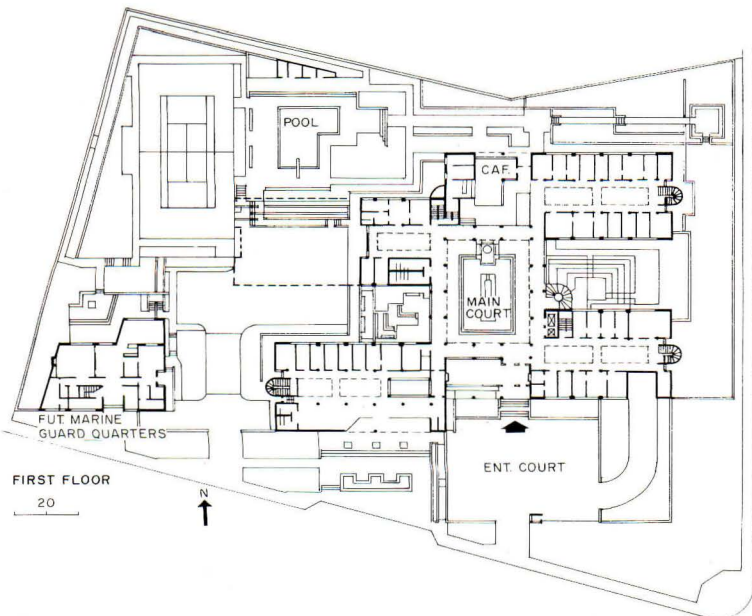
**U.S. Embassy Office Building
San José, Costa Rica**

Architects: Marquis Associates

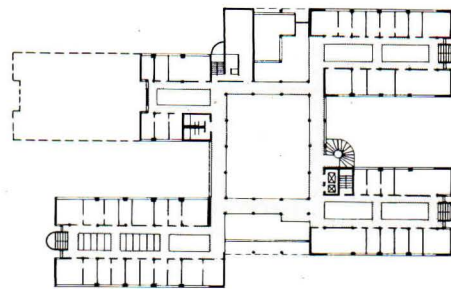
Lying between Nicaragua and Panama and flanked by the Pacific Ocean to the west and the Caribbean Sea to the east, Costa Rica enjoys one of the most benign climates to be found anywhere. San José, the capital, lies on an upland plain at an altitude of 3800 feet. With no very strong indigenous architecture to serve as model, Marquis Associates designed a calm

and unselfconscious low-rise office structure that rests comfortably on a small but densely-landscaped site. The design is organized around a central courtyard and each wing has an open galleria (instead of double-loaded corridors) so that nearly all offices will have cross-ventilation. No air conditioning is anticipated, and current calculations indicate an energy usage of about 6700 Btus psf per year.

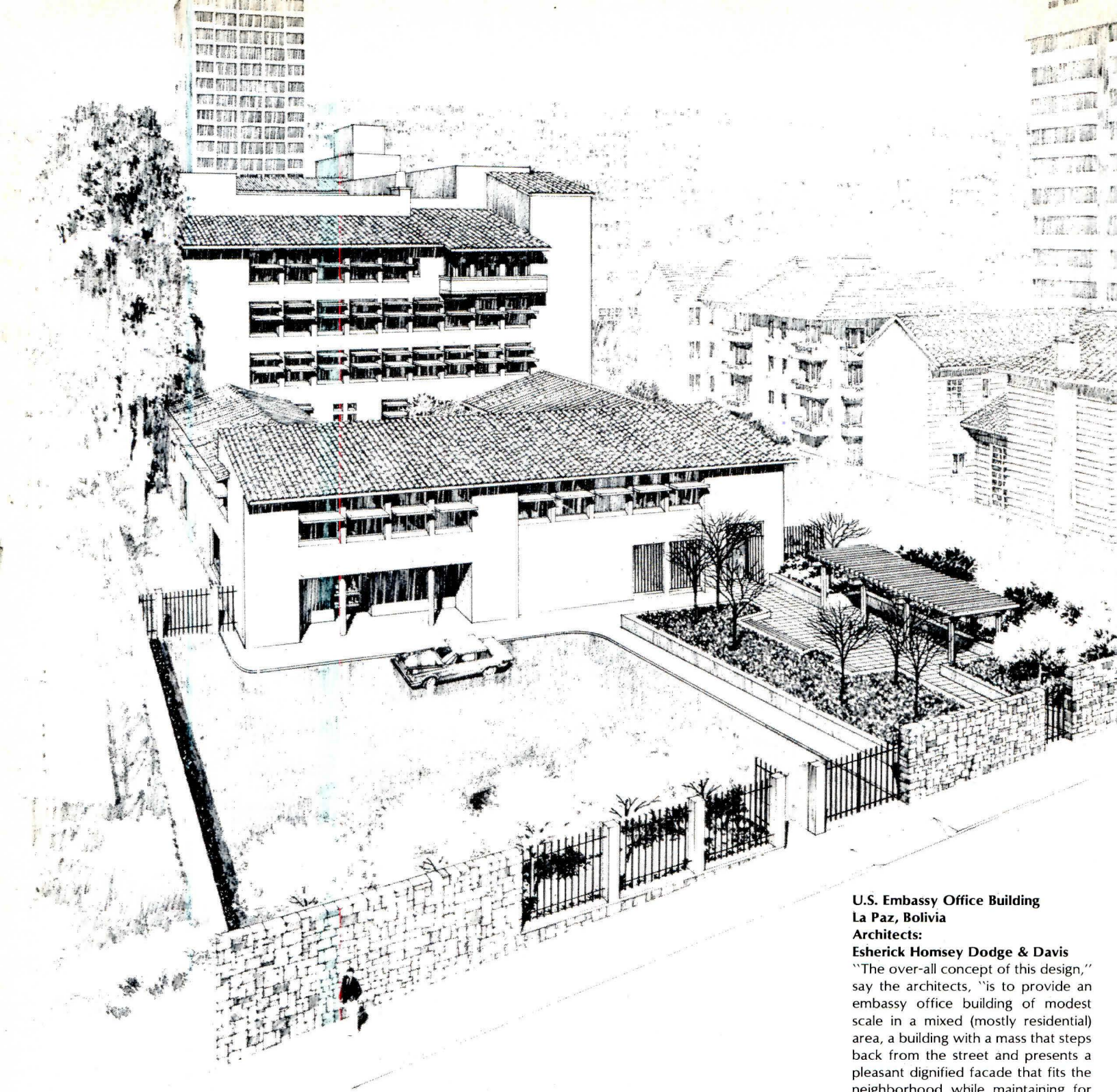
FBO Project Manager: Fiori DiPaolo



THIRD FLOOR



SECOND FLOOR

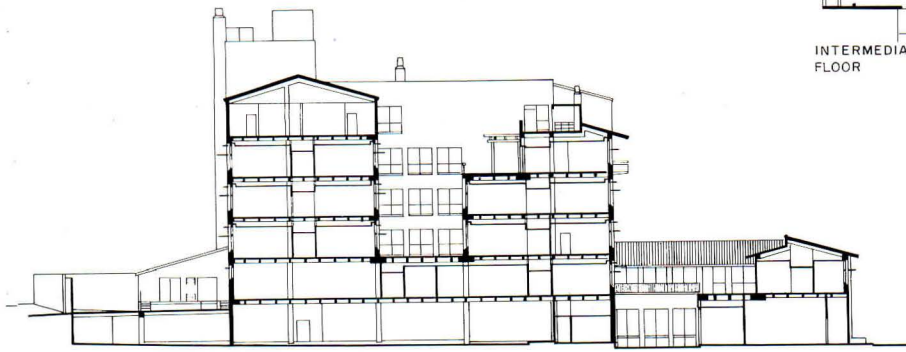


**U.S. Embassy Office Building
La Paz, Bolivia**

**Architects:
Esherick Homsey Dodge & Davis**

"The over-all concept of this design," say the architects, "is to provide an embassy office building of modest scale in a mixed (mostly residential) area, a building with a mass that steps back from the street and presents a pleasant dignified facade that fits the neighborhood while maintaining for the users a high level of environmental quality and security." These are exactly the things this handsome design promises to do. The building's structure will be concrete columns and slabs and stucco will be the exterior finish. Two interior courts will provide amenities in the form of landscaped spaces with a variety of uses. "You get off the plane here at an altitude of 14,000 feet," says Joe Esherick, "but you know you are in the tropics because the sun goes right over the zenith." These and other contradictions are beautifully reconciled in the project's massing, sunshading, coloring, and mechanical systems.

