U.S. EMBASSY, TOKYO, BY CESAR PELLI FOR GRUEN ASSOCIATES

THE CENTRAL BUILDING FOR TSUKUBA UNIVERSITY IN JAPAN BY FUMIHIKO MAKI

A CALIFORNIA HOUSE OF VARIED SPACES AND SURPRISES

BUILDING TYPES STUDY 500: FORTY YEARS OF AMERICAN ARCHITECTURE

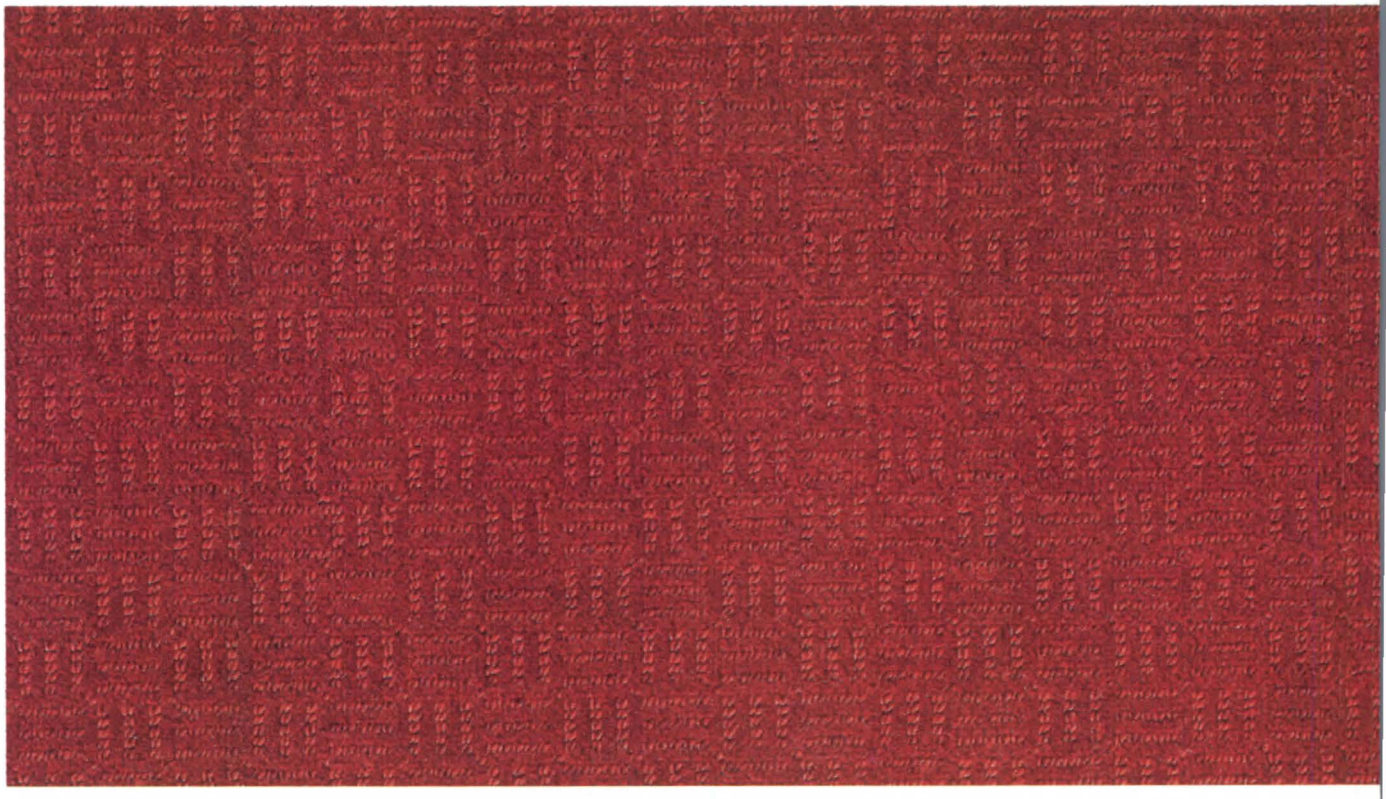
FULL CONTENTS ON PAGES 10 AND 11

ARCHITECTURAL RECORD

APRIL 1977 4 A McGRAW-HILL PUBLICATION FIVE DOLLARS PER COPY

Now you
256 ways:

The running line "Architecturale"



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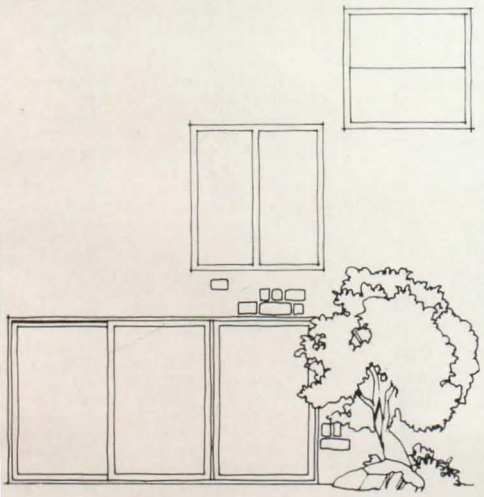

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Letter to the editor

Congratulations on the addition of "Legal Perspectives" by Arthur Kornblut to your business section. Having worked with the author at the American Institute of Architects, I can predict the high quality of pertinent information future articles will contain. This should become required reading.

Also of interest was the Building Costs article. It was satisfying to read that others are recognizing the limitation of historical data and are moving to a building component basis for determining construction costs.

Steven H. Rosenfeld, AIA
Technical Services, Icarus
Rockville, Maryland

Respectively I have held RECORD high as a publication that represents our professional priorities and conveys them to the public at large. Then in January I witnessed a cover image which blatantly represents a back seat for our profession regarding our energy crises. How can you endorse a building (cover of January issue), which has not even taken a small step towards energy conservation, but literally sticks its nose up at it for the sake of "good architecture." This is a perfect example of why our profession is following but not leading in the greatest concern the building industry has ever faced and possibly the greatest architectural opportunity.

Dennis Walsh, vice president
and director of architecture, Ellerbe
Bloomington, Minnesota

In response to the inquiry you have received regarding energy conservation on the referenced project, we would like to comment as follows:

1. Although the use of glass appears to be extensive, the actual glass area is only 9 per cent of the floor area of the building. Thus, a decrease in the glass area would not have effected a major saving in energy usage. Of primary importance is the utilization of the glass area. Almost all of the occupants have full-time benefit of the natural light and views from the windows. In conventional office buildings, there is usually a greater percentage of glass which serves a limited number of perimeter functions.

2. The large window areas are oriented toward the north and east where there is a minimum of solar penetration. Automated solar shades are incorporated on the east exposures to control morning sunlight.

3. This was the first building in the country to utilize a two-stage HTHW absorption refrigeration machine. The steam of 9.5 to 12.3 pounds per ton of refrigeration represents an energy savings of at least 50 per cent over conventional steam refrigeration systems.

4. The air distribution system utilizes variable air volume control and the larger air-handling units incorporate two independent fans. Thus, the entire system can continually maintain design levels at maximum efficiency.

5. All mechanical and electrical systems are designed to be continuously monitored by a computerized energy management program. This program allows a full range of modulation for optimizing energy usage.

6. The lighting system is circuited for ⅓, ⅔ or ⅓ fixture usage, thus lighting levels can be reduced whenever practicable. Through the use of 300 milliamp ballasts (one of the first applications), the lighting load is rated at less than 2½ watts per square foot while maintaining normal office lighting standards.

7. The past two years of operation data demonstrates that the energy imput in this building is consistent with other energy efficient structures.

If this building were being designed today (it was designed and under construction prior to the energy crisis of November 1973), an analysis of the glass area ratio to the psychological effect on the occupants of an otherwise totally efficient "pancaked" building may well produce different results, but not necessarily (except for the type of glass used). When an office building is programmed to be 130 feet wide by almost a quarter of a mile long, it needs relief. The alternative is to break it up into smaller components with smaller windows which would then require more perimeter area and become less efficient overall.

On behalf of IBM, you can be assured that they are fully committed to energy conservation and have given it top priority in all of their facilities since the crisis began.

Bruce S. Fowle, associate-in-charge
Edward Larrabee Barnes, Architect
New York, New York

The review of Landscaping the Saudi Arabian Desert (October 1976) prompted me to try to order this book but to date I have not been successful.

Alexander A. Bertulis AIA
Seattle, Washington

We are sorry that we did not give the address of the Delancey Press, which is located at 147 North 12th Street, Philadelphia, Pennsylvania 19107. If you enclose payment ($22.50), the postage will be paid by the sender.—Ed.

Calendar

APRIL

16-19 Solar Fair, sponsored by the Georgia Solar Energy Association and the Georgia Conservancy; Shenandoah, Ga. Contact: William P. Corley, 2970 Peachtree Rd., N.W., Suite 788, Atlanta, Ga. 30305.

25-27 Conference, "Lighting Energy Management on the Campus," sponsored by General Electric, GE's Lighting Institute; Nela Park, Cleveland. Contact: Manager, Lighting Education, General Electric Company, Nela Park, Cleveland, Ohio 44112.

25-29 Spring Convention and Exhibit of the American Society of Civil Engineers, Dallas Hilton Hotel. Contact: Herbert R. Hands, United Engineering Center, 345 E. 47 St., New York, N.Y. 10017.

27-28 Seminar, "Effective Construction Management—Reducing Costs and Maintaining Profits with CM," sponsored by the College of Business and Economics, University of Nevada, Las Vegas; Aladdin Hotel, Las Vegas. Contact: Office of Conferences & Institutes, University of Nevada, Las Vegas, 4505 Maryland Pkwy., Las Vegas, Nev. 89154.

29 Range Estimating Workshop, sponsored by John F. Steffen Associates Mechanical/Electrical Consulting Engineers, Construction Management and Computer Services firm; JFSA offices, St. Louis, Mo. Contact: John F. Steffen Associates, Inc., 2333 Grissom Dr., St. Louis, Mo. 63141.

MAY

5 ASTM Symposium on Technical Standards in Products Liability Litigation, sponsored by Committee E-40 on Technical Aspects of Products Liability Litigation of the American Society for Testing and Materials; Inn on the Park and the Prince Hotel, Toronto, Canada. Contact: Hank Hamilton, Public Relations Director, ASTM, 1916 Race St., Philadelphia, Pa. 19103.

5-6 Educational program, "Institute on Hospital Interior Space Design," sponsored by the American Hospital Association Department of Health Facilities and Standards; AHA Headquarters, Chicago. Contact: Ms. Yoko Betty Kojima, American Hospital Association, Department of Health Facilities and Standards, 840 N. Lake Shore Dr., Chicago, Ill. 60611.

5-6 Professional Marketing Workshops, sponsored by B.I.D.S. Inc.; Washington, D.C. Contact: B.I.D.S. Inc., 1301 20th St., N.W., Washington, D.C. 20036.

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

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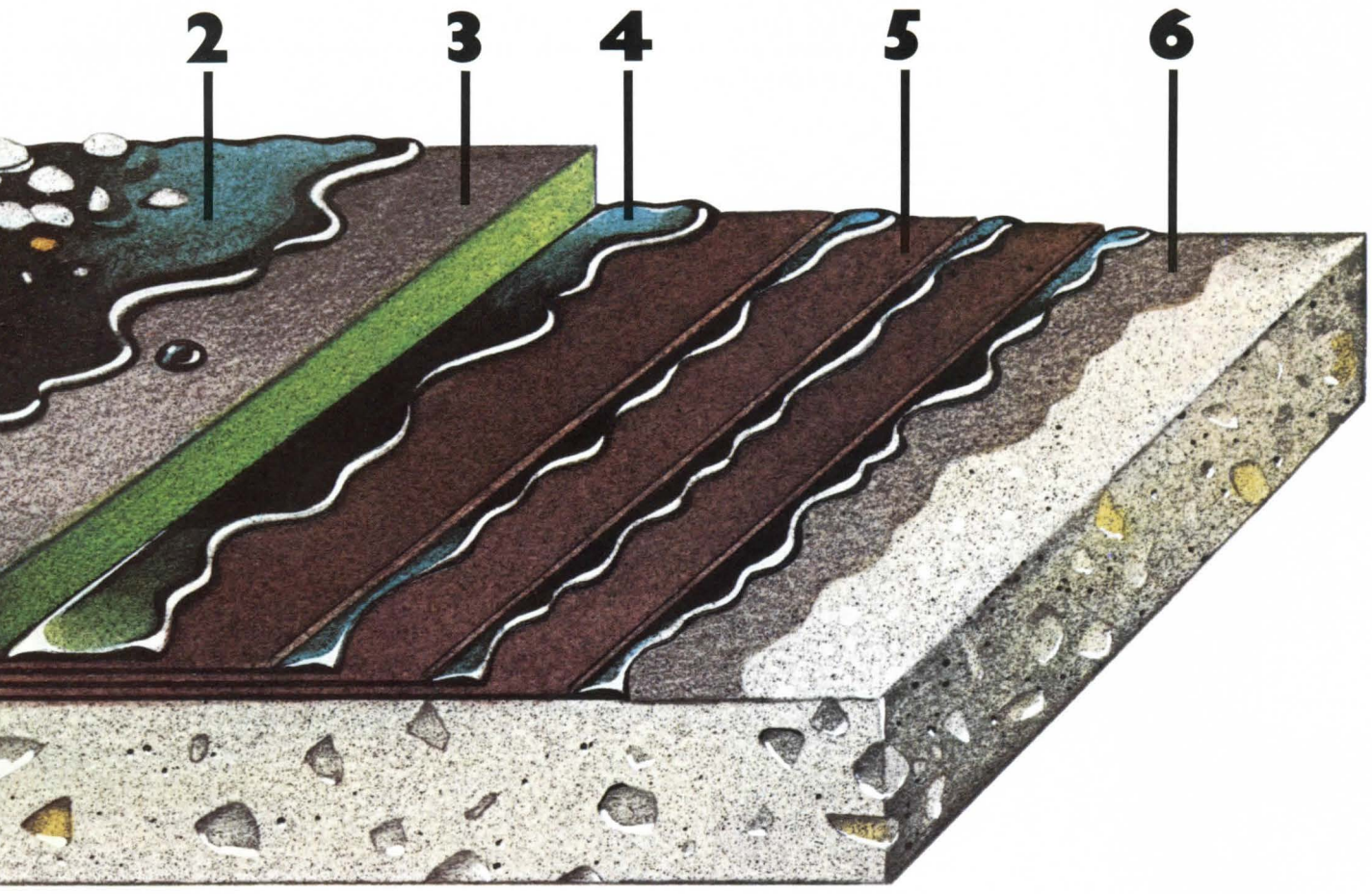

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BUILDING TYPES STUDY 500

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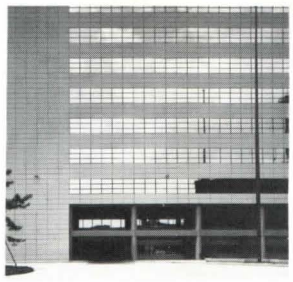

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Tokyo, Japan
Architects: Cesar Pelli of Gruen Associates
Photographer: Mitsuo Matsuoka

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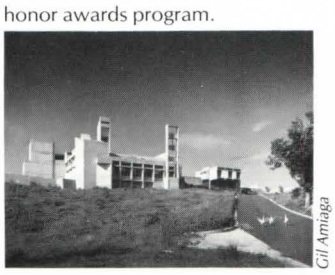

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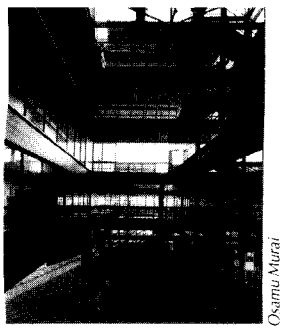
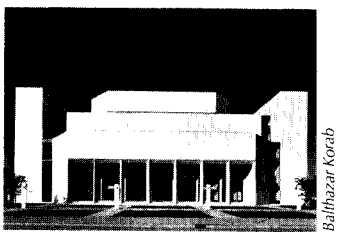


Osamu Murai

BUILDING TYPES STUDY 500



Balthazar Korab

ARCHITECTURAL ENGINEERING

NEXT MONTH IN RECORD

Building Types Study: Housing the Aging

A new examination of the ways in which older persons are housed is inevitable with the coming growth of such facilities—ranging from special apartments to medical facilities for advanced deterioration. Examples will include:
1. The Hebrew Home for the Aged, New York City, by architects Gruzen & Partners.
2. The Givens Estate, Ashville, North Carolina, by architect William Morgan.
3. The Florida Christian Home, Jacksonville, Florida, by architects Freedman/Clements/Rumpel.
4. Monument East Housing, Baltimore, Maryland, by architects Conklin & Rossant.
5. Grundy Tower, Bristol, Pennsylvania, by architect Louis Sauer.
6. The CABS Nursing Home, New York City, by architect William Morgan.

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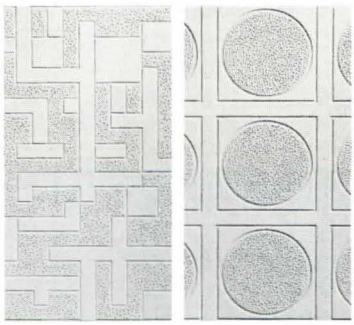
The new members of the Registron family are known as Textured Squares (above), Grid Shapes, and Circles 'n Squares (below). All, of course, are acoustically efficient. And all are made by a newly developed manufacturing technique that not only carefully registers the embossed design but also conceals the acoustical perforations in the textured surface areas.



Registron from Armstrong. A neat job of camouflage that turns the ordinary lay-in ceiling into an extraordinary monolithic beauty. To learn more, write Armstrong, 4205 Rock St., Lancaster, Pa. 17604.

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FROM THE INDOOR WORLD® OF Armstrong

A new start for housing: what we need most are new approaches

This year is a new start for housing in many ways: First of all, the numbers are big and growing. In his forecast for 1977, issued in October, George Christie of the McGraw-Hill Information Systems Company was predicting a total for 1977 of 1.65 million starts—just over a million single-family houses and a 50 per cent increase in apartment-unit starts to 600,000. Now, only four months later, the first update of the 1977 Dodge/Sweet's Construction Outlook says that "Since October, the "standard" forecast [that is, based on Commerce Department figures, which run slightly higher than Dodge figures because of definitional differences] of housing starts has escalated from 1.7 million units to 1.8 million. One reason: the seasonally adjusted rate of housing starts actually averaged 1.8 million during the final quarter of 1976. Commerce's "U.S. Industrial Outlook" is even more optimistic: It predicts a 17 per cent increase in private residential construction for this year. And the homebuilders clearly believe it: They came to the NAHB Convention in a mood of "maybe another *good* year." But as they exchanged information and listened to the presentations, they left with visions of "maybe even 1.9" dancing in their heads.

Another reason this year for a new start is, of course, the new Administration. As reported in News Reports (page 34), the initial criticism of the new HUD Secretary Patricia Harris seems to be softening in the face of her initial appointments to key jobs in HUD, and her fast action in proposing effective stimulants for housing. Her new undersecretaries—Jay Janis and Lawrence Simons—are both experienced builders and developers; and her assistant secretary for community planning and development is well-known for his successful performance as director of Baltimore's Housing Authority. Mrs. Harris has received early good reviews for pushing Congress hard for an increased half-billion dollars for community block grant programs, mostly to stimulate private investment (smart multiplication!) in the neediest central cities. Additionally, she is pushing hard for enough budget to increase the number of directly subsidized housing units by 70 per cent—from 235,000 to 400,000; a significant part of the hoped-for starts total.

All of these changes—a growing starts total and the first steps of a new HUD secretary—take place in the midst of important changes in the make-up of the housing market. Just released is a new study by the prestigious Joint Center for Urban Studies of M.I.T. and Harvard University. The report—*The Nation's Housing, 1975 to 1985*—while it predicts a slowing down of the demand for new housing sometime in the 1980s (because of slowing family formations) points to a great many real and present pressures:

- The near-record number of single-family starts now being built does not meet the needs of average families, but reflects the unprecedented numbers of young people looking for new homes. Unhappily, only 27 per cent of American families can afford to buy the median-priced new house; whereas in 1970, almost half of American families could afford to buy the then-median-priced new house. Further, sales prices of new single-family housing have climbed twice as fast as family incomes from 1970 to 1976; and the monthly costs of home ownership have increased even faster.
- The picture is not much better for older houses—in 1970, 45 per cent of families could afford to buy a median-priced existing house. Today the figure is down to 36 per cent.
- The report predicts that to meet the demand of new family formations and to replace obsolete housing, 20.2 to 22.6 million units will be required during the next 10 years. That means a *demand* for 2 million starts a year; far above even optimistic estimates.
- The supply of smaller rental units is falling just when the population demographics predict that more of them will be needed.
- And perhaps most importantly, the report shows that not only are people migrating in large numbers to the Sunbelt, but the growth of smaller cities and non-urban areas—South *and* North—has been almost as remarkable.

What does this suggest in terms of strategies? Clearly we must keep the pressure on for higher production—since even the builders' dream of 1.9 million starts is not enough. And even a faster-growing *quantity* of housing would be no reason for complacency; since much of that housing is clearly too expensive and/or in the wrong locations (that is, it is mostly in the upper-income suburbs whereas the biggest need is in the central cities and the smaller non-metropolitan areas).

There seems little doubt that the question of "steering" housing production to the cities and the non-met areas is possible by applying strong enough incentives—after all, Federal policy after World War II moved a whole generation to the suburbs. Mrs. Harris' community block grant programs are a clear strong step in that direction, since they can be applied not just to New Yorks and Detroits but to smaller cities like Bridgeport, Connecticut, Corning, New York, and Dayton, Ohio (RECORD, December 1975—"The Home Towns Come Back").

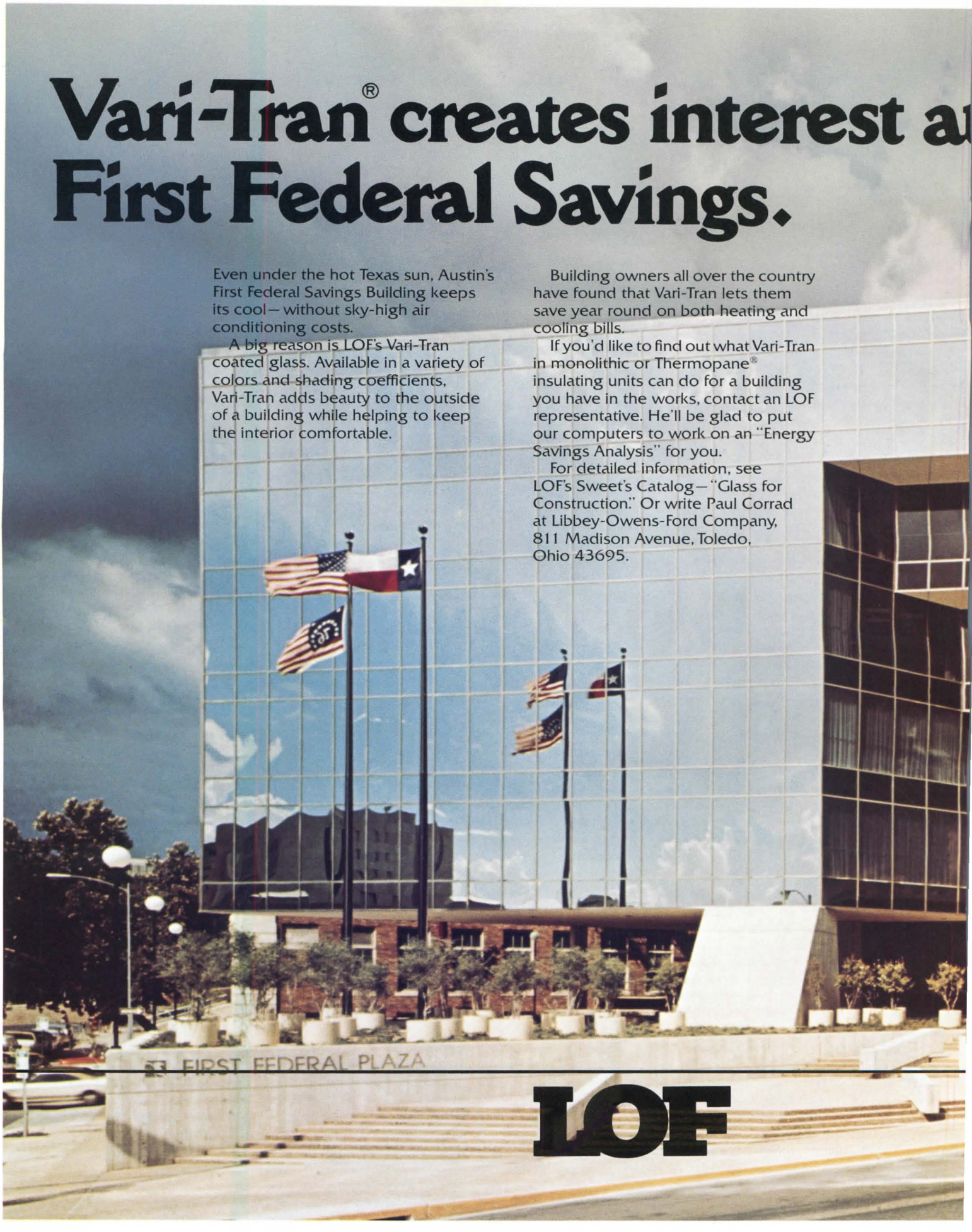
Lowering the cost is, of course, a tougher question. A lot of techniques have been tried for a lot of years without notable success—and there have been some notable and expensive failures like Operation Breakthrough. If I were a brand-new HUD official, I wouldn't put much hope in some new gee-whiz technology. And I wouldn't spend much time looking for villains—like too-high labor costs or too-high material costs or too-high land costs. Those costs seem to be facts of life, and at any rate almost impossible to control. Large-lot zoning is another favorite whipping boy—but my guess is that if zoning was downgraded in the "villain" towns, the builders would not reduce their prices but instead would simply build twice as many too-high-priced houses.

The best hope, I would think, lies in recycling—for both the cities and the suburbs. I don't think we've studied nearly hard enough the possibility that the abandoned and substandard housing that abounds near the core of almost every city could be recycled into valuable new housing. A huge commercial market is building around the rehabilitation for new use of structurally sound but dilapidated older buildings; how about some incentives to encourage similar rehabilitation of brownstones and tenements and sound frame houses? Good architects have already shown that pleasant and workable floor plans can be worked into even tenement buildings. Many are sound structurally. What needs to be done is to replace their mechanical systems, plumbing and wiring up to standard—and from there it is a fix-up problem. Costs might even be reduced by offering these units at a rental or sales price that envisions a little self-help—there are few families that cannot undertake a little painting.

Similarly, most smaller cities and towns abound in still-sound if dilapidated housing—Victorian or Carpenter Gothic. As our December article on Bridgeport pointed out, that city has hundreds of "fixable" houses available from the city or absentee landlords for prices like $12,000. Assuming repair costs of $8,000 to $10,000, they can still be sold far below the market—and with subsidy even low-income families can be moved in.

If I were a brand-new HUD official, that's one of the things I would try . . . and start applying some strong sticks or carrots.

—*Walter F. Wagner Jr.*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FIRST FEDERAL PLAZA
LOF

Britain's Royal Gold Medal for Architecture 1977 is to be awarded to Sir Denys Lasdun, architect of London's new National Theatre. The RIBA's citation says that Sir Denys Lasdun has created a body of work which has rightly earned him both national and international praise and respect. It concludes: "At a time when we are right to encourage the virtues of preservation and gentle renewal, we are right too to recognize that we need artists who give us new things to enjoy. Of such artists, Lasdun is one of the distinguished few."

Severe weather slowed January construction holding the month's total of newly contracted construction to $6,747,-895,000, a narrow three per cent gain over the same month a year earlier, according to the F. W. Dodge Division of McGraw-Hill Information Systems Company. Unusual cold may have caused the delay of as much as 10 per cent of the month's potential new construction, but most of that shortfall will be made up in the near future, observes Dodge economist George A. Christie. Nonresidential buildings were up two per cent from the year-ago month. A very low rate of industrial building was counterbalanced by a good gain in contracting for offices, stores, and other commercial buildings. Residential building value was ahead of last year's January total by 35 per cent.

The American Institute of Architects has named eleven distinguished foreign architects as Honorary Fellows of the Institute: Joao Batista Vilanova Artigas, Brazil; Charles H. Cullum, Canada; Antonio Fuentes Flores, Mexico; Ernest Groosman, The Netherlands; Jose Maria Gutierrez Trujillo, Mexico; Ignacio Machorro Delmonte, Mexico; Georges-Henri Pingusson, France; Maria V. Prus and Victor Prus, Canada; Manuel Rosen Morrison, Mexico, and Lennart Uhlin, Sweden.

Housing Secretary Patricia Harris names builders and developers to three top jobs at HUD and seeks increase in budget authority for community block-grant programs. Details on page 34.

The GSA will test a new architect-engineer selection process that calls for the preparation of cenceptual designs by three or more firms. Details on page 34.

Strong support for traditional A-E selection methods by heads of the Federal government's main construction buying agencies was indicated at recent COFPAES meeting. More details on COFPAES on pages 34 and 75.

The Producers' Council announces the Second Annual Building and Construction Exposition and Conference (BCEC) to be held November 1-3, 1977 at McCormick Place, Chicago. BCEC is planned to bring together the cross disciplines of building construction as a trade exposition and conference for the total industry. For more information contact: BCEC, The Charles Snitow Organization, 331 Madison Avenue, New York, New York 10017.

The American Institute of Steel Construction has announced its 1977 Architectural Awards of Excellence Competition to encourage the creative use of structural steel in building construction. To be eligible, a building must be located in the United States, framed with domestically produced and fabricated steel and completed during 1975 and 1976. Submissions must be postmarked prior to May 31, 1977. Details of the competition may be obtained from the American Institute of Steel Construction, 1221 Avenue of the Americas, New York, New York 10020.

A national symposium entitled "Challenges and Opportunities in the Mature Metropolis" will be held in St. Louis, June 6-8, 1977. The Institute for Urban and Regional Studies at Washington University, under a grant from Mercantile Bancorporation Inc. has commissioned 13 essays from 16 leading urban authorities that will explore the challenges and opportunities in the mature metropolis. For further information contact Carol Martin, Special Projects Coordinator at the Institute (St. Louis, Missouri 63130).

The Department of Health Facilities and Standards of the American Hospital Association will be presenting an educational program entitled "Institute on Hospital Interior Space Design" on May 5-6, 1977, at AHA Headquarters in Chicago. For additional information contact: Yoko Betty Kojima, Staff Associate, Department of Health Facilities and Standards, American Hospital Association, 840 North Lake Shore Drive, Chicago, Illinois 60611.

A/E firms experienced in fire or police station design and interested in being considered for subcontracts to develop prototypical seismic design solutions for a current earthquake research project should send their names to Earle Kennett, AIA Research Corporation, 1735 New York Avenue, N.W., Washington, D.C. 20006. Deadline is May 15.

How to deal with construction litigation will be explored during an American Bar Association educational meeting in Chicago April 29-30, sponsored by the ABA's Forum Committee on the Construction Industry. The program will focus on arbitration, contractor-subcontractor problems, double breasting, joint venture agreements, construction management agreements and estate planning. Cost of the two-day program is $115 for committee members and $140 for others. For further information contact Norman E. Nelson, Forum Committee on the Construction Industry, American Bar Association, 1155 E. 60th St., Chicago, Ill. 60637.

Secretary Harris picks top aids, seeks more housing funds

Housing Secretary Patricia Harris, whose appointment was roundly criticized by homebuilders and mayors on grounds that she lacked housing expertise, is beginning to win some applause. The critics are heartened in part because she has picked two builders and an outstanding city development official for top jobs at the Department of Housing and Urban Development. In addition, she proposes additional stimulants for housing and a new "urban development action grant" to help distressed cities with neighborhood preservation and economic revitalization programs.

Mrs. Harris's selections as top aides at HUD include:

- Jay Janis as undersecretary. The first builder to hold this post, Mr. Janis was a leading Miami area builder-developer before selling his firm to take a management job at the University of Massachusetts. He was an assistant to the first HUD secretary, Robert Weaver, and more recently a housing adviser to Florida Governor Reuben Askew. He has also served as a land-use expert for the National Association of Home Builders.
- Lawrence Simons as Assistant Secretary of Housing and the man in charge of the Federal Housing Administration and housing subsidy programs. Mr. Simons is head of his own building firm, LBS Construction Co. of New York City. He has been a land developer as well as a builder of houses, apartments and commercial buildings.
- Robert Embrey, Jr., as Assistant Secretary for Community Planning and Development, and the official who oversees these activities. As director of Baltimore's Housing Authority, Mr. Embrey has been in the national spotlight for his successful inner-city developments—notably Charles Center—and other neighborhood revival projects.

These three officials will be responsible for most of HUD's programs and for practically all of its multi-million-dollar budget. It is clear from the revisions in the Ford Administration budget that the Carter Administration has proposed to Congress that Mrs. Harris will focus mainly on city problems, block-grant programs, housing assistance plans and the new action-grant program.

She seeks an increase of $500 million in budget authority for community block-grant programs in the fiscal year starting October 1. Of this increase, $400 million would fund the urban development action-grant program, which Mrs. Harris says is designed to stimulate private investment in the neediest central cities, either to boost employment and housing, or to keep private employers from moving to the suburbs.

