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THE DEVELOPMENT OF AN ESTHETIC SYSTEM AT DMJM

A BOLD HOUSE IN EASTERN CANADA BY ARTHUR ERICKSON

BUILDING TYPES STUDY: SCHOOLS THAT RE-USE SPACE AND SERVE THE COMMUNITY

ARCHITECTURAL ENGINEERING: DESIGNING FOR SOLID WASTE DISPOSAL

FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

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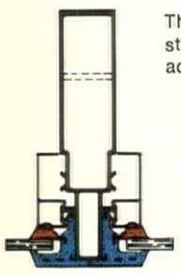

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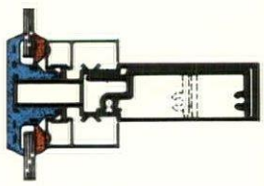

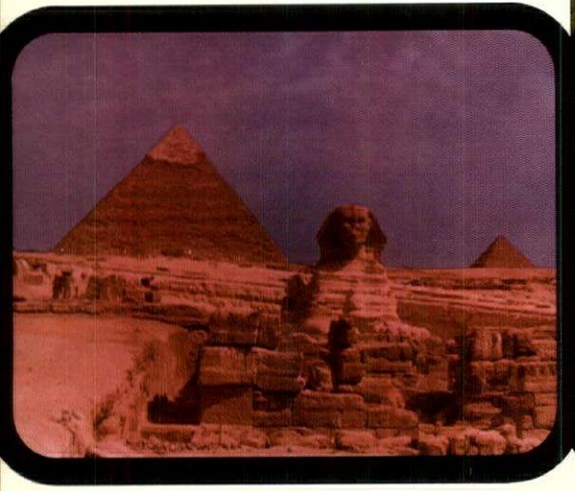

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2. Entries must be postmarked before December 31, 1975.
3. All entries eligible for Sweepstakes Drawing, January 21, 1976.
4. Winner will be notified by mail.
5. This contest is nationwide except where prohibited by law.
6. Winner will be announced February 1, 1976.

LETTERS/CALENDAR

Letters to the editor

As a graduate of the School of Design at North Carolina State University, I would like to compliment Wolf Associates on their proposed addition to Brooks Hall [February 1975]. I would like to make a note of the fact that the drawings by the delineation techniques used, very carefully distinguish between the existing and the proposed, with respect to elevations. The plans, however, fail to do this. The area south of the proposed addition was designed by Lewis Clark Associates in the late fifties or early sixties. The area between the wings was also by Lewis Clark Associates and completed in 1968, albeit the north end of this courtyard is modified to accommodate the new pedestrian bridge and the Russo sculpture has been relocated. Nevertheless, the integration of the old exterior architecture into the new will serve as an excellent teaching example and space.

Donald Collins, ASLA
Associate Professor of Architecture
Clemson University

Thank you very much for sending me copies of the articles from the December 1974 issue.

I have read the entire issue and would like to congratulate you on a superb achievement made by the entire staff of the RECORD in publishing this most relevant and delightful issue. You may be interested to know that I have assigned the December 1974 issue as required reading in my course entitled, "Issues in the Theory and Practice of Planning."

Michael Y. Seelig
Associate Professor
The University of British Columbia

May I congratulate you on the excellent article appearing in the July [1974] issue describing the Scarborough Civic Center. This exciting building designed by Raymond Moriyama and his office not only represents high quality architecture and design, but is also a major breakthrough in applying a systematic approach to design of fire-safety for buildings as a means of establishing equivalent compliance with the applicable building code.

I am sure it is obvious to all building designers that a building with a five-story, open, inter-connected and occupied space does not comply with the vertical opening requirements of any code specifically. To achieve such a design requires the development of an equivalent safety system which was done in this particular case. A great contribution to achievement of the design was also made by Mr. George Fleming, who is the Building Commissioner of Scarborough, Ontario. Without a man like Fleming, who is open-minded and forward-thinking, and willing to evaluate objectively the equivalent system that was developed by Rolf Jensen & Associates, Inc. for the design by Raymond Moriyama, there is no question that this building would never have been built.

I sincerely hope that this will not only be a design example for the architectural community, but also a guidepost to which they can direct future fire-safe building design.

Rolf Jensen, P.E.
Rolf Jensen & Associates, Inc.

I thought Brad Perkins' article in your March 1975 issue was outstanding. However, I feel that your flippant and wholly unnecessary editorial remarks detracted significantly from this incisive and thought-provoking article. This is not normally your style at all and I hope you will refrain from this type of interference in the future.

Michael R. Hough
Editor-publisher
Professional Services Management Journal

Just wished to extend my congratulations to Brad Perkins and Bill Foxhall for an excellent article in the RECORD's March 1975 issue—"The Future of Professional Firm Management."

Brad's well thought out roundup of forces and issues facing the industry and Bill's ability to put his pen to the nerve center of some of the conclusions resulted in a piece that all should read.

John K. Bowersox
Executive vice president
Producers' Council, Inc.

Calendar

MAY

18-22 Annual convention, American Institute of Architects, Atlanta. Contact: AIA headquarters, 1735 New York Avenue, N.W., Washington, D.C. 20006.

22 Hospital-Based Medical Office Building Workshop, Denver Hilton, Denver. Sponsored by the American Hospital Association. Contact: Susanne Batko, Division of Design and Construction, American Hospital Association, 840 North Lake Shore Drive, Chicago, Ill. 60611. This workshop will also be held the following day, May 23, at Del Webb's Town House, Phoenix, Ariz. All information may be obtained from Susanne Batko, details above.

22 "Simplified Steel Design" lecture series on May 22, 29, June 5, 11, 18, and 25, United Engineering Center, New York City. Sponsored by the American Institute of Steel Construction in cooperation with the American Society of Civil Engineers. Contact: Mr. Samuel H. Marcus, AISC, 1221 Avenue of the Americas, New York, N.Y. 10020.

Current–June 22 "H. H. Richardson and His Office," an exhibition of drawings and photographs. Renwick Gallery of the National Collection of Fine Arts, Smithsonian Institution, Washington, D.C. Open daily, from 10 a.m. to 5:30 p.m.

JUNE

1-4 Urban Housing and Transportation conference, Wayne State University, Detroit. Sponsored by the Wayne State University. Contact: Dr. Vasily Kouskoulas, Wayne State University, Detroit, Mich. 48202.

1-6 Workshops on Value Analysis, Chicago. Sponsored by the AIA and the American Consulting Engineers Council, with cooperation from the General Services Administration and the Environmental Protection Agency. Contact: Marshall Purnell, AIA, 1735 New York Avenue, N.W., Washington, D.C. 20006.

5-6 Seminar on How to Market Professional Design Services, Dallas. Contact: Building Industry Development Services, 1301 20th Street, N.W., Washington, D.C. 20036.

8-11 American Consulting Engineers Council project management and marketing seminars, Water Tower Hyatt House, Chicago. Contact: Mr. Dale Litherland, Convention Manager, American Consulting Engineers Council, Suite 713, 1155 15th Street, N.W., Washington, D.C. 20005.

15-20 Twenty-fifth Annual International Design Conference, Aspen, Colo. Registration cut-off is May 29. Contact: Mary Apple, IDCA, P.O. Box 664, Aspen, Colo. 81611.

18-20 NEOCON, contract furnishings exhibition, Merchandise Mart, Chicago. Contact: James W. Bidwell, Merchandise Mart, Chicago, Ill. 60654.

18-21 National Council of Architectural Registration Boards annual meeting, Waldorf-Astoria, New York City. Contact: NCARB, 1735 New York Ave., N.W., Suite 700, Washington, D.C. 20006.

25-27 Pacific Coast Builders Conference, Fairmont Hotel, San Francisco. Sponsored by the California Builders Council. Contact: PCBC, Suite 1407, Russ Building, 235 Montgomery Street, San Francisco, Cal. 94104. Phone: (415) 981-1067.

ARCHITECTURAL RECORD (Combined with AMERICAN ARCHITECT, ARCHITECTURE and WESTERN ARCHITECT AND ENGINEER)

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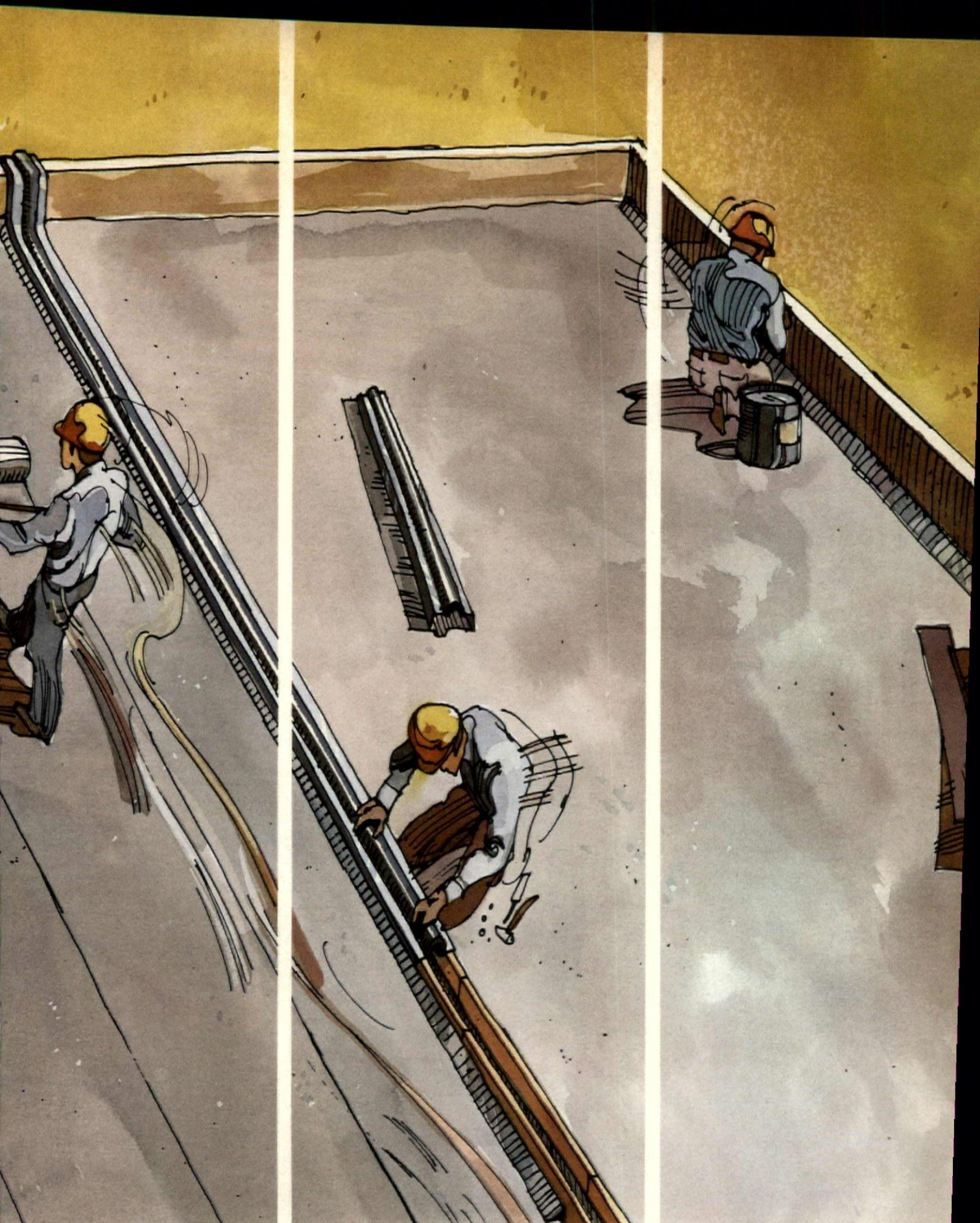

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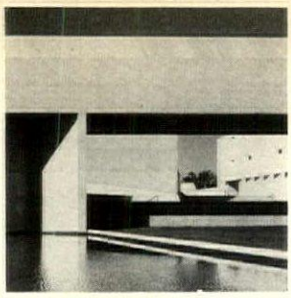

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THE RECORD REPORTS

ARCHITECTURAL BUSINESS

FEATURES

BUILDING TYPES STUDY 474

Otto Baitz

ARCHITECTURAL ENGINEERING

NEXT MONTH IN RECORD

Building Types Study: Buildings for waste management

Mounting consumerism coupled with shamefully careless disposal practices are creating a crisis in the field of waste management. RECORD will look at buildings designed to recover what is valuable from this solid waste flow and dispose of the remainder in ways that can sometimes be used to produce energy. Several new wastewater treatment plants will also be examined.

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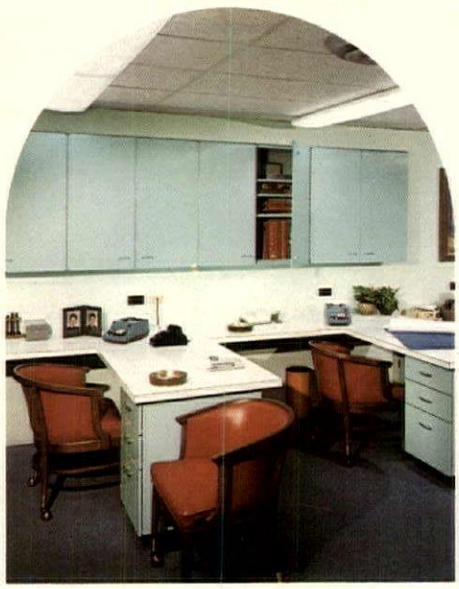

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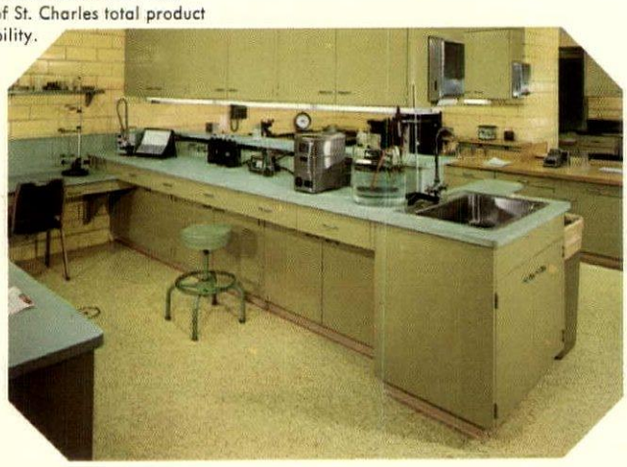

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Homebuilding: Was there ever a better time for more architects to get more involved?

It's hard to think of this being "a good time" in almost any regard. But I've got the strongest feeling that right now is a very good time for architects to gain a much bigger involvement—a much bigger role—in homebuilding.

You may well ask: How do you figure that? The housing industry is in the worst shape it has been in for decades. Even with the predicted sharp upturn, the industry will be very lucky indeed to hit 1.4 million starts in 1975.

My reasoning is based precisely on those currently-rotten conditions and minimum hopes. My reasoning is that those homebuilders who have confidently and incorrectly figured that "anybody can design a house" may now be in a mood to consider that at least one reason that they can't sell—and I know there are plenty of others—is that so many single-family houses and "town houses" and garden apartments are the same old plain vanilla that they've been building (and getting away with) for so many years.

My reasoning is that, with things at a relative standstill, this may be the ideal time for architects around the country to take some advice I've been offering for years on this page: Take a builder out to lunch.

Talk about what? Money, sure. But also market, and new ideas, and quality. . . .

Part of the reason for trying to develop this new détente with homebuilders is of course business. Homebuilders, it is not a harsh or unfair thing to say, live in a world that takes opportunity where it sees it, that wheels and deals, and where conventional wisdoms about "what's selling" are more important than the architect's conventional wisdom about "what's good." They react to money—and that's fair enough because they make financial commitments and take financial risks that would send a lot of architects to the funny farm.

But the point, again, is that the "conventional wisdoms" of both builders and architects are changing—and coming closer together. Builders—dead in the water while they wait for the strong upturn later this year—have to be contemplating whether there isn't a better way to build a strong market.

You'd be sure of that if, as several of the RECORD editors did, you attended the NAHB convention in Dallas three months ago. Gone was the hilarity and the living it up—and few were the wives along for a holiday in Big D. Attendance was heavy at sessions on financing—but attendance was super-heavy at sessions on design of communities, and new concepts in apartment design, and sessions on new single-family-house concepts—like zero-lot line-housing, and small, more compact houses. The hang-ups of a few years ago on Kolonial design, super-size master bedroom suites with sunken bathtubs, smoked mirrors and plenty of carriage lamps with crackled-glass lenses are past. Builders, in short, are busily examining new ideas, new approaches. Conversely, it seems to me that, architects—good architects, first-rate design architects—are busily exploring the human values of residential design—relaxing some of their orderly (to a builder, "too cold") conventional wisdoms about residential design. See, for example, "The World as a Candy Box," RECORD, December, page 126 and "Discrimination in housing design," March, page 141. Architects, in short, are also busily examining new ideas, new approaches.

So maybe this time, to return to the main point, more architects and more builders can meet on some middle ground.

That lunch with a builder may be a bit of a sparring match, but it might work

I think the lunch will work because, in many (though of course not all) cases, there are no irreconcilable differences; just different starting points. It is of course a generalization that most architects think that most homebuilders' work is not nearly as good as it could be; and that most homebuilders think that if they get involved with an architect their costs will go sky-high and their houses probably won't sell. If it is true that architects perceive homebuilders as guys who smoke big black cigars and drive Cadillacs, it is also true that homebuilders perceive architects as a bit snooty. (Just for fun, I checked some demographic research on *House & Home's* readers, mostly builders but with enough architects to spoil my point: It shows that 76 per cent of *House & Home* subscribers attended college, 58 per cent own common stock, and only 8 per cent drive Cadillacs. Data on consumption of large black cigars is not available.)

At any rate, finding mutual ground depends entirely on the individuals involved.

The degree of architect-builder collaboration is higher now than most people think

Research done in 1972 (and the best figures available to date) indicates that large builders (more than 200 houses per year) use architects for 69 per cent of their single-family houses and 83 per cent of low-rise apartment projects.

Obviously, the general trend towards higher-density apartment projects tends to increase architectural involvement; and the tendency for larger builders to be heavily into higher-density as opposed to single-family housing helps explain the high degree of architect-designed projects. In short, most big builders know all about working with architects and do so effectively. But there's lots of room for improvement in relationships with smaller builders. The top 600 builders build about one-third of all the housing units. That leaves something like a $30 billion market for the not-so-big builders—the ones that you can reach on a local basis, who tend to be less involved with professional design, and with whom you can talk on a quite personal basis.

What are the "subjects of opportunity" for your luncheon conversation?

As suggested above, and in the Editorial for last December, it seems like a time for architects and homebuilders to be talking not just about better design (though that is surely a noble and needed cause), but about totally new approaches. For example, in December I suggested that "With land costs and building costs what they are, builders are looking for density, and they are finding out with a bang that it better be good. For a measure of what can be done with thoughtful design, see RECORD HOUSES AND APARTMENTS for any recent year. . . . Another attack might be to make houses smaller. . . . And making smaller houses that really work will require a high level of design input—for it is far harder to design a good small house than it is to design a good big house—and any builder knows that."

By recent mail comes a thoughtful new publication of the AIA on this very subject, which every architect interested enough in housing to have read this far should send for. It is entitled "The Architect and the Shelter Industry;" was developed for the AIA's Housing Committee by three architects with extensive experience in working with homebuilders—Kermit Dorius, Walter Richardson, and Beverly Willis; and is available from AIA for $2.40. (Order number is M-182, Code 2). It adds a number of insights to the argument above, and includes some nice hard experience on division of responsibility and work, a survey of fees, and some proven-workable contracts between architects and homebuilders.

At any rate, homebuilding is a big market with lots of room for the sort of improvement architects exist to make. As I said at the beginning of this piece, I think that now is the time. Why not start? All you have to lose is the price of a lunch. —*Walter F. Wagner Jr.*

The International Design Competition: 900 entries so far!

On this page in the March issue, it was reported that "the program has been written, the money for jury expenses has been raised, most (though not all) of the operating funds are in hand, a distinguished jury has been chosen, and. . . .

"The international design competition for the urban environment of developing countries will be held. The International Architectural Foundation has announced that registration for architects around the world is now open."

The response has been simply astonishing.

At this writing (April 16th), with a whole month to go before the final date for registration, over 900 registrations have been filed with the professional advisor, Arthur Erickson of Gutheim/Seelig/Erickson of Vancouver. And very nearly half of those, I'm told, are from outside the U.S. Registrations have been received from (and programs mailed to) architects in Australia, Austria, Bermuda, Brazil, Canada (62 from Canada so far!), England (26 entries!), Fiji, Guatemala, Hong Kong, India, Indonesia, Ireland, Japan (20 from there), Kenya, Mexico, Netherlands, New Zealand, Panama, Puerto Rico, Scotland, Singapore, Spain, Switzerland, and Thailand.

Again, with a whole month of registration still open (if you're interested in entering, you'll find a competition announcement with full details and a registration application on pages 208 and 209), it is perfectly clear that architects around the world are indeed interested and concerned with solving the problems of housing the world's urban poor. By next month, I should be able to report on close to the final number of entrants—but it is already clear that if the IAF Design Competition is not yet the biggest ever, it's going to come close! There is still, of course, the question of how many actual submissions come in, but I for one am very impressed by the number (and the spread from around the world) of architects who seem interested in attacking this tremendous problem of housing the world's urban poor. As we said in the first Editorial on this subject, back in April 1974: "We are not so naive as to believe that architecture is the solution to all the problems of the world; that good planning and design is a substitute for jobs that don't exist, or for food that doesn't exist or is too dear. But housing and a sense of community are basic human needs—and that is the part of the problem that we know most about and can do something about.

So let us try."

About funding: One more time—is there a chance you can help?

Since I last listed those generous contributors to The International Architectural Foundation who are making this effort possible, some new names have been added: The Rockefeller Foundation, Hyatt International Corporation, W. R. Bonsal Company, and Building Industry Development Services. May I apologize for having failed to name, in my last Editorial listing, one of the earliest contributors and oldest friends of ours, Hellmuth, Obata, and Kassabaum. The complete list of organizations which have made the Competition possible is given in the announcement on page 209. We're down now to having $5,000 to go to finance the Competition. So one more time: If despite the sad state of the economy in general and the architectural profession in particular you can consider a contribution to the IAF please do. Checks should be made payable to The International Architectural Foundation, Inc., 1221 Avenue of the Americas, New York, New York 10020.

Starting this month: a newsletter on the legal concerns of professionals

In an introductory note for their first issue, the editors of *Legal Briefs for Architects, Engineers and Contractors* argue (with great understatement) that: "Legal or quasi-legal issues threaten to become an overriding influence on the future of the construction industry."

Thus this new publication, edited for architects, engineers and contractors—not for their lawyers. The twice-monthly newsletter will provide a continuing survey of case law, legislation and governmental regulations significant to the construction industry. The case law survey will be provided by a distinguished national case law service; the "Washington Perspective" will be written by long-time RECORD Washington editor Ernest Mickel; and Arthur Kornblut, administrator for professional services of the AIA for many years, and a practicing attorney will be the newsletter's legal editorial advisor. Editor will be Jeanne Davern, former managing editor of RECORD. This kind of expertise would seem to assure an important new information source. Introductory subscriptions are available at $72 per year (24 issues) from Jack Horstmeyer, general manager, Construction Industry Legal Report, Department of Architectural Record, 1221 Avenue of the Americas, New York City 10020.

—*W.W*

President Ford and Congress are expected to disagree over more Federal pump-priming for construction. In signing the recent tax bill, the President warned that he would resist every attempt by Congress to add another dollar to the deficit by new spending programs. Congress, on the other hand, has a number of bills under consideration to aid public works projects. For a report on these actions, and an Administration proposal to diversify savings and loan institutions, see page 34.

Contracts and future construction remained depressed in February, 23 per cent below the year-ago level, according to the F. W. Dodge Division of McGraw-Hill Information Systems Company. Contracts for future construction in February were valued at $4,955,120,000, and the Dodge Index (1967=100) for February was 135, the lowest in four years. However, George A. Christie, vice president and chief economist for Dodge, said that although prospects for recovery in construction in the near future are good, February's results showed no quick response to improving mortgage availablility or to the promised release of impounded public works funds.

With the theme, "Spaces for the Species," the AIA will hold its 1975 convention, May 18-22 in Atlanta. Architects, behavioral scientists, and lay people will examine how physical surroundings affect people's behavior and what architects can do to create a built environment that responds to human needs. The keynote address will be given by Dr. Heinz Von Foerster, professor emeritus in the departments of biophysics and electrical engineering at the University of Illinois. This year's seminars will stress economic survival for the profession, business development, new markets and cost-cutting management techniques. For further information, contact: Nancy Hallmark, AIA, 1735 New York Avenue, N.W., Washington, D.C. 20006.

Nine buildings have been selected for the 1975 Honor Awards of the American Institute of Architects. They are: Hanselmann residence, Ft. Wayne, Ind., by Michael Graves; IDS Center, Minneapolis, Minn., by Philip Johnson & John Burgee; Kimbell Art Museum, Fort Worth, Tex., by Louis I. Kahn; Columbus East High School, Columbus, Ind. by Mitchell/Giurgola Associates; Park Central (RECORD, April 1974), Denver, Colo., by Muchow Associates; Herbert F. Johnson Museum of Art, Ithaca, N.Y. by I. M. Pei & Partners; 88 Pine Street (RECORD, April 1975), New York City by I. M. Pei & Partners; Cedar Square West, Minneapolis, Minn. by Ralph Rapson & Associates, Inc.; and The Republic, Columbus, Ind. by Skidmore, Owings & Merrill (Chicago). Descriptions and photos of the buildings will appear next month in our AIA convention coverage.

The nation's largest 1000 manufacturing companies are expected to cut 1975 capital appropriations, but capital spending is expected to rise above 1974 levels, according to The Conference Board. Capital appropriations are expected to drop 8.9 per cent to $38.2 billion in 1975, while capital spending is projected to rise 9.4 per cent to $35.7 billion this year. The Conference Board forecasts continued growth in the country's money supply, which is likely to advance from a 3 per cent rate in the first quarter of 1975 to 6.5 per cent in the last quarter of this year. The money supply is expected to continue growing at a 6.5 per cent rate in the first quarter of 1976 and at a 6 per cent rate in the second quarter of next year. A drop to between 6 and 6.5 per cent in the rate of inflation is anticipated by the last quarter of this year.

Senator Helena Benitez of the Philippines has been named President of the UNEP Governing Council. Formerly the Senior Advisor on Human Settlements for UNEP (United Nations Environment Programme), Senator Benitez has been of great help and support in the planning of the international design competition on housing (see page 208) underway in connection with the 1976 UN Conference on Human Settlements, to be held in Vancouver, British Columbia. In the Philippines, Senator Benitez is known for her support of the architectural profession.

President Ferdinand E. Marcos of the Philippines has announced the formation of a Human Settlements Commission, and ordered attached to it a single Housing Authority for his country. Addressing the 5th Congress/Manila Forum of the Eastern Regional Organization for Planning and Housing (EAROPH) on March 18, President Marcos told an audience of planners that a temporary task force on human settlements in the Philippines would be replaced with a permanent national housing authority to direct settlement planning and land use. He further stated his country's acceptance of involvement in The International Architectural Foundation's Manila housing design competition (see page 208).

The International Architectural Foundation reports over 900 entries for the Manila housing competition (see page 208). Deadline for indicating intent to enter is May 15, with last date for designs being October 15, 1975. The IAF states that entries have been received from Europe, Asia, South America, United States and Canada in the competition to design a housing community for up to 5000 people in the Manila metropolitan area. Cash prizes totaling $70,000 are being offered.

President expected to veto more building aid

Proposals to pump-prime the economy by pouring billions of Federal tax dollars into construction programs and projects are creating a series of confrontations between President Ford and the Democratic leaders of Congress—with Presidential vetoes considered a certainty on some or all of them.

A major component of the $22.8-billion tax reduction that Ford reluctantly signed is a 5 per cent tax rebate, up to a maximum of $2,000 for buyers of new houses, condominiums, co-op units, or mobile homes already in inventory but previously unoccupied. The object: to help clear out some of the 60,000 housing units estimated to be hanging over the housing market, acting as a depressant on housing starts.

The tax credit also applies to custom-built houses under construction, but the credit can be taken only on the value of construction put in place after March 12. The house must have been under construction before March 26.

Economists and other experts—including builders—agree that the credit will boost sales this year. Congressional staffers officially estimated for the Ways and Means Committee that close to 500,000 buyers would get the benefit of the tax cut by buying a home this year. However, they estimate that more than 400,000 of these sales would have been made anyway, without the subsidy, and the net addition to sales would total only about 75,000.

Taxpayers will subtract the amount of the credit—estimated to average around $1500—from the amount of the tax they would otherwise owe on their 1975 (or in some cases, 1976) income.

President Ford in signing the tax cut bill warned that from then on he would "resist every attempt by Congress to add another dollar to this deficit by new spending programs."

The House had already approved and the Senate Banking Committee was ready to fashion its own version of another housing measure which would subsidize mortgage payments for the middle-income home buyer. In the House version, for houses up to $38,000, the measure would provide subsidies to bring the interest rate paid by the buyer down to 6 per cent for a period of years, or to 7 per cent for the life of the mortgage. A Ford veto was widely expected by Democratic insiders, and many of them guessed that the votes were there, in the House at least, to sustain the veto.

In the housing field, the Nixon-Ford Administration's solution to the low-income housing problem—the so-called Section 8 program—is still an unknown quantity. This new leased housing program, enacted last August, was one of the first bills signed by President Ford after Nixon's resignation. But as of early April, it was still uncertain how many housing starts might be stimulated by the new program this year. Under the program, the lender and landlord must assume most of the risk of renting to low-income families, a contrast to the programs frozen by Nixon back in January 1973. Under those earlier programs, the lender assumed little risk because the government subsidized mortgage charges above 1 per cent.

Many experts expect that construction of housing for the elderly will go forward with the least difficulty, but it may be months before it becomes known whether lenders will lend to build apartment projects for low-income families.

In addition, as Congress came back from its Easter recess, two major public works bills were being shaped by the Democrats to send to the White House, where they also faced a threatened veto.

Further along was a House-passed measure to push up employment by spending $3.2 billion on public works projects, including the following: $350 million for construction and improvement of postal facilities; $365 million to the General Services Administration for repair and alteration of Federal buildings, including $25 million for new construction; $117.9 million for the Army Corps of Engineers and Interior's Bureau of Reclamation for acceleration of approved projects; and $300 million in loans and grants for rural water and sewer projects. Other parts of the $5.9-billion Emergency Employment Appropriations Act called for $1.6 billion for public service jobs and $343 million for the purchase of 121,000 automobiles by Federal agencies.

Another pump-priming bill backed by House Democratic leaders would pass out $5 billion to state and local governments to pay 100 per cent of the cost of repair, expansion and replacement of all kinds of public facilities. Public Works Committee chairman Robert Jones (D.-Ala.) and over 100 House members introduced the bill, to be voted on this month.—*Donald Loomis, Washington.*

Proposed legislation affects housing money

In recent years the specialization of thrift institution lenders serving the mortgage market has been a problem as well as a benefit to housing finance. Now Congress is taking a new look at a Ford Administration proposal to greatly diminish the thrift institutions' specialized concentration on housing. And after a lot of controversy, and a lot of changes, the legislation may pass.

The legislative vehicle intended to diversify savings and loan institutions' and mutual savings banks' business away from a narrow focus on housing is the Administration's Financial Institutions Act (FIA).

Since the thrift institutions' diversification by itself obviously would diminish funds available to the mortgage market, the FIA also proposes giving a tax credit to any lender—thrift institution or otherwise—making a mortgage loan. Hopefully, this would prevent any net loss of mortgage-market liquidity.

The key feature of the FIA—the one that would have the most effect in changing the nature of thrift institutions—is the proposed elimination of government ceilings on the yields thrifts and commercial banks may pay for deposits. Without the protection of the "Regulation Q ceilings," thrifts would have to do less long-term mortgage lending and do more short-term lending and investing in other areas. Otherwise they could not afford to compete with banks for new deposits. The FIA would terminate Regulation Q ceilings five and one half years after enactment.

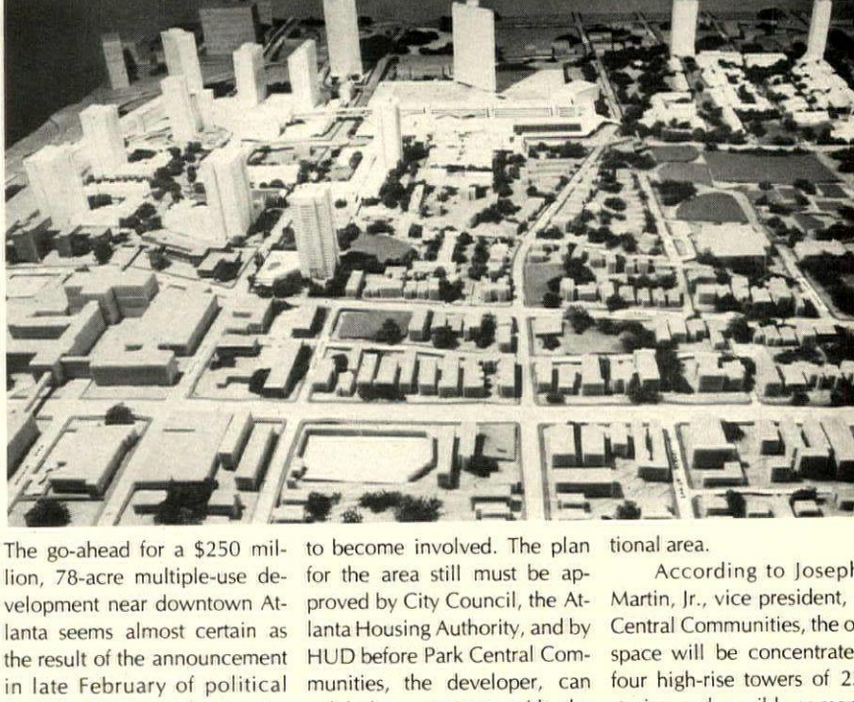
Many hostile observers regard the total FIA package as doubtful medicine at best for the housing market, even assuming the proposed tax credit is successful in luring commercial banks, insurance companies and other non-thrift potential mortgage lenders into construction finance. Thus, the FIA is solidly opposed by the National Association of Home Builders, the AFL-CIO and the National Savings and Loan League. The National League represents some small S&L's which would have difficulty surviving without the shelter of Regulation Q.

Given that line-up, the surprising thing is that the chairmen of the House and Senate Banking Committees are grudgingly talking about legislating in this area, albeit probably not before 1976. In the interim, they plan to hold hearings. Howe they may have decided that specialization of thrifts is longer viable for the long ru

Successive waves of in tion in the U.S. economy si the mid-1960's have ratche up interest rates and forced thrifts into a worsening feast famine pattern of deposit flo That consequence of thri specialization seems likely continue unless American in tion permanently slows do And when the thrifts are ou money, housing slumps, so it too follows a boom-b cycle.

Passage of FIA would leave mortgage money c high as long as inflation th tens, but it would tend smooth out the cyclical swin activity. By past standard would be a drastic remedy the problems of the hou market. But the situation gotten bad enough that its op nents suggest an even m drastic remedy. Thus, AFL- president George Meany asked Congress to have the tion's supply of credit alloc by the President, using pov granted under the Credit C trol Act of 1969. Presid Nixon and Ford have refuse use the powers.—*Stanley son, World News, Washing*

Go-ahead given for $250 million multi-use renewal project in Atlanta



The go-ahead for a $250 million, 78-acre multiple-use development near downtown Atlanta seems almost certain as the result of the announcement in late February of political agreement on a master plan for the area.

The development of the Bedford-Pine Urban Renewal area (shown in model photo) has been held up for almost a year as a result of citizen objections to proposed plans. The project seemed at a stalemate about six months ago, and led Mayor Maynard Jackson, with three mediators named by him, to become involved. The plan for the area still must be approved by City Council, the Atlanta Housing Authority, and by HUD before Park Central Communities, the developer, can colclude a contract with the Housing Authority. Local approval, however, seems assured because of the city's involvement in reaching the consensus.

As the plan now stands, the urban renewal area would be developed to include 3000 residential units, 2,665,000 square feet of office space, 250,000 square feet of retail space, and 125,000 square feet of recreational area.

According to Joseph Martin, Jr., vice president, Central Communities, the o space will be concentrate four high-rise towers of 2 stories, and possibly as mar 35-40 stories. About half o housing units would be in s tures of more than four fl with the highest abou stories.

Martin says that the de opment probably will be over a 10-year period, hope with the first construction u way in 1976. The plan wa The Crane Design Group.

A proposes code orm program

ly the brave venture into the rld of building code reform. ggestions for change—no tter how minor—stir intense otional reactions.

The American Institute of hitects was aware of the gers, but it nevertheless has ded onto the battlefield with lan to radically revamp and dardize the entire building e-writing establishment.

Through its Codes and ndards Committee, AIA is- d a report entitled "One le: A Program for Building ulatory Reform." Hostility he idea sprang up at once, has since abated somewhat.

The proposal did not di- ly suggest the preparation of ngle code for nationwide ap- ation. Rather, it developed a n of standardized proce- es for national, state and l organizations to follow in ding code regulation, pro- gation, administration, en- ement and research related uilding technology.

The Committee believes standardization of the regu- ry processes at the state or local levels will, in turn, to greater code compat- ty and eventually to an erican building code.

Predictably, the AIA sug- ion triggered heated ex- nges among Washington esentatives for construction ests who are savvy in the es and standards field.

Some of the criticism cen- d around the Institute's pro- ure for releasing the report. hout clearing it through an rmal group of technical so- officials who have acted as sors, the report was made lable "by-request."

Others worried that AIA ld try to undercut the soon- e-established National In- te of Building Sciences S), a Federal government agency that will be pushing code improvements. AIA spokesmen stress that they are eager to work through NIBS and indeed, the report suggests a healthy funding level for the government-chartered NIBS organization.

Just as importantly, some officials initially believed that the proposal would result in nothing more than another unneeded model code. A careful reading of the proposal seems to indicate, however, that Institute planners are taking a longer range view than that.

The report begins by noting that the United States, unlike many other nations, does not have a building regulatory system but rather a mishmash of overlapping and sometimes contradictory bureaucratic levels of code-writing sub-groups. Thus, the report proposes a new system of standardized procedures for various governmental units and industrial components involved in code and standard writing to follow.

Evolving from within this new organizational framework would be a single building code that would be written from existing data and based on performance criteria that professionals have implemented by time-honored consensus.

The report says the code should not "venture into areas of regulation, not proven by research or field experience." It would be developed for adoption by state and local jurisdictions with regional variations provided as options. Variations could involve factors such as wind load, insulation requirements or snow load.

In private conversations, AIA Codes and Regulations Center officials emphasize that the proposal is partly in the nature of a "trial balloon," an idea they hope will become the catalyst for debate which could refine the concept.—*William Hickman, Washington.*

mmer session in design planned for women

ing alternatives in profes- al practice and in educa- a group of women in the gn professions has an- nced plans for The Wom- School of Planning and Ar- cture.

Scheduled for two weeks in ust 1975, the school will be on a small college campus he coast of Maine. Admis- is open to women of any at any stage of their educa- or continuing education; nly requirement is that stu- s be working or studying in e area of the environmental gn professions.

Those participating as full-time "faculty members" are: Katrin Adam, Kathryn Allott, Ellen Perry Berkeley, Noel Phyllis Birkby, Bobbie Sue Hood, Marie Kennedy, Joan Forrester Sprague, and Leslie Kanes Weisman.

Cost of the two-week session will be about $400 (including room, board and tuition). Child care will be available. For further information, prospective students should send a stamped, self-addressed envelope to The Women's School of Planning and Architecture, Box 311, Shaftsbury, Vt. 05262.

Toronto lifts height ban, starts building

Buildings with a cumulative cost estimated at $82 million could be authorized in downtown Toronto following the decision of the Provincial Cabinet to ban the city's 45-foot height bylaw (RECORD, March 1975, page 34).

The Cabinet decision, announced late in March, resulted from an appeal by the city to reverse the Ontario Municipal Board's rejection of the height bylaw. The Provincial Cabinet's decision to reject the height ban was based on the ambiguous nature of the bylaw, and the fact that it did not clearly spell out rules for possible exemptions from the legislation.

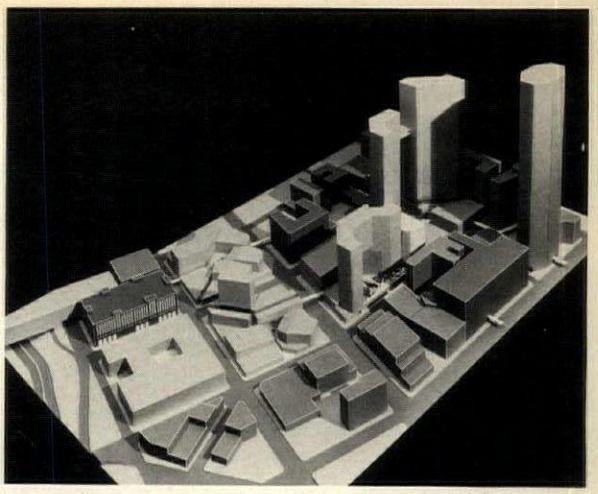
Twelve building applications were filed with the city prior to last December 16, when the city declared its intention to replace the height bylaw with interim criteria to be called "The Modified Core Area Bylaw." Individual permit applications for the buildings, which include office towers, hotels and office-shopping complexes, are currently being studied by the city's legal department to determine if the city has grounds to withhold necessary authorization. Applications for the tallest building seek the go-ahead for a 365-foot-high structure.

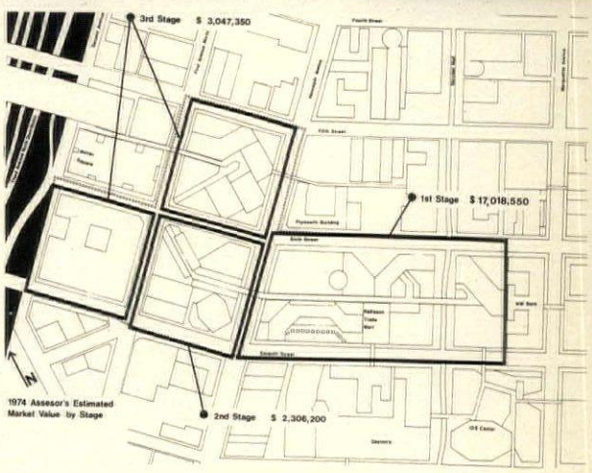
NEA releases film on re-use of stations

"STATIONS," a film funded by the National Endowment for the Arts and premiered last July in Indianapolis at the Conference on Re-using Railroad Stations, is available for rental or purchase, in two lengths: 63 minutes or 28 minutes. In the longer length, the 16mm color film rents for $90 per week, or sells for $650. The shorter length rents for $40, or sells for $290.

Filmed all over the United States, the examples range (in the long version) from small private residential and commercial conversions through voluntary community group adaptation for arts and historical purposes, to large, ambitious public and private efforts.

"STATIONS" was made to develop awareness of this resource in our midst, and to provide a variety of models for action. Included are schools, museums, restaurants, shops, and entertainment complexes that were involved in the effort to save the stations. For more information, contact: Roger Hagan Associates, 1019 Belmont Place East, Seattle, Wash. 98102.





Minneapolis to implement $145 million plan

The Minneapolis City Council has voted to implement a $145 million downtown redevelopment project designated "City Center '75," and the city is currently negotiating with three developers on Stage I.

The proposal calls for rebuilding a corridor perpendicular to the office, retail and entertainment functions now concentrated on three parallel streets.

The pedestrian system and development proposed would join these streets to a 1500-car garage constructed over a freeway distributor. The pedestrian system or linear bazaar will also connect to the existing second level walkway system in the city's downtown. John Burg of the City Coordinate's office is credited with the plan.

Boston's John Hancock tower to be "stiffened"

The trouble-plagued, 60-story, $105 million John Hancock office building in Boston will require the addition of "stiffening members" to the interior to prevent possible excessive swaying in high winds.

Confirming a newspaper report of the problem, John S. Feeley, public relations director for John Hancock Mutual Life Insurance Company, owners of the building, said the reinforcement recommendation was made by consultants following delicate stress tests of the building originally made in connection with studies of a problem with breaking glass panels. The $5 million work of installing 10,344 new glass panes is now 85 per cent completed, said Feeley, but the extent, cost and length of time that will be required for the structural strengthening is still under review.

Feeley said that a team of consultants was hired by the building's designers, I.M. Pei and Partners, during the glass problem "to review instrument monitoring records of the building and data on its performance under weather conditions which could occur in the next 100 years." Pei, said Feeley, later "advised us that in order to ensure satisfactory performance of the building under extreme wind conditions which could possibly occur over the next 100 years, stiffening members should be added in certain locations within the central core of the building."

Ground was broken for the structure in 1968 and it was scheduled to be open in 1971. It was not known whether the interior reinforcing could cause a new delay in occupancy in the building scheduled for the end of this year.

Rx: INTERSTITIAL SPACE DESIGN—

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As the model shows, the new system is essentially a series of structural "sandwiches" of mechanical floors between the patient floors. Within these intermediate spaces (service levels), equipment and all mechanical, electrical and communication lines are housed and serviced. Distribution and collection systems are also accommodated between floors.

HINK OF IT AS "SANDWICHES" OF STEEL.

The Interstitial "sandwich" levels
n, of course, vary in height—depending
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ors they service. They can be con-
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Find out more about this developing concept. Contact a USS Construction Marketing Representative through your nearest USS sales office or write: United States Steel, 600 Grant Street, Pittsburgh, Pa. 15230.