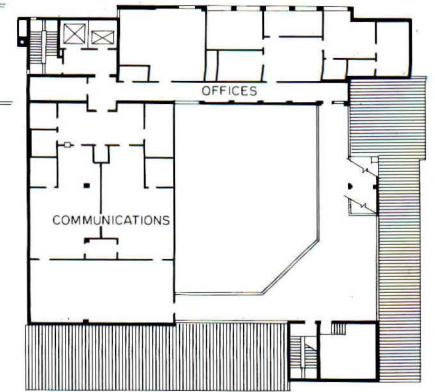
FBO Project Manager: Fiori DiPaolo



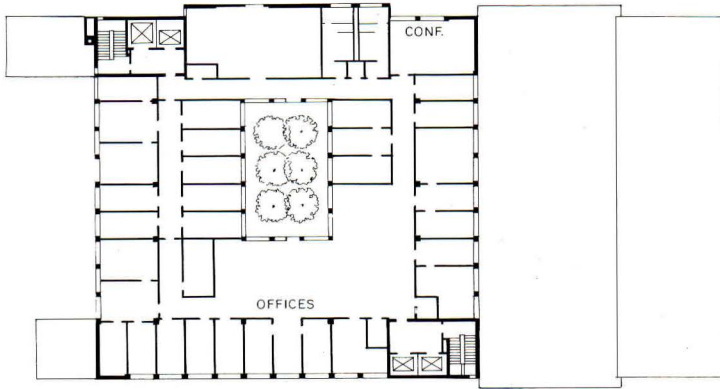
ROOF



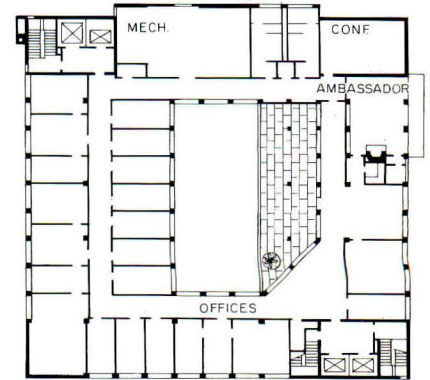
INTERMEDIATE FLOOR



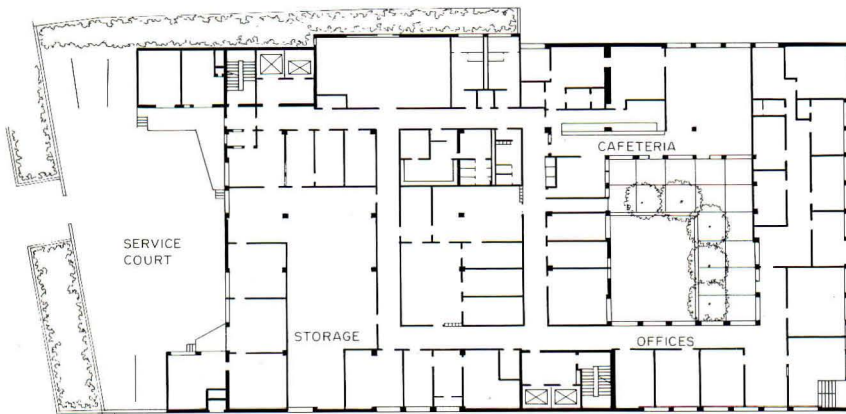
SIXTH FLOOR



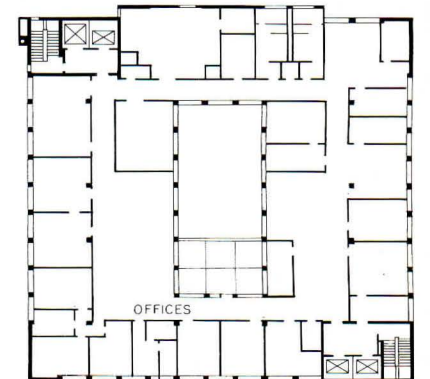
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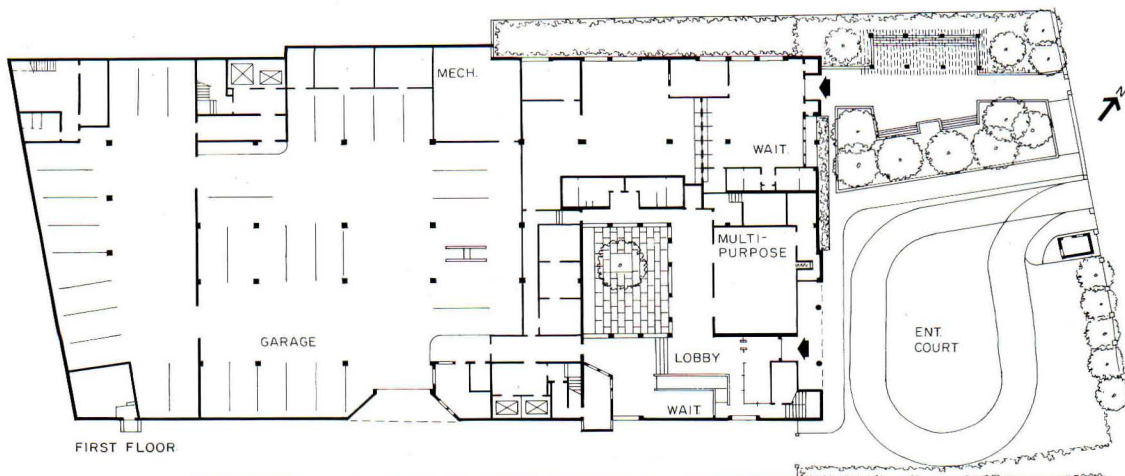
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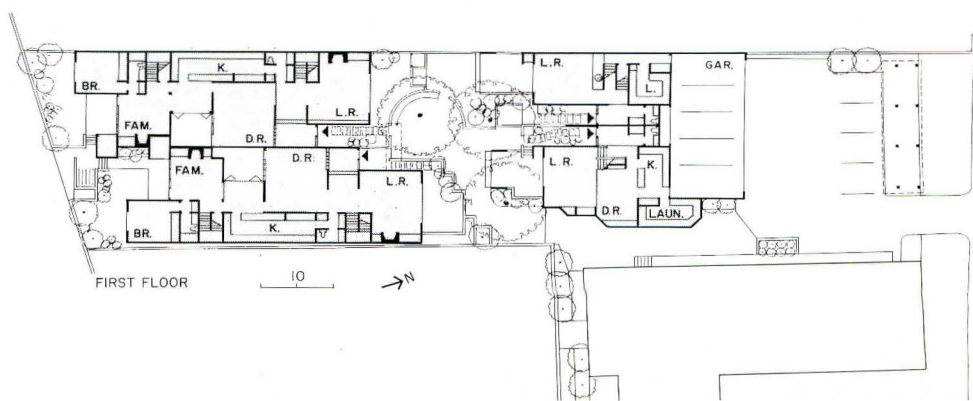
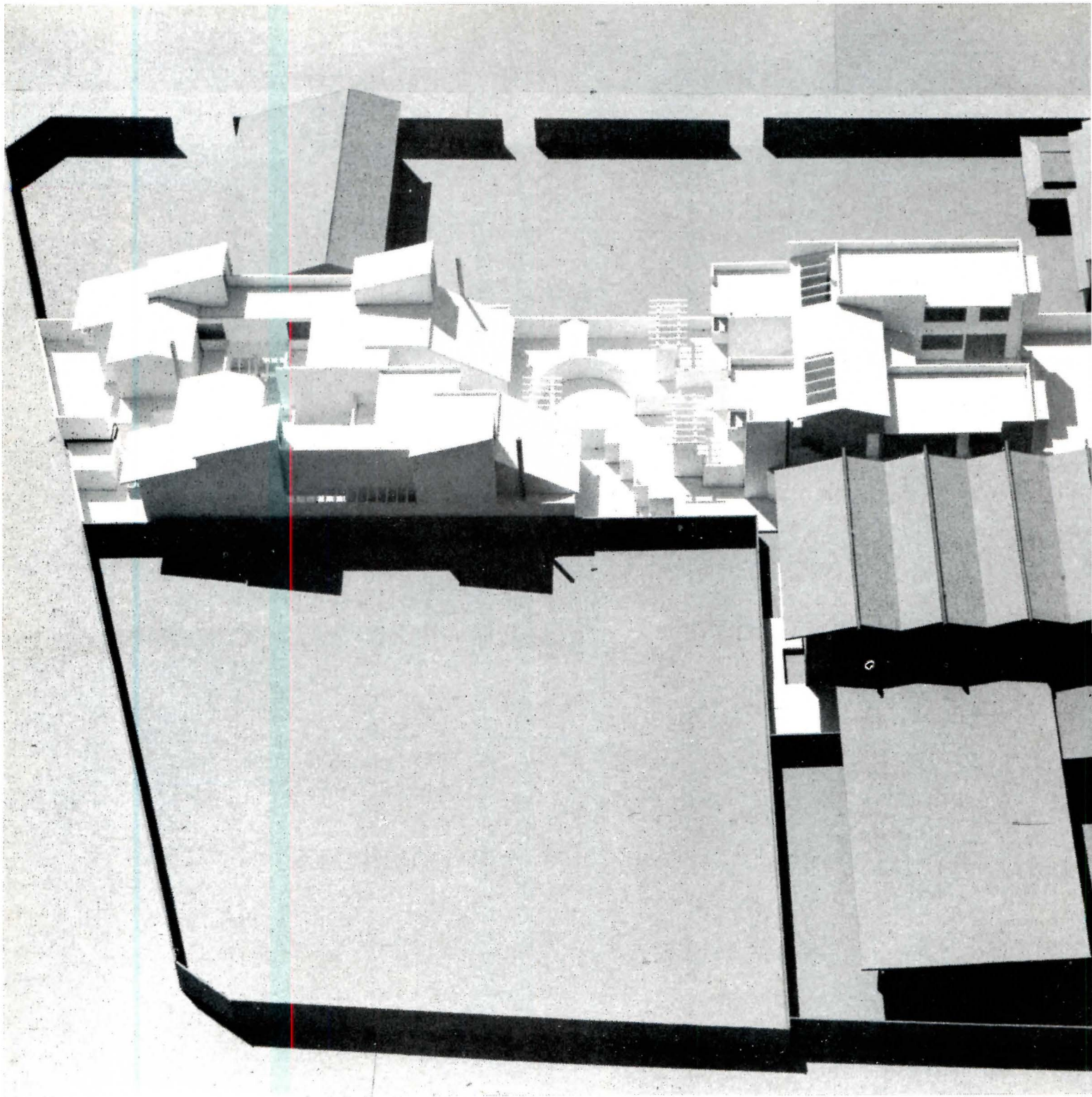
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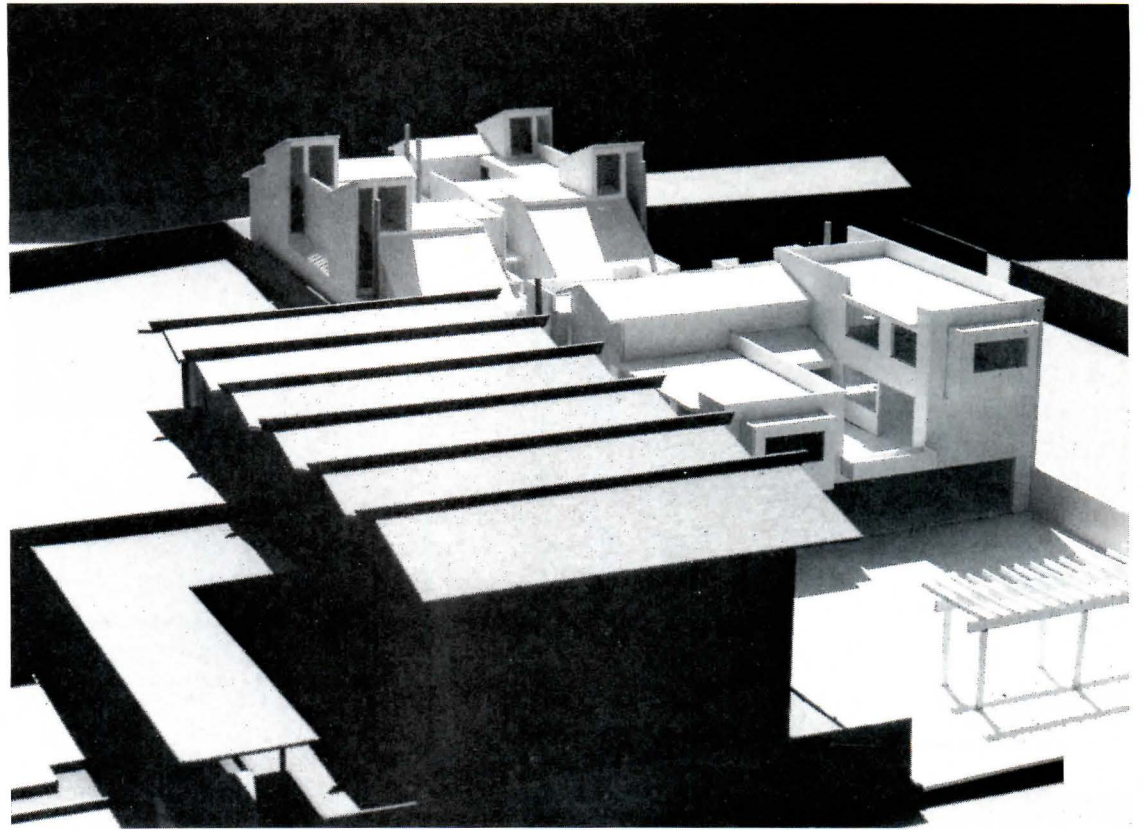
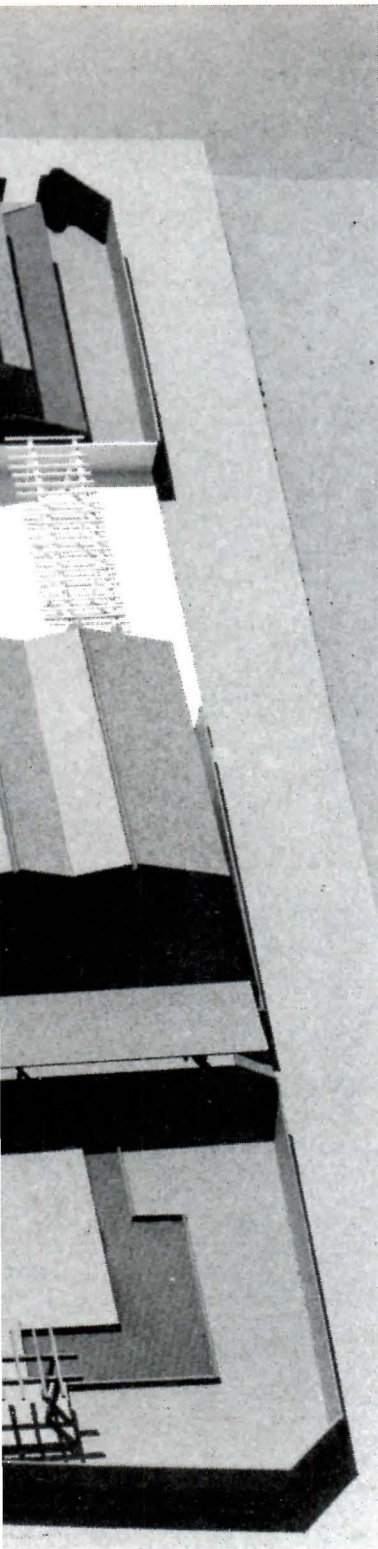