Republicans and some Democrats question whether this would not be another categorical grant of the kind supposedly replaced by the Nixon and Ford Administrations' block grants. Under categorical grants, the Federal government played a dominant role in determining what projects received Federal money. Under the current program of block grants, cities have far more freedom in deciding how Federal urban funds will be spent.

Rep. Gary Brown (R-Mich.) asked Mrs. Harris during a Housing Subcommittee hearing whether HUD would return to the era of "second-guessing" local officials on how they spend their Federal grants. Mrs. Harris said the "action grant" would not mean a return to the old urban renewal program. But some Congressmen obviously fear a rebirth of old-style Democratic "grantsmanship," when the skilled lobbying of cities such as New Haven, Chicago, Philadelphia, Boston and the like made them the outstanding beneficiaries of the categorical grants in the Kennedy-Johnson years.

Under the Harris budget, the number of additional subsidized units to receive Federal funds in 1977 will increase from 235,000 to 400,000. In addition, legislation will be proposed to allow an increase from 20 to 30 years in the subsidy contract terms for newly constructed subsidized housing that is not Federally insured or financed. This is intended to encourage greater involvement by private-sector lenders in financing subsidized housing.—*Donald Loomis, World News, Washington.*

GSA to test new A-E selection process on post office rehab

The General Services Administration will test a new architect-engineer selection process that calls for the preparation of conceptual designs by three or more firms. The firms selected for the designs will be paid a set amount for their effort whether or not they are ultimately chosen for the complete design work and all subsequent architectural and engineering services.

The first project to use what the agency calls "Level Three' selection is the renovation of the Old Post Office Building on Washington, D.C.'s, Pennsylvania Avenue. The construction work—mainly electrical and mechanical—is expected to cost $18 million to $20 million.

Nicholas Panuzio, Commissioner of Public Buildings at GSA, said the Old Post Office was chosen as the site to test the new selection concept because of its historic significance and location. Some design groups, however, say the experimental selection procedure should be tried in a building where architectural and engineering innovations are sought. Electrical and mechanical renovations do not offer much of a challenge, the objectors say, and minimal creative design.—*William Hickman, World News, Washington.*

COFPAES meeting indicates support to retain Brooks law

There was good news and bad news for architects and engineers attending a recent meeting in New Orleans of the Committee on Federal Procurement of Architect-Engineer Services (COFPAES).

The good news was that the heads of the Federal government's main construction buying agencies still strongly support the traditional A-E selection method, which relies primarily on qualifications rather than priced bids.

The bad news was that the American Bar Association, with Justice Department financial assistance, will soon try to persuade state and local governments to negotiate a fee prior to A-E selection unless the project is considered "significantly complex."

Despite this bad news, the two-day meeting, attended by 600 designers and by administrators of Federal agencies buying their services, was for the most part upbeat. The Federal officials generally reported brightening economic signs and heavier buying by their agencies. The agency officials, in "across the table" sessions, explained complex regulations and expected project openings.

The designers particularly took heart in the agency officials' public announcements in support of retaining the Brooks Law on A-E selection. "Cost as a selection criterion is wrong," said Public Buildings Commissioner Nicholas Panuzio. "In the long run, it is going to cost us [the government] a lot of money."

This sentiment was echoed by a number of other speakers, and A.C. Maevis, Assistant Postmaster General for Real Estate and Buildings, urged the designers to mobilize a lobbying effort to defeat anti-Brooks Law legislation, which is expected this year. "You must present a united front to prevent price competition from becoming the law of the land," Mr. Maevis said.

It was against this background that the ABA dropped its bombshell—a proposal rising out of the Bar Association's Model Procurement Code Project. This project was instigated a couple of years ago under a grant from the Justice Department's Law Enforcement Assistance Administration, which asked that ABA draft a code covering a broad area of government procurement practices.

Explaining the proposed A-E services procurement code, F. Trowbridge vom Baur, chairman of the project's Coordination Committee, said that, for a routine project, designers should be selected after the procurement official has negotiated a fee with all firms considered qualified for the work—a system the professional societies think will lead to price becoming the dominant factor in the design decision.

Mr. vom Baur said he devised the system as an alternative to bridge the middle ground between two other processes suggested in the project's initial report. This middle-ground alternative will be included in the next, and probably final, report, which is due in May.

The two A-E selection methods included in ABA's first report are: (1) the traditional, industry-favored method, under which the procurement official negotiates a "fair and reasonable" fee with the single most qualified firm and rejects this firm only if a fee agreement cannot be reached, and (2) price negotiations by the procurement official with "all highly qualified" bidders—a method most design groups oppose on the grounds that it puts too much emphasis on price rather than quality.

Under Mr. vom Baur's third alternative, the first approach would be followed on "significantly complex" proposals and the second would be used on the remainder. He said it would not be difficult to assess a project's complexity. "A warehouse or adaptation of a school plan for a new site would obviously not be complex," he told the COLPAES audience of designers.

Several immediately disagreed. Walter A. Meisen, vice president of Daniel, Mann, Johnson, & Mendenhall and a former Commissioner of Public Buildings, said it would indeed be difficult to determine complexity before designers begin their work. William A. Clevenger, president-elect of the American Consulting Engineers Council, made it clear that he too opposes Mr. vom Baur's new proposal, but he said it would be preferable to ABA's second proposal, calling for price negotiations with all top-ranked firms.

Justice recently gave LEAA a supplemental grant to "implement" the suggested code.—*William Hickman.*

Union refusal to install prefab units ruled illegal

In a decision that pleased architects and engineers, the Supreme Court has increased the authority of architects, owners and general contractors over the use of prefabricated components and sub-systems, and diminished the power of labor unions with contracts containing work-preservation clauses to refuse to use pre-assembled products. The decision thus narrows a 1967 ruling that authorized strikes based on work-preservation clauses.

The new decision gives its clearest protection to subcontractors who are instructed by primes to use factory-built materials.

Unions have the right to negotiate collective bargaining agreements that spell out what work they will do at the job site, and that deny those tasks to non-members. The ticklish question comes up when efforts to enforce those contract terms lead to pressuring not the unionized workers' employer, but some other company—that can turn a strike into an illegal secondary boycott.

The case before the Court involved a home for the aged in New York, where the Austin Co., Inc., which was both general contractor

and engineer on the project, stipulated in its hvac subcontract that the job would incorporate hvac equipment with factory-fitted internal piping. When the units arrived at the site, pipefitters working for Hudik-Ross Co., the sub, refused to install them, citing the clause in their contract giving them exclusive control of pipe cutting, threading, and installation.

The National Labor Relations Board, and the High Court, labeled such refusal illegal. The key point: Hudik-Ross did not make the decision to use prefab units, and had no power to change the decision. That meant, said the Justices, that the real target of the job action was Austin, which had no contractual relationship with the pipefitters.—*Dan Moskowitz/William Hickman, World News, Washington.*

Carter to encourage energy conservation in buildings

President Carter's forthcoming message to Congress on energy policy will place a heavy stress on energy conservation, particularly in buildings. The President foreshadowed this emphasis when he asked Congress recently for a substantial increase in energy conservation funds beyond the amounts proposed by former President Ford in January.

The budget revisions he seeks would affect funding to carry out the Energy Conservation and Production Act approved by Congress last August. The Ford Administration had budgeted only limited funds for this, and the American Institute of Architects, among others, had pushed for more money to get the new program moving.

Mr. Carter seeks initial funding for what is eventually to become a $2-billion Federal loan-guarantee program to encourage energy conservation in buildings. He would allot $900,000 to start the program in the current fiscal year and an additional $20 million for the fiscal year starting October 1.

He is asking Congress for $55 million in the current year and $65 million in the coming fiscal year in Federal grants to help low-income families insulate homes. The Ford Administration had wanted to limit spending to $55 million in the new year.

Mr. Carter also proposed $12 million in the current year and double that amount in the new year to help the states promote energy conservation. And he has endorsed Ford Administration plans to spend $5 million this fiscal year and $10 million in the next on preparing energy performance standards for new buildings.

The job of setting performance standards now rests with the Department of Housing and Urban Development. But the President plans to shift it to the new Department of Energy he intends to create. That department would absorb a number of energy agencies that now operate separately. —*Herbert Cheshire, World News, Washington.*

Laura Rosen, photos except noted

New York City's proposed designation of historic district brings fiery debate—and uncertainty

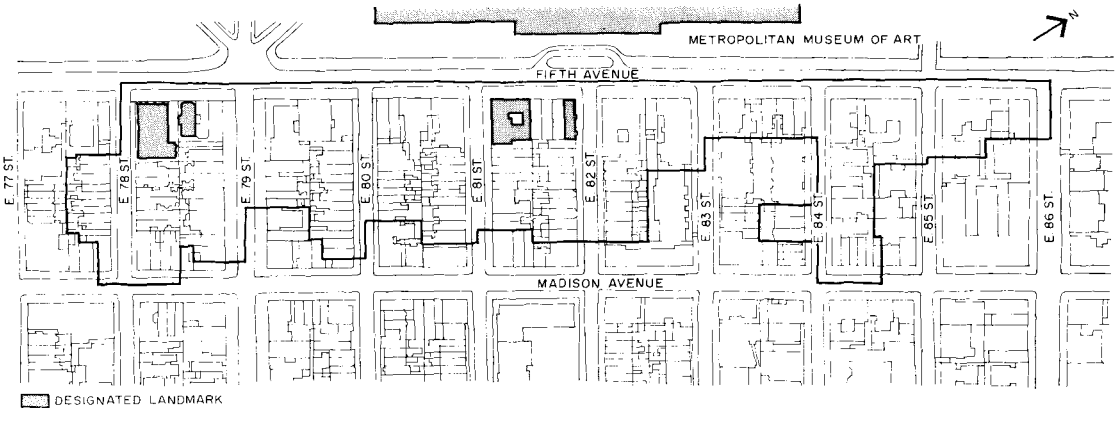
Charles Hoyt

Although supported by elected officials, local residents, and many civic and professional organizations (including the A.I.A.), a designation that would impose restrictions on future alterations to an area along Central Park, near the Metropolitan Museum, has drawn strong opposition from owners and speculators. Unquestionably one of the most important assemblages of turn-of-the-century domestic architecture in the world (once housing *the* greatest concentration of personal wealth), the area forms as a whole a brilliant display of "palaces" by many preeminent architects including McKim, Mead & White and Carrere and Hastings. Particularly contested is the most-intact and therefore most important block of all between 78th and 79th Streets—which contains such buildings as the James Biddle Duke house (bottom photo).

At a recent hearing, lawyers hotly argued architectural merits, while owners in a new cooperative apartment denounced *their own* building's role in destroying the neighborhood's integrity. According to testimony by the A.I.A.: "Our endorsement of the creation of this historic district is based not only on the over-all quality of the architecture but also on the social and economic dynamics which helped shape the area and which exemplified the best our society could then offer."

The move to designate was accelerated by a developer's proposal to build an apartment building of about thirty stories directly in front of the Metropolitan (to the right in the photo from the entrance steps, above). The area has been largely cleared except for the corner house. In a move which should emphasize the importance of retaining the right architect to begin with, a community group has gained a judgment in court to ask the developer to cooperate in a redesign of the proposed apartment's facade, which whould help its appearance—if not the bulk's intrusion on the carefully scaled forecourt of the Museum and the neighborhood.

In a simultaneous move, the City has proposed landmark designation for the former William K. Vanderbilt house farther down Fifth Avenue (to the right in the center photo). At the hearing, an unusual supporting resolution by the full Executive Committee of the New York Chapter of the AIA was read. The designation is meant to counter a proposed new facade by the current tenants, Olympic Airlines.—*C.K.H.*



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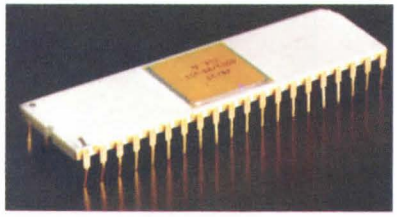

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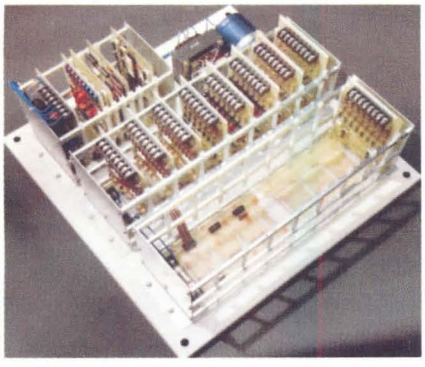

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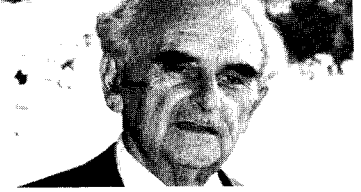

The AIA Gold Medal goes to Neutra

At last, the last of many honors has come to Richard J. Neutra, who died in 1970 at the age of 78. The Gold Medal of the American Institute of Architects, which he frankly craved, will be presented during the organization's June convention in San Diego, and many believe that Neutra was being atypically modest in his recurrent assertion that he should have gotten it much sooner.

Born in Austria, Neutra grew up amid the *Wagnerschule* atmosphere and had a stylistic switch taken to him by his mentor, Adolph Loos, who said things like "ornament is crime." After a stint with Eric Mendelsohn in Berlin, and inspired by news from Wagner-trained Rudolph Schindler working in Los Angeles Neutra came to the U.S. in 1923, when he was 31. Like Schindler (who came in 1914) and Mendelsohn (who came later on), Neutra was impelled by the example of Frank Lloyd Wright. So after working briefly in New York and Chicago, he landed at Taliesin, in 1924.

In 1926, while Wright was working at Ocatillo on the never-built San Marcos in the Desert, a resort for "tired or re-tired millionaires," Neutra decided to move on to Los Angeles, where the millionaires were as varied as the microclimates. He moved in with the Schindlers for a time, forming a short-lived, troubled partnership that lasted until the late 1920s, during which they submitted a design for the League of Nations Building which should have been taken at *least* as seriously as Le Corbusier's entry.

One reason for the falling out is that Neutra's developing design direction *seemed* to fall in with something called the International Style. Another reason—and, for Schindler, a more grating one—is that the vehicle for this alignment was Neutra's so-called Health House of 1929 for Dr. Phillip Lovell, a health enthusiast and newspaper columnist.

The fact is that Schindler, who had done a beach house for the good doctor, was working on plans for the steep, richly landscaped Griffith Park site when, suddenly, Lovell gave the job to Neutra. The Health House, with its spartan steel framing, prefab panels, and suspended balconies, gave Neutra immediate fame because it *looked* so much in keeping with what Gropius and Corbu had been doing or, when not doing, preaching. Furthermore, the Health House was included in the Museum of Modern Art's 1932 show, "The International Style," organized by Philip Johnson and Russell Hitchcock, whereas Schindler's beach house, which satisfied the theoretical propositions but not technical predilections of the International Style, was not included.

That Neutra got into the exhibit forces the issue as to whether or not he really was an International Style architect. As of 1929, purely formal characteristics might have suggested it. Actually Neutra was light years away from the Bauhaus preachers, and by 1933, with the completion of his own residence, called the Research House, on Silver Lake, he was well on his way to congealing a philosophy of architectural design that was rooted more in the realities of environment, human behavior, and their interaction than in a liturgy about rationalism, standardization, and the new esthetic order.

Neutra came to call this approach "biorealism," and, by way of it, he was assimilating a set of influences quite remote from what the European *avant garde* was doing by this time. The ebullience of the modernist revolution in Vienna (as personified by Wagner) and its refinement (as personified by Loos) were evident. If Neutra had learned to design his way clear of stylistic sentimentality, he had also learned the value of true sentiment—the realities of human nature and emotion and image—leaving room for them. If he was attentive to the new materials and methods made available by advancing research and industry, he was also attentive to the qualities of climate and landscape. On the level of what structures and spaces can do for human beings, then, and on the level of how architecture can evoke the character of a site and region, Neutra's "biorealism" is a lot closer to what Wright said architecture should be about than, say, what Gropius said it should be about.

In helping to evolve what became known as the Southern California Style, and at times seeming to have been eclipsed by the region-full of talent that he inspired from the 1930s on, Neutra, who built 100 buildings and wrote nine books (*Survival Through Design*, published in 1954 is more pertinent now than ever), represents a poignant, underappreciated, and still instructive phase of architecture's development in this century. His message, and he often seemed arrogant and aggravating in pushing himself on any audience he could find to get it across, is that behavioral and environmental perceptions are more basic to a rational architecture than a theoretical based solely upon the conventions of technology. The International Style might have been truly international had that elemental, encompassing idea not been given such a cold shoulder, for so long, by the keepers of modernism's flame. The fact that it is flickering now may be a logical explanation of why the AIA Gold Medal is finally going to Richard J. Neutra. —*William Marlin*

sity urban planning experts—led by Maurice Kilbridge, Dean of the Graduate School of Design—to conduct a colloquium with officials in Mexico City on urban development problems. The paper that Dean Kilbridge presented on how to cope with housing for the rapid growth in urban population—the critical problem being experienced in many, if not most, developing countries—contains so much thoughtful discussion with world-wide relevance, that we are presenting major excerpts in a two-part series beginning here and continued in the May Human Settlements column.

This paper was intended to contribute to the discussions of the Colloquium on Urban Development Problems some thoughts on housing policy options available to planners and other public officials in developing countries. It is a general paper, yet it dwells on those policy issues of particular concern today in Mexico. Urban housing problems vary among developing countries in severity and quality, but rarely in kind and one of the benefits of this Colloquium may be to share the understanding that Mexico is not alone in its troubles. In the discussion that follows I emphasize those invariant issues that demand the attention of all, or practically all, developing countries.

Let me say at the outset that I will concentrate my discussion on housing the urban poor, that is, on the availability of housing that low-income families can afford. This is the heart of the problem.

The urban growth process: What distinguishes the urban growth of developing countries from that of the developed urban world is its scale and intensity. On the average, major cities of the developing world are growing at the rate of 4-5 per cent a year, which doubles their size in about 15 years. The observed average annual urban growth rate for Mexico was 5.9 per cent in the period 1940 to 1950 and 5.4 per cent in the period 1950 to 1970. By contrast, the cities of England and western Europe during their growth period of the industrial revolution grew at the rate of only about ½ per cent a year, a rate that allowed them to expand their infrastructures and house their growing populations gradually and more or less satisfactorily. Looking back to that period of city growth for analogies helpful in the development of policy has proved quite fruitless.

The scale of urban needs is such that even if the entire net savings (internally generated investment capital) of the poor countries were devoted to urban structures and services it would be inadequate to meet the need. And the developing countries have not given urban investment a high priority, usually on the ground that it allegedly

And just as in the United States municipal revenues are inadequate for municipal needs, New York City being a current example, so they are in developing countries—only the short fall in developing countries is much greater. Cities in the United States, for example, draw 50-85 per cent of their revenues from taxes on the value of land and structures. For most cities in developing countries, real estate taxes are much less productive. Either the cities do not have the power to levy such taxes at all, or, as in India, they tax the income or rent rather than value, resulting in, among other ills, areas of undeveloped or underdeveloped land within the city. Other sources of revenue available to the cities are pitifully inadequate.

Efforts to slow the growth of the major cities of the developing world by directly stemming migration generally have not been successful. Only the most draconian methods of residency permits and forced relocations, as used, for example, in the People's Republic of China, have any real effect. Halfhearted methods, such as Indonesia attempted in the "closing" of Jakarta a few years ago, are practically useless. Attempts to divert or indirectly decrease migration by rural or small town development programs have had mixed results, quite frequently counter to intuition and perverse to intention. It seems that the peasant who, by virtue of such programs, has learned to read and has an extra shirt and the bus fare may be most apt to migrate to the city.

Experience tells us there is nothing to be gained by restrictive or repressive measures to prevent this. Such spitting into the wind is senseless and untidy and diverts attention from affirmative action. Learning to live with the inevitable future cities of the developing world will require that we learn first to match expectations to resource availability and that we adjust to a totally new concept of what a city should be. Let me go on in the next part of this paper to describe this concept of the "developing city" and to propose housing policies that follow from it.

The developing city: Although most great cities of the developing world originally were more or less transplanted European cities, attempts to maintain this pattern for the future are inappropriate and bound to fail. As national development progresses, it is becoming increasingly clear that the economic, social and demographic characteristics of these cities are quite different from their European predecessors at the same stage of development, and that these cities must be viewed in a totally new context. All indications are that the cities of the developing world will not follow the historical pattern. For one thing, of

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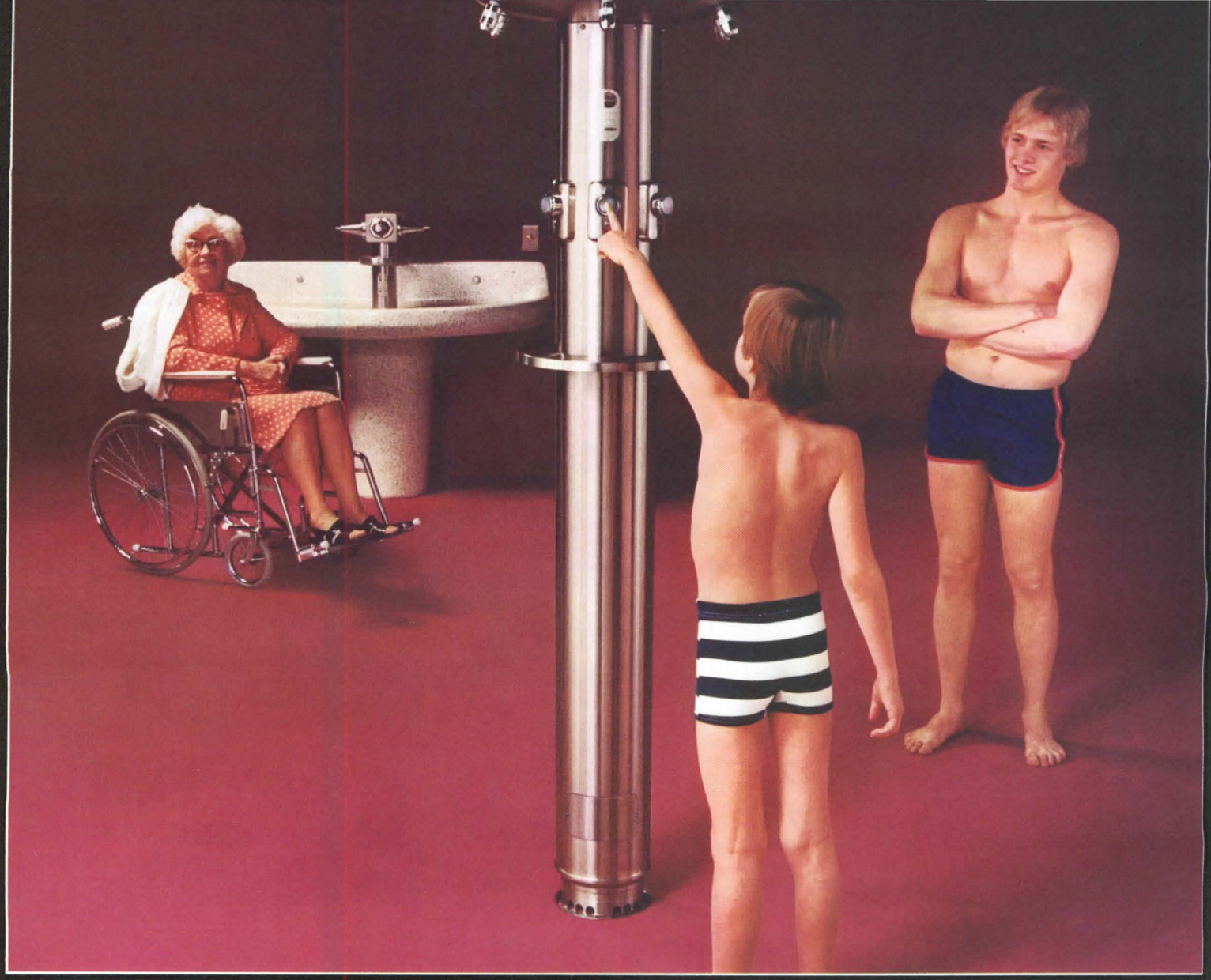

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course, they almost certainly are going to be much larger than the older industrial cities seem destined to become. But, also, important structural differences are increasingly apparent.

The growing cities of the developing world generally are not industrial cities in the sense that manufacturing dominates employment. The percentage of the labor force employed in manufacturing is far lower than in the cities of England and Western Europe during comparable periods of urbanization. In the large cities of the developing world, employment in the informal sector, in the services and non-economic institutions, far outnumbers that in manufacturing.

Socially and demographically these large cities also differ markedly from their European predecessors during their modernization period. For one thing, there is apparently less social change and mobility in these cities than historians tell us occurred in European cities. It is in cities like Calcutta and Jakarta and Mexico City where one really finds the "urban villagers." Bazaar sections, squatter colonies, *bustee* and *kampong* encampments tend to be socially stable communities of considerable durability. To them have been transplanted the village forms of political and social organizations, and in them the village folkways persist. This growing awareness of the intrinsic differences between European cities in their development phase and the developing cities of the third world argues for different standards and modes of urbanization. The Western concept of the modern city with costly infrastructure and impressive buildings is inappropriate and probably unattainable for developing countries. A new order and a new model founded on an assessment of basic needs and potential resources is required. We must start out by discarding false hopes of unrealistically high urbanization standards which cannot be maintained in practice.

We need, in short, a totally new concept, a new model, which I refer to here as that of the "developing city," a city of self-help housing but with a well-planned infrastructure and a rational land-use plan, a dynamic city designed for growth and change, which can with improving circumstances and the eventual fruits of economic development upgrade its housing stock. It is quite possible, although it may require an attitudinal change, to develop infrastructure by stages. The first stage of settlement can be considered transitional, the stage of the controlled encampment, and only sufficient investment made in infrastructure to remove deficiencies—the purpose being to provide an acceptable level of social amentities and sanitary facilities. In this stage, care should be taken to provide the layout for subsequent upgrading to more permanent structures and infrastructure.

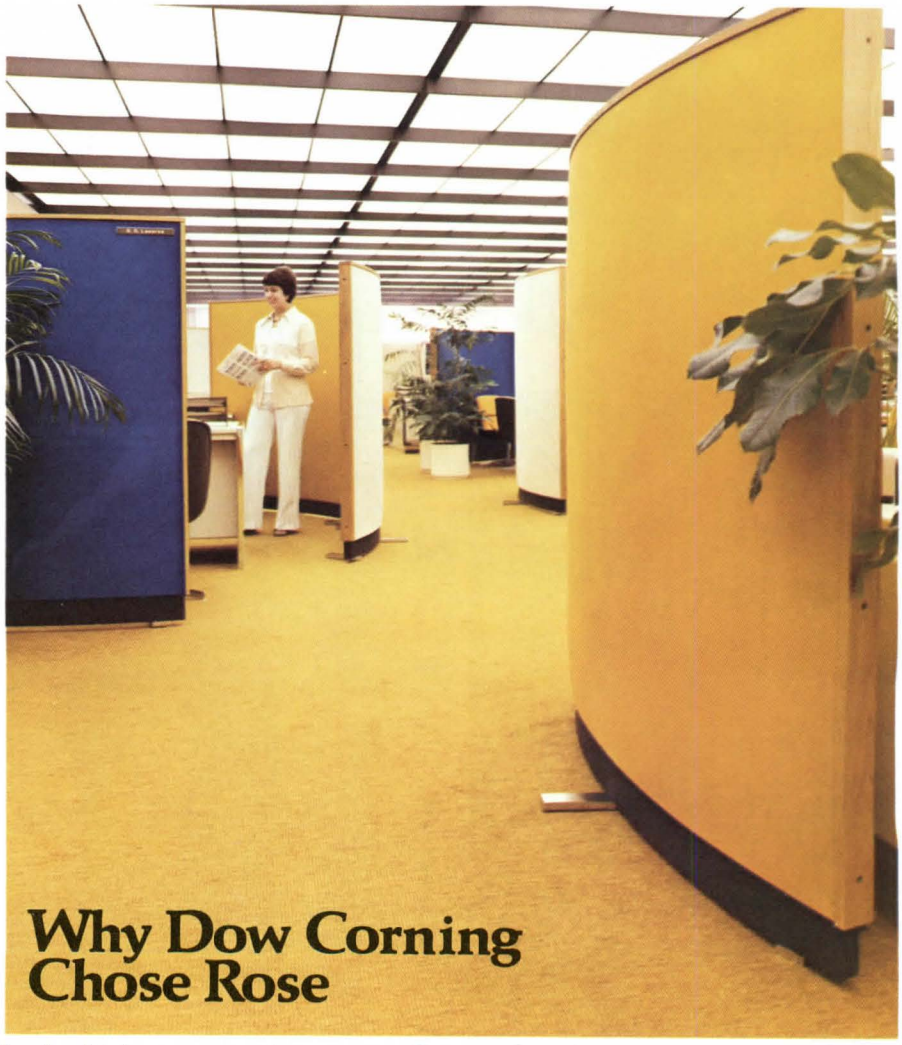
The appropriate infrastructure technology for the controlled encampment stage presumably would be that involving the least capital cost, especially foreign, and the least technical competence, and would result in the greatest flexibility. In the case of water, for example, instead of trying to provide to each house, a tap on each street corner, or even tank truck delivery, may be sufficient. For sanitation, public latrines properly situated and well maintained may be adequate. For transportation, buses provide the greatest flexibility at the least capital cost. For lighting, a single bulb at each compound may be enough.

The developing city is not tidy or visually attractive and contains no new monuments to architects and planners. Too frequently well-meaning government officials project their middle-class values and priorities to the poor and launch housing programs based on these imputed values.

The most common consequence of this mistake is over-priced housing that the poor cannot, or will not, afford. The principal problem of the poor is poverty, and poor housing is only one manifestation of this. High-quality housing usually is not the first priority among the urban poor; food, health services and education for their children tend to rank higher.

As concerns housing itself, it seems obvious from the behavior of the urban poor that minimum cost, proximity to employment, and security of tenure all rank higher than the amount or quality of space. It is unreasonable to expect public policy to induce the poor to spend more for housing than they would normally allocate, left to their own discretion, and furthermore, to subsidize such housing for the poor beyond their own relative ranking of desires is socially inefficient.

A twin danger is that of allowing institutional priorities to supplant the needs and wishes of the poor. This frequently happens in public housing projects which too easily become show places for politicians and bureaucrats, thus raising the cost above what the poor can pay.



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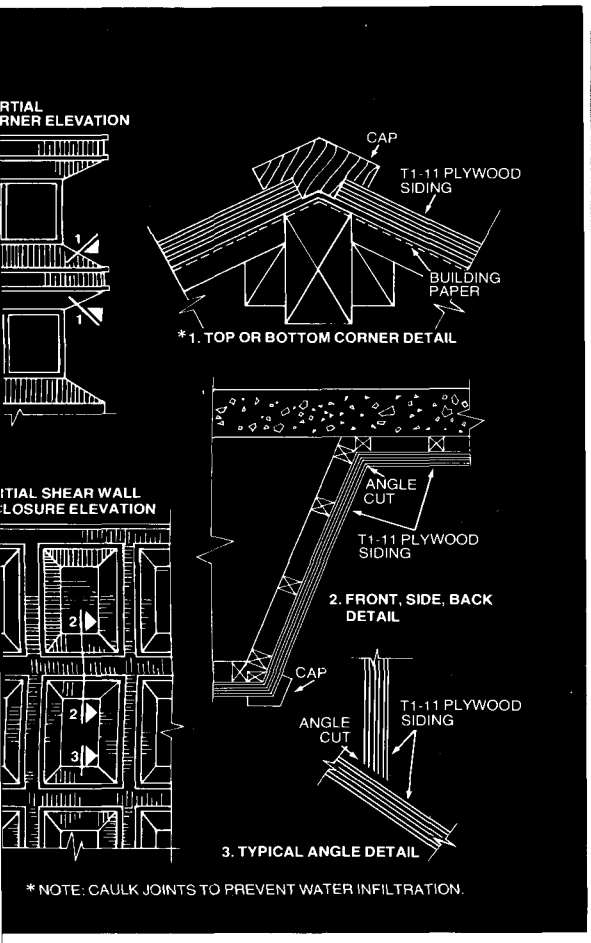

The end of the faceless office building.

Two things are responsible for the unique appearance of this large office building in San Diego, California.