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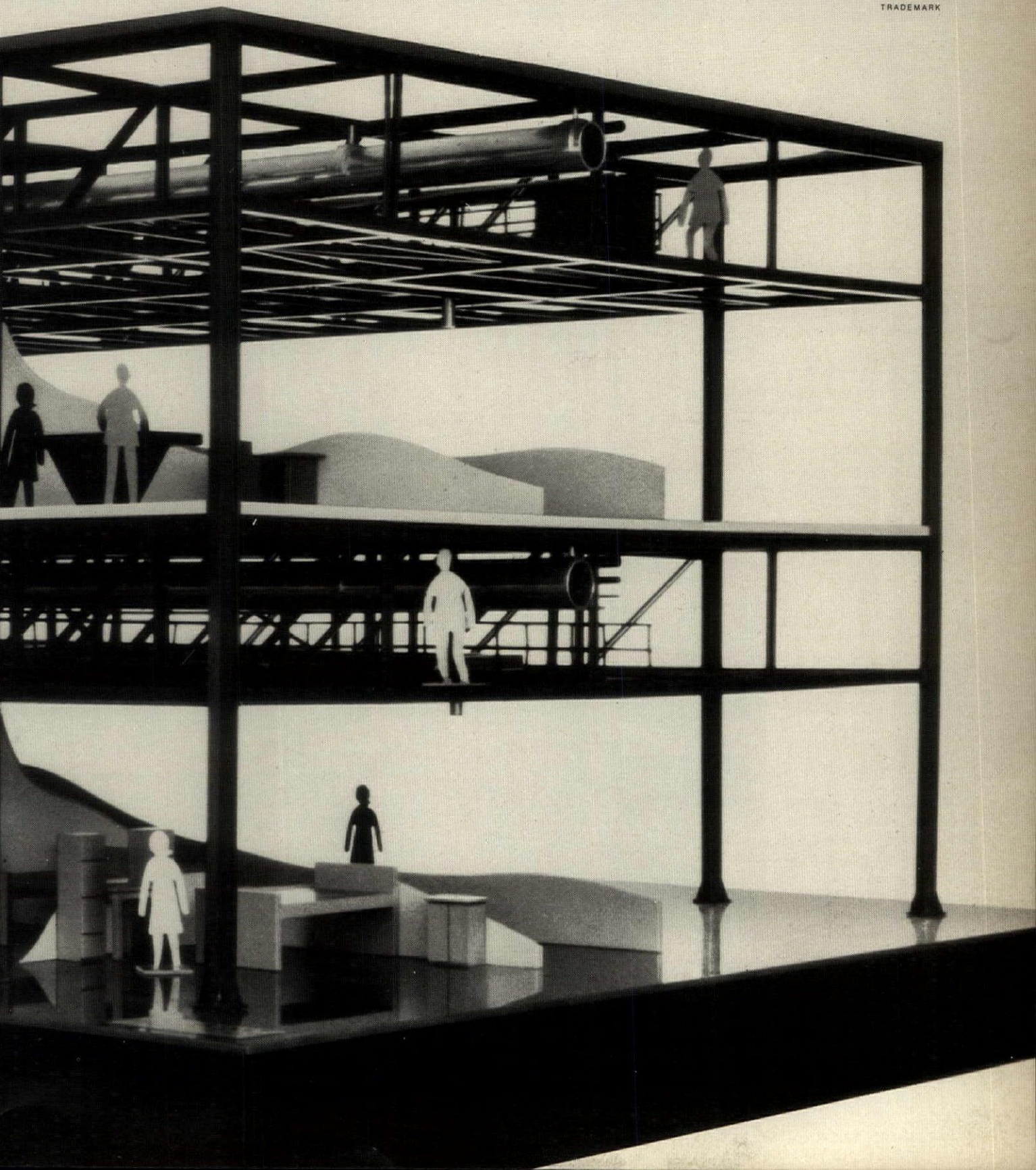
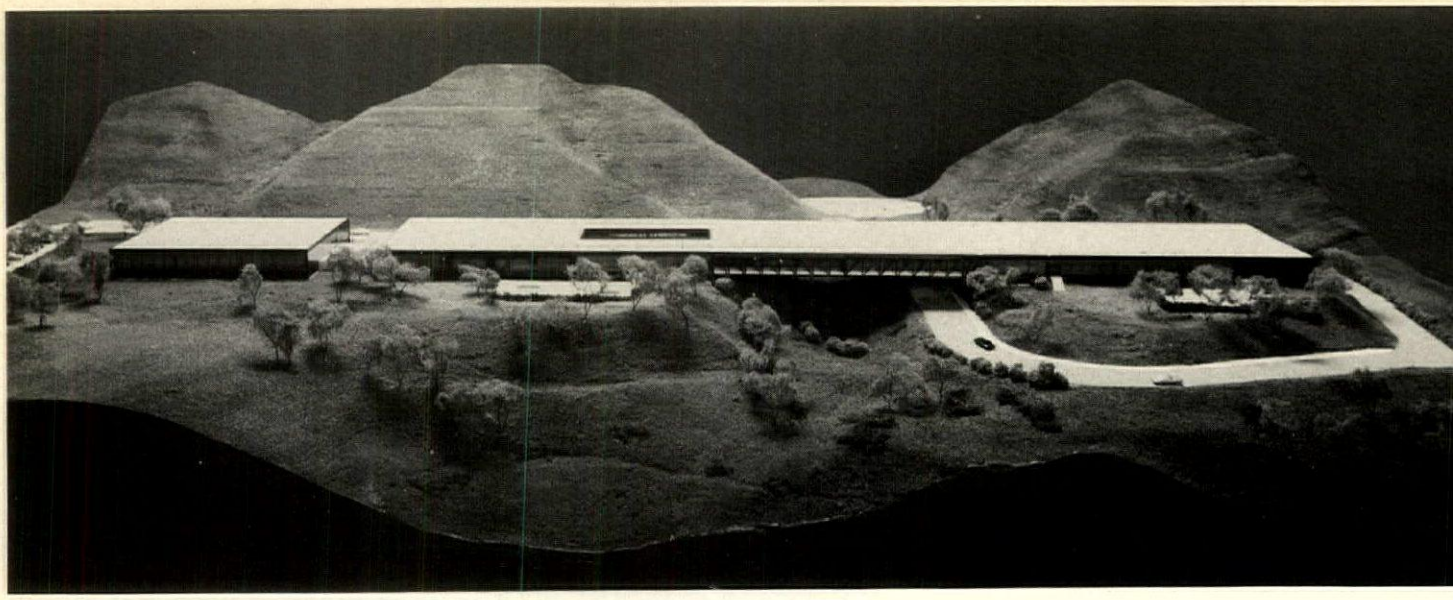


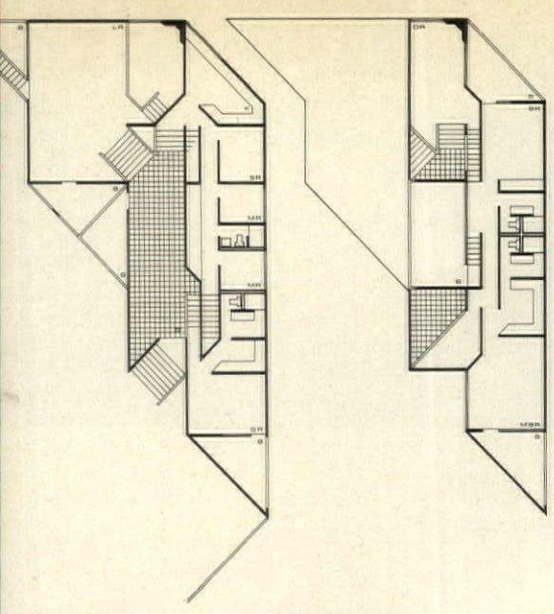


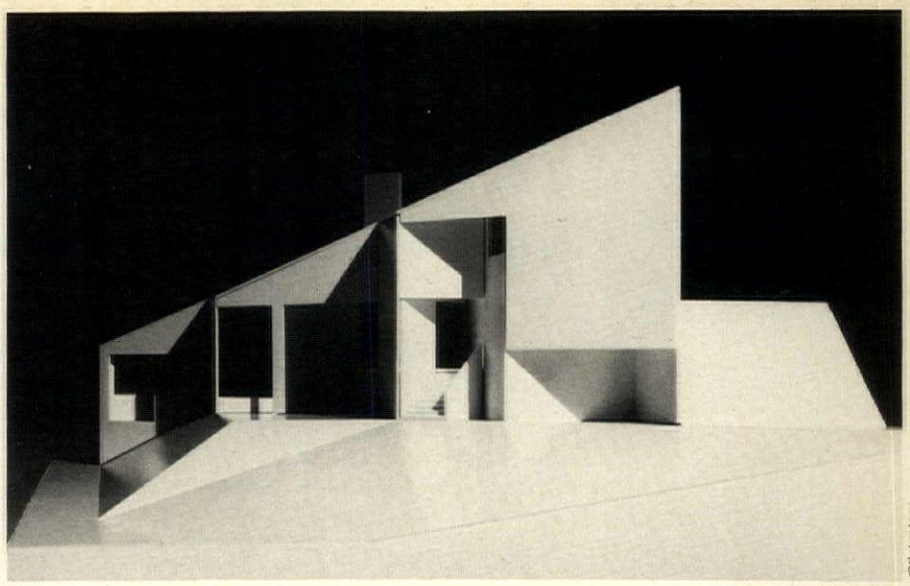
One-building campus for arts college

The new $7.6 million campus for Art Center College of Design in Pasadena, California will provide 166,000 square feet of space in one building 672 by 144 feet. The design of Craig Ellwood Associates is a low profile structure of exposed steel and bronze glass spanning a 192-foot-wide ravine in the San Rafael Hills. The bridge portion of the building is supported by four 16-foot deep trusses; glass walls set back 12 feet from the trusses permit covered walkways between the north and south wings. The building is designed with 48-foot-square bays on the main floor and 24-foot-square bays on the lower, semi-basement floor which is one-third above grade. Structure, mechanical and electrical systems are left exposed in keeping with the industrial quality of the building, scheduled for an October completion.

Corporate education center for Xerox

Vincent G. Kling & Partners designed this $55,000,000 International Center for Training and Management Development for the Xerox Corporation, near Washington, D. C., in Loudoun County, Virginia. With the eventual need to accommodate 2000 persons for extended periods of training, the building was designed for phased construction of several self-contained "living-learning" centers, five of which form the first phase of the project. Behind and beneath the terraced residential units in each center are two "streets," one at the top ring connecting the clusters, and a ground level commons area serving the classroom laboratory wings. The capacity of the present facility is 1000 people in approximately 1 million square feet. Views of the 2265-acre wood site are maintained for all the living units which are constructed of concrete and roofed in clay tile. Interiors include exposed concrete block and drywall with plaster.





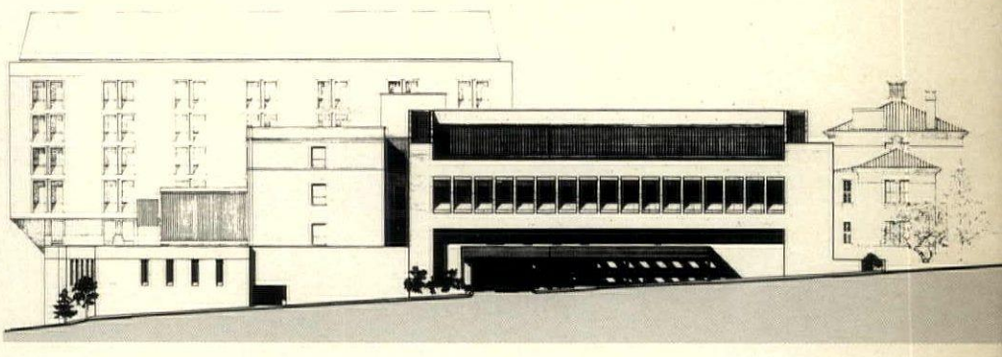
Gil Amiaga

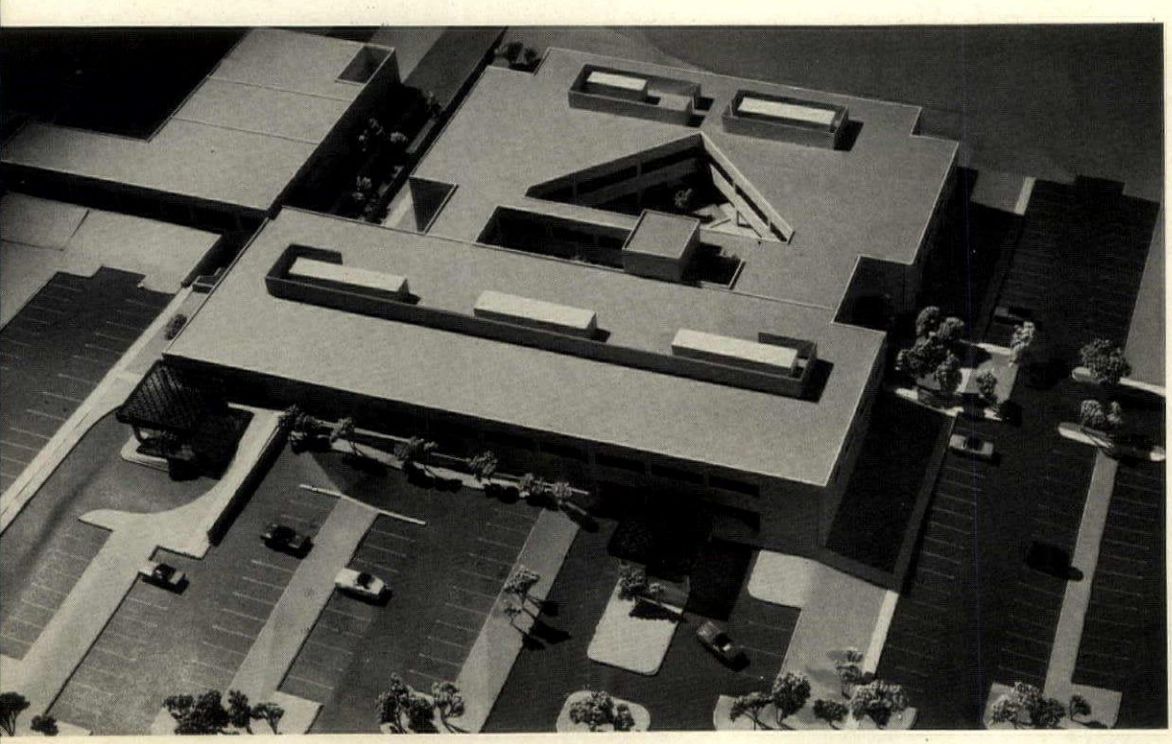
ject: private idence in Jamaica

Martin Price has designed this house for a couple in Jamaica, West Indies around a grand hall which separates the house into a living area and an area for sleeping the family and servants. Set on a mountainside overlooking the Kingston harbor, the house steps down the site with a continuous sweeping roof over four levels. Triangular porches are created between adjacent rooms, and here windows occur under ample overhangs, protected from rain and the western sun. Exterior materials are wood shingles on the roof, walls of reinforced block stuccoed or covered in native limestone. Interior materials are terrazzo floors, plaster walls, and a ceiling of exposed wood joists. Note that the dining room shown on the upper level plan is actually on the same level with the kitchen which is tucked under a bedroom balcony. This permits the showing of an inglenook adjacent to the living room on the lower level (left).

dition for hospital in historic Annapolis

onfined and sloping 7000-are-foot site within the ts of the historic district of apolis, Maryland will be d for an addition, shown t center, to Anne Arundel eral Hospital. The archi-, Roger L. Pompei, has de-ned—within the historic ing confines—a comple-mentary extension of the original 1907 building and other buildings added since. The structure of the new building will be steel frame with composite floor slabs, and prefabricated brick and porcelain enamel panels will be used in facings. The $3 million addition will be completed in 1976.





Construction begun on California hospital

Pacoima Memorial Hospital's new 145-bed facility is now under construction in Lakeview Terrace, California, replacing the original building destroyed in the 1971 San Fernando earthquake. The poured-in-place concrete and tilt-up shear wall building, designed by William Wilde and Associates, Inc., contains 133,000-square-feet and is being built at a cost of $6,248,-500. Including inner courtyards for patients, visitors and employees the hospital is organized around a north-south circulation spine with ancillary services to the south and nursing services to the north. Patients, services and public movement are separated.

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help housing
ht for exhibition

nnection with the forth-
ng United Nations Confer-
on Human Settlements
tat '76) to be held in Van-
r in May 1976, the Van-
r Art Gallery is preparing
khibition on world-wide
elp housing.
he inspiration for this ex-
on is the International De-
Competition, sponsored by
nternational Architectural
dation Inc., now being
or the urban environment
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Manila (see Perspectives,
14 and announcement,
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The Vancouver Art Gallery
d greatly appreciate any
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of examples sought are: 1)
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ify the examples, provide a
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ographs by July 1, 1975.
e send material to the di-
r, Vancouver Art Gallery,
West Georgia Street, Van-
er, B.C., Canada, V6H

Saudi Arabians award hospitals to Ellerbe-DMJM

The design of two multi-million dollar medical complexes for Saudi Arabia has been awarded to the joint venture team of Ellerbe, Bloomington, Minn. and Daniel, Mann, Johnson, & Mendenhall (DMJM), Los Angeles. Each of the medical center complexes will be located on a site of nearly 200 acres, and will involve a total estimated construction cost in excess of $925 million for both projects, with completion scheduled in the late 1970's.

One medical center will be at Taif, the summer capital, a mountain city east of Jedda and Mecca, in western Arabia near the Red Sea, while the other is to be in Riyadh, the capital city.

A team of Saudi Arabian officials (shown with Ellerbe president Ken Mahal, pointing to model) is presently touring new medical centers in the United States preparatory to start of work. Included are the Ellerbe-designed Mayo Clinic buildings in Rochester, Minn., and the recently-opened St. Vincent's Medical Center in Los Angeles, designed by DMJM.

Each Saudi medical center will be a small, self-sufficient city, with residential accommodations for over 1700 people, complete with schools, commercial and recreational facilities, mosques, swimming pools, vehicle and equipment maintenance shops, and complete, independent utility system for water, power and waste disposal, according to Stanley A. Moe, DMJM vice president and team project manager.

Each center will include a large hospital and outpatient clinic facilities. One hospital will be an acute care facility and the other is intended for chronic care. There will be teaching facilities, classrooms and laboratories for the training of nurses, paramedics and medical technicians, within a city-like compound.

The projects are expected to benefit hundreds of United States contractors as well as suppliers who will be providing the medical equipment.

Leaders of developing countries urged to be patient and seek housing plans

This is the third installment of a report on the International Conference on Housing for the Emerging Nations, held in Tel Aviv, Israel, in December 1974. The reporter is Samuel R. Mozes, AIP, chairman of the International Planning Liaison Committee of the American Institute of Planners.

An urgent appeal to policy-makers in developing countries and other new settlements to build housing in accordance with priorities suggested by professionally prepared plans, rather than on the basis of emotional decisions, was voiced by principal leaders of the recent International Housing Conference held in Tel Aviv under the sponsorship of the ITCC (International Technical Cooperation Centre).

In a keynote address, Professor Samuel Aroni, acting dean of the School of Architecture and Urban Planning, University of California at Los Angeles, said in part: "In the past, the misconception that housing is a social problem and, therefore, a non-priority item, not deserving as much attention as other sectors of the economy led economic planners to reduce or eliminate government investment in this sector. The recent realization that housing can be a major generator of development has reversed that trend in a number of countries."

Discussing the potentials of new forms of tenure in developing countries, Peter Marcuse, professor of planning in the School of Architecture and Urban Planning, University of California at Los Angeles (and the next chairman of the planning department at Columbia University), said that: "Generalizations dealing with developing countries are dangerous; in many cases, the differences among developing countries are greater than the differences between developing and developed countries.

"It is generally true that in most developing countries capital is in shorter supply than labor, and that skilled labor is in shorter supply than unskilled. Any action that reduces the necessity for capital-intensive programs and maximizes the use of unskilled-labor-intensive activities is thus extremely desirable. This, of course, is the rationale behind any self-help housing program, and many such programs have in fact been quite successful."

It remains to be pointed out, against the background of the conference pronouncements, that while the political decision-makers are not basically hostile to professionally prepared plans—physical or economic—they are not willing to spend too much time waiting. One of the most prominent mayors in the Middle East recently said: "We can build housing ten times faster than you planners are able to prepare plans for development, and we cannot wait."

Papers sought for enclosures congress

The organizing committee of the IASS World Congress on Space Enclosures is calling for abstracts for an international meeting to be held in the Hotel Bonaventure, Montreal, July 4 to 9, 1976. The Congress is presented by Montreal's Concordia University and the International Association of Shell and Spatial Structures (IASS) in co-operation with Ecole Polytechnique, Montreal and Carleton University, Ottawa.

The objective of the Congress is to bring together practitioners and scholars to discuss the problems of design, construction and performance of space enclosures of diverse function and form. The technical program consists of presentations in the fields of: housing; large-span assembly buildings; special-purpose and special-nature space enclosures such as spacecraft, oceanic structures and reservoirs. Presentations may focus on one or more of the following: morphology; architecture; performance criteria; methods of construction; and economics.

Abstracts of papers should be submitted in triplicate not later than July 1, 1975, and should be 300 to 500 words in length. One's name, affiliation, position and complete mailing address should be indicated on the abstract. Authors of accepted abstracts will be required to submit the completed manuscripts for final review by December 1, 1975.

Abstracts and inquiries concerning submission of papers should be sent to: Dr. A. Biron, chairman, Paper Committee, WCOSE-76, Section de mécanique appliquée, Ecole Polytechnique, Case Postale 6079, Succursale A, Montreal, Quebec H3C 3A7, Canada. For further information regarding the World Congress on Space Enclosures, contact: Dr. P. Fazio, chairman, Congress Committee, WCOSE-76, Systems Building Centre, Concordia University, 1455 de Maisonneuve Blvd. W., Montreal, Quebec H3G 1M8, Canada.

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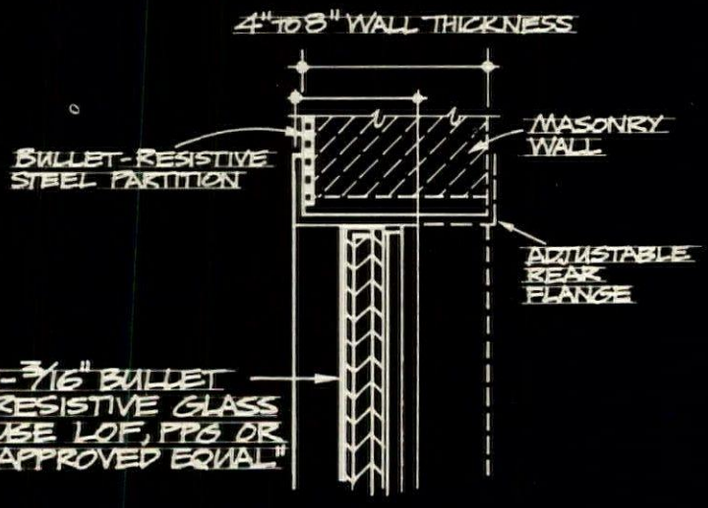

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Stacking the Deco

SKYSCRAPER STYLE: ART DECO NEW YORK, *by Cervin Robinson and Rosemarie Haag Bletter; New York. Oxford University Press, 1975, 88 pages, 115 plates, illustrations. $20.00.*

ART DECO ARCHITECTURE IN NEW YORK, *by Don Vlack; New York. Harper & Row, 1974, 179 pages, illustrations. $15.00.*

Reviewed by Martin Filler

The study of an architectural style in one city can sometimes give insights as informative as a more wide-ranging survey might. With New York, which is to Art Deco as Rome is to the Baroque and Ravenna is to the Romanesque, this is certainly the case. Two recently published books discuss the newly rediscovered late 1920's and early 1930's New York architecture that might be termed the last of the decorated styles.

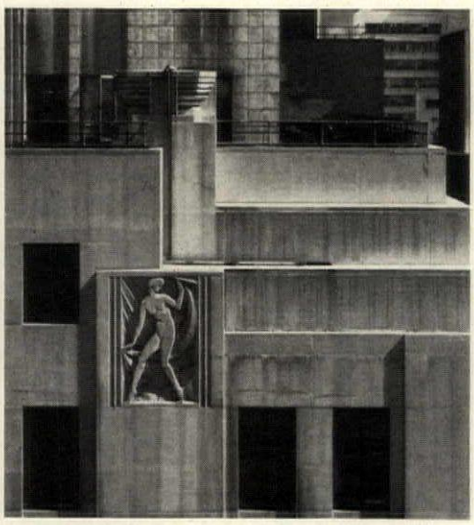
Art Deco (or "Modernistic," "Moderne," "Jazz Modern" or "Style 1925," as it was known variously in its heyday) was from the outset considered the embarrassing step-sister of "serious" architecture by tastemakers brought up in the Beaux-Arts tradition. These same critics were able to elide their allegiances to the International Style with an ease that depended in part in their avoiding the jagged edges of the "Zigzag Style." Art Deco was above all a popular, populist style—"vulgar" in terms of its readily-understood mass appeal.

That appeal was made frankly through the senses, and can be accounted for in making the theory-oriented proponents of Internationalism uneasy. What could be made of a style that seemed to pay primary attention to color, to surface decoration and to the visual, rather than to the structural nature of materials while the cool and cerebral visions of the International Style were aborning?

Much of this attitude had to do with currents in the European architecture in which Art Deco had its origins. Although the Bauhaus, seed-bed of the International Style, began as a craft-oriented school that hoped to reach and affect the lives of the common working man, its emphasis by the late 1920's had shifted to a more elitist base. This change, reflected in the machine-like images its later architecture projected, was as clearly understood as any written manifesto and was just as widely disseminated, as the term "International Style" implies.

The extent of the triumph of the International Style can be seen with relentless finality in the city where Art Deco found its strongest expression. New York's classics of Internationalism remain that, but have spawned a host of anonymous second-and third-generation offspring that take more and more of the character of New York with them each year. The nostalgia boom that has permeated many aspects of American life these past few years can be seen as all the more valid when applied in this architectural context.

A gaudy terra-cotta spandrel, a funky bas-relief hootch dancer, a lobby "as gaily . . . decorated as a village street in a strawberry festival," (in Lewis Mumford's phrase) can reawaken the joy of seeing that is in itself an indictment of much that is wrong with architecture today. Yes, Art Deco was an anachronism, but



a glorious anachronism at that. It flowered and faded in a remarkably short time, a victim of Depression economics that naturally turned from this artisan-oriented style to the more economical, undecorated forms of the International Style. But its lessons to us 40 years later are clear. Purely visual delight has as valid a place in architectural thought and practice as any, more "substantial" concern, especially in the urban setting. And eyes glazed by the increasing sameness of Slab City will be delighted by these two books.

Skyscraper Style is clearly superior in defining and illustrating this maverick style. Cervin Robinson's magnificent photographs demonstrate his clear understanding of Art Deco architecture. He has obviously studied the buildings and invariably presents them at just the right time of day with an appealing blend of attention to the specifics of detailing and the generalities of massing. Ralph Applebaum's pictures in *Art Deco Architecture in New York* are awash in the same mid-grey tonalities that do little beyond identifying buildings we might have known before.

The Robinson/Bletter book is as compelling for its text as for its photography. Here, at last, is a serious and well-reasoned treatment of Art Deco that once and for all removes it from the canons of kitsch, camp and questionable taste. That it has happened so soon is fortunate for us, for the codification of architectural styles is all too often perilously soon before the arrival of the wrecker's ball.

Rosemarie Haag Bletter's thorough but concise, scholarly though not pedantic essay "The Art Deco Style" has the rare and becoming touch of leading the reader through her assertions without the dogmatics that make the writings of the International Style propagandists of the 1930's seem shrill in retrospect. She traces the origins of Art Deco through European and American sources, making provocative discoveries along the way. The influence of Gottfried Semper, a 19th century German architect and theorist, she maintains, was transmitted through his admirers Louis Sullivan and John Wellborn Root and had a rather direct influence on the articulation of Art Deco's most representative building type, the skyscraper.

Cubism, German Expressionism, the *Wiener Werkstätte* all had an effect, too, as did stage- and movie-set design, an influence not particularly surprising in a style that was criticized for its rather frank use of theatrical effects. (One critic called William Van Alen, architect of the Chrysler Building, "the Ziegfeld of his profession.") Yet from all these diverse strains there emerged a style that, however derivative, attained an amazing degree of stylistic independence, a fact that did not escape Le Corbusier when he selected a photograph of the Barclay-Vesey Building for the frontispiece of his *Towards a New Architecture.*

Ms. Bletter's essay closes with a heady prose poem to the Art Deco skyscraper by none other than Frank Lloyd Wright. Although not at the center of Art Deco architecture (his work transcended stylistic labeling to a great extent), Wright nonetheless shared the visionary aspects that would take shape in his Mile-High Illinois skyscraper 25 years later. Sullivan's disciple, he could see the spirit of aspiration that it expressed in a beguilingly simple and forthright way. It is this same appeal in Art Deco architecture that is speaking to us again today, and the quirky cul-de-sac that it once seemed is now esteemed for just those qualities. Forty years after the fact we can at last celebrate the pleasures of Art Deco, the architecture that wasn't afraid to be human.

Mr. Filler is assistant manager of Architectural Record Books.

You no longer have to choose between tape dictation and belt dictation.

The business of commissioning art for buildings

Art, especially sculpture, for buildings is linked to the architectural commission in various ways—all of them fraught with personal and financial peril for both architect and artist. Houston artist, Bob Fowler, comments on the perils and has some good advice for preserving architectural and artistic integrity.

Indications of sculpture appear in a very large percentage of architectural renderings and models, while a completed piece of art in a finished building is sadly rare. Obviously architects are sensitive to the design function that can be carried by a good piece of architectural sculpture, and this nation is rich in qualified artists. Maybe it is at last time for the architect to look up from his contracts and law suits and the artist to climb down from his tower so that both may cure one of the most curious threats to American esthetics since the founding of the Corps of Engineers.

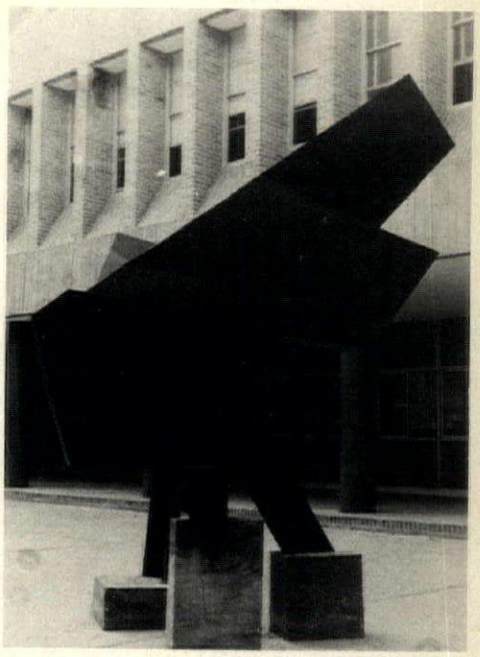
Timing is extremely important. Sheer habit has led architects to postpone art purchases until the last item of business when the emotional drain of a long project tends to compromise the judgment of the architect and the client. Actually the best possible time for a sculpture presentation is shortly before or shortly after the bids are opened from the contractor. Regardless of the size of construction overruns, I have never seen a client complain about art that is delivered as a result of a contract made during this period. The art, after all, fits its pedestal and looks great. It has provided a welcome bright spot in the finished building. A curious transformation has taken place; the client has begun to think of the art as part of the building, which of course it is. All this other flak he's confronted with at the last minute is blamed on poor planning.

If we define collaborative sculpture as art for a specific environment, as opposed to art bought off a gallery floor, we are basically dealing with a situation in which the chief of design and the artist work out a specific design problem. It is only reasonable that the architect should go directly to the artist first. Gallery people don't know an elevation from a floor plan, but only the best will tell you so. Relatively new on the scene are art consultants, and they are, with few exceptions, bad news. They can make a beautiful case to a corporate client about not being tied to a single gallery, or about discounts, etc. Actually there are few galleries that will discount their top artists' work; and why should they? The gallery interested in the artist's name; so why discount it? The best approach is made directly to the artist. An artist, who has been promoted by a gallery to a degree of prominence, values that gallery relationship more than a single commission. So make it clear that he himself be responsible for paying any gallery commission that applies.

Choose your artist carefully, and make sure his work is reasonably consistent with your design objective. Remember, he isn't going to change direction for you, and you can determine where he is artistically by requesting a few slides of recent work. Using an artist you remember from a show you saw last year can lead to some funny surprises.

While an artist need not have an impressive list of monuments to his credit, you'd better find out if he is meant for collaborative work. Some simply design from piece to piece with no thought of the art's final environment. I told a friend of mine, an abstract expressionist who paints large canvases, that his work was now running 8 ft 2 in. and most collectors' walls were only 8 ft. He didn't really surprise me when he said, "That's their problem." While that attitude is fairly normal for someone dealing in compositions of a delicate quality and ending at the edge of a canvas, it would be numbing for an architectural sculptor. While most artists will let you know their sensitivities regarding their art work almost instantly, many are like children when it comes to business. If the prospect of a major commission is dangled before their noses, they will respond with a considerable supply of free work. Then if no final commission results, they will harbor a certain bitterness.

Carefully explain that no final work will be done without a contract directly between your client and the artist. That contract will be based on a presentation, to your client, which you and the artist will jointly prepare. (A sample contract I have used is shown on the next page.) If the project is of major size, the artist should be given a fee for a full collaborative study ending with a model which will become the property of the person funding the study. This could conceivably be the architect. Otherwise allow the artist full scope to judge whether he wants to become involved in even a small project at his own expense. His answer really should be yes if he can resolve the design from drawings in the vein of his current work. Or the nature of his work direction might result in a model that could be sold through his gallery. In all cases involving unpaid work, the results remain the property of the artist; even the most unfinished sketches should not be given to the client. This would be demeaning to the value of the artist's work, to say the least.



There is a fine line between collaboration and compromise. The artist will most likely need help determining size, mass complexity, color and texture as they relate to the architectural environment. Since even the most experienced sculptors have had little working exposure to large pieces, it is not at all uncommon to see a good man fall flat in the projection of a model into the finished piece. Make sure the artist is aware of all the hazards as they relate to the building and surroundings. And make sure this is all resolved before you go to your client for presentation.

If the client's decision is positive and a contract is produced, then leave the artist alone beyond the contract signing. Make sure his contract contains a clause stating that the finished piece should be "substantially" like the proposal, and encourage him to make the subtle improvements he wants in the finished piece. However, there is one exception that has to do with changes in the building environment. Maybe the brick sample you gave him is no longer made, and you have to substitute. If you know you might have to alter certain areas of your building to avoid compromising the design, let the artist deal with the new problems too. Understand his frustration and respect his decision. Try to be objective in any design decisions with the artist. After all, final improvement of the over-all project is your goal, and any serious architectural sculptor feels the same.

The best and most satisfactory projects are those in which the artist and architect com-

pletely respect each other. I can remember the first time I was faced with a major building change. An assembly hall a few yards from the sculpture was enlarged half again its originally planned size. I remember the shared delight when the architect and I discovered we had been passing time, exchanging pleasantries, trying to work up courage enough to tell each other the sculpture's size would no longer work. I also recall an architect I had never before worked with asking me to change a small piece to one slightly larger in the proximity of a wall which had been cut down to a smaller size. Since the new elevation bore out the design change, I instantly agreed. I was subsequently very disappointed when he later told a client who wanted my work that I was "not the best, since I was prone to compromise."

Installation and lighting are usually more cheaply done by the contractor. Ask the artist to furnish drawings directly to the contractor for his use. And speaking of bases and the like, it might surprise you to learn that thieves have found that even the most contemporary sculpture has a certain cash value. Weight alone is not a safety factor. It's usually effective to imbed an L-shaped bolt in the base with a hole bored at the top to accommodate a large padlock. Such a device is easily hidden in the design of the sculpture itself and usually in a place that defies the use of a hacksaw.

In the first blush of modern architecture a great deal more art was placed in buildings than is so placed today. One reason is that the bright new architects could not find "modern" artists with sufficient experience in suitable materials to support outside sculpture. Many masterpieces literally dissolved in the rain or came unwelded, leaving a nervous client not quite sure how to make repairs. In every major corporation there is an older executive who will point to a past disaster. You will never get a project past him if your outside art is not more permanent than the building itself. There has been a lot said concerning self-destructing art being a valid comment on our society. This may be fine as a movement, but it wears thin in the area of collaborative sculpture, unless, of course, the building is of the same art direction. There are enough durable, contemporary materials today to satisfy the most demanding artists, so don't fear that you are restricting the artist by insisting on lasting materials.

Vandalism, like, theft, is an ever present problem. Any public art, unless it's in a bank or museum, is subject to vandalism. The City of Rome, for instance, has an entire department devoted to repairing noses and ears. The broad areas of the self-sealing steels are especially tempting to the budding egomaniac who likes to sign art work. In fact, regardless of how contemporary, all outdoor pieces which are esthetic, visual accents to a building are the most susceptible. Natural design barriers can discourage vandalism: height, plants, water, etc. At universities you can count on all the art being climbed by sophomoric apes, sometimes in groups.

Certainly, there is some extra effort required to get a good piece of art in a good environment. But if you have read this far, you will work it out.—*Bob Fowler*

CONTRACT

No

THE STATE OF TEXAS }
COUNTY OF HARRIS }

This contract made and entered into this_____day of_____, A.D., 19__, by and between ROBERT K. FOWLER, JR., hereinafter called Artist, of Houston, in the County of Harris, State of Texas, party of the first part, and_____, hereinafter called the Owner, of_____, party of the second part;

WITNESSETH, that the Artist and the Owner for the consideration hereinafter named agree as follows:

(1) The Artist, party of the first part, shall furnish all of the materials and the Artist, party of the first part shall furnish all of the work for making and fashioning a piece of art substantially like a_____ thereof heretofore submitted to and approved by party of the second part.

(2) The work shall be completed on or before the_____day of_____A. D., 19____.

(3) The Owner, party of the second part shall pay the Artist, party of the first part for the performance of the contract, the sum of_____.

(4) The Owner shall make payment on account of the contract, upon request by the Artist, as follows: The sum of_____ shall be paid to the Artist upon execution of this contract. Subsequent payment in the sum of_____ shall be paid to the party of the first part when the work is completed.

(5) Upon completion of the contract the_____ heretofore mentioned shall become the property of the Artist.

(6) This instrument constitutes the entire agreement between the parties hereto. No agreement or representation not made a part hereof shall be binding on either party. No change or modification of this contract will have effect unless made in writing and made a part of this contract.

(7) Except as otherwise noted herein, the Artist shall provide and pay for all tools and other items necessary to complete his work, and the Artist shall be in no way responsible for the structure or the building within which said art work is placed.

(8) The Artist shall re-execute any work that fails to conform to the requirements of the contract and that appears during the progress of the work, and shall remedy any defects due to faulty workmanship which appear within a period of one year from the date of completion of the contract.

(9) Should the work be stopped by any public authority for a period of thirty days or more through no fault of the Artist, or should the work be stopped through act or neglect of the Owner for a period of seven days, or should the Owner fail to pay the Artist any payment within seven days after it is due then the Artist upon seven days' written notice to the Owner, may stop work or terminate the contract and recover from the Owner payment for all work executed and any loss sustained and reasonable profits and damages.

(10) Artist's responsibility is limited to the art work herein contracted for and Artist does not accept responsibility for any connecting or associated structure or fixtures except:

_____

_____

(11) The Artist shall prepare the art work at a site of his own choosing which may be his own studio.

The Artist will take reasonable precautions to protect his work from damage by others during construction. He will also furnish to the Owner before any on-site construction by the Artist certificate of liability insurance which are acceptable to the Owner.

(12) The construction and interpretation of the terms and conditions of this contract shall be in accordance with the laws of the State of Texas wherein the Artist resides. It is further understood and agreed that jurisdiction for the enforcement of said contract is vested in the Courts of the State of Texas in Harris County.

IN WITNESS WHEREOF, the parties hereto executed this Agreement, the day of year first above written.

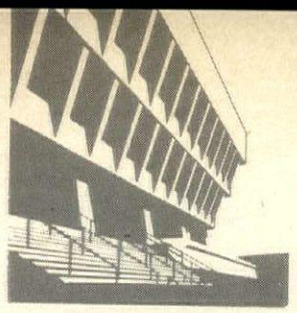
_____
ARTIST

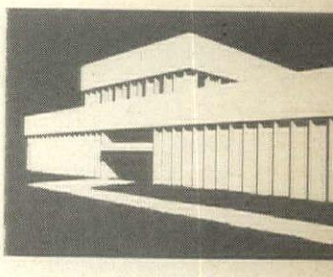
_____

By _____

Example of contract between artist Bob Fowler and client.

Call for entries!
1975 PCI Awards Program





Jury of Awards

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Lester A. Herr—Jury Chairman for Bridges
Chief, Bridge Division, Federal Highway Administration, U.S. Department of Transportation

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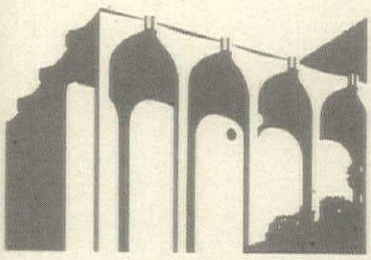
National Society of Professional Engineers
Gates Engineering Company



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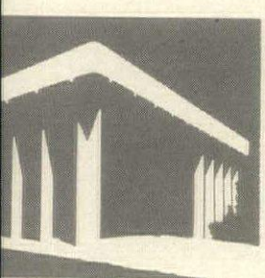

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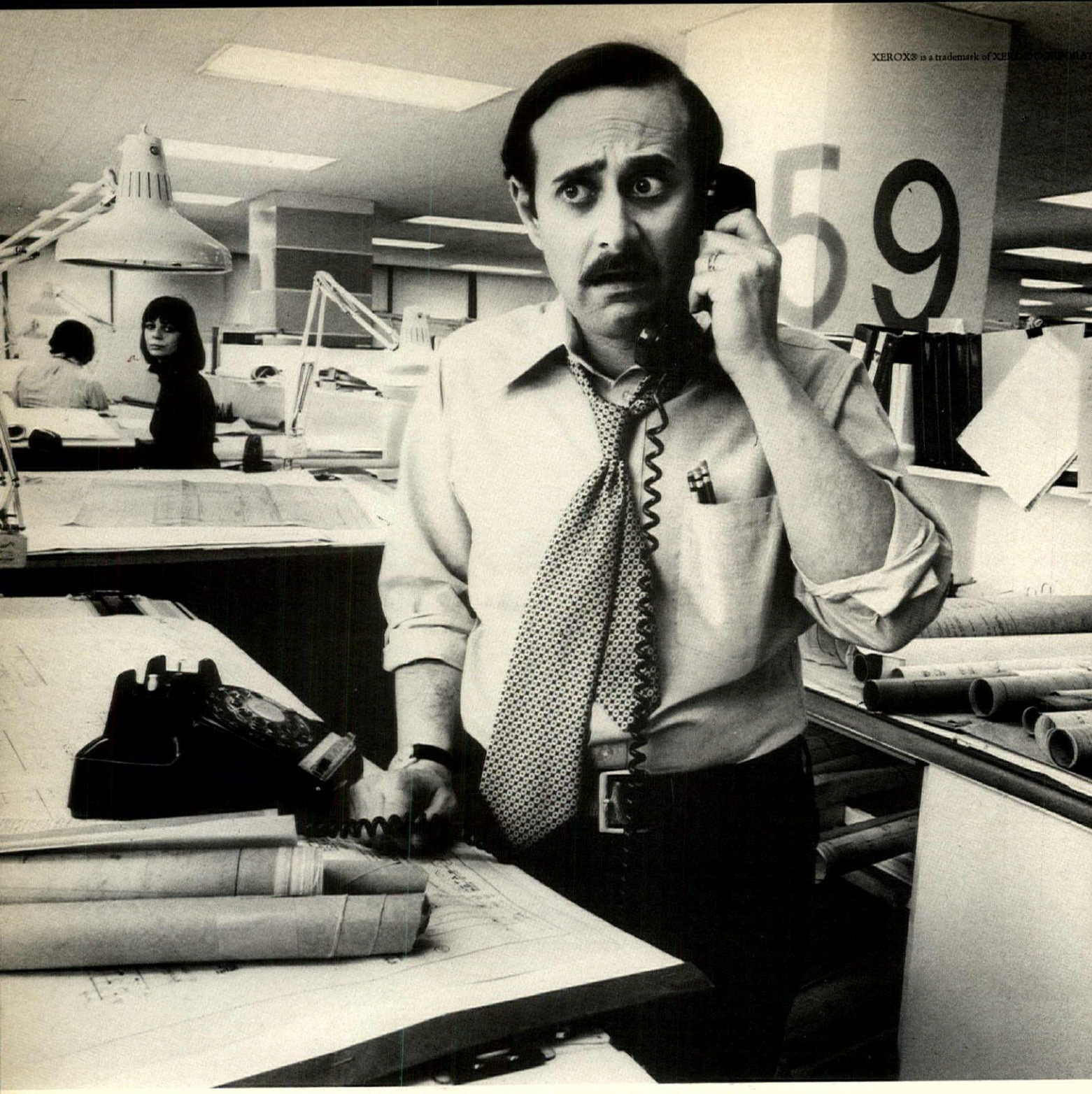

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Project accounting: stabilizer for building cost control

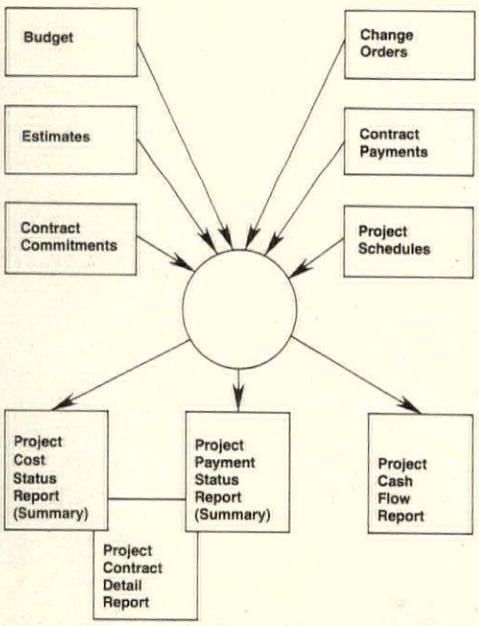
Budgeting, estimating, purchasing and value analysis, all subjects of prior articles in this series by the staff of CM Associates, are critical elements of the construction management process. But without the cohesive effect of a structured and responsive accounting system, the necessary cross-talk among those elements can fall into disarray and confusion. CM vice president Francis G. Whitcomb, architect and formerly general manager of Computing Research Systems Corporation (CRS2) of Houston, describes the role and composition of a good project accounting system in this sixth installment of the series. Other installment issues were: September, 1973; February, May and October, 1974; March 1975.

Project accounting is the gyroscope of cost control that holds the building process financially stable and allows all concerned to maintain a comprehensive view of where they stand financially at any stage in a project. Cost accounting always has been a necessary part of the building process. But as costs have escalated and become less predictable, the need to monitor them and relate them to schedules, systems, trades and cash flow has become much more critical. Typically, on a multi-million-dollar project, numerous contracts are signed for goods and services. Cost variations from original projections inevitably occur. The project accounting system must identify these variations early and accurately so that responsible adjustments can be made. When those responsible know where they stand with respect to the budget, they know what moves they can or must make. If 50 per cent of a project is bought out and contracts on the next 25 per cent come in well over the budget, a good monitoring system spells it out loud and clear and enables the owner, architect, engineer, contractor and management to respond quickly.

Responsible cost action requires instant data

CM Associates' project accounting system is computer-based and extremely responsive. It allows the owner, architect, engineer and construction manager to obtain whatever cost data they need within minutes.

The system shows the original budget allotment for each contract, along with the estimate, the actual contracted amount, the plus or minus variation, the original contract amount, approved change orders, and the pending change orders. It calculates these figures and gives an "estimated cost to complete" figure (contract by contract, as well as total project). All these figures are related to the existing contingency fund, which consists of a bidding reserve and a construction reserve.



This information is structured into four reports: the project-cost status report, the project-payment status reports (summary-level reports by contract), a series of contract-detail reports (showing all change order activity and an historical review of invoices and payments for each contract), and a cash flow chart.

The cost-status report indicates the budget allocation, current estimate, base and total commitments, approved and pending change orders, and the remaining funds for each line item. It shows the degree to which the contracts and the project have been bought out and any resulting deviations from the budget.

One of the most important columns in the cost status report is the pending change order column, especially on the summary page. The summary page takes the estimated total cost to complete the project and compares it to the budget, showing whether the project is on target and whether the contingency fund is healthy. If the percentage of contingency begins to get noticeably thin from one report to the next, then the project manager can caution everyone against future change orders.

The project-payment summary report lists all invoice totals, retainage and amounts payable for each contract. Specifically, it includes budget allocation, value invoiced, retainage held, amount payable, and the amount remaining on the contract. It provides sufficient information to serve as the monthly project draw. It, too, is summarized, giving a bottom line figure for each of the above items.

Contract detail reports are an analysis of each contract, displaying budget, estimate, and commitment amounts, as well as detailed histories of change order, purchase, and payment transactions. It gives change order numbers, purchase order numbers and dates the order was proposed and approved. It also lists pending change orders and purchase orders. The report serves as back-up material for the monthly draw and a payment history.

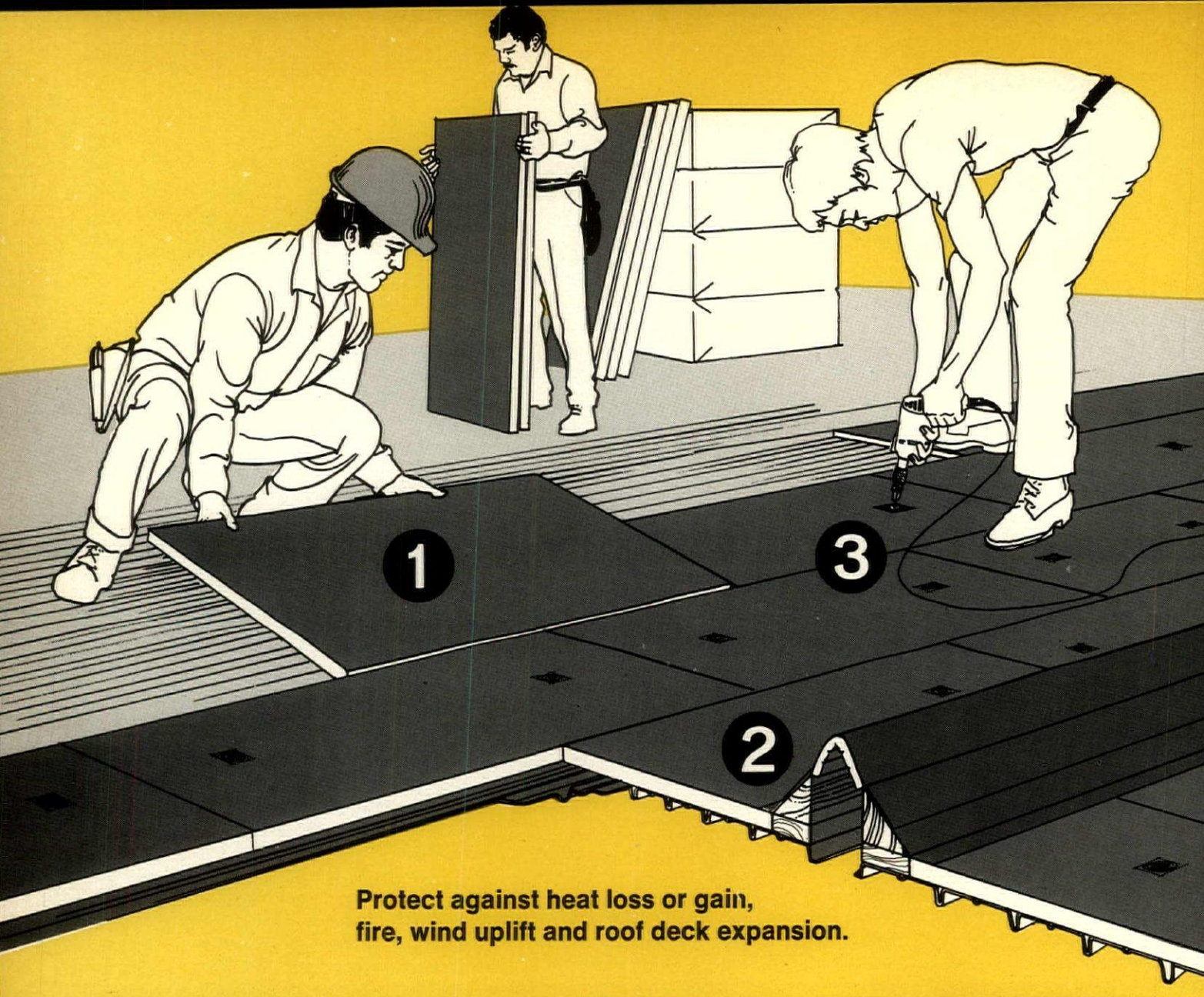
One of the benefits of the detail report is that it shows when a change order was proposed and whether or not it was approved. If a change order is still pending after several months, it is obvious that someone dropped the ball.

The cash flow chart lists activities (and their dollar values) to be accomplished every month for the duration of the project, again, with those all-important bottom line figures. It allows the owner to see at a glance his cash requirements for the entire job: how much he must pay to everyone associated with his project and when. The owner, as a result, can better utilize his finances, keeping his money working for him until he actually needs it.