FOURTH FLOOR



FIRST FLOOR



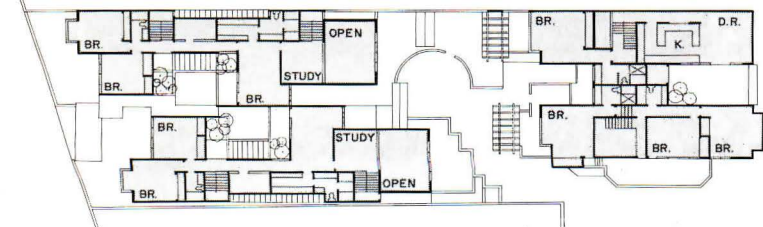
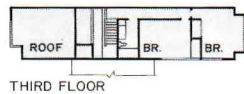
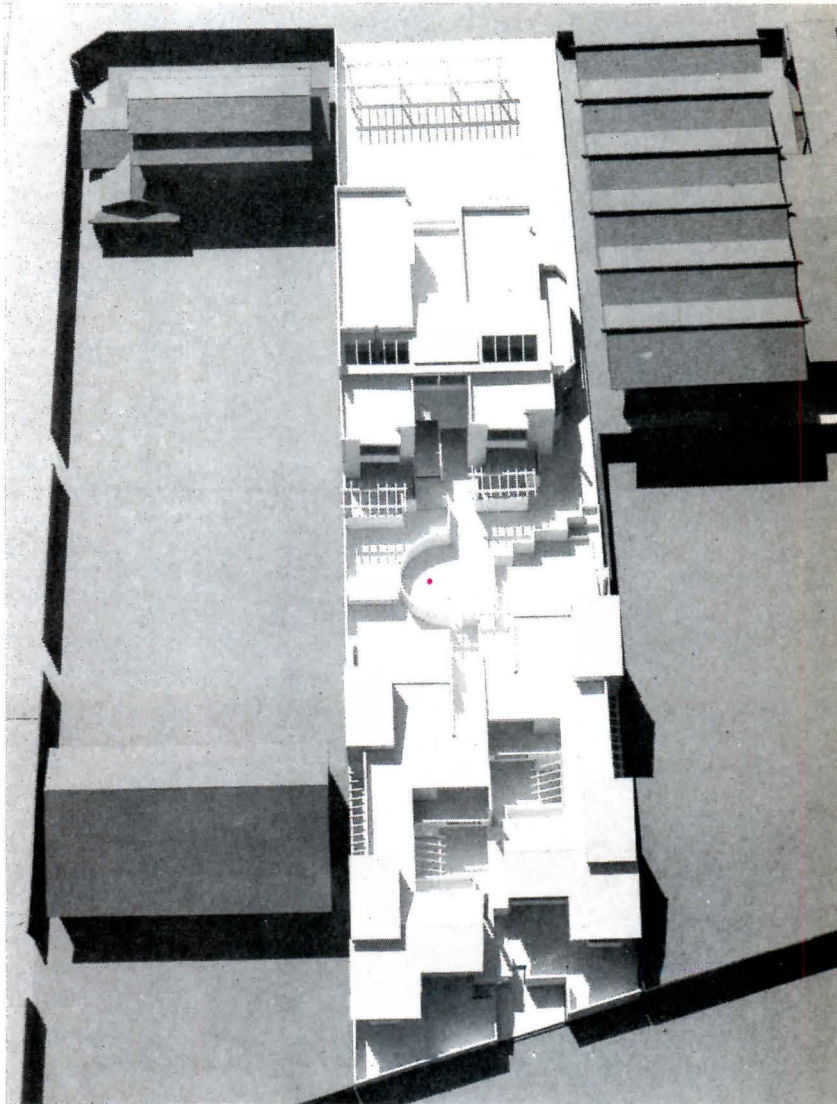


**Consulate Housing
Fukuoka, Japan**

**Architects:
Unthank Seder Poticha**

Four housing units—two small, two large—have been designed for a very tight site adjacent to the U.S. Consulate in this historic Kyushu City. Fukuoka, the architects point out, is a quieter, less cosmopolitan city than many, so the quality of life in this small compound is especially important to those who will inhabit these units. Emphasis was therefore placed on giving the design an articulated character (instead of the small apartment block look that FBO first proposed) and providing each unit with a choice of personal private spaces. And when work and home are literally only a few steps apart, attention to design enrichment in any and all forms is especially important. Within the sharp restrictions of site and program, the architects have created an especially lively and appealing design.

FBO Project Manager: Ichiro Mori





TERRAZZO / Unusual applications of terrazzo on floors and walls, indoors and out, are illustrated in a color brochure. Installations shown include office buildings in New York City, Indianapolis, and Chicago.

■ The National Terrazzo and Mosaic Assn., Inc., Des Plaines, Ill.

circle 400 on inquiry card



HOSPITAL FURNISHINGS / The extra measure of protection provided by hospital mattresses constructed using *Vonar* interliner is demonstrated in a brochure covering comparative burn tests at the Factory Mutual Research Center. The new mattresses are said to offer significantly greater resistance to ignition, plus lower burning rate and lower smoke and toxic gas emission.

■ Hospitex Div., American Hospital Corp., Decatur, Ga.

circle 401 on inquiry card



DRAWING PAPERS / Brochure on "Super Sepias" includes samples of all Post sepi intermediate papers, made for every drafting requirement.

■ Teledyne Post, Chicago.

circle 402 on inquiry card



STAINLESS STEEL / A 22-page booklet on stainless steel sheet, strip and plate includes technical data on comparative properties of various stainless grades, relative corrosion resistance for different chemical media, size ranges and typical applications.

■ Jones & Laughlin Steel Corp., Pittsburgh

circle 403 on inquiry card



EMERGENCY LIGHTING / An eight-page condensed catalog describes a full line of emergency lighting and power systems and products, including AC central inverters, miniature fluorescent fixtures, architectural and heavy-duty exit signs, fluorescent and incandescent emergency lighting units and remote fixtures.

■ Siltron Illumination, Inc., Gardena, Calif.

circle 404 on inquiry card



WIRE PRODUCTS / A pocket-size product directory covers the full *Keystone* line, including steel, wire, and fabricated wires for agriculture, construction and industrial applications; hardware, locks, and trim for OEM and consumer uses; specialty fasteners; high carbon wire rope; and building and construction products.

■ Keystone Consolidated Industries, Inc., Peoria, Ill.

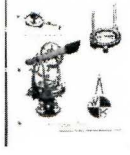
circle 405 on inquiry card



DRAFTING INSTRUMENTS / Tools and accessories for the professional draftsman, commercial artist and student are shown in a color catalog. *Speedmaster* "quick bow" compasses and drawing sets are featured.

■ Dietzgen Corp., Des Plaines, Ill.

circle 406 on inquiry card



SURVEYING INSTRUMENTS / Pages of products for builders, architects and engineers are included in a surveying and drafting supply catalog. Instruments such as EDM's, theodolites and levels are featured, as well as drawing supplies, tables, rules, templates, etc.

■ Warren-Knight Co., Philadelphia.

circle 407 on inquiry card



LIGHTING FIXTURES / The 1980 Koch + Lowy catalog contains 112 pages of lamps and lighting fixtures for residential and commercial applications.

■ Koch + Lowy, Inc., Long Island City, N.Y.

circle 408 on inquiry card



MOBILE STORAGE FILES / A manufacturer's return-on-investment study presents methods to solve rental, construction and energy cost problems with high-density mobile storage and filing systems. The brochure illustrates how *Spacesaver* manual and electric mobile systems have been used in banks, hospitals, offices, insurance firms, libraries, museums and government agencies.

■ Space-saver Corp., Ft. Atkinson, Wis.

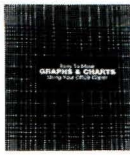
circle 409 on inquiry card



ARCHITECTURAL BRICK / A color brochure illustrates various in-place applications of *Pacific Clay* architectural brick products in a range of rich, natural earth tones. Brick lines shown include Continental, Norman, Padre, Industrial, and Old Forge Pavers and Face Brick.

■ Huntington/Pacific Ceramics, Inc., Santa Fe Springs, Calif.

circle 410 on inquiry card



BUSINESS FORMS / Brochure describes the 94-page book, "Make your own Graph and Chart Paper Using Your Office Copier." The different graph and chart designs may be set up for individual requirements, and reproduced economically on office equipment.

■ Caddylak Systems, Inc., Westbury, N.Y.

circle 411 on inquiry card



FABRIC-SURFACE CEILINGS / A color brochure on *Soft Look* architectural ceilings illustrates each of the six natural and six accent colors available in this fabric-covered perforated ceiling tile line. *Soft Look* ceilings absorb 65 per cent of the sound that strikes their surfaces, for an effective acoustical performance.

■ Armstrong World Industries, Lancaster, Pa.

circle 412 on inquiry card



DOCK LIFTS / A data sheet introduces the *Combo Dok II*, which incorporates a dock lift and dock ramp into one piece of equipment. The *Combo Dok* has a six-by-eight-ft platform, 600 lb capacity, can be installed at any dock and complies with all applicable OSHA requirements.

■ Advance Lifts, Inc., St. Charles, Ill.

circle 413 on inquiry card



PORCELAIN ENAMEL / Durable porcelain-on-steel panels for interior and exterior use are described in a 12-page color brochure. The long lasting benefits of porcelain enamel are explained, and a chart facilitates product selection. U and R factors for all products are given.

■ AllianceWall Corp., Atlanta.

circle 414 on inquiry card



REPLACEMENT WINDOWS / An eight-page full-color brochure explains this manufacturer's "FastFit" window replacement system. Interlocking trip parts that can cover and complete virtually any opening demonstrate that there is no need to rebuild window frames, saving up to a third of the normal installation time.