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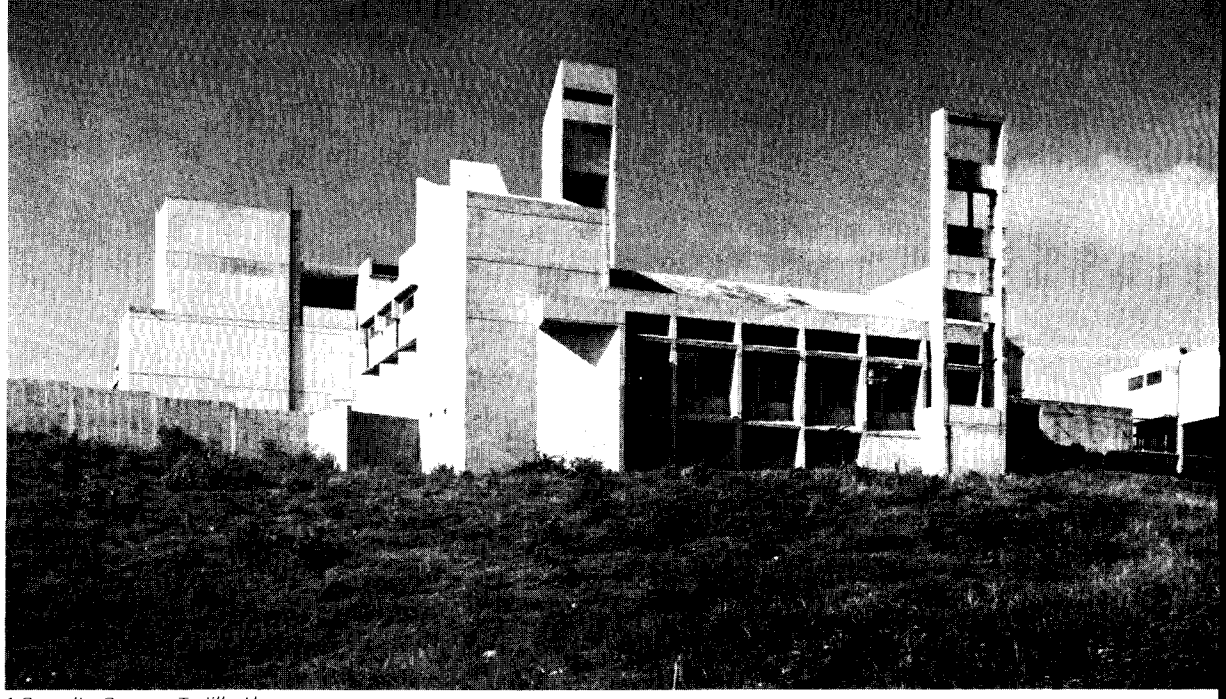
Six winners in new AIA awards program in Puerto Rico

The Puerto Rico Chapter of the American Institute of Architects celebrated its tenth anniversary in initiating an Honor Awards Program. A three-man jury of Max Urbahn, FAIA, past-president of the AIA, Carlos Sanz, FAIA, founding president of the Puerto Rico Chapter, and Horacio Diaz, FAIA, bestowed one First Honor Award and five Citations of Merit selected from more than forty entries of buildings completed during the last decade in Puerto Rico. Participation in the program was open to all architects licensed to practice on the island.

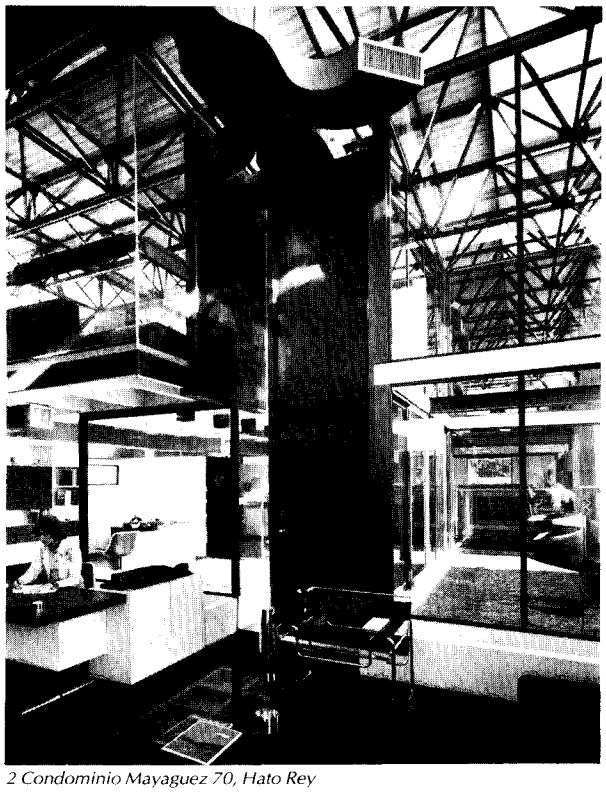
First Honor Award went to: (1) Carmelite Convent, Trujillo Alto, Puerto Rico, by Thomas S. Marvel, AIA.

"A delightful contemporary design," commented the jury, "reminiscent of the hill-borne religious architecture of the 15th and 16th century of Italy. In keeping with the sparse feeling and austere character of the religious commitment of the nuns, the building is beautifully adapted to the landscape with delightful interior and exterior views."

Citations of merit were awarded to: (2) Condominio Mayaguez 70, Hato Rey, P.R., by Vargas & Pina, AIA. (3) Caribe Hilton Tower, San Juan, P.R., by Toro, Ferrer & Associates. (4) Mabok Apartments, Ocean Park, P.R., by Hernandex, Dupuy & Cristofol, Architects. (5) Mayaguez, Senior High School, Mayaguez, P.R., by Jorge Del Rio, AIA. (6) Residence at Beverly Hills, Rio Piedras, P.R., by Angel Caban, AIA.



1 Carmelite Convent, Trujillo Alto



2 Condominio Mayaguez 70, Hato Rey

3 Caribe Hilton Tower, San Juan

Pedro Martinez

5 Mayaguez Senior High School, Mayaguez

6 Residence at Beverly Hills, Rio Piedras

Society of American Registered Architects honors nine firms

Nine architectural firms from across the country were design winners at the recent award competition of the Society of American Registered Architects at their recent convention.

Gold Ribbon First Place Winners:

(1) Hackler/Varner/DMJM for the Peoria County Detention and Work Release Facility—Peoria County, Illinois.

(2) William Dorsky Associates, Inc., Cleveland, Ohio for The Pavilion (enclosed shopping mall).

(3) A. Epstein and Sons, Inc., Chicago, Illinois, for a Carson, Pirie, Scott & Co., department store—Merrillville, Indiana.

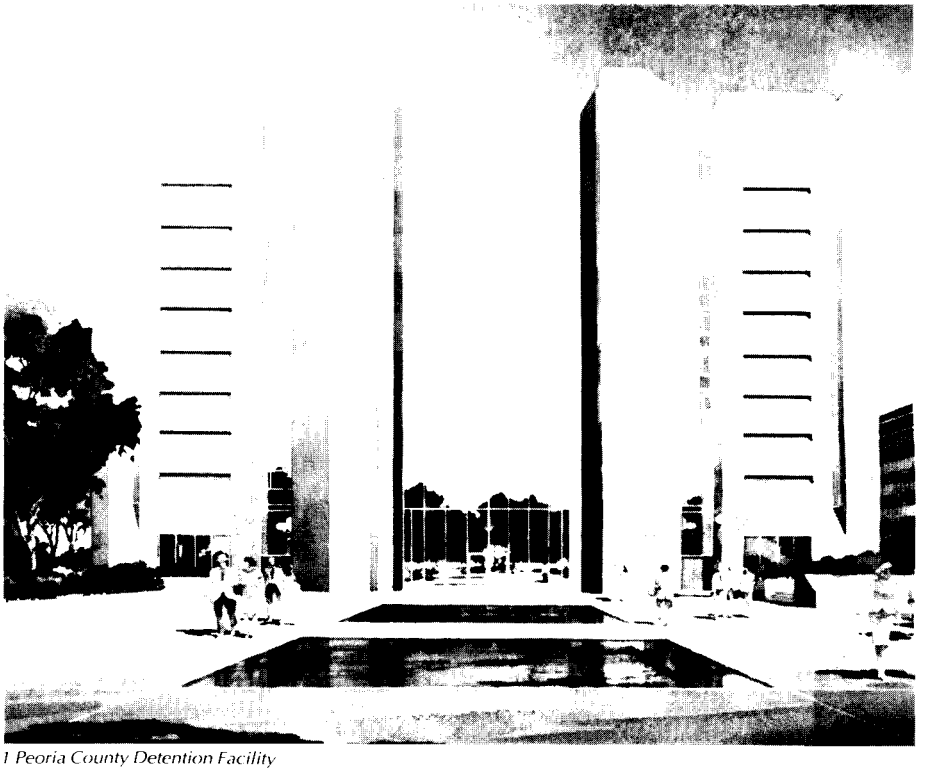
Second Place Winners, Third Place Winners and Honorable Mentions included:

- Daniel E. Adache & Associates, Fort Lauderdale, Florida.
- A. Epstein and Sons, Inc., Chicago, Illinois.
- Ebbe Videriksen, Architect & Associates, Sherman Oaks, California.
- Brim/Braun Associates, Architects, Skokie, Illinois.
- Philippe Register & Associates, Santa Fe, New Mexico.
- Raymond E. Studer—Architect ARA, Canton, Ohio.

The judges were: Bernard Lyon Grishman of Silver Springs, Maryland; Professor Peter Lizon of the University of Tennessee; John Pankovich of Allentown, Pennsylvania and Barry Milowitz of Scarsdale, New York.

Gil Amiaga

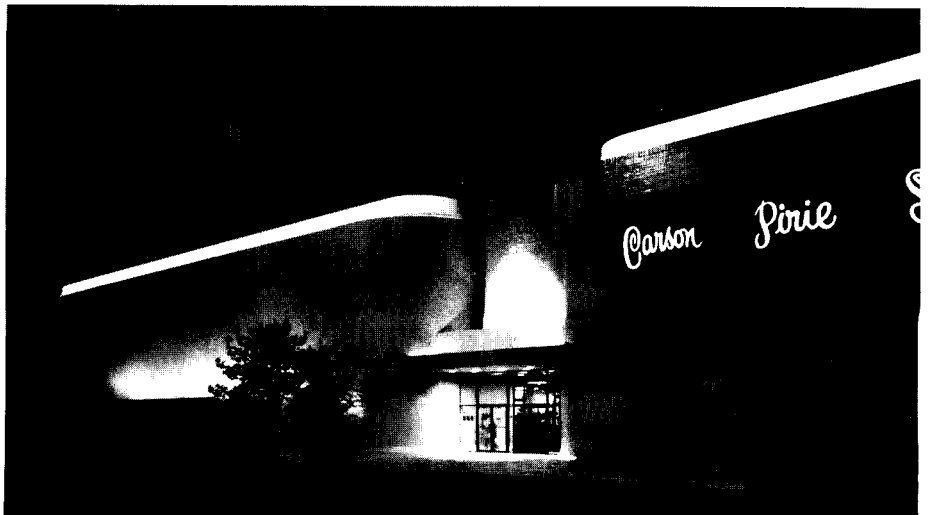
4 Mabok Apartments, Ocean Park



1 Peoria County Detention Facility

2 The Pavilion

3 Carson, Pirie, Scott & Company



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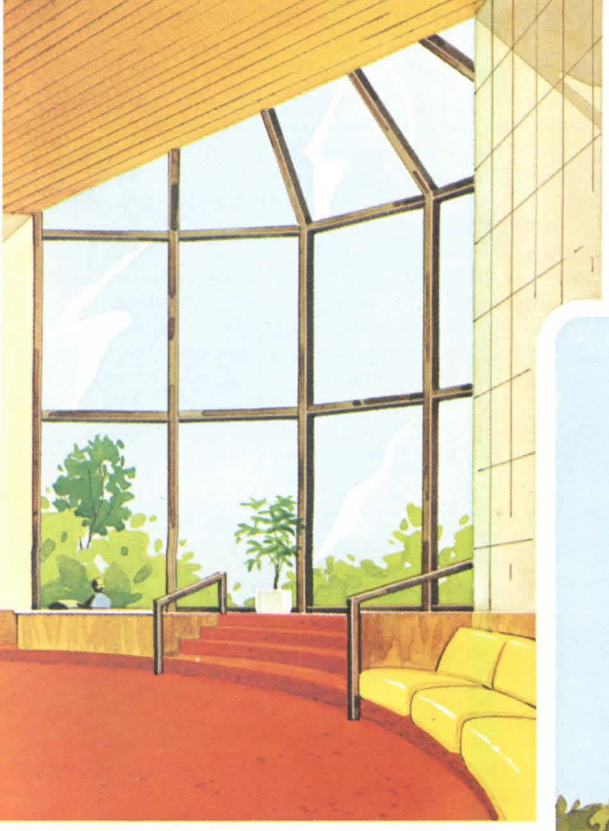

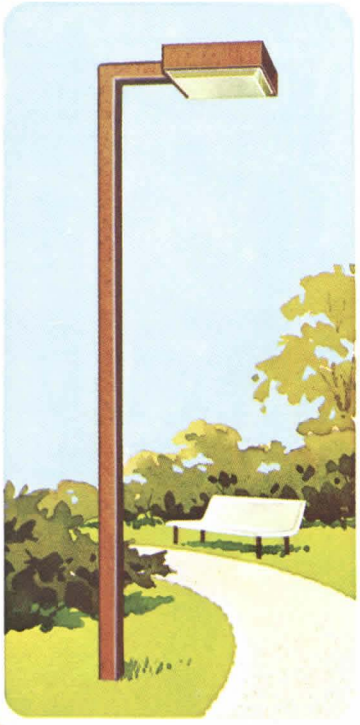

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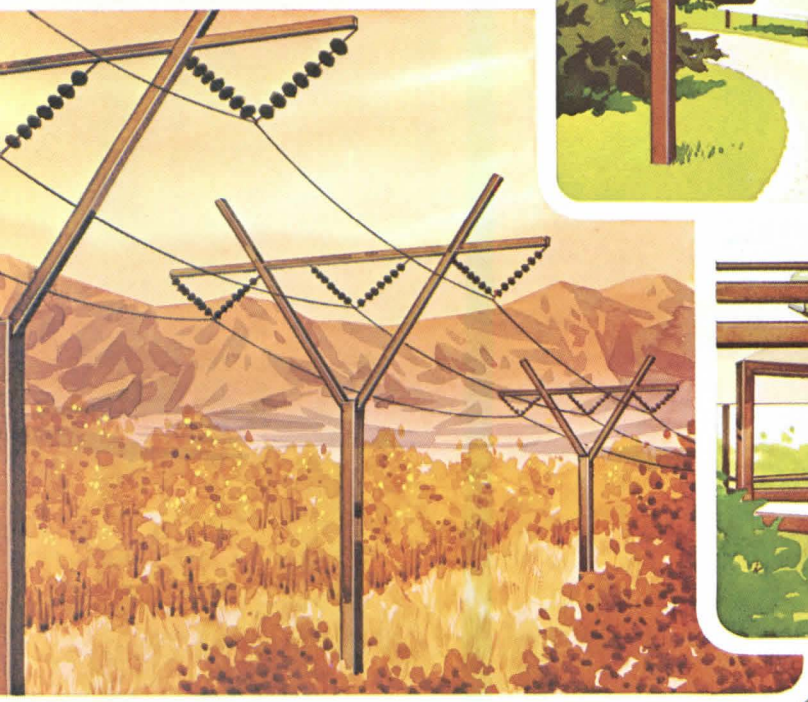

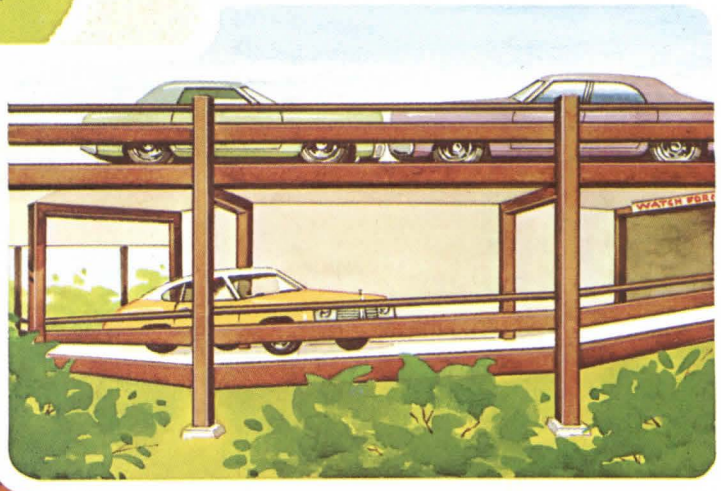

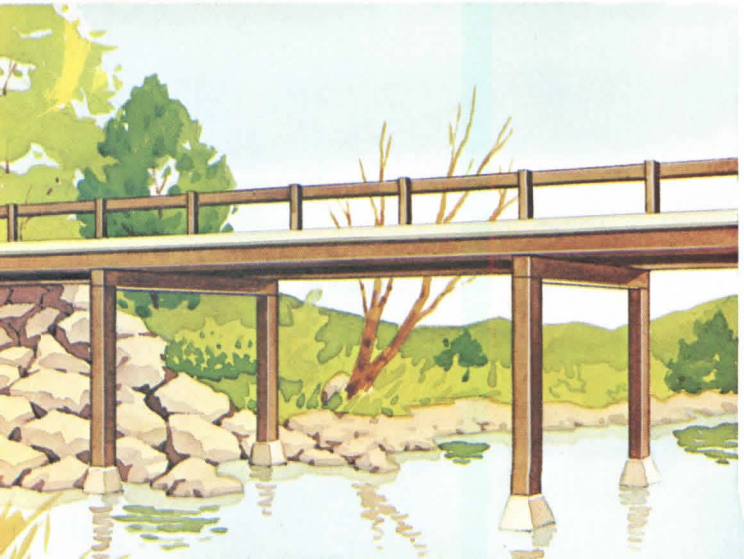

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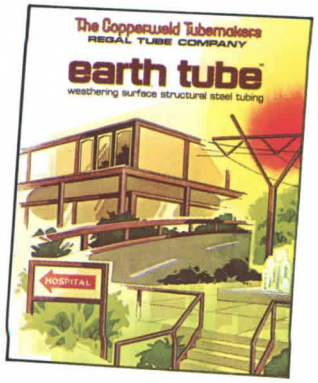


An architect with many admirers

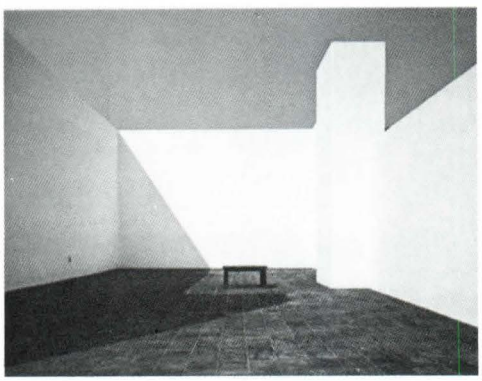
THE ARCHITECTURE OF LUIS BARRAGAN, *By Emilio Ambasz; The Museum of Modern Art, New York, 1976 (distributed by The New York Graphic Society), 128 pages, illustrations, $27.50 (cloth), $12.50 (paper).*

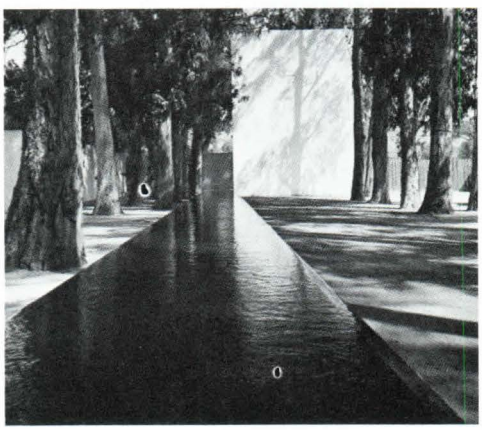
Reviewed by C. Ray Smith

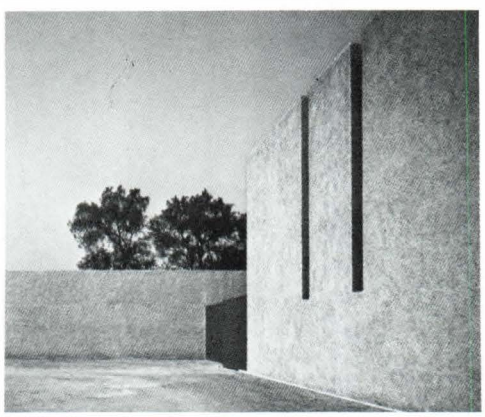
As the first book in English on the work of Luis Barragán, Emilio Ambasz's publication for The Museum of Modern Art should be cheered, acquired, and relished by all English-speaking architects. The 74-year old Barragán is the acknowledged spiritual leader of three generations of Mexican "minimalists" and has become one of the revered mystics of architecture for an increasing number of American designers. Of all contemporary Mexican architecture, his is the most sublime, poetic, and perfectionist.

Barragán works in an idiom that is at once spare and ascetic, abstract and monastic. Yet, at the same time, his historical inclusions and vibrant colors—pink, lemon, magenta, and coral on the exteriors of his buildings—evoke the richness of anonymous Mexican building. His work is minimal—as if Mies had worked in adobe—yet sumptuous in color and texture, in visual drama, and in stunning juxtapositions. It is composed with the purest of planes, with intersecting walls of strong and stark proportions, and, above all, with a clear sense of the interaction and the union between architecture and nature—between stucco and timber and sky and trees and water.

Much of Luis Barragán's work has been in urban planning and in landscape architecture—at the edges of actual shelter, where buildings merge with the landscape. He was trained as an engineer but has also worked as planner, architect, interior designer, and sculptor. An aristocrat among men and among architects, Barragán has designed residences of consummate refinement and privacy. In his own house in Mexico City, a view from the library toward the garden over a series of interior partitions of varying heights is like a Josef Albers construction in three dimensions. A small white-walled courtyard has a rectangular black pool fed by a trickle of water coming through an old timber that projects from the wall. Sunk in the pool is an ancient amphora; a cluster of other amphoras stands alongside the pool. In this exterior room—all white and black with the terra-cotta of the amphoras as accent and with the blue Mexican sky for its ceiling—a rustic door to the adjacent garden is painted pink—shocking, but softened by the







weathering of rains and the bleaching of the sun. There is no furniture. It is an abstract composition—made kinetic by its falling water and the changing sky.

A horseman by bearing and interest, Barragán achieves abstract yet seemingly eternal, mythical dimensions when he designs water troughs and fountains for horses within warm-up rings and resting places. Most celebrated of these are his projects at Las Arboledas, a residential subdivision in the suburbs of Mexico City (1958-61) and the San Cristobal stable, horse pool, swimming pool and house for Mr. and Mrs. Folke Egerstrom in Los Clubes (1967-68). A confirmed religious man, his architecture is almost mystical, as is visible in his serene chapel for the Capuchinas Sacramentarias in Tlalpan (1952-55) and in his seemingly ineffable gardens for meditation.

But because his work has been known only to those who have seen it in Mexico or have read the sporadic magazine articles about it, Barragán's 40 years of Mexican minimalism have been largely unknown to architects in this country. So the ready availability of a survey of his work through The Museum of Modern Art is a major event. This is the overriding criterion for judging the book—only secondarily must come the evaluation of the book's content. As a slim volume 9½ by 12 inches, it presents ten projects in seven chapters along with verbal introductions to each set of photographs. Following that is a biography of the architect and a complete and illustrated list of his works.

The photographs, which are predominantly abstracted, poetic ones that photographer Armando Salas-Portugal has made his personal trademark, are beautifully reproduced and are presented without captions so that the serenity of their architectural images is reinforced by their isolation on the pages. This presentation approach has an immediately evident merit: it expresses the image of Barragán's work that his personally selected photographer has put forth over the years—an image of poetic extracts, of schematic details that stand as apparent symbols of the totality of Barragán's work. The book, similarly, presents intimations of Barragán apparently infinite poetic genius. For an understanding, however, of the works as architecture—as opposed to painting, sculpture, or poetry—this format is less than informative.

This is not the totality of the architect's work. No image of the completeness of any single project by Barragán is conveyed by the book—neither his planning, nor his functional provisions, nor his spaces. The book is almost a "coffee table" book, however sumptuous and important its subject.

The descriptions of each project group all information on photographs into a single block on a single page or successive pages rather than relating the images to the textual explanations. The plans do not accompany either the photographs or the descriptions. Instead, they are published as the illustration of each relevant project in the list of works at the back of the book. This is effective in minimizing repetition of photographs, but by removing the plans from the descriptions at the front, the author also removes an element that is essential to an understanding of the images as architecture. Furthermore the descriptions make no refer-

Required reading continued on page 47

C. Ray Smith is an architecture and design critic based in New York City.

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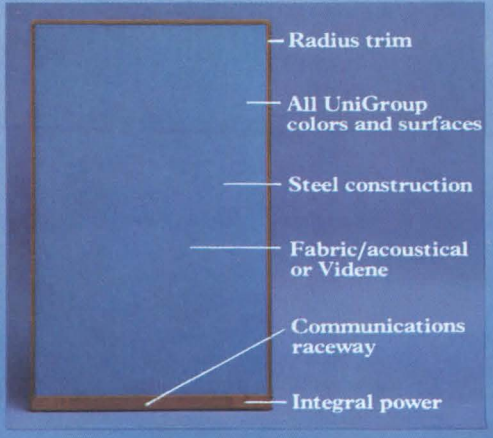

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ence to the plans being at the back of the book so as to lead the reader while he is studying the photographs. He may, or may not, discover them later.

The effect is neither to inform fully about the work of Luis Barragán nor to introduce laymen further to the mysteries of architecture in general.

To reinforce the poetry-extract tradition of presenting Barragán's architecture, author Ambasz writes in a style aimed at capturing the mythic, poetic effect of the work. At times he is highly successful in winging a phrase toward a soaring emotion—and in carrying the reader along with him. More often, his language is so "poetic" that, for all its articulateness, it fails to clarify. Among other phrases I noted, the following seem extreme: "Magritte meets here the Persian garden-makers" and "achieves in this fountain lyric perfection," and, again, "these hieratical walls acquire a legendary significance."

During his tenure as Curator of Design at the Museum of Modern Art, Emilio Ambasz—the young, multi-lingual, Princeton-trained Argentine architect who has recently left the Museum to pursue his independent design and architecture practice—has made a notable contribution in presenting otherwise neglected subjects to the New York public (among them contemporary Italian design and the potentials of taxicab design.) But his explanations of the work of Luis Barragán will not easily lead people to an understanding of the reality—or the unreality—of Barragán's contribution.

Despite the fact that it must compete with all our dreams and expectations, this first book on the work of Luis Barragán is, nonetheless, the best that we have. And it should be familiar to anyone interested in architecture.

For all his influence on three generations of Mexican minimalists—including his own generation and men in their forties, such as Ricardo Legorreta (see RECORD, October 1976, pages 97-104), as well as a younger generation around thirty, such as Raul Ferrera and the firm of Lopez Baz y Calleja—Luis Barragán is determinedly modest. "We are all friends and discuss many of these things together," he pointed out to me last winter. He gives credit to the Mexican painter Jesus "Chucho" Reyes, now in his nineties, and to sculptor Mathias Goeritz for being seminal influences on his own work. He suggests that the older generations have learned from the younger also. In addition, Barragán notes that he has long been influenced by anonymous building—what he calls "architecture for the poor"—in Mexican, African, and Mediterranean villages. What he aims for is simplicity without denying color or any other traditional building element.

In this country, the minimalists Benjamin Baldwin and Ward Bennett, and a younger generation of designers such as Joseph D'Urso, Bray-Schaible, Robin Jacobsen, and Michael Kalil, among others, have been influenced by Barragán's work (although they have denied his colors). The book by The Museum of Modern Art, as author Emilio Ambasz astutely perceives, will doubtless add to that growing list of admirers.

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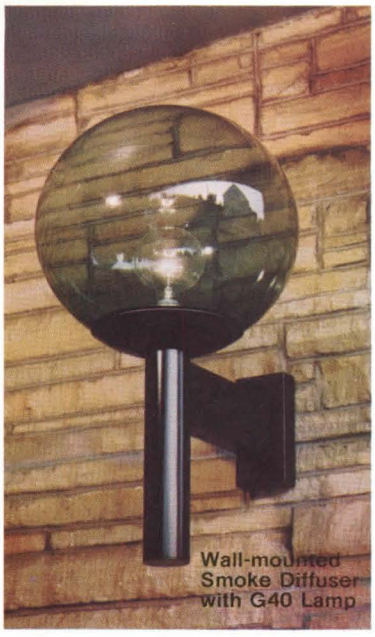

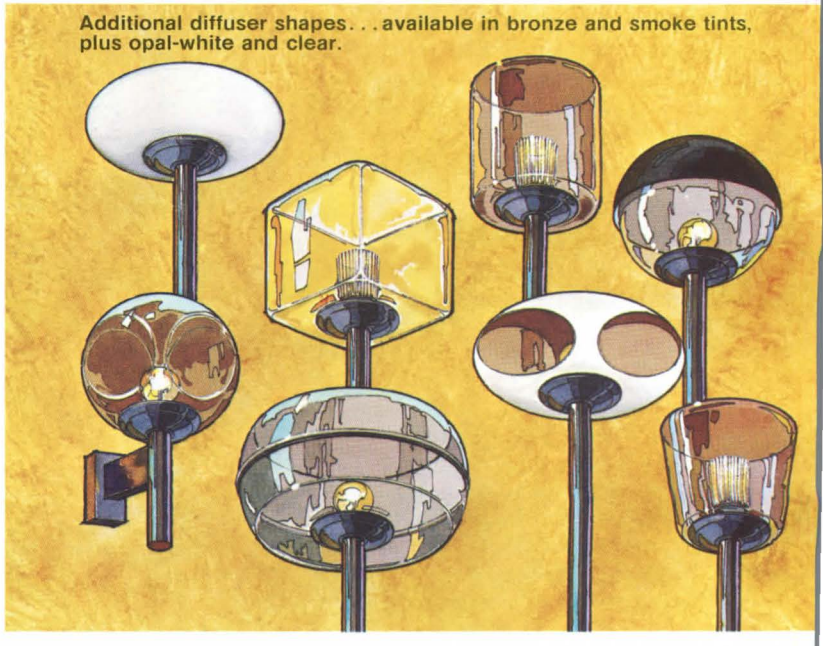

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Document A201 strives to clarify—not change—the roles of architect, contractor and owner

by Arthur T. Kornblut, Esq.

In last month's issue, "Legal Perspectives" began a review of various changes, significant and otherwise, contained in the 1976 edition of the AIA General Conditions of the Contract for Construction (Document A201) with the focus on provisions relating directly to the architect and owner. Concluding our review, this month's article begins with a look at the contractor and his responsibilities as outlined in A201's Article 4, and proceeds with comments on the remaining articles of the contract. Because of the importance of Document A201, we invite reader comment and questions on its revision. The most recurring concerns will be addressed in this column. Send your questions and comments to: Charles E. Hamlin, Associate Editor, Architectural Record, 1221 Avenue of the Americas, New York, New York 10020.

The modifications to Article 4, which covers the contractor's role, are primarily organizational in nature. These changes have helped clarify the contractor's role and responsibilities, but no new responsibilities of any significance are being required of the contractor. From a liability standpoint, the more important revisions in Article 4 pertain to the working relationship between the contractor and the architect during the construction phase. As a result of these changes, there is somewhat less uncertainty about the role of each in such areas as the performance of work without adequate documents (Subp. 4.2.1); payment of taxes and securing applicable permits (Subp. 4.6.1 and 4.7.1); and accounting for the cost of allowances (Subp. 4.8.1 and 4.8.2).

On shop drawings, contractor's superintendent, and indemnification . . .

Several areas warranting special mention at this point are shop drawings (Subp. 4.12.1 through 4.12.8), the contractor's superintendent (Subp. 4.9.1.) and indemnification (Subp. 4.18.1 through 4.18.3). With regard to shop drawings, the basic procedure for preparing, submitting and approving the documents remains unchanged. However, greater emphasis has been placed on the contractor's existing—but often ignored—contractual responsibility for seeing that adequate shop drawings are prepared, carefully checked, and approved before they are submitted to the architect for his review. The architect's responsibility for reviewing and approving shop drawings for conformance with the design intent remains but has been shifted to Subp. 2.2.14.

A simple deletion in Subp. 4.9.1 has exercised the architect's specific authority to pass judgment on the adequacy of the contractor's superintendent. By not involving the architect in an evaluation of the superintendent, there now is a reduced likelihood that the architect will be exposed to allegations of libel or slander following a determination of inadequacy. However, the perceived potential protection from liability resulting from this change may be more abstract than real, as it does not diminish the contractor's responsibility for employing competent people (Subp. 4.3.1, 4.3.2 and 4.4.2) or the architect's responsibility to advise the owner whether or not the architect believes the contractor is performing in accordance with the contract documents.

With regard to the indemnification provisions in A201 (Subp. 4.18.1 through 4.18.3), the 1976 edition contains the first modifications since the former language was adopted in 1967. Designed to protect the owner and architect from third party claims brought by injured construction workers, the indemnity clause has had relatively little impact in returning liability to the contractor when someone is injured on the job and is precluded by law from suing the contractor after receiving a workmen's compensation settlement. On the contrary, the biggest result of the development of the hold harmless language ten years ago has been the proliferation of anti-indemnification statutes enacted in approximately 25 states. Thus, the fairly minor change to the indemnification provisions found in the new edition of A201 makes clear that the contractual indemnity does not limit any common law indemnity rights that would be otherwise available to the parties.

On subcontractor relations . . .

Article 5, entitled "Subcontractors," underwent major revision in two areas: acceptability of subcontractors for the work, and their contractual relationships with the contractor. While the owner and architect no longer are *required* to make a determination as to the acceptability of subcontractors, the contractor must furnish the architect and owner with the names of proposed subcontractors; the owner and architect retain the right to reject subs considered objectionable for the work (Subp. 5.2.1 and 5.2.2). This semantic change may reduce an unnecessary exposure to liability for the owner and architect, and it presumes good faith and judgment on the part of the contractor in his selection of subcontractors. However, by having the right to reject subcontractors, the owner still retains ultimate control over who does the work.

The provisions of Subp. 5.3.1 on subcontractual relations have been simplified so that the owner's interests are adequately protected without his undue involvement in the relationship between the contractor and his subs. Simply stated, the general conditions require subcontracts to parallel the contract between the owner and contractor. No longer does A201 contain specific items to be incorporated in each subcontract. To implement this streamlined approach, the contractor must make available to subcontractors copies of the contract documents affecting their work and identify for subcontractors any terms and conditions of the proposed subcontract at variance with the contract documents.