The project accounting system initially is structured by the project manager. Using an estimate and the contract strategy (the number of contracts and their grouping into bid packages), he establishes contract budgets for each division of work that will be contained in each bid package. This information then is sent to the CM Houston office, where, with the aid of a computer terminal, it is entered into a remote computerized data processing system. As the project goes out for bids and the contracts are awarded, the base contract commitments are added to the data base, and the computer program then computes the variations between budget and contract price. Once construction begins, the project managers start relaying change order and payment information to Houston.

Computer printouts for each of the four reports are issued monthly (or upon request) to the project manager. The project manager provides update information which is entered into the system for each new report.

The tracking process established by a computerized project accounting system is precise and fast—so fast that it can free a project manager to manage the project instead of the books.



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How about pre-paid renovation?

The beginning of the second quarter finds a much more optimistic outlook on the part of financial institutions. For the first time in over a year there is money available to finance large-scale construction projects that have been sitting on the boards awaiting the easing of the credit crunch. From all parts of the country builders are beginning to speak optimistically for the remainder of 1975. Most major builders predict a surge in residential construction. Many of these builders survived 1974 by cutting back drastically on their work crews and keeping remaining crews working on whatever projects they could lay their hands on. Remodelling and renovation work meant the difference, in many cases, between survival and bankruptcy.

One contractor from the Wilmington, Delaware area cited the process of "urban homesteading" as an area where the government could have provided contractors with a sorely needed shot-in-the-arm. Rather than let abandoned homes go for a dollar and give the new owners the headache of making repairs that would bring them up to minimal standards of local building codes, it would have been much more efficient if the government were to do this repair work prior to selling the houses. The homes could then have been sold for the price of the repairs, eliminating the hardship and disenchantment that many urban homesteaders faced under this program.

John H. Farley, senior editor
Dodge Building Cost Services

INDEXES: May 1975

1941=100.00 (except as noted)

Metropolitan area	Cost differential	Current Indexes non-res.	residential	masonry	steel	% change last 12 months
U.S. Average	8.5	492.6	462.4	484.0	471.9	+ 7.79
Atlanta	7.5	591.9	558.0	580.4	568.8	+ 5.14
Baltimore	8.5	548.9	516.0	538.1	522.9	+ 4.33
Birmingham	7.3	445.2	414.1	432.1	430.0	+ 8.15
Boston	9.0	491.4	464.3	488.8	473.4	+ 6.36
Buffalo	9.1	541.5	508.4	532.5	517.7	+ 6.99
Chicago	8.3	547.8	520.8	527.6	520.5	+ 4.85
Cincinnati	8.8	525.7	494.7	512.1	499.1	+ 6.90
Cleveland	9.0	524.8	493.9	515.1	501.4	+ 5.35
Columbus, Ohio	8.2	507.4	476.4	500.2	486.2	+ 6.65
Dallas	7.9	493.7	478.1	484.6	476.2	+ 7.61
Denver	8.4	537.3	505.4	529.9	516.6	+11.39
Detroit	9.8	561.6	534.9	571.3	547.7	+ 6.71
Houston	7.4	453.4	425.7	441.7	433.5	+ 8.76
Indianapolis	7.8	444.1	417.0	434.6	424.2	+ 8.05
Kansas City	8.7	488.3	461.4	479.4	471.0	+10.41
Los Angeles	8.5	559.8	511.7	542.8	530.9	+ 6.29
Louisville	7.6	479.6	450.3	467.1	458.8	+ 4.86
Memphis	8.4	507.7	476.7	488.0	479.5	+ 9.59
Miami	7.9	506.5	482.5	492.0	481.1	+ 6.81
Milwaukee	8.7	563.9	529.5	555.7	540.9	+10.50
Minneapolis	8.9	520.6	489.7	513.2	501.3	+ 9.40
Newark	9.0	487.4	457.7	483.5	470.7	+12.01
New Orleans	7.5	470.5	444.2	465.0	453.3	+ 5.93
New York	10.0	537.2	499.4	526.1	514.0	+ 5.34
Philadelphia	9.1	538.4	512.9	535.4	520.9	+ 7.21
Phoenix (1947 = 100)	8.2	290.8	273.1	282.6	276.3	+10.06
Pittsburgh	8.9	481.4	452.9	477.6	462.1	+ 7.09
St. Louis	8.7	504.9	476.6	500.5	489.1	+ 8.44
San Antonio (1960 = 100)	7.6	187.6	176.1	184.6	179.7	+ 7.62
San Diego (1960 = 100)	8.7	208.7	196.0	204.8	199.4	+ 8.26
San Francisco	9.6	733.0	670.0	724.3	703.1	+10.63
Seattle	8.6	485.8	434.7	480.3	461.5	+ 7.91
Washington, D.C.	8.4	487.3	457.6	478.5	465.6	+11.57

Cost differentials compare current local costs, not indexes, on a scale of 10 based on New York

Tables compiled by Dodge Building Cost Services, McGraw-Hill Information Systems Company

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

1941 average for each city = 100.00

Metropolitan area	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974 (Quarterly) 1st	2nd	3rd	4th	1975 (Quarterly) 1st	2nd	3rd	4th
Atlanta	321.5	329.8	335.7	353.1	384.0	422.4	459.2	497.7	544.8	555.2	556.7	573.5	575.0	583.8			
Baltimore	285.7	280.9	295.8	308.7	322.8	348.8	381.7	420.4	475.5	516.3	517.8	532.8	534.3	538.7			
Birmingham	265.9	270.7	274.7	284.3	303.4	309.3	331.6	358.3	402.1	405.5	407.0	419.7	421.2	438.6			
Boston	257.8	262.0	265.7	277.1	295.0	328.6	362.0	394.4	437.8	455.1	456.6	461.0	462.5	484.1			
Chicago	311.7	320.4	328.4	339.5	356.1	386.1	418.8	444.3	508.6	514.2	515.7	528.1	529.6	539.2			
Cincinnati	274.0	278.3	288.2	302.6	325.8	348.5	386.1	410.7	462.4	484.5	486.0	498.6	500.1	518.0			
Cleveland	292.3	300.7	303.7	331.5	358.3	380.1	415.6	429.3	462.2	490.3	491.8	508,0	509.5	516.6			
Dallas	260.8	266.9	270.4	281.7	308.6	327.1	357.9	386.6	436.4	453.7	455.2	476.4	477.9	488.3			
Denver	294.0	297.5	305.1	312.5	339.0	368.1	392.9	415.4	461.0	476.1	477.6	508.5	510.0	530.4			
Detroit	284.7	296.9	301.2	316.4	352.9	377.4	409.7	433.1	501.0	519.5	521.0	537.2	538.7	554.4			
Kansas City	256.4	261.0	264.3	278.0	295.5	315.3	344.7	367.0	405.8	435.6	437.1	443.4	444.9	481.1			
Los Angeles	297.1	302.7	310.1	320.1	344.1	361.9	400.9	424.5	504.2	514.3	515.8	531.3	531.8	546.7			
Miami	277.5	284.0	286.1	305.3	392.3	353.2	384.7	406.4	447.2	467.6	469.1	484.6	485.5	499.5			
Minneapolis	285.0	289.4	300.2	309.4	331.2	361.1	417.1	412.9	456.1	469.7	471.2	487.1	488.6	513.9			
New Orleans	256.3	259.8	267.6	274.2	297.5	318.9	341.8	369.7	420.5	437.5	439.0	440.6	442.1	463.5			
New York	297.1	304.0	313.6	321.4	344.5	366.0	395.6	423.1	485.3	497.4	498.9	513.8	515.3	524.1			
Philadelphia	280.8	286.6	293.7	301.7	321.0	346.5	374.9	419.5	485.1	495.7	497.2	517.0	518.5	531.5			
Pittsburgh	267.0	271.1	275.0	293.8	311.0	327.2	362.1	380.3	424.4	443.7	445.2	464.1	465.6	475.2			
St. Louis	280.9	288.3	293.2	304.4	324.7	344.4	375.5	402.5	444.2	458.7	460.2	475.2	476.7	497.5			
San Francisco	368.6	386.0	390.8	402.9	441.1	465.1	512.3	561.0	632.3	647.1	648.6	671.0	672.5	716.0			
Seattle	268.9	275.0	283.5	292.2	317.8	341.8	358.4	371.5	424.4	437.8	439.3	448.7	450.2	472.5			

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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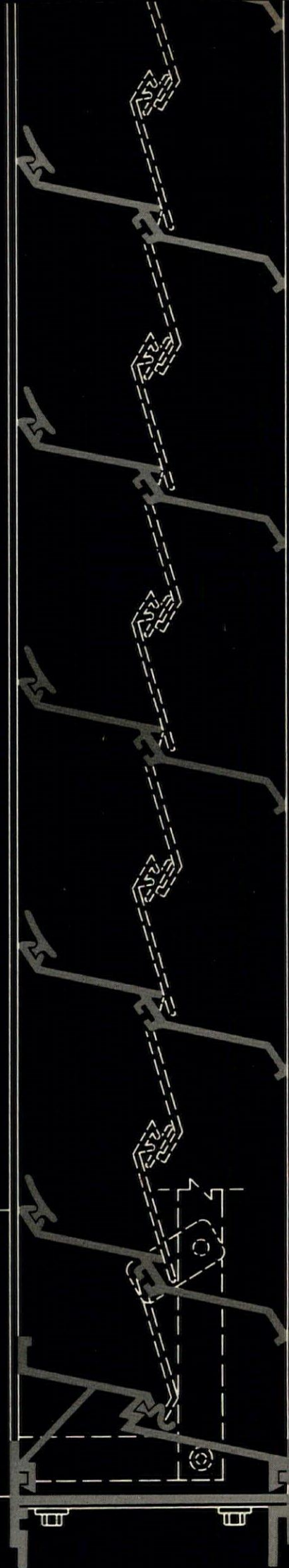

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In nonresidential building: a non-cycle

In nonresidential building, cycles of activity are masked by the relative stability of demand for institutional types (medical, academic, religious, etc.) as against the more economy-responsive industrial and commercial types.

In last month's issue, we updated the Dodge/Sweet's construction outlook for 1975, indicating that we expect a recovery in residential building and continued strength in nonbuilding construction. Unfortunately, we still anticipate weakness in the nonresidential building sector because, as we pointed out last October, and again in April, we foresee ". . . declining industrial and commercial building through most or all of next year." But there is a silver lining: "Experience of the last (1970) recession shows . . . that institutional building (educational, health, public administration, etc.) tends to bear up surprisingly well in periods of moderate economic adversity."

Since nonresidential construction is of particular interest to architects, we will examine more closely the behavior of nonresidential building during the 1970 recession as a guide to the current one.

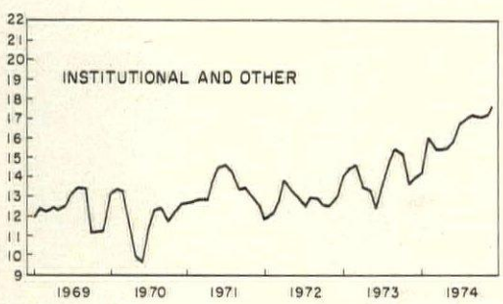
What the numbers show

As the accompanying chart clearly shows, the path traced by industrial and commercial contract value from 1969 through 1974 differs decidedly from that followed by institutional and other nonresidential contracting during the same period. Even a quick glance indicates that institutional contract value over the six years formed what could be described as an upward tilting saucer, suggesting that this type of building is relatively insensitive to cyclical changes in economic activity—the business cycle. By contrast, industrial and commercial contracting followed changes in business activity quite closely, declining sharply during the 1970 recession, rising with the more rapid economic expansion that began in 1971 and dropping again in the latter half of 1974 when the economy entered another recessionary period.

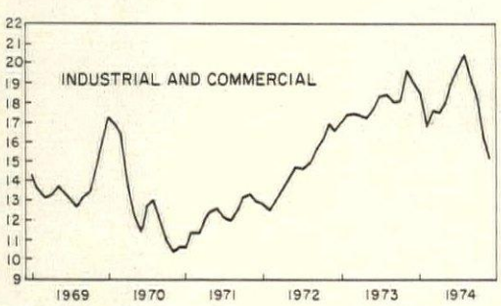
To understand these diverse movements, we must take a look at what determines the amount of industrial and commercial construction and the level of institutional building.

Industrial and commercial construction is an important component of business investment. Therefore, the factors that influence the level of investment will also help determine the level of those kinds of building. And these factors relate closely to the business cycle.

Institutional construction marches to a different piper. Take, for example, *school building,* which accounted for almost 40 per cent of institutional and other nonresidential construction contract value last year. What determines how much school building we do? Quite clearly the number of babies born followed by a suitable time lag to allow them to reach school age is a major factor. With the exception of a major depression like the one in the 1930's, the relationship between the number of births and the business cycle is, at best, tenuous.



Value of construction contracts in billions of dollars—3-months moving averages of seasonally adjusted annual data. Source: McGraw-Hill Information Systems Company.



Another example is *hospital construction.* Again the level is not greatly dependent on the business cycle. Rather it depends on factors like population growth, the proportion of older people, the extent of health insurance coverage and governmental policies.

In the case of *public buildings,* although bad times might lead to a cutback, perhaps postponement would be a better term applied to construction by state and local governments. In fact, the Federal government might *increase* its building as a counter-cyclical measure. Many public works programs have precisely this intent.

What this all adds up to is that institutional and other nonresidential construction is relatively recession proof. These building types simply do not relate closely to the business cycle.

1970 revisited

As the 1971 Economic Report of the President said, "1970 was the year when policies of restraint initiated earlier to curb the long inflation had their first major effects on the economy." And that they did! "The policies of restraint pursued in 1969 and their effects on the costs and availability of financing played an important role in bringing the long boom in capital investment almost to a halt during 1970. . . ." The impact on industrial and commercial construction was severe. Contract value, which had been on a plateau for the first 11 months of 1969, climbed to a peak in January 1970. From then on it was downhill, with a slight respite during the summer months, to the low point in December. Over-all, from peak to trough, the rate of contracting value fell nearly 40 per cent.

Institutional building was affected much less by the Administration's policies of restraint. Through 1969 and 1970 contract value moved within a relatively narrow range, slipping only four per cent over the year.

1975—a sense of déjà vu

As we stated last month, the current administration's economic policies are, to be charitable, confused. And even though the Ford Administration has now apparently moved away from restraint and is moving reluctantly toward stimulation, it will be too late for this year's commercial and industrial construction. That's why we forecast a 20 per cent drop in these contracts for the year as a whole.

But as further evidence of institutional building's insensitivity to the business cycle, contracting for these building types—schools, hospitals, public buildings, etc.—rose steadily during 1974, despite worsening business conditions. And it wasn't just inflation, since not only the dollar value but square footage of institutional work was up last year. In the early months of 1975, institutional building was one of the very few areas to hold up in what was otherwise a general collapse of construction markets. There are no guarantees, of course, that institutional building will continue to weather the 1975 recession as well as it did the 1970 business downturn, but . . . so far, so good. And who can afford to ignore something good these days?

—Henry C. F. Arnold

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1
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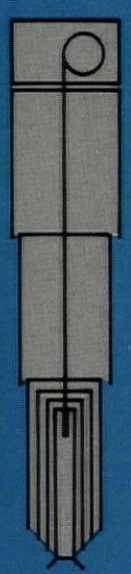
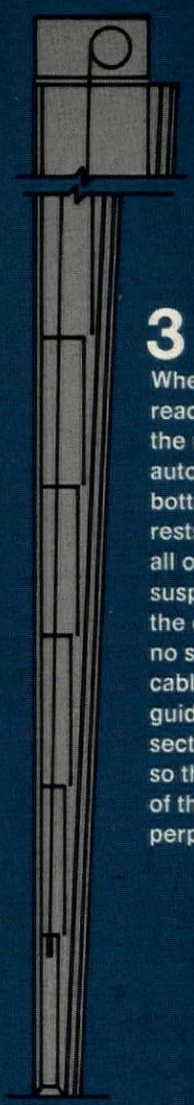


2
As the cables pay out, the nest descends, the outer sections peeling off one at a time.



3
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OFFICE NOTES

New partners, associates

John Stevens, president, of John Stevens Associates, Inc., Detroit, Michigan, has recently named **J. Robert D'Alessandro, AIA,** as administrative head of the architecture department.

Jon D. Hollman, AIA, and **Donald G. Corey, P. E.,** have joined the firm of Merrill A. Jones & Associates, Inc., Greenwood, Indiana.

Naramore Bain Brady & Johanson have announced that **Michael H. Trower, AIA,** has joined the firm as general manager.

The following have been elevated to associate members of J. N. Pease Associates, Charlotte, North Carolina: **M. Dean Baskins, AIA, Thomas E. Cunningham, AIA, Joseph G. Hays, Jr., AIA, William F. Nahory, AIA, AIP, Vithaldas H. Patel, P. E., George L. Peters, AIA, Jerry D. Schletzbaum, RA, Jerry D. Stacy, AIA, Larry C. Taylor, AIA, Michael R. Tye, AIA.**

The consulting firms of Plymouth Architectural and Planning Associates, Inc. and Betz Environmental Engineers, Inc. have recently announced that **William K. Davis, AIP,** has joined the firms at One Plymouth Meeting Mall, Plymouth Meeting, Pennsylvania, as a director and principal planner of P.A.P.A. and an officer of B.E.E.

Lester B. Knight & Associates, Inc., Chicago, have recently promoted **Albert G. Paja** to vice president and **Ottavio R. Finaldi** to managing associate.

E. J. Parrish, AIA, has joined Raymond Ziegler and Peyton E. Kirven as a founding partner of The Raymond Ziegler Partnership Architects with offices in Los Angeles, Cal.

The Eggers Partnership, New York City, has announced the appointment of **Michael P. Conoscenti, AIA,** and **Richard C. Clark, AIA,** as two new associates.

Kurt Franzen, project coordinator in the planning department of Gruen Associates, has been appointed a vice president of the international planning and engineering firm.

Truitt B. Garrison and **Joseph W. Griffin** have been named as senior vice presidents of Caudill Rowlett Scott, Inc.

George Buermeyer, AIA, has joined the firm of Rogers, Butler & Burgun, Architects, New York City, as a senior project designer for health facilities.

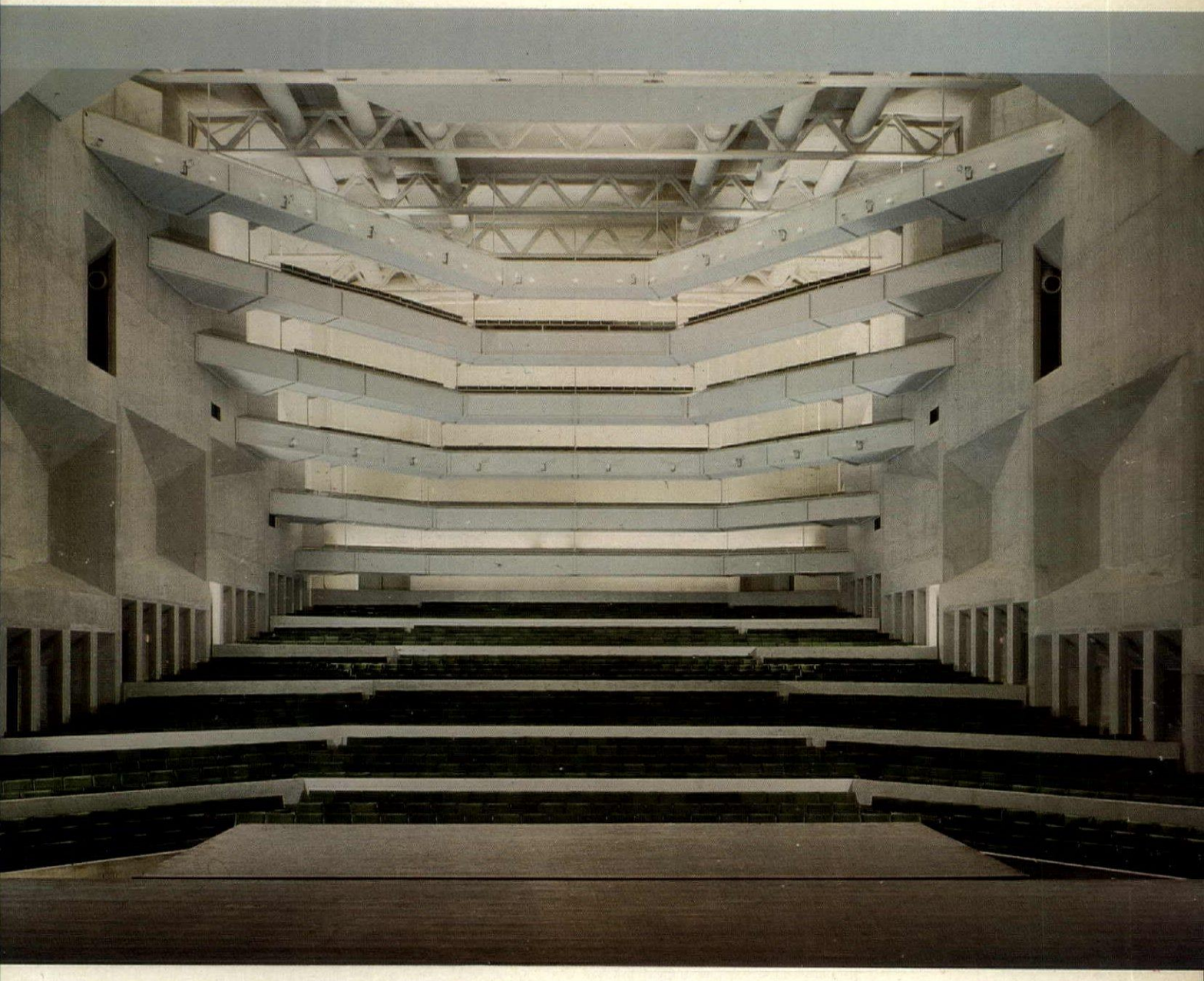
New firms

David A. Crane recently announced the formation of a national three-firm consortium. The new joint-venture company, **The Crane Design Group,** joins the multidisciplinary capabilities of The Pierce, Lacey Partnership, Inc., of Dallas, The McGinty Partnership, Inc., Houston, and David A. Crane and Partners of Philadelphia and Boston. The Crane Design Group is headquartered at 3501 West Alabama, Houston, Texas.

Erratum

In the AIA Research Corporation/solar energy grants program article in the "News Reports" section of our February 1975 issue, we inadvertently credited the Community Design Associates as one of the grant recipients. The grant in fact was awarded to The Coda Team of Westport, Conn.

TWO SPLENDID FINE ARTS CENTERS BY ROCHE DINKELOO AND ASSOCIATES



A recitation about the Center for the Fine Arts at Wesleyan University at Middletown, Connecticut, and the Fine Arts Center at the Amherst campus of the University of Massachusetts, is implicitly a discourse about a decade called, with mixed regard, The Sixties. Architects Kevin Roche and John Dinkeloo, ensconced in a big brick hilltop house near New Haven, seemed remote from the flagellations of the American mainstream. But a decade later—ten years which took these two works from inception to completion—it is possible to wonder whether this designer and this engineer, this Sullivan and this Adler, were remote at all. Despite a chaos which saw the sentinels of social, cultural and political renewal vanquished, the search for new sentinels did not abate, especially in those outlying groves of academe where, sharing resources with nearby countryside communities, town and gown came together to learn how to paint, or how to look at paintings; to perform, or how to appreciate the theatrical and musical message; to develop skills of expression, or how to respond to expression more fully. These buildings, conceived to instruct society's creative urge, are a reminder of the hold we must keep on our humanity.—*William Marlin*

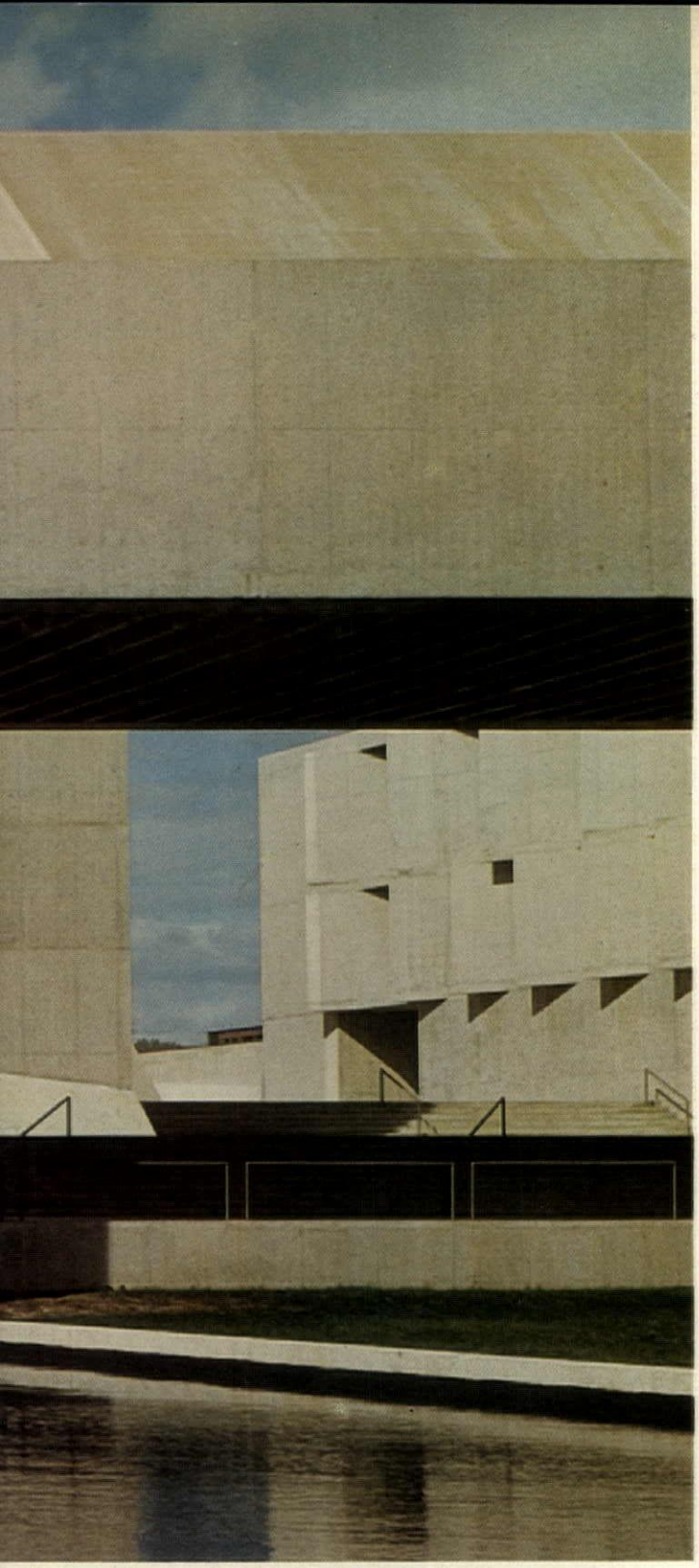
Fine Arts Center for the University of Massachusetts, Amherst

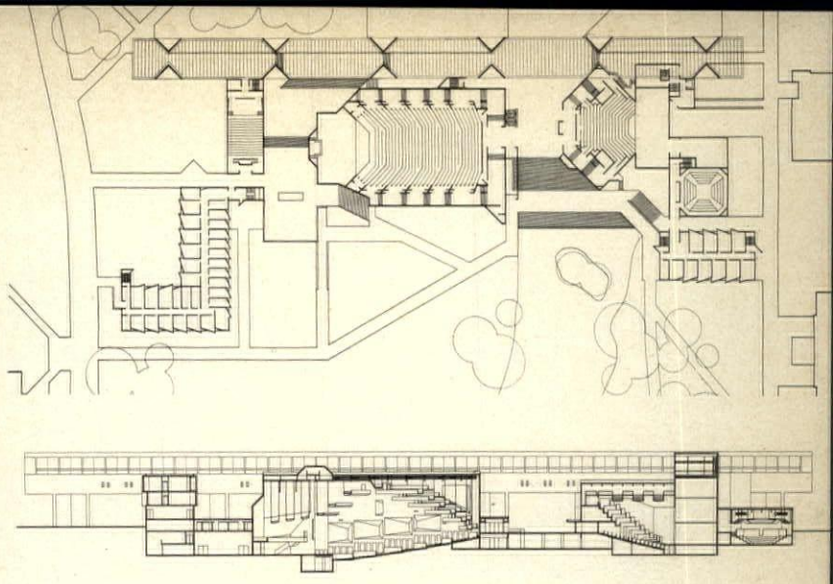
Way back when, Ralph Waldo Emerson (who thought very highly of farming), published an essay canonizing agricultural values as the mainstay of society's strength. Education, art, science, philosophy, and ethics—all were to be found among the furrows, or so Emerson believed. But need it be said, such faith has been plowed under for over a century by the rampages of an urban, not rural, nation.

It is significant that during the fifties and sixties, America's educational explosion affected rural institutions as much as, if not more than, our city-slicker schools. Nowhere is this more evident than at the University of Massachusetts, located in the Berkshires near Amherst, where Emily Dickinson once sat in her room, day in and day out, writing sonnets and, in our own time, Robert Frost trudged through snow or fallen leaves saying things like, "I have miles to go before I sleep."

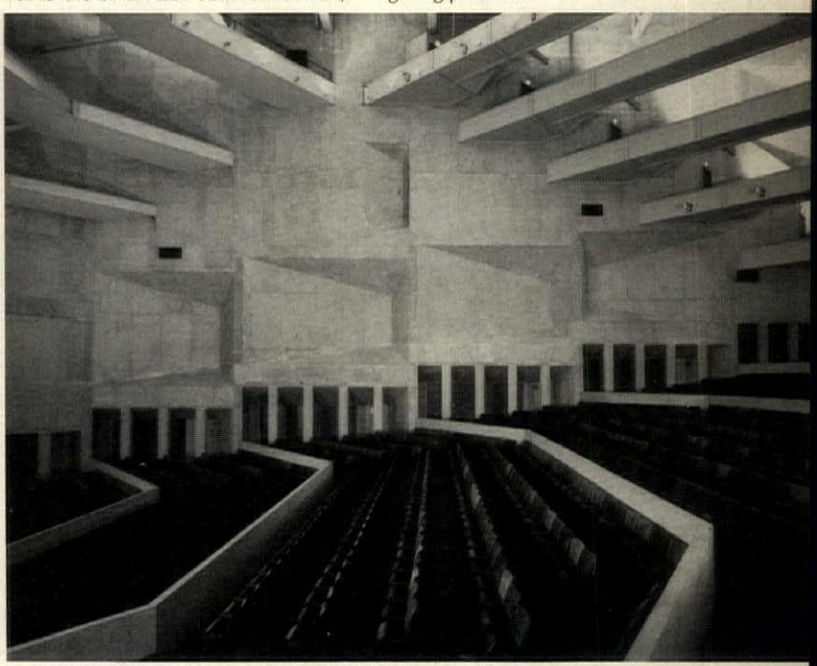
So does rural America, if the Amherst campus is any indication—most especially its recently completed Fine Arts Center, commissioned a decade ago during the culture boom, by Roche Dinkeloo Associates. The cozy 200-acre campus, which started out as an agricultural school, has now been put on the map as a regional resource of art, music, and drama. Roche and Dinkeloo were faced with creating more than a cluster of interconnected buildings for a varied educational program, an increment of unity which could lend order to an architectural disorder that had piled up during the last 20 years—20 years which saw the University's enrollment climb from 4,000 to nearly 30,000 students.

In 1962, Sasaki, Dawson, DeMay Associates were brought in to do a master plan which, proposing a clear and strong planning structure for the campus, delineated a kind of ceremonial mall linking the





An interplay of assertive forms marks the relationship between the bridge-studio and the theater and auditorium beyond. Serving as a link between the sciences and humanities sides of the Amherst campus, the bridge and the colonnade running beneath it also serve as a transition between the contrasting classical and romantic qualities of the two sides of the Fine Arts Center. Faculty studios, the studio bridge, and the drama department frame the small 221-seat recital hall, the 2,200-seat auditorium, and the 668-seat theater. The great auditorium, one of the more enthralling and efficient houses in recent memory, has a dramatic reversal of tiers which is accomplished by hanging them from the exposed roof trusses. The concrete walls are faceted, providing superb acoustics without appliqued assistance. Three tiers of sound baffles and catwalks for lighting rise above the proscenium to create an octagonal lighting platform.



major access route, North Handley Road, to a big duck pond which has been the campus' central element of charm. The pond, with a little park edging around it, is framed by the University Library, a 25-story building by Edward Durell Stone, and a 10-story Continuing Education Center by Marcel Breuer. Assorted smaller structures, from the 1870's to the 1950's, complete this convivial chaos.

The new Fine Arts Center was designed, therefore, to relate to Sasaki's classy, grassy mall and to establish a tie between the flanking buildings, some devoted to the sciences, others to the humanities. What else, it might be asked, is art really for, unless it be to supply such a bridge?

Such a bridge is exactly what the architects came up with—long and low-lying, running about 650 feet, held up by widely spaced V-shaped pilotis which, in turn, hold up a well-lit studio space for undergraduate artists. This bridge is what one sees coming in on Handley Road and, then, the mall. Bearing out the ceremonial aspect envisioned by Sasaki, two reflecting pools have been placed to either side of this procession which, leading to the bridge, becomes an open-air colonnade that runs the length of the bridge, cadenced by the pilotis.

The bridge itself is a sequence of cantilevered elements balanced on and extending out from either side of the V-shaped verticals. The cantilevers are joined in mid-air with nary a notice—the result, as throughout this cluster of buildings, is of superbly formed and finished reinforced concrete. The bridge not only defines a convenient space at right angles to the mall—it also frames, as one walks straight-away under its span, a passage to the duck pond and to the heart of the campus. To the left of this transition is the 700-seat theater, and, to the right, a 2,200-seat auditorium for concerts and the like. Both of these houses, and the external massing—a melange of angles and facets—are cubistic in character. Beneath them is an art gallery.

The drama of this transition—from the more classical mall to the bridge and, beneath it, to the steps leading down to the pond—is

heightened by the juxtaposition of the emphatic linear quality, which the bridge presents, to the more romantic and random quality of the theater and auditorium masses. Looking to either side of the pass-through, as one proceeds toward the pond, a deep spatial gorge is chiseled out, textured by sun and sharp shadows against the clear-cut concrete surfaces. It is as one skips down, toward the pond, and trudges on around it toward the opposite side by Breuer's Continuing Education Center, that one is struck by the architectural sleight-of-hand which the architects have planned. For in contrast to the classical, ordered quality experienced earlier, a romantic array of interconnected structures spread out along the landscape—the theater, the auditorium, the wing of the drama department extending out on the right, the right-angle wing of faculty studios extending out to the left. Something Athenian gives way, gently, to something Emersonian.

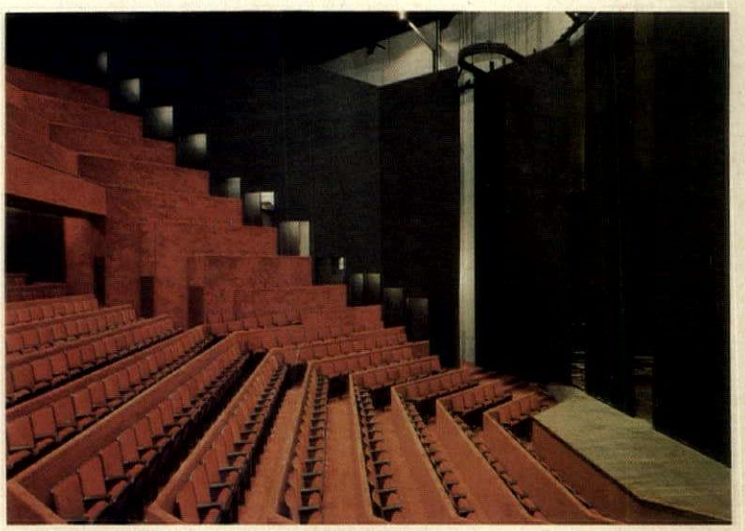
One reason for this arresting contrast is that the $14-million Center was conceived to serve both the University and nearby communities of the Connecticut River Basin. So it was a requirement t keep separate such facilities as classrooms, of which there are 17, an laboratory-studios, of which there are 75, and faculty offices, of whic there are 56—the requirement to keep them separate meaning seren for undisturbed practice. The studio bridge, with its sense of order an ceremony, is an element uniting the campus and inviting the public Intimations of the more random scale beyond are seen through th colonnade beneath the bridge's formalist span.

There is nothing random about the interiors, nothing at all, eve as randomness serves a purpose outside. The 668-seat theater (right) adjacent to generous backstage teaching facilities and a nearby inti mate studio theater, is both carpeted and its seats upholstered in dee orange. Continental-style and steeply banked, this arrangement bring audience and actors into a powerful proximity. The auditorium, seat ing 2,200 (pages 97 and 99), is simply one of the most magnificen rooms in recent memory. Tiers are hung from exposed roof trusses

held forward from the rear, and step upward toward the stage like the underside of a cyclopean stair. Faceted side walls assist sound.

Roche Dinkeloo Associates have fused the traditions of classical order and romanticism at Amherst. Visually, there is a constant give and take between both qualities of composition while they have created functional, ample spaces for students and faculty to slog away in. Inside, the auditorium and theaters derive from technical requirements and acoustical properties an engaging, unadorned esthetic. In fact, Amherst is derivation throughout, its drama a studied extension of program and place—the new virtuosity.

FINE ARTS CENTER, University of Massachusetts, Amherst, Mass. Owner: *Commonwealth of Massachusetts*. Architects: *Roche Dinkeloo and Associates*. Engineers: *LeMessurier Associates* (structural); *Greenleaf Engineers* (mechanical/electrical). Consultants: *Bolt, Beranek & Newman* (acoustics). Contractors: *Fontaine Brothers* (general); *HVH Mechanical Contractors* (mechanical); *Collins* (electrical).



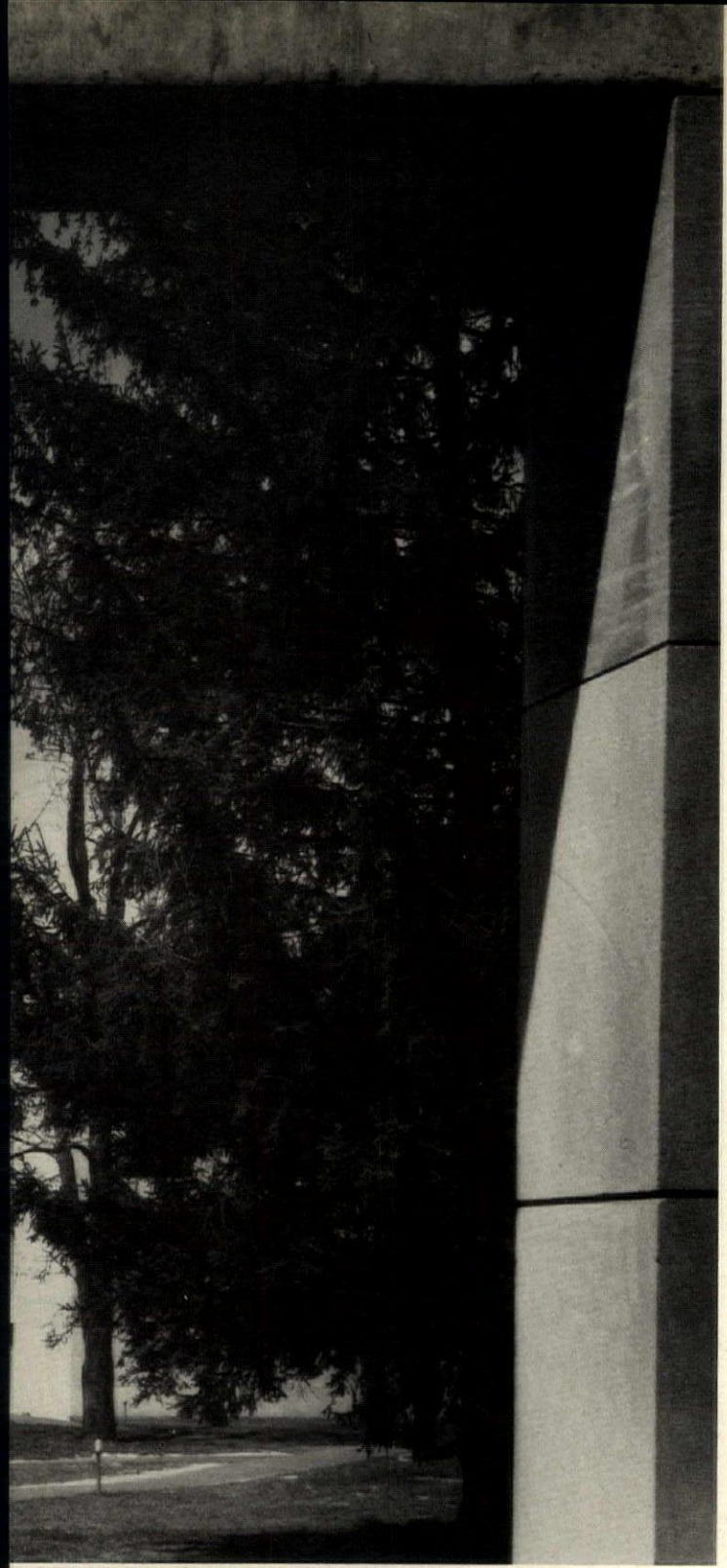
The Center for the Arts at Wesleyan University

Middletown, Connecticut, where Wesleyan University was founded in 1829, is a small-scale town and, in keeping, so is Roche Dinkeloo's Center for the Fine Arts, completed a year and a half ago.

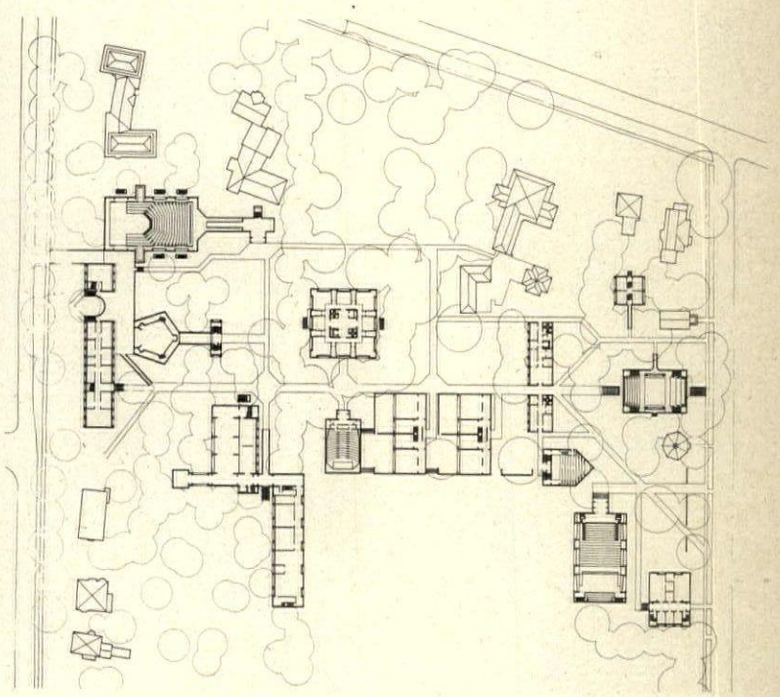
The elegant classical proportions of old houses, lining the street around the campus, suggested reticence, not assertion and, as a result, this concrete and limestone cluster of buildings, which cost about $12 million, muses quietly within view of the antebellum beauty of old-time architects like Ithiel Town and his partner A. J. Davis who, being rather far-out formalists for their day, constantly cribbing Persius and Schinkel, would probably find Roche Dinkeloo's work here needlessly deferential to the history around it.

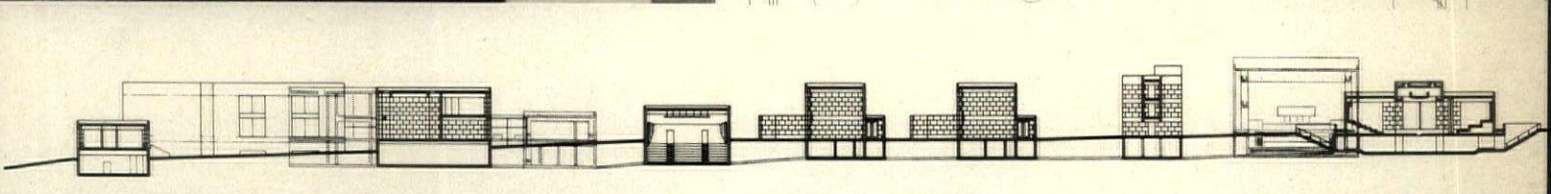
The reason that the Center is deferential to the history around it is that the University, whose interests were represented by architect John Martin, a head of department here, insisted upon a style which would be unfettered by style—meaning a style unfettered by aspects which would "date" its architecture in times to come. In this period, the mid-sixties, most clients, need it be said, were insisting on just the opposite—leaving indelible marks in the name of corporate clout or *kultur*. Wesleyan, with over 20 per cent of its enrollment of 2,400 in the arts programs, wanted simple surroundings—sounding boards of space and structure for the marks which *people* leave, or the sounds which they leave, or the sculptures and sonnets. In this six-acre grove of beeches and hemlocks and sycamores, Roche Dinkeloo gave the University a terse verse, written in cubic ciphers, about the virtues of stylistic subtlety.

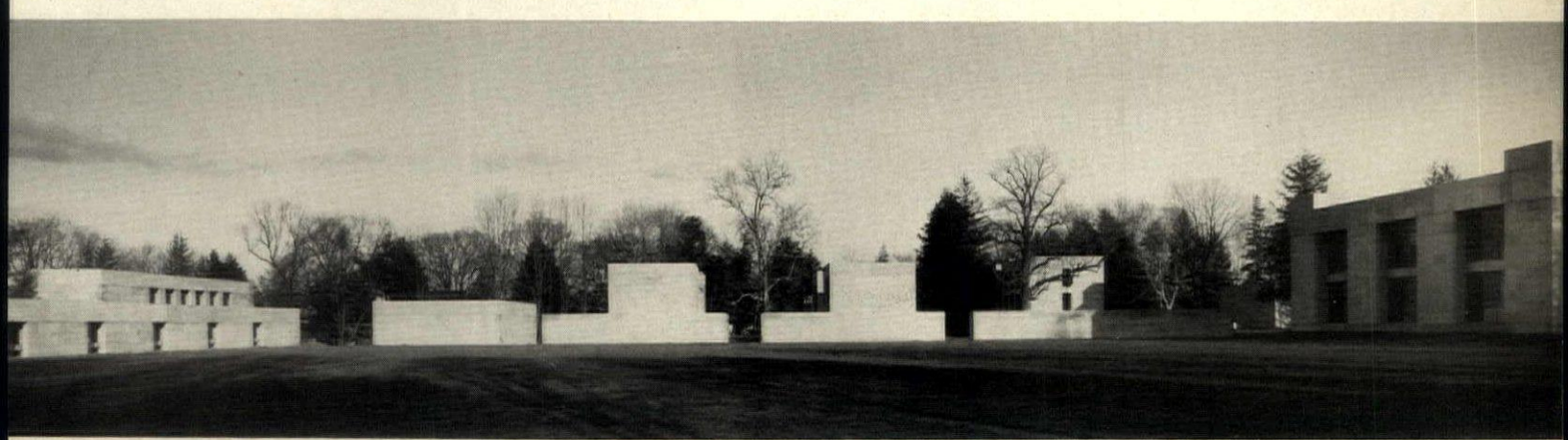
Easily as sacred as its grove was a large playing field which, as any Old School Boy can tell you, is very sacred indeed. It is edged and set off by a graphics workshop on one side (see plan), by the



The Wesleyan Center for the Arts is a cluster of low-scale concrete and limestone structures ranged around an existing campus. The old playing field is framed by a graphics workshop, the 20,000-square-foot Art Gallery, a 414-foot Cinema Hall, the studios and faculty offices of the art and music departments. Undergraduate studios, bordering the northern edge of the playing field, are crisp double cubes with two-story north-facing windows and walled courtyards for outside classes in warm weather.







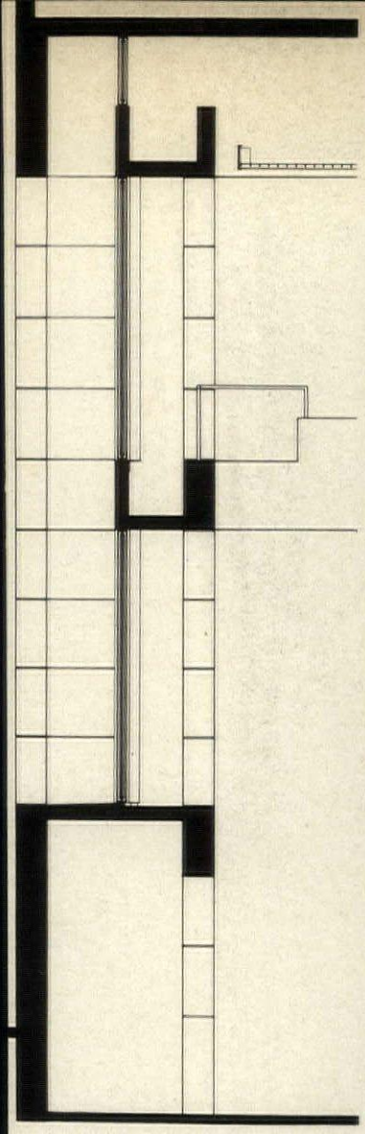
Recital Hall on the other and, connecting them, by a brace of two-story-high cubes, containing painting and sculpture studios. Walls of limestone—all the limestone here is unfinished, economical and rich with variations of color—enclose courtyards to the north of these studios, serving to underline that edge of the playing field.