■ Caradco Corporation, Rantoul, Ill.

circle 415 on inquiry card



CEILING CATALOG / Two new ceiling products brochures are available from this manufacturer, each giving concise descriptions and typical applications for two of the manufacturer's most popular lines—Rock Face ceiling panels/tile and Metal Face ceiling panels. Summary charts are also included that aid the reader in locating important product specifications, such as fire and thermal resistance ratings.

■ Conwed Corporation, St. Paul, Minn.

circle 416 on inquiry card

For more information, circle item numbers on Reader Service Inquiry Card, pages 165-166

Innovative sound barrier material used in new Atlanta airport

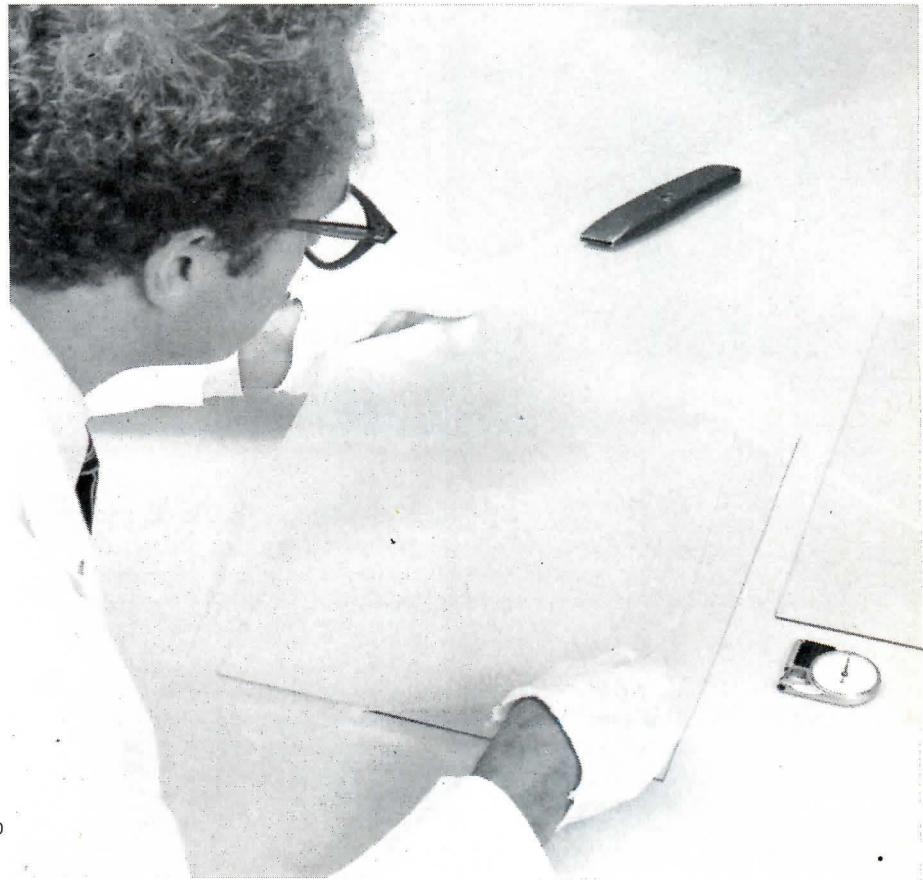
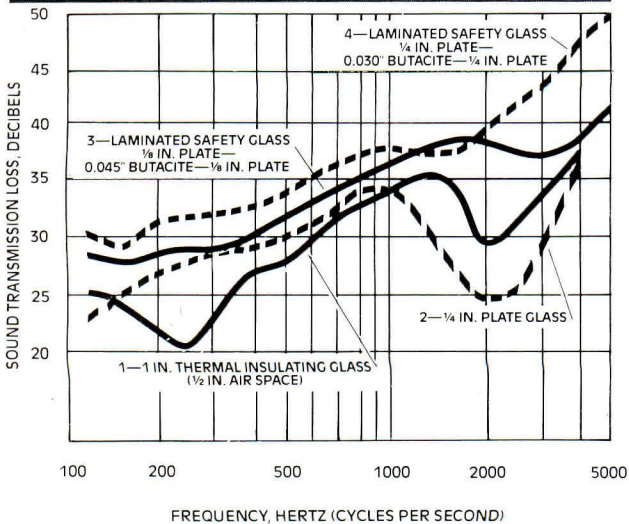
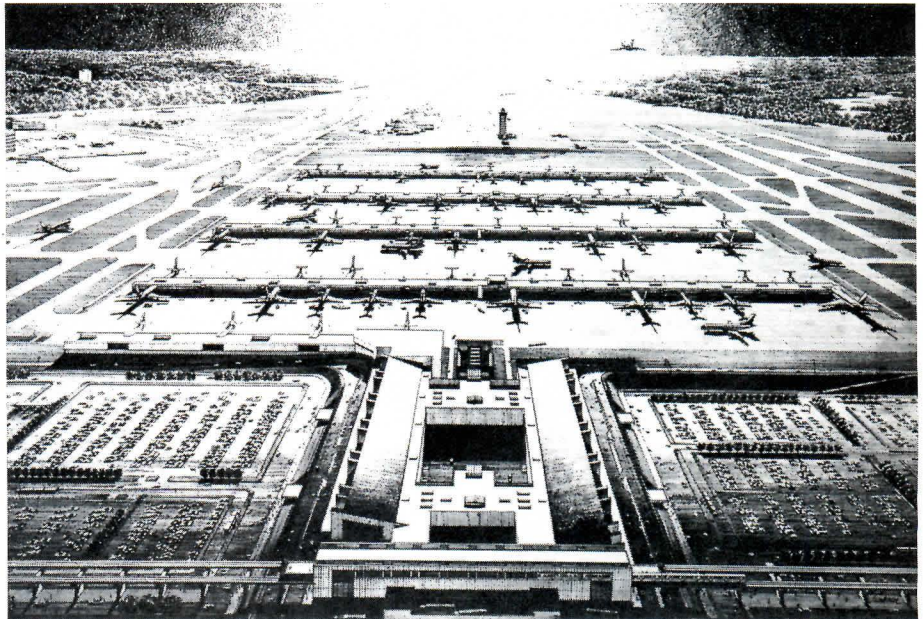
In the wake of noise pollution outcries and government regulations, particularly for large projects like airports, a variety of sound control methods have been developed. One such practical product is called *Butacite*, a polyvinyl butyral resin sheeting used as an interlayer in glazed panels, doors and windows. Its viscoelastic properties provide a dampening effect on the transmission of sound energy. All concourse windows at the new Hartsfield International Airport in Atlanta have been specified with *Butacite*.

Hartsfield Airport has been the air transportation hub of the South, second only to Chicago's O'Hare International Airport in passengers served annually. With needed new construction finished, the airport now has the world's largest passenger terminal, designed by Stevens & Wilkin-

son, Smith, Hinchman & Grylls, and Minority Airport Architects and Planners.

On a total land area of 378 acres, the complex is designed with four parallel linear concourse buildings that connect to the main terminal by underground moving walkways and subway cars. A generous apron area of 1,000 feet between the buildings provides room for two wide-body planes to taxi, side-by-side, between two parked wide-bodies. Windows that line each of the 2,000-foot-long concourses are made of 0.5-in.-thick laminated safety glass to resist cracking under heat from the jet blasts, with *Butacite* for sound deadening, tinted to a medium-light brown color to reduce sun glare. ■ DuPont Co., Wilmington, Del.

circle 300 on inquiry card
more products on page 121



Columbia does | again!



P2 Parabolume...the low energy lighting for the 80's!

P2 Parabolume is the most practical innovation in parabolic fluorescent luminaires since Columbia Lighting introduced the original fifteen years ago. P2 Parabolume optimizes energy performance while maintaining the high visual comfort commensurate with good lighting practice. Specify P2 Parabolume...the most precise lighting device in today's recessed fluorescent market. Call your Columbia Agent or write us.

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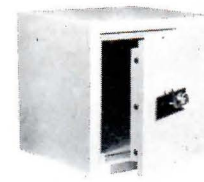
Circle 45 on inquiry card

SEISMIC RECORDER

/ A new version of the *Memory-Scout*, a tape recorder that records and plays back seismic signals, model MD-175 is a heavy-duty instrument, more compatible with use in unpredictable environments. It is mounted in a formed aluminum carrying case that is weather- and dust-resistant. A built-in automatic charger and a variety of charge cords make it easier to operate and recharge the battery-powered MD-175 under a variety of field and laboratory conditions. Recharging can proceed while the recorder is in use. ■ Soiltest, Inc., Evanston, Ill.

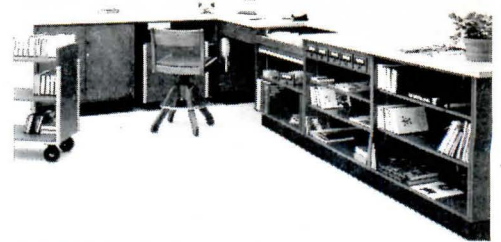
circle 301 on inquiry card

VAULT EQUIPMENT



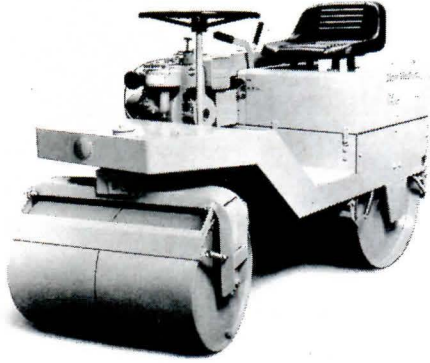
/ Part of a full line of teller undercounter equipment, this safe is rated TL-15 burglar-resistant as well as fire-resistant by UL. The pedestal unit is available as an individual undercounter element or in combination with drawers, depending on capacities required and the bank's operational needs. Equipped with a keylocking combination lock for dual control, the "TL-15" safe is designed to provide burglar resistive protection for cash when circumstances do not permit its placement within a larger safe or a vault. Options include a time delay feature or "Silent Signal" alarm. ■ Diebold, Inc., Canton, Ohio.

circle 305 on inquiry card



LIBRARY FURNITURE / The circulation desk unit pictured is part of the "Nordika Series" of library furniture. Products are offered for elementary and college libraries, as well as for the special needs of law, medical and research institutions. ■ The Worden Co., Holland, Mich.

*circle 306 on inquiry card
more products on page 123*



PAVING ROLLER

/ The one-ton *Econoroll* roller is said to be especially useful for patch work, small asphalt paving and landscape work. Starts and stops are smooth; hand-actuated operating controls and automotive-style steering makes site rolling easier and safer. A built-in release valve allows for moving the *Econoroll* without starting the engine. Standard features include a 20-gal. water sprinkler system, electric start, dual scrapers and cocoa mats. ■ Stow Mfg. Co., Binghamton, N.Y.

circle 302 on inquiry card

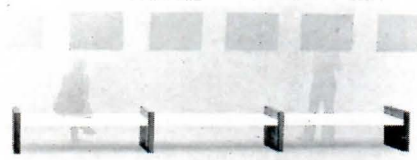
LIGHT TABLE



/ The 2049 *Matrix Viewer* is housed in a cabinet of solid oak, rosewood, teak or walnut hardwoods. Viewing surface measures 17½ by 47-in., lit by a 5000 degree K ANSI Standard source, with a color rendering index of over 91.