On coordination duties of the owner . . .

Recognizing that not all projects are constructed under a lump-sum, single prime contract, Article 6 deals with work to be performed by the owner or by separate prime contractors, if applicable. In recent years more sophisticated legal approaches to construction contracting have emerged, such as multiple prime contracts, phased construction, construction management, turnkey and the like. While A201 remains a good starting point for any construction contract, it is not designed for unmodified use in every contracting arrangement. *Thus, Article 6 should be studied closely whenever there is to be a departure from the single prime contract approach.* A new Subp. 6.1.3 states that the owner will provide for the coordination of the work of his own forces and of each separate contractor. This is a recognition that 1) coordination will be required and 2) it cannot be presumed that the traditional

Mr. Kornblut is a registered architect and a practicing attorney in Washington, D.C.

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general contractor will have that responsibility in a multiple prime contract situation. Unfortunately, Subp. 6.3.1 is a fairly weak attempt to solve the problem of necessary and adequate coordination. While it is correct in stating that coordination is the owner's problem, it gives no guidance as to how that problem will be solved. It is not unlikely that the owner will look to the architect for advice or will ask the architect to function as the coordinator. In either event, whenever something other than a single prime contract approach is to be used, both the owner-architect contract and the supplementary conditions should contain copious amplification to explain how the owner's coordination as required by the simple statement of Subp. 6.1.3, will be achieved.

On governing law and arbitration . . .
Nine miscellaneous subjects ranging from governing law to arbitration are contained in Article 7. With two exceptions, they are identical to the comparable provisions in the former edition of A201. The provisions related to testing (Subp. 7.7.1 through 7.7.4) have been clarified with regard to who will pay for tests and related expenses under a variety of circumstances. Subp. 7.9.1 has been changed slightly to enable the parties to stipulate any interest rate on due, but unpaid, money.

The arbitration provision in Subp. 7.9.1 has been expanded in an attempt to preclude consolidation and joinder of multiple arbitration proceedings stemming from the project. While consolidation and joinder of proceedings might seem logical, it ignores the fact that arbitration is the product of a contractual undertaking. Arbitration derives its efficacy from an agreement between two (or more) parties to arbitrate, rather than litigate, disputes between (or among) themselves arising out of their contract. It is a private forum for dispute resolution, based on voluntary agreement. Nonetheless, courts in numerous jurisdictions—most notably in New York—have ignored this distinction and, in the absence of prohibiting contract language and for the sake of convenience, have ordered parties to enter into arbitration proceedings with others with whom they had no such agreement. In an attempt to avoid further instances of judicial interference in the arbitration process, specific new non-joinder language has been added.

On contractor extensions and payments . . .
The one change warranting comment in Article 8, which relates to time, is contained in Subp. 8.3.1. An extension of time now can be granted on the basis of "adverse weather conditions not reasonably anticipatable," among other things. Because this basis for a time extension is somewhat subjective, in regard to both what constitutes adverse weather and what can be reasonably anticipated, architects would be well advised to prepare supplementary conditions stipulating an objective basis of justifying an extension.

Article 9 is the contractor's *raison d'être* for being involved with the project—getting paid. As might be expected because money is involved, it is a lengthy, legalistic and highly complex segment of the general conditions. Lawyers could debate for days the propriety of the changes made and the procedures employed in A201 for making payment. While a number of changes occurred throughout Article 9, many were technical adjustments to improve the making of payments to both the contractor and subcontractors for work done properly, and to clarify everyone's role and responsibility when work is not found to be adequate. Architects and contractors alike should read and understand Article 9, and they should ask their attorneys and the owner's attorney to do likewise.

Even though the revisions to Article 9 should meet with general approval, several changes are worth noting. Subp. 9.2.1 was changed so that the onus is now on the contractor to prepare and submit an adequate schedule of values. The architect retains the right to reject the schedule, whereas he previously had a duty to approve it. Again, this semantic change made for liability reasons does not appear to diminish the practical effect of the architect's role in the process.

In Subp. 9.3.1, a new clause states that the contractor's application for payment must be "notarized if required." Since this is a reasonable protection for the owner, it should become a regular practice for the supplementary conditions to require the application for payment to be notarized. If AIA Form G702, Application and Certificate for Payment, is used, the language contained on the form will facilitate meeting this requirement.

A subtle change in Subp. 9.3.2 makes it advisable for the owner and his legal and insurance advisors to consider the implications of making payment for material and equipment stored on or off the site. Previously, payment for stored material was conditional. Now it is mandatory, unless otherwise provided for to the contrary. While the new edition of A201 requires the contractor to give the owner satisfactory evidence of title to the stored material, as well as evidence of insurance and transportation arrangements for material stored elsewhere, further consideration may have to be given to the problems of adequate security and the identification of bulk materials, such as a quantity of bricks stored at a brickyard, for example.

On site safety and insurance . . .
Article 10, captioned "Protection of Persons and Property," remains essentially unchanged. Safety at the site was and is the contractor's responsibility.

Article 11 contains the general insurance-related provisions. While the new edition is very similar to the former one in this particular area, there are important modifications. The property insurance requirements in Subp. 11.3.1 spell out the types of risks to be insured against by an "all risk" insurance policy. (Despite its name, "all risk" insurance covers only certain designated risks.) The new edition continues the practice of requiring the owner—unless otherwise provided—to carry the property insurance.

Subp.11.3.6 contains an expanded waiver of subrogation, including the architect for the first time. However, by virtue of the language in the second sentence of Subp. 11.3.6—which limits the waiver of subrogation with respect to the architect—it remains to be seen how effective this provision will be in precluding subrogation actions by property insurance carriers against design professionals.

On work changes and defective work . . .
Changes in the work are covered in Article 12. The major revision is the elimination of the owner's ability to authorize the architect to issue change orders without the owner's signature (Subp. 12.1.1). The liability implications of the former approach whereby this was possible are obvious. Now, when an architect prepares a change order, it must be signed by the owner before it becomes effective, and an owner cannot claim ignorance of changes made without his knowledge. In Subp. 12.2.1, the provisions related to concealed conditions have been expanded to include existing structures as well as subsurface conditions.

Article 13 remains essentially unchanged, setting forth the ground rules to enable the architect to order the uncovering and correction of defective work done by the contractor. A new Subp. 13.2.7 incorporates in the contract a statement of the law related to the contractor's liability for damages for breach of contract. While the contractor has an obligation to correct defective work appearing within one year after substantial completion (Subp. 13.2.2), he remains fully liable for damages for breach of contract until the time of the applicable statute of limitations runs out. This always has been the case, but the absence of specific contract language led some parties to believe the contractor's obligations ended after the one-year period.

The termination provisions in Article 14 reflect some minor clarifications, but do not contain any substantive changes.

On A201's use with other documents . . .
In conclusion, the state of the AIA General Conditions remains sound. However, before incorporating the new edition into the contract documents for a current project, architects and others should consider its relationship to the other contract documents customarily used in the construction scenario. Traditionally, AIA has published owner-architect, owner-contractor, contractor-subcontractor, and architect-engineer standard contract forms, among others. In the past, the publication of each new edition of A201 was accompanied by publication of new editions of the other standard contract documents so architects and others would have available a coordinated set of contract documents, with comparable provisions paralleled in each contract. Although the new A201 bears a publication date of August, 1976, no new editions of the related contract documents have been published to date. AIA advises that an amendment to the 1974 edition of the owner-architect contract is available and that, if agreed to by the owner, it would bring that contract into conformance with the new A201. There are also indications that the other new document editions will be available by late spring. Nonetheless, in the hiatus between the emergence of the 1976 edition of A201 and its companions, care must be taken to assure conformity among contracts actually in use on projects.

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BUILDING AMERICA

Materials prices and wage increases updated in Dodge Building Cost Indexes

The *Dodge Building Cost Indexes* that appear quarterly on this page are developed by the Dodge Building Cost Services, a unit of McGraw-Hill Information Systems Company. They are based on semi-annual mail and telephone surveys.

The National Price Data Survey obtains cost information on brick, plaster, cement, lumber and structural steel. Building material prices used are for contractor's quantities delivered at the construction site for the most commonly used local species, grades and sizes within the "free trucking zone," or at supply dealers' yards.

The National Wage Data Survey obtains the prevailing hourly rate and fringe benefits for bricklayers, carpenters, cement masons, electricians, roofers, laborers, painters, plasterers, plumbers, and structural iron workers. Wage data requested are the prevailing rates in the area, but generally reflect union wage rates which are usually more readily available than non-union rates.

Data received are weighted to reflect the impact of these basic cost components on a "typical" building. This broad approach is intended to indicate the direction and the general magnitude of cost trends, and may or may not at any specific time represent changes in the building costs of a specific type or size structure.

INDEXES: April 1977 — 1941=100.00 (except as noted)

Metropolitan area	Cost differential	Current Indexes: non-res.	residential	masonry	steel	% change last 12 months
Major U.S. City Average	8.7	587.6	551.2	580.1	566.0	+09.4
Atlanta	7.8	710.6	669.9	697.8	687.6	+16.4
Baltimore	8.2	616.6	579.6	601.0	590.5	−00.6
Birmingham	7.9	551.4	512.8	544.5	532.5	+16.1
Boston	9.1	575.6	543.8	578.1	561.0	+05.9
Buffalo	9.0	619.4	581.6	609.1	592.8	+07.5
Chicago	8.8	672.1	632.4	661.9	648.8	+18.1
Cincinnati	8.9	624.2	587.2	612.4	597.4	+02.1
Cleveland	9.3	628.6	591.5	618.3	602.8	+07.0
Columbus, Ohio	8.6	614.9	577.4	611.5	595.4	+17.4
Dallas	7.7	565.7	547.7	563.2	548.6	+10.6
Denver	9.0	664.1	624.7	655.1	642.3	+13.0
Detroit	9.7	641.8	611.3	640.4	625.1	+03.1
Houston	7.6	536.9	504.1	529.8	517.9	+06.1
Indianapolis	8.6	567.3	532.7	554.9	544.2	+18.1
Kansas City	8.9	576.1	544.3	568.4	555.1	+08.4
Los Angeles	9.4	725.5	663.1	708.3	693.3	+18.3
Louisville	8.0	587.8	551.9	581.6	568.7	+14.7
Memphis	7.6	543.1	509.9	526.1	515.4	−00.4
Miami	8.3	612.4	583.4	608.6	596.6	+02.8
Milwaukee	9.3	702.9	660.0	699.8	678.1	+13.9
Minneapolis	8.8	600.1	564.5	593.2	578.2	+08.1
Newark	8.4	526.4	494.3	527.4	509.9	+05.4
New Orleans	8.0	588.3	555.2	582.8	567.7	+10.9
New York	10.0	622.2	578.5	611.3	597.3	+12.6
Philadelphia	9.0	623.1	593.6	619.9	603.0	+05.8
Phoenix (1947 = 100)	8.4	342.4	321.5	340.2	330.3	+08.5
Pittsburgh	8.9	556.0	523.1	547.7	537.6	+08.0
St. Louis	9.1	614.2	579.7	611.5	598.7	+11.6
San Antonio (1960 = 100)	7.6	218.8	205.4	214.4	209.5	+02.1
San Diego (1960 = 100)	9.4	260.5	244.6	257.3	250.6	+04.2
San Francisco	10.5	925.3	845.7	915.4	882.6	+14.4
Seattle	9.4	619.9	554.8	605.7	585.1	+14.7
Washington, D.C.	8.3	556.6	522.6	547.1	533.4	+06.1

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	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976 (Quarterly) 1st	2nd	3rd	4th	1977 (Quarterly) 1st	2nd	3rd	4th
Atlanta	335.7	353.1	384.0	422.4	459.2	497.7	544.8	575.0	598.7	602.6	604.1	655.6	657.1	701.5			
Baltimore	295.8	308.7	322.8	348.8	381.7	420.4	475.5	534.3	581.1	609.7	611.2	583.5	585.0	605.7			
Birmingham	274.7	284.3	303.4	309.3	331.6	358.3	402.1	421.2	448.9	469.0	469.5	550.4	551.9	543.8			
Boston	265.7	277.1	295.0	328.6	362.0	394.4	437.8	462.5	513.2	535.7	537.2	554.4	555.9	567.7			
Chicago	328.4	339.5	356.1	386.1	418.8	444.3	508.6	529.6	560.1	560.3	561.8	633.7	635.2	662.2			
Cincinnati	288.2	302.6	325.8	348.5	386.1	410.7	462.4	500.1	550.6	602.9	604.4	608.3	609.8	615.6			
Cleveland	303.7	331.5	358.3	380.1	415.6	429.3	462.2	509.5	531.0	578.7	580.2	631.4	632.9	619.4			
Dallas	270.4	281.7	308.6	327.1	357.9	386.6	436.4	477.9	499.6	506.1	507.6	537.0	538.5	560.1			
Denver	305.1	312.5	339.0	368.1	392.9	415.4	461.0	510.0	553.6	580.3	581.8	614.5	616.0	656.3			
Detroit	301.2	316.4	352.9	377.4	409.7	433.1	501.0	538.7	597.5	615.1	616.6	615.7	617.2	634.2			
Kansas City	264.3	278.0	295.5	315.3	344.7	367.0	405.8	444.9	509.1	523.8	525.3	545.8	547.3	568.2			
Los Angeles	310.1	320.1	344.1	361.9	400.9	424.5	504.2	531.8	594.1	599.1	600.6	671.6	673.1	709.2			
Miami	286.1	305.3	392.3	353.2	384.7	406.4	447.2	485.5	558.9	588.1	589.6	591.0	592.5	604.6			
Minneapolis	300.2	309.4	331.2	361.1	417.1	412.9	456.1	488.6	538.0	548.3	549.8	562.6	564.1	593.0			
New Orleans	267.6	274.2	297.5	318.9	341.8	369.7	420.5	442.1	494.7	522.8	524.3	533.3	534.8	580.2			
New York	313.6	321.4	344.5	366.0	395.6	423.1	485.3	515.3	533.5	539.4	540.9	579.3	580.8	607.7			
Philadelphia	293.7	301.7	321.0	346.5	374.9	419.5	485.1	518.5	567.5	581.8	583.3	577.7	579.2	615.8			
Pittsburgh	275.0	293.8	311.0	327.2	362.1	380.3	424.4	465.6	509.5	508.5	510.0	524.8	526.3	549.5			
St. Louis	293.2	304.4	324.7	344.4	375.5	402.5	444.2	476.7	528.9	542.7	544.2	535.6	537.1	605.8			
San Francisco	390.8	402.9	441.1	465.1	512.3	561.0	632.3	672.5	753.3	790.1	791.6	819.3	*820.8*	904.5			
Seattle	283.5	292.2	317.8	341.8	358.4	371.5	424.4	450.2	515.1	525.9	527.4	569.0	570.5	603.7			

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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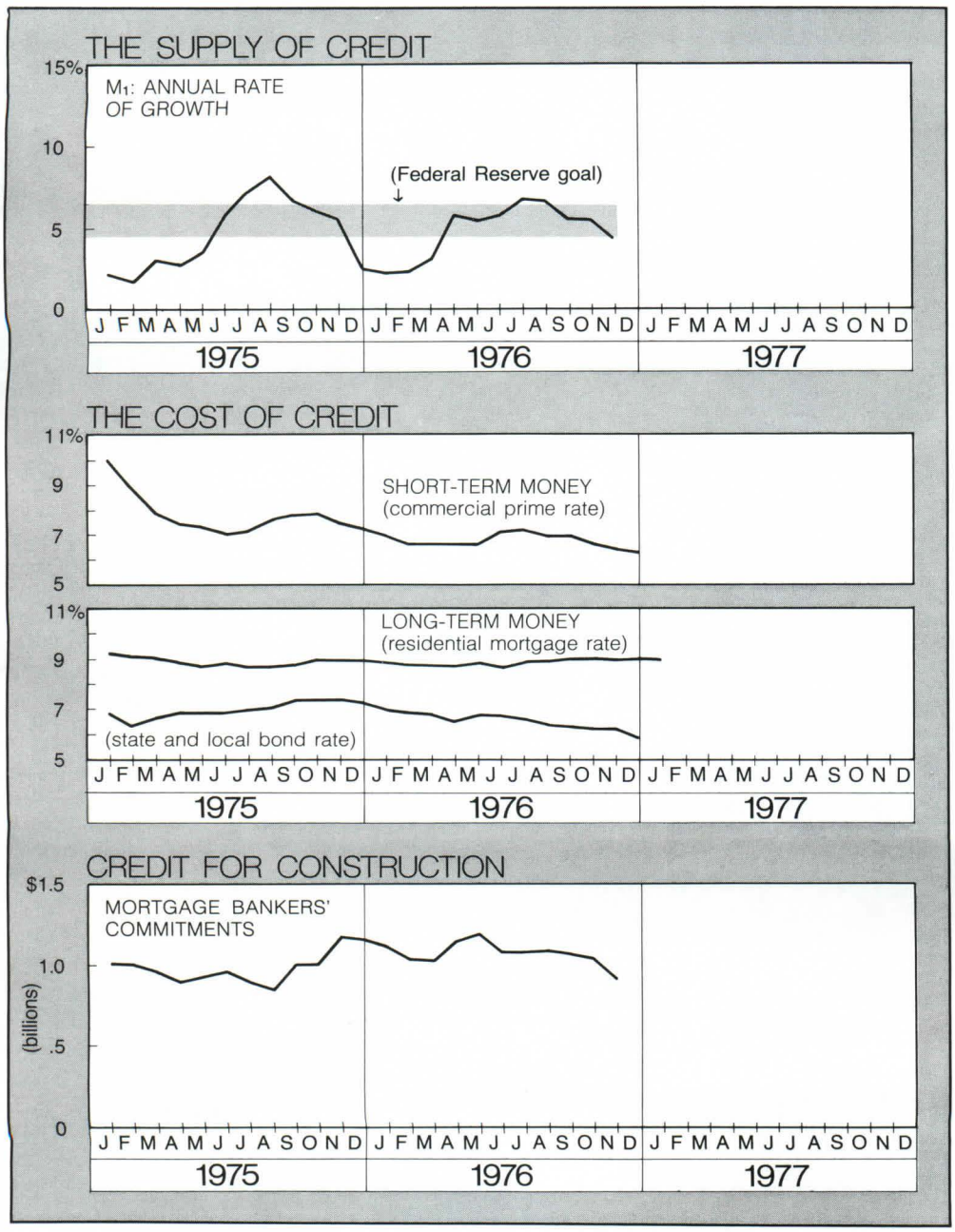
Creating a healthy financial climate for construction requires a delicate balance by the Administration and Federal Reserve

Because the supply, cost and sources of money impact construction and the market for architectural services, this month we begin a quarterly review of the monetary policies and economic conditions that affect the climate for construction in the United States. Regular features of this report will include the supply of credit as determined by Federal Reserve actions, and the cost of credit as reflected in short- and long-term interest rates. A third and changing feature of this report will be a discussion of different sources of construction credit: mortgage bankers, insurance companies, real estate investment trusts, etc. The information in this report—through the last quarter of 1976—is the latest available at press time.



The top left graph shows the most important dimension of the *supply of credit:* its rate of growth. It is mainly through the control of the growth of demand deposits and currency in circulation (M_1) that the Federal Reserve exerts its considerable influence on the credit markets and, ultimately, on the economy as a whole. The graph shows that for the past several quarters the Fed has been working within its targeted range of 4½ to 6½ per cent monetary growth, though most recently it has been holding close to the lower end of this range. Federal Reserve Chairman Arthur F. Burns, ever concerned about renewed inflation, is giving no more monetary support to the recovery than he considers absolutely necessary. He says, however, that the Fed will accommodate the Carter Administration's goals for faster economic growth. (Real GNP is expected to increase only 5 to 6 per cent in 1977.)

The middle graphs offer a few measures of the *cost of credit.* One widely-used guide to short-term interest rates is the prime rate charged by commercial banks. Its movement (but not its level) is a clue to the cost to developers of their interim construction money (which is often quoted at "prime plus something"). Permanent financing of construction is indicated by two other series: mortgage rates on new residential buildings, and state and local bond rates. The graphs show the general decline of most interest rates—both short-term and long-term—during 1976 from their very high peaks reached in 1975. Little further decline from current levels, and more probably a gentle rise, is expected in the near future as business demand for credit strengthens and the Federal deficit is increased by $10 billion.

The bottom graph shows *mortgage bankers' commitments* to builders for land and nonresidential construction loans—the up-front money that gets new nonresidential building projects off the drawing boards. This financial series tracks well with the cyclical weakness in nonresidential building markets during 1975, signals the improvement that took hold during early and mid-1976, and then indicates the setback late last year when the economy's recovery faltered. Like another lead series, construction contracts, these lending commitments seem to be saying that nonresidential building is on the way up, but slowly, and not without setbacks.

George A. Christie
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COFPAES renews its "costs and audits" argument

The long-simmering issue of the Federal government's allowable costs and audits on construction design contracts will enter a new phase this spring. The professional design societies will renew their plea for understanding to the officials of the General Services Administration, which sets ground rules for the civilian departments and agencies of the government to follow in procuring architectural and engineering services. Simply said, design firms working under "cost-plus-fixed-fee" Federal contracts feel they should have a right to charge to overhead such major expenses as interest on working capital, bad debts, and promotional costs. The government's procurement officials argue that only direct costs—such as payroll, necessary travel, or drafting paper—are legitimate expenses chargeable to the government. It is the goal of the design groups to impress the government with the distinction between design services and other goods procured by the government. This effort is also directed at the Office of Federal Procurement Policy, an arm of the Executive currently working toward mandatory uniform profit and pricing policies for negotiating *all* government contracts. Following is the design professions' argument, presented by the Committee on Federal Procurement of Architect-Engineer Services (COFPAES), acting on behalf of The American Institute of Architects and four other design organizations.

Why should architects and engineers be treated in a manner different from other Federal contractors?

It was that question which prompted COFPAES to commission a study by the management consultant firm of Case and Company Inc., whose work was finished last July. The principal finding: "There are economic factors inherent in architectural-engineering firm practice that are not adequately reflected in guidelines and regulations for allowable overhead and profit applied to Federal agencies when negotiating amounts of compensation for A-E projects."

In other words, designers are not receiving adequate compensation for Federal work. Because of that, Case's study said, the quality of work done for the government could suffer. Life cycle costs may not be adequately considered; and small firms, which may offer innovative solutions to design problems, might be priced out of the market. This, of course, is the response COFPAES was looking for, but it still refused to completely endorse the study, stressing that Case's work was "truly independent" and not just fuel for the designers' arguments.

The goal is to apply Internal Revenue Service criteria to allowable costs

But with Case's study in mind, COFPAES last fall prepared its own study and recommendations:

1. In determining allowable costs, the simplest and most equitable solution is to use the criteria of the Internal Revenue Service—a move that would reduce the accounting and audit burden on both parties and still provide control by a Federal agency.

2. As a second alternative, architect and engineering firms should be covered by a set of Federal procurement regulations, which direct their attention solely to the procurement of architect and engineer services rather than to the procurement of hard goods.

3. Under any Federal procurement regulation, the audit guidelines should be clearly defined and available to all parties, and the definitions should be so explicit that only a minimum of latitude is given to the audit agency and the individual auditor. (Frequently, professionals are subject to audits by more than one agency, each with varying audit standards.)

4. Finally, and in summary, COFPAES said a "truly equitable contract is one in which both parties find it advantageous to their own interest." For a design firm this means a profitable practice. And design firms cannot serve their client (i.e., the government) well without adequate compensation.

With that as a backdrop, COFPAES gets down to the nitty-gritty of allowable costs. It notes that the Federal procurement regulations (FPR), which are administered by GSA for the civilian agencies and departments, disallow six specific kinds of expenses as part of overhead: interest expenses, promotion, bad debts, contributions, insurance on principals' lives, and entertainment expenses. (Local government projects funded in part by the Federal government are often subject to Federal profit and pricing rules.)

"Notwithstanding the government's view," COFPAES says, "as to the allowability of these costs, they are necessary expenses that A-E firms incur if they are to continue as going concerns." Disallowance of these costs, says COFPAES, actually and significantly reduces profits on government contracts to a level less than the lump sum portion of compensation.

The organization acknowledges borrowing can get out of hand, and that allowing interest as an overhead cost could subsidize inefficient management. COFPAES concedes that the Federal government pays its bills promptly, but many state and local governments are not always as quick. COFPAES argues that generally the professional's cost of doing business is extremely sensitive to borrowing costs. Bad debts too, should be allowable costs, COFPAES says, even though the Federal government itself is seldom guilty of failure to pay. But other government clients do fail to pay their bills, the organization says.

While most architects and engineers have rejected advertising, COFPAES firmly believes promotion costs such as professional brochures and preparation of Federal SF254 and SF255 forms are legitimate and major expenses of doing business, and should be considered as overhead.

Because design professionals are expected to be responsible members of the business and professional community and good corporate citizens of their cities and states, COFPAES believes they should be able to count civic contributions as part of overhead. It lists church and hospital funds and symphony associations as examples of the kind of contributions it means and draws a distinction between those, and campaign contributions for politicians—which it does not propose to count in overhead.

While some specific design firms are arguing for consideration of "key-man insurance and business continuation insurance" as part of overhead, COFPAES has decided not to fight for it because such insurance is sometimes used as a "buy-out" of a retiring or deceased partner's interest.

Finally, COFPAES firmly believes that selected entertainment should be considered part of overhead (although this is admittedly a minor point). But it has reluctantly decided that it is fruitless to pursue a change to make it an allowable cost. The word entertainment, COFPAES notes, "conjures up a vision of lavish and wild parties or free trips to exotic places. This so prejudices the mind that the business lunch or dinner, which is very important for most businessmen, is likewise suspect." While not pursuing the issue, COFPAES is asking that the existing ban on entertainment be more clearly defined.—*William Hickman, World News, Washington.*

For more data, circle 47 on inquiry card

AllianceWall WhyteBoard insures lasting beauty for corridor walls and writingboards in this new Apple Valley, Minnesota high school.

Architects: Hammel, Green and Abrahamson

WhyteBoard can be used to make full, functional walls and is also available in pre-framed and other forms.

Greater visibility. Writing on WhyteBoard is easier for students to read. Teachers use special Rite-On, Wipe-Off dry-marker pens to add color and emphasis to instruction.

No messy writing boards nor unsightly corridor walls will ever dim the beauty of Apple Valley High School. **And that's guaranteed—for 50 years.** They're constructed with ageless AllianceWall porcelain-on-steel WhyteBoard—the versatile new material that serves three important functions: (1) Dustless writing board (2) Magnetic bulletin board (3) Permanent projection screen.

Virtually maintenance-free, AllianceWall WhyteBoard makes an ideal wall for school rooms, corridors, laboratories, conference rooms, business offices... anywhere people meet to communicate. Writing can be erased with one swipe of dry cloth leaving no telltale smudges.

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Planning your personal financial strategy: part II the high-income architect

by Mark Pollard

Last month, the author advised a hypothetical younger architect on a personal investment program designed to amass capital. This second, and final, article discusses several investment opportunities available to the highly paid architect with substantial investment capital.

Jack Hauser (our hypothetical subject) is a 49-year-old architect who has established his own firm which recently incorporated and conducts itself as a Professional Corporation. Jack uses this arrangement to provide many of the benefits of good financial planning. For example, the company pays for Jack's insurance, both health and group term life. And, the company maintains a pension plan and a profit plan for the employees. The two plans (regulated by Employee Retirement Income Security Act provisions on funding and administration) allow Jack to place—through his firm—pre-tax dollars in a tax-deferred trust.

By currently deferring income tax on corporate earning or personal income, the money is placed into the plan in total. For instance, if Jack's firm put $5,000 into its pension/profit-sharing plans in 1976, the money will compound free of tax considerations. Assuming 8 per cent over 15 years, this year's $5,000 alone will grow to $15,860. The taxes on this money will be paid by Jack when he retires.

Municipal bonds out-perform savings programs for high-income investors

On the surface, our hypothetical architect's family appears to be in good financial shape. Jack has an annual income of $65,000 and savings of $70,000. He has accumulated a common stock portfolio worth $6,500, primarily of lower quality speculative issues. His household finances are in good order.

In 1976, the savings account of $70,000 earned 5.25 per cent or $3,675. Considering Jack's tax bracket of 55 per cent, he paid $2,021 in taxes on this revenue, or put another way, he earned only 2.36 per cent on his capital. Is there a better way?

Yes. I would suggest purchasing a portfolio of municipal bonds or a municipal bond fund. Prime quality municipal bonds will give him interest income exempt from Federal taxation and they may also be exempt from state and/or local taxation; and they provide an investment record for safety second only to U.S. government and U.S. agency securities. Also, Jack will be able to select bonds with varying maturities to meet any needs for capital.

Considering Jack's long-term financial needs, he should consider investing about $35,000 in a portfolio of municipal securities. This might include $10,000 in an issue maturing in 10 years, $10,000 in 15 years and $15,000 in a long-term municipal bond fund (approximately 30 years). At current rates, Jack's tax-exempt portfolio is depicted in Table 1.

As you can see, by investing only half of his capital in municipal securities, Jack is earning an additional $266 per year. Table 2 shows what a *taxable* security would have to yield to equal the take-home yield of a tax-exempt bond. For instance, if your joint taxable income is $32-36 thousand, you would have to earn 10.34 per cent on a taxable investment to equal a 6 per cent tax-exempt return.

Table 1

Amount	Description & Rating	Annual tax-exempt income
$10,000	AA municipal bond maturing April 1, 1987, at 4.65%	$465
10,000	AA municipal bond maturing April 1, 1992, at 5.25%	525
15,000	Diversified municipal bond fund, approximately 30 years maturity at 6.20%	930
	Total tax-exempt income	$1,920

Table 2

Taxable income° joint return in thousands	Tax-exempt yield 4%	5%	6%	7%
$24-28	6.25	7.81	9.37	10.94
$32-36	6.90	8.62	10.34	12.07
$40-44	7.69	9.62	11.54	13.46
$52-64	8.51	10.64	12.77	14.89
$76-88	9.52	11.90	14.29	16.67
$100-120	10.53	13.16	15.79	18.42

°Federal only. Does not take into account state and local income taxes.

Of Jack's remaining $35,000, $15,000 should be divided for emergency or liquid cash. He might want to consider taking $5,000 or $10,000 of this and buying taxable certificates of deposits in a savings and loan which pay a higher rate than his day-of-deposit, day-of-withdrawal account. This would leave him $5,000 as a base on which to add to his savings for reinvestment in other areas.

Common stocks and tax-deferred investments round out the plan

The unaccounted $20,000 could be combined with the $6,500 already in speculative stocks and redeployed in a diversified portfolio of common stocks. These securities would be those of leading companies in major industries, and would be divided equally over five or six companies having proven records of stable growth and a rising dividend payout. This will allow Jack to earn a current taxable dividend of 4 to 5 per cent return on his portfolio.

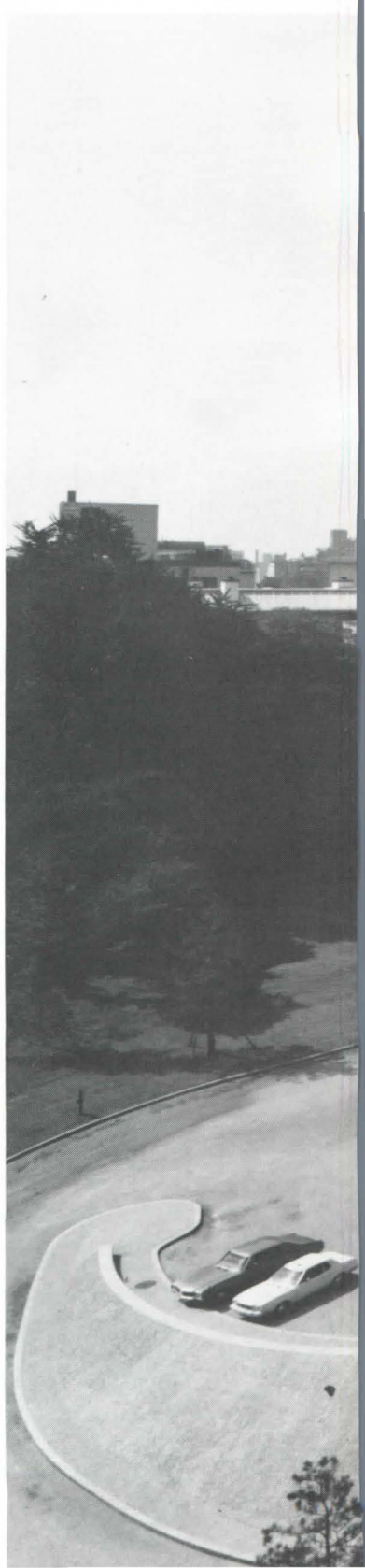
Since Jack has been adding to his savings at the rate of $5,000 per year out of earnings, he probably should consider more aggressive tax-related investments to try and defer his current tax bill. Two major tax-related investments currently available to Jack are developmental oil and gas programs, and income-producing real estate programs. These instruments are available in limited partnership interests as small as $5,000 to $10,000.

Briefly, developmental oil and gas programs, although riskier than real estate, give the investor the opportunity to incur write-offs (deductions against other income) in the first year or two while deferring the returns until the later years. Due to the depletion allowance, 22 per cent of the income can be deducted.