The decision to go with separate small-looking structures, set along walks and paths, is not studied casualness. Thinking back to all the Middletowns one has been in, there is a significant aspect to all that Colonial or Revival charm. And that significant aspect has to do with how the walls meet the ground—straight down in pristine perpendicularity. Roche Dinkeloo's separate small-looking structures do the very same thing. A formal characteristic emerges from within a vernacular tradition.

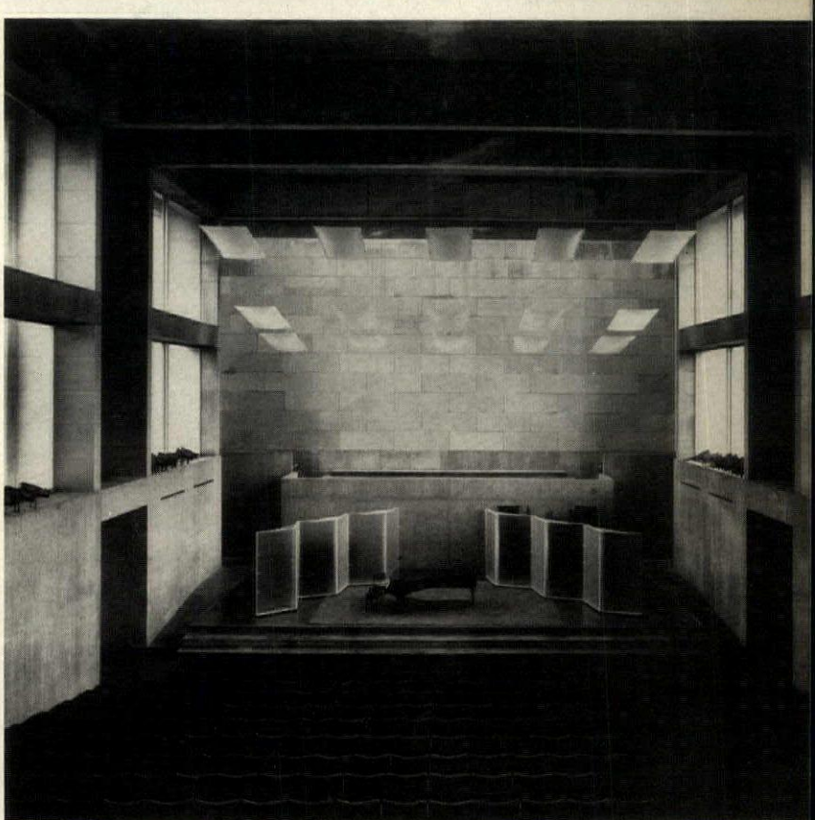
The 414-seat Cinema Hall, the Recital Hall, the World Music Center, which contains an Indonesian array of instruments called a Gamelon, and the 548-seat Theater are all set partly underground, around the grove, which made excavation easier, helped protect the trees and, of course, kept these major volumes in context with the Center's over-all scale.

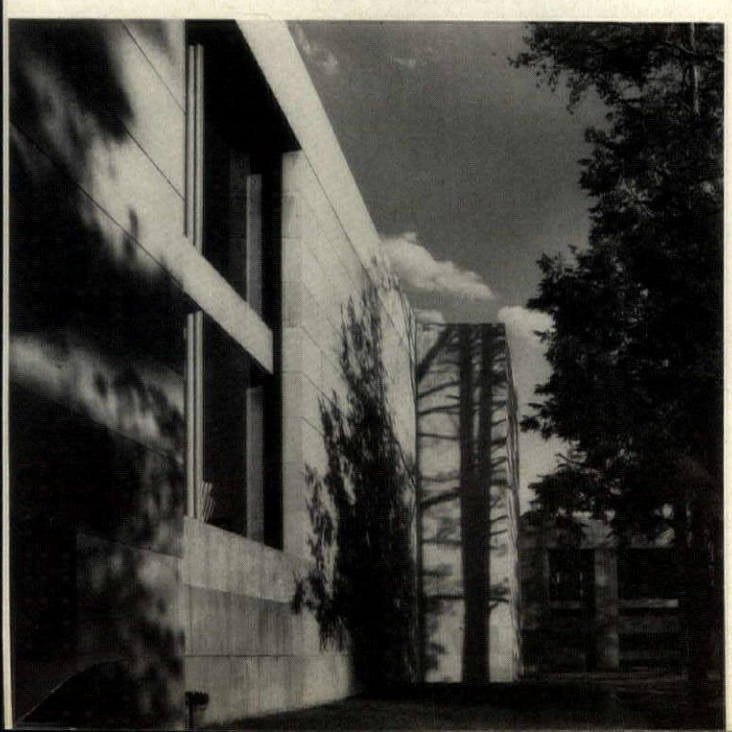
It is interesting to note that, initially, these cubes were to be all concrete—formed up in a module measuring three feet eight inches by two feet six inches by 14 inches in thickness. But the concrete did not price out. The limestone, taken from the more gritty (and more interesting) strata, did. In the finished job, concrete reads, outside and in, as concrete is supposed to—as elements of span. The limestone, laid up in the module mentioned before, supports. The elements of span meet those of support as neatly as the elements of support meet the ground. This is not form-giving stuff, the gratuitous muscling in with preconceptions which so many architects have, quite rightly, rejected in recent years. Wesleyan is form-taking, creating from context, and for a client with the sensitivity to not settle for less.

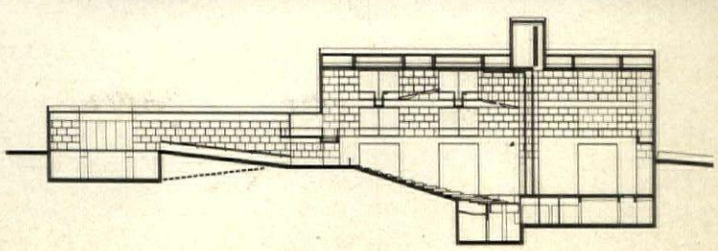
In the Center's high-ceilinged and well-lit Art Gallery, which has

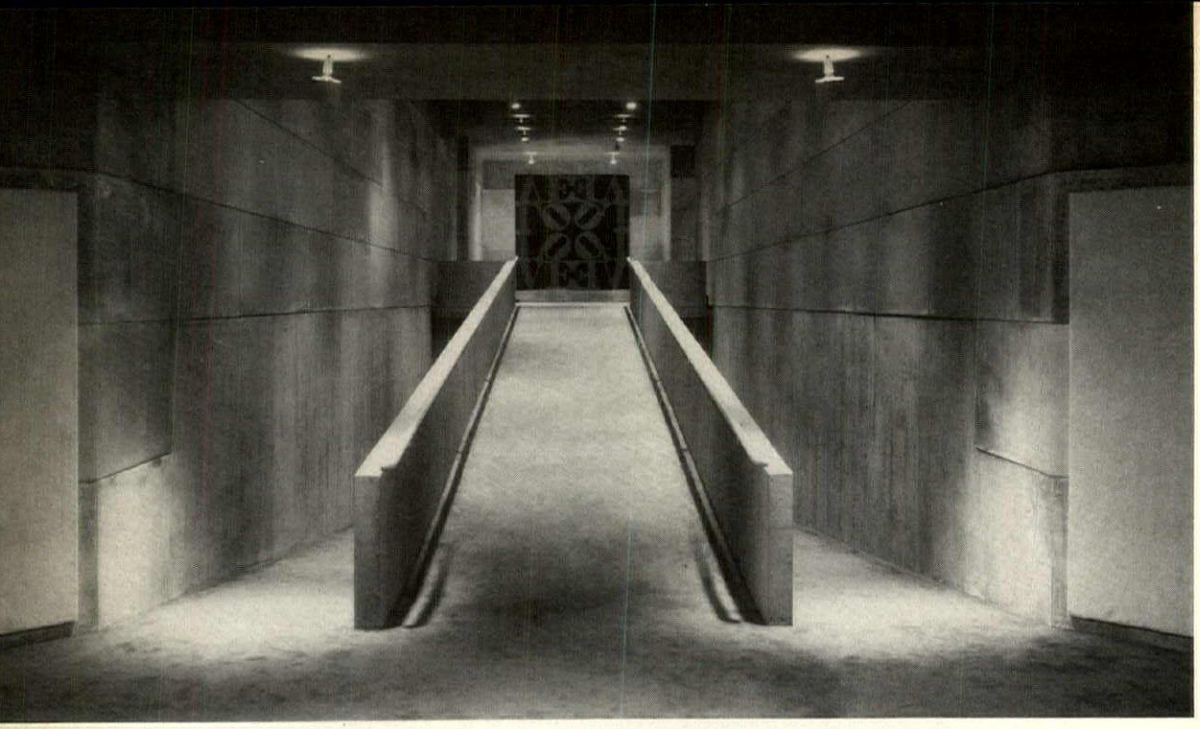


The continental-style, 548-seat theater, containing 23,700 square feet, combines theater and stage in a single room with a continuous metallic ceiling grid for lighting systems. Flexible panels permit a wide combination of stage style, from a thrust proscenium to a theater in the round. Large windows let in lovely views of the surrounding landscape while automatic blinds close out the light as the house lights dim. In addition to the theater, a 10,000-square-foot World Music Center contains a rare Indonesian orchestra called a gamelon, known for its subtle and homogenous tones derived from a varied set of gongs and percussion instruments. A concrete beam spans between two windows above a dance floor and is acoustically curved, a function which is reinforced by the angled windows which further act as acoustical resonators. The Art Gallery has a 4,100-square-foot main exhibition space, a seminar room above the entrance overlooks the Gallery. A second, smaller exhibition room, linked to the main space by a glazed colonnade, is lit only by an oculus in the roof, casting an ellipse of light on the richly textured limestone walls, itself a work of art.









This ramp entrance to the Theater (p. 105) points up the material and spatial texture of the Wesleyan interiors generally. A view of the double-level foyer inter-penetrates the ramp area, the experience enhanced by the planar composition of concrete, limestone, glass and carpet. The spacious side-aisles of the Theater itself, contrasting to the intimate foyer, provide a ceremonious, yet familial substitute for a lobby.

a 4,100-square-foot exhibition space, is a summation of what Roche Dinkeloo have achieved—an environment in which to find one's relationship to oneself. Past an assortment of the "latest" in electrified objects, past a shallow tank with fish noises coming from it, past sheets of glass set tactfully back from an outer edge of limestone folding around them, one enters a small dark room—only to discover, as if by accident, an ellipse of sunlight cast on the limestone through a circular plastic bubble in the roof.

"We worked for weeks, calculating that one," says Kevin Roche, saying as much as anything could about the over-all character and composition of this subtle, splendid group of buildings.

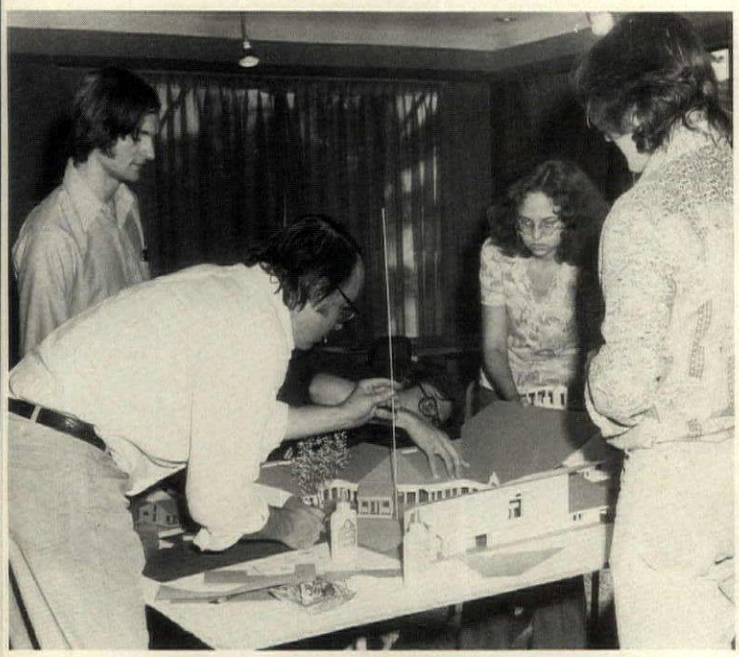
CENTER FOR THE ARTS, Wesleyan University, Middletown, Connecticut. Owner: *Wesleyan University*. Architects: *Roche Dinkeloo and Associates*. Engineers: *Pfisterer Tor and Associates* (structural); *John Altieri, P.E.* (mechanical/electrical). Consultants: *Bolt, Beranek and Newman* (acoustics). Contractors: *E & F Construction Company* (general); *Marino Plumbing and Heating Company* (mechanical); *S. Freedman Electric, Inc.* (electrical).

The First Biloxi Design Festival

Last November students from six Southern architecture schools and six nationally known architects bivouacked in Biloxi, Mississippi, for a week and had a design jamboree to develop plans for a new cultural center for Biloxi's about-to-be-renewed downtown. Part charette, part architectural happening, the event's main function was, as Biloxi's Mayor Jerry O'Keefe put it, to "kick around ideas." In all the kicking, the simple intention of designing a single building got modified. One result was an exciting new way for students, architects, planners and public clients to work together. Another result was that one of the architects (William Turnbull of MLTW/Turnbull Associates) wound up with a commission for Biloxi's new cultural center. The Design Festival was jointly sponsored by the town of Biloxi and the fledgling architecture school at Mississippi State University. MSU's Dean William McMinn points out that, in *(text continued on page 110)*

Milton Babbit (Ford, Powell and Carson) and the O'Neil Ford team.

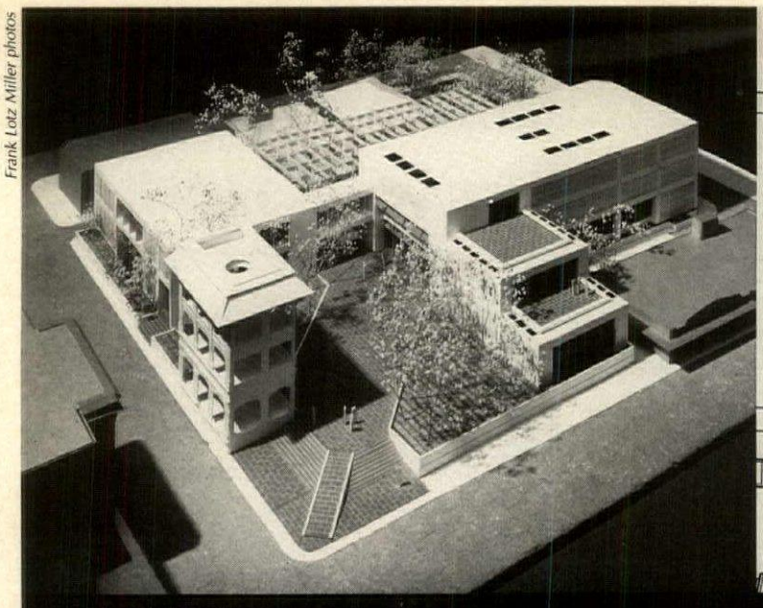
Larry Sones and Stanley Tigerman (Tigerman & Associates)

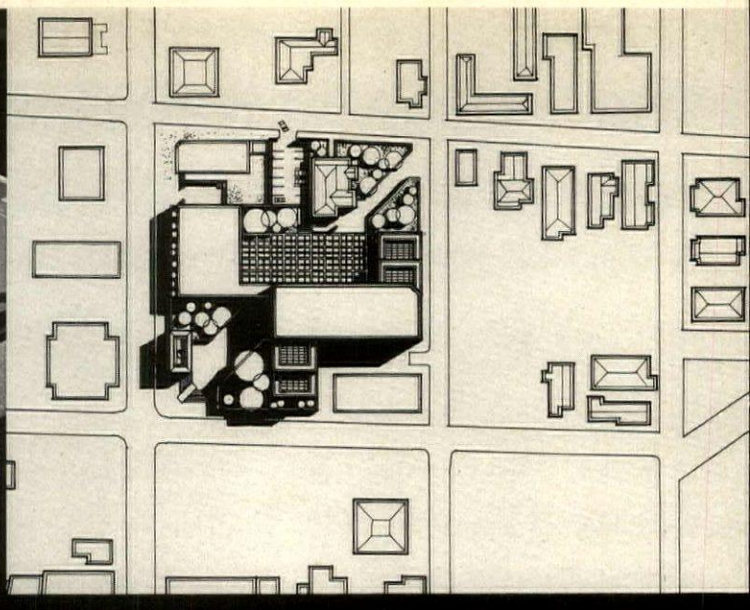


Gil Wallace (MSU), William Turnbull (MLTW/Turnbull), Thomas Sutton (Auburn), Marcia Bargas (Tulane), Edwin Smith (MSU).

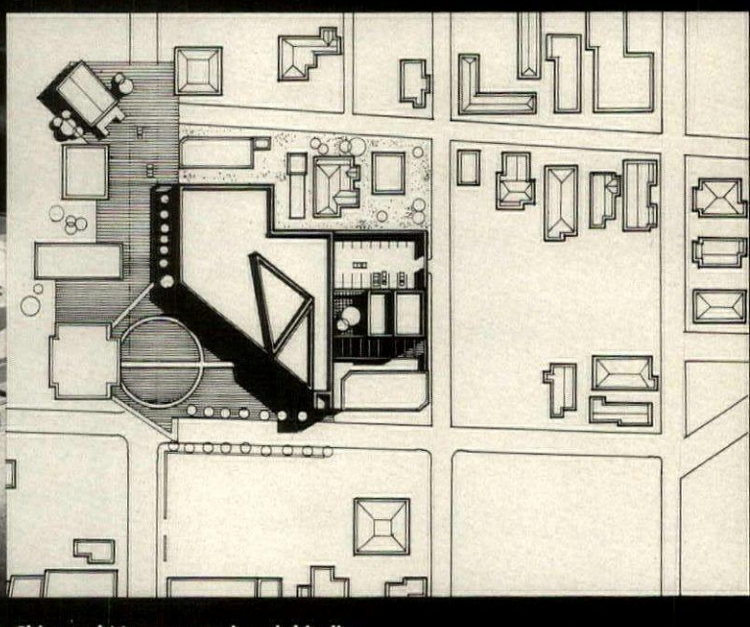
Robert Stern (Stern and Hagmann), William McMinn (Mississippi State University), Lewis Lantner (Auburn).

Frank Lotz Miller photos

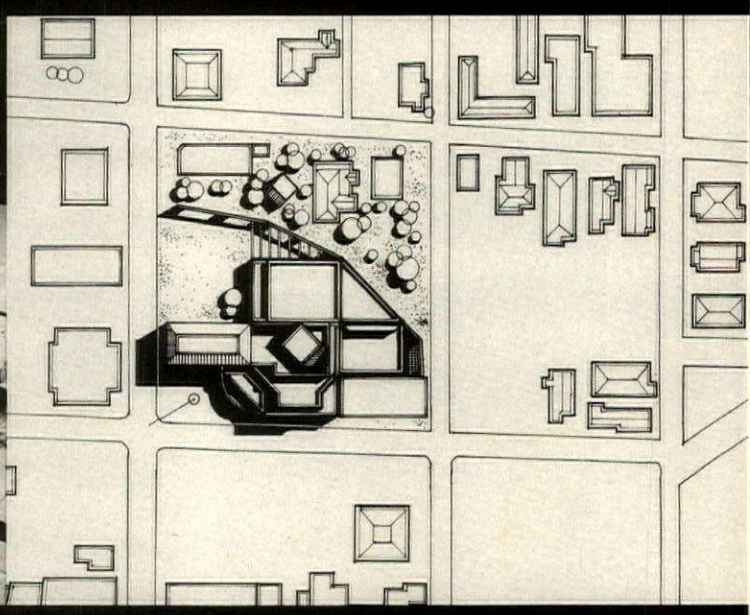




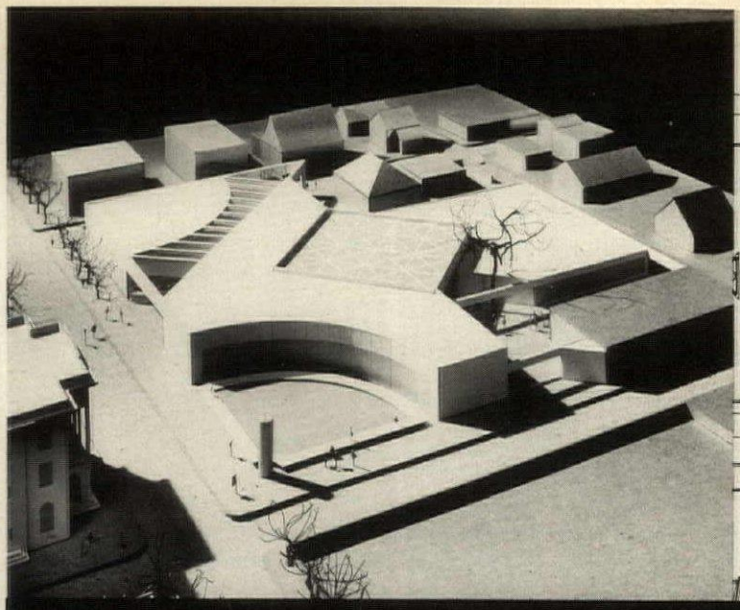
Team 1 in the Biloxi Design Festival, led by Milton Babbit and O'Neil Ford of Ford, Powell and Carson, developed this design for the Biloxi cultural center. It consists of a range of connected buildings opening onto a corner plaza.

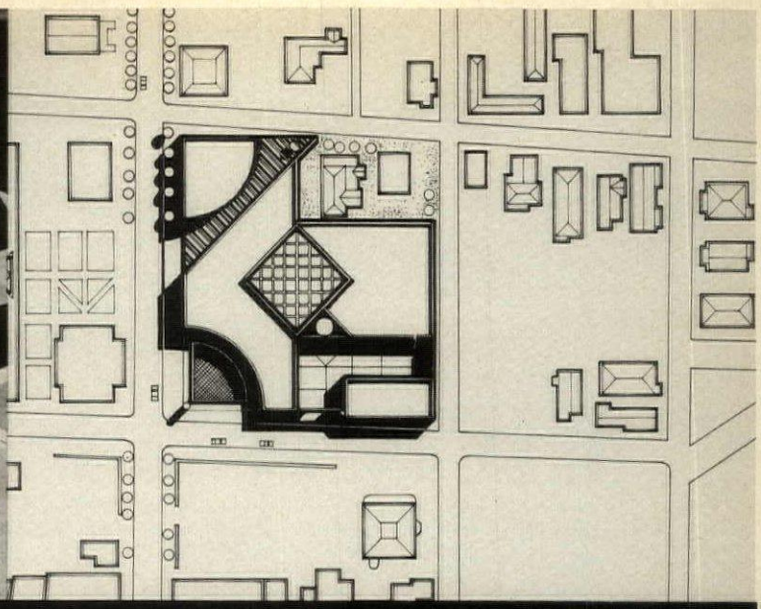


Team 2, under Kemp Mooney of Mixon, Shive and Mooney, produced this diagonal scheme to front City Hall, seen in the lower left of the photo. The old Public Library (upper left in the plan) is also turned on the diagonal.

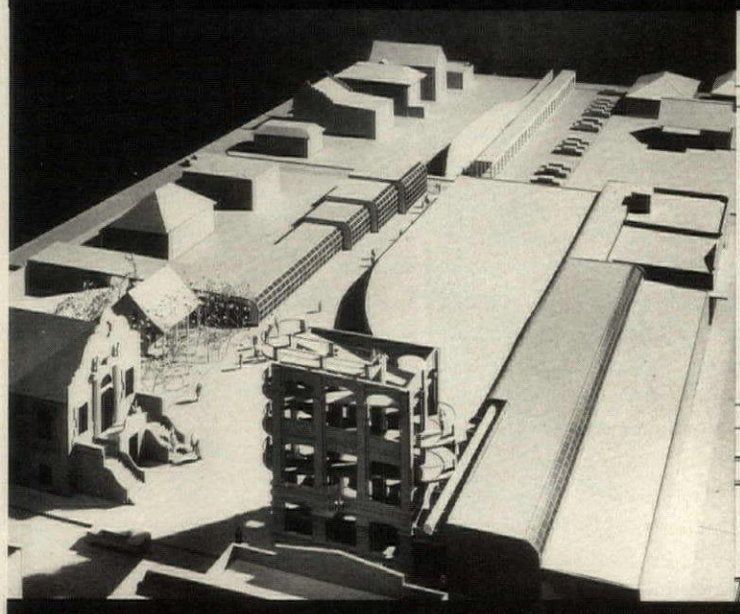


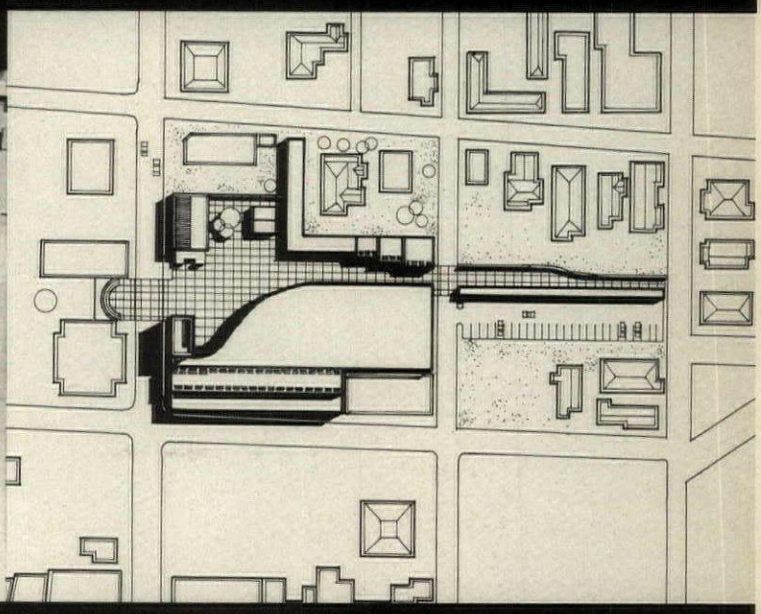
This intricate design by Team 3 and Robert Stern of Stern and Hagmann sports some of the arcs, curves and demi- hemi- and semi-curves that are fated, it seems, to become for the 70's what the 45 degree angle was for the 60's.



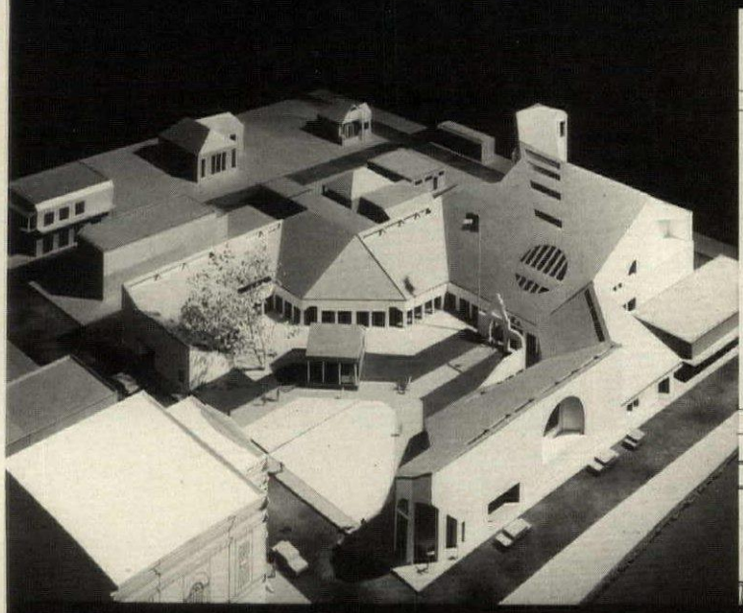


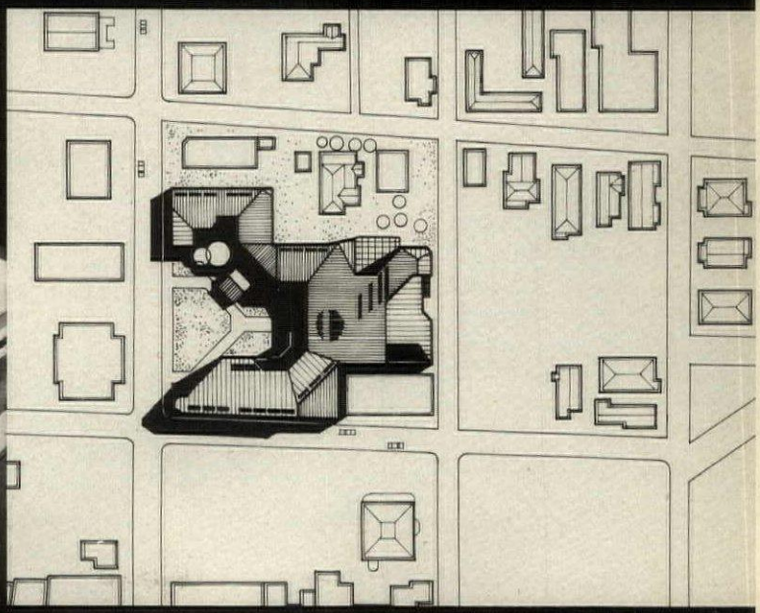
Harry Wolf of Wolf Associates and his Team 4 produced this scheme which features the rigidities of the compass and triangle, and also begins to play with the abstract notions of positive and negative space.





The design of Team 5, under Stanley Tigerman of Stanley Tigerman and Associates, moves the old Public Library onto the cultural center site (left in photo) and deroofs the Elks Club, as a sculpture.



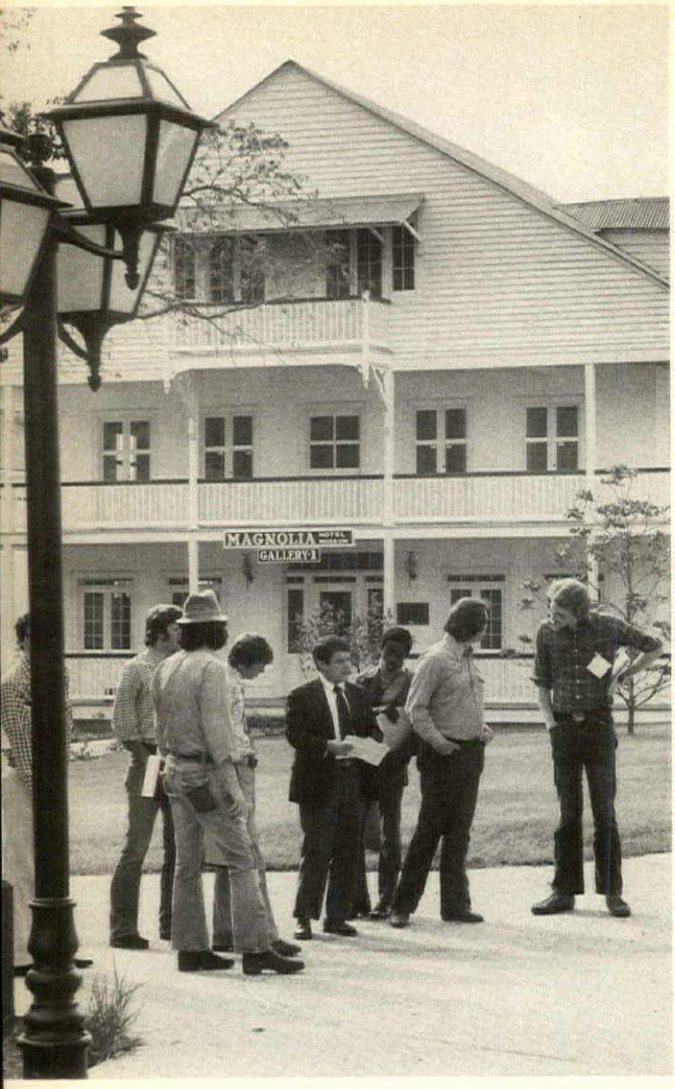


The design of Team 6, led by William Turnbull of MLTW/Turnbull Associates, features an ebullient style akin to Steamboat Gothic, and it makes an enclosed public space in front of City Hall.

(text continued from page 107)

spite of the carnival atmosphere of the five-day charette, the revelers were dead serious. "So many ideas were generated—about Biloxi's waterfront, about highways, about the Downtown Renewal Plan—that people will be talking about them a year from now. And what's more, Biloxi is also getting a terrific new building."

The schools that participated in the Design Festival were those at Tulane, Auburn, Louisiana State University, Southern University at Baton Rouge, the University of Southeast Louisiana and Mississippi State University. The architects who headed each of the six teams of students were O'Neil Ford of San Antonio, Kemp Mooney of Atlanta, Robert Stern of New York, Harry Wolf of Charlotte, Stanley Tigerman of Chicago, and William Turnbull of San Francisco.



Stanley Tigerman and his team review the site conditions.

Phil Miller (Mississippi State University) and Tyrone Walker University of Louisiana) get a crit from Kemp Mooney.

Downtown Biloxi's Renewal Plan

Biloxi is a town of some charm on Mississippi's Gulf Coast, and it depends on its substantial summer tourist trade for a part of its livelihood. When the Design Festival was conceived, Biloxi already had a plan for a $22 million renewal and redevelopment of its downtown, calling for a system of pedestrian malls (one of them covered and air conditioned), a new parking garage, a new connector to a nearby interstate highway and—last but not least—a cultural center, with a public library and a museum of history and art, adjacent to a new "Civic Square" facing Biloxi's City Hall. These last items, as a self-contained package, were to be the ken of the six teams of architects and students who were to participate in the design festival.

Interestingly, the visiting architects almost unanimously took the position that the independently conceived, freestanding single building, however well it was designed, was exactly what Biloxi did not need. "Every building has a responsibility to relate to things larger than itself," Stern philosophized, "every building is a fragment of a larger picture." "I'm a lot less interested in designing a single building," announced Harry Wolf, "than in dealing with some of the urban issues this building might be responsive to." Wolf then organized a splinter seventh design team to study the implications of the new building the other six teams were designing, and to critique Biloxi's existing downtown redevelopment plan in terms of his own beliefs.

The Renewal Plan critiqued

All of the visiting architects, in fact, cast energy-conscious eyes on the plan for renewing downtown, with its emphasis on automobile access and with its wastefully air-conditioned pedestrian street; their reactions varied from "madness" to "twenty years out of date." With all this there was another groundswell of opinion, this time in favor of a different kind of conservation. Biloxi, the visiting experts opined, has a substantial (and substantially unnoticed) architectural heritage, and as a town it should be "restored," not "renewaled." Here they performed perhaps their most valuable service to the town by suggesting that, rather than continuing on the tragically familiar course of many American communities and becoming more and more like everywhere else, it should become more and more like itself, and the prized redevelopment plan should be at least reconsidered, and perhaps abandoned.

High-handed advice from outsiders? Perhaps, unless you consider what is really being said: You're fine, be your special self and not something else that will surely not be as good.

In the designs for the cultural center itself all six teams retained the old Biloxi Public Library, though some moved it; three of the six designs, moreover, preserved an Elks Lodge built in 1921 across from the City Hall—which, it turned out, Mayor O'Keefe had specifically said he didn't like and whose removal he had called for. "I have no idea of the weight of his personal preference in the community at large," said Robert Stern, one of the preservers.

At the end of five arduous days (and nights) the six schemes for the new library and museum were presented at a public meeting attended by some 400 Biloxians—and subsequently William Turnbull has been awarded a real-life commission. All in all, it was a party where a good time was had by all—and no one involved had any reason to regret it in the morning.

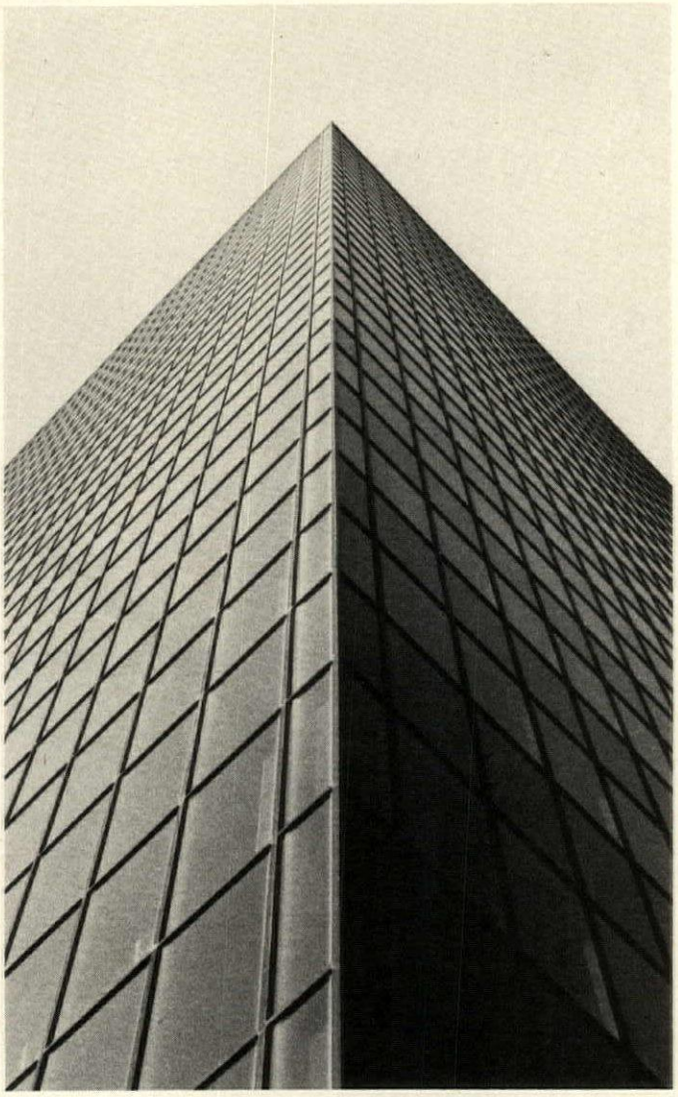
—Gerald Allen

THE DEVELOPMENT OF AN ESTHETIC SYSTEM AT DMJM

by

Michael Franklin Ross, AIA

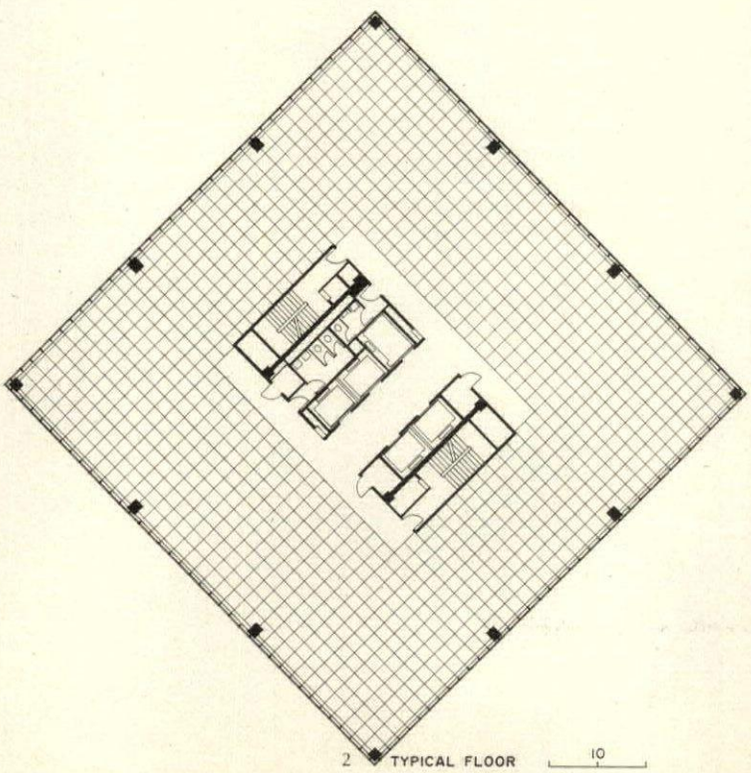
In the middle sixties, Cesar Pelli and Anthony J. Lumsden—two architects who had worked together for Eero Saarinen and later, Kevin Roche—went West to join the firm of Daniel, Mann, Johnson & Mendenhall in Los Angeles. The two men began the development of a new architectural expression for the form and skins of medium- to large-scale structures. In their designs, they broke away from the usual articulation of the structural skeleton or of curtain wall mullions. Their buildings were enclosed by a highly economical lightweight glass membrane system, with no articulation at the top, middle or bottom of the facade. Lumsden calls this new kind of skin a "non-directional, non-gravitational enclosure." After Pelli left DMJM in the late sixties, Lumsden continued to develop the new style. His colleague, Michael Ross, in the article that follows, decribes the origins of this esthetic. On page 120 (see box) Ross argues against the conventional wisdom that glass walls waste energy—Editors



1

CENTURY CITY MEDICAL PLAZA

The exterior skin of this building system has no traditional relationship to rectilinear, trabeated, gravity-oriented esthetics. The mullion, 2 inches wide with a ⅜-inch projection, occurs approximately every 2 feet 8 inches horizontally and every 6 feet 6 inches vertically. The exterior skin does not reflect the organization of the interior functions. It is neither a structural system nor a bearing wall system. The lightweight skin enclosure, however, is a non-gravitational system—flexible enough to wrap around any function. It can be compared to the logic of a telephone or an airplane, in which the outside jacket flows around the machine as pure enclosure, distinct from the internal workings of the machine. The openings in such an enclosure can similarly take any shape appropriate to their use, and are not bound to any rectangular, directional, proportioning system.



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In the early sixties, Twentieth-Century Fox decided to convert their old back lot into an urban model for Los Angeles, creating what is now known as Century City. One of the first projects to reach completion in 1966 was the Century City Medical Plaza (Figures 1, 2) by Daniel, Mann, Johnson & Mendenhall [DMJM], under the design impetus of Cesar Pelli and Anthony Lumsden. It was a single dark mass rising 20 stories.

It was the first single-color building in Los Angeles; it was the first time every element of a piece of architecture had been wrapped in one smooth monochromatic skin, and it was the first time the standard mullion had been reversed—with the glass advanced to the exterior and the mullion projecting inward.

This "glass membrane" was a distinct departure from the "curtain wall" office towers in which the mullions extended toward the exterior recreating the column and beam system at a diminutive scale. Both Lever House and the Seagram Building (and dozens of skyscrapers which have followed) have curtain walls with projecting mullions that reinforce the structural articulation of the facade. In addition, they clearly separate the top, middle, and bottom, in a modern interpretation of a classical facade. Century City Medical Plaza does none of these things. As a lightweight membrane sys-

tem, the skin has no articulation at the top, middle, or bottom of the facade. It is a non-directional, non-gravitational enclosure.

The membrane enclosure was the first application of an esthetic system employing a visual language that didn't imply a specific form or solution, but afforded the opportunity to test an esthetic concept. This is distinctly different from *a priori* design decisions that seek specific forms and may inhibit the logical, functional relationships of the program. Lumsden believes: "An architect must begin by employing a logical approach in the analytical phase that breaks down esthetic biases and can allow a more creative development than preconceived design notions usually permit. The esthetic itself is not the only important aspect of architectural design. *A priori* design decisions that seek specific forms generally violate essential design data. What is important is the development of a design methodology that will support a visual language."

In the examination of lightweight skin enclosures, the DMJM design department proceeded to investigate methods of freeing the surface of a building from the restraints of conventional office structure design and from the rigid confines of the rectangular box as in One Park Plaza (Figures 3, 4, 5).

At DMJM, neither the esthetic expression being sought, nor the planning constraints dictated by the logically deduced data, predominate or exclude the other.

Often the result of their approach is an irregular form in section or plan. Some people confuse clean geometry with rational design, but minimal geometry and formal purism can sometimes represent a misdirection of the rational approach. The DMJM design system has no specific intention of developing buildings that are organic in Wright's sense, nor is its intention to support the notion of design proceeding from within to without. In contradiction, many elements of a design are distinct. Visually, the design esthetic does not proceed from within only. It may proceed from the outside in, or there may be a distinction between the internal and external design systems.

For each project, Lumsden develops a form by testing various solutions against specific limits, such as the cost, the immediate environment, the inhabitability, and the potential sensory response of human beings to that particular proposal. Design is never done

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Lang photos

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ONE PARK PLAZA

For this Los Angeles building, the corners of the structural box were given special emphasis in the skin membrane by creating curved glass volumes that run from ground to sky, stressing the verticality of the mass and opening the interior to spectacular views of the city. In no way was the efficient, economical solution of the building's internal functions compromised. In fact, the separation of enclosure from structure allowed the use of seven different bay sizes on the interior to achieve the most inexpensive structure possible for that site. The building breaks the rigid wall along Wilshire Boulevard with the soft curved glass projections. This can be considered a plus from the urban design standpoint. By varying the height of the spandrels at the corners, the persistent horizontal layer-cake effect so common on high-rise buildings, was broken. It was the first DMJM building with a variable height spandrel. This gives a sense of openness on the inside. The interior space expands outward while the transparent enclosure extends from floor to ceiling, creating a series of handsome offices.

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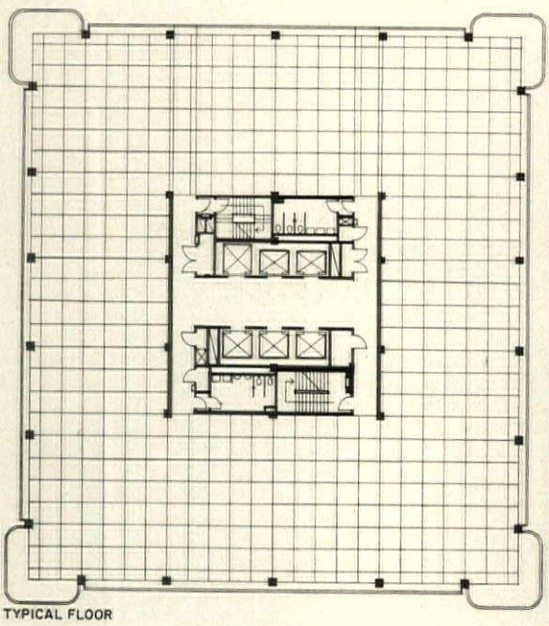

TYPICAL FLOOR

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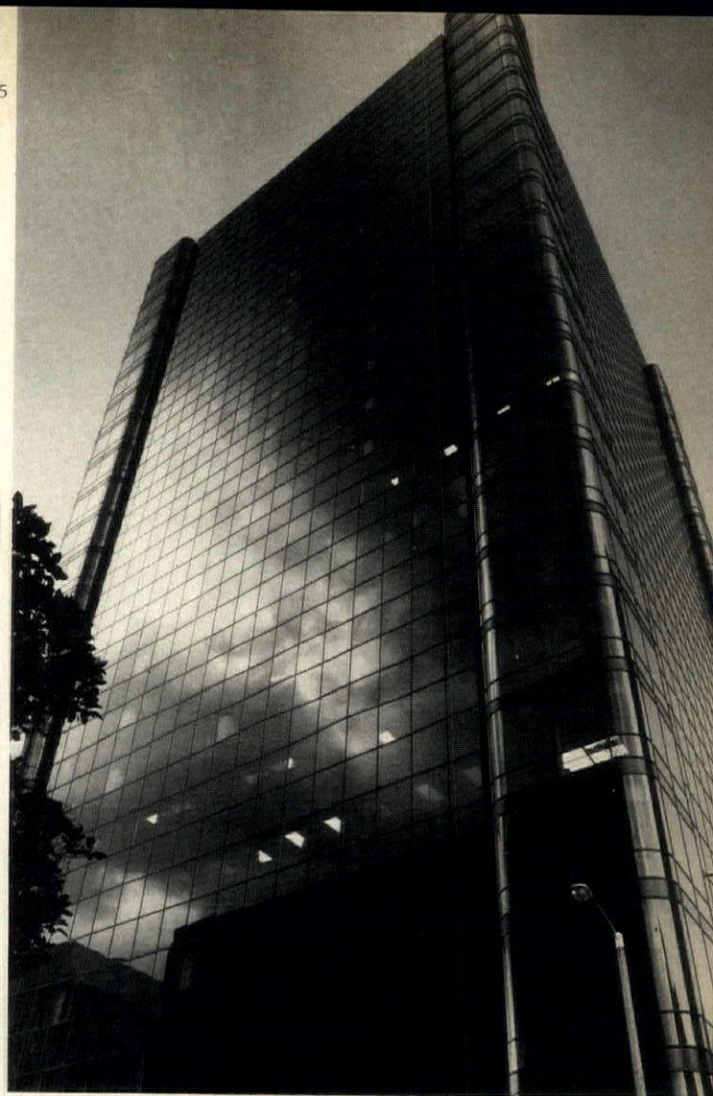

MANUFACTURER'S BANK

The decision to use a glass enclosed skin for this building came only after its functions had been solved. The programmatic requirements were as follows: In Beverly Hills the law states that 1) there must be three parking spaces for every 1,000 square feet; 2) there is a maximum allowable height of 160 feet; 3) there is an allowable multiple of four times the site area for occupiable space; and 4) there is a maximum allowable of ten floors (in which two garage levels count as one floor). The garage fills the site because that is the most efficient garage one could develop. It occupies as many floors above grade as was possible without diminishing the amount of leasable floor area. This proved to be very economical because it reduced the need for retaining walls and expensive mechanical ventilation of the garage, while pushing the first leasable floor up to a position that afforded a view of the boulevard and, therefore, commanded a higher rent. The undulated facade went up in late 1972 and early 1973 for $5.10 per square foot, while the office space cost $18.00 per square foot. The building cost would be lower if one averaged in the garage.