A smaller wood-framed table is also offered. Options include variable lighting and stand heights, and casters. Prices start at \$436. ■ Leedal Inc., Chicago.

circle 303 on inquiry card



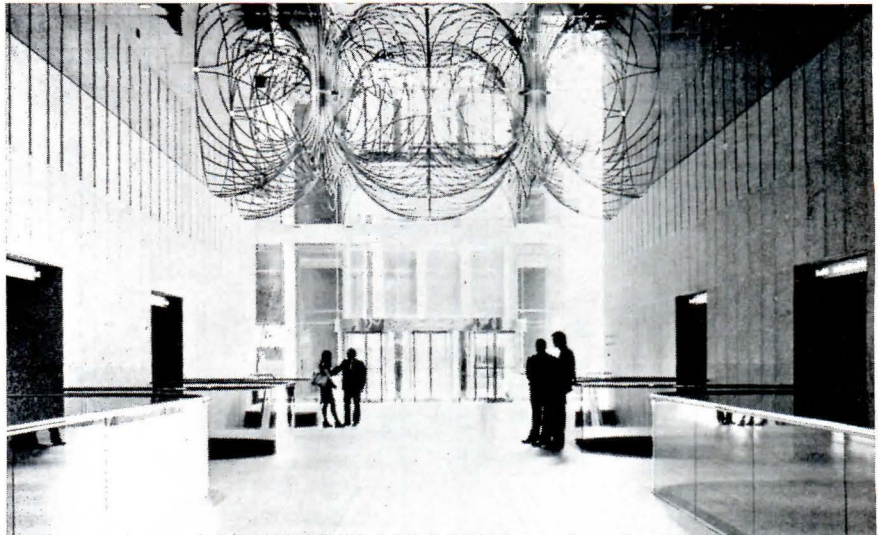
SITE FURNITURE

/ The *Inter-Join* bench system uses lacquer- or natural-finish wood components of seats, upright and horizontal connectors. These may be arranged in straight rows, multi-sided islands and star shapes, or placed alone. Natural-finish and color units may be combined, as shown. ■ Intrex Inc., New York City.

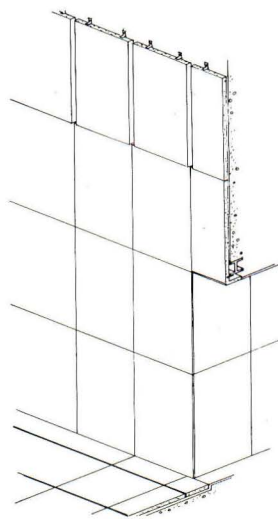
circle 304 on inquiry card

Granite.

The beauty touch that needs no touching up.



*First International Building, Dallas, Texas
Architect: Harwood K. Smith and H.O.K., Dallas, Texas
Photo courtesy Form & Function Magazine.*



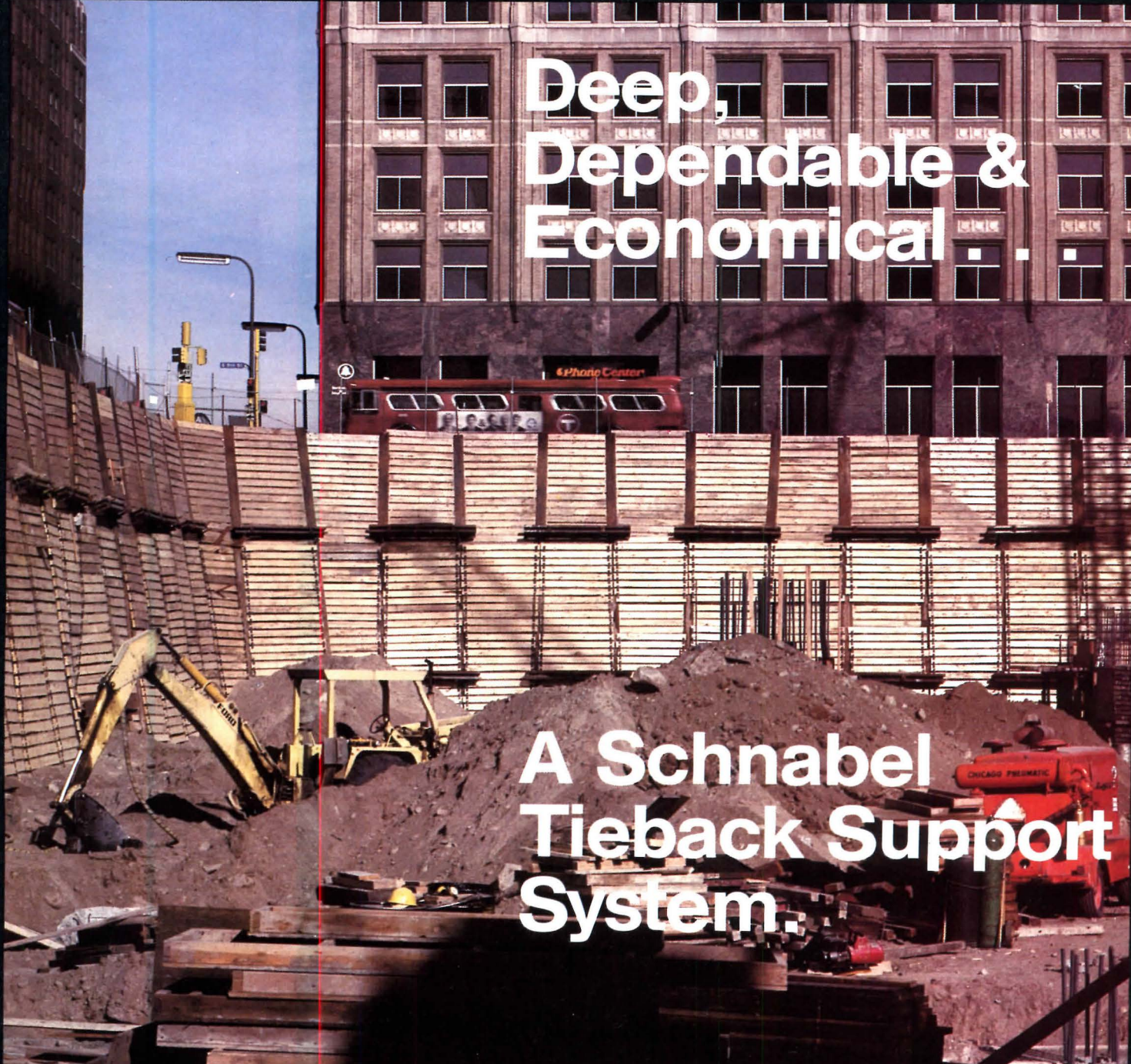
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Circle 46 on inquiry card



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**A Schnabel
Tieback Support
System.**

Pillsbury Building, Minneapolis
General Contractor:
Kraus-Anderson Construction Co.

Schnabel
FOUNDATION COMPANY

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A developer or architect should not limit the utilization of a site because it requires a deep and obstruction-free excavation. Freedom to design the most profitable structure can be obtained when the earth support system is designed and built by the Schnabel Foundation Company.

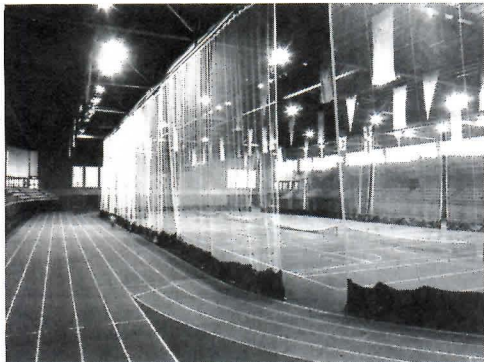
Determine the scope, feasibility, and economics of a tieback earth support system by discussing your project with one of our professional engineers. Call a Schnabel office. Twenty years of experience in underpinning, tiebacks, and excavation support systems can increase the value of your site.

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PHILADELPHIA (215) 277-2950, WASHINGTON, D.C. (301) 657-3060



ENLARGING PRINTER / A zoom lens optical system in the *Xerox 2080* printer permits reproduction of engineering drawings or other large documents in any image size, ranging from less than half of original size to nearly 50 per cent larger. The unit prints up to 24-in.-wide on regular bond paper vellum or translucent materials. Large drawings can be reduced for inclusion in proposals or manuals, and complete highly-detailed small drawings can be enlarged for easy and accurate revision. An added feature of the "2080" permits the creation of unfused prints, so that unwanted details can be wiped away before the final revision is fused. ■ Xerox Corp., Rochester, N.Y.

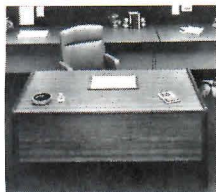
circle 307 on inquiry card



SPORTS SURFACE / Shown here installed in Montreal's Claude Robillard track and field house, *Mondo Rubber* resilient surfacing can withstand all kinds of traffic and equipment, from portable bleachers to cleats and spikes. It can be used indoors or out without fading or cracking; it will not harden or soften during temperature changes. Non-slippery even when wet, *Mondo Rubber* has been installed around swimming pools, in tennis facilities, around skating rinks and swings, etc. Sports surfacing material is available in seven thicknesses, four standard colors and two standard textures. ■ Robbins Inc., Cincinnati.

circle 308 on inquiry card

DESK SERIES / Made in a variety of sizes to meet the needs of the private office as well as open area applications, the *Trendway* desk line is constructed with laminate-surface tops, end panels and modesty panels in a choice of neutral,



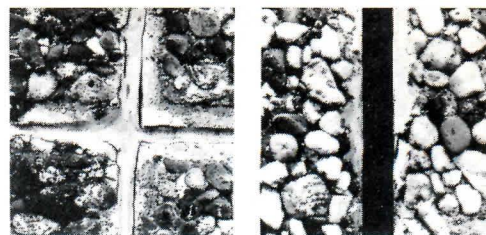
teak, light oak or brown. Neutral or dark brown, T-molded edges coordinate with the laminate selected. A number of drawer and desk side-return options accommodate various work function requirements. ■ Trendway Corp., Holland, Mich.

circle 309 on inquiry card



RETROFIT GLAZING / PPG's "Retrofit Glazing System" consists of adding a panel of high-performance *Solarban* reflective glass to each of a building's single-glazed windows, with a 1/2-in. air space between each panel. This double-glazing of the curtain wall is projected to reduce heat loss by about 50 per cent. ■ PPG Industries, Inc., Pittsburgh.

circle 310 on inquiry card



CONSTRUCTION SEALANT / *Will-Seal*, an expanding foam tape sealant, is said to offer improved elasticity to maintain weather-tight seals. The photo shows how the *Will-Sealed* joint provides greater resiliency, compared to conventional caulks that may crack and separate from joints. The tape comes precompressed with an adhesive backing that adheres tightly to glass, metals, etc. Sealed joints may be painted over. ■ Illbruck/usa, Minneapolis.

circle 311 on inquiry card
more products on page 125



QUME, INC., Hawley & Peterson Architects.

KALWALL®

The most highly insulated light transmitting material.
Saving energy for 25 years.

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The first place to look for the last word in garage doors...