More conservative for Jack would be investments in income-producing property. In a real estate transaction where the tenants are in place, it is much easier to calculate operating costs and investment returns. The true advantages of income-producing real estate are the leverage of borrowing and the use of accelerated depreciation. As Jack is well aware, not only the cash flow from real estate but also the long-term appreciation potential are major reasons for considering real estate in a balanced asset management program. But before considering any tax-related investment, consult your lawyer, accountant or tax adviser.

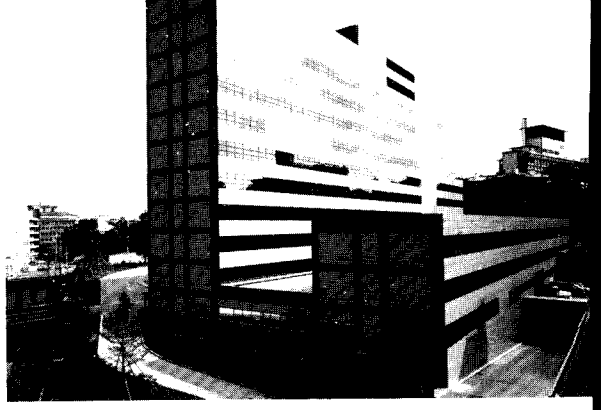
Mr. Pollard is a senior account executive with Merrill Lynch, Pierce, Fenner & Smith, Inc., New York.

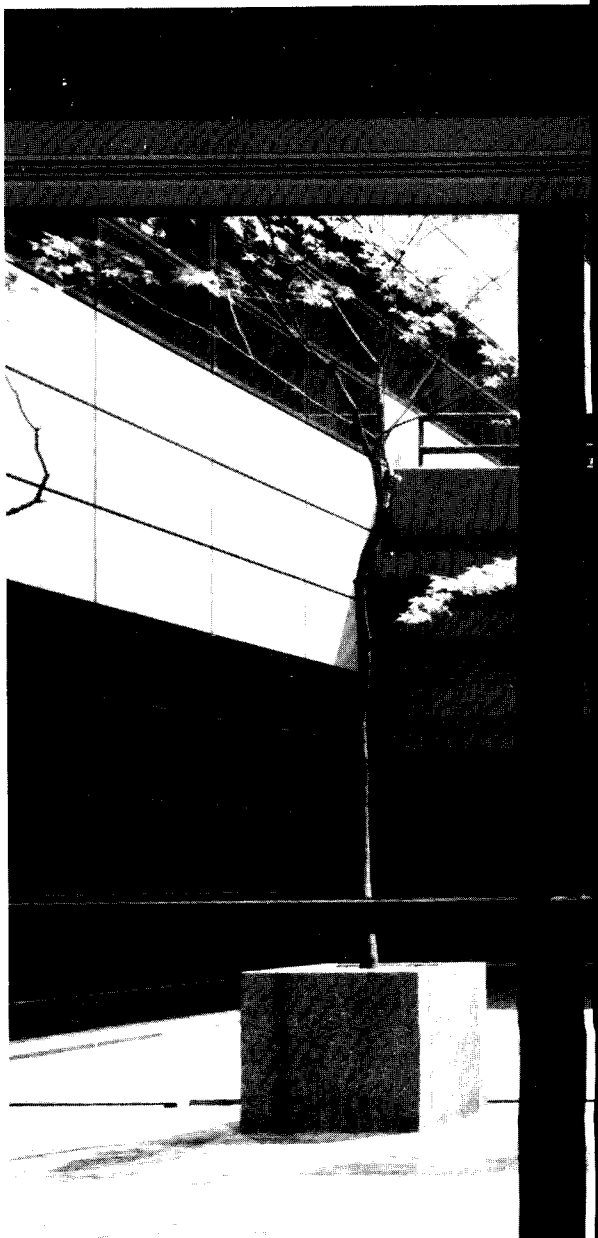
Cesar Pelli, who recently became dean of the architecture school at Yale, has gained eminence for a collection of buildings designed as partner for design for Gruen Associates. Pelli's buildings are big, sleek, apparently light, and meticulously assembled, and the latest in the collection is the new U.S. embassy in Tokyo. This replaces an older embassy, now demolished, on a lovely, garden-like site in the middle of the city. "It would be a good site anywhere," says Pelli, "but in Tokyo it is extraordinary." The building is set at an angle to the main axis of approach (which terminates at the gate in the lower right corner of the photograph opposite) in order to seem somewhat informally composed, and it seems as well to grow out of the hillside behind—a finely honed, eminently manmade object set in a natural context. The sides are the thinnest of curtain walls (made of anodized aluminum and mirror glass); and on the ends the concrete structure is revealed, like so much building cut from the stock of an elegant supplier.

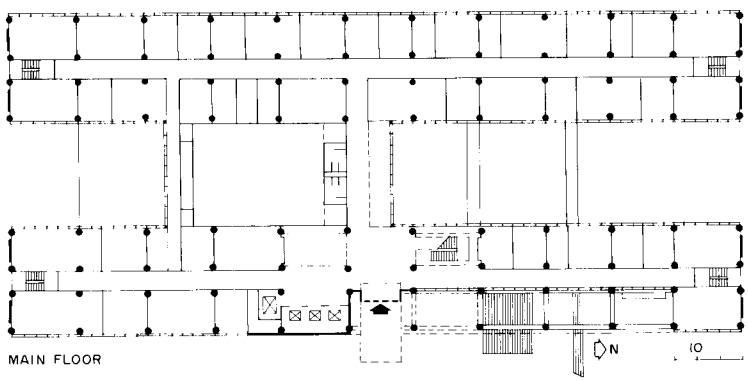


Mitsuo Matsuoka photos

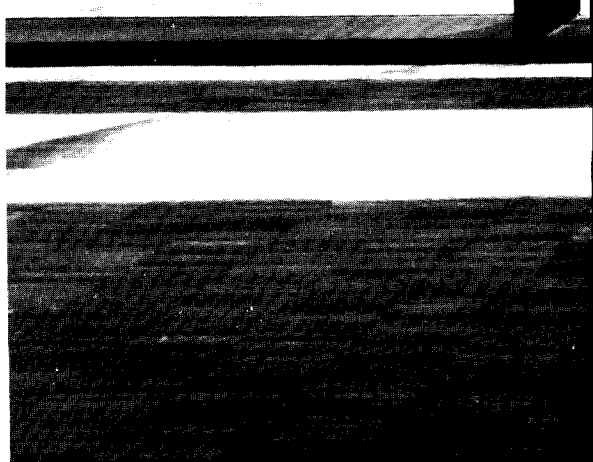
The State Department provided the architects with a very specific program which set strict limits on the amount of glass that could be used and which seemed to require a series of standard office spaces along double-loaded corridors. Any fears, though, that might have been generated by this requirement (which has resulted in some boring buildings in the past) have been assuaged by the result, which is a beautiful building that is in two parts, one high and one low, that together enclose the courtyard shown below. Major spaces, when they occur, occur as multiples of the standard building bay, and often (as in the small photograph on the previous page) the structural system is allowed to remain intact. This is a direct answer to the seismic problem—and it also allows the structure to be clear. "Two systems play against each other," Pelli says, "enveloping skin and expressive structure." One admirable result of all this is a building that is at once commonsensical and elegant. "The design is straightforward," says Pelli. "We







MAIN FLOOR



strived for the simplest, most direct answer to each problem. This also resulted in an economical building." Pelli's whole approach to design, indeed, actively involves simplicity, directness, and (above all) do-ability. It is not just that do-ability is important if a building is to get built, according to Pelli, but that the questions of what can be done (and what really needs doing) are critical esthetic chasteners—reducing the realms in which the imagination takes fire, but allowing it to do so with more point.

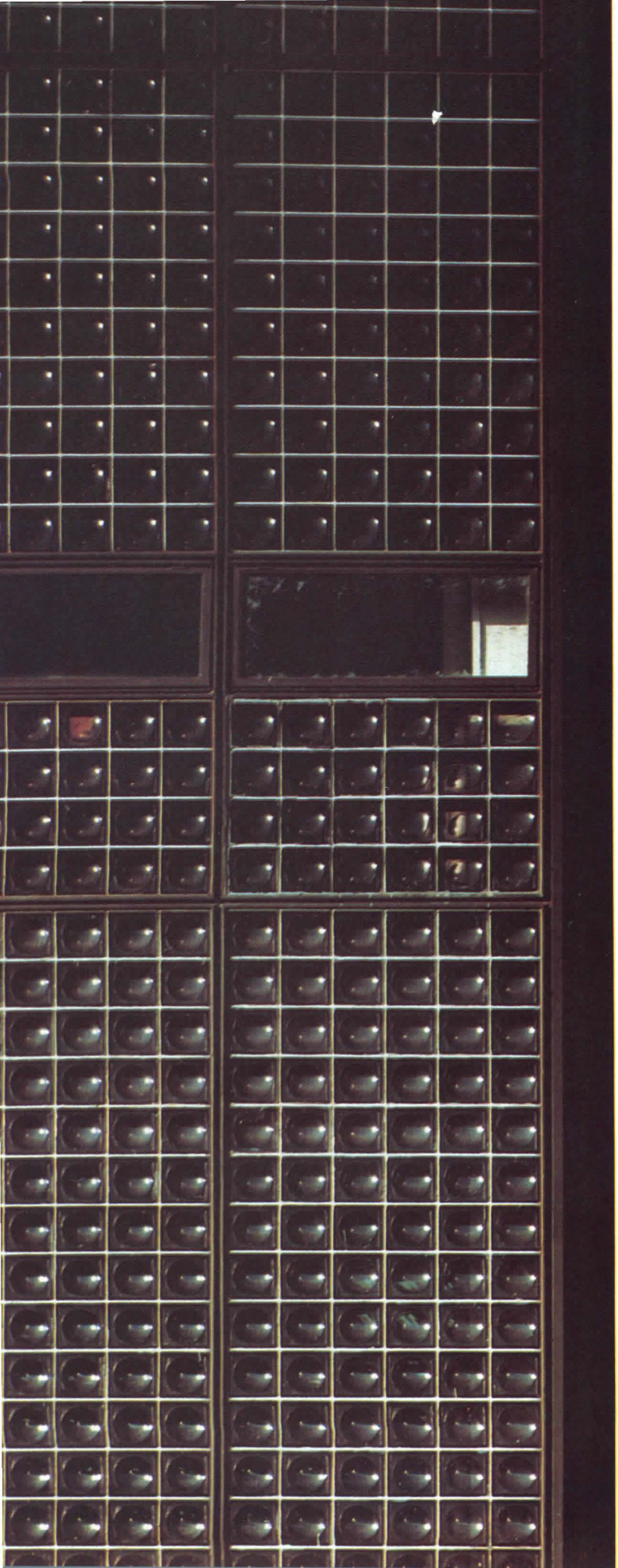
Mitsuo Matsuoka photos

U.S. EMBASSY, TOKYO

The photograph on the left above shows a large office in the new Tokyo embassy; the photograph on the right shows the interior court from the building's cafeteria. On the left is a large, multi-purpose room, and below that is one of the typical double-loaded corridors of the building.

UNITED STATES EMBASSY OFFICE BUILDING, Tokyo, Japan. Architects and engineers: *Gruen Associates of Los Angeles—partner for design: Cesar Pelli; project designer: Arthur Golding; designer: Fred Clarke; project architect: Rolf Sklarek.* Consultants: *Muto Institute* (soils); *Emmet L. Wemple* (landscape); *Richard Peters* (lighting); *Bolt, Baranek and Newman* (acoustical). General contractor: *Obayashi-Gumi.*

Mitsuo Matsuoka photos



THE GROWING OF GRIDS

A moral geometry pervades the Japanese approach to proportion. These proportions pertain to everyday relationships, emotions, and experiences, not, as in the West, to mathematical conjecture about the existence of some perfect system for measuring the world. The Japanese, too, at various stages of their history, have developed systems, such as that derived from the wood pillar and the straw mat. But once the underlying mathematics was established, the builder or craftsman or artisan was able, even obliged by moral custom, to engage in a process by which the insignificant was eliminated—learning the nature of, enhancing the identity of, a single simple element until it grew, and grew, becoming both the core and the cladding of the thing being done. Fumihiko Maki, at the Central Building of Tsukuba University, grew a grid of crisp steel framing and translucent glass blocks, expressing, more than just another functional structure, a living, learned sentiment.—*William Marlin*

Sixty miles north of Tokyo, on the campus of Tsukuba University, is a gateway.

It is quite a big gateway, called the Central Building, and it contains some 216,000 square feet of space that is arranged in tiers around a six-story well of light.

Designed by Fumihiko Maki, one of the original five Metabolists (RECORD, September 1970 and August 1976), this gateway is a "through" kind of place, straddling the main walk that connects the north and south sections of the campus. And it is a "to" kind of place, housing both the art and the physical education departments.

But the Central Building is a gateway in another sense, a place where technology and philosophy have gone into meditation with each other.

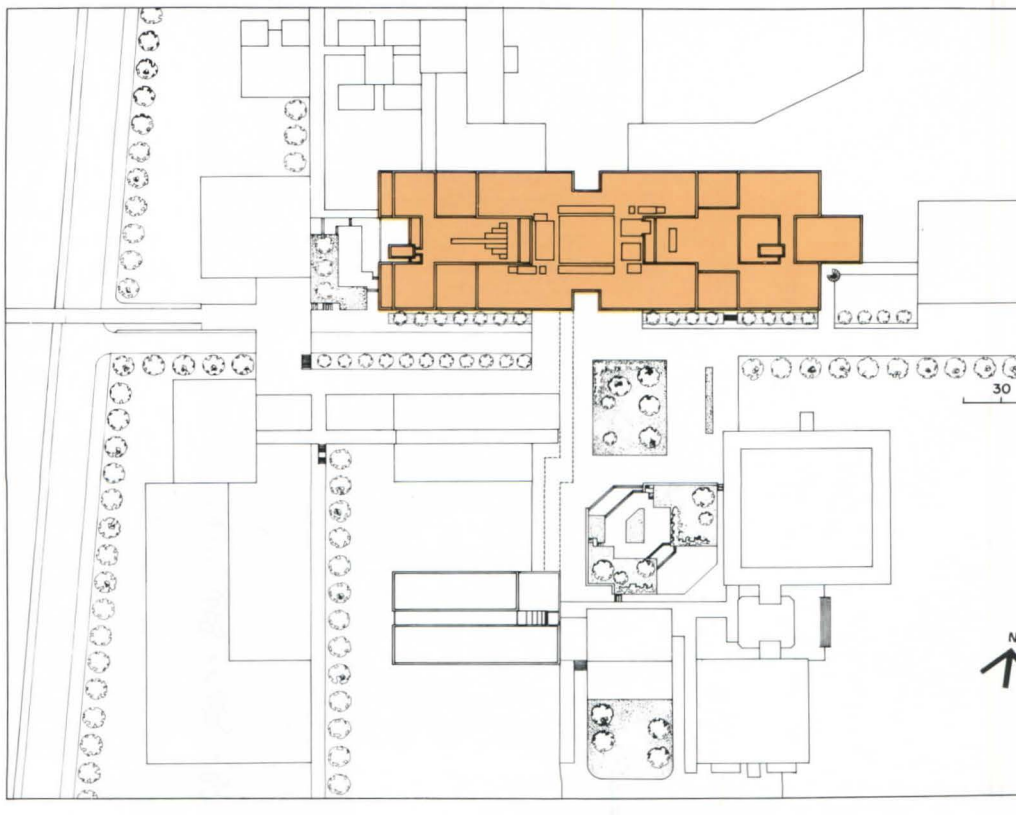
This is a process that architecture is going to have to go through, especially among those who have assumed theoretical leadership of the field, if designers are to avoid the appearance of running riot in a springtide of emancipated emotion—free at last, or so many of them think, from the strictures of earlier functionalist theory. For example, certain architects, especially in America, are now advancing the value of eclecticism, which was considered, until a few years ago, an abject voluptuousness resulting from bits gotten here and pieces gotten there. In different circles, and certainly in less fashionable ones, their words, not to mention their buildings, could be used to debate the causes of kleptomania.

The Central Building, too, is made up of all kinds of bits and pieces, but their assembly is very controlled. It is voluptuous, but in the sense that natural light, varied human activities, and a couple of basic building materials—steel framing and eight-inch-square amber-colored glass blocks (63,000 of them)—lift each other into a state of dynamic equilibrium.

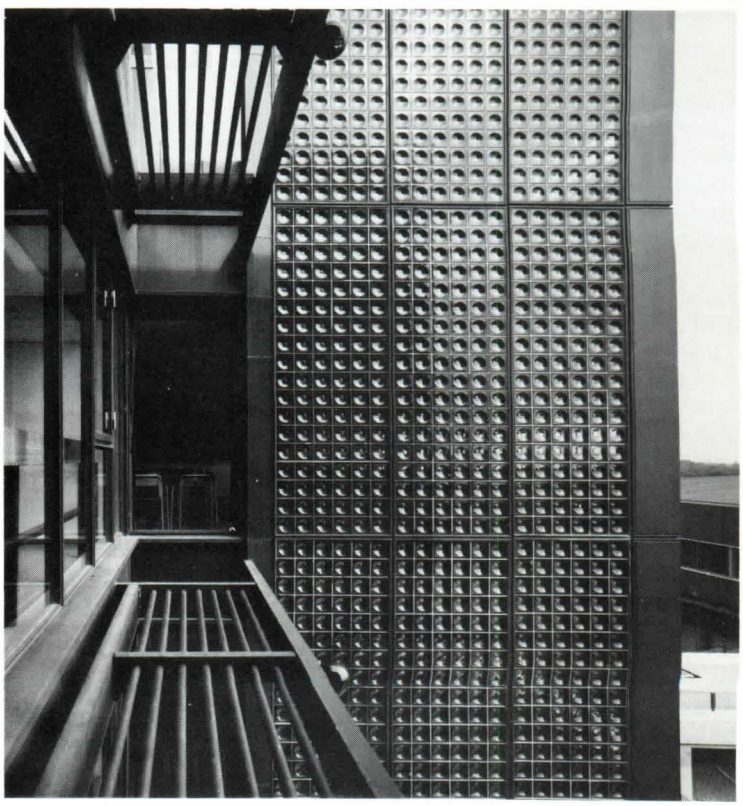
This could be called a delightful building, an approachable or personable or sociable building—a real *experience*, leading from, certainly containing, and leading to many other things. Yet, its materials are few; its methods of construction, simple and fast and clearly expressed. There is all of the discipline and unadorned veracity which most of the old-time high priests of Western modernism preached.

An out-and-out curtain wall has been put up here, but Maki's building is very much in the tradition of Japan, eliciting a precedent, centuries old, which never distinguished between beauty and ugliness (one reason being that they had no words for them), much less between philosophical depth, rich emotional exercise, and structural discipline. That precedent was composed of a few basic conventions for assembling columns, beams, crossbeams, floor boards, railings—that is, for assembling space. Everyone from court counselors to ordinary carpenters knew them. There were a few basic materials, basic patterns, basic objects for the filling out and fitting of the framework. Combined, recombined, these conventions came to constitute one of the most enduring, lesson-laden architectural accomplishments of any culture, anywhere. They innovated, but sparingly, and only to simplify.

Maki, who studied and taught in America



The Central Building at Tsukuba University, a research and academic center 60 miles north of Tokyo, houses both the art and the physical education departments. Straddling the main route between the north and south sections of the campus, it also functions as a gateway, anchoring the overall plan, while arranging internal activities around a six-story well of light. Translucent glass blocks create a warn external tone and extraordinary light within.



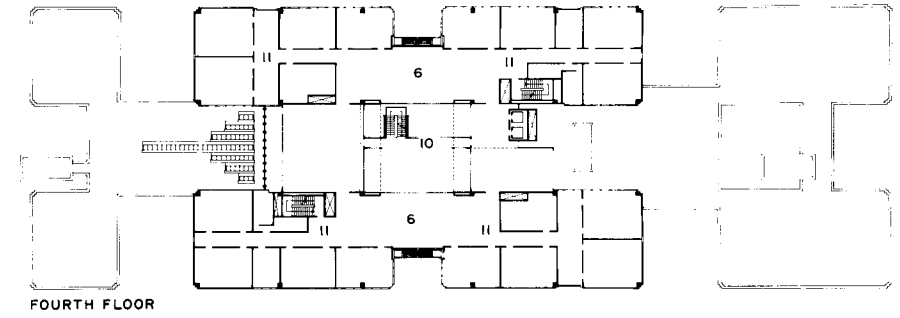
from 1952 to 1965, is not hesitant to make allusions to the technical preoccupation or formal precedents of the West; but, in this building anyway, he beats the pants off us. There is no sleek complacency, no stylized symbolism, no ingenuous playing with geometry. There is no sign that he has tried (as some of the self-annointed *avant-garde* have) to grasp some safely remote tidbit thrown off by one of the Masters of the Modern Movement (like the more curious cribbings from Corbu) in order to develop it into the liturgy and rubric of some New Order. This is a very humble building, and, instead of throwing a high-tech tantrum in the manner of the now-calcified Metabolists, this curtain wall creates a subtlety of light and texture that owes more to the tradition of *shoji* screens than to the bionic assertiveness of structural, mechanical, plumbing, and electrical systems. Maki has become, long since, involved in a more lasting movement—the flow of people and activities and feelings.

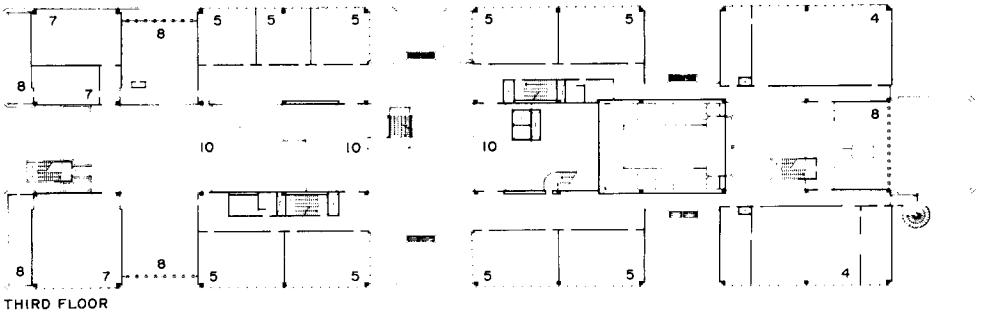
Just as the Central Building is the core for horizontal movement on the Tsukuba campus, being positioned on the north-south and east-west axes of the plan, it is the core of vertical movement. The central well, around which the building rises, is actually "outdoors," but protected from the elements by a big steel hat which, hovering slightly above the roof level, is tied down by diagonal and horizontal members. As people approach along either axis, entering the building, the traffic, both bipedal and bicycle, intersects in this space. Laced with exposed stairs and strung with bridges, this intersection is open 24 hours a day.

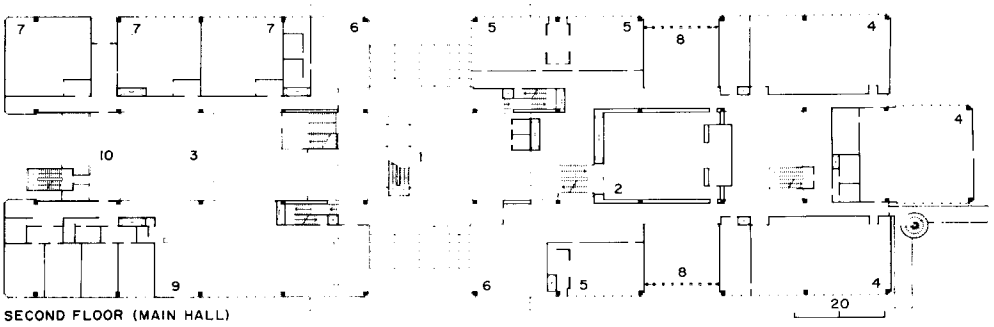
The rest of the interior is organized in three parallel strips. The center strip, to either side of the center well, contains a large lecture hall, a large laboratory for the physical education department, and a large exhibition hall for the art department. Along with the stairways, the elevators are here; plus lively student lounges. It is like a street leading into a main square. The other two strips, to the north and south of the public one, contain more determinate, smaller spaces for classes, seminars, and offices. Whether one is going through the building or to the building, there is a constant, quiet rustle of activity. This is very efficient, and it is a surprisingly tranquil solution to bringing so many diverse functions together.

The building had to be put up very quickly, as large as it is, but expediency, in this case, produced a clean, cohesive, and crisply detailed approach to construction. Steel framing and floor decking, plus poured concrete, were used throughout, and the building speaks this language clearly. Lightweight steel studs and cast aluminum panels compose the interior partitions. Asbestos material is used for finishing and fireproofing. The over-all result is as expressive as it is economical, providing apt, simple, and flexible spaces for athletes and artists alike.

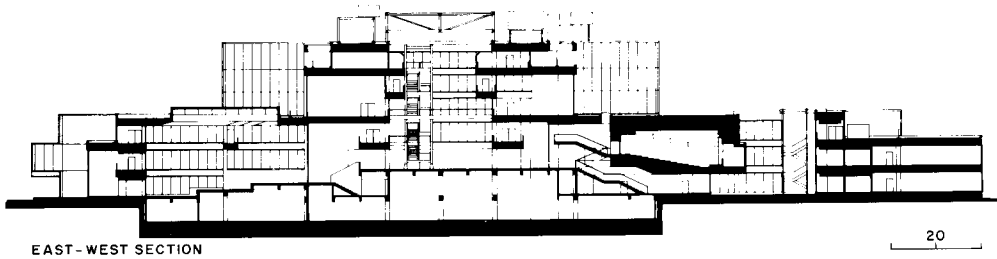
The composition and expressiveness of the curtain wall were given special attention. Insulation, luminousity, and strength were vital, especially considering the problem of earthquakes. The translucent blocks are set into steel frames that measure 4.1 feet by 12.4 feet. A transparent window is set into each,







1 Main hall
2 Lecture hall
3 Exhibition hall
4 Experimental room
5 Lecture room
6 Lounge
7 Practice room
8 Terrace
9 Main office
10 Bridge
11 Classroom and office area



Do not seek to follow
in the footsteps
of the men of old, but
seek what they sought.

Basho
Japanese Poet
18th Century

and can be opened. The frames were fully fabricated, with the glass blocks and windows in place, and then the sections raised up for installation. No doubt about it, Maki not only gave new dimension to the old idea of glass blocks but to the old idea of what a curtain wall is. The light that penetrates is exquisite, ample without being strong. There is a sense of privacy as well as openness, even in the smallest classroom—the indoors and outdoors quality that is dramatized by the big central space.

Maki says, "I have never wanted to try to conceptualize or to preach a style in building, but I have tried to develop buildings that can exist comfortably within their physical or cultural environment while, at the same time, manifesting an integrity and identity of their own. This is really a question of architecture as urban design, whether the design happens to be for a large campus, or for a town center, or for a city district. To make good cities, you have to have many good *small* spaces. I dislike cities with just a skeleton and no heart—that is, no good small spaces. If you can make good buildings, however small their territory, but buildings which convey an inference of broader principle and application . . . well, to me, that is more satisfactory than building a huge skyscraper. I don't understand buildings that settle for just themselves, that give no nod, that don't give you an attractive feeling when you walk by them or through them. This kind of romantic feeling is something that is the heart of urbanism. It is a quality of feeling that has been irrationally played down, but it is also a quality that we should rationally expect."

The Central Building, going all the way back to Maki's projects for a so-called City Room, done when he was an associate professor at Harvard, is such an inference. It is, to be sure, a set of skillfully organized requirements, at varied levels of specificity, but it is also one of those buildings, done too rarely, that deliberately sets out to suggest, or to make room for, other and, most often, unpredictable forms of human encounter. Strictly programmed, and strictly scheduled in terms of construction time and cost, the building allows itself to be reprogrammed, recurrently, as the life and the movement of the campus coalesce inside.

In this way, too, Maki accommodates the most exacting tenets of functionalism without acquiescing to its tired physical trappings. And he invokes, probably without having been trying to, the ancient metaphor of Lao-tsu, the great Chinese thinker—a powerful influence in the history of Japanese custom and esthetics—concerning the Vacuum. Lao-tsu, as most anyone who has read the various autobiographical essays of Frank Lloyd Wright will likely recall, believed that only in a vacuum can one locate the truly essential. The reality of a room—to Wright's admitted chagrin, he said it centuries before Wright—was to be found in the vacant space enclosed by the walls and roof, not in the walls and roof themselves. In a vacuum alone, true motion becomes possible. This is quite obviously not the usual meaning that the West associates with the word vacuum, nor is it, certainly, the kind of reality or utility that could be associated, in all objectivity, with most of the purely practical buildings done in the name of functionalism—vacuums where little motion is possible, at least the kind which Maki has indicated is meaningful to him.

At Tsukuba, the material and the form of Maki's Vacuum, most markedly that central well of light, are deftly composed and inseparable. Technically, and in terms of their connective visual impact, they are to be remarked upon. But what has to be remarked upon, most of all, is this emptiness that he made room for, here—that Vacuum which, it turns out, can not help but be full—of color and light and motion—because it was *meant* to be a receptive receptacle.

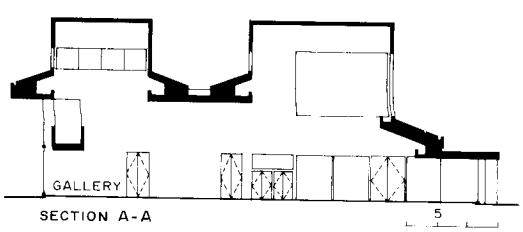
Maki's steel frames and glass blocks can be discussed in ways that the structural purists of the West might accept as a logical, even brilliant, extension of their familiar concerns for rational expression. But discussing them truly, which is to say in the context of another cultural condition, would such purists accept it? The Japanese idea of structure is not the West's idea of structure. It wasn't historically, and, as Westernized as many Japanese architects have become, it isn't now. Maki's structuring of the Central Building reflects this. The elimination of the insignificant, practically a creative ethic in Japanese history, was alive and well, operating here. Essential elements, suitable to the requirements of the job to be done, were defined. This essence was *organized,* and it is this organization of elements in such a way that the elements grew into the whole—it is this which is structure; above all, the structure of an idea.

The total symbolic content of such a work of architecture comes, not from its material and formal elements alone, then; but comes from the constantly changing correlations which are made, in everyday use, between its geometry and our own geometry; between its grid and that of our own volition, values, needs, and associations with the building. The Central Building allows for these correlations, encourages them, and its real grid, its real structure, its real validity as a functional success alters every time an association is established. Ride a bicycle through, wrestle someone to a mat, cast a plaster sculpture, witness it as a point of orientation from any direction—any of this, and the building accommodates. Its suggestive power is extraordinary, and in a culture where suggestive power has been basic.

Technology and philosophy, fact and feeling, form and idea have found a relationship here. To try to distinguish between them would be like asking, as one Zen master once quipped, "What is the sound of one hand clapping?" Or, as Maki obviously did here, to ask which is more important, the nature of walking or the walkway itself. The walking was, of course. At Tsukuba, with its gateway, such connections are a cogent reminder that the simplest of structures can be made to stand up in many ways and stand for many things.