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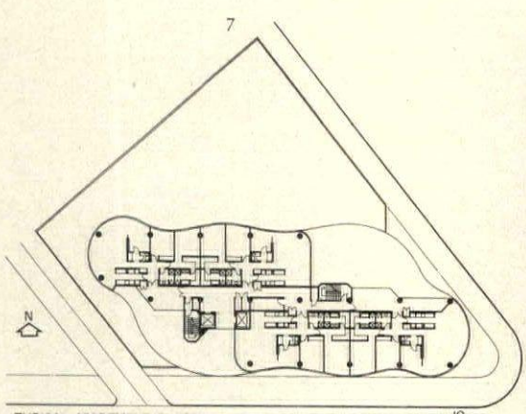

TYPICAL APARTMENT FLOOR

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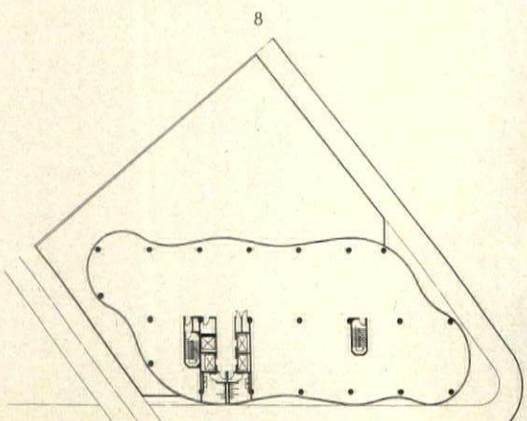

TYPICAL OFFICE FLOOR

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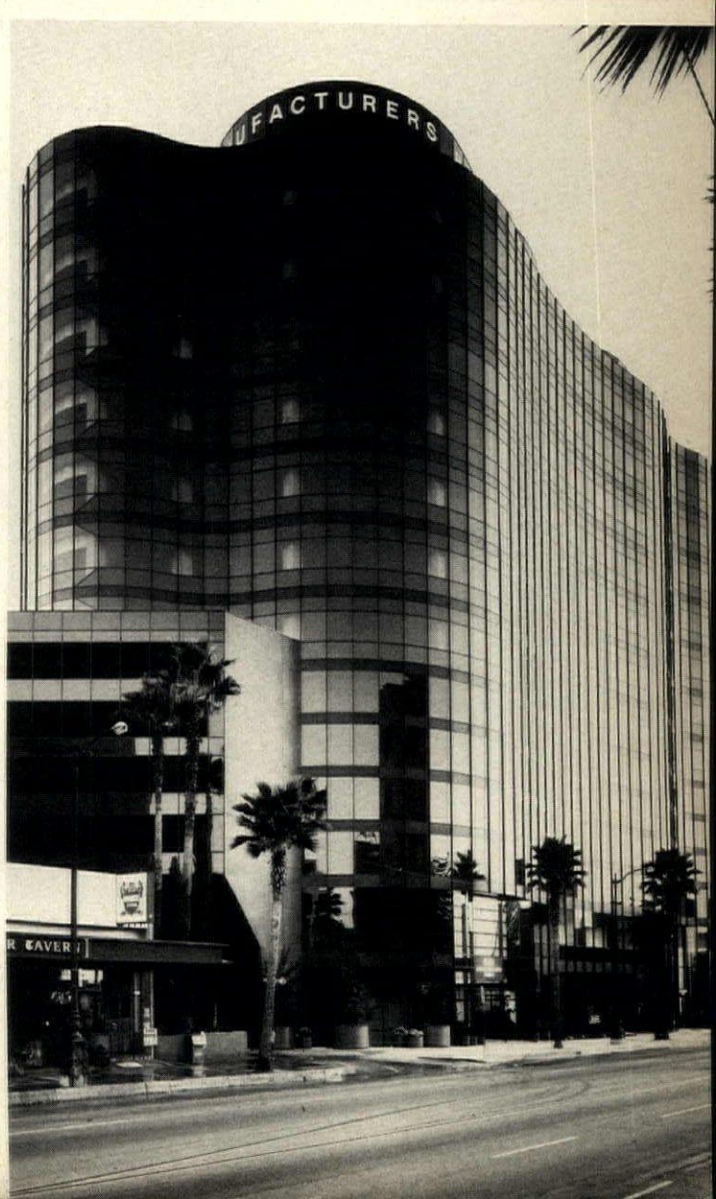
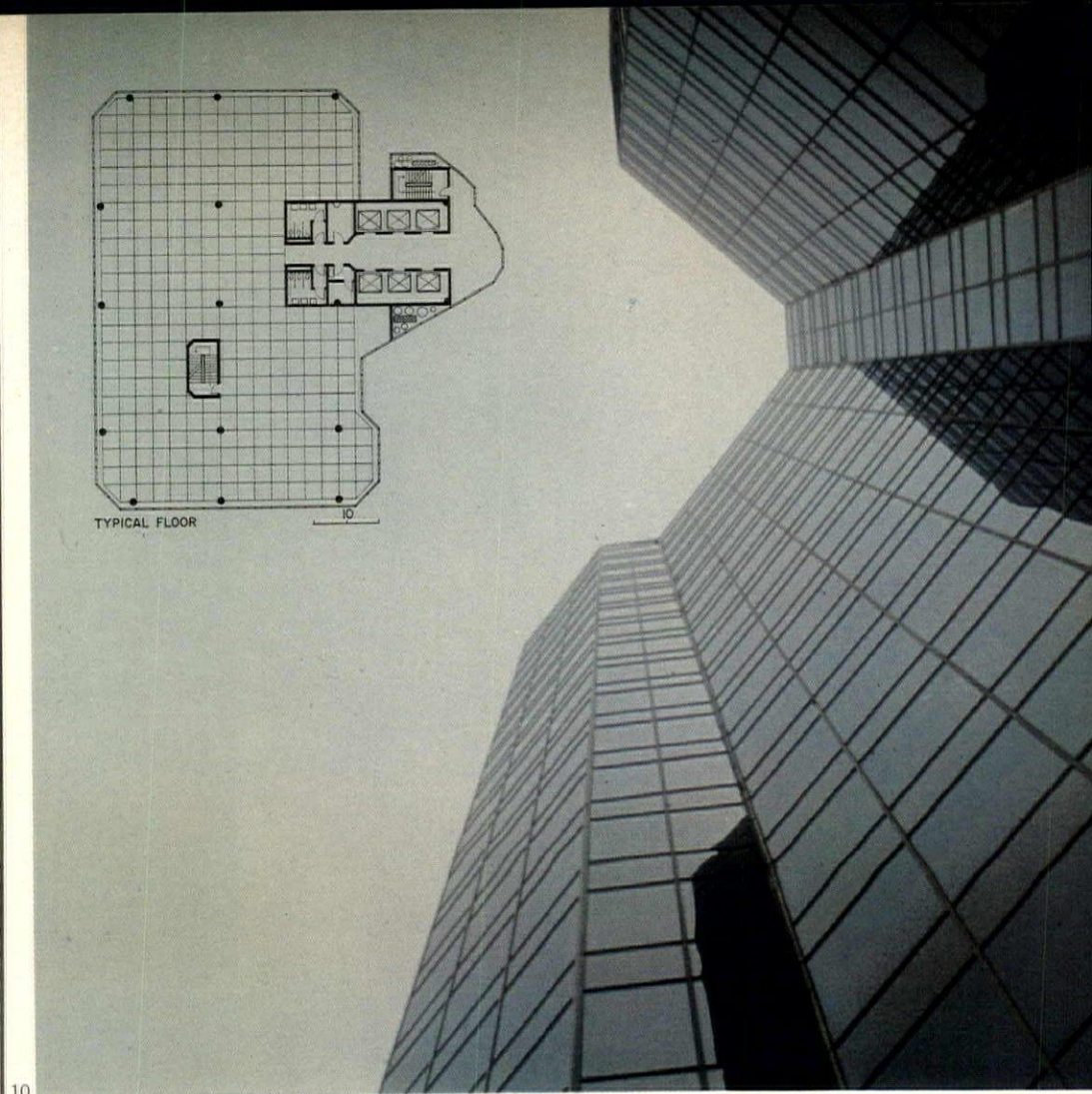


simply on the basis of the building's appearance. If a solution inhibits or ignores certain factors that would be beneficial to human habitation, that solution is altered or rejected. Lumsden states: "My conception of design involves an examination of various esthetic systems. One of these is the nature of the skin enclosure. Materials which most closely approximate non-gravitational membrane surfaces conform best to this particular investigation."

After completing the expanded corner investigation of One Park Plaza, DMJM was commissioned to design the Century Bank Plaza (Figures 10, 11, 12). It was necessary to build the building in two stages. Phase one was to be constructed adjacent to an existing building which was to be razed at a later date, at which time the second phase would be built. In order to accommodate this future growth, the present building was designed with the elevator and service core on one side with phase two to be constructed adjacent to the core. As in previous projects, the exterior surface was treated as a flexible skin that wrapped around the elevator core as easily as it did around the office floors. At the entrance to the building, the skin is stepped in a series of recesses, creating a very successful transition space from the linear spine of the street. To the east of the main entrance, the surface is folded back, generating a lower-level courtyard connected to a restaurant. The success of Century Bank Plaza led to The Manufacturer's Bank Building (Figs. 6, 7, 8, 9), the third office building on Wilshire Boulevard. Set on a triangular site, the building turns the corner with a gracefully smooth rolling surface. Lumsden admits that: "There's no doubt we wanted to go for a rolling surface. We'd done a building that achieved a solution using a faceted surface (Century Bank Plaza), and buildings using a rounded corner (One Park Plaza). We wanted to test the technology, to extend the range of application of the membrane system, and to examine the potential of the rolling surface in plan form as well as in section. The form and massing of The Manufacturer's Bank Building was more easily resolved using the curved, variable surface than by using a faceted or rounded corner system."

The client is very pleased with the rolling surface idea and, since completion, has been operating the building at a hand-



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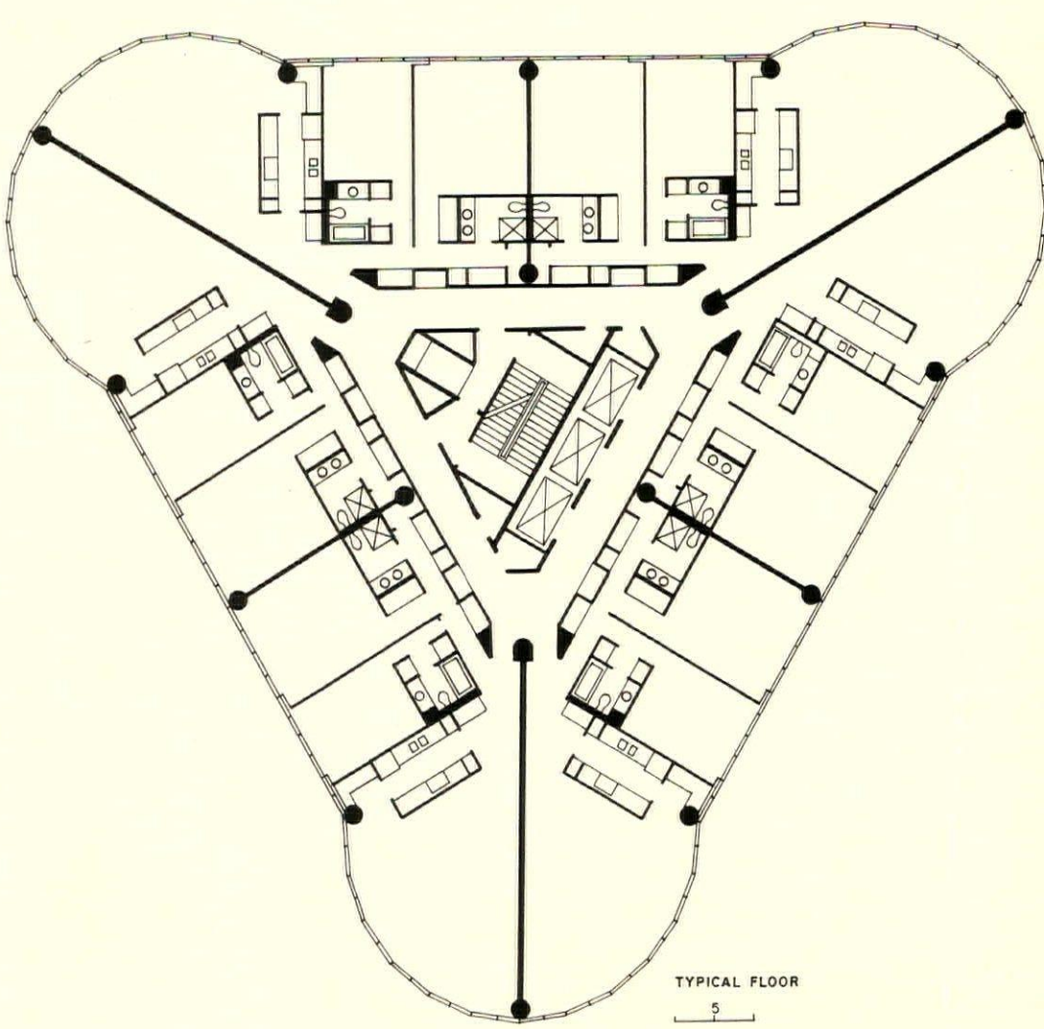
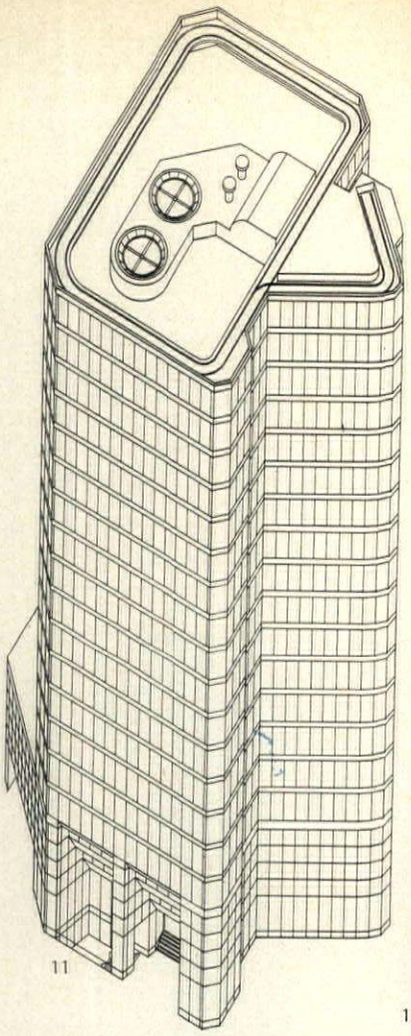


13.

CENTURY BANK PLAZA

This office tower was a subtle departure from the other dark glass buildings beginning to go up around Los Angeles. Designed in mid-1969, it was the first of the smoothies to respond to differing orientations. The spandrel quietly changes elevation as the skin goes around the building, protecting the southern spaces from too much sunlight, while opening the northern spaces to the broad panorama of the Santa Monica Mountains. The main idea at Century Bank Plaza was the way the enclosure folded and bent in response to differing conditions. The plan itself is acceptably different, irregular, and non-symmetrical. There were no conceptions about the building being a collection of four facades; north, south, east, and west. It was perceived as a total entity wrapped in a continuous membrane enclosure, like any product of nature. Lumsden was attempting to achieve what LeCorbusier had described in 1936 as the skyscraper of the future, "a skeleton woven like a filigree in the sky, a spidery thing, marvelously clear and free," with the facades "a film of glass, a skin of glass."



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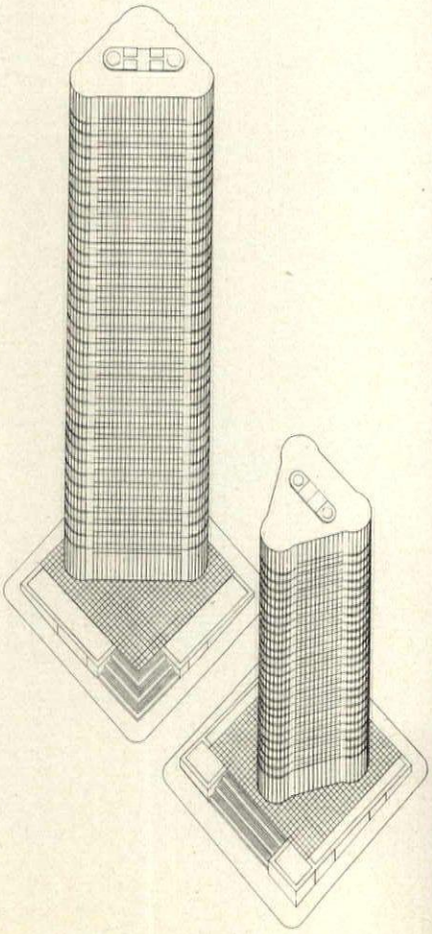
PORTLAND PLAZA

This project was designed in 1970 in the form of two triangular towers framing Lawrence Halprin's famous civic auditorium forecourt plaza and fountains. The taller of the two towers will be an office building. The shorter, now complete, is a 150-unit condominium apartment building. The diagonal placement of the wedge-shaped towers forms two flat walls along one edge of the site which reinforces the city's rectangular grid, but opens up the fountain side enlarging the sense of space. The internal space is efficiently apportioned. In the apartment tower every room is rectilinear with the exception of the living room which has a broad, curved enclosure. The building facades are grey heat-resistant glass and aluminum. The aluminum spandrels vary to accommodate and express the programmatic and functional changes, which may vary from floor to floor. At the corners where living rooms occur, the spandrel is lower, opening the room to the view. Bedrooms have a 3-foot 6-inch-high sill and the bottom of the spandrels are dropped to ceiling height. The difference can be seen in the photo (right).



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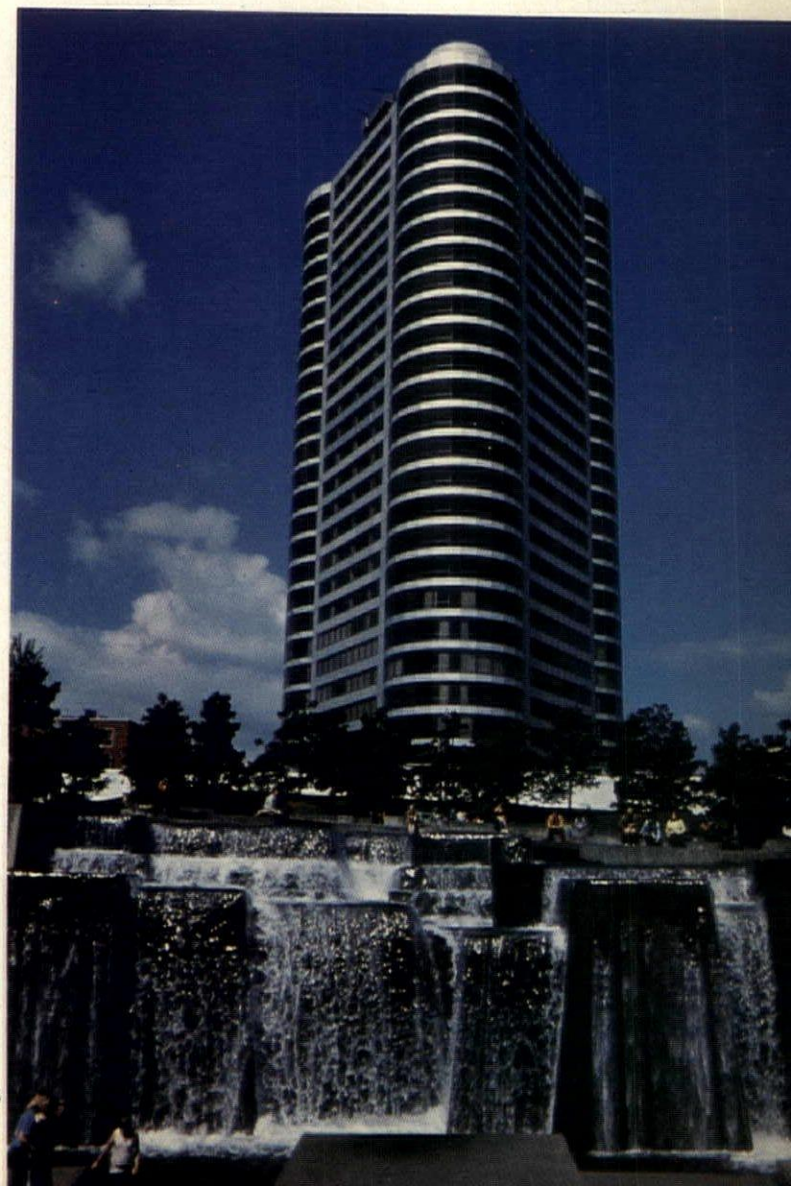

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some profit. The reasons for this, Lumsden claims unabashedly, are because: "It's the most efficient and economical garage you can put on that site; it's the most efficient and economical structure you can put on that site . . . I can't think of anything that could make that building work better. . . ."

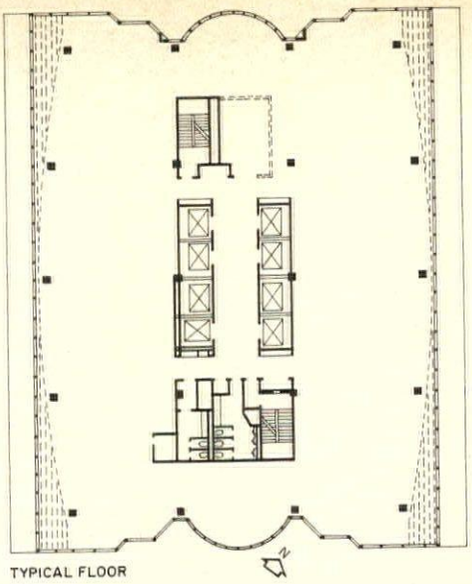
Further developments were the Portland Plaza project (Figures 13, 14, 15), which consists of two triangular towers, an office building and an apartment structure now complete, and Bank Bumi Daya (Figures 16a, 16b) designed for Jakarta, Indonesia.

The Federal Aviation Agency Building (Figures 17, 18, 19, 20), designed in 1966, was a milestone in the search for a system of enclosure that would work for low-rise buildings. The FAA Building is a six-story structure that employs a glass and metal panel system flexible enough to flow around corners, over the top and under the bottom.

The Convention Center for Lugano, Switzerland (Figures 21, 22, 23) was undertaken in 1972. The same rolling surface concept employed vertically in the Manufacturer's Bank is turned 90 degrees and used horizontally in this design.

The Lugano Convention Center is distinct from the FAA Building in that the membrane doesn't go around the corner; it gets cut off at the end, like an extrusion. Examining and developing an extruded or sectional esthetic achieves several objectives. It permits the building to be extended for future growth and it recognizes that extruded forms in architecture exhibit a visual vitality by expressing the section of the building as a silhouette. This permits the space enclosed by the membrane to be revealed by implication and suggestion. The extruded design system is a distinct departure from traditional design methodologies, since it is in opposition to axial or symmetrical esthetics. Neither the facades nor the plans have the classical center of gravity balanced by symmetrically placed rectangles, which has been one of the strongest architectural traditions from antiquity to the present.

The so-called "extrusion esthetic" is dynamic and flexible. It suggests and allows extension and change. Sections can be more flexible than plans since they can be varied more easily without violating function. Because of the nature of light and human vision, variations in section and silhouette can be more dramatic and

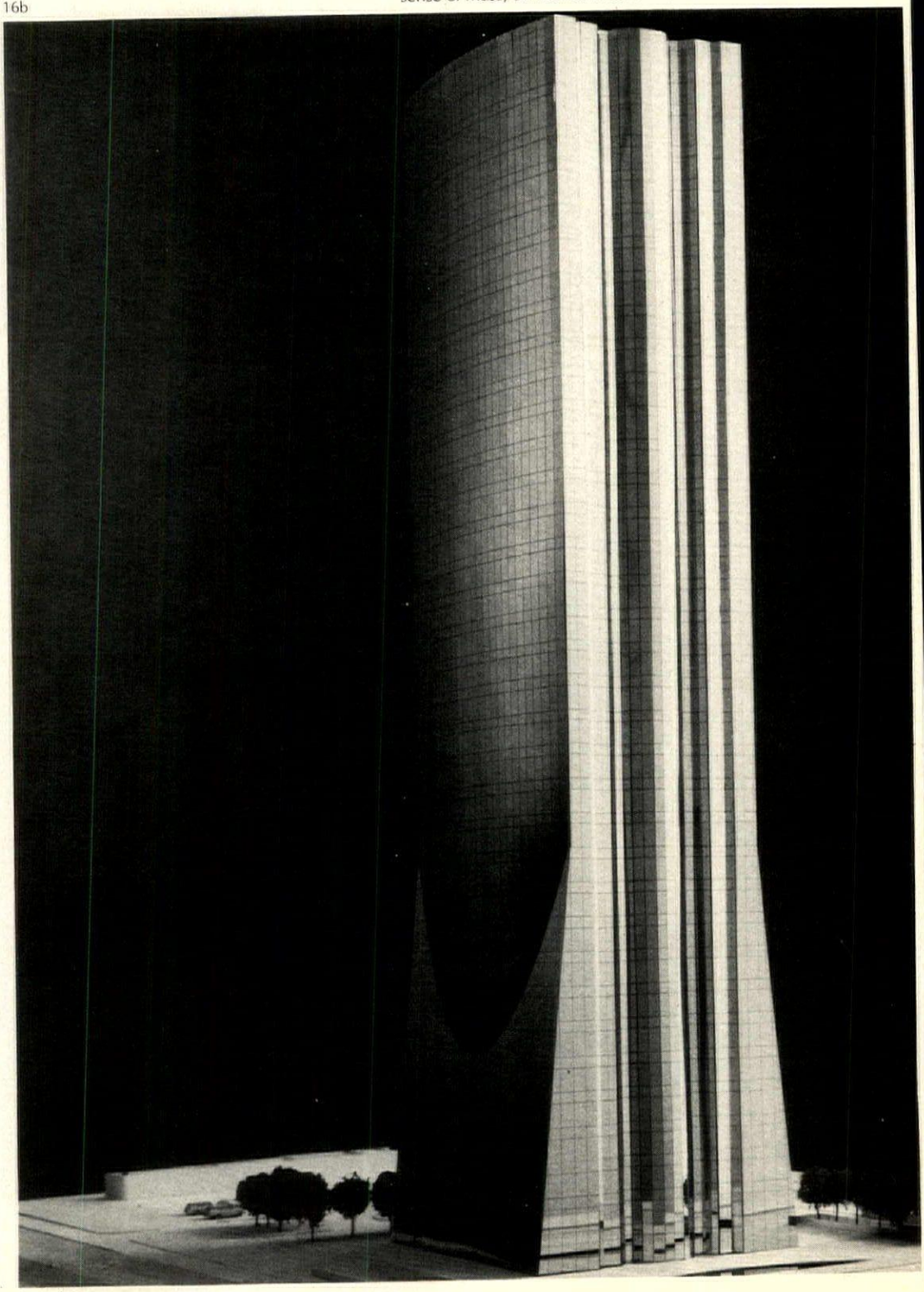


TYPICAL FLOOR
16a

BANK BUMI DAYA

The client wanted a high-rise edifice as a visual symbol, but required an extended horizontal floor area for the operation of the bank. The design allows for both, integrating the upper tower with an expanded set of floor levels at the base. The typical floor of the tower is slightly convex. This proved efficient internally and the variation of light on the curved surface will give the building a more pleasing appearance, overcoming that wrinkled-silver-foil look of some rectangular mirror glass buildings. Lumsden has consciously attempted to use glass as a positive surface. In the Bank Bumi Daya, the curved membrane gives the building a sense of mass, similar to that of a dirigible. The ends of the 35-story tower were indented and curved, emphasizing the verticality of the mass, a purely esthetic choice. The Bank's main branch occupies the first three floors. Upper floors contain corporate offices, two restaurants, observation rooms, and multiple tenant lease space. Other portions of the tower contain a central information, storage and retrieval computer bank. Lower floors were inclined outward to provide the larger floor space required to house the branch bank functions. The six-story parabolic curve is generated by the intersection of the upper tower skin with the inclined straight plane of the lower floors.

16b



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FEDERAL AVIATION AGENCY BUILDING

The glass and aluminum panel enclosure of this six-story building rolls over the structural frame and down to the entrance in smooth, stepped curves the way a vacuum-formed plastic jacket is wrapped around a stereo receiver or any other piece of modern technology. Looking back to the days when he and Cesar Pelli developed the design, Lumsden says: "It's the first building in the country, I believe, that tried to do a lightweight sculptural surface, where the building goes over the top, the building comes under the bottom, and also goes around the corner." The building concept implies a new direction for enclosing space. It is a distinct break with the architectural tradition of expressing gravitational forces. The entire building exterior is covered with aluminum sheet and silver mirror glass. Aluminum is used where the surfaces change shape generally; also, the corners of the building are faceted to achieve the effect of one continuous membrane covering the exterior of the building. All the non-office functions (cafeteria, lobby, shipping and receiving, library, printing plant, and mechanical areas) are located on the ground floor.

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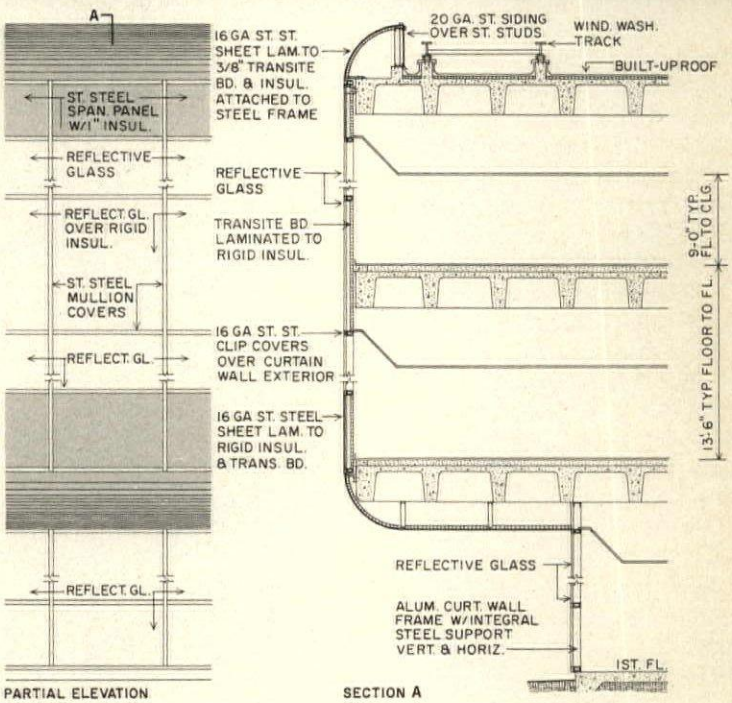

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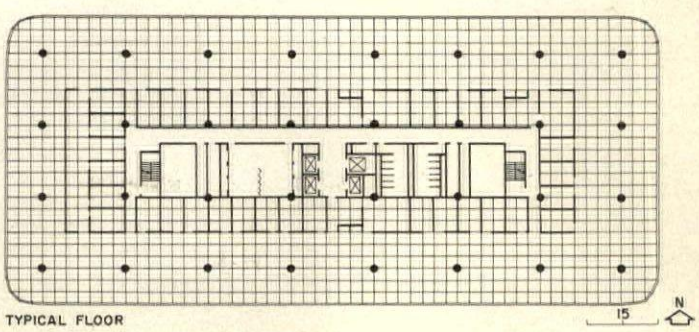


20 TYPICAL FLOOR

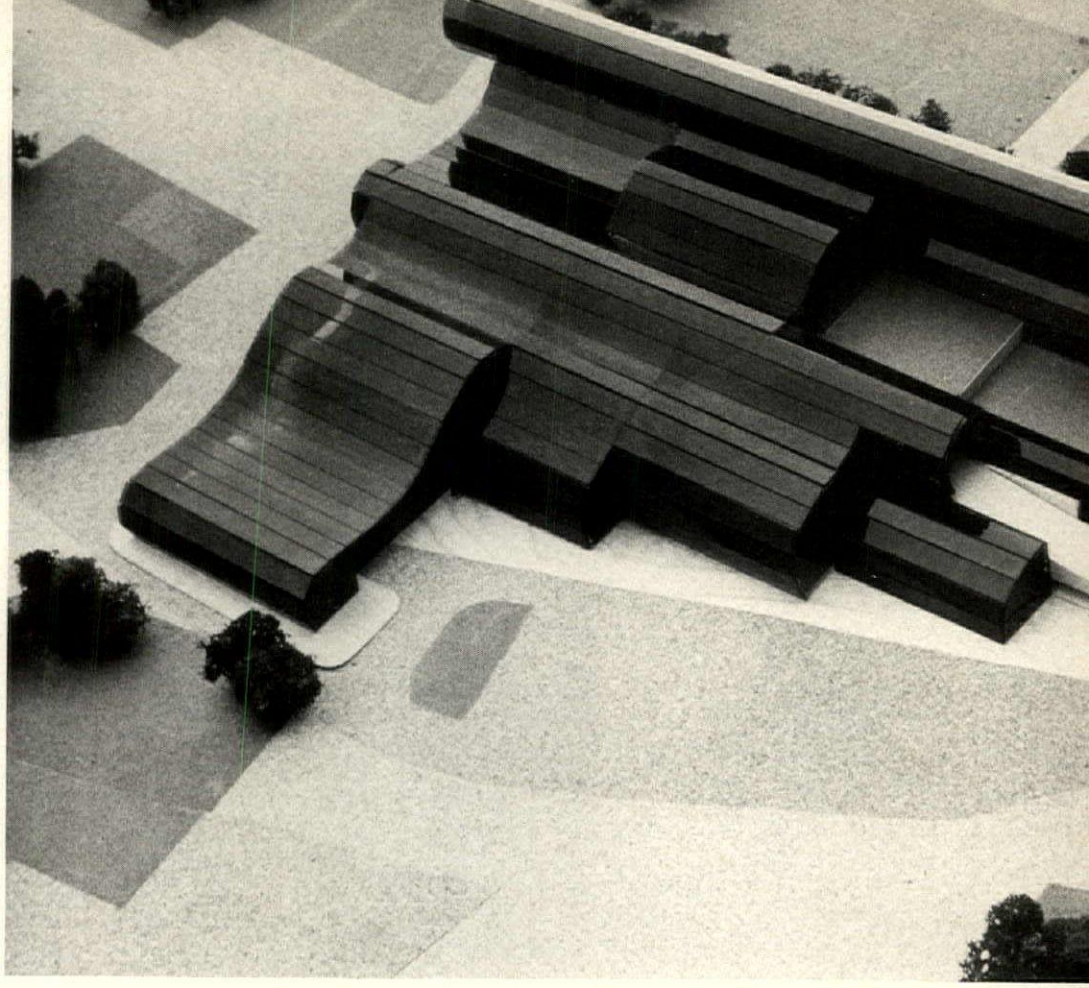
spatially exciting than variations in plan.

Another project that examines the application of the sectional esthetic system to a membrane is the Sepulveda Water Reclamation Plant (SWRP) (Figures 24, 25, 26). An uncommon integration of architecture with ecological concerns, the administration building is a flexible membrane that creates a layering of enclosed and semi-enclosed spaces. This affords the visitor the opportunity to experience the lake which flows under the veranda, and a garden formed by a series of terraced planters.

The most recent application of this concept was in the Beverly Hills Hotel project (Figures 27, 28, 29). The building is, in a sense, a marriage of the high-rise and low-rise systems, while it projects a harmonious enclosure to the surrounding environment. The method of support is a mixture of bearing walls, columns and trusses, each deployed wherever it is most appropriate and economical. The repetitive regularity of the hotel rooms is best supported by a bearing wall system; the support functions, located on adjacent terraces, are best supported by columns and beams, and the rolling membrane is best supported by a truss system. Because of Los Angeles' seismic zone, it was too expensive to make a structural transition from a bearing wall to a column and beam system. Accordingly, the bearing walls were taken directly to the foundation.

The hotel floors are lifted above the parking for a better view, not unlike the system used at the Manufacturer's Bank, whereas the shopping arcade and main lobby space is a series of layered terraces reminiscent of Kevin Roche's Oakland Museum. The terraces in Oakland are outdoors, however, whereas in the Beverly Hills Hotel they are enclosed by the rolling surface of the mirror glass membrane which creates a contemporary, variable level galleria.

Currently, the DMJM design department is continuing to investigate methods of structuring and enclosing spaces that allow for the maximum efficiency and flexibility of each system. Looking to the future, the firm is now at work on a NASA Space Shuttle Facility, which someday may bring the opportunity to design a non-gravitational enclosure to be used in a non-gravitational environment.



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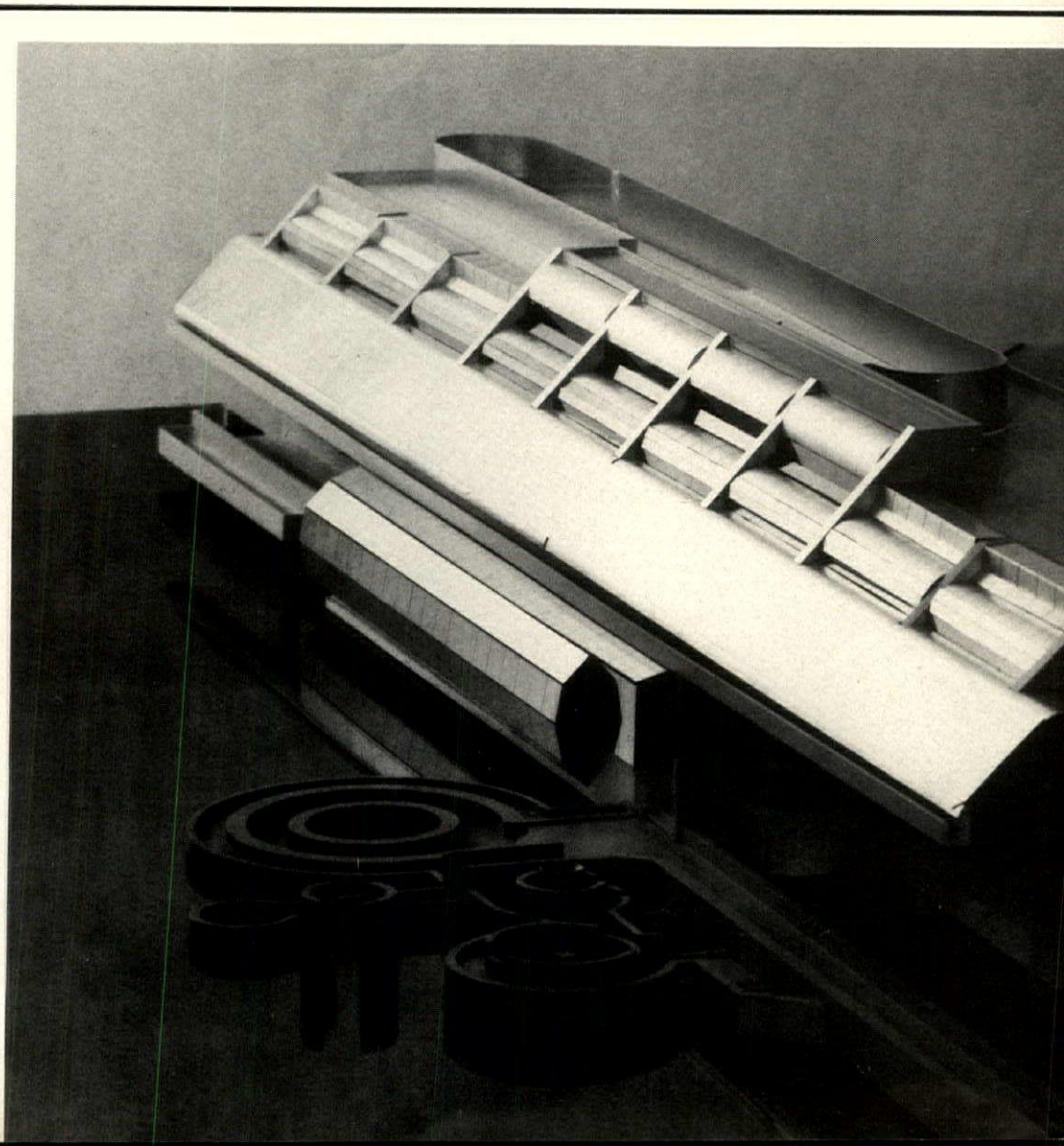

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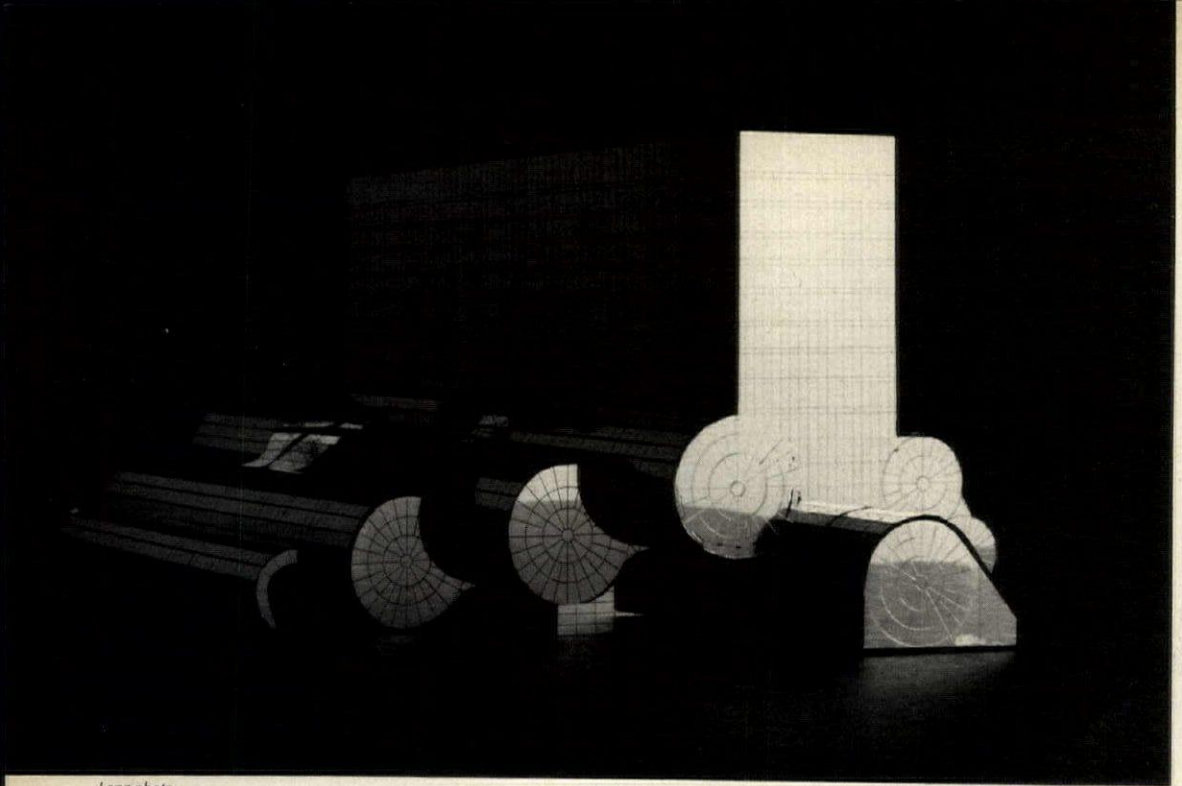

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27

BEVERLY HILLS PLAZA

Located in Beverly Hills on Santa Monica Boulevard, the hotel site is adjacent to the major intersection of Beverly Hills and Century City. The structural frame of the tower consists of concrete bearing walls extending from the basement to the top of the hotel. This system has economic and seismic advantages and coordinates the module of the hotel rooms, parking, and commercial space. Those functions requiring large spans and continuous space that could not be accommodated in the wall module of the rooms are located outside the tower and above the garage. The roof varies with changes in volume relating to functions of the public areas. Concrete slabs are supported by concrete bearing walls and columns. Exterior walls are lightweight membrane enclosures of glass and aluminum panels. Roofs over the public areas are glass and aluminum with aluminum mullions supported on steel trusses and frames.

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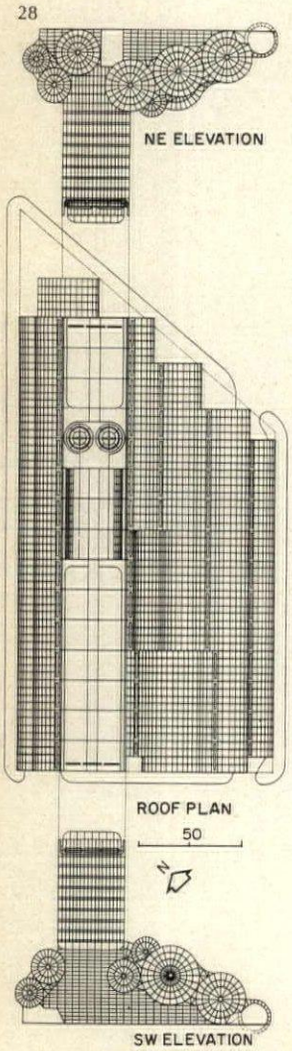

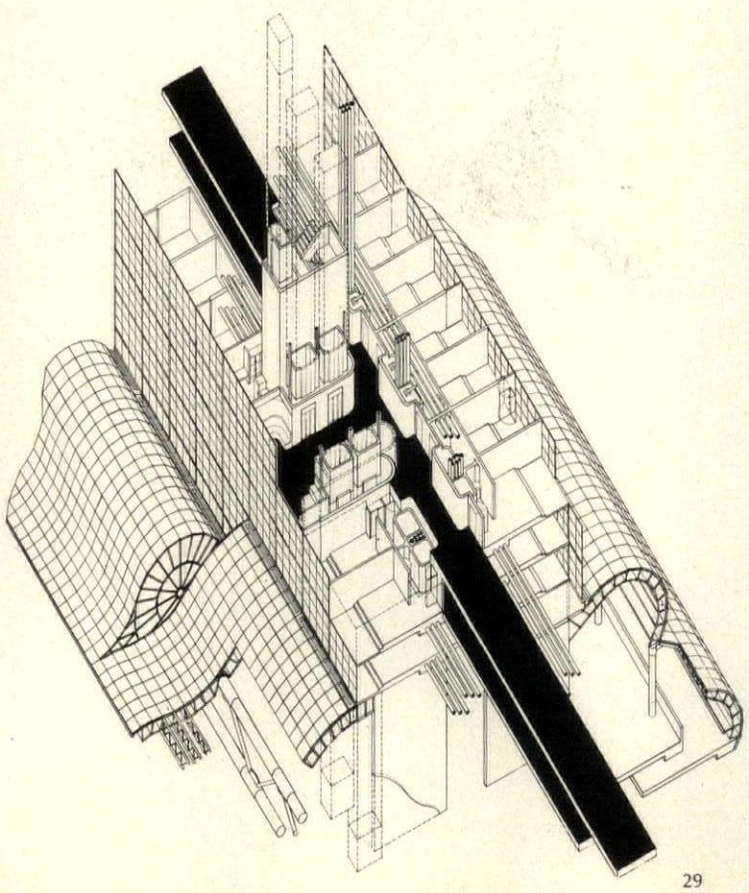

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In addition to being an attractive material to use in design for buildings, glass can be a quite inexpensive cladding. Wall costs for buildings completely sheathed in glass range from $6.50 to $17.00 per square foot, though the membrane structures in the Los Angeles area are closer to the lower values. One Park Plaza cost $4.60 per square foot for an all-glass wall in 1971. Manufacturer's Bank cost $5.10 in 1972. A 4-in. brick and 6-in. block cavity wall with comparable U-value would cost from $7.50 to $12.00 installed, depending upon the type of glass used.

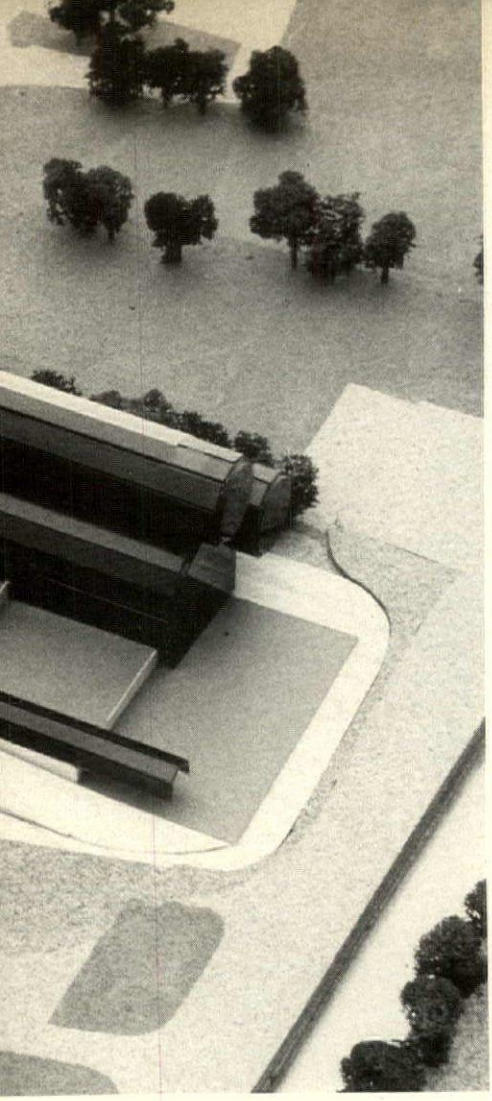
Plenty of brickbats have been tossed at glass walls for being "energy wasters." But the fact of the matter is that the opaque areas of a glass wall with an equal amount of insulation can be as efficient as concrete, brick or stone. The "U" factor for a 6 inch, 150 lb/cu ft concrete wall is 0.79. A concrete wall with 1 inch of insulation and a 1 inch air space has a "U" factor of 0.18. A quarter inch spandrel glass wall with 1 inch insulation and a 1 inch air space also has a "U" factor of 0.18.

The problems of energy loss through transparent glass are the same for all buildings regardless of what the opaque areas are made of. The U-value for single glass is 1.0, and double-glazing decreases this to 0.60. Double-glazed units with reflective glass can have U-values as low as 0.35.