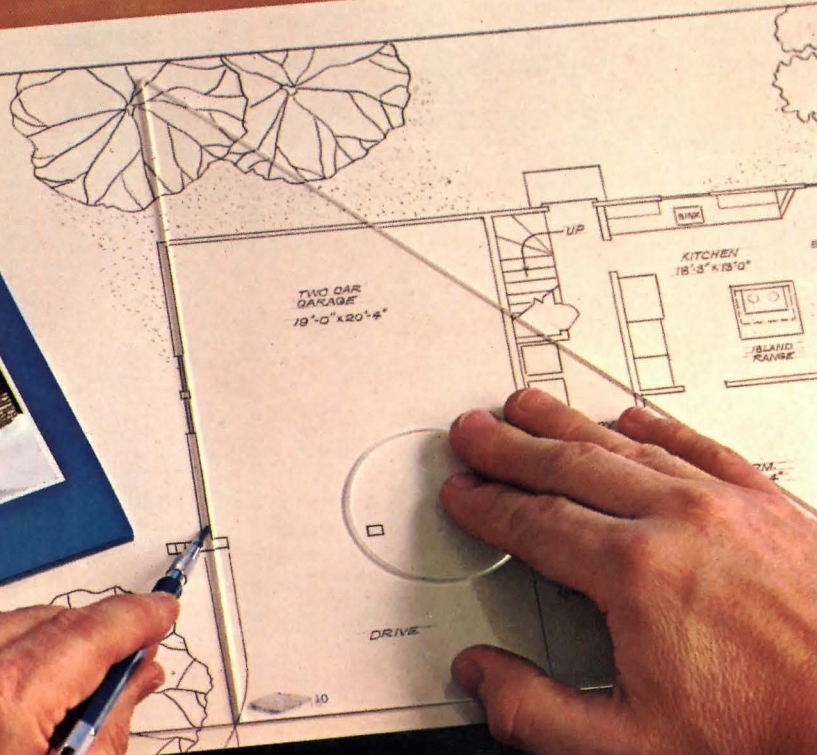
Raynor gives you choices only a full-line garage door manufacturer can offer. Over one hundred styles, types and sizes to fit any decor and most any special requirement. When you do select a Raynor door, there are certain things that don't require a choice. Like Quality... in design and construction. Raynor uses only the best material for springs, rollers, hinges, locks and other hardware. And the best grade lumber available. All put together by dedicated people... not machines. And

Service... like undamaged delivery by our own truck fleet. Plus professional installation by our factory-trained distributors located throughout the country. They pledge prompt follow-up service for parts and repairs if ever needed. In the end, the last word you get from us is—satisfaction! For a copy of our catalog write Raynor Manufacturing Company, Dixon, IL 61021. Or call a Raynor Distributor near you. You'll find his number in the Yellow Pages under "Doors".



RAYNOR™
GARAGE DOORS

Circle 49 on inquiry card





SNOW REMOVAL SYSTEM / Using low wattage to provide adequate, but not excessive heat, *Easy Heat* snow and ice melting systems are said to operate at less cost than most other removal methods. UL-listed *Easy Heat* installations consist of fully grounded heating cables in a preformed wire mat, buried below the surface of either concrete or asphalt at the time either is being laid. Optional accessories include an automatic snow/ice detector, a timer switch, and temperature controllers. ■ *Easy Heat-Wirekraft*, New Carlisle, Ind.

circle 312 on inquiry card

LOUNGE SEATING / The "Pentagonal Cluster" system is designed for a variety of multiple, heavy-use applications; seating arrangements may be set-up for any requirement from only three basic components. Upholstered pieces meet current standards for public area seating. ■ *The Worden Co.*, Holland, Mich.

circle 313 on inquiry card



WALLCOVERING / Newly introduced SEF wall-covering has been specified for use in every station of the underground transit system at Atlanta's new Midfield terminal. The wallcovering contains Monsanto Textile Company's modacrylic fiber, which is inherently flame retardant. ■ *Polaris Mills*, Atlanta.

circle 314 on inquiry card

NYLON CARPETING / A velour textured saxony plush, "Estrella" carpeting for commercial and residential applications is now constructed of *Anso IV* yarns, chemically altered to actually reject dirt and spills. Said to be particularly suitable for hotel guest rooms, "Estrella" comes in 23 colors, and has a suggested retail price of \$16.95 per sq. yd. ■ *Alexander Smith Carpet*, Amsterdam, N.Y.

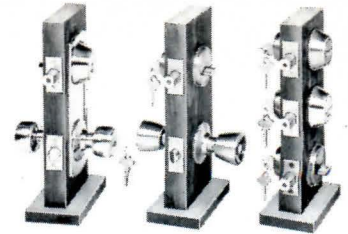
circle 315 on inquiry card

RETROFIT GLAZING SYSTEM / *Exolite* double-



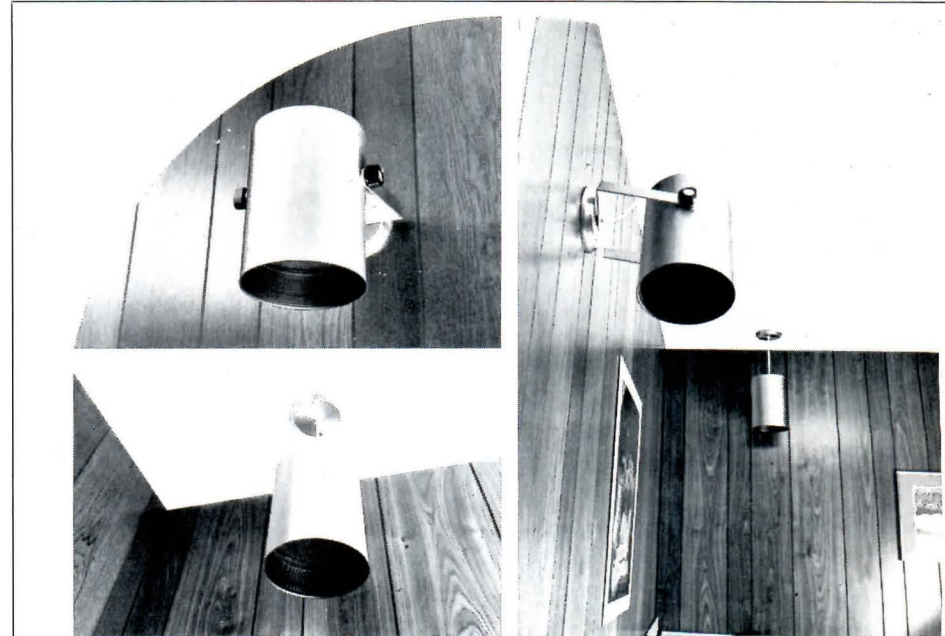
skinned acrylic and polycarbonate sheets have been used successfully in a number of industrial retrofit glazing applications. Originally designed for use as a primary glazing material for skylights, greenhouses, passive solar systems, pool enclosures, etc., *Exolite* panels can be mounted on either the exterior or interior of an existing window. The 5/8-in.-thick sheets are easily adaptable to a number of standard aluminum extrusion systems. A bronze version has a low shading coefficient, and can reduce heat gain during summer months. ■ *CY/RO Industries*, Bound Brook, N.J.

circle 316 on inquiry card



LOCKSETS / New products in this company's security lock line include single- and double-cylinder deadbolts, combination bolts, and key-in-knob locks with and without escutcheon plates. All locks are of heavy steel construction, with rustproof brass used for all external parts. Finish options include antique and polished brass and stainless steel. ■ *S. Parker Hardware*, New York City.

circle 317 on inquiry card
more products on page 127



Now Scamp sound masking gives your "closed" office the privacy you deserve.

Just because you don't have an open office doesn't mean you're not affected by noise such as typewriters, copying machines and the chatter of people using them. Even with your office door closed these sounds can seep through and hamper your work. No more! One or more decorative Scamp units for wall or ceiling, placed strategically in your office, can mask these sounds and provide the atmosphere for optimum efficiency.

The Scamp system provides speech privacy in most offices by generating a unique sound spectrum which masks unwanted speech, noise and its directivity without being intrusive itself.

Scamps install quickly and easily and have music and paging capability.

Find out how Scamp can make a better working environment out of your office. Write or call us today. Also ask about Scamps for open office areas with dropped ceilings or high ceilings.

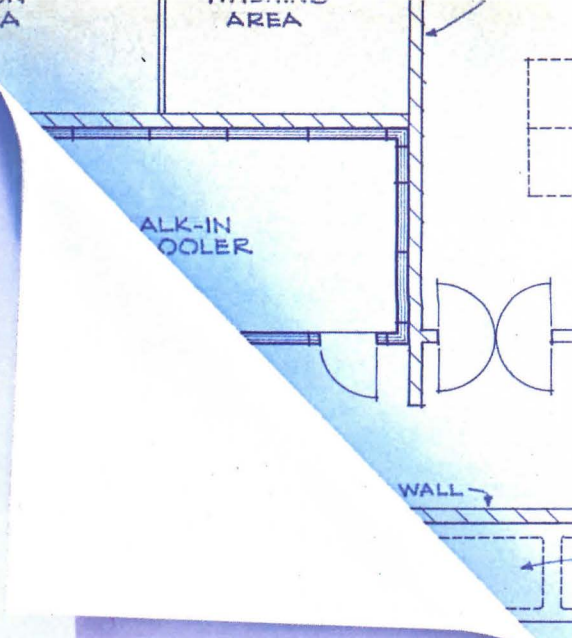


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See 1980 Sweets Catalog Vol. #39.1 Acoustical Treatment

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SYSTEMS for high efficiency and low energy use. Bally Walk-Ins are subject to fast depreciation and investment credit. (Ask your accountant.)

Write today for our 186-page Working Data Catalog or see Sweets Catalog 11.23b/Ba for immediate information.

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ADDRESS ALL CORRESPONDENCE TO AR-12

Stop fires in seconds...safely. With DuPont Halon 1301.



PORTABLE LIGHT TABLE / Lightweight *Intra-gra-phics* light tables come in two sizes: an 11- by 18-in. unit with cover and carrying handle, and a larger model, 18- by 24-in., weighing less than 15 lb. Both versions have contoured light reflectors for even illumination. ■ *Intra-graphics*, Reseda, Calif.

circle 318 on inquiry card



INSULATING WALL PANEL / Wall panel for interior use combines energy-saving urethane and gypsum dry wall for one-step installation. The panels consist of a one-in. layer of urethane sandwiched between 1/2-in. of gypsum and a 60-lb aluminum Kraft face paper (shown here in a close-up photo). The system also includes a unique adhesive for securing the panels directly to cinder block walls without furring strips. ■ *Mobay Chemical Corp.*, Pittsburgh.

circle 319 on inquiry card

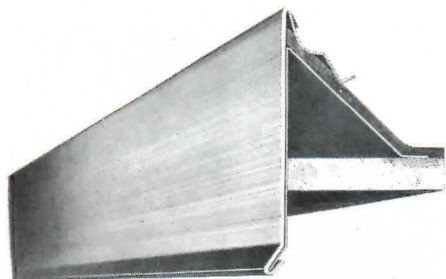
SISAL CARPETING

/ Woven in Belgium in a standard 13-ft 2-in.-width, sisal carpeting and area rugs are available in a small scale tweed texture and a bolder surface pattern. Sisal carpets are bonded to a resilient waffle latex backing for improved durability and firm adherence to the floor. The six color blends offered range from white, oatmeal and tan tones to shades of brown. ■ *Saxony Carpet Co., Inc.*, New York City.



circle 320 on inquiry card

circle 321 on inquiry card



ROOFING SPECIALTIES / The "Safeguard" gravel stop and fascia is said to provide positive perimeter water control year after year. The maintenance-free gravel stop should permanently prevent cracked felts, leaks, tar drippage and water stains. ■ *W. P. Hickman Co.*, Asheville, N.C.

circle 321 on inquiry card

more products on page 129



1. Flammable liquid ignited. Halon 1301 cylinders discharged.



2. Fire totally extinguished in four seconds.

The fire protection system you specify in critical areas of buildings must react instantly to save lives and property. And no gaseous fire extinguishant works faster and more safely than Halon 1301. For example, in the demonstration above, Halon 1301 extinguished a flammable liquid (n-heptane) fire in just 4 seconds.