THE CENTRAL BUILDING, FOR THE SCHOOL OF ART AND PHYSICAL EDUCATION, TSUKUBA UNIVERSITY, Ibaragi Prefecture, Japan. Architects: *Fumihiko Maki and Associates.* Engineers: *Kimura Structure Engineers; Sakurai Architectural Engineers Co., Ltd.* (mechanical). General contractor: *Asanuma-Gumi.*

A LARGE HOUSE OF VARIED SPACES AND SURPRISES



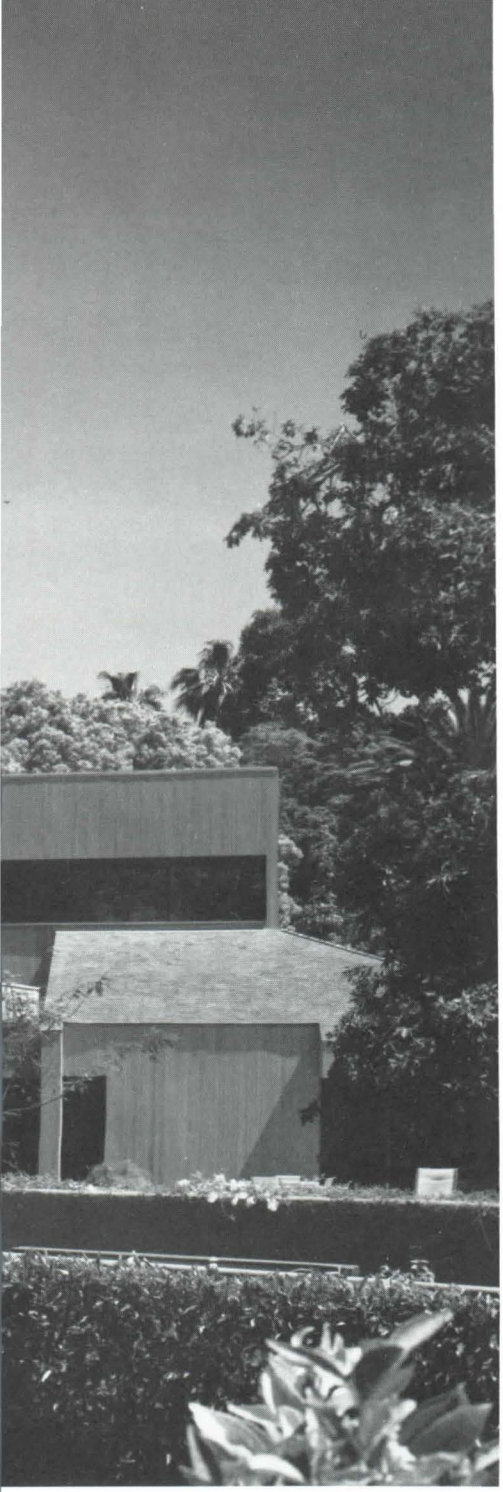
In an unusually large house (10,000 square feet including a detached guest house) architect Paul Thoryk successfully balanced the conflicting natures of a formal design concept with the informal lifestyle of southern California. As a result of the client's program, a multi-faceted form developed, first experienced at the entrance (above). The high-volumed spaces (left) particularly signal the essential qualities of the design—an articulated form providing a variety of light-filled spaces.—*Janet Nairn*

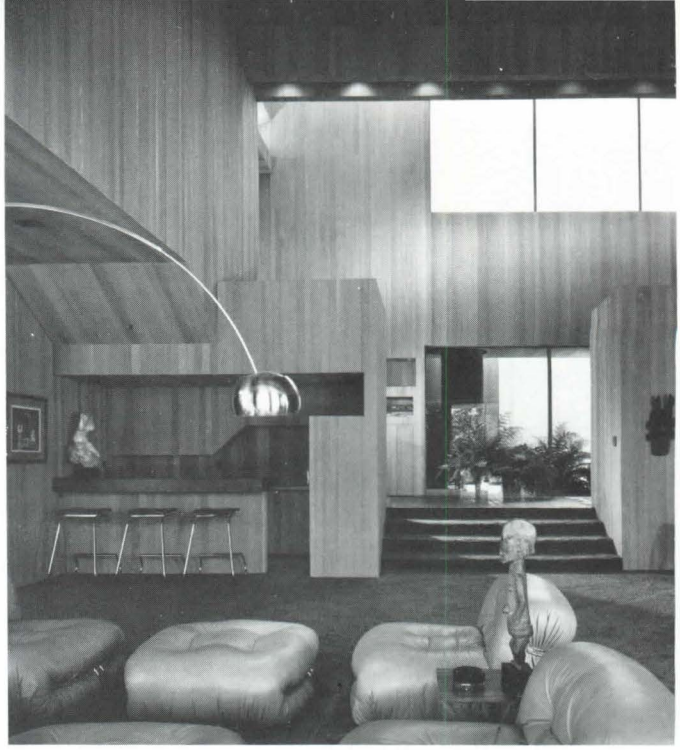
Julius Shulman photos

A multi-faceted form for this house evolved as a visual expression of the client's desire for privacy, a directive that affects all aspects of the design. The house was positioned on its corner lot to open onto an inner courtyard (above) away from the street, from which only the garage and upper portions of the house are visible behind landscaping and a high wall. Privacy is enhanced by locating the guest rooms, maid's quarters, library and garage in a detached unit (not shown).

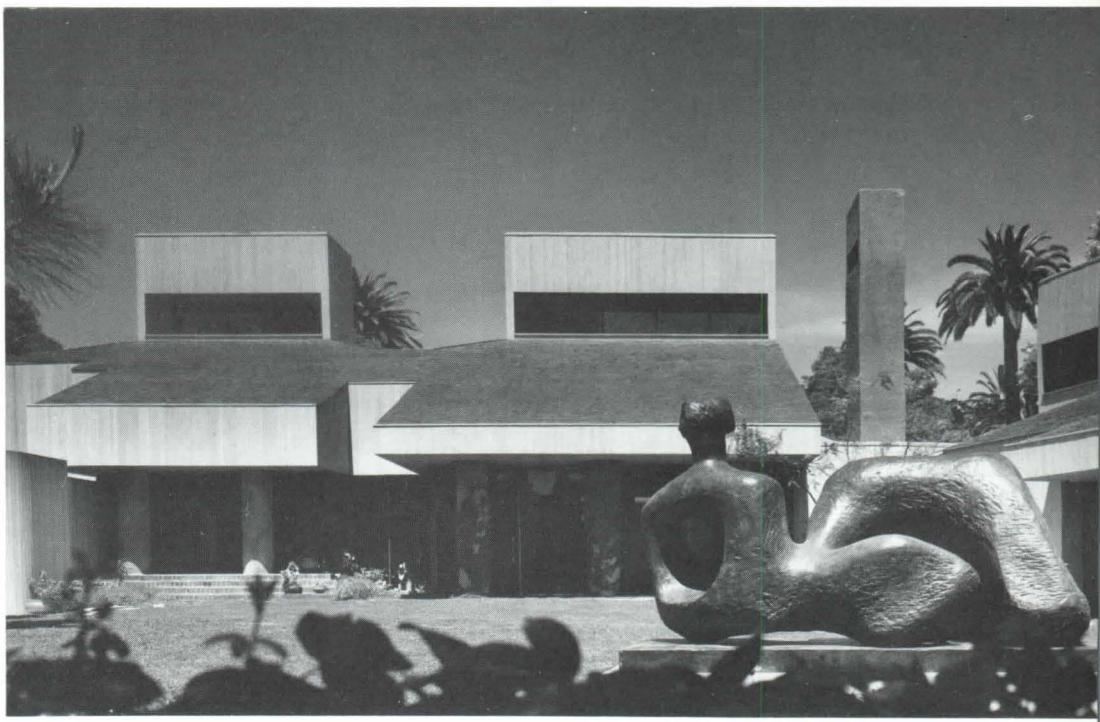
The interior spaces are organized into living "zones" branching off a central hallway. These zones are reflected and emphasized on the exterior through a combination of distinctive recesses, overhangs and geometric variations—what Thoryk refers to as having an "outdoor pavilion character." A particularly articulated form, it is marked by high-volumed sections with clerestory windows, and curvilinear walls which jut out at four points around the house, offsetting the over-all rectilinear shapes while enclosing a variety of interior functions. (One encloses the children's "fun" room, another the mechanical systems, one contains a garden and one directs views from the dining room into the formal garden, separating this area from an outdoor pool adjacent to the playroom.) For sun control on the south, large overhangs, supported by exposed concrete columns, were designed to shade the extensive glass walls.

Privacy between zones is created by the arrangement and separation of functions off the central corridor, the most obvious of which is the division between the master bedroom and the children's playroom and second-story bedrooms. It is, rather, the varied proportions and use of glass and light which announce the



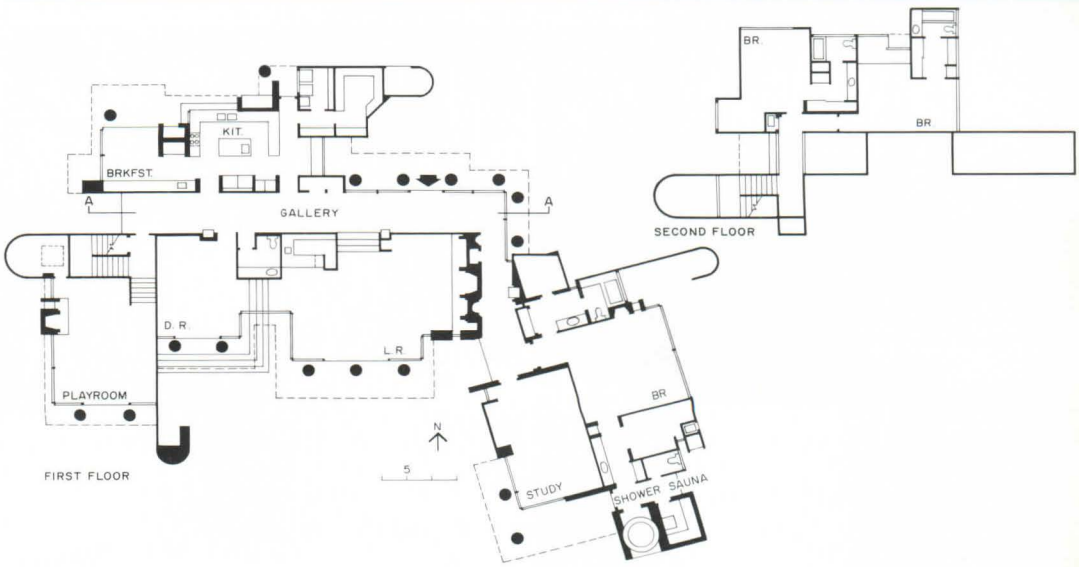


The angular design elements express a deliberate effort to separate interior spatial functions, but it is design subtleties of volume, light and materials that soften the form. The living room (right) is indicative of these characteristics with its sloping ceiling, changes of floor level, and borrowing of light from the corridor. Resawn cedar was used on both the exterior and interior walls.



different zones. Each of these devices also direct views outward, to either the formal courtyard, pool, small patios or to a tennis court beyond the kitchen. These are all filled with major examples of sculpture from the owner's private collection.

PRIVATE RESIDENCE, Southern California. Architects: *Paul Thoryk and Associates—Paul Thoryk, principal-in-charge.* Engineers: *Robert Fefferman* (structural), *Stone Brothers* (foundation/soils). Landscape architect: *The Peridian Group.* Interior design/lighting/graphics consultant: *K.S. Wilshire, Inc.* General contractor: *Roland Sylvestre.*



The spine of the house is a gallery (above), 40 feet long, but broken into two volumes of space each 36 feet high (see section). It is flooded with natural light through large, clerestory windows, and augmented with recessed ceiling lights for display of part of the owner's private art collection. An indoor/outdoor relationship, typical of Southern California living has been created throughout the house with glass walls and sliding-glass doors opening onto patios. For example there is a long view through the gallery to a garden (above) and to the large courtyard through the living room (right).

BUILDING TYPES STUDY® 500: Forty years of American architecture as explored in 499 Building Types Studies

The emergence of the numeral 500 signals that RECORD has stayed with at least one editorial idea for over 40 years. This idea, which was first implemented in January 1937, was and is a simple one: Every month the editors present and analyze a different building type—stores, industrial buildings, schools, hospitals, factories, office buildings, hotels, and so on (there have been 41 building types examined). The frequency with which a particular type would appear reflects the volume of construction predicted for that type by RECORD's economic forecasters. When the nation was building more schools, for an example, more architect readers of the RECORD were designing schools, and the RECORD scheduled frequent school Building Type Studies—to help the reader do a better job with the work currently on his boards. And that is still the rule—and the rationale.

While going about this sensible, eminently practical journalistic enterprise, several generations of RECORD editors have, without intending to, put together a remarkable collection of examples of the best U.S. architecture of the last forty years. This is particularly fortunate since very nearly all of the architectural historians and critics of the past half-century have included in their books and articles only those buildings which help make their points—and have ignored the rest. As a result, the world of published architectural history and criticism bears little relationship to the actual built world. The RECORD's collection of Building Types Studies, on the contrary, exists as a singularly important exception to this general misrepresentation. As such it is an invaluable compendium of raw material for an esthetic, stylistic, socio-political and technological evaluation of contemporary U.S. architecture as it actually got built.

In honor of its 500th Building Types Study RECORD invited Charles W. Moore and Richard B. Oliver to be the first to assess these studies from an historical and critical point of view. Charles W. Moore is a partner in the Connecticut architectural firm of Moore, Grover, Harper, and Professor of Architecture and Program Head at UCLA School of Architecture. He is the author of several books including his recent "Dimensions" with Gerald Allen. Richard B. Oliver is a partner in the New York architectural firm of Meltzer-Oliver-Solomon and has been recently appointed Curator of Architecture and Design at the Cooper-Hewitt Museum in New York City, the Smithsonian Institution's National Museum of Design. Both men are well-known as "historicizing architects" who draw upon the work of the past in their own design.

In reviewing the forty years of this program, Moore and Oliver were astonished at how accurate a cultural monitor the Building Types Studies have been. As their article—"Magic, nostalgia and a hint of greatness in the workaday world of the Building Types Study"—points out, the program has recorded the architectural interests and manifestations of the mainstream of American society, while implicitly relating these architectural events to the larger events of the last forty years: the end of the Depression, the war years, the suburbanization of postwar America, the impact of the automobile, building technology, the baby boom, and the postwar revolution in marketing techniques. The authors have noted, with some pleasure, the near total absence of architectural polemic in the studies and the emphasis on the question of "what to do" and "how to do it." The Building Types Study program, as they see it, with its solid grounding in construction forecasts, is almost a handbook or manual for architects on how to be an effective part of the changes in our culture.

In an additional article, "The Building Types Study as a not-too-clouded crystal ball," RECORD editor Charles Hoyt explores the 499 preceding studies from another angle, demonstrating the RECORD's past ability to predict future developments. His article includes illustrations of the first completely factory-built house and the first fully air-conditioned office building. He discusses the process of stylistic "trickle-down," showing how designs such as the split-level house, originally developed by architects and published in RECORD, have since become part of the architecture-without-architects, main street, roadside vernacular.

In forty years of reporting the present in behalf of the future, RECORD building type editors, as is to be expected, weren't *always* right. Hoyt's article includes, in addition to his examples of remarkable clairvoyance, instances when his predecessors' crystal ball was somewhat clouded.—*Mildred F. Schmertz*

Magic, nostalgia and a hint of greatness in the workaday world of the Building Types Study

by Charles W. Moore and Richard B. Oliver

The Architectural Record's Building Types Studies, now forty years old, provide on the occasion of their five-hundredth appearance some astonishingly heady reading and looking. The various studies emit so many conflicting signals that we were moved, first of all, to prepare a chart that would be a trace of the monthly "ceremony": a set of tea leaves which might help us to see how things have been, and even how things might be. Our ruminations and divinations will start soon.

Our most pervading sense, though, stronger than the specific lessons we think lurk in the chart (pages 122-124), is of how breathtakingly close to greatness the workaday world of the Building Types Studies often was, especially in the thirties and forties. The works of architects who are now historical figures (Gropius, Wurster, Neutra) are there in abundance, but there are also some beautiful works which never made it into the history books, like the poignant Le Chateau Cafe in Fargo, North Dakota, designed by Paul W. Jones (Figure 1), or the elegant five-level Longchamps Restaurant in the Empire State Building, by Ely Jacques Kahn (Figure 2), or the altogether delightful Locatelli Building in Winchester, Massachusetts, by John Edmond Kelley (Figures 5, 6, 7). One of us wasn't even born yet when most of these works were undertaken; but the older of us recalls, as an early teenager precociously interested in architecture, waiting with almost uncontrollable suppressed excitement for the monthly arrival of the RECORD so as to pore over these very things. It's amazing how much of the magic is still there, or at least there again, after the intervening decades.

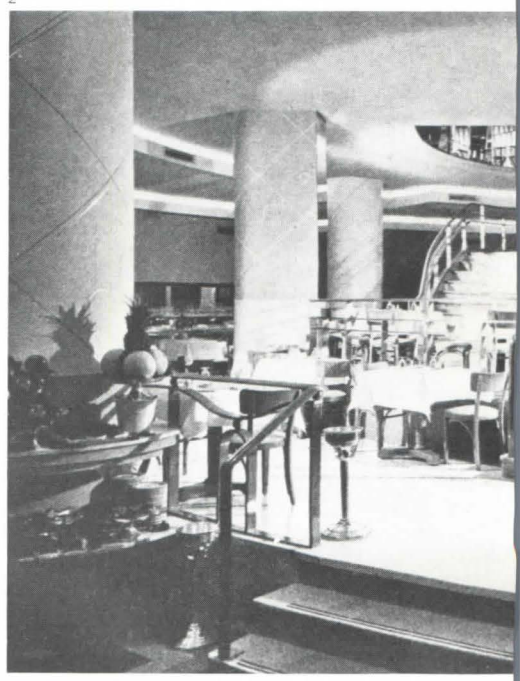
This is, of course, in the full sense, Nostalgia (nostalgia: a wistful or excessively sentimental, sometimes abnormal yearning for return to or of some past period or irrevocable condition, according to Webster's New Collegiate Dictionary; even the modernist dictionaries seem to think ill of it). Thomas Wolfe was against it, saying *You Can't Go Home Again,* though George McGovern entreated us to "come home, America." In fact, at a time when modern architecture as purification rite seems to have run its course, and architectural historians (and even some architects) are urging us toward a "radical eclecticism" or a serious search for stereotype as a way of making architecture which communicates with (or better, is inhabitable by) possible users, at such a time as this a yearning to connect with these simpler pleasures seems not abnormal at all, but a way of finding ourselves. Nostalgia, that is, may turn out to be a rough equivalent of tradition, a force so summarily (and so disastrously) dismissed by Modern architecture.

Tradition is by now a good word (though nostalgia isn't yet) and it is cheering to see the RECORD's joyous juxtaposition of some generous and gentle "traditional" houses (Figure 8) and stores, like the Locatelli Building, with exuberantly curvilinear modern works, like the dining booths in the Los Angeles Union Passenger Terminal Restaurant (Figure 4), or the sleek bar in Henrici's Restaurant in the Merchandise Mart in Chicago (Figure 9), or the lush Garden Room in Welch's Restaurant in Long Beach, California (Figure 3), or elegant industrial structures like the spatially magic Loomis Coal Breaker in Nanticoke, Pennsylvania (Figures 10, 11). Elegantly colored cube houses in Mexico City by Ramon Hermosillo (Figure 12) shared a Building Types Study in May 1937 with a series of colonials on which the tight hand of the Great Depression is depressingly in evidence (Figures 13, 14), and with the Hillcrest Community in Meadville, Pennsylvania (Figures 15, 16, 17), which at first sight chills the blood, but on closer inspection turns out to be full of sophisticated devices to bring at least some variety to the street. Then there are places to live which the ensuing decades have by no means surpassed, like a house in Beverly Hills by Allison and Rible (Figure 18), a classical William Wurster house in California (Figure 19), the Davey house by Richard Neutra in California (Figure 21), and a house by Gropius and Breuer in Massachusetts (Figure 20). And there are pleasant commercial buildings for a gentler age, "traditional" and modern (Figures 22, 23), each with an air of suburban swank. It is hard to remember how long ago it all was, until a time-and-motion study shows up, by [engineer] Mario Salvadori (Figure 24), promoting a revolutionary kitchen plan which has by now become altogether standard. Hollywood, then, was still the most-influential and widely shared arbiter of taste and style and aspirations, and it seems now to have been a movie-like moment of both innocent bliss and racy, glamorous chic, a moment when Tradition and Modernity were not seen as mutually exclusive concerns (though the battle lines were being drawn). It may seem surprising, or perhaps lucky, that with the introduction of the recycled building—that building type which is simultaneously old and new—there is a chance to recapture some of the magic of those pure Arcadian beginnings of forty years ago.

Traditional and modern buildin once appeared together

1 Restaurant entrance, Fargo, North Dakota; Paul W. Jones, architect; January 1939.

2



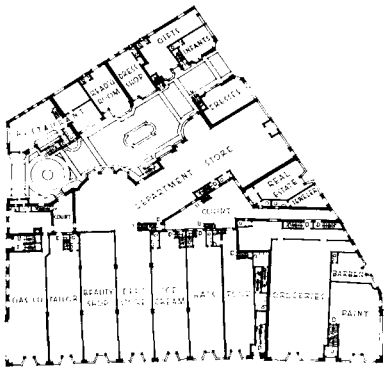
Longchamps Restaurant, New York City; Ely Jacques Kahn; January 1939. (Ezra Stoller)

3

4

Welch's Restaurant, Long Beach, California; L. M. Saunders, designer; July 1948. (Maynard L. Parker). From the RECORD: *"The Garden Room has a spacious informality. Serpentine walls have become popular again since Neutra used them in his Nesbit House."*

5



6

Locatelli Building, Winchester, Massachusetts; John Edmond Kelley, architect; June 1940. (Russell B. Harding)

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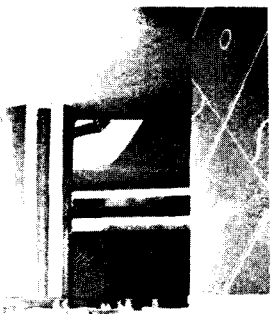

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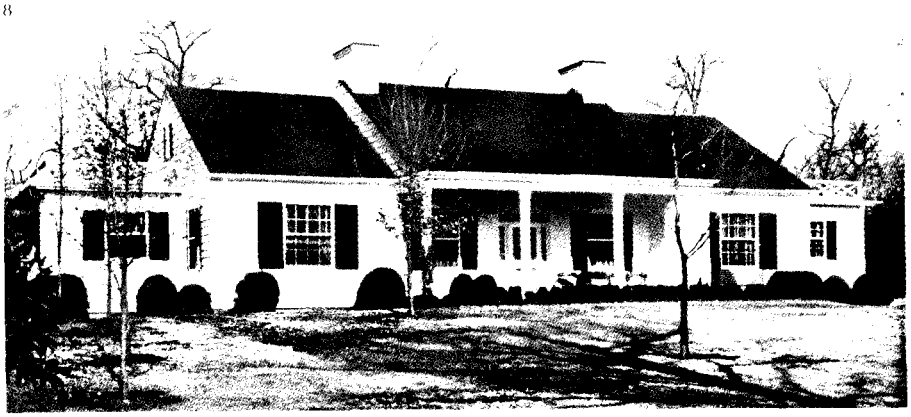

House, Belle Meade, Tennessee; Henry H. Miller, architect; March 1940. (Wiles)

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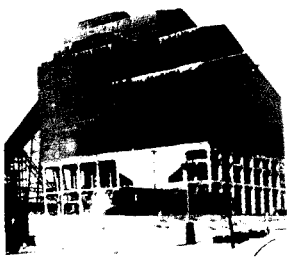

Loomis Coal Breaker, Nanticoke, Pennsylvania; February 1937.

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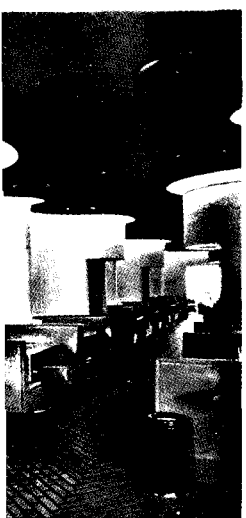
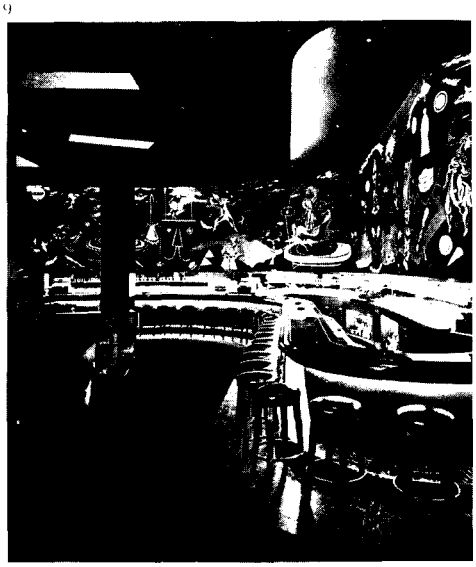
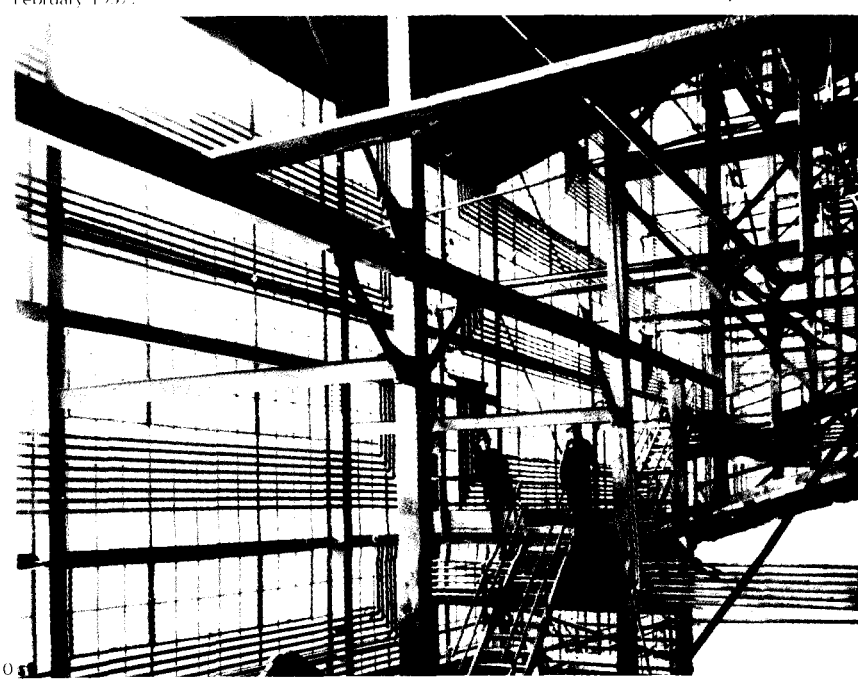




s Angeles Union Passenger
erminal Restaurant; Donald
rkinson, consulting architect;
nuary 1940. (Mott Studios)

Henrici's Restaurant, Merchandise Mart, Chicago; James Eppenstein and Raymond Schwab, architects; July 1948. From the RECORD: *"Felix Ruvalo's luminescent mural is stressed by 'black light' to become the dominant feature of the restaurant."*



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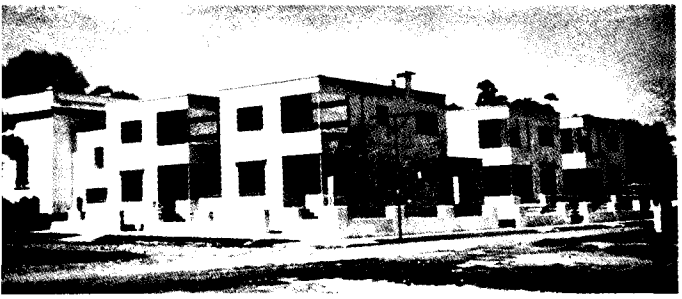
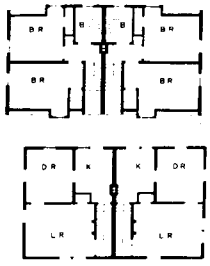


Row houses, Mexico City; Ramon Hermosillo, architect; May 1937. (Laboratorios Julio)



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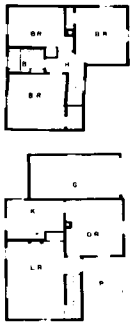

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Meadville Housing Corporation Hillcrest Community, Meadville, Pennsylvania; E. A. and E. J. Phillips, architects; May 1937.

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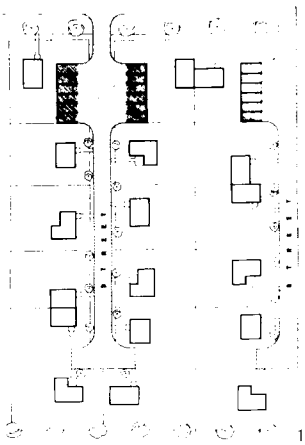

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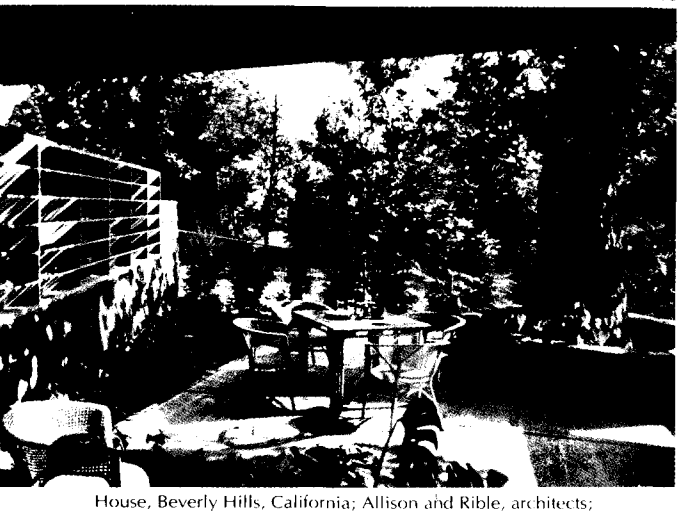
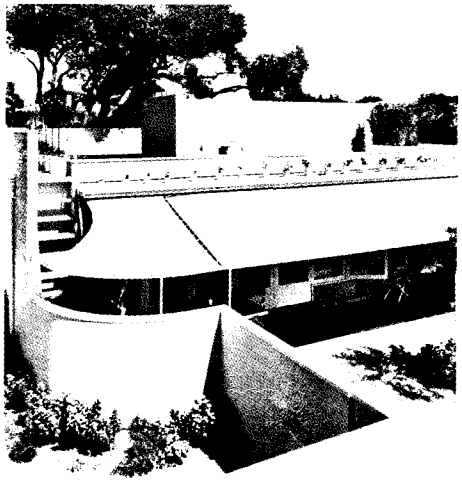
Meadville Housing Corporation Hillcrest Community.

18



House, Beverly Hills, California; Allison and Rible, architects; April 1949. (Julius Shulman)



House, California; William W. Wurster, architect; March 1940. (Roger Sturtevant)

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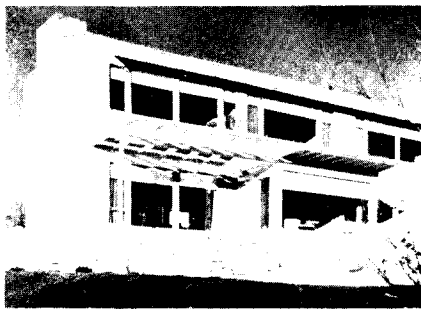

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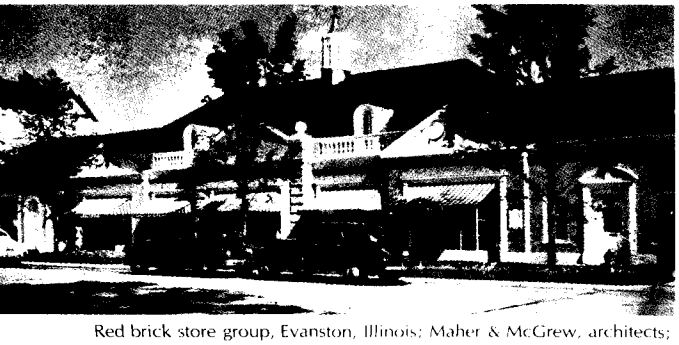
House, Massachusetts; Walter Gropius and Ma Breuer, architects; March 1940. (Arthur Haskell)

21

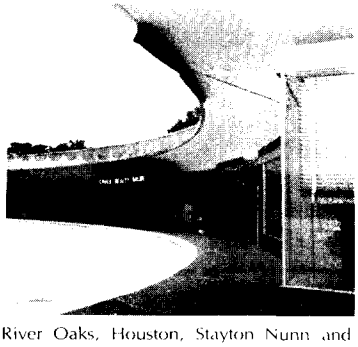
Davey house, Monterey Peninsula, California; Richar Neutra, architect; May 1947. (Luckhaus Studio)

22



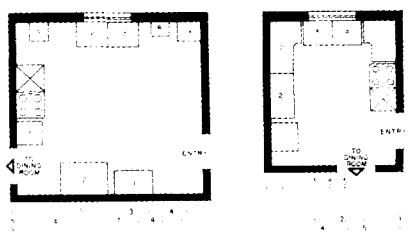
Red brick store group, Evanston, Illinois; Maher & McGrew, architects; August 1949. (Nowell Ward)

23



River Oaks, Houston, Stayton Nunn and Milton McGinty, architects; June 1940. (Paul Peters)

24



Kitchen circulation plans done for a time-and mot study film made in the Department of Industrial E neering at New York University; March 1940.

A trace of the ceremony

We began our review of the Building Types Studies by charting all 499 of them. We suspected that a trace of the ceremony might provide us with some insights, like reading the tea leaves in the bottom of a cup. Indeed, our chart, which simply records the studies, turns out to be as revealing a document about the practice of architecture in the last forty years as any we've seen. These collections recorded authentic practice—not what architects dreamed of doing, but what they in fact were doing. A Building Types Study rarely sets forth the singular brilliant architectural theory, or the personal work of a super-star (this type of article regularly appears elsewhere in RECORD). It is instead an indication of what the bulk of the profession has been engaged in. Thus, a few treasured myths about the architect's role are affected.

A quick glance at the chart (overleaf) shows that: of the eight building types studied the first year, seven were among the most frequently studied; from 1937 to 1946, new Building Types Studies were being introduced every few months to build up the list, after which the introductions slowed; churches were studied intensively from 1953 to 1961 but then not at all from 1963 until 1973; college buildings came under frequent scrutiny in the middle sixties, just as the baby boom children were reaching college age. For a period following 1954, there were no new studies at all, except two categories that were merely revisions of previous Building Types Studies, so that what seems from this inadequately distant vantage point an increasingly compendious series of replays occurred in the late sixties, when the introductions began again.