The efficiency of glass from the standpoint of solar energy transmission cover an even wider range. The measure of this is the shading coefficient which is the ratio of solar heat gain of the fenestration in question to that of ordinary double-strength glass. Thus the shading coefficient for ¼-in. clear glass is 0.95.

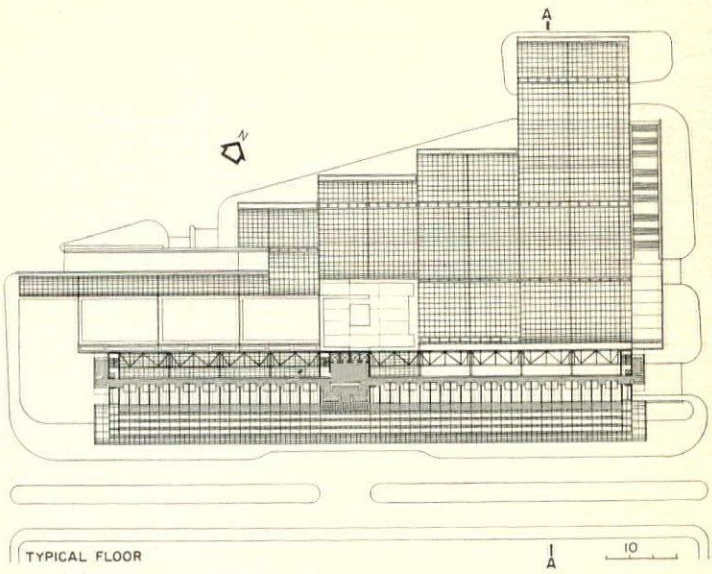
The same glass with closed weave, light colored draperies has a shade coefficient of 0.5. A reflective "silver mirror" glass has a shade coefficient of .3, or, with draperies, .18. Quarter-inch thick bronze tinted glass with closed weave, light colored drapery as used in One Park Plaza has a shade coefficient of .41. The glass costs $4.60 per square foot installed, and the drapery about .75 per square foot, or a total of $5.35 per square foot. In fact, all the buildings illustrated costs between $4.00 per square foot and $6.00 per square foot installed.

To put this into some perspective, during the hot summer months, the transparent glass of one of DMJM's typical office buildings may account for only about 12 per cent of the energy required to provide electric illumination (at 4 watts per square foot) and to provide cooling to neutralize the heat from the lights.



LUGANO CONVENTION CENTER

This hotel and convention center designed for Lugano, Switzerland fronts on the Lido that overlooks the lake. Those internal spaces that will benefit from being oriented toward the lake are stepped up and down in response to the natural terrain and the need for sunlight. These levels contain terraced gardens, shops and refreshment areas. The subterranean level has parking and a service station; the first level is a bus terminal; and the second and third levels are a garage with the hotel auto entry. At the fourth level are the major exhibition areas and provisions for banquets, meetings and sporting events. The fifth level functions mainly for the hotel with a lounge, health spa, pool, restaurant and coffee shops.



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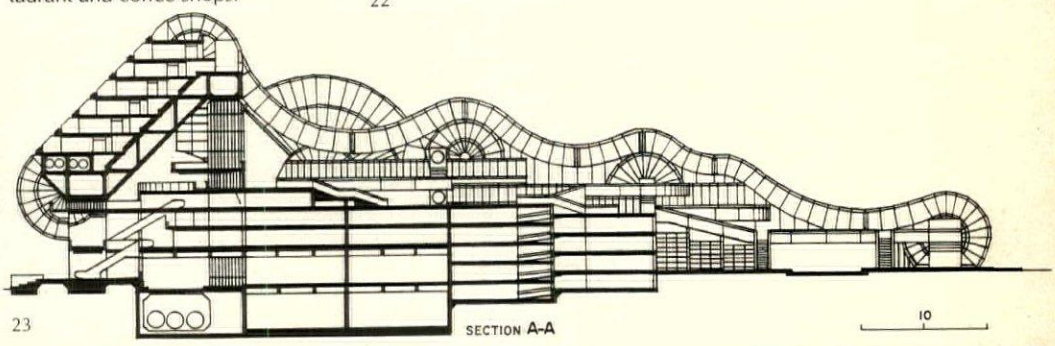
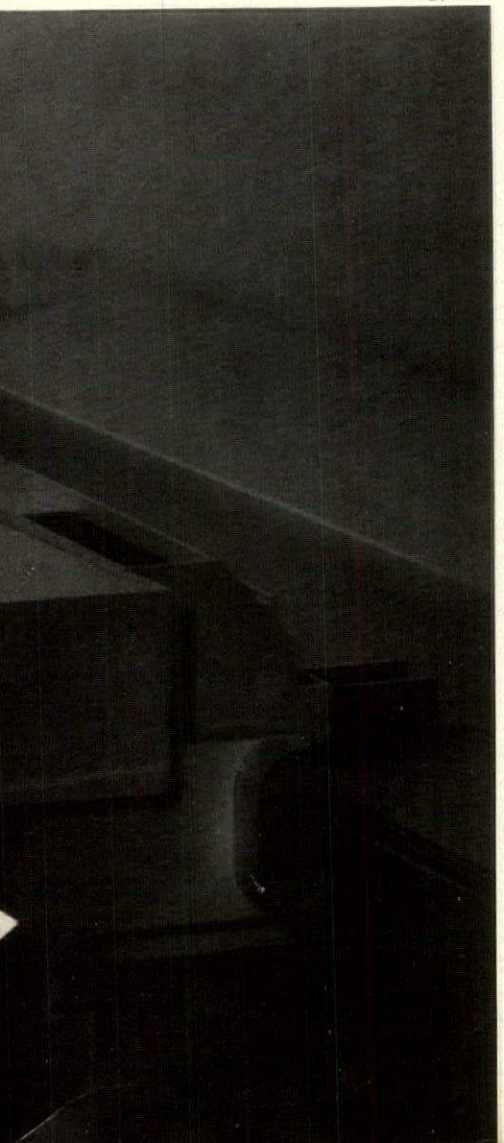


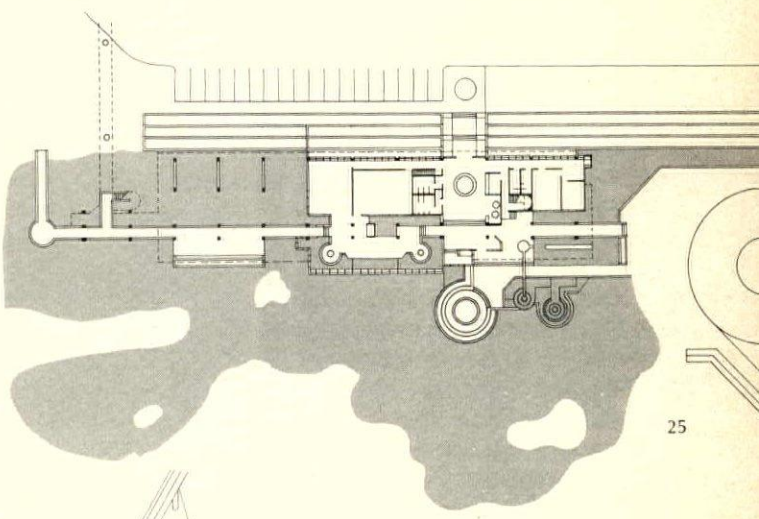
23

Lang photos



SEPULVEDA WATER RECLAMATION PLANT

This plant is located on an 88-acre site in the Sepulveda flood control basin for Los Angeles, on gently sloping barren land. It will be constructed in five phases. The first phase of the plant will be capable of meeting the needs of its tributary area for approximately 10 years. To achieve the water reclamation objectives, the proposed plant must include facilities for influent control, raw-sewage pumping, primary sedimentation, aeration, secondary effluent disposal and sludge disposal. It includes several supporting buildings—headworks building, blower building, chlorination building, service building and administration building. The client requested that a Japanese garden be incorporated into the remaining site to be developed as a park and recreation area. The administration building, along with the garden, occupies the western part of the site, provides 15,000 square feet of offices and laboratories and 5,000 square feet of display area. Besides housing the plant administration, this building serves as the visitors' center and starting point for guided tours.



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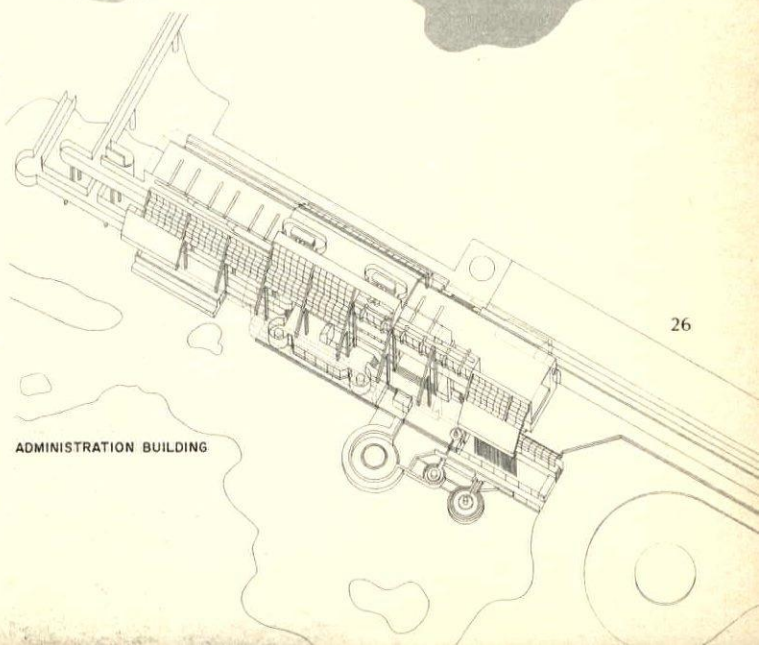
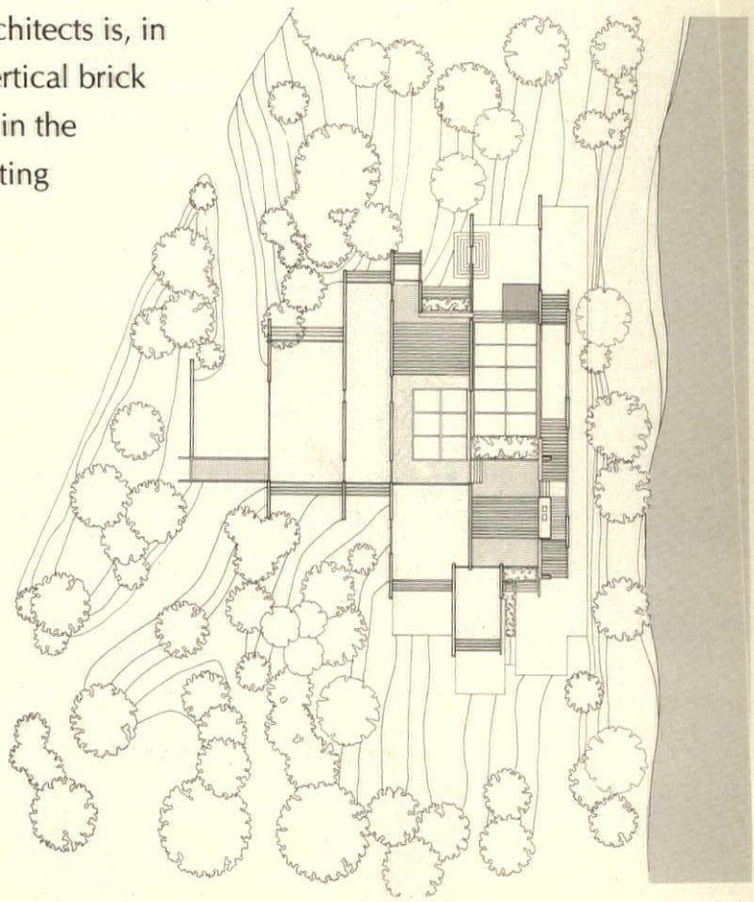


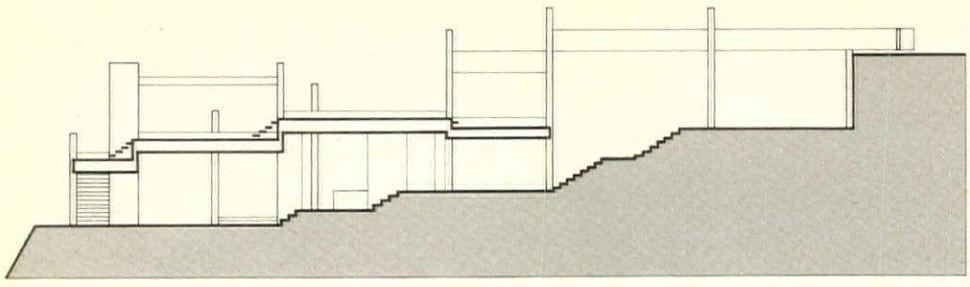
26

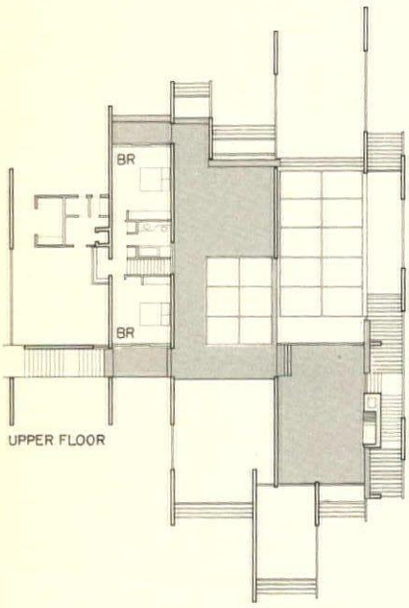
Simon Scott photos

A bold house in eastern Canada by Arthur Erickson

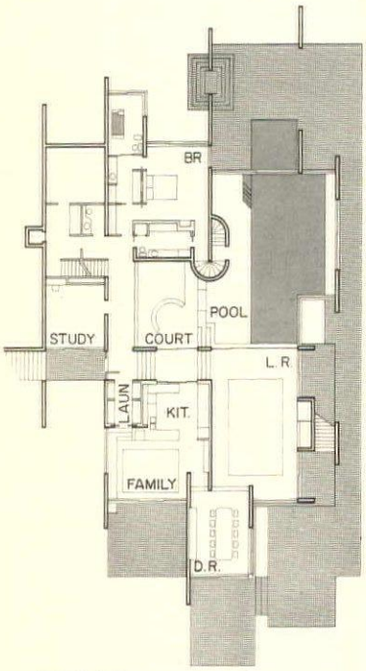
This house by one of Canada's most distinguished architects is, in his words, a "series of terraces contained between vertical brick wall panels." These panels are the strongest element in the concept and determine both forms and spaces, reflecting and reinforcing the qualities of an unusually open site along a river in Ontario.



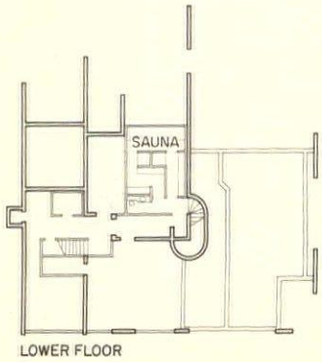




UPPER FLOOR



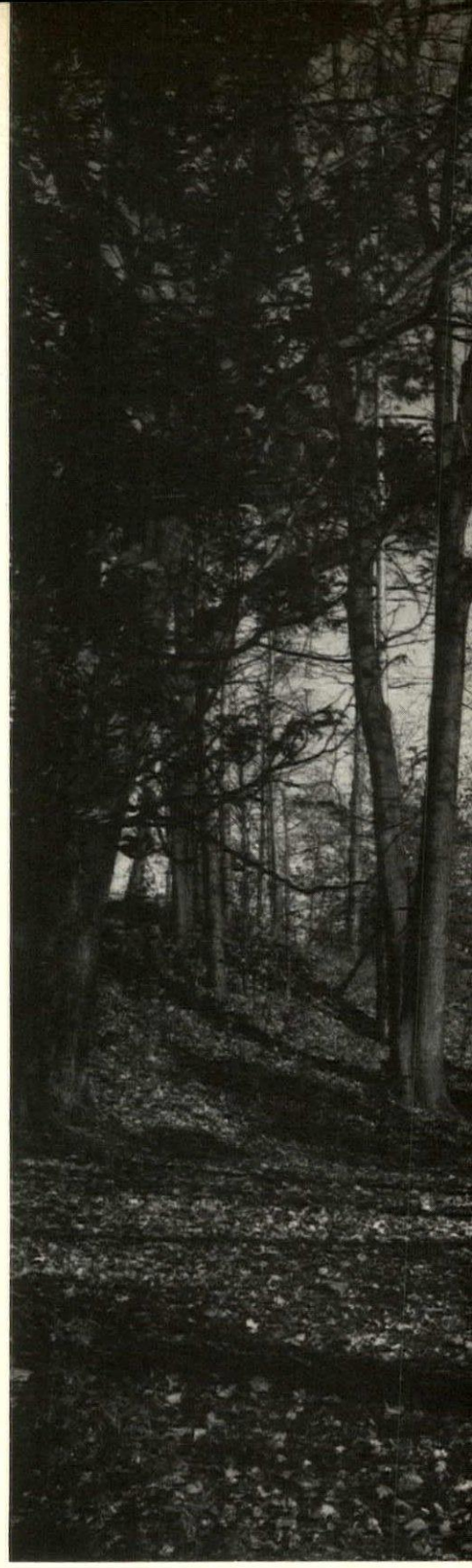
MAIN FLOOR



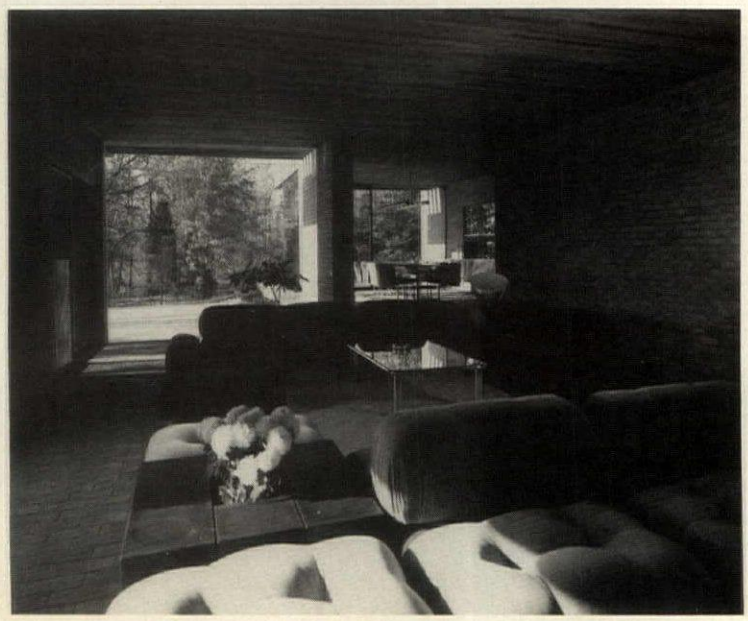
LOWER FLOOR

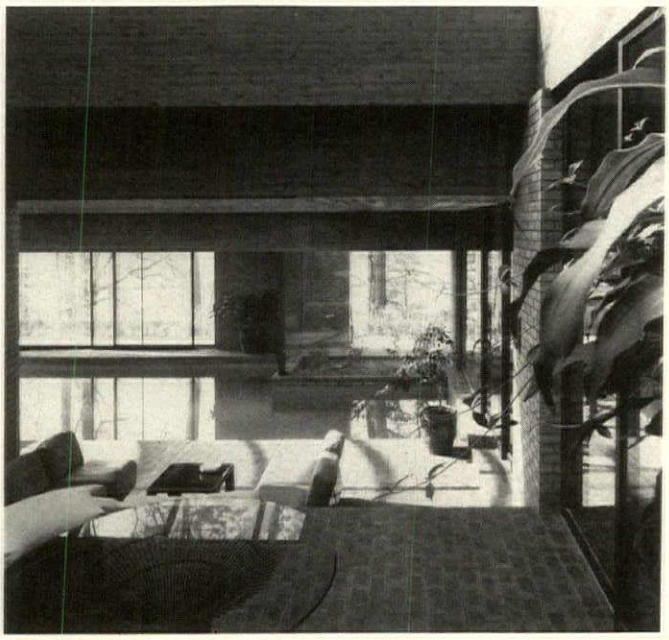
On a wooded rural site, approximately 50 miles from Toronto, Canada, Arthur Erickson has designed a house that fits onto a narrow benchland, halfway down from the road and 60 feet above the Grand River which runs below. The horizontal nature of the site and some existing rows of hedge is reflected in the linear pattern of the vertical brick wall panels which delineate the several terraces of the house, creating what the architect calls "tubes of space." Arthur Erickson believes that a house should not open up just to the main or obvious advantage of a site, but should reveal different aspects of the place. As the house descends the slope, the view opens up to the river and a conservation area beyond. At each landing, however, there are also vistas of various kinds through the "tubes of space," to views of trees on one side, and to open lawns on the other. At the lowest terrace the living room and pool area afford views of the site's "obvious advantage," the river. But the full revealing view of the river is reserved for an experience to be had outside the house, from one of the many terraces or from the roof. The two essential materials used are brick and glass, but despite the many glass openings, in the end it is brick that makes the character of the house. In plan, the house is commodious, even luxurious, with a noteworthy integration of the pool with all major indoor and outdoor spaces.

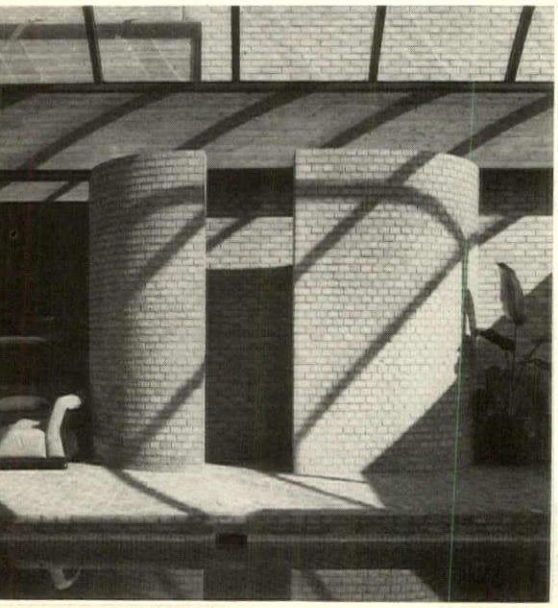
RESIDENCE FOR MR. & MRS. RICHARD C. HILBORN, near Preston, Ontario, Canada. Architect: *Arthur Erickson/Architects—Arthur Erickson, James C. Strasman, Walter A. Porembski, Khaja Vicaruddin, Ciro Polsinelli, project team.* Engineers: *C.D. Carruthers & Wallace* (structural); *David MacKay* (mechanical). Interiors: *Francisco L. Kripacz.* Contractor: *John Schropp.*



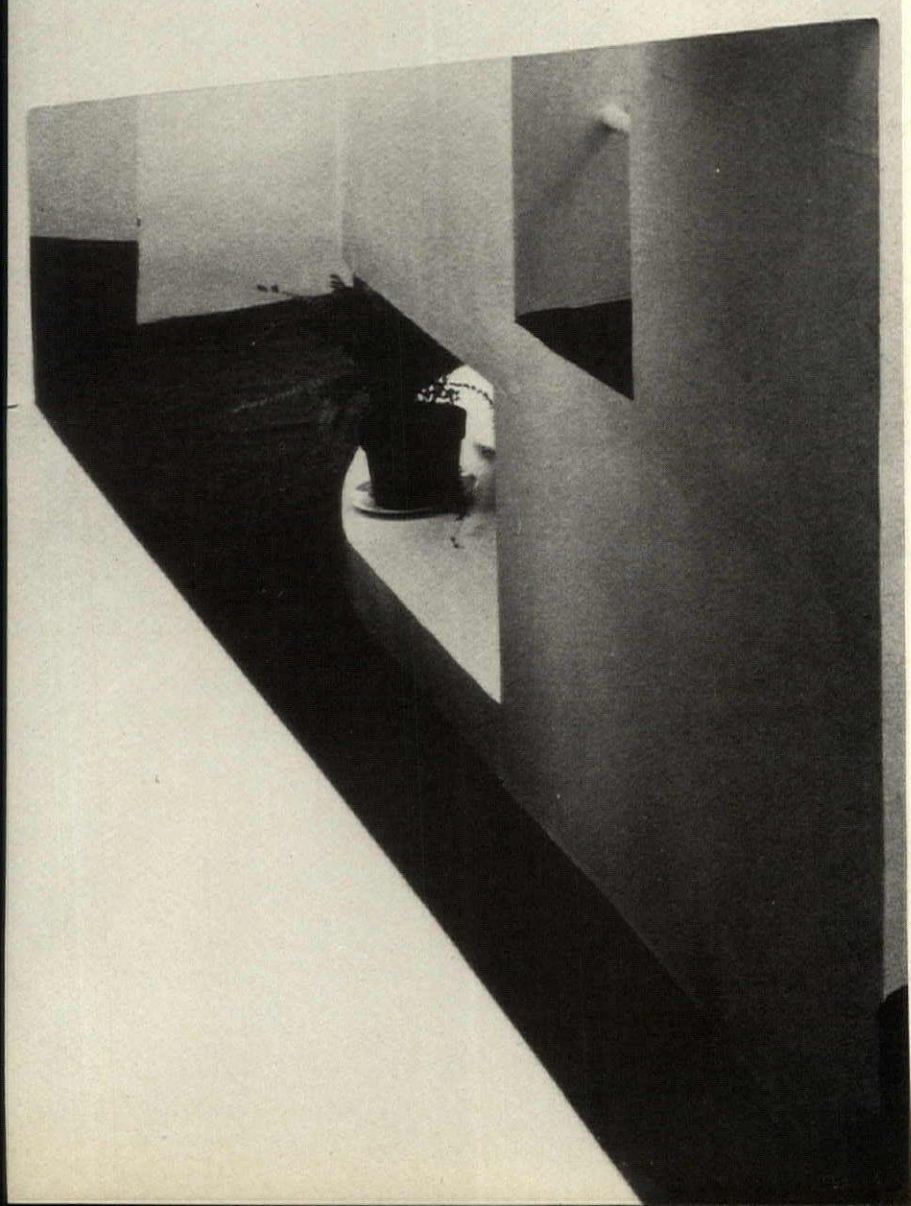
The brick walls extend beyond the line of the house both vertically and horizontally, defining outdoor spaces (for flower and vegetable gardening and for sunning) on the roof and at ground level—as in the terrace outside the swimming pool (right), and at the glass-walled ends of living room (center) and dining room (far right).







The living room (top) is separated from the pool area only by glass panels, so the views out each end of this "tube of space" are limited only by the woods beyond the pool terrace on one side, and by the lawns and hedges of adjacent property on the other side. The width of the pale terra cotta brick in the walls which lead the eye along the space—about 100 feet at this level—is echoed in the width of the cedar boards that make the ceiling, so that despite the difference in materials, the same scale is retained throughout the house. The pool and the interior courtyard (center, left and right) are both glass-enclosed and skylighted, but in these, too, the brick panels are dominant. The curving walls (left) of the stairway to sauna and dressing rooms below and to master bedroom above are the only non-linear elements.



Otto Baitz

Schools that nurture an understanding for the dimensions of life

"The repetitive emphasis on open space and open education is really our way of expressing a deep yearning of our own, and recognizing the same in our children, to be opened up to and helped, to become more aware of the incredible vistas and possibilities of life; indeed, the total dimensions of life, from joy and ecstasy to poignant, even tragic sadness. An educational facility—a shed, warehouse, museum, resource center or school building—should nurture an understanding and appreciation for the dimensions of life as it is, as it has been, as it might conceivably be."—*Peter Buttenwieser, director of Philadelphia's Durham Child Development Center.*

The quotation was taken from "The Greening of the High School,"* a report of a conference held in April 1972 in which educators, administrators and architects gathered to discuss what a high school *could* be, how to "dejuvenilize" it and how to create school programs and settings that would be opened, individualized and dispersed. In short, the conference was an affirmation of a growing educational philosophy aimed not just at the American high school, but at joining all education and the outside world for mutual benefit, not the least one being a greater probing of the physical environments in which and from which we learn.

The case studies presented in the following pages represent recent examples of architectural design for education, both private and

*"The Greening of the High School," a report on a conference by Ruth Weinstock, 1973 by Educational Facilities Laboratories, Inc., New York, N.Y.

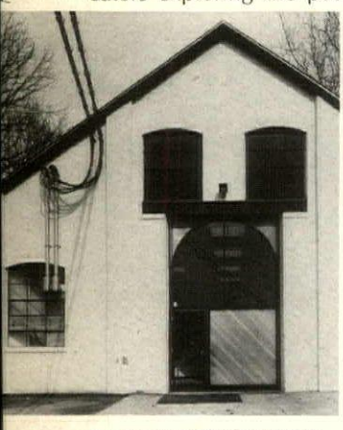
public, from pre-school through the twelfth grade. They include re-use of space not built for schools, renovation of existing schools, and a hybrid of combined educational and other public institutions known as the "community school." The schools featured here are products to a large degree of conditions of declining enrollment and fiscal restraint which have placed extraordinary pressures on school boards who in turn have sought logical and esthetic solutions to mounting problems from their architects.

According to the latest Dodge/Sweet's Construction Outlook for 1975, the value of school construction contracts has increased by only one per cent since last year, but allowing for inflation, the net result is a decrease in square footage construction by 5 per cent. Educational construction reached its peak in 1968, and then settled into a decline as enrollment leveled off, and now, states the Outlook, the rate of contracting is likely to last only until short-term needs arising from population relocation are covered, perhaps in another year.

Making better use of existing facilities is clearly a major direction to be taken by this market. No longer are classrooms as important as affording people opportunities to "organize around the sources of information," so aptly stated by August Gold of the New York City Board of Education. Mixed-use and renovation in educational facilities are not new ideas, but their time has come and as this survey shows, architects can have real impact in the correct application and development of these concepts.

These are examples of architects and educators exploring the potential for excitement and elegance in existing structures, such as the factory building shown opposite (inset). At right is an example of architecture to be inserted into existing space and used to increase motor development in children. In looking at these schools, we ask you to note the use of standard materials which are often employed in a straightforward way to achieve uncommon results of function and design. Be aware that for the most part, all of these architects worked within one or all of the stringent confines of existing buildings, tight budgets, and complex multi-use requirements. Traditional esthetics were not always key considerations, yet as architects, these professionals managed visually adroit spaces, and most importantly, maintained a steady eye on individual appropriateness for the community.

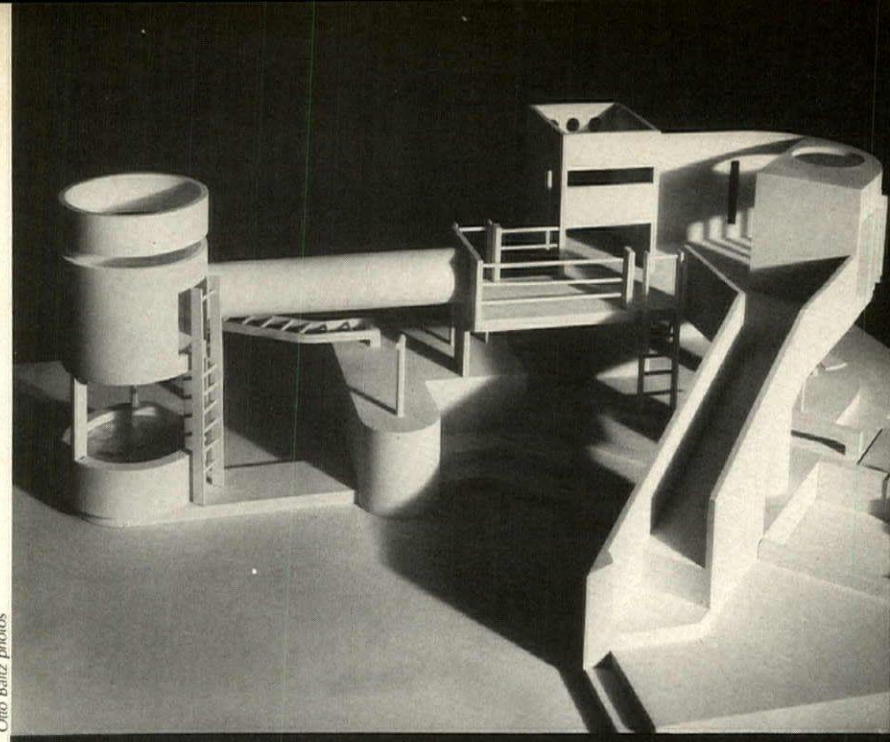
—Charles E. Hamlin

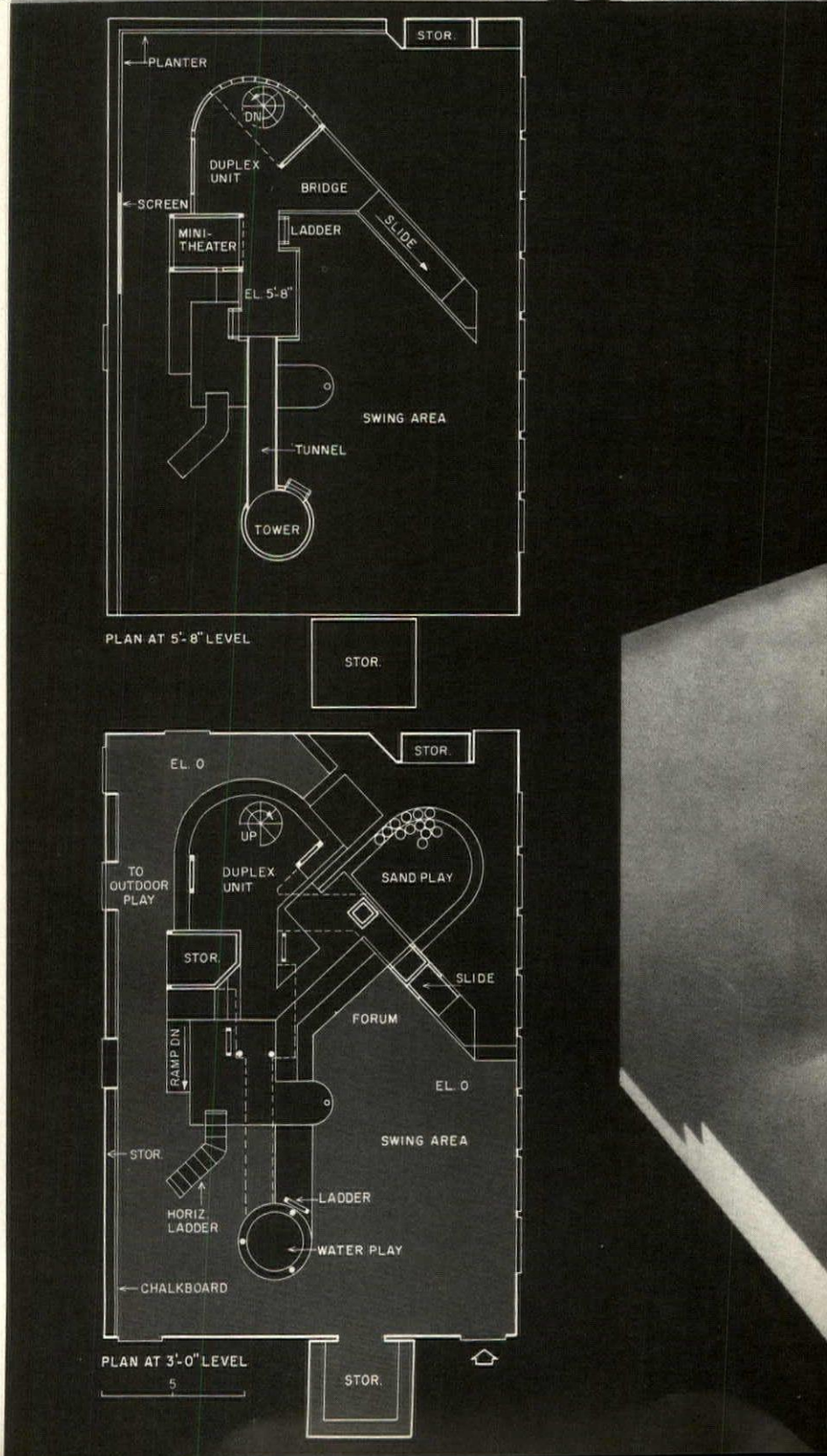


Nathaniel Lieberman

The Mead School for Human Development (see page 130)

Otto Baitz photos





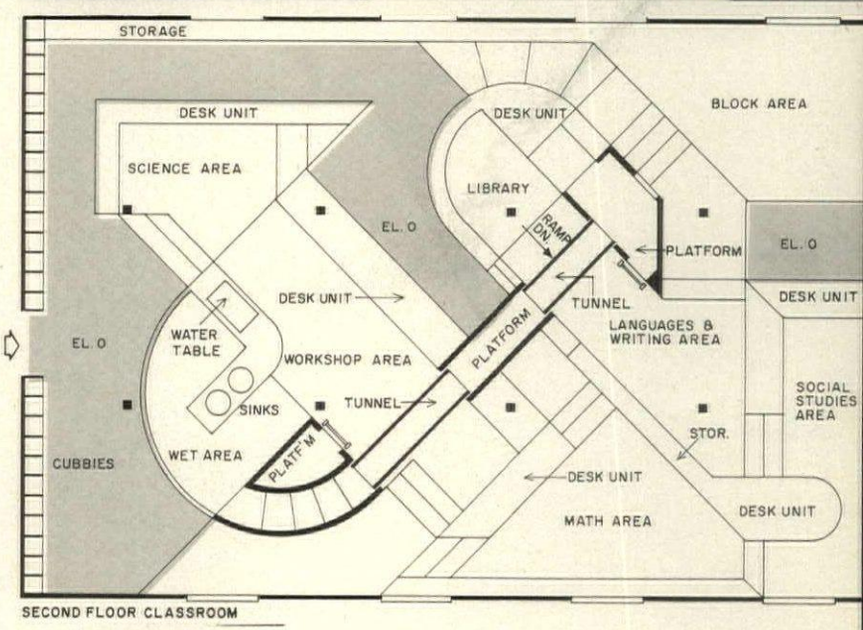
2
PLAY IS NOT A NEGATIVE EDUCATIONAL PURSUIT

For the Montessori Schools in Edison, New Jersey, Gordon & Meltzer converted an army barracks (above) into a pre-school (Children's House) on the first floor, and an elementary school (Alpha School) on the second floor. A working rendition of the model seen on the preceding page, this school belies the notion long held by many parents that play is the "negative" of education.

The concept is one of scaling the environment, first of all, to the principal user, the child. The change in elevation (see plans) shows a subtle understanding for the special need of children to use space vertically as well as horizontally. In the preceding example of the architects' work, the design objective was to "develop a concept outlining the needs, constraints and other elements indigenous to an interior play environment, those architectural qualities that capitalize on the inherent learning potential of the young child. The focus was to provide a setting for the preschool child that is suggestive and responsive; a variety of experiences and exposures opening up possibilities for rich bodily, sensory and imaginative interaction on a personal or group level." Is that not education?

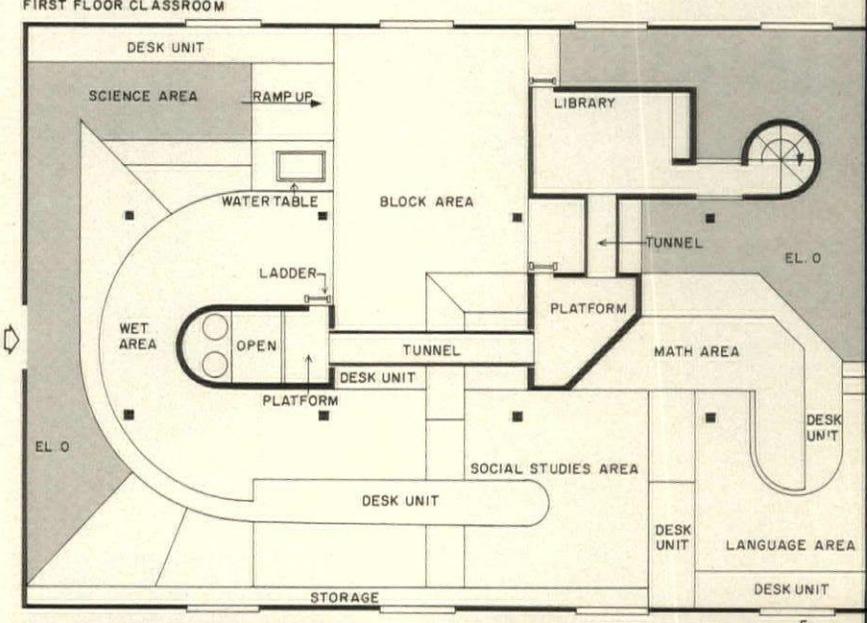
The play sculpture on the preceding page and this school touch basic forms of movement. The large spaces and private areas, the textured surfaces, the earth materials, the light and sound patterns all set into motion spontaneity and purposeful inquiry, and according to the architects, the organic forms are consistent with emerging maturational levels, stimulating skills and responses unique to each child.

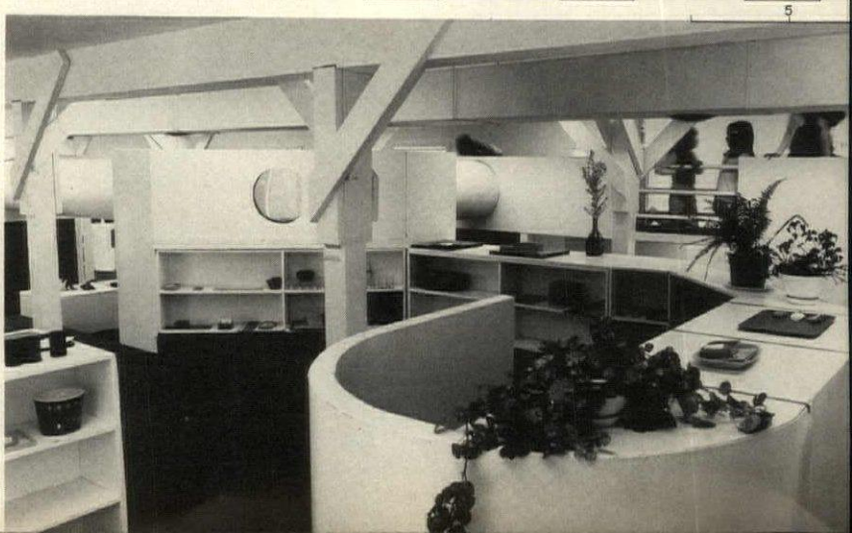
Materials here are simple since many of the parents and teachers did the construction. *Sonotubes* form the tunnels, and note the delightful effect of leaving the old barracks knee-bracing on the columns.



SECOND FLOOR CLASSROOM

FIRST FLOOR CLASSROOM

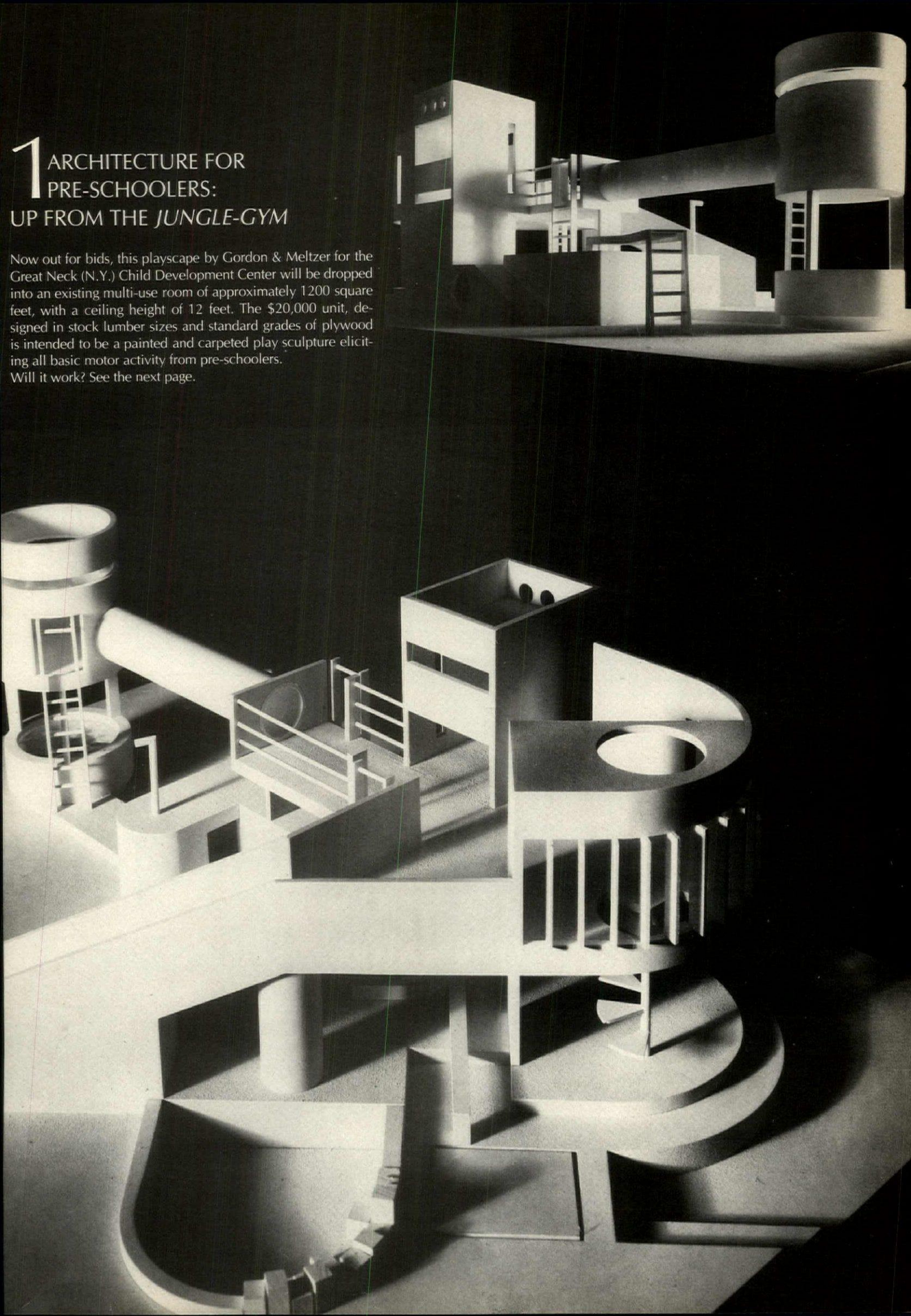




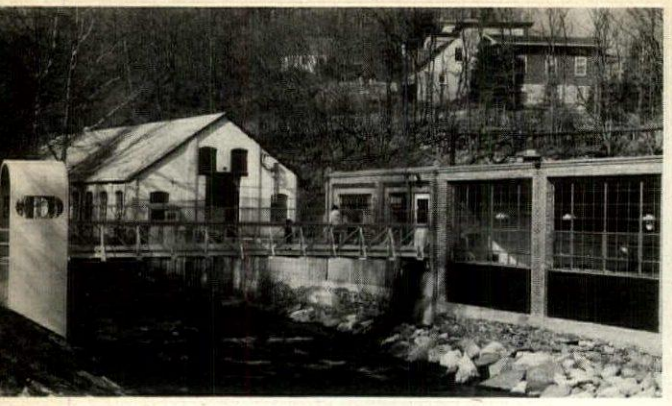
GREAT NECK CHILD DEVELOPMENT CENTER (preceding page), Great Neck, New York and MONTESSORI SCHOOLS (this page), Edison, New Jersey. Architects: *Gordon & Meltzer, Architects.* General contractor: *Frank Nora Contracting* (Montessori Schools).

1 ARCHITECTURE FOR PRE-SCHOOLERS: UP FROM THE *JUNGLE-GYM*

Now out for bids, this playscape by Gordon & Meltzer for the Great Neck (N.Y.) Child Development Center will be dropped into an existing multi-use room of approximately 1200 square feet, with a ceiling height of 12 feet. The $20,000 unit, designed in stock lumber sizes and standard grades of plywood is intended to be a painted and carpeted play sculpture eliciting all basic motor activity from pre-schoolers.
Will it work? See the next page.



Otto Baitz photos



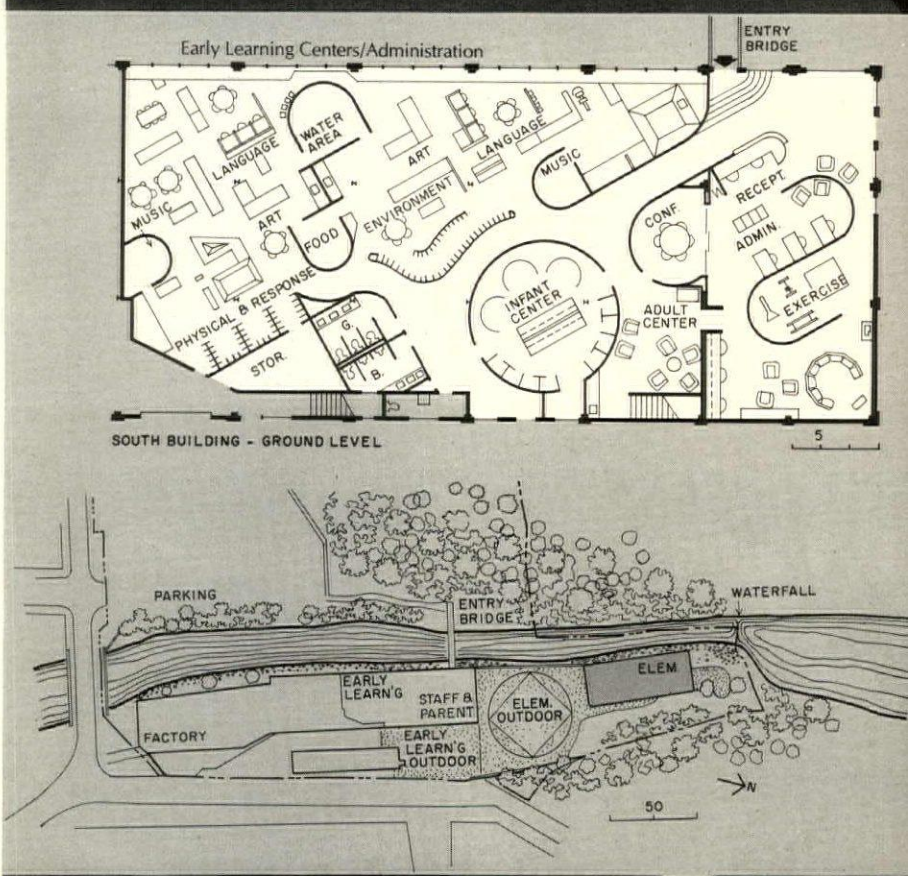
3

BASIC MATERIALS, INDUSTRIAL SETTING EQUAL SOPHISTICATION

One of the happiest conclusions that can be drawn from this school is the evidence that thought-out design entwined with thought-out school administration can produce an exceptional educational environment on a very low budget. In the case of the Mead School shown here, the budget was $200,000, and the result is 16,000 square feet of resourceful architecture built in just seven months.