Du Pont Halon 1301, at levels recommended for extinguishing most fires, won't harm people. It's safe to breathe at recommended extinguishing concentrations. When mixed with air (generally 5-7%), Halon 1301 renders the protected area fire-free.

Halon 1301 is noncorrosive, nonconductive—and clean. The odorless, colorless vapor leaves no residue to damage equipment, documents—whatever it protects.

Specify fast, safe Du Pont Halon 1301 extinguishant. Tell us your specific hazard and application. Take advantage of our experience by writing for our Halon 1301 literature kit: Du Pont Company, Room 38087H, Wilmington, DE 19898.

Halon 1301 fire extinguishant

Circle 52 on inquiry card



Laminated Architectural Glass.

It brings nature in and keeps burglars out.



Designing a home for clients who want to be in touch with their natural surroundings calls for extensive use of glass. Unfortunately, most glazings also add a serious security risk, particularly in remote rural areas or in downtown urban renovation sites. In fact, twenty percent of all forced break-ins are the result of glass breakage.

With laminated architectural glass, there's a solution to the problem. Unlike ordinary glass, which shatters easily on impact, laminated glass is a formidable barrier. Even heavy attacks by brick, crowbar or pickax result in only localized fractures and limited penetration.

Of course, no construction of any kind will stop a sustained attack. But since most burglaries are

committed by non-professionals who don't persist for more than a few minutes, laminated glass will usually provide sufficient delay to successfully thwart the attempt.

Laminated glass is constructed of two or more sheets of glass permanently bonded together with a plastic interlayer.

Monsanto manufactures the Saflex® polyvinyl butyral plastic interlayers most often used by leading producers of laminated security glass.

To find out more about how laminated architectural glass can fit into your residential designs, write: Monsanto Plastics and Resins Company, Department 804, 800 North Lindbergh Boulevard, St. Louis, Missouri 63166.

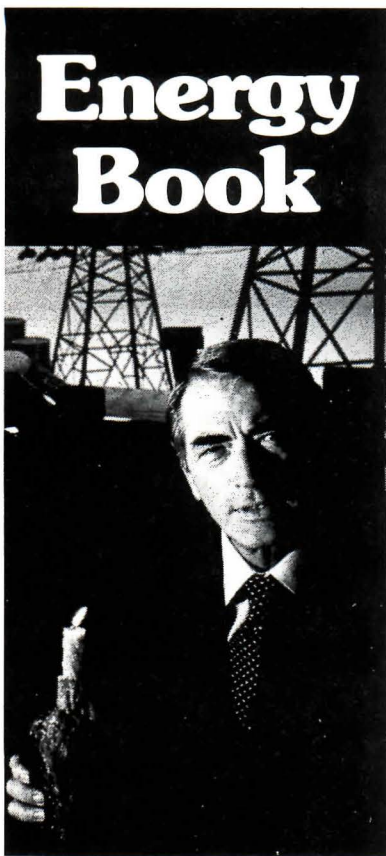
SAFLEX®

PLASTIC INTERLAYER BY **Monsanto**

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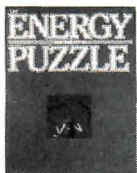
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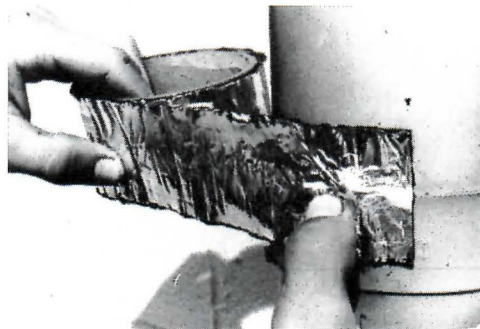
LARGE SIZE SHINGLE / A new metric-sized fiber-



glass roofing shingle, shown here behind a conventional shingle, is about 18 per cent larger. Only 66 metric shingles are needed per square. A heavy fiberglass mat replaces organic felt paper;

reinforcing fibers provide extra strength and nail-holding power. The weatherproofing asphalt surface is covered with ceramic-coated granules. Guaranteed for 20 years, the fiberglass-metric "Triple A" shingle carries a UL Class A fire resistance rating. ■ Reynolds Aluminum Building Products Co., Stratford, Conn.

circle 322 on inquiry card



WATERPROOFING TAPE / *Alumaflash* butyl rubber adhesive and aluminum foil tape may be used instead of caulk to waterproof, seal and repair gutters, chimneys, vents, ducts, and eaves, as well as on metal building horizontal and vertical lap seams. *Alumaflash* conforms easily to almost any surface in temperatures varying from below 0 to 300 deg F. The tape adheres to wood, metal, glass, brick, concrete and plastics. ■ Republic Powdered Metals, Medina, Ohio.

circle 323 on inquiry card

VINYL WALLCOVERINGS / "The Tailor Made"



series of *Wall-Tex* wallcoverings features the look of fine tweeds, herringbones and plaids, tiny foulard and shirting prints, arranged by color family. Patterns also include deep-toned floral prints, geometrics and muted metallic prints, all designed to decorate without overpowering. "Tailor Made" wallcoverings are priced at \$10.95 and \$11.95 a roll. ■ Columbus Coated Fabrics, Columbus, Ohio

circle 324 on inquiry card



COMPONENT SEATING / Fully upholstered in a selection of *deSede* leathers, the "Excalibur" lounge series includes these three narrow component units, shown here combined to form a three-seat sofa 103-in. long. ■ Stendig Inc., New York City.

circle 325 on inquiry card
more products on page 130

WE FIT IN

STAINLESS STEEL UNDER COUNTER LAB REFRIGERATORS AND FREEZERS



UC-5-BC refrigerator has a blower coil cooling system with automatic off-cycle defrosting and condensate evaporator in condensing unit compartment. Two adjustable stainless steel shelves are provided.

UC-5-F-BC freezer is equipped with automatic timer electric defrost. Capacity—5.4 cu. ft. (155 ltr.)

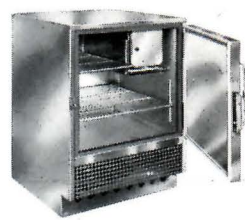


UC-5-CW* refrigerator with cold wall cooling system is equipped with push-button defrost, automatic reset and condensate evaporator. Capacity—5.4 cu. ft. (155 ltr.)

UC-5-F-CW* freezer is equipped with manual hot gas defrost. Capacity—4.6 cu. ft. (130 ltr.)

UC-5-CW-E refrigerator has the same interior features as the UC-5-CW but modified to make it *totally explosion-proof*. Capacity—4.9 cu. ft. (140 ltr.)

*With explosion proof interior only.



UC-5 features a two-tray ice cube cooling system with manual defrost and stainless steel defrost water tray. The cooler section has two adjustable stainless steel shelves. The entire UC-5 series features polyurethane insulated thin wall construction and air-tight neoprene thermo-break door seals. Capacity—5.4 cu. ft. (155 ltr.)

Jewett also manufactures a complete line of blood bank, biological, and pharmaceutical refrigerators and freezers as well as morgue refrigerators and autopsy equipment for world wide distribution through its sales and service organizations in over 100 countries.



Refer to Sweet's Catalog 11.20/Je for quick reference.

Circle 54 on inquiry card



How to let light in without letting heat out.

Skylights formed from UVEX[®] Plastic Sheet can reduce costs by reducing the need for artificial lighting during daylight hours.

While the optical transparency of UVEX Sheet lets light in, its low thermal conductivity keeps heating and cooling losses low.

UVEX Sheet has excellent impact strength and outstanding resistance to weathering. And in many instances, skylights formed from UVEX Sheet can be flashed directly into the roof—eliminating the need for aluminum curbing or support.

For information and the name of the skylight manufacturer nearest you, contact Bill Seaman at Eastman Chemical Products, Inc., Plastics Products Division, Kingsport, Tennessee 37662.



Eastman Chemical Products, Inc., a subsidiary of Eastman Kodak Company, Kingsport, Tennessee. UVEX is Eastman's trademark for its plastic sheet. Eastman makes only the plastic sheet used in finished products and therefore makes no warranties with respect to such products.

UVEX[®]

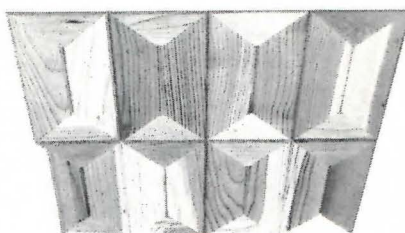
Plastic Sheet

Circle 56 on inquiry card



PNEUMATIC THERMOSTAT / Six different modernization kits are designed to convert one- and two-pipe pneumatic thermostats in commercial and industrial facilities. Each kit includes the pneumatic device, conversion hardware, decor panel and instructions. Units offered include two limited control ranges, two zero energy bands, a proportioning thermostat, and an automatic indexing type unit. ■ Honeywell Inc., Minneapolis.

circle 326 on inquiry card



WOOD CEILING PANELS / Natural wood segments are laminated to a sound-absorbing and non-combustible substrate to form 2- by 2-ft lay-in ceiling panels for use in exposed grid ceiling systems. Offered in a number of recessed and sculptured patterns, including the "Stinson" design shown here, *Del Norte* panels are edged to create a tegular effect. Class A fire spread rating is available. ■ Finlay Research, Santa Rosa, Calif.

circle 327 on inquiry card

SAFETY FLOORING / Fabricated from carbon steel, "Perf-Grip" is a slip-resistant safety floor plate with "dimpled" holes spaced about 1/2-in. apart in a staggered pattern. "Perf-Grip" is available in 16-, 14- and 11-gauge sheets, in standard sizes up to 36- by 120-in. ■ McNichols Co., Tampa, Fla.



circle 328 on inquiry card



LEATHER UPHOLSTERED / The "Galahad" chair and ottoman are fully leather upholstered, including the base; frame is molded plywood, cushioned in combination foam and dacron. The lounge chair has a three-position locking swivel, adjusting to the preference of the user. ■ Stendig Inc., New York City.

circle 329 on inquiry card

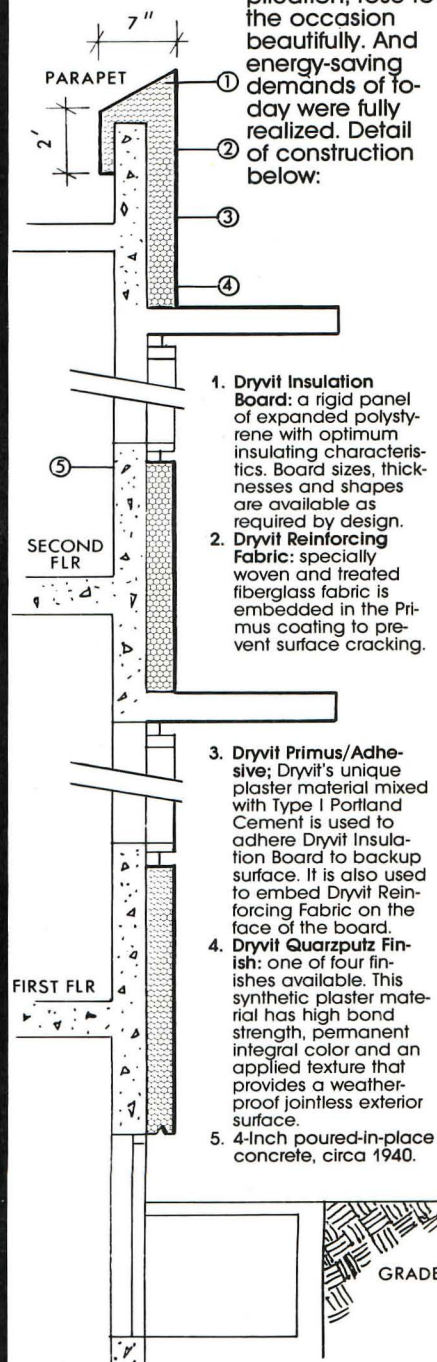
dryvit[®] System Inc.