It is interesting to note when various categories were studied. Industrial buildings were heavily reviewed during the war years—both World War II and the Korean War—with four such studies in 1942 alone. Restaurants and bars constituted a popular category at first, and then were never looked at again after 1948. Churches, schools and hospitals so dominated the 1950s that one is tempted to suppose that the decade revolved solely around a consideration of health, education and salvation. Other building types were hardly reviewed at all: gas stations, bus terminals, cultural centers and architects' offices only once each. For example, gas stations, often a romantic building type, at first because it seemed an apt symbol of Machine Age architecture and later because it was an *object trouvé* from the vernacular American landscape, were simply not designed by architects, but by industrial designers and the oil companies' in-house design staffs. Only rarely would someone like Eliot Noyes be commissioned to redesign the gas station, and then only as part of a larger corporate identity program. Shopping centers appeared in 1940, with every conceptual feature already established, and have been reviewed periodically to the present day. By contrast, airports were first studied in the forties during the wave of postwar airport construction, but not again until 1968, when the impact of more and larger jets made it apparent that most large airports would have to be rebuilt or vastly expanded. The recycling of old buildings for new use did not appear as a separate category until late 1971, although there was an issue on house modernization and the converting of barns and wineries into houses as early as 1940. Restaurants and bars, as a building type, were lost in the fifties to the food-service chains, and to interior decorators who seemed to have a better sense of the stylistic fantasies of America. Architects, it turns out, have been supported by "meat-and-potatoes" work: schools, hospitals, college buildings, office buildings, factories, hardly the stuff of an Ayn Rand novel. This was work in which planning, functional and technical expertise, and shrewd knowledge of construction were highly valued, but where "style" was not much of an issue, and where the architect as prima donna was not likely to be highly regarded.

The trace of the ceremony even suggests that the decades themselves have identifiable characteristics, and mirrors the changes in American life over the past forty years. The chart reveals that more than half of the building types of the past forty years (26 out of 41) were established as categories in the first decade. In terms of fundamental concept and essential details, most building types were clearly developed early on, and the studies themselves have recorded a steady evolution of forms instead of the dazzlingly inventive changes architects often fancied were central to their role. The architect, like anybody else, is a child of the culture, challenged and limited by the larger flow of events. The Building Types Study program has had one intensive moment of prophecy. During World War II, when little or no construction not related to the war effort was going on, the studies developed visions of postwar America. It is astonishing to realize how clearly everyone seemed to sense what was coming after the War—the mass suburbanization of America, the impact of the automobile, the baby boom, and the revolution in marketing techniques—and how little thought or concern was given to the potentially disastrous dislocations in American life and environment that would accompany this vast new enterprise. But postwar Americans were a generation absorbed with "newness," a generation obsessed with a flight from the restrictions of the Depression and the war years, and from Tradition—from traditional patterns of living and from traditional forms of environment. The fifties were often characterized as a time of flight from the cities, but it was also a time of flight from Emily Post. Informality became *the* key word for the fifties and sixties in both public and private life: informality in patterns of living; informality in patterns of buildings. Perhaps the clearest symbols of this rage for informality are the disappearance of the separate dining room and the ascendancy of the drive-in restaurant.

The fifties have often been associated with gray flannel suits and an unseemly amount of conformity. The Building Types Study chart reveals that between 1946 and 1961, only nine new building types were reviewed, and that during the fifties, the bulk of the studies were in only five categories. The fifties seemed to be a decade in which wayward fascinations were neither well regarded nor profitable. It seems to have been a decade dedicated to building a new, informal suburban environment.

The sixties, in many ways, were an extension of the fifties. But where the latter had been labeled a quiet decade, the sixties were quite the opposite, a decade of imperialistic, euphoric, and unbridled confidence. It was the decade of the Great Society and the Vietnam War, but it was also the decade of bloated cultural centers sitting amidst acres of white travertine, elephantine college buildings, and the decade of Brutalism—the Arnold Schwarzenegger of architectural styles. Resort hotels began to appear in the hotel-motel category, and museums appeared for the first time—the more lavish kind of building type that was becoming a commission.

We are still in the seventies, and not all the returns are in yet. But we believe a few characteristics of this decade emerge from the chart. This is a curiously modest decade for architects. Little is being built, and it is a time of re-evaluation of the truisms of the past fifty years. It is no longer clear who the client is, or even if there are any clients left who can afford to build. Those who gave such massive support to the profession in the fifties and sixties have disappeared. The Federal Government is no longer a major client, either in housing or Federal buildings. The baby boom children have graduated from college, so boards of education and boards of trustees no longer wish to build. After a decade of wild inflation, even the single-family house is now out of reach for many Americans.

In this decade, with what was undoubtedly a boost from the Bicentennial, a new value has been attached to the old building, to history, to the best examples of American vernacular architecture. What is "new" in our time can now include a rediscovery and reuse of the "old." Suddenly, the existing building looks good, both as a cheap resource for renovation and a rich heritage for celebration and connection.

The Building Types Study program has also mirrored such momentous developments as the rise, triumph, and present disillusionment with Modern architecture, and the transition into a period loosely described as Post-Modern. But in addition to mirroring this saga, the studies have clarified four other cultural phenomena, which we like to describe in detail: one, the evolution of the form of traditional building types; two, the identification of new building types; three, the evolution in patterns of living; and four, the matter of "style."

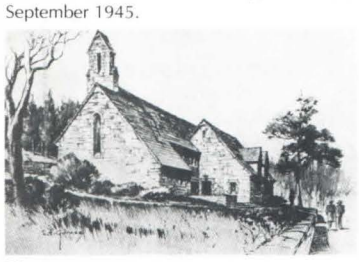
SHOPS/STORES (30)
INDUSTRIAL BUILDINGS (41)
HOUSES (29)
SCHOOLS (69)
RECREATION BUILDINGS (12)
HOSPITALS/MEDICAL FACILITIES (58)
APARTMENTS (11)
OFFICE/COMMERCIAL BUILDINGS (33)
HOTELS/MOTELS (21)
SPECIAL (7)
THEATERS (7)
RESTAURANTS/BARS (7)
HOUSING (32)
VOCATIONAL SCHOOLS (3)
SHOPPING CENTERS (12)
CIVIC BUILDINGS (6)
CULTURAL CENTERS (1)
MOTOR TRANSPORT TERMINALS (1)
PLANNED COMMUNITIES (2)
RELIGIOUS BUILDINGS (26)
AIRPORTS (10)
RAILROAD STATIONS (2)
SERVICE STATIONS (1)
COLLEGE BUILDINGS (29)
DRIVE-IN RESTAURANTS (2)
LIBRARIES (3)
RADIO/TV BUILDINGS (1)
LABORATORIES (4)
MENTAL HOSPITALS (4)
MILITARY BUILDINGS (2)
ARCHITECTS' OFFICES (1)
HOUSING FOR THE AGED (3)
RECORD HOUSES (15) *
MUSEUMS (2)
CORRECTIONAL BUILDINGS (1)
RECYCLED BUILDINGS (3)
CHILD CARE CENTERS (1)
ENGINEERING FOR ARCHITECTURE (3)
BUILDINGS FOR WASTE MANAGEMENT (1)
RECORD INTERIORS (2)
HUMAN SETTLEMENTS (1)

1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947

Forty years of Building Types Studies

The Building Types Studies are listed in the order in which they first appeared in RECORD. The gray bars indicate periods of high construction of each particular building type, and therefore frequent publication. See "A trace of the ceremony" for analysis of the chart. *RECORD HOUSES first appeared in mid-May 1956, and yearly after that, but was not enumerated as a Building Types Study until 1962.

Proposed Methodist Church, Gatlinburg, Tennessee; Barber & McMurry, architects; September 1945.



25

Railroad Station, Burlingame, California. (Morley Baer)

26

Service Station design for Mobil Oil Corp.; Eliot Noyes & Associates, architects; May 1967.

27

Civic Center, St. Charles, Illinois; R. Harold Zook, D. Coder Taylor, architects; March 1941. (Hedrich-Blessing)

28

Evolution of the form of a traditional building type—the school

As a result of the Building Types Study program it is possible to trace the evolution of the forms of common building types. No type was more carefully or consistently studied than schools: sixty-nine times in forty years! The state of the art was aired in the first school study (April, 1937), and included both the modern Northville Grade School by Lyndon and Smith (Figures 37, 38, 39) and the traditional Deerfield Academy, by William and Geoffrey Platt (Figure 40). Both schools were characterized by a series of individual classrooms linked by corridors. Essentially, the school "problem" was the production of low-cost, low-maintenance, utilitarian, well-lit loft space responsive to the most progressive teaching methods. There was a desire for a quality environment, especially one scaled to children, but always at the lowest cost. Schools were treated as "machines for education," rather than symbolic forms with some sort of intrinsic appearance. But, of course, if a school didn't look like Deerfield Academy, it did look like something (Figures 41, 42) and the campaign to eliminate frills from the school house, in the name of rationality, which began in the late thirties has surely affected the environmental expectations of a whole generation of children.

The first transformation of the 1937 school was the relationship of classrooms, rather than the classroom itself. The challenge to the compact, conventional two-story schoolhouse came, naturally, from California (Figures 43, 44, 47, 48). All through 1947 and 1948, the question was asked, often, it seemed, clandestinely and in hushed whispers: "Should 'California' schools be built elsewhere?" The so-called California school was a one-story arrangement of parallel classroom wings separated by open courts and connected with covered open corridors, often called a "finger plan" or "campus plan." Advantages included the possibility of cheaper materials and lightweight construction, adaptability to change, easy growth, and an "honestly functional" appearance that was thought to be less awe-inspiring and more friendly to children. The March 1949 Building Types Study included a cost comparison of the "California" school versus the conventional school; the single-story versus the two-story. With the power and elegance of a mathematical proof, the champion performer was shown to be the one-story, double-loaded corridor, trussed and pitched roofed school, with 24- by 36-ft classrooms, an eave height of 9-10 ft, and a continously skylighted corridor with a height of 12 ft-6 in. This was *the* schoolhouse of the 1950s, the standard for a whole decade and longer. More importantly, this ideal schoolhouse suggested the *degree* of faith in standards, in ideals, in so-called rational determinism.

One of the first and most admirable transformations of the individual classroom came with efforts to improve the quality of daylighting. Continual experimenting was conducted to get the right balance of indirect north light and warm south light through the deployment of clear glass, glass block, skylights, baffles, and louvers (Figures 45, 46, 48).

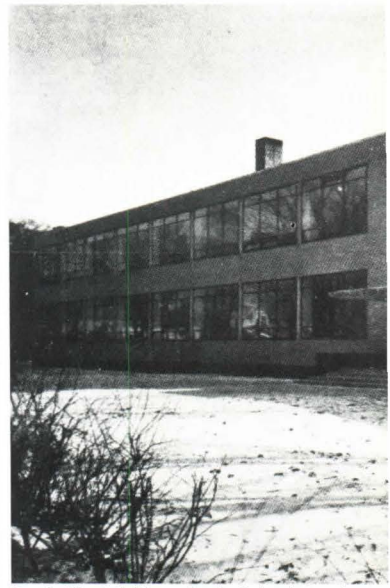
The next transformation of the classroom unit was recorded in September 1953, in a Building Types Study that considered classrooms without corridors—the forerunner of the "open plan" or "loft" school of the sixties, which emphasized the easy revision of classroom layout. The design of the Andrew Jackson School, in Ferndale, Michigan, by Eberle M. Smith Associates (not shown) allowed the corridor space to be used for circulation, but also to be "captured" for direct classroom use. The same study began to explore the differentiation of fixed and portable equipment, and the articulation of different forms of teaching/learning spaces. The school represented an early realization that learning didn't have to take place in the confines of a 24- by 36-ft box.

In the fifties, the transformation of schools was mostly in the realm of auxiliary facilities. School cafeteria and kitchens were studied, spawning that most curious of hybrids, the "cafetorium" and new approaches to physical education facilities reached a fever pitch during the time of President John F. Kennedy's call for physical fitness programs.

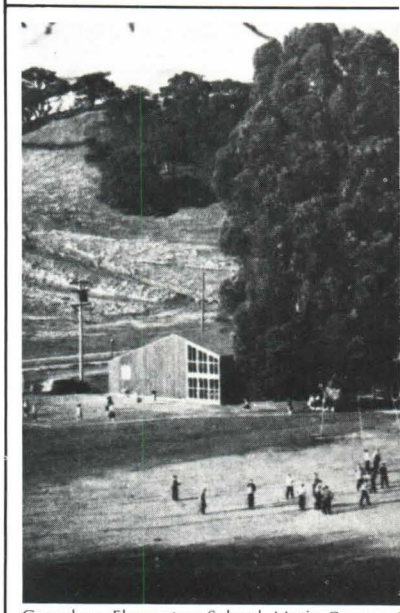
In the sixties, schools were transformed by the impact of the Educational Facilities Laboratories' report on innovative school design. New construction systems and new teaching methods, including the use of educational TV, had far-reaching effects. A new educational program led to a schoolhouse characterized by more amorphous, loosely defined, flexible carpeted spaces (Figures 49, 50, 51) and featuring air conditioning, better acoustics and lighting, and audio-visual equipment.

By the late sixties, schools were often being built on tight urban sites. As a justification for keeping out noise and visual distractions (but also, during a violent decade, keeping out vandals), the windowless school appeared. Whereas early postwar schoolhouses were designed to be pleasantly low-key, the windowless school virtually cut the child off from the world in a hermetically sealed "learning environment."

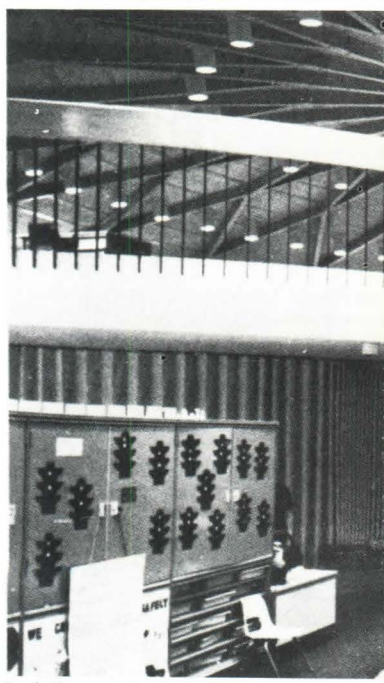
The seventies schoolhouse is perhaps typified by the Francis J. Bellamy Elementary School (Figures 52, 53). Classrooms are now totally flexible areas within a single "universal" space, really a profound change from the schoolhouse of forty years ago. And yet, the 1937 and 1976 schoolhouse each was the result of essentially the same "problem" of providing a quality environment at low cost that is responsive to progressive teaching methods. It's just that each of the variables has been subject to redefinition, and that, in turn, has redefined the form of the schoolhouse.



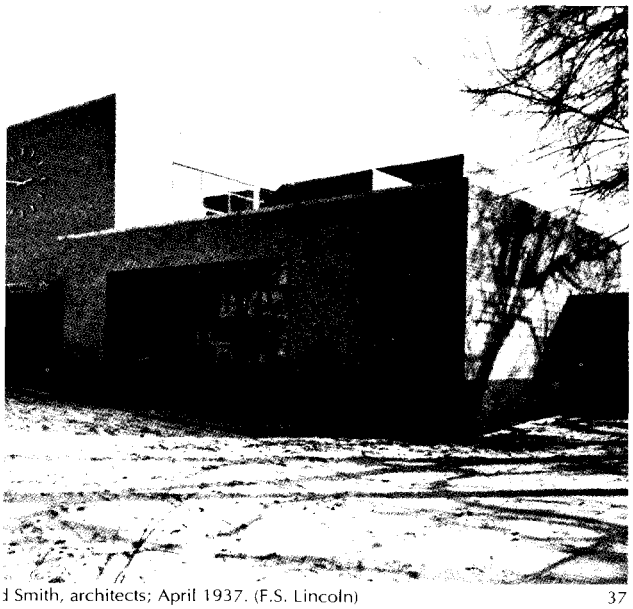
Northville, Michigan Grade School; Lyndon ar



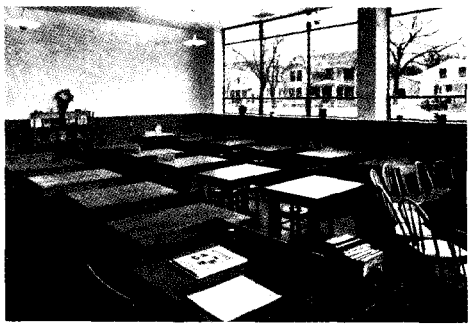
Greenbrae Elementary School, Marin County, C



Paul Klapper School, Flushing, New York; Cau



d Smith, architects; April 1937. (F.S. Lincoln) 37



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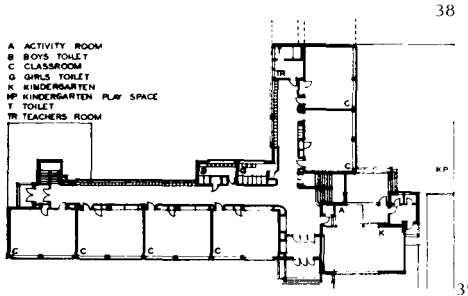

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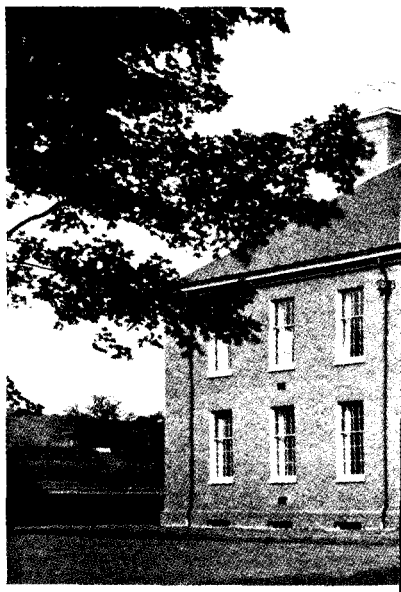
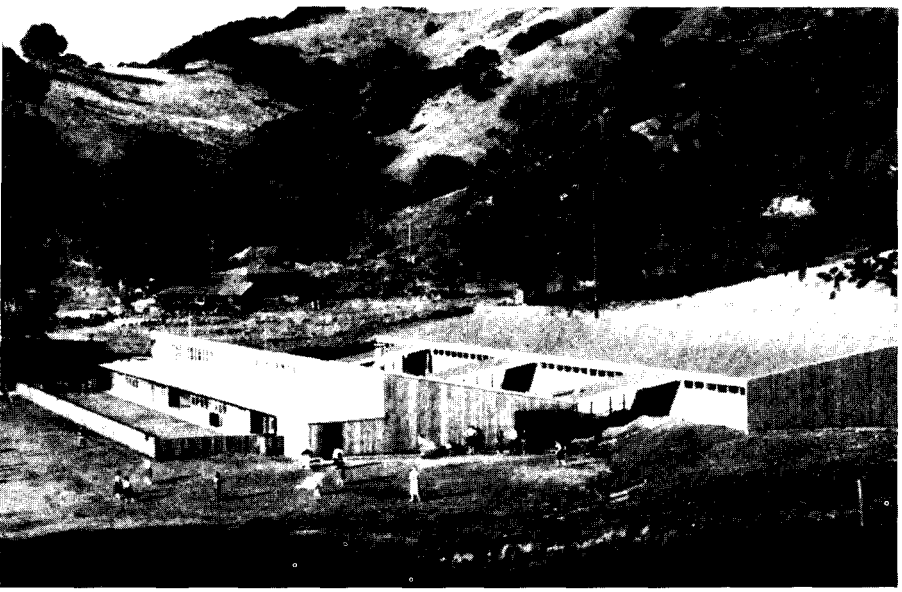
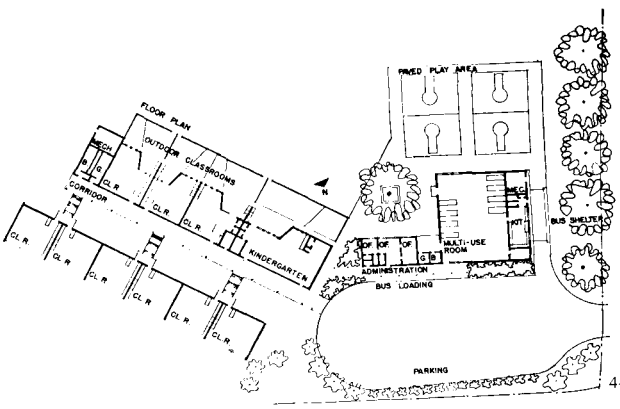




alifornia; William Corlett, architect, Peter H. Skaer, associate; September 1953. 43



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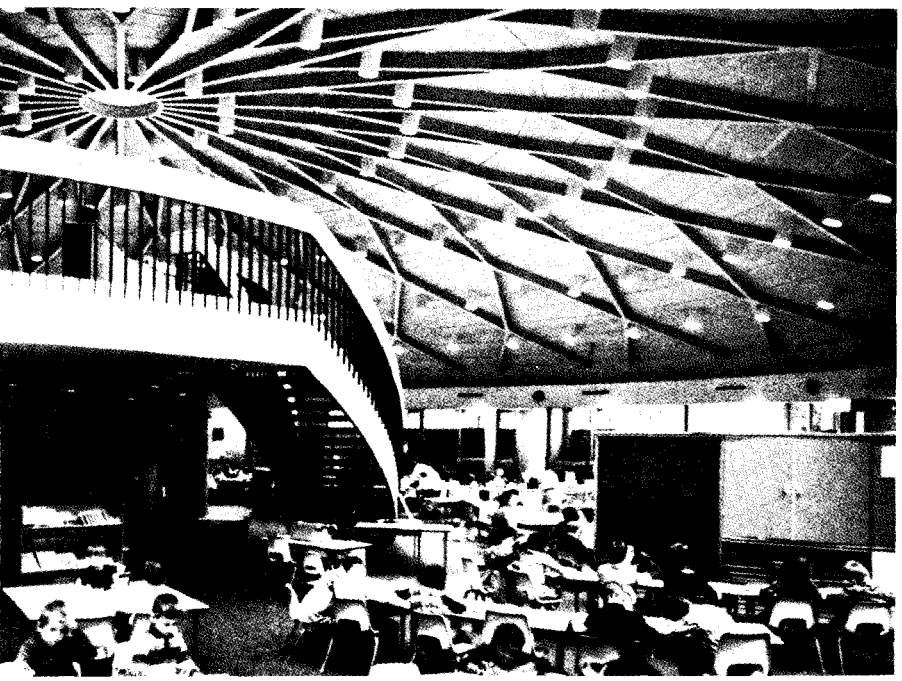
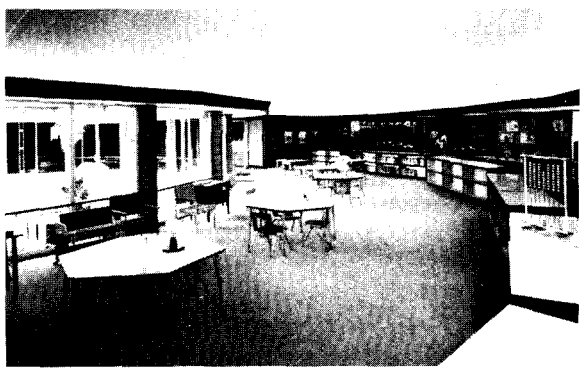
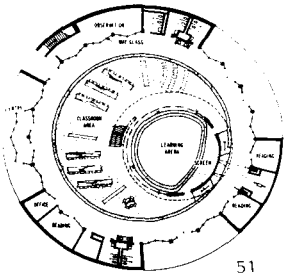


ill, Rowlett Scott, architects; October 1967. (John Bintliff) 50



East Elementary School, Tooele, Utah; Scott, Louie & Browning, architects; March 1967. (Hal Rumel)



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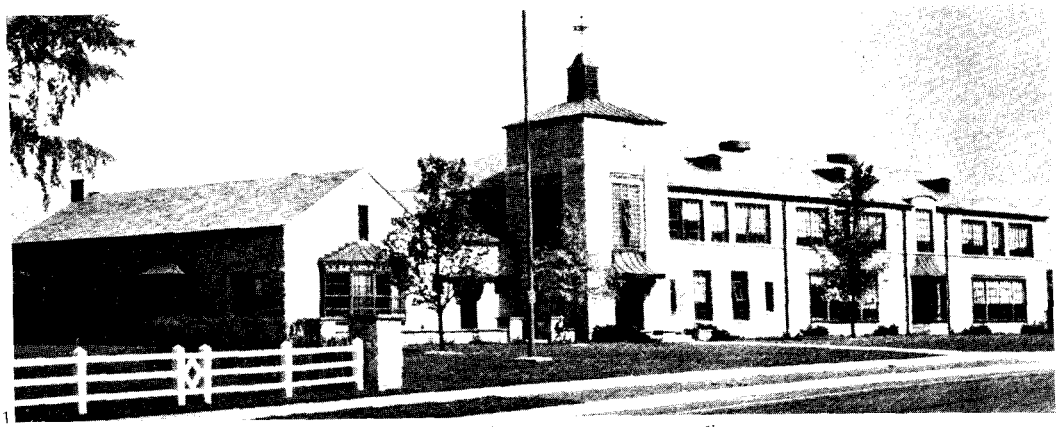
Deerfield, Massachusetts Academy; William and Geoffrey Platt, architects; April 1937. (Samuel H. Gottsch)



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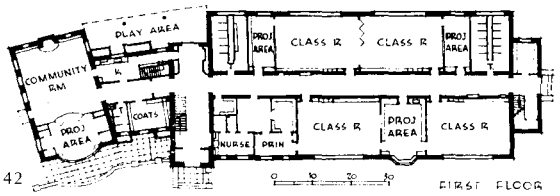
Arlington Elementary School, Columbus, Ohio; Howard Dwight Smith, architect, K. W. Armstrong, associate; June 1941.



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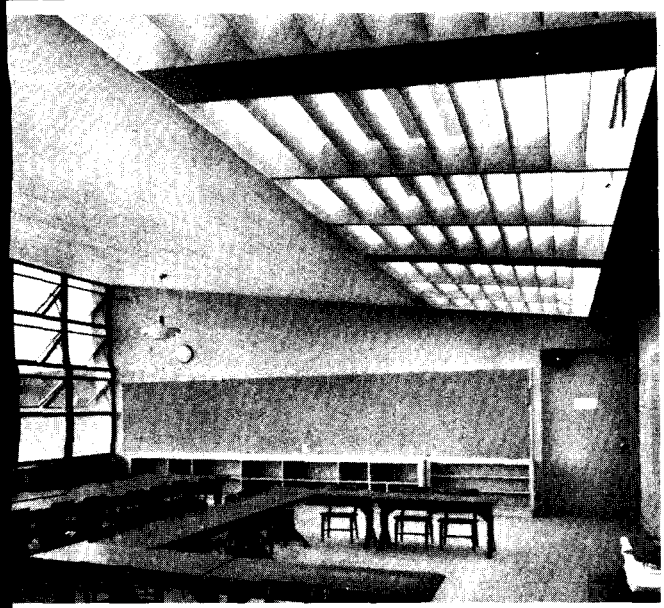

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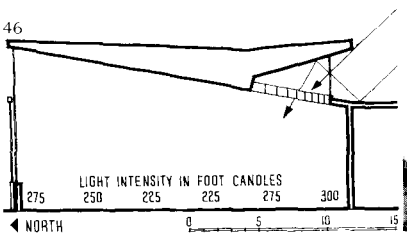

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Apperson Street School, Los Angeles; Maynard Lyndon, architect; July 1950. (Merge Studios)

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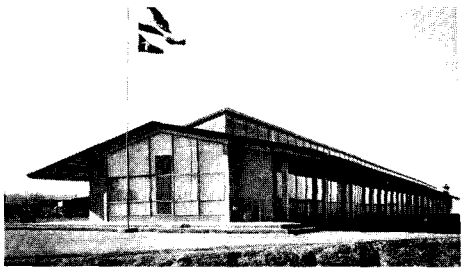
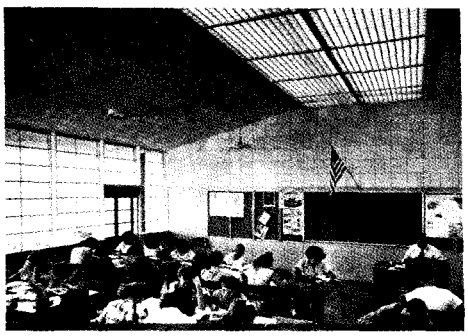


Shoreview School, San Mateo, California (above); Ernest J. Kump and Mark Falk, architects; March 1949. (Roger Sturtevant)



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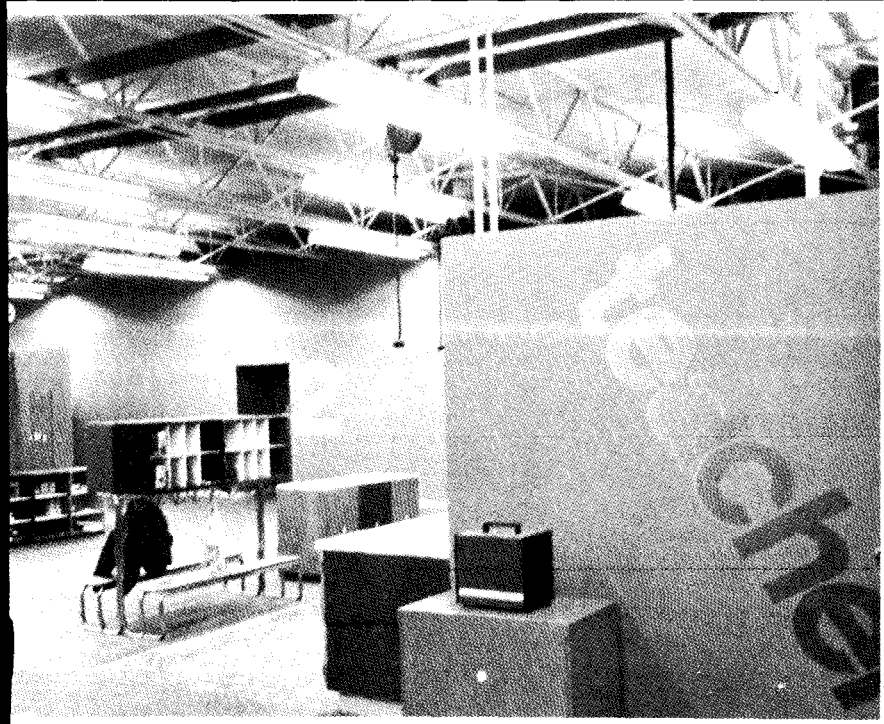
Barstow, Colorado High School (right); Franklin, Kump and Falk, architects and engineers; March 1948. (Stewart & Skelton)



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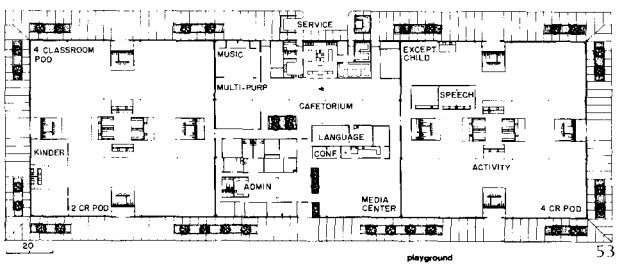

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Francis J. Bellamy Elementary School, Tampa, Florida; Rowe Holmes Associates Architects, Inc.; June 1976. (Alexandre Georges)

Schools

Antithetical types– the drive-in and the recycled building

The Building Types program has consistently identified new building types, some of which represent contradictory or antithetical trends. Two of the most interesting of these are the drive-in facility, and the recycled building. Each is a fundamentally important building type, because each implies a total vision of the environment, each is a talisman of a larger view of things. The "drive-in," whether a restaurant, theater, bank, church, flower shop, laundry, or shoe repair shop, has been the symbol of the postwar, efficient, convenience-oriented, auto-dominated, informal suburban environment. One could transact almost any business, be entertained, fed or saved without getting out of one's car. The "drive-in" is emblematic of a free-wheeling, high consumption, throw-away, materialistic culture (one that depends on the increasingly unlikely possibility of cheap energy and unlimited resources). The recycled building, by contrast, is emblematic of a quieter, more conservative and conservation-oriented culture, one that sees a value for today in the legacy of yesteryear, and one that has a desire to connect with the old while also exploring the new. The recycled building underlines the realization that decaying urban environments can no longer simply be abandoned for suburban environments elsewhere, and that progress is not necessarily best served by tearing down "old monstrosities" for a new parking lot.

Everyone has heretofore taken the drive-in suburban environment to be the norm, the inevitable future. But, in fact, the years between World War II and the rise of the Organization of Petroleum Exporting Countries were an unusually lavish, no-holds-barred blowout of the energies and desires constrained by sixteen years of depression and war. The ascendancy of the recycled building is just one more indication that the postwar party is very likely over.

The drive-in is an interesting phenomenon because it clarifies somewhat the nature of cultural change. Both the drive-in and the recycled building have a quality of "newness," and each came into being by a process best described as the choreography of the familiar and the surprising. The drive-in was a way of taking a familiar everyday activity and presenting it in a surprising and pleasurable new format. Instead of dining in a restaurant, one could eat out in one's car, take the kids and the family dog along as well, and go to the movies afterward without once leaving the automobile (Figure 57). Not just the format was surprising; the very form of the drive-in building was often radically altered. Drive-in restaurants sprouted wide overhangs outlined in neon to shelter the car and carhop from the sun and rain (Figures 54, 55). Drive-ins generally existed in a new context: rather than being located on a street in town, the drive-in invariably sat in the middle of a large parking lot at the side of a busy road at the edge of town (Figure 57). To attract attention, drive-ins often assumed exaggerated shapes inside and out, which only reinforced the sense of surprising newness (Figure 56).

The idea of converting a barn (Figure 58) or a winery (Figure 59) into a house probably started as a romantic notion, but it was also, in 1940, a surprising notion. In 1948, a Building Types Study on modernizing movie theaters so that they might more effectively compete with television stressed reshaping the familiar sleazy old theater into a surprisingly new and modern theater—a frankly cosmetic approach that unfortunately failed to realize that just renewing all that Art Deco gilt would have been enough (not shown).