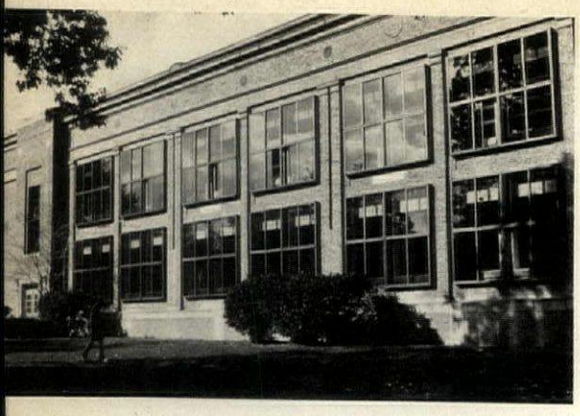
Sharing an existing plant for light manufacturing, the school is in leased space split between two buildings set along a small river and waterfall (see plan). The peaked-roof building (photo above and color photo, far right), with masonry walls and steel beams and decking, is the Elementary Center for grades one through six, while the flat-roofed building (photo above, right), with masonry and bar joist construction, contains the administration areas and early learning centers for children 3 to 5. Entry to the school is via an existing industrial bridge, to which the architects, Maitland/Strauss, have added a bright yellow and red gateway, and protective fencing.

Meeting code requirements and the additions of bathrooms, mechanical, electrical and safety factors left very little of the small budget for design niceties; for this reason, the architects chose to use the required items in an esthetic manner. Existing steel was left exposed and painted bright colors (see color photo, right). Since the roof of the Elementary Center had to be insulated, the architects selected foil-backed insulation, installed between the existing purlins and left exposed. The reflectivity at roof level is better than could have been achieved with flat or dull ceiling materials. The suspended industrial fluorescents in the other building, installed on the diagonal emphasize the axis of curved and straight partitions designed to soften the rectilinear room. Dark blue bands provide graphic interest at the lower level of the partitions.



Nathaniel Lieberman photos

THE MEAD SCHOOL FOR HUMAN DEVELOPMENT, Greenwich, Connecticut. Architects: *Maitland/Strauss Architects P.C.* Engineers: *Gerard A. Spiegel* (structural); *Sanford O. Hess (mechanical/electrical). Contractor: Hvolbeck Construction Company, Inc.*



5
MASS PRODUCING RENOVATION: FIFTEEN SCHOOLS AT ONCE

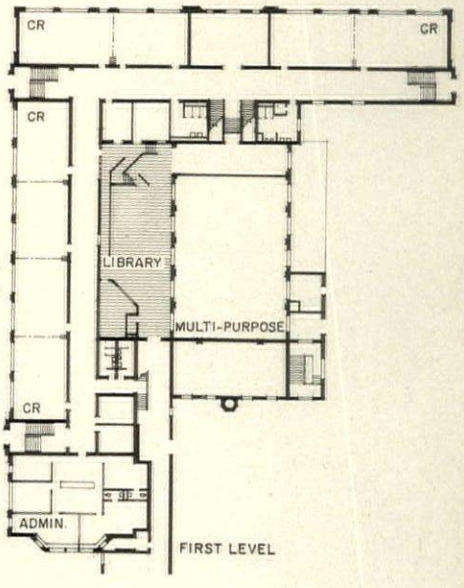
By this September, the entire Cleveland Heights/University Heights (Ohio) public school district—one high school, three junior high schools, and 11 elementary schools, K through 12—will be operating in new facilities, with only four being completely new buildings. The rest are to be—as you see in these photos of a typical elementary school—obsolete buildings brought up to contemporary functional and esthetic standards, at a cost of just under $20 per square foot.

The coordinating design architects, Richard Fleischman Architects, Inc., developed the program with community participation, and performed the actual design work, assigning preparation of construction documents to eight other architectural firms. All of the representative photos shown, except for one, are of the Noble Elementary School; the corridor photo is of the Canterbury Elementary School. On both, the project architects were Collins & Rimer Architects, Inc.

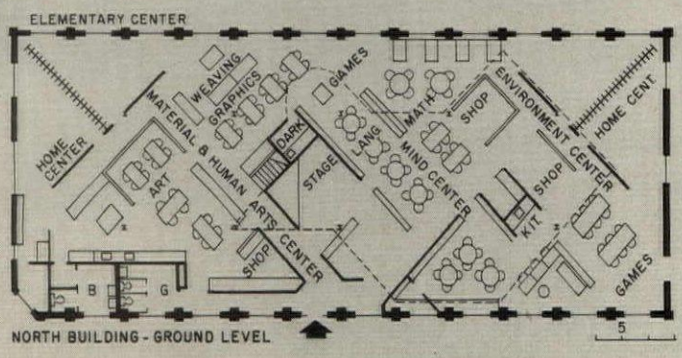
A main program objective was to open up the old cellular buildings as much as possible, not in the glib sense of creating barns, but in a way designed to improve sharing, what Richard Fleischman refers to as the basis of education. As Mr. Fleischman further states, the beauty is in the animation of the kids. What resulted architecturally is pleasing inter-penetration of space with mezzanines and stairs, and a sense of lightness and vibrancy. In many instances, new libraries were created as in this school by roofing over an existing courtyard.

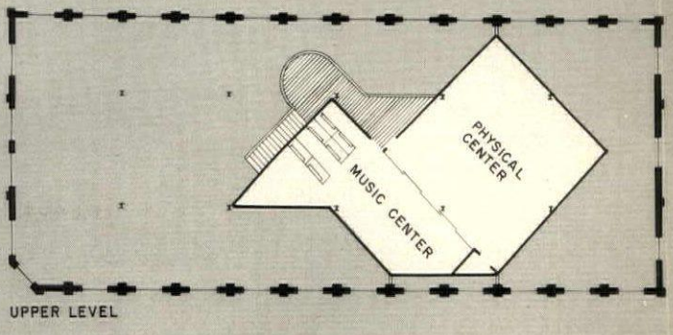
A special feature of the renovation program is the "billboard" window developed to solve a complicated and potentially costly window replacement problem in which every contractor would have had to measure every opening and fit a unique unit to it. The architects directed the general contractor to remove the original double-hung windows—different sizes in different schools—and gut the openings. The architects then designed a standard metal frame 2 feet 4 inches wide by 4 feet 6 inches high, which grouped in multiples is installed on the outside masonry with a special extruded clip angle, and caulked. All of the schools use the same system, and if it overhangs the opening by 12 or 14 inches, the general effect is still quite handsome (photo above). If the window needs replacing, the maintenance staff simply substitutes a new unit, frame and glass, for the damaged one which can be repaired at leisure.

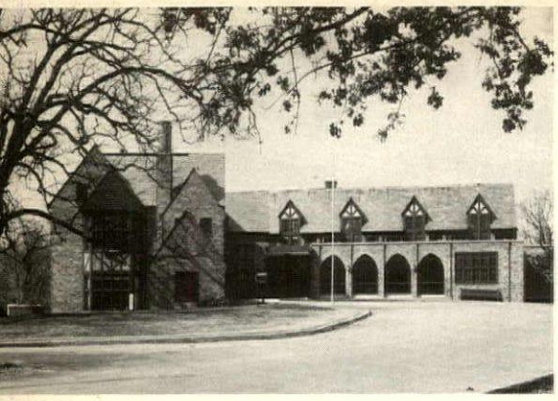
The nature and size of the renovation program dictated the purchasing of many materials on a program-wide basis, and like the extruded window clip mentioned above, all of the ceilings, hardware, windows, etc., were bought at once. One of the products, the tack strip shown above in the corridor photo was, in the words of the architect, "bought by the mile" and used instead of full bulletin boards, permitting the use of graphics.



CLEVELAND HEIGHTS/UNIVERSITY HEIGHTS SCHOOL DISTRICT RENOVATION, Ohio. Design coordinating architects: *Richard Fleischman Architects, Inc.—project team: Richard Fleischman, partner-in-charge of design; Clyde A. Horn, partner-in-charge of project management.* Project architects: *Barnes, Neiswander & Associates; Collins & Rimer Architects, Inc.; Dickson & Dickson Architects; Dyer & Watson Architects; Madison-Madison International; Rode-Kaplan-Curtis & Woodard Architects; Fred Toguchi Associates; Van Auken, Bridges, Pimm, Poggianti, Inc.* Engineers: *R. M. Gensert Associates, Barber & Hoffman, Inc.* (structural); *Andrew N. Psiakis, Inc., Pfitzenmaier & Jablonski, Inc., Denk-Kish & Associates, Evans & Associates, Inc., Byers, Urban, Klug & Pittenger* (mechanical); *Ralph E. Linton Associates, Joseph E. Flannery, Denk-Kish & Associates, Charles A. Lewis & Associates, Inc., Byers, Urban, Klug & Pittenger* (electrical). Consultants: *William A. Behnke Associates* (landscape); *John Flynn* (lighting); *Robert Shankland* (acoustical).


ELEMENTARY CENTER
WEAVING
GRAPHICS
GAMES
MATERIAL & HUMAN ARTS CENTER
HOME CENTER
DARK
STAGE
LANG
MIND CENTER
MATH
SHOP
ENVIRONMENT CENTER
HOME CENT
ART
SHOP
KIT
SHOP
GAMES
B
G
NORTH BUILDING - GROUND LEVEL
5


PHYSICAL CENTER
MUSIC CENTER
UPPER LEVEL



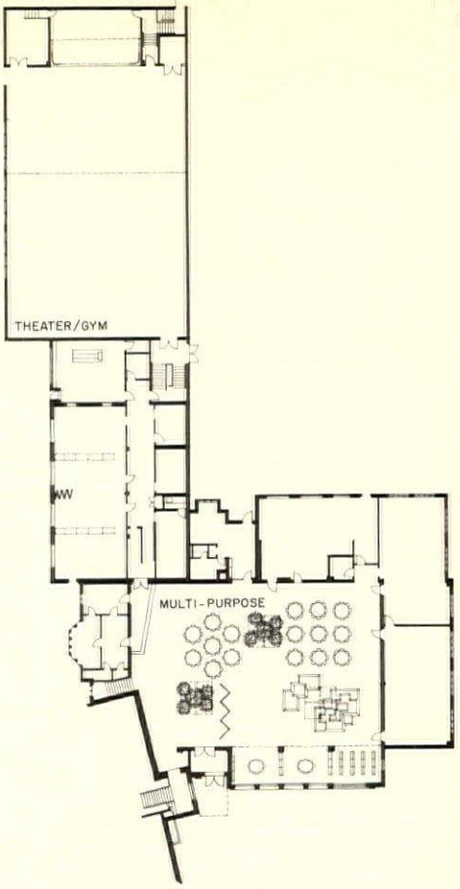
4
HARDWORKING GRAPHICS DO MORE THAN ADD JAZZ

In calling upon Hellmuth, Obata & Kassabaum for help in renovating and expanding their building, this private school in suburban St. Louis also acquired the services of the firm's graphics designer, Charles Reay. Although a re-organization of space and an addition of a gymnasium/auditorium were accomplished under a $300,000 budget, a number of architectural qualities of the space are the result of effective use of graphics, which can—according to designer Reay—either support or destroy form, whichever is desirable.

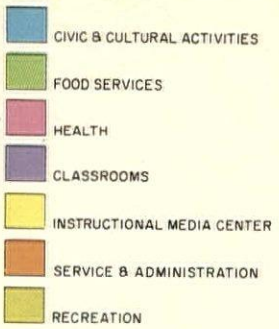
In the case of the multi-use room (right) in the original building, a number of objectives were desired of the graphics. Mr. Reay designed large hanging banners in the room's color scheme of royal blue, red, orange, yellow and white. The effect of the banners is to lower the very high ceiling over the eating area, or wherever there is more personal space. The banners work with plantings of about equal height to unite the space. To accentuate a main architectural feature of the room—the ceiling, the stripes on the banners and far wall duplicate the 30 degree angle of the roof, and the trusses are painted dark blue.

In the gymnasium/auditorium (below), the stage graphics do what the budget would not allow architecturally: the graphic affects a proscenium where there is actually only a rectangular hole punched in the wall, and the four shades of grey are soft enough to keep the graphics from competing with the tots on stage center, where spectral colors focus attention. Full length windows along one wall overlook a wooded view, and the exposed open web steel joist ceiling affects construction economies while providing an anchor for gym equipment.

THE COMMUNITY SCHOOL RENOVATIONS AND BUDER WING, Ladue, Missouri. Architects: *Hellmuth, Obata & Kassabaum, Inc.—principal-in-charge: Jerome Sincoff; graphics design: Charles Reay; project architect (addition): George Lacson; project architect (remodeling): James Agne; project designer: Charles McCameron; construction coordinator: Robert Galloway.* Engineers: *Jack D. Gillum, Associates, Ltd.* (structural); *HOK Associates* (mechanical/electrical). Contractor: *Harold F. Helmkampf General Contractors, Inc.*



Barbara Martin (HOK) photos

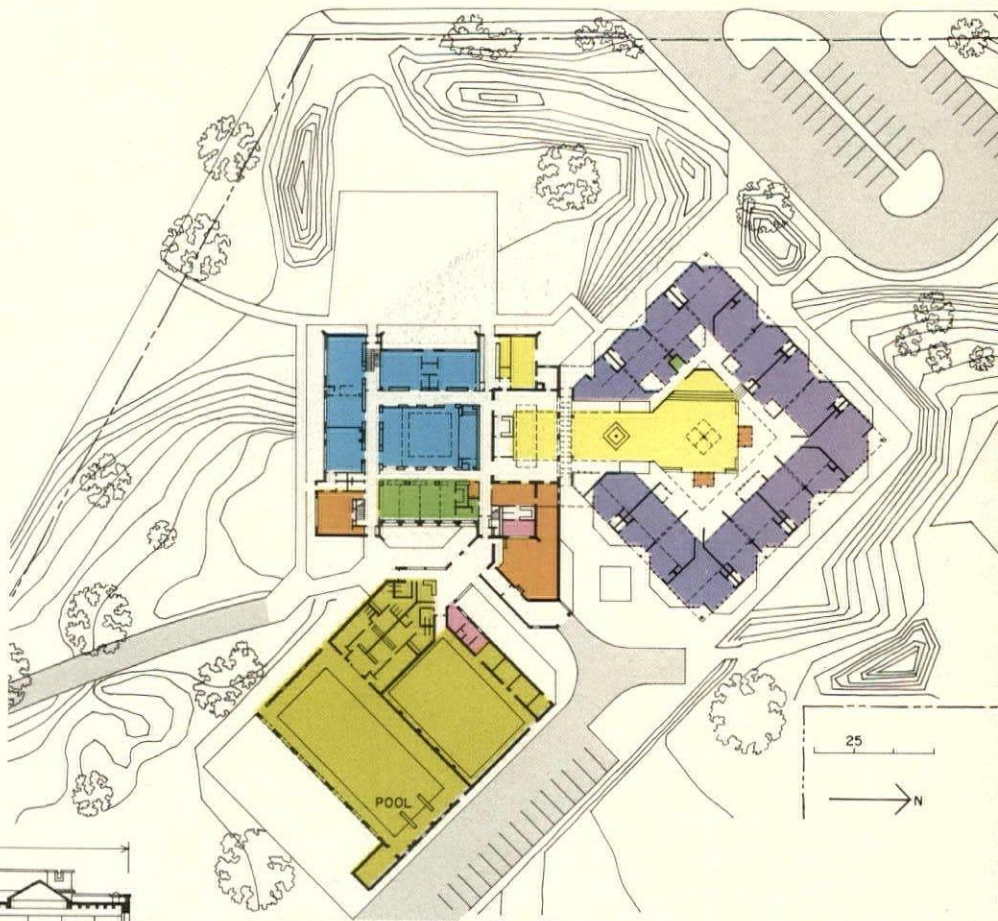


6

ANCHORING EXPANSION TO LOCAL TRADITION

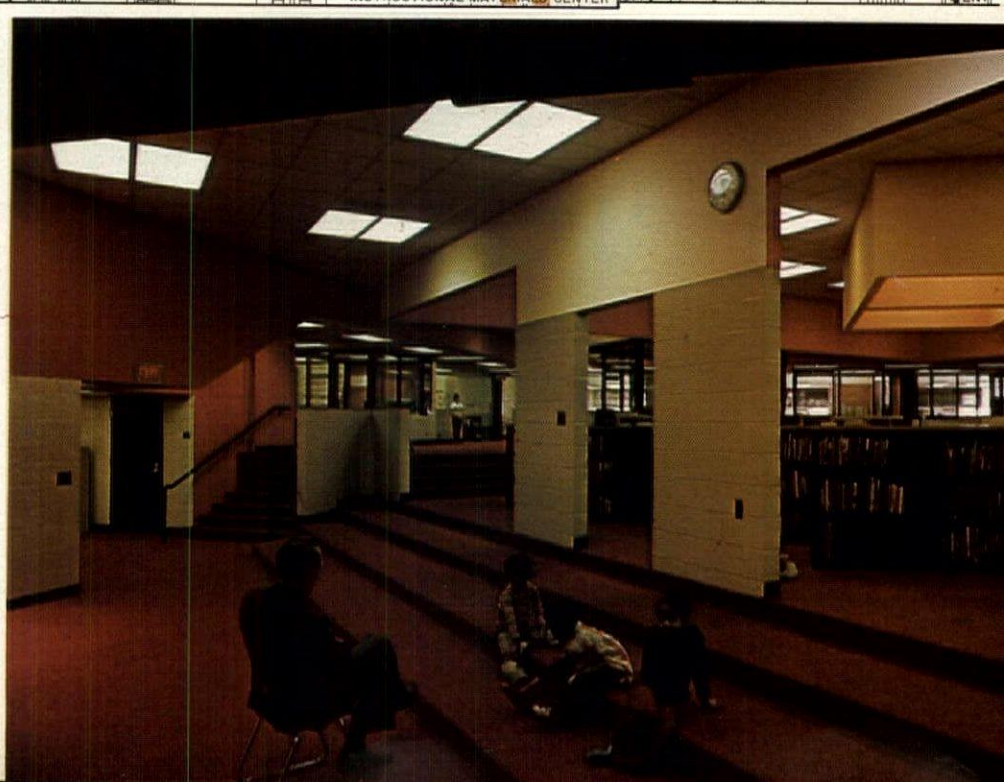
Ann Arbor, Michigan, is a university city of 100,000, many of whom are transient, and some of whom constitute a core rooted in the area's life, traditions and development. For the latter, an outdated Tudor-style elementary school was a landmark familiar to generations of families.

The school was slated for demolition at a time in the late sixties when the city was preparing a master plan for education designed to link existing and planned educational, cultural, recreational, and social services in what would be a "metropolitan resources network." The plan, in responding to under-used elementary schools in the city's center and overcrowded high schools outside the inner city, in effect was a dispersion of education (education linked to other facilities) and a concentration (schools as multi-use community centers).



The plan has not yet been implemented, but Mack Elementary School, happily, was selected as a prototype center. In the course of programing with the community, the architects —Urban Design Associates—were impressed with the sentimental value attached to the old school, which everyone agreed was obsolete educationally, and difficult to maintain. Yet, Mack had been a community center and needed to be reinstated as such.

The solution was to rehabilitate the school as a center for both community and school use, with social, cultural and adult education accommodations in 68,000 square feet. The budget was $2 million. A new education wing for 450 elementary-age students was added to one side, and a new recreation wing to the other. In plan, the architects explain, the old building with its leaded lights, castellations and flying buttresses was to be treated as a



Joseph W. Molitor photos

A brightly-colored library or resource center links the new education wing to the central space of the old building (above), providing a shared focus for both. The exposed hung ceiling grid in the old building "announces" the physical joining of two structures, while the circulation along the perimeter (left in photo above) provides an emphatic continuity of space. The plan of the education wing consists of concentric squares with the center being a "skylight" created with a baffle around lighting (see photo left). Other ceiling baffles painted in different bright colors articulate the plan and help in sound control. Neutrally-finished open classrooms (right) are achieved on the perimeter with changes of ceiling height, partitions and baffles. A high ceiling (see sections) denotes group activity, while individual or small group activity is in low-ceiling areas. As the building steps down along site contours, a story area (left) appears.

jewel in a new setting of deliberately neutral additions, absent of strong articulation. Both new wings are built on an axis rotated 45 degrees to that of the old building, forming entrances at the grid intersections.

The concept effectively freed the original building for community use. Its ground floor, with an elegant auditorium (below)—a well-established focus of community activity—is a joint school-community space with lounges, art and music rooms, etc. The upper floor provides ten classrooms for a community college and adult education space, and accommodates a dental clinic.

The heart of the original building was the auditorium. It opened through glass French doors to a U-shaped corridor around which repetitive classrooms were strung; the plan was duplicated on the second floor, which looked down into the auditorium from balconies. When fire codes required that the French doors be replaced with solid walls, the classrooms in effect became isolated cells around a blind focus, and the auditorium became a closed volume in the middle of the building.

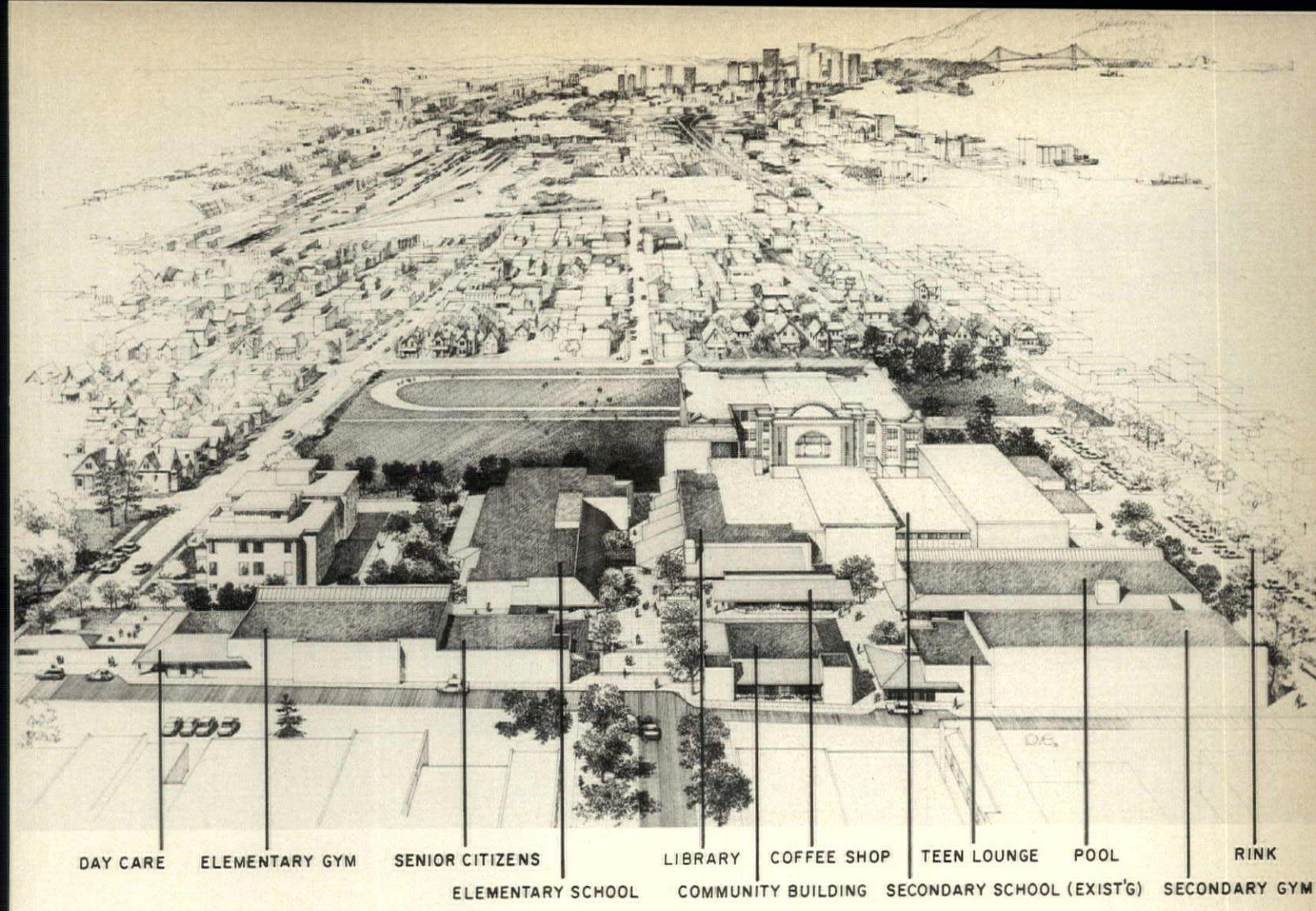
The architects opened up the hall arcades by replacing the solid-wall infills in the arches with glass, painted the auditorium in lively colors, and circumscribed the arches with wide, bright blue bands that penetrate and accentuate the existing false ceiling. Once again prominent, the auditorium provides the axis for the education wing's resource center (see plan and section, preceding pages).

The recreation wing includes a swimming pool funded by a bond issue of $400,000 originally intended simply to cover costs of an outdoor pool, land-acquisition, locker room facilities, parking and landscaping. By locating the pool on Board of Education property and by sharing the cost of parking and locker room facilities and landscaping with the Board of Education, the money was enough to cover the cost of building the pool indoors.

Urban Design Associates is experienced in the planning process of community schools. Their first, the Human Resources Center in Pontiac, Michigan, established a precedent in an "open planning and design" process that the architects credit with providing potent *local* answers to needs: the architecture, the image, is anchored most appropriately in the local tradition.

MACK ELEMENTARY SCHOOL, Ann Arbor, Michigan. Architects: *Urban Design Associates—partners: David Lewis, Raymond L. Gindroz, James P. Goldman; associates-in-charge: James Mason, Frederick Watts.* Associate architects: *Colvin, Robinson Associates.* Engineers: *Gustav Steuber* (structural); *Straw, Custer & Duray, Inc.* (mechanical). Superintendent of Schools during planning: *Dr. Bruce McPherson.* Contractor: *J. A. Ferguson Construction Company.*

Joseph W. Molitor



7
A COMMUNITY EFFORT TO MAKE ALLIES OF EDUCATION AND LEISURE

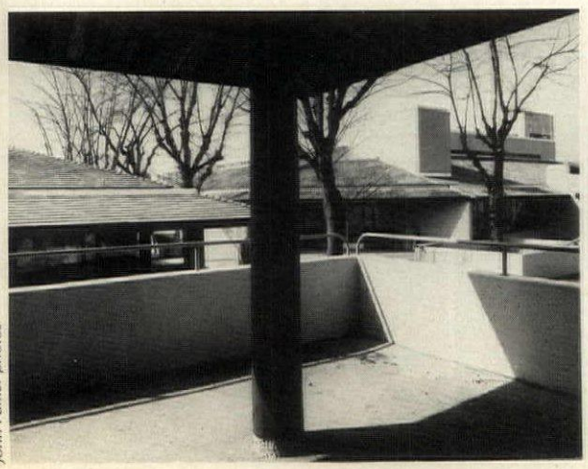
When in 1967 it was proposed that Vancouver, British Columbia, build community service centers in every neighborhood, it was agreed that schools should be the focal points, and that these centers would among other objectives help break down the division between leisure and education.

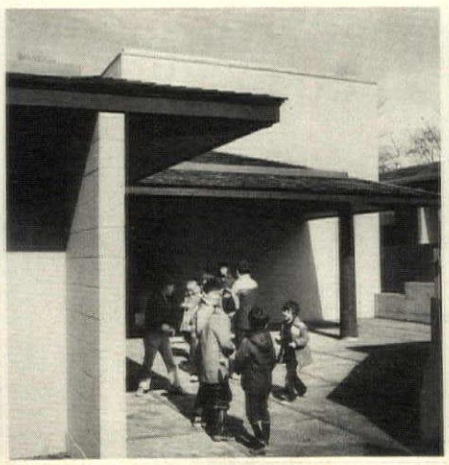
It was in that spirit that Britannia Community Services Centre (above) was begun, a collection of educational, recreational and cultural facilities around an existing secondary school on an 18-acre site. Funds for construction of the center were pooled by the city and School Board, and upon completion this September, Britannia will be shared with the parks department.

The plaza shown in the center of the aerial perspective, serving as the main spine of Britannia, was created by closing off a street. This had the added advantage of preserving the full-size trees lining the plaza. The roof lines and generous overhangs on the buildings resulted from a community-injected desire to see the center grow with a residential scale.

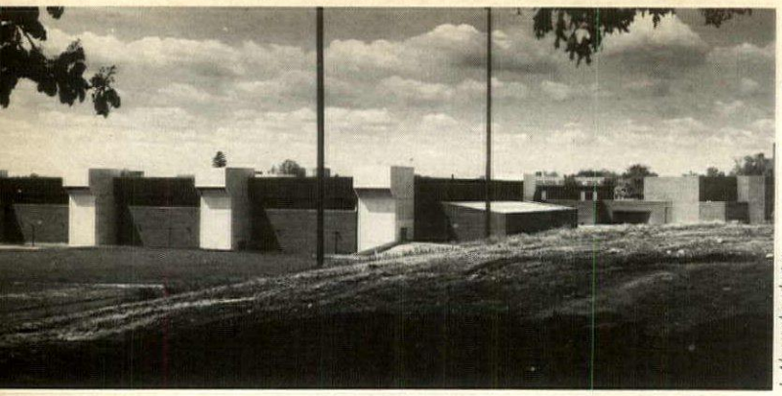
The $5 million complex, which serves 30,000 people, contains 132,000 square feet divided among the buildings.

BRITANNIA COMMUNITY SERVICES CENTRE, Vancouver, British Columbia. Architects: *Downs/Archambault, and Britannia Design.* Programming: *Britannia Design.* Engineers: *Bush and Bohlman* (structural); *D. W. Thompson* (mechanical/electrical). Landscape architect: *Gordon McGlothlen.* Quantity surveyor: *George Hunter.* Acoustical consultant: *Charles Tiers.* Contractor: *Northern Construction.*





John Fulker photos



J. Alexander photos

8

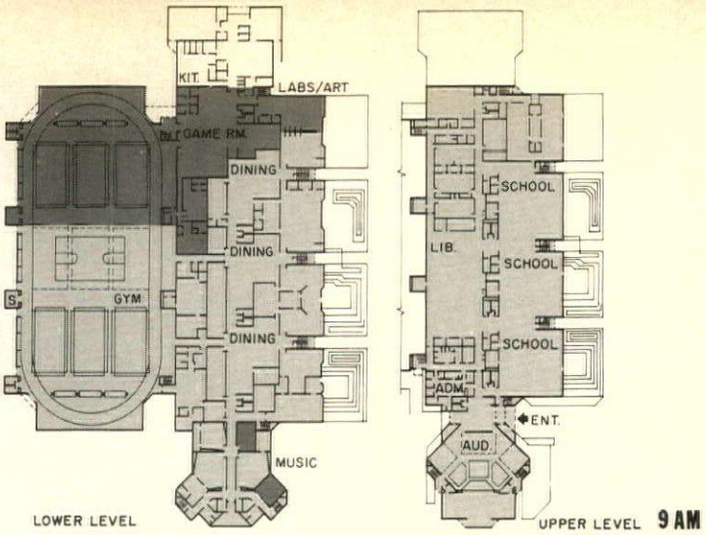
INTER-AGENCY COOPERATION FOR FULLER PUBLIC USE

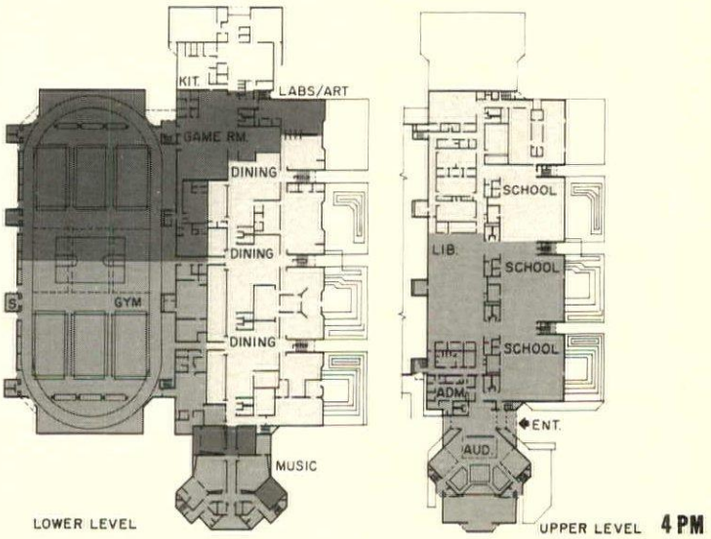
This $6,650,000 community resource—a junior high school for 1200 students and recreational center for the entire community open 18 hours seven days a week—is the result of pooled public funds and an excellent application of the mixed-use concept. The achievement is a cohesive building accommodating the daily ebb and flow of dissimilar activities, and maximum value in planning, design, construction and operation of facilities for the school system and recreational department.

To meet combined agency requirements, the architects designed a two-level building, subdividing the school portion into three nodes (see plan) of 400 students each, affording smaller, more personal learning spaces. The color coded "schools" are arranged on 5-foot modules with demountable partitions, and circulation through the adjacent library and first-level dining commons is calculated to encourage informal and regular use.

Facilities shared with the community throughout the day are shown in the plans, and in photos below. Notably, the clear span 68,000-square-foot gymnasium and the second-level, 730-seat auditorium, serve both school and community simultaneously.

THOMAS JEFFERSON JUNIOR HIGH SCHOOL AND COMMUNITY CENTER, Arlington, Virginia. Architects: *Vosbeck Vosbeck Kendrick Redinger.* Engineers: *Vosbeck Vosbeck Kendrick Redinger* (structural, mechanical/electrical). Landscape and interior design are by the architects. Contractors: *a joint venture of Wayne Construction Inc. and Earl K. Rosti.*



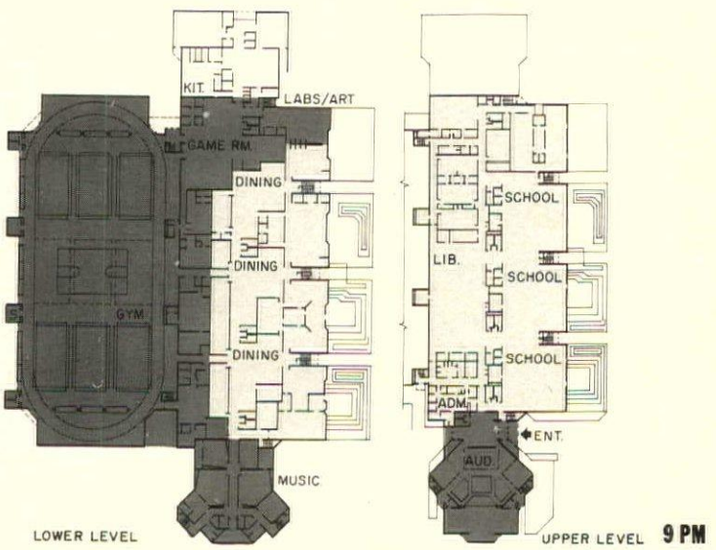


RECREATION AND COMMUNITY USE

ADULT EDUCATION

SCHOOL ACTIVITY

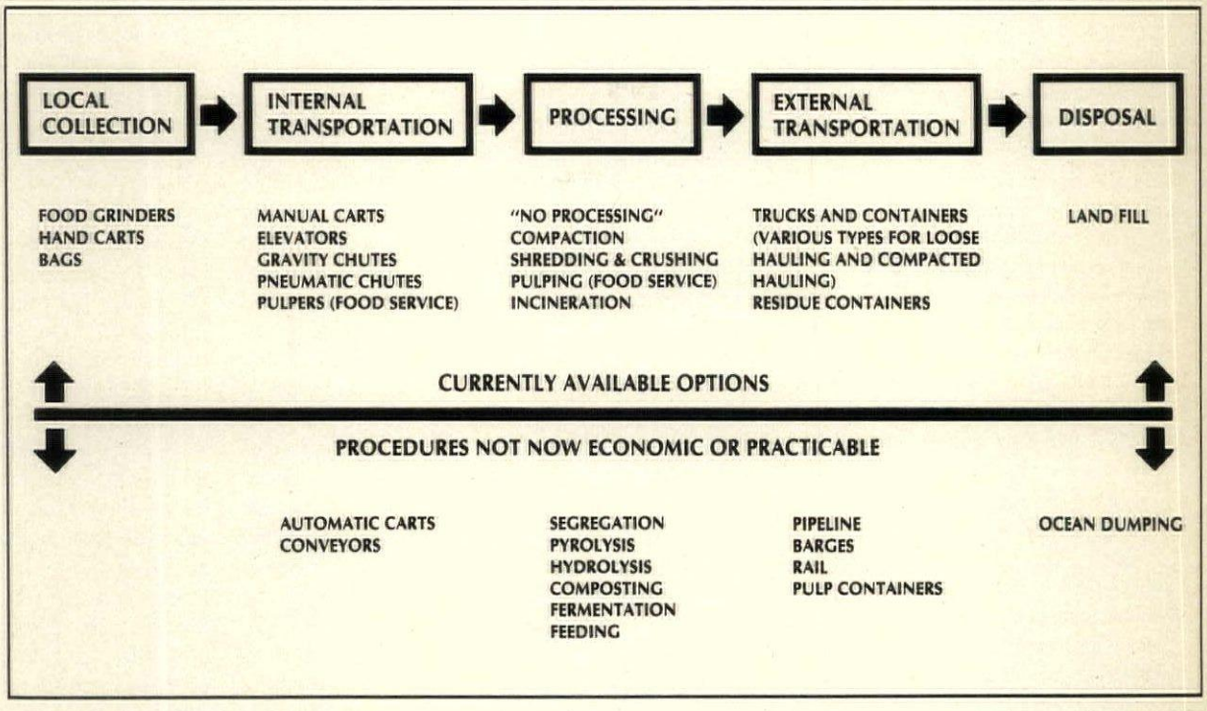
SCHOOL



Designing for solid waste disposal: some reminders

by William E. Herdman, Syska & Hennessy, Inc., Engineers.

Concern about extravagance may be reducing somewhat the volume of trash generated by householders and office workers—or so municipal sanitation departments tell us—but the disposal of solid waste still, and increasingly, presents problems to the architects of hospitals, apartments and office buildings. The most basic of these problems is providing adequate space to accommodate the waste disposal methods selected, but design considerations also involve selection of equipment, specifications, costing and governmental regulation.

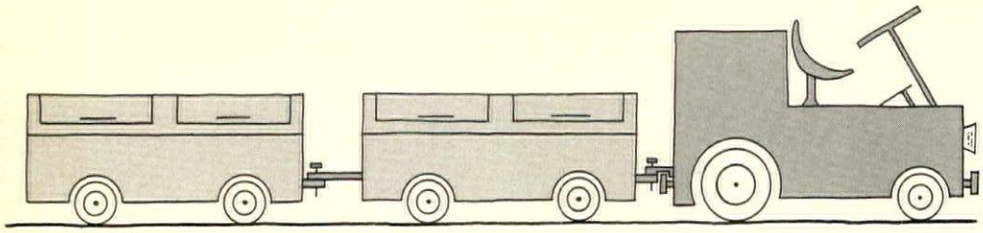


The amount of solid waste generated daily in a large building presents major problems of collection and removal. The problem is perhaps most evident in hospitals; in New York City, hospitals alone generate about 5 per cent of the city's waste. But large office buildings and apartment complexes also produce vast amounts of trash, which must be removed economically, safely, inoffensively and simply.

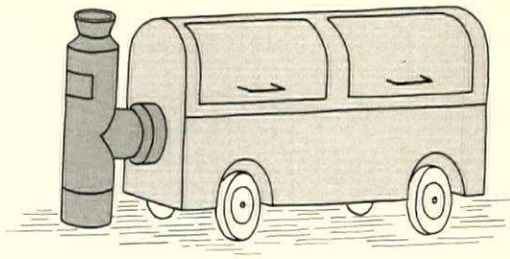
More and more, building owners are relying on increasingly elaborate equipment and systems to handle solid wastes, and to reduce their labor costs. The use of these systems affects both the design and the costing of buildings. (Related problems in hospitals include the collection of soiled linen and the disposal of pathological waste, neither of which is discussed specifically here.)

The removal of solid waste should be approached by the architect and engineer with the same thoroughness they consider a building's other utilities. The amount of waste and its composition are elemental facts of which building occupants are rarely conscious, and which the building owner regards as a costly nuisance. Of increasing importance to the designer, the storage, treatment and disposal of solid waste are gradually falling under the

For a large system, methods can range from simple manual collection to sophisticated automatic discharge



CLOSED WASTE CARTS AND TOW TRUCK



PNEUMATIC LOADING STATION

mandates of codes, ordinances and Federal agency regulations.

What questions, then, should the designer—architect, engineer or consultant—ask before selecting a waste handling system? And what is available in terms of systems and equipment? What associated conditions of installation require consideration, be the system simple manual removal or a sophisticated automated design? What alternatives does the designer have? What, in detail, is he trying to accomplish?

His objective is to collect the waste, transport it to a handling area, and dispose of it unobtrusively, safely, and as economically as circumstances permit. He must do all these things within legal limitations.

Before he can select a waste disposal system, the designer must know:

what the building occupancy will be,
how much waste will be generated daily,
what the composition of the waste will be,
what national, state and local codes apply,
how waste is to be removed from the building,
what access there is to adjacent streets,
what size and type of trucks can be used,
what environmental impact trucking will have,
what the charges are for dumping at landfill,
whether private or municipal haulers will be used,
whether private haulers will lease equipment,
what loading-dock area will be needed,
what truck maneuvering space will be required,
what truck weights are permitted.

When he has answered these questions—and still before he designs—he must determine:

what manual equipment is available,
what automatic systems are on the market,
what combinations of systems are possible,
what space requirements are necessary for each system or combination,
what local storage space is required (i.e., on each floor),
what codes and regulations apply,
what processing systems are available,
whether incineration of some wastes is mandatory,
what compaction methods are appropriate,
whether pulping should be considered,
whether kitchen grinders will be needed,
what plumbing requirements will be,
what ventilation will be required for odor control and what heating to prevent freezing of wet refuse or condensation around the chute,
what vermin controls must be considered,
what system or equipment is safest for occupants,
what effect systems will have on building design,
whether the system is easy to use,
what manpower will be required,
what maintenance will be involved,
what utility costs will be,
what the economics of the system are,
whether the use of the system justifies its cost.

Only after these questions have been answered can the designer lay pencil to drawing.

It seems unnecessary to discuss here the merits of the various systems available. Most architects and engineers have at least a general familiarity with waste disposal systems and their components, and know that manual and battery-powered waste carts can be used, that three basic types of chutes (gravity, fully pneumatic, and gravity-pneumatic) may be used selectively and beneficially, that automatic cart systems (with either overhead-rail or in-floor tracking) are in use. Procedures that may be necessary or worthwhile include packaging solid waste in plastic or paper bags (or not at all, depending upon circumstances), separation of solid wastes for recycling as local demands permit, baling and shredding, boxing wastes, grinding food wastes into an accepting sanitary sewage system, pulping food wastes or confidential material, and incineration.

Careful evaluation of each machine, system and procedure must be conducted for each different building. It is bad engineering to assume that a system used in one building is acceptable for a second that may be somewhat alike in design and function. Rarely do two hospitals of the same size require the same waste handling system. Rarely do two office buildings of the same size have the same waste handling requirements. Major differences exist, and they must be studied and understood by the designer. Just as air-conditioning requirements vary, so can solid waste generation, and the designer should provide a proper waste handling system as well as proper air-conditioning programs. Even the best air-conditioning system cannot handle the odor of some solid wastes if those wastes are not promptly removed or properly packaged.

A knowledge of potential pitfalls determines the success of the system

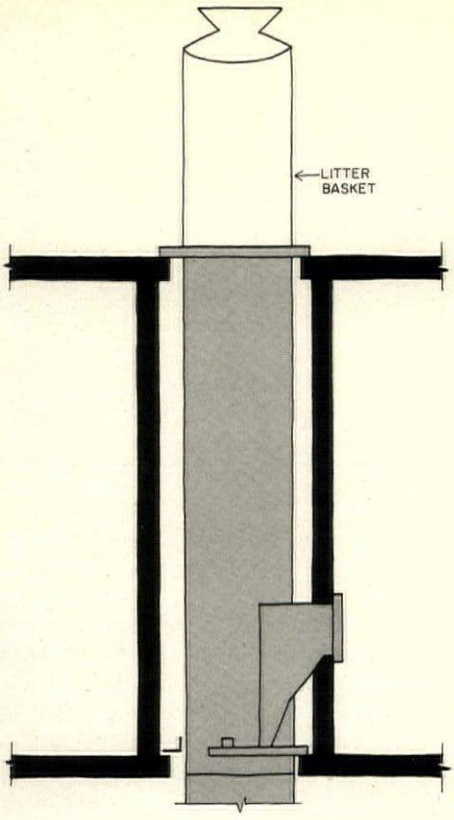
There are a number of foreseeable pitfalls in the design of waste handling systems that the planner must keep in mind as he proceeds.

People problems. Perhaps the most exasperating problem in waste handling is the people who use the system, be they owner personnel, as in hospitals, office buildings, hotels and motels, or residents in apartment buildings. It is axiomatic that if a system can be misused people will find out how. It therefore behooves the architect to design in as much safety for people and for the system itself as is practical. This requires a careful balance of judgment. Code requirements are minimum requirements; much can and should be done beyond the minimums.

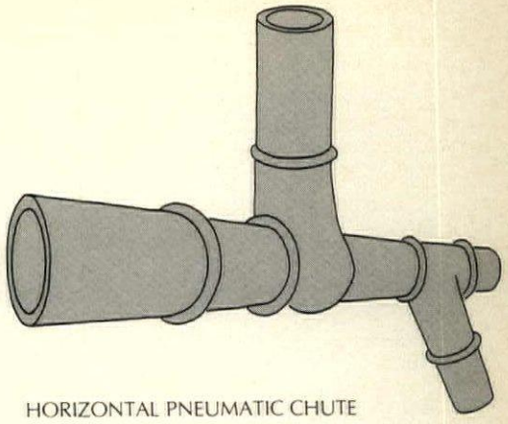
Trucking space. Truck maneuvering space is another often forgotten or misjudged requirement. Experience indicates that a full knowledge of turning radii is essential. The waste removal area should be laid out in scale, and back-and-forth maneuvering space plotted for the largest truck to be used—and remember that, because they have different turning radii, a 59-ft tractor-trailer is easier to handle than a 35-ft straight truck. Further, unless loading docks have about 22 ft of headroom, special equipment is likely to be needed to load containers onto trucks—at additional expense. It should also be remembered that other vehicles will use the loading dock, and provision should be made for dealing with back-ups. When the design is complete, it is a good idea to have it checked by a competent driver, possibly by the hauler or municipal department that will handle waste removal.

Ash removal. Incinerator residue (ashes) is almost always a problem. It is not unusual for an architect to locate an incinerator on the lowest building level in the center of the building, and this is understandable in many circumstances. Getting the waste to such a loca-

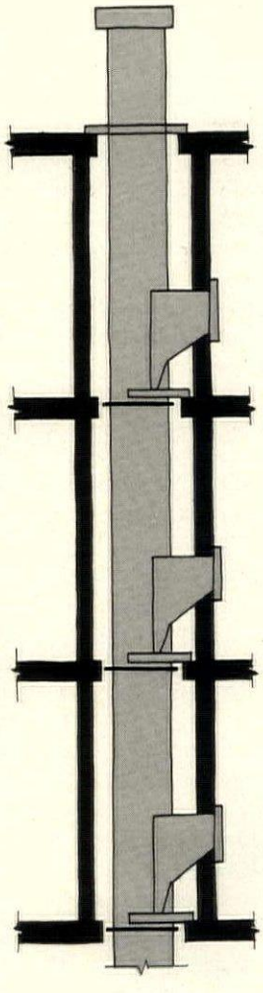
Components needed for internal transportation in a large waste disposal system might include a number of vertical pneumatic chutes feeding into a main horizontal chute, as well as covered carts and tow trucks for manual handling. A central computer would control doors at charging stations to prevent uneven chute loading. Monitoring the weight of containers at the loading dock (next page), the computer would also control the emptying of collectors into charging hoppers. Feasible, though as yet prototypical, devices are pneumatic emptying of waste carts and manually charged litter baskets.