OUTSULATION[™]

The answer to retrofit of concrete walls.

This California retrofit (facing page) had to meet the challenge of poured-in-place concrete walls erected some forty years ago.

Dryvit, in a conventional wet application, rose to the occasion beautifully. And energy-saving demands of today were fully realized. Detail of construction below:



- 1. Dryvit Insulation Board:** a rigid panel of expanded polystyrene with optimum insulating characteristics. Board sizes, thicknesses and shapes are available as required by design.
- 2. Dryvit Reinforcing Fabric:** specially woven and treated fiberglass fabric is embedded in the Primus coating to prevent surface cracking.

- 3. Dryvit Primus/Adhesive:** Dryvit's unique plaster material mixed with Type I Portland Cement is used to adhere Dryvit Insulation Board to backup surface. It is also used to embed Dryvit Reinforcing Fabric on the face of the board.

- 4. Dryvit Quarzputz Finish:** one of four finishes available. This synthetic plaster material has high bond strength, permanent integral color and an applied texture that provides a weather-proof jointless exterior surface.

- 5. 4-Inch poured-in-place concrete, circa 1940.**

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Plant Locations: Warwick, RI and Tulsa, OK

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Reputation

Portfolios don't come with excuses—like, "I couldn't talk the client into what I *really* wanted to do." You *can* win aesthetic battles, if you have the right ammunition. Get it from us.



Versatility

In the home, tile is at home in almost any room. In the mall, the business building and the industrial plant, every year striking new looks and uses are developed by award-winning designers and architects.



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Ceramic tile is forever. It won't fade, warp, dent or peel. And neither will your image.



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Never has there been the myriad selection there is today. Compared to real ceramic tile, there is no aesthetic argument for plastic, linoleum or vinyl pretenders.



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Against all the temporary competition, permanent tile actually costs less to install and maintain. Send the coupon for our independently-conducted research on long-term costs. It'll help when a client says, "Sure, I love ceramic tile—but I can't afford it." He can.

Portfolio pieces.

Tile's beauty is in its sight, touch, versatility, cost...and your reputation.

What's in your head is not nearly so compelling as what's in your portfolio. And when an idea can be enhanced by the use of today's varied and versatile ceramic tile—give yourself the freedom to use it. Our pictures are an

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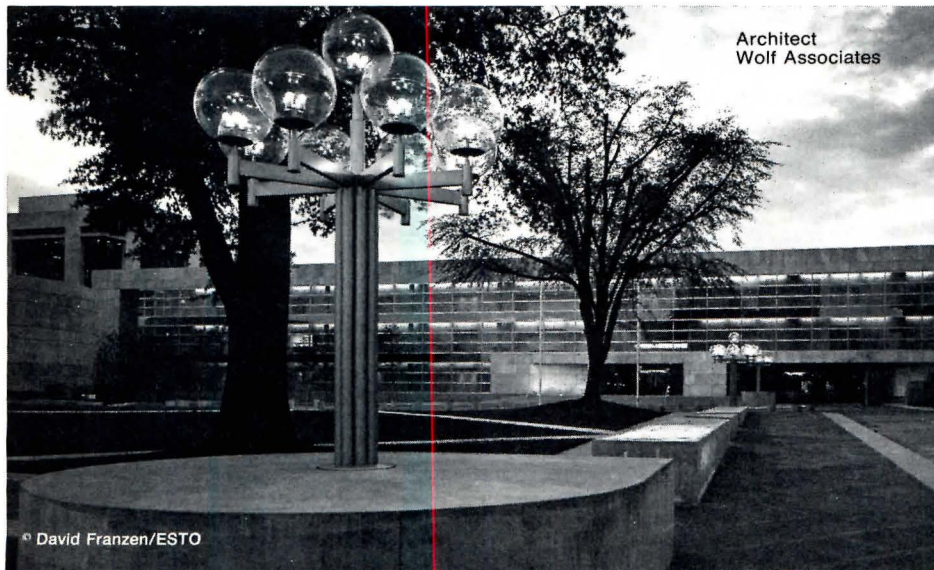
inspiration in the application of tile. And our independently-conducted research will set to rest all objections about the long-term costs of ceramic tile. Skeptical? Then send the coupon. We think we can convince you.

Ceramic Tile

NEWS ABOUT SEALANTS

For reprints, copies of literature or information about any topics mentioned below, please write: Marketing Communications, Dept. AR, Thiokol/Specialty Chemicals Division, P.O. Box 8296, Trenton, NJ 08650.

LP® Polysulfide Base Sealants Specified For Courthouses—New and Old



The new Mecklenburg County Courthouse (above) in Charlotte, North Carolina and the restored 140-year-old courthouse in St. Louis, Missouri (below) are among the many prestigious buildings that utilize sealant based on Thiokol LP polysulfide polymers . . . the sealant that has been serving the building trade for more than 30 years.



ARCHITECTS *Did You Know . . .*

THAT Thiokol's LP polysulfide polymers are also used as the base for insulating glass sealants, aircraft sealants, marine sealants, wire and cable sealing. These applications and many others are described in a colorful eight-page brochure, "LP Polysulfide Polymers". Write for your copy.

THAT Thiokol hosts an annual Insulating Glass Roundtable which affords architects, engineers and manufacturers the opportunity to exchange views in an atmosphere that is free of any product promotion. Proceedings appear in *Glass Digest*. Write us for details.

THAT the amount of movement in a joint is dependent on the length and composition (coefficient of linear expansion) of a panel section and the temperature gradient that is encountered.

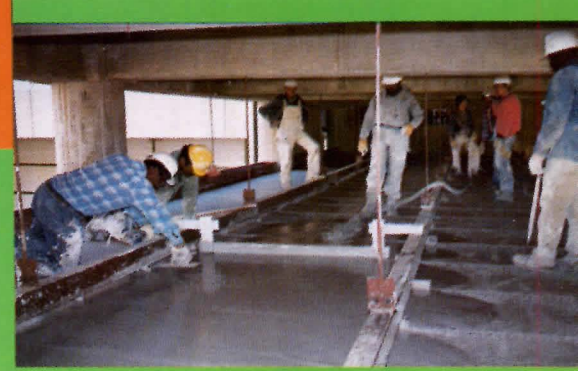
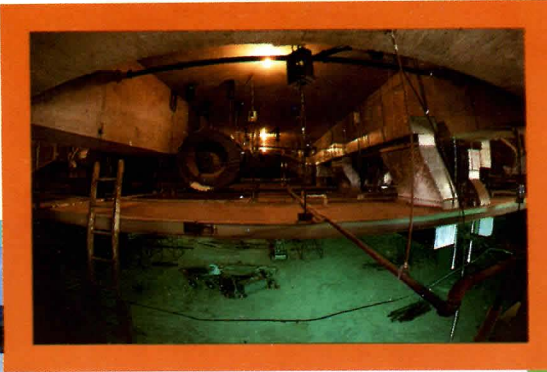
THAT in designing joints, the proper width-to-depth ratio must be specified so that the width of the joint is consistent with the capability of the sealant, to endure the daily and seasonal extensions and compression cycles for prolonged periods.

THAT as joints expand and contract, the sealant's shape changes accordingly, but the volume of sealant remains constant.

THAT joints must be designed so that the compression and extension of the sealant will not exceed the movement capability of the sealant.

THAT the technical tips listed above are described in a 20 page brochure, "Joints Design Digest". Send for your copy.

Keystone Group Construction Components Provide Structural Strength and Economy for Both Roof Decks and Walk-On Platform/Ceilings.



Cutler Ridge Mall - Miami, Florida With business good enough to call for a 300,000 sq. ft. addition to the Cutler Ridge Mall, building owners and prospective tenants wanted construction completed as quickly as possible. So ease and speed of installation added to the reasons behind specifying Keydeck® Truss Tee Subpurlins and Keydeck® Reinforcing Mesh for fabrication of the poured gypsum roof deck system. The initial low cost of the Keystone Group components was an extra bonus.
*Architect: Edward J. DeBartolo Corp.
 Project Manager: John Zellner
 Roof Deck Fabricator: Aldecks Co., Inc.*

Hyatt Regency Hotel - Chicago
 To make it easy for maintenance personnel to service the equipment in the mechanical space above a new ballroom that is part of a major addition to the Hyatt Regency Chicago, the architects-engineers selected a walk-on platform ceiling system consisting of gypsum formboard supported by Keydeck Truss Tees and poured-in-place gypsum reinforced with Keydeck Reinforcing Mesh.

According to the architects-engineers, the walk-on ceiling assembly will cost half as much as the steel catwalks provided in the ballroom of the original facility.
*Architect: A. Epstein and Sons, Inc.
 Construction Manager: Metropolitan Structures, Inc. Platform/Ceiling Fabricator: Anning-Johnson Co.*

Froedtert Memorial Lutheran Hospital - Milwaukee During construction of Froedtert Hospital the interstitial space between floors became a fast-tracking work area. Rather than having to erect scaffolding to install utility and air conditioning runs, causing an interruption of continued work in the functional floor areas, the walk-on platform/ceilings supported and reinforced with Keystone Group construction components supported men and materials during installation.
Architect: A Joint Venture of Stone, Marraccini & Patterson and Brust-Zimmerman. Construction Manager: A Joint Venture of Findorff and Hutter. Platform/Ceiling Fabricator: Anning-Johnson Co.



Write or call George Byard at (309) 697-7611 for further information and specifications. Check our catalog in Sweet's General Building File.

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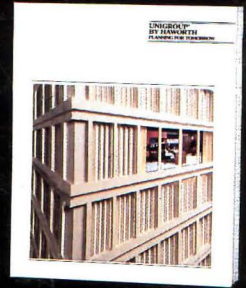
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