MANUAL LOADING STATION



HORIZONTAL PNEUMATIC CHUTE



VERTICAL PNEUMATIC CHUTE

tion may present no physical problems, but the removal of hot ashes or wet ashes may be extremely difficult, very costly, and indeed hazardous to people and to the building. Before locating an incinerator, the designer should plan for easy residue removal.

Heat recovery. The potential of heat recovery from incinerators should always be explored. Solid waste incineration with heat recovery can reduce fossil-fuel needs of medium-size boiler plants serving university campuses, hospitals and large commercial buildings. Type I waste, as defined by the Incinerator Institute of America, has an as-fired heat value of 6,500 Btu per lb. An office building burning 5,000 lb of waste per day has a potential fuel-saving of $15,000 a year.

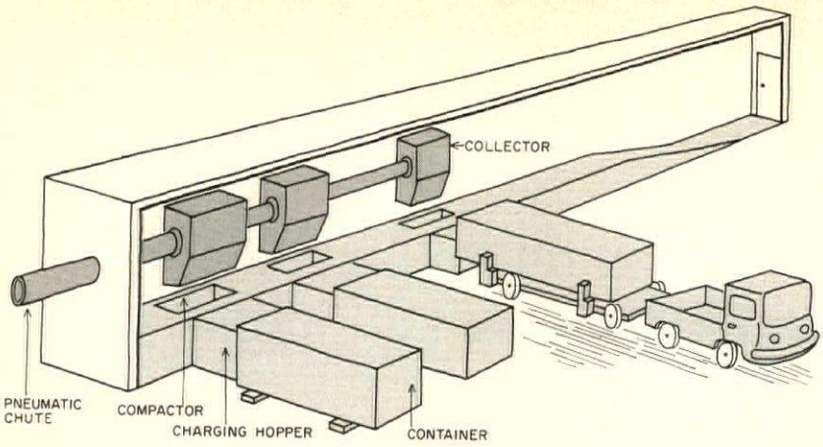
Carting problems. Carts are almost always used in waste handling, regardless of the system used. Routing the carts through the building is an essential consideration in the architectural design of a waste system. Cart design is important, too. Heights and dimensions must be considered before the system design can be completed, and all doorways along the route must be properly sized. The size of casters has an effect on the manpower needed to move the carts. If there are ramps on the route, they must not be so steep as to prevent easy and controlled cart movement in any direction. Tires on carts can reduce noise levels, if noise is likely to be a problem.

Acoustics. Noise generation can be a real problem. Equipment can be noisy. The movement of trash even in a simple gravity chute may create an annoyance. The opening and closing of trash-room doors or the pick-up of a trash container may disturb apartment residents, office workers, or hospital patients. All of this noise can be controlled by sound-deadening materials or by the proper location of equipment. In large installations, some equipment may require vibration dampers to prevent transmittal of sound as well as structural vibration, and in some cases equipment must be housed in acoustical rooms. Occupational Safety and Health Administration (OSHA) regulations may control some aspects of design. Suppliers of equipment are not always knowledgeable about acoustic problems, and it may be well to seek the advice of an acoustic engineer.

Equipment sanitation. Inexperienced designers may underestimate the importance of cleaning waste equipment and the design implications of this process. Waste generates odors. Waste adheres to whatever it touches: compactors, pulpers, carts, containers, trucks, walls and floors—and a dirty cart or container will smell as much as the original waste itself. Equipment must be washed regularly, routinely, and completely. Hot water or steam, under pressure, must be used, and this requires drainage of sufficient size to take away fairly large particles of waste matter. Drain lines exposed to freezing temperatures may require electrical heating and/or insulation.

Space. Providing adequate space for equipment is always a problem. If equipment or a system is worth putting in a building, then adequate space must be provided—and suppliers will sometimes optimistically underestimate space minimums. The designer must also know how the system will be used and maintained. Can carts get to the machines? Can carts be emptied, turned around, removed without interference from other carts? How much storage space does each cart or container or unit of bagged waste require, and where should such space be located? Rarely is a trash room located and sized properly. The tendency is to draw a space on a plan and say, "That's big enough," and then to encroach on that space to accommodate other seemingly more important demands. One hundred pounds of waste, generally speaking, is a cubic yard by bulk, and 100 sq ft will not furnish much storage space even if waste is piled high. Some handling space within the room is also required. Owners do not like to have waste stacked in the halls next to a loaded waste room. The designer must engineer the space, not guess at it.

Space is also required for maintenance. Without adequate room, a mechanic may have to work above open shafts or across equipment, thereby exposing himself to hazardous conditions. OSHA has recognized this and is gradually making its safety requirements for solid waste systems more stringent.



CENTRAL COLLECTION AND COMPACTION

Future installations. If examination of all the facts indicates that a system is too expensive to install initially, the architect should consider providing space for future installations. He must then see to it that the space is maintained during construction, that other uses do not absorb it. Subsequent moving of pipes can be very expensive and may preclude the installation of a system when the need is recognized.

Estimating the cost of a waste system involves both direct and hidden expenses

Space is expensive, and unjustified allocation of space must be avoided. Waste removal, whatever the system used, is also expensive. These costs must be weighed against each other and against the owner's needs and means. Two basic costs are always involved in a waste removal system, both of which contain hidden traps for any economic evaluation: capital costs and operational costs. Considerations affecting these basic costs include the cost of money, inflation, manpower availability, employee benefits, next year's salary increases, maintenance, energy availability, the cost of space, annual replacement parts, and methods of accounting.

Generally, the simpler the system, the less its capital cost—but not always. Conversely, the simpler the system, the greater its operational costs—but not always.

Manpower is the most costly part of any system. Every logical effort should be made to minimize the use of manpower. The designer has an obligation to design a system that will dispose of waste at the lowest reasonable operational cost. To do this he must know what labor rates are, what fringe benefits are provided, and what existing contracts commit the owner in the immediate future. To serve his client's interests, he must then project, always defensibly, the same costs ten years hence.

Capital costs are no less complicated, not because of the unforeseeable future, as with operating costs, but mainly because suppliers understandably put their best foot forward when pricing is involved. The supplier may, for instance, cost out his standard system, failing to take into account that the design calls for heavier material than his standard, or that his standard motor is substantially less in horsepower than that specified. The designer must make sure that the supplier understands in detail what he wants. The best way to do this is a sit-down, face-to-face review of the designer's specification with the prospective suppliers. Clear-cut specifications and bidding rules are important in obtaining the best cost for the client.

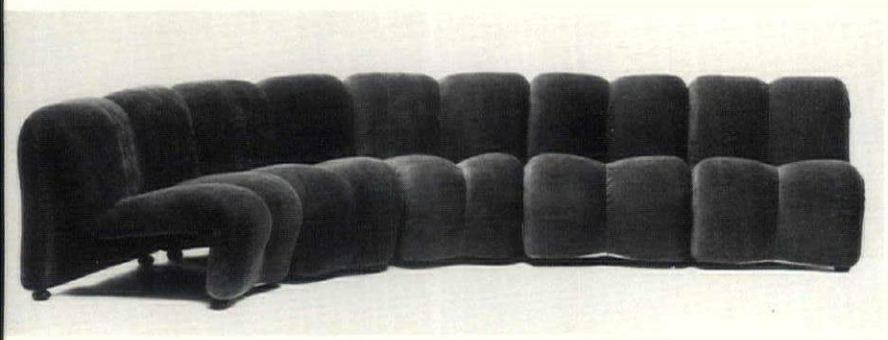
The designer should also determine the exact meaning of service warranty and guarantee wording. What does guaranteed for the life of the equipment mean? What substance exists in the promise to "inspect the system periodically?" The designer should read three or four standard warranties for similar pieces of equipment—say, those that would meet specifications—and note how they differ. These differences could be operationally costly to the client, and may in fact increase capital costs in a subtle manner.

Probably the most intricate part of costing is determining the method of presenting the costs to the client. Unless the architect is privy to the secrets of the client's accounting system, he is at once involved in a guessing game, faced with a great variety of possible systems. The method of presenting cost estimates should be resolved early with the client. In the event this is not practical, then presentation should be based upon initial capital costs, one year's supply of spare parts, equipment utility requirements, man-hours for operation, and any other costs that could be considered as reasonably fixed.

Within reason, the designer must allow for contingencies, remembering that each person involved in pricing almost always adds contingency costs. These should be clearly spelled out, since contingencies tend to pyramid rapidly. We are aware of one instance where this procedure nearly doubled the pricing of a system, and a desirable and worthwhile system was almost eliminated from consideration.

The cost of a waste removal system can, therefore, be estimated only after 1) a realistic analysis of the owner's needs and 2) a thorough consideration of direct and hidden costs.

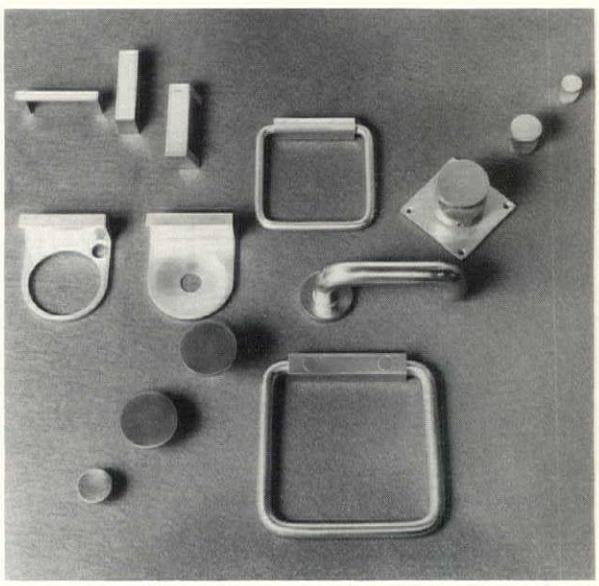
For more information, circle item numbers on Reader Service Inquiry Card, pages 221-222.



One company's NEOCON offering: new series of modular imports

Shown is "Etcetera," one of the new groups of modular furniture the company will show at NEOCON 7 in Chicago, June 18-20. The seating, designed by Jan Ekselius of Sweden, consists of three elements: straight, inside corner, and outside corner. Lightweight and easy to link together, the units are said to be virtually indestructible, easy to clean with zip-off covers, and comfortable. ▪ Stendig Inc., New York City.

Circle 300 on inquiry card



Contemporary European hardware for the U.S.

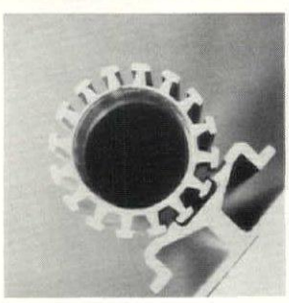
The company has announced its exclusive U.S. distribution rights for a large selection of locks and latches, and specialty hardware, mostly from Europe. Shown is the Modric line, designed by Holscher and Tye. Towel rings, soap dish, glass and tooth brush holder, lever handle, cutaway cabinet knobs, etc., are shown in satin anodized aluminum. These will soon be available in satin brass and bronze finishes. ▪ The Ironmonger, Chicago, Ill.

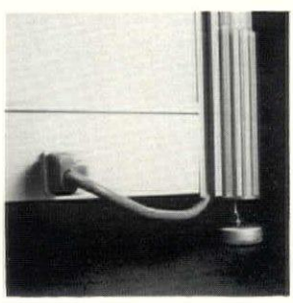
Circle 302 on inquiry card

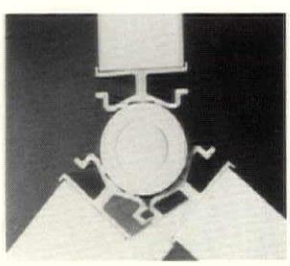
Office system assembles without tools

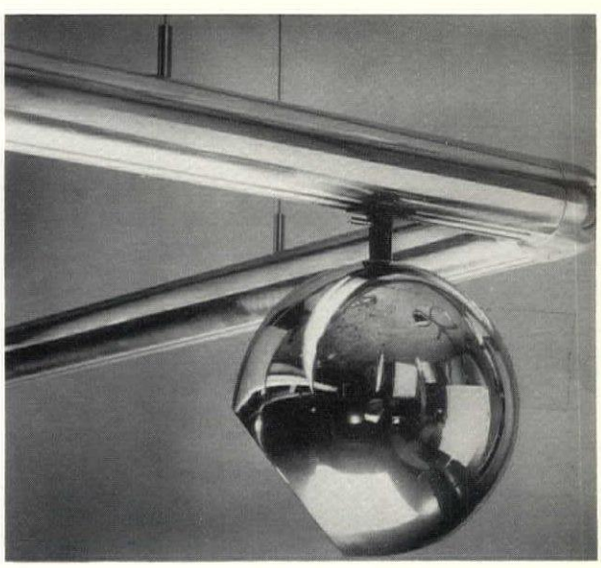
The *Modulo 3* office system shown in natural oak veneer is also available in other woods and plastic laminate finishes. A special feature is the extruded aluminum post (details right), which facilitates installation of panels without tools or special skills. All wiring is concealed, and vertical wiring can be pressed into the grooves of the post (far right). Fabric-covered panels have a flame spread rating of 15, and the NCR is .75, comparable to panels of greater thickness. ▪ Modulo 3, Maryland Heights, Mo.

Circle 301 on inquiry card









Polished track lighting emphasizes structure

Lytestruct is a polished extruded aluminum housing, 2½ in. in diameter, which encloses the company's standard track units. Housings can be suspended on chrome stems or on slender aircraft cables, used individually or in continuous runs with a variety of connectors to create customized accent lighting without custom manufacturing. Where track is not used, covers are supplied. ▪ Lightolier, Jersey City, N.J.

Circle 303 on inquiry card

more products on page 157

INTRODUCING NEW 12 OZ.
genon

Genon vinyl fabric wall covering, long-time star performer in contract interiors, is now appearing in a broad new 12 oz. collection. Now you can specify famous Genon quality when your needs and budget call for Type I material.

Look for our name in lights. Star performer in a new cost-cutting roll!

Genon Lightweights come in 10 distinctive patterns — weaves, linens, solids, stripes, and prints; textured effects you'd expect only from heavier weight vinyls; and over 125 colorways.

The product of uniquely coordinated styling and manufacturing teamwork, our Lightweights follow the Genon lead for quality, durability and easy maintenance. They're scrubbable, strippable, and meet Federal Specification CCC-W-408A.

So don't be foiled again by a villainous budget squeeze. Look for our name in lights, and specify Lightweight Genon. It's sure to be a hero, for new interiors, remodeling, and refurbishing. For more information—write on your letterhead to: The General Tire and Rubber Company, Contract Wall Covering Group, 979 Third Ave., New York, N.Y. 10022.

unlimited editions of fine wall covering art

genon®
vinyl wall covering

GENERAL TIRE


LADIES Attention
Please refrain from placing your purse and packages in the empty seat next to you
KEEP THEM IN YOUR POSSESSION
THIS IS FOR YOUR OWN PROTECTION
The management cannot be responsible for personal articles lost or misplaced
Thank You

OFFICE LITERATURE

For more information circle item numbers on Reader Service Inquiry Card, page 221-222.

GRAPHIC PROCESSING SYSTEM / A brochure describes a graphics processing system for digitizing and image processing all types of graphic material in as fast as 30 seconds per document. The four-page brochure shows pictures of the system along with a flow chart and product applications. Technical data and other pertinent information are also included. The system is recommended for almost every type of image processing, digital storage and retrieval application. ▪ Broomall Industries, Inc., Broomall, Pa.

Circle 400 on inquiry card

CONSTRUCTION SERVICES CATALOG / A compendium of single source services, encompassing new construction as well as remodeling of industrial and commercial buildings, explains how the company's services—which include design/build capability, fabrication, construction, and complete operation supervision—can be an efficiency cost advantage. Other sections include: wall panels; suggested roof joist and decking practices; and wall construction details. ▪ Wisconsin Bridge & Iron Co., Milwaukee, Wis.

Circle 401 on inquiry card

AREA LIGHTING CATALOG / A 12-page area lighting catalog illustrates a new "Dual" area lighting fixture that incorporates two lamps and two optical systems in a single fixture; one optical system throws illumination over a plane while the other optical system spreads illumination to the sides. The catalog also describes the single task luminaires that are identical in appearance to the "Dual" fixture, and may be interchanged for any application. Other data include a fixture cut-away of the new unit; area lighting comparisons; installation and maintenance illustrations; performance data; and specification data. ▪ Guth Lighting, St. Louis, Mo.

Circle 402 on inquiry card

SHAKE-STYLE SIDING / A full-color, 2-page catalog sheet describes new *Forestex Roughsawn* shake-style siding that is said to duplicate the texture of natural rough-sawn wood in 12-by-48-in. panels. Architectural specifications and a general description are included. ▪ Forest Fiber Products Co., Forest Grove, Ore.

Circle 403 on inquiry card

WATER SOFTENER / The literature describes benefits of soft water along with a general description of how the new *NovaSoft* line of water softeners removes hardness from water. The brochure also describes the modular design of the control module and the life-time guaranteed vinyl (PVC) tanks. ▪ Genova, Inc., Davison, Mich.

Circle 404 on inquiry card

PHOTOGRAPHIC MURALS / *Murals & Monochromes,* an 8-page, four-color brochure, describes large-scale color murals, which the company can provide from its own stock of landscape photographs or from 35mm slides provided by designers. The firm can also alter black-and-white or color photographs to produce monochromatic murals to match colors used in interior design. ▪ Meisel Photochrome Corporation, Dallas, Tex.

Circle 405 on inquiry card

VINYL-FACED GYPSUM PANEL / A four-page brochure discusses the manufacturer's *Textone* gypsum panels, which are surfaced with deeply embossed vinyl facings available in five color-coordinated groups. ▪ United States Gypsum Company, Chicago, Ill.

Circle 406 on inquiry card

PLASTIC-CLAD PANELS / Pre-finished panels for exterior applications as spandrels, soffits, fascias, curtain-walls and window walls are described in a 12-page brochure. Available in seven standard colors and 14 additional special order shades, smooth-surfaced *Plastic-Clad* is guaranteed for uniformity of color retention, and is said to resist rapid temperature changes and freeze-thaw conditions because of its specially formulated double-coat acrylic finish. The standard ⅛-in.-thick panel weighs 1.2 lbs per sq ft. ▪ Gold Bond Building Products Div., National Gypsum Co., Buffalo, N.Y.

Circle 407 on inquiry card

COMFORT HEATERS / The six-page brochure describes comfort heaters for different applications, such as localized heating in manufacturing areas, supplemental heating in offices or large rooms, and heating in confined areas such as guard houses. The new brochure gives information on applications, features, options, specifications, mounting dimensions and ordering instructions. It also includes product photos and cut-away diagrams of forced convection air-heaters, 5 through 50 kw. ▪ General Electric Co., Shelbyville, Ind.

Circle 408 on inquiry card

CONSTRUCTION GLASS BROCHURE / Nineteen color photographs showing application of flat glass products glazed in buildings throughout the nation highlight the company's 1975 "Glass For Construction" brochure, featuring technical and general data about a range of architectural glass products, including the company's high performance energy-conserving *Vari-Tran* reflective coated glass and bronze- and grey-tinted glasses. The brochure also features product description and technical information about clear, laminated, insulating, decorative, spandrel and *Tufflex* tempered safety glass products. Also included is a section devoted to special glazing systems such as suspended and butt-joint glazing. ▪ Libby-Owens-Ford Co., Toledo, Ohio.

Circle 409 on inquiry card

TIE-DOWN ANCHORS / A product design and specification sheet on the firm's *Ty-Down* framing anchor designed for use in rafter and truss anchorage has been prepared to assist architects, engineers, and builders. The sheet presents complete information on sizes, types, recommended safe working values, and suggested applications. Manufactured from 18-gauge galvanized metal, the product is supplied with special 1½-in.-long nails for maximum shear value. ▪ Teco, Washington, D.C.

Circle 410 on inquiry card

ROOF INSULATION FASTENING SYSTEM / New literature describes *Perma-Fastner* system for the mechanical attachment of rigid insulation to light-gauge metal decks, using self-drilling screws and 3-by-3-in. stress distribution plates. The brochure also discusses code acceptability, methods of use, and sample specifications. ▪ GREFCO, Inc., Oak Brook, Ill.

Circle 411 on inquiry card

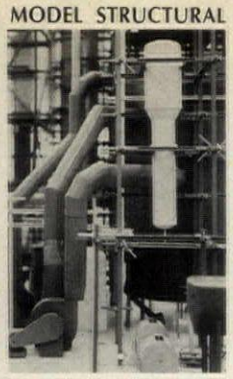
SELECTING SEALANTS / A four-page illustrated brochure contains a Sealant Selector Chart that provides reference to performance characteristics, specification ratings, joint application sizes, surface types, life expectancies and colors for the company's line of sealants. The booklet also provides design, application and performance data for the firm's *POLY-shim* glazing system and its *WEJ-GRIP* structural gasket system. ▪ Tremco, Cleveland, Ohio.

Circle 412 on inquiry card

more literature on page 165

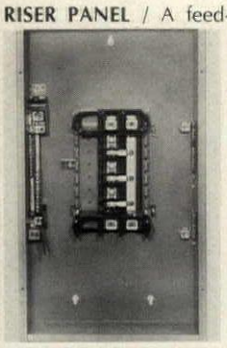
For more data, circle 67 on inquiry card

MODEL STRUCTURAL SYSTEM / A preliminary model structural system makes five different beam sizes available for the construction of models to show plant and factory layouts prior to the building plan phase. The model parts snap together and are re-usable. Parts are precision extruded in scale sizes of ¼, ⅜, ½ and ¾ in. and a basic kit contains sufficient materials to design a 30- to 40-bay structure. It sells for $89.50. ▪ Model Parts, Inc., Newark, Del.



Circle 304 on inquiry card

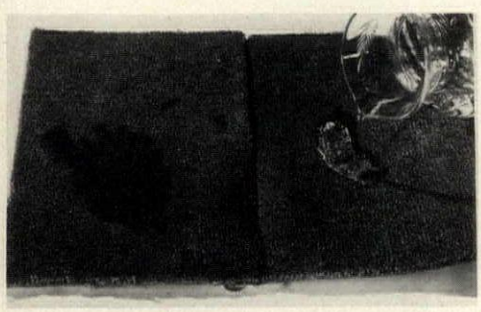
RISER PANEL / A feed-through (series type) riser panel for high-rise apartments and commercial applications has lugs on both the top and bottom, eliminating the need for main breakers on reduced-capacity tap-offs. The panels are available from stock in ratings of 225 amps; single- and three-phase, 120/240, 120/208Y volts, AC. Both single- and three-phase types are available with or without equipment ground bars installed. ▪ Circuit Protective Devices Product Dept., General Electric Co., Plainville, Conn.



Circle 305 on inquiry card

SILENT MICROFICHE READER / A convection cooling process in the unit eliminates the need for a fan and makes the *COM 150F* suitable for quiet office environments. It features an 11¼-in.-wide by 8½-in.-high screen and drop-in lenses with magnifications from 18x to 54x. Screen brightness is provided by long-life lamp. ▪ Micro Design Inc., Hartford, Wis.

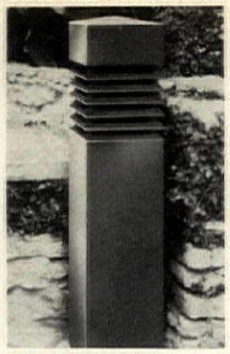
Circle 306 on inquiry card



FABRIC PROTECTION / *Composil*, a textile protection treatment, eliminates deep down stains in carpeting, upholstery, draperies and other fabrics. It also prevents mildew and extensively waterproofs fabrics by penetrating fibers with silicone compounds. According to the company, some types of fabric and carpet protection (left) are surface treatments that may break down under normal wear. *Composil* causes water-borne liquids or solids spilled on carpets to "bead" on the surface (right) until they can be removed by a damp cloth. The treatment is a one-time operation. ▪ Fabrigard Corp., New York City.

Circle 307 on inquiry card

BOLLARD / A bollard-style outdoor lighting fixture whose vandal-resistant construction is combined with a louvered design that shields glare is available in round and square configurations, in five heights ranging from 30 to 54 in. Built of heavy-gauge seamless aluminum and sealed against the weather, this model is self-contained and has an interior anchoring system of cadmium-plated steel. Illumination is provided by an incandescent lamp of up to 200 watts or by HID lamping of up to 175 watts. Finishes are electrostatically applied in a range of colors. ▪ Sterner Lighting Systems Inc., Winsted, Minn.



Circle 308 on inquiry card

HIGH-BASE CHAIRS / Designed by Earl Koepke, models *2531-22 and 2531-27* are part of the company's *2500 Series* seating that also includes desk, side, casual, and pedestal chairs as well as secretarial seating. Seat heights are adjustable from 22 to 27 in. with model *2531-22*, and from 27 to 32 in. with model *2531-27*. A chrome ring is provided for convenient foot support. Shell backs are available with choice of four molded-in colors, and a range of company fabrics and vinyls as well as COM material can be specified on the chairs. ▪ Harter Corp., Sturgis, Mich.

Circle 309 on inquiry card

more products on page 159

What if they have to get out in a hurry?

Where there's a possibility of fire, cushioning foam of Du Pont Neoprene means potentially more evacuation time.

Cushioning materials in areas of public assembly need no clanging cymbals to attract attention. They have attention—from federal authorities, local fire marshals and commissions who have a hand in setting fire codes. Foam of Du Pont Neoprene is attracting attention, too, because it provides outstanding performance on two crucial counts:

- First, Neoprene foam can be used to design chairs with high resistance to flame ignition.
- Second, if ignited it exhibits a lower rate of heat generation and flame propagation than do other common cushioning materials.

In addition, Neoprene foam lets you design durability and comfort into even the most irregular seating styles. Resilient Neoprene foam does not harden or crumble on aging, stands up to oils, most chemicals and cleaning fluids as well as moisture and temperature changes.

When you specify foam cushioning of Du Pont Neoprene, you get a material that's proven itself by more than 16 years of service in public seating and bedding applications where the possibility of fire is of significant concern—in schools and ships, airplanes and auditoriums, trains, theatres and hospitals.

For more information on suppliers of Neoprene foam cushions or finished seats made of Neoprene, write: Du Pont Co., Room 24354, Wilmington, DE 19898.

Cushioning Foam of Du Pont Neoprene

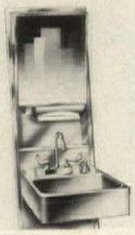
DU PONT
REG. U.S. PAT. OFF.

PRODUCT REPORTS *continued from page 157*

EXECUTIVE CHAIR / A polished stainless steel tubular frame follows the chair's contours and supports the molded latex foam rubber cushions. Two cushions form a low-back version; three, a high-back. The arm frame, again a continuous span of polished stainless steel tubing with upholstered cylindrical pads, is visually separated from the body of the chair by nylon spacers. Other details include a swivel/tilt mechanism and a variety of bases. Shown in the photograph is a stainless steel fin base. Chair may be upholstered in either leather or fabric. ▪ Scope Furniture, Inc., New York City.

Circle 310 on inquiry card

STEEL HOSPITAL CONSOLE / A full size, recessed stainless console unit, with features for the convenience of wheelchair patients, contains an integrated stainless steel lavatory that extends 22 in. with rounded corners. It is equipped with a gooseneck spout and wrist control handles. Top of the mirror, tilted at 15 degree angle, projects forward 6 in. to provide full visibility for persons occupying wheelchairs. The recessed unit can be installed in 4-in. walls through a rough wall opening 16-in.-wide by 54¾-in.-high. It is constructed of type 304 stainless steel, with all exposed surfaces satin finished. The cabinet door opens for refilling towel and cup dispensers and is secured by a tumbler lock. ▪ Bobrick Architectural Service Dept., New York City.



Circle 311 on inquiry card

SMALL WATER COOLERS / The compact model *CSW* is 22 in. in over-all height and available in 8 and 13 gph capacities. The *CSW* is normally furnished with beige vinyl front and side panels, but five other colored vinyls are available. It may be installed at varying heights and the front panel is removable for maintenance. The *CSW* is rated in accordance with ARI Standard 1010-73 according to ASHRAE Standard 18-70. It is also approved by Underwriters' Laboratories and the Canadian Standards Association. ▪ Sunroc Corp., Glen Riddle, Pa.

Circle 312 on inquiry card

SECURITY LIGHTING / Since the use of a 175-watt mercury vapor lamp allows the unit to be mounted at a lower height than was possible with the larger mercury lamps, the "Vigilante" is recommended for localized security applications in areas up to 200 feet in diameter. The units are completely preassembled and wired for installation and include a photocell, 175-watt mercury lamp and all mounting hardware. The unit is fabricated of extruded, cast and formed aluminum and finished in a deep bronze acrylic baked enamel. ▪ Benjamin Electric Mfg. Co., Sparta, Tenn.

Circle 313 on inquiry card

more products on page 161

DeVAC replacement windows cut this building's fuel bill 34%.

After the winter of 1969-70, Bigfork School had enough of its old windows. Situated approximately 200 miles north of Minneapolis, the school is exposed to 50 below zero temperatures once or twice a winter. In fact, it's not a bit uncommon for Bigfork, Minnesota temperatures to be 20 or 30 degrees below zero for 30 consecutive days.

No matter how high the thermostats were set, it was still drafty through the old windows. Students seated near the windows had to wear jackets, and children were often sent home when outside temperatures dropped lower than 30 degrees below zero.

But now that's all changed. In the summer of 1970, the old windows were replaced with double-glazed DeVAC Thermo-Barrier environmental windows. This switch to DeVAC produced an immediate and dramatic reduction in heat loss. The selected DeVAC replacement windows — in addition to their high-performance design and glazing — have an insulated porcelain-enamel upper panel which reduces unnecessary glass area and makes the building more aesthetically pleasing. Moreover, DeVAC's integral exterior panning completely covers the old wood to help stop deterioration.

In 1970-71, Bigfork expanded its facilities by adding more classrooms, a locker room, stage and an industrial arts section. These areas represent an additional 16,370 square feet, which increased the total space at Bigfork School from 47,000 to 63,370 square feet. Even with this significant expansion, the school's existing heating system was, because of DeVAC windows, able to easily handle the enlarged area with normal thermostat settings.

With DeVAC replacement windows, the 63,370 square feet is heated for less money per degree day than the 47,000 square feet with the old windows.

Comparing heating costs on a square foot basis, the average cost for the two years preceding installation of DeVAC windows was 22.8 cents per square foot. The average cost for the three after installation of DeVAC windows was 14.9 cents per square foot. That's a saving of over 34 percent. And it was made before the energy crunch necessitated lowered thermostat settings.

To determine, at no obligation, what kind of savings you can realize on the heating/cooling costs of your building, call or write DeVAC, Inc. The address is 10130 Highway 55, Minneapolis, Minnesota 55441. Our phone is 612/545-0241.

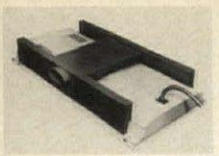
We've made a science of making windows.

DeVAC®

For more data, circle 71 on inquiry card

PRODUCT REPORTS *continued from page 159*

AIR DIFFUSERS / Air diffusers to fit fluorescent troffers are available for single side or dual air supply. Volume control dampers in the diffuser are fully adjustable from below through the fixture airslot without opening the fixture door. Vertical to horizontal air throw adjustment is accomplished by the integral control vane in the air-slot of the integral air handling luminaire. Gasketing is provided between the cross-over and side slot boxes for tight air seals. ▪ GTE Sylvania Inc., Stamford, Conn.

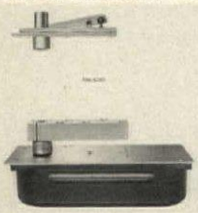


Circle 314 on inquiry card

DRYWALL PARTITIONS / All parts and materials are available from one source and totally demountable and salvageable. This total package utilitzes a patented anchoring principle in a three component, slip joint movable partition system for any wall. Designed for assemblies of 48 in. and less with gypsum board, acrylics and glass, it can be installed at costs equal to and below comparable partition systems, according to the company. Basic structural components of the systems are a base rail, ceiling line and stud of aluminum with a baked enamel finish, and a 4-ft wide panel of any material. All parts of the system can be pre-cut for exacting on-site installation at any time. A 1½-in. cavity provides for standard electrical wiring and insulation batts for sound control. ▪ Richwall Partition Systems, St. Louis, Mo.

Circle 315 on inquiry card

FLOOR CLOSERS / Two center hung floor closers for lead lined and extra heavy doors 2 in. thick or larger, weighing up to 1000 lbs., incorporate two closers in one, with two sets of plungers and springs for positive door control. The non-handed closers are offered in non-hold-open models as standard. Maximum door opening is 103 degrees, trim permitting. Both packages include the closer steel cement case, floor plate, radial thrust bearing, and heavy duty arm and walking beam top pivot. The units are available in all standard and plated finishes. ▪ Rixon-Firemark, Inc., Franklin Park, Ill.



Circle 316 on inquiry card

SOUND CONTROL DOOR / The *Noise-Lock* door utilizes the forces of gravity and magnetism to deliver acoustical performance in a wide range of applications. Positive seals are achieved at the head and jamb of the door assembly through the use of a continuous, double, acoustic magnetic and sound-absorbing labyrinth. A sound-tight floor seal is maintained as the cam-action of the hinge compresses the bottom seal firmly against floor. Sills are no longer necessary nor are the threshold closures common with previous sound-retardant doors. ▪ Industrial Acoustics Co., Inc., Bronx, N.Y.

Circle 317 on inquiry card

more products on page 163

It's Texas big-- and finally watertight.

Overly builds the roofs that others don't.

Houston's Astrodome was plagued with leaks for years. The only permanent solution turned out to be a complete re-roofing, designed and installed by Overly.

Overly fabricated and installed nearly 150 tons of mill finish alclad aluminum sheet and installed 4,596 translucent plastic skylights for the 9.5-acre project. Severe weather conditions, including hurricane-force winds and heavy rainfall, had to be taken into consideration. Installing special high-rise extruded battens solved the massive waterflow control problems. Extensive wind load tests led to the development of a special anchorage and clip system. The roof is warranted against leakage for 20 years.

Naturally, Overly designs, fabricates and installs new roofs, too, many a lot smaller, but no less complex, than the Astrodome. For more information, see our listing in Sweet's Catalog, or write Overly Manufacturing Company, 574 West Otterman Street, Greensburg, Pennsylvania 15601.

Interior view of the Astrodome shows how new skylights diffuse light, solving another long-standing Astrodome problem. At the top of the photo are new panels. Bright areas are the original installation, considered to be too bright. Dark area will be opaque plastic to shield against Western sun.

Workmen install specially designed batten panels on the 9.5-acre Astrodome project.

overly
MANUFACTURING CO.
DOES WHAT OTHERS DON'T

For more data, circle 73 on inquiry card

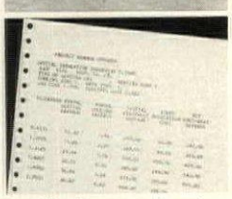
CARPET COLLECTION / "Time Spans," a collection of dense nylon plush made of 100 per cent nylon, offers heavy 35-oz. pile weight and ultra-dense construction for excellent durability and performance in high-traffic areas. It is also suitable for residential applications. "Duncannon" (shown) is a Scottish plaid in seven colorations: MacDonald red, Glasgow gold, MacMillan green, Aberdeen Black, Tartan white, Logan blue, and Bagpipe brown. ▪ Armstrong Cork Co., Lancaster, Pa.

Circle 318 on inquiry card

INTEGRATED EXIT SIGN SYSTEM / The sign system contains an exit sign, a power pack and a remote light pack to provide maximum lighting protection at exitways and stairwells during power failures. The exit sign and its power pack are placed on one side of a door with the lighting head on the stairwell side. The cast frame "EXquIsiTe" offers a radius stressed stencil to prevent light leaks and snap-outs are also provided allowing for downlight. The battery will operate two emergency lamps up to 90 minutes. ▪ Dual-Lite Co., Newton, Conn.

Circle 319 on inquiry card

COMPUTER CALCULATES ENERGY, FUEL COST / A direct telephone line to a computer with a simulated human voice is being used by the company to help architects and engineers in figuring energy and fuel cost savings of insulating new industrial and commercial construction projects. Fed certain data, the *EMS* (Energy Management System) line will respond verbally to the caller with energy and fuel cost saving data. A computer printout listing the estimated cost savings data asked for is then sent to the person who placed the call. The *EMS* line can be reached by calling a toll-free number with a touchtone telephone, or an ordinary dial phone with a touch-tone attachment. Thirty seconds after all questions have been "answered," the computer responds with the data on estimated energy and cost savings obtainable through insulation, in this order: annual heating savings, annual cooling savings, projected total annual heating and cooling cost savings, added insulation cost and net equipment savings. ▪ Owens-Corning Fiberglas Corp., Toledo, Ohio.



Circle 320 on inquiry card

HAIR DRYERS / New 1975 models of the *Multi-Port* hair dryers now have increased horsepower, and all solid state circuitry. Each dryer saves the cost of five additional installations and has been designed to easily install on all existing wall surfaces and to go around corners or through the walls to maximize space, eliminate vandalism and permit one unit to service two separate rooms. ▪ Damse Engineering Inc., North Hollywood, Cal.

Circle 321 on inquiry card

Martin Luther King, Jr. Vocational High School, Cleveland, Ohio
Architects: Madison•Madison International, Cleveland
Roofer: Korner Roofing & Sheet Metal Company, Cleveland

Photos by Abel Photographics

For more data, circle 75 on inquiry card

TCS AND THE VISUALLY SIGNIFICANT ROOF

TCS is stainless steel coated on both sides with a terne alloy of 80% lead and 20% tin.

TCS has no equal among standard architectural metals in resistance to atmospheric corrosion.

TCS solders perfectly without the need for expensive pre-tinning, acid fluxes or neutralizing agents.

TCS weathers naturally to a uniform dark gray and does not stain.

TCS provides galvanic built-in safeguards against failure which no competitive product can match.

TCS is reasonably priced and requires no maintenance.

FOLLANSBEE

FOLLANSBEE STEEL CORPORATION
FOLLANSBEE, WEST VIRGINIA

OFFICE LITERATURE *continued from page 152*

COMPUTERIZED ELEVATOR CONTROL / A six-page, full-color brochure describes a computerized elevator control system for high-rise buildings. The system features a re-programmable miniature computer to meet control demands of multi-elevator structures. According to the brochure, every 20 seconds the system looks at traffic trends enabling the computer to anticipate people-moving requirements and pre-position cars before they're actually called. Still more features of the *CMC 1200,* described in the literature, include a recorded history of elevator movement through information printout. Other data recorded include the time individual calls remain unanswered, car journey time, and number of car calls. ▪ U.S. Elevator Corp., Spring Valley, Cal.

Circle 413 on inquiry card

PROTECTIVE DOORS / A newly issued 15-page brochure describes and illustrates six types of protective doors available from the manufacturer: blast, air-tight, shielding, acoustical, hollow metal and fire doors. The text explains capabilities, specifications and test performance data, and illustrations include detail drawings and photographs of finished installations. ▪ Overly Mfg. Co., Greensburg, Pa.

Circle 414 on inquiry card

HOUSING THE HANDICAPPED / The published proceedings of the National Conference on Housing and the Handicapped includes texts of speeches and recommendations developed at the meeting on program planning, architectural and physical planning, community services and transitory and temporary housing. Discussion at the conference revolved mostly around the Housing and Community Development Law of 1974 and ways to implement its provisions, particularly at the local level. The 72-page report is available, at $2 a copy prepaid, from Health and Education Resources, Inc., 9650 Rockville Pike, Bethesda, Md. 20014.

HIGH-PERFORMANCE GLASS / Eight-page booklet "Energy-Effective Windows for Cost Savings and Conservation" provides guidelines to selecting glass for energy conservation and cost savings in both new and existing buildings. In addition to describing performance and other characteristics of insulating, reflective and reflective-insulating glass units, the booklet discusses such developments as solar collectors and reflective glasses for the residential market. ▪ PPG Industries, Pittsburgh, Pa.

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GAS-FIRED HEATING SYSTEMS / The manufacturers have issued a four-page color brochure describing their gas-fired heating systems for industrial and commercial applications, including unit heaters, downblast heaters, indoor and outdoor duct furnaces, make-up air furnaces, forced air furnaces, and, in a special section, its 360-degree balanced pressure venting system used on outdoor furnaces. ▪ Dover Corporation, Peerless Division, Louisville, Ky.

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ATHLETIC AND GYM EQUIPMENT / A 16-page catalog describes the firm's line of athletic, sports, and field and gym equipment. Included are portable basketball, baseball and field hockey backstops, as well as permanent sports fixtures, gymnastic equipment designed for elementary schools, playground equipment, and benches and bleachers. The catalog also describes the manufacturer's *Super Trac* series of climbers and beams specially designed to foster motor development. ▪ SportsPlay Products, St. Louis, Mo.

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Bally Prefabs are there so better meals get off the ground

Bally Walk-In Coolers and Freezers can be assembled in any size for indoor or outdoor use from standard panels insulated with four inches of foamed-in-place urethane. Choice of stainless steel, galvanized or patterned aluminum. Easy to enlarge . . . easy to relocate. Refrigeration systems from 35°F. cooling to minus 30°F. freezing. Subject to fast depreciation and investment tax credit. (Ask your accountant.) Write for 28-page book and urethane wall sample. Our 182-page *Working Data Catalog* is available to Architects and Specifiers at no charge. Also, see our catalog in Sweets, 11.24/Ba. **Bally Case & Cooler, Inc., Bally, Pennsylvania 19503.** Phone: (215) 845-2311.

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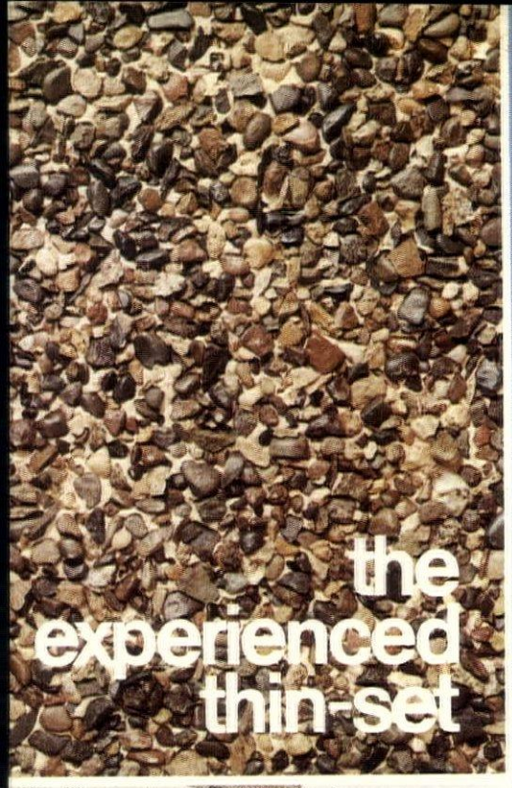

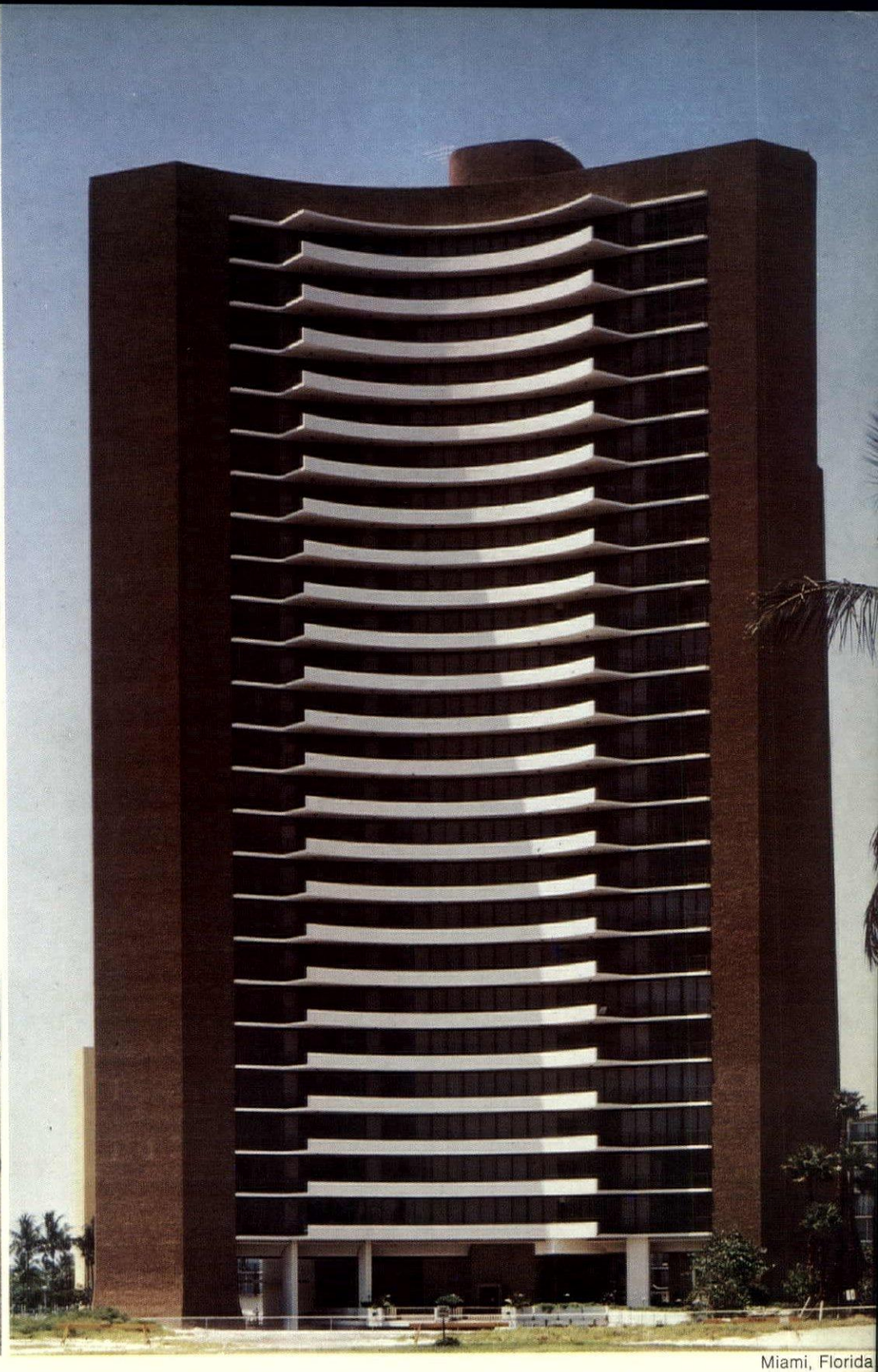

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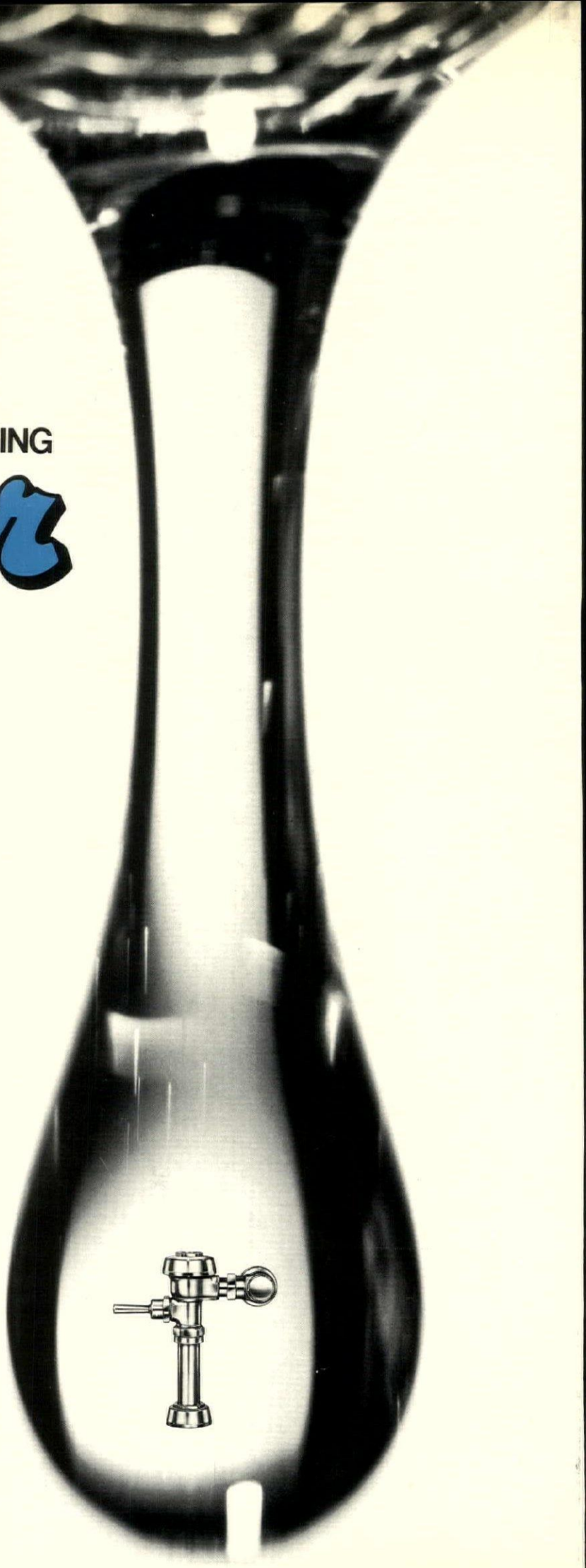
LET'S TALK ABOUT SAVING *water*



And then let's do something about it. An intriguing new report just might convince you that what we've been saying all along is absolutely true: Sloan Flush Valves do save water, and not just drop by drop.

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Carefully engineered Sloan Valves can save you money in more ways than one. You won't have the maintenance problems that seem to be built into tanks.

You've heard lots of talk about saving water. Now this report talks facts. And it's yours free from Sloan.

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