In the sixties, it seemed surprising (and illegal to the City of New York) that people would want to live in abandoned industrial lofts. Yet ten years later, owning a loft in Soho seems more than anything else a high status symbol, suggesting groovy upward mobility (Figures 60, 61). The Garage, a collection of shops in Cambridge, Massachusetts (Figures 62, 63, 64, 65), shows the kind of spatial surprise (Piranesi on an intimate scale) possible by juxtaposing new shops in an old building, and imposing a new spatial grid upon an existing structural grid.

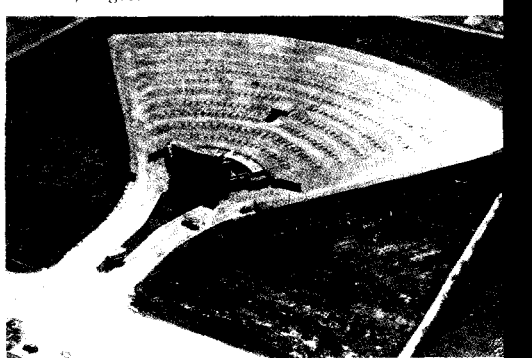
Although the emphasis on recycling and renovation has been in buildings of an older vintage, it is becoming clear that buildings as recent as the fifties are undergoing extensive remodeling and recycling. In San Diego, a fifties Modern steel and glass drive-in restaurant called Oscar's (not shown) received a fancy new outfit of shingles laid on in the craziest of patterns, carved wood, stained glass, new furniture, *lots* of plants, features an "organic" menu, is now called the Greenery, and is no longer a drive-in. A candidate for a future Building Types Study on recycling, this commercialized version of the "handmade house" esthetic comes off as very surprising, in part because all the buildings around still look like their old fifties selves, while the Greenery looks quite up-to-the-minute; and in part because the style itself connotes a rural setting instead of the commercial strip. Is it a fish out of water, or is it a visual *coup d'état*?

Drive-ins

Van de Kamp's, Los Angeles; Wayne McAllister, architects; August 1950.

Rettig's Restaurant, Houston; MacKie and Kamrath, architects; August 1950. (Mears Studio)

Henry's Drive-in Restaurant, Glendale, California; John Lautn architect; August 1950.



Circle Drive-in Theater, Waco, Texas; Jack Corgan, architect; August 1950. (Jimmie Willis)

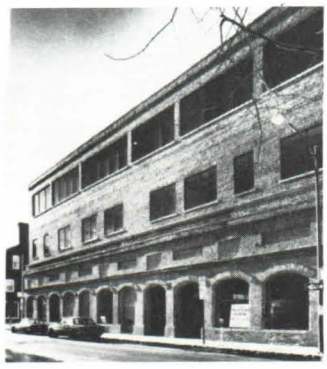
58 Remodeled barn, near Chicago, Illinois; Schweikher & Lamb, architects; May 1940. (Hedrich-Blessing)

59 Converted winery in California; F. Bourn Hayne, architect; May 1940. From the RECORD:
"Looking toward dining room from point near patio entrance. Stone is pinkish-yellow native volcanic tufa."

60 Loft restoration, Soho, New York City; Hanford Yang, architect; August 1975.

Recycled buildings

61



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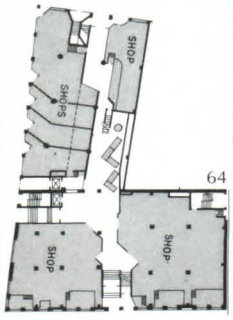
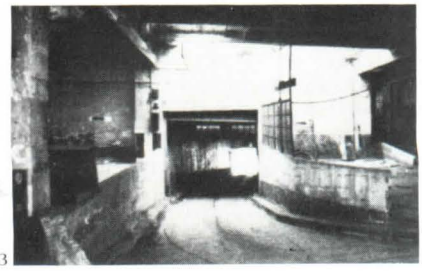


64 The Garage, Cambridge, Massachusetts; ADD, Inc., architects; December 1974. (Steve Rosenthal)



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65

Evolution of patterns of living in the daily house and the vacation house

A third task has been to trace the evolution in patterns of living. We tend to live in two kinds of houses: a house that we inhabit daily and call "home," and a house that we inhabit on vacation and call something else, such as "motel." What the Building Types Study program reveals is how little the former house has changed, and how radically the latter has changed.

The first Building Types Study on the house, in March 1937, dealt with the custom-built house, the operative builder (or developer) house, clusters of houses and their siting, vacation accommodation, and prefabrication—all, one might note, compelling issues in our own day. A Building Types Study two months later dealt with land subdivision, and proffered standards which sound good today: organization of vehicular and pedestrian movement to consider safety and amenity; allowances for parks and recreation space as well as school and institutional sites; best use of topography, existing trees and landscape; and provision of an area for retail shops and parking.

The typical house in 1937 was either designed in Traditional, which was usually some version of Colonial (Figures 66, 67, 68), or Modern (Figures 69, 70). Today, the two categories still predominate (Figures 71, 72) with the addition of a mellow, "woodsy" barn-inspired style (Figure 73). It is surprising to note the regularity with which we return to a few treasured images of "house," especially in light of the supposed radical changes in patterns of living since 1937. It is also interesting to note the reappearance of interior design motifs of the thirties in rooms of the seventies (Figures 76, 77).

There is a slightly comic argument that recurs in the discussion of houses by architects and critics. Essentially, the client is set up as the strawman, ready and eager to have a house with a traditional look, but anxious to have the architect reorganize the plan to conform to his modern living needs. This desire of the client to have a literal marriage of convenience is still regarded by many as suspect and unenlightened, a kind of irrationality in the face of the "rationality" of Modern architecture. The set-up always assumes that the client's fatal flaw is his inability to consider his own individual needs and that he therefore always reverts to stereotypes. What the architect has been slow to absorb, because of his own consistently superior posture, is that style is packaging, and spatial planning is something else.

The one profound change in house design is a spatial one, and it has been in the ideal model to which designers have referred. Essentially, the model for the prewar house was the spatially generous house, the house for "gracious living." There was a kind of cheerful grandiosity about retaining the ceremonies of upper-middle-class life in even the tiniest and cheapest of houses. For example, a tiny one-bedroom house would often have a separate dining room. By contrast, the model for the postwar house has been the small, efficient, compactly designed house for "informal living." The open and ingenious planning necessary to ward off claustrophobia in the small house has been extended and enlarged to set the tone for larger houses. A familiar complaint has been that architects have forgotten how to design "Large Houses," and instead only know how to design "Small Houses" of large and small sizes (Figures 74, 75).

One idea pushed heavily in the late thirties was that the judicious use of planning units and performance standards would lead to a good house. In part, this belief was connected to the future potential of the prefabricated house, and a great faith in the ability of industry to produce "any type of house in any style of architecture without change in production," and in part because a faith in standards had the appearance of rational thinking. Formal and rather conventional furniture groupings were a frequent basis for planning. For example, a living room might include one or more of the following: primary and secondary conversation groups, reading groups, writing or study group, music or game playing group. The Building Types Study in March 1938 included a small house designed to separate noisy and quiet activities, and to provide an assortment of rooms, for the various activities of a family of five (Figure 83). Despite the rooms looking altogether too commonplace, this is an early attempt to "rationally" analyze the plan of a house. But the real changes in houses and housing have to do with a larger flow of events: the increase in real income and its subsequent decrease, the changes in the nuclear family, the rise of childless and single households, the desire for informality, and high inflation. These events have, in recent years, caused a number of housing types to be viable (Figures 78, 79, 80). But all through the fifties, it was the small single-family house that constituted the ideal.

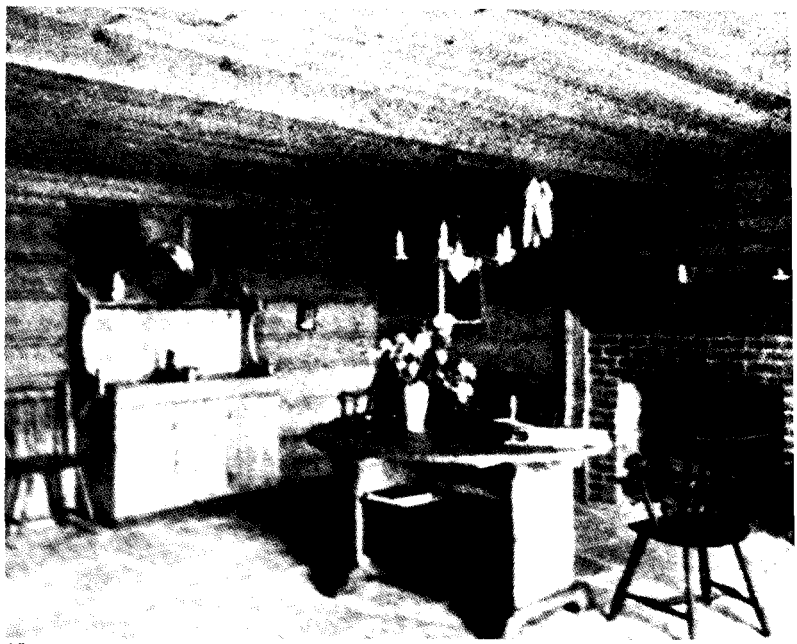
House coverage in the fifties included the house designed by the architect, for a builder, to fit a marketing campaign aimed at the generalized client/buyer (Figures 81, 82). One organization that supported architect-designed, mass-produced houses was the Revere Quality House Division of Southwest Research Institute. Revere was eager to show that quality design, materials, workmanship, and equipment would pay off in speculative design. Many Revere houses came perilously close to being the sort of minimal box routinely associated with Levittown, but the best were very livable.

While the house we inhabit daily has changed in openness of plan and quality of equipment, but little in imagery, the "house" we inhabit on vacation has changed profoundly. The early motel, such as the "La Siesta," in Palm Springs, California (Figure 84) was often a cluster of miniature houses, some even with garages. The cottage imagery was a way of conveying the idea of "home" to travelers, as well as suggesting privacy within the compound. By 1958, the architects of Dinah's Motor Hotel in Palo Alto, California (Figure 85), had realized that more was required than just a room, that an extra effort in site planning and in the creation of "atmosphere" was necessary, meaning, even then, more than a swimming pool and a few shrubs. As always, these increased amenities were linked to economic viability—Fantasy arriving on the wings of Economy. By the late sixties, the atmosphere of resort hotels was totally fantasy-laden and success-oriented, lavish escapist watering holes for those who had "made it," or hoped they had, to momentarily escape the pressures of daily life (Figure 86).

The issue of atmosphere had a disturbing and subversive effect on the sense of mission of the Modern architect, introduced, as it were, some air into the womb. On the one hand, "atmosphere" seemed, in its excessive instances, totally hedonistic, self-indulgent, and occasionally vulgar, but on the other hand, so apparently desirable. "Atmosphere" often seemed merely a matter of taste (therefore not subject to "rational" consideration), excessive (therefore divergent from the goal of an economy of means in design), and associational (therefore not part of the immaculate conception theory of architecture, which supposes that design should be unfettered by any previous connections or heritages). The motor hotel, and especially the resort hotel, reinstated one aspect of architecture apparently forgotten in the postwar years: that the look of a building might have cultural connotations quite independent of its functional planning.

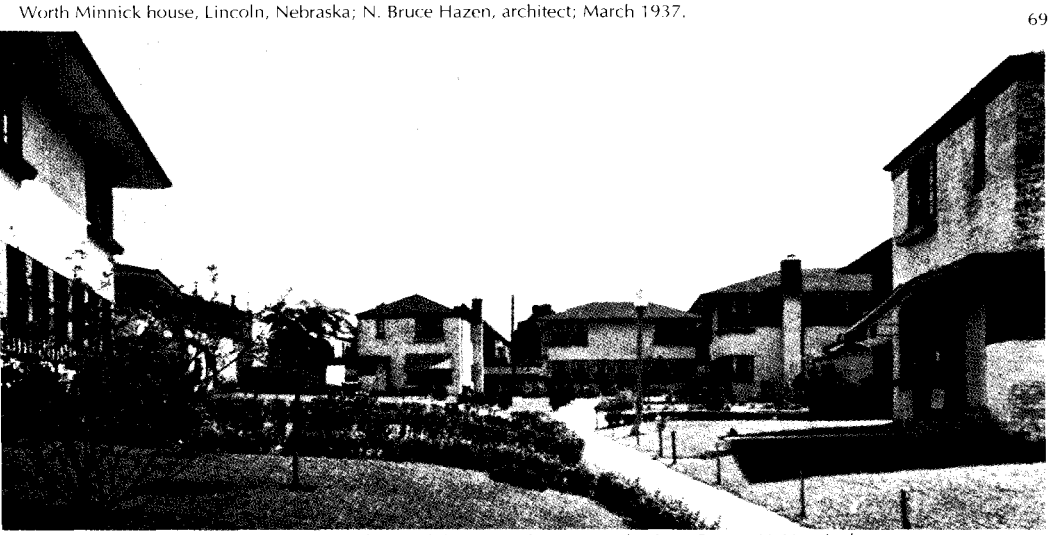
66 Strong house, Kent, Connecticut; Allan McDowell, architect; March 1937. (George H. Van Anda)

67 Worth Minnick house, Lincoln, Nebraska; N. Bruce Hazen, architect; March 1937.

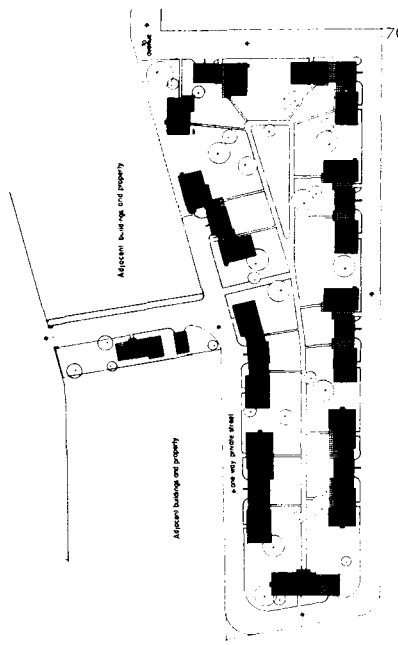


68

Houses

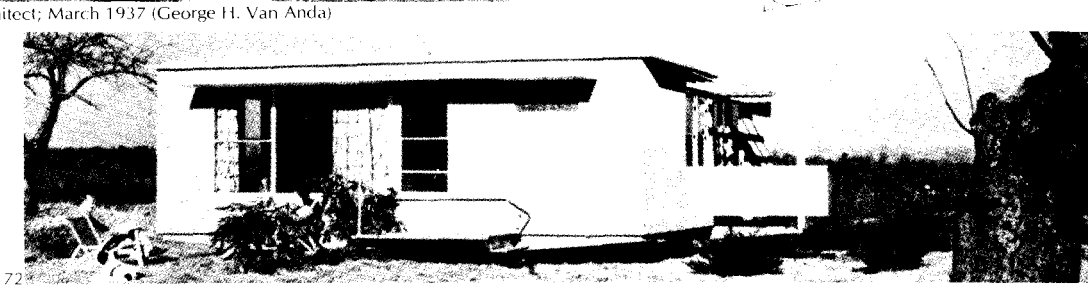


69 Housing Group, Jersey City, New Jersey; Charles Shilowitz, architect; March 1937 (George H. Van Anda)

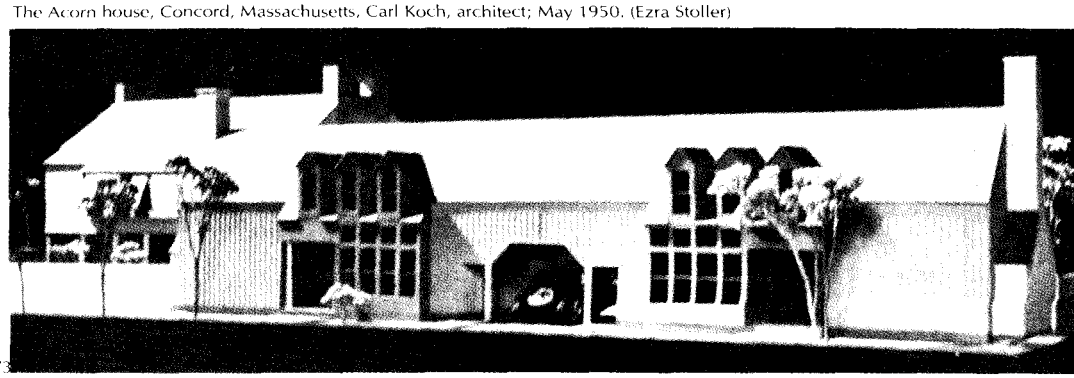


70

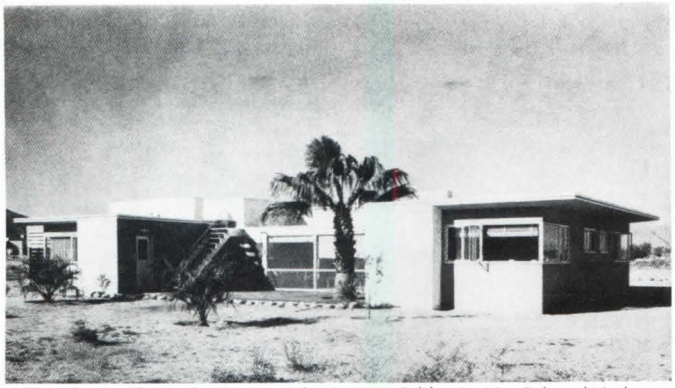
71 Karlin house, Chicago, Illinois; George Fred Keck and William Keck, architects; Mid-May 1967. (Hedrich-Blessing)



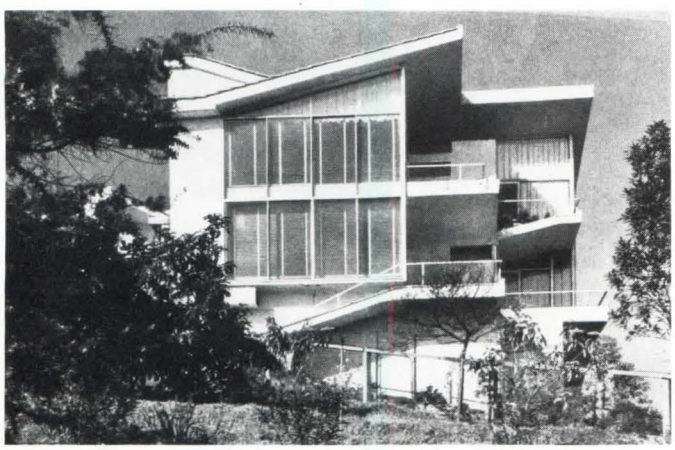
72 The Acorn house, Concord, Massachusetts, Carl Koch, architect; May 1950. (Ezra Stoller)



73 Kingsmill R-3 Housing Development, Kingsmill on the James, Williamsburg, Virginia; Charles W. Moore Associates, architects; March 1975. (Thomas Brown)



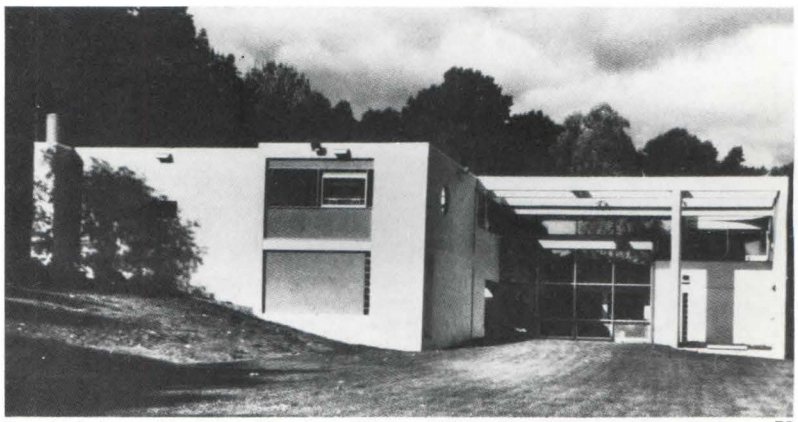
74 Halberg house, El Mirador Estates, Palm Springs, California; Van Pelt and Lind, architects; March 1937. (Stephen H. Williams)



75 Van Patten house, Los Angeles; R. M. Schindler, architect; March 1937. (W. P. Woodcock)

Van Winkle house, Oceanport, New Jersey; C. C. Briggs, architect; April 1938. 77

76



Lowenstein house, Morristown, New Jersey; Chicacoff/Peterson, architects; Mid-May 1976. (Norman McGrath) 78

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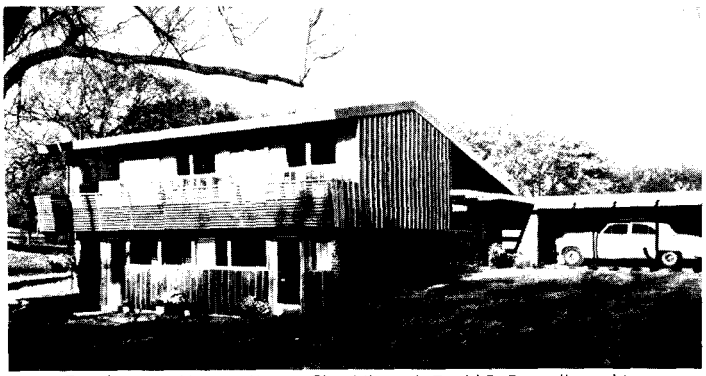
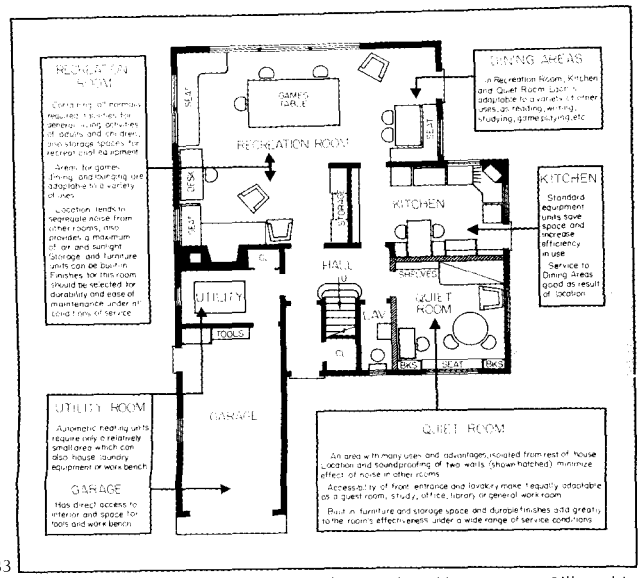
80

Bohlin house, Cornwall, Connecticut; Bohlin and Powell, architects; Mid-May 1976. (Joseph W. Molitor)



81 Revere Development Houses, Kansas City, Missouri; David B. Runnells, architect; May 1950. (Hedrich-Blessing)

The Highlands, Waldwick, New Jersey; Petroff & Clarkson, architects; May 1950. (Joseph W. Molitor) 82



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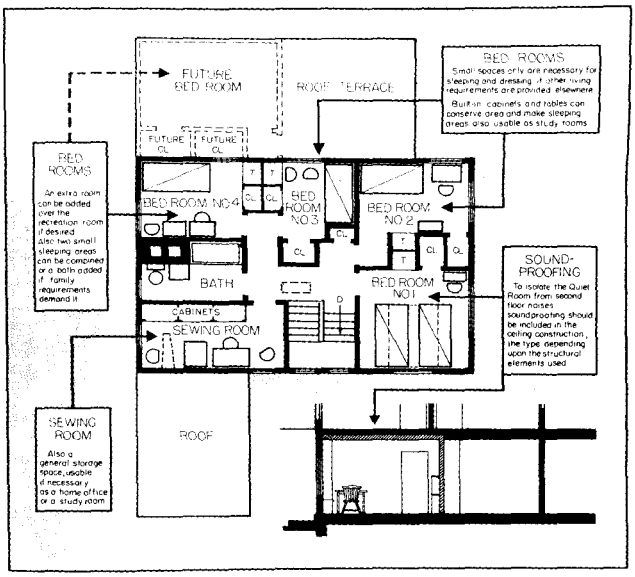
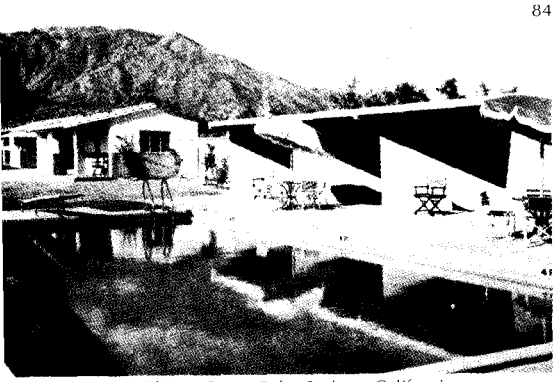


Plans for a small house for a family of five, analyzed by Harrison Gill, architect; March 1938.

84



"La Siesta" Residence Court, Palm Springs, California; Van Pelt and Lind, architects; March 1937.

85

Hotels

Dinah's Motor Hotel, Palo Alto, California; Campbell & Wong, architects; April 1958. (Roger Sturtevant)

86

El Conquistador Hotel, Punta Gorda, Puerto Rico; Jose de la Torre, architect, Morris Lapidus Associates, hotel consultants. December 1969. (Alexandre Georges)

From the RECORD: *"The Conquistador tells guests that they have made it. The architecture and siting are controlled to tell you why this hotel is expensive, how special you are, and therefore, why you are doing what you are doing at this price and loving it."*

The question of style

The fourth cultural phenomenon mirrored by the Building Types Study program is the question of style. What should a building look like? In what style should a building be designed? For forty years, this question has been a cultural unmentionable, like a skeleton in the closet, or an uninvited guest.

It has been generally regarded as naughty to acknowledge that one had looked at anything else in the process of designing a building, causing architects to behave like proper, well-bred Victorians who simply wouldn't discuss *certain* topics, and the Building Types Studies reflect to some degree the various devices architects have employed to keep the subject of style at bay: derision and contempt; nervous near-hysterical laughter; wringing of sweaty palms; and so on. Indeed, the Building Types Study for May 1947 succinctly summarized this repressive tendency in a set of six photographs with captions (Figures 87-92). The assumption had been that buildings just leapt from the blank drafting board, fully developed, without the aid of midwifery. Buildings were meant to be the inevitable result of "rational creative planning." A premium was placed on the solution that flowed inexorably from the problem. Industrial buildings were often cited as good examples of this particular point. A 1949 Building Types Study showed an industrial plant that supposedly represented "not only the true theory of modern architectural design, but also in a sense its epitome," and noted that the design was created "with logic instead of precedent as the guide" (Figure 93). Such extreme polemic was rare in the studies and was often later commented upon by an Alan Dunn cartoon (Figure 94).

Style seemed important only in those building types whose appearance had been designed to lure the user: churches, shops and department stores, and restaurants and bars. In each case, tone was really the crucial issue. What was the tone of a place? Did it feel religious? Did it seem glamourous? Was it homey? These questions were asked, of course, and each was rather difficult to answer, since Modern architecture has made a considerable point of not being referential, not *like* anything else.

First, let us look at churches. The fundamental problem of the modern church has been the presence of an intimidatingly brilliant and heavily romanticized ancestor: the Gothic cathedral. Typical expressions of the "problem" have noted that church spires could never be as tall as high-rise office buildings, or that no congregation would pay for authentic Gothic vaulting, or that pictorial fake Gothic—though popular with congregations—was "tinged with sentiment" (and there was scarcely a worse opprobrium than to be accused of sentimentality!). Yet, a 1945 Building Types Study noted that church design was "a matter of plan, proportion, dramatic exaggeration and embellishment of structural systems, and even *decorative* splendor" (Figure 95).

Church design has been burdened with the obligation to represent the highest ideals of the age, as the Gothic cathedral had for the 13th century. So while there was a feeling that replica Gothic churches weren't just exactly the right answer, it was not at all clear what was. The orthodox tenets of Modern architecture seemed to lead to rather vacuous exercises in structural and formal gymnastics. The problem might have been eased had style, the uninvited guest, simply been made to feel welcome. Had the question of style not been such a repressed issue, perhaps architects might not have been so confused about its nature. Architects had difficulty seeing that the forms of a Gothic cathedral, or a New England meeting house, or a Southwest Mission might have cultural meaning quite apart from structural integrity. An inability to separate the issues of structure and style, and the insistence on seeing them as one-in-the-same constitutes a fundamental failure of postwar Modern architecture. Churches only amplified the problem, since about the only requirements for a church are places for the altar and congregation and an elusive "air of reverence." Church design seems to involve almost exclusively the issues of imagery and atmosphere, precisely the issues most architects wished would stay in the closet. So in this Catch 22 situation, the postwar church typically opted for a "free interpretation of the Gothic ribbed vault," a bland triangular or tent-like space (representing the folded hands of prayer), and the use of soft monochromatic colors and natural materials (Figures 96, 97). At best, the postwar church explored the possibilities of mysterious and evocative lighting (Figure 98).

While churches represent a rather poignant failure to produce High Art, nobody seemed to worry that stores and restaurants were hyped-up stagesets pandering to popular fantasy as well as rank commercialism. Everybody expected commercial establishments to be visually pushy; nobody said they were Art. And yet, ironically, these commercial establishments constitute a remarkably accurate record of what we have thought the style of our environment should be at any particular moment in time.

In the late thirties and forties, there were basically just two commercial styles: Glamour Modern and Glamour Colonial. The word "glamour" is critical, since both styles are glamourized versions of essentially domestic themes. Stores like Benson and Rixon, Mangel's, the Rainbow Shop, and Irene Burke (Figures 99-103), managed to exude an unmistakable air of urban chic through a cunning use of up-to-the-minute lettering, luxurious materials, sensuous forms, and flattering lighting. Schrafft's Restaurant, in New York City (Figure 111), employed mirrors, a stagey staircase, and voluptuous shapes, as though it really *was* a setting for a Busby Berkeley musical extravaganza (allowing diners to perhaps fancy themselves as Fred Astaire and Ginger Rogers). Restaurants like the Candlelight House used homey materials like brick and knotty pine paneling to establish a suburban, domestic family-oriented atmosphere that was not without its pretensions (Figures 112, 113). The Brook Club in Miami, typified another approach best characterized as Glamour Regency (Figures 108-110).

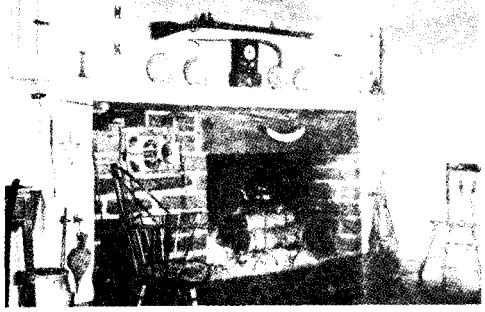
Some commercial places used styles that were specifically associational. Early on, the Dutchland Farms Restaurant (Figure 106) realized the value of a symbol that related to the name and format of the establishment—style as sign. The Flight Bar, at La Guardia Airport (Figure 107) employed explicitly aerodynamic shapes and materials to create an airport snack bar. A series of quite swank suburban department stores employed a sensuous, informal version of the International Style (Figure 104), while Bonwit Teller, in Chicago, employed frankly upper-class (formal) room settings for the sales areas to emphasize that the store catered to an elite clientele (Figure 105).

The last decade has seen the rise of yet another major style: Glamour Natural, or perhaps it should be called Barnyard Bauhaus. The Crate and Barrel Shop (Figure 114) represents a glamourized, urbanized version of the rural building combined with the look of exposed industrial hardware.

This question of style is not just about repression. It also emphasizes what an uncomfortably self-conscious time the past forty years have been. Churches had to be Important and Eternal, and they mostly ended up being out of touch. Stores and restaurants, on the other hand, were thought to be Unimportant and Momentary, and have become the unsung Popular Historians for a whole half century.

This saga of churches, stores, and restaurants is, we think, symptomatic of a larger picture. Most orthodox history books covering the past forty years have viewed the American architectural landscape with such a limited and exclusive eye that our understanding of this period has about it an almost surreal sense of detachment and loss. These histories are often so unconnected to the larger events of the last forty years that they seem to be merely manifestoes in disguise. By contrast, the Building Types Study program was never conceived as a history book, but now, forty years later, it, of course, *is* a "history book" of sorts. Or rather, the program has been, in many ways, an astonishing (albeit modest) mirror, monitoring and recording, mostly without soapbox polemics and pretensions, the workaday architectural world and relating that world to the culture at large. We have tried to hint at the wealth of lessons (and abundant nostalgia) lurking in the 499 Building Types Studies and we have focused on only those that we found especially interesting. But if we have also encouraged you to undertake your own review of these studies, to reconnect especially with those magic Arcadian moment in the late thirties and early forties, then we will consider our intentions accomplished.

87



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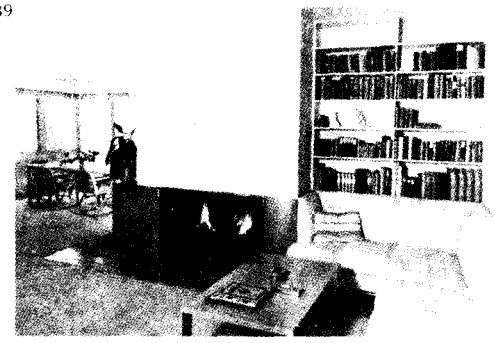


From the RECORD: *"Client predilections are based on a complex of emotional conditioning, various social urges, and rational considerations of their ways of life."*

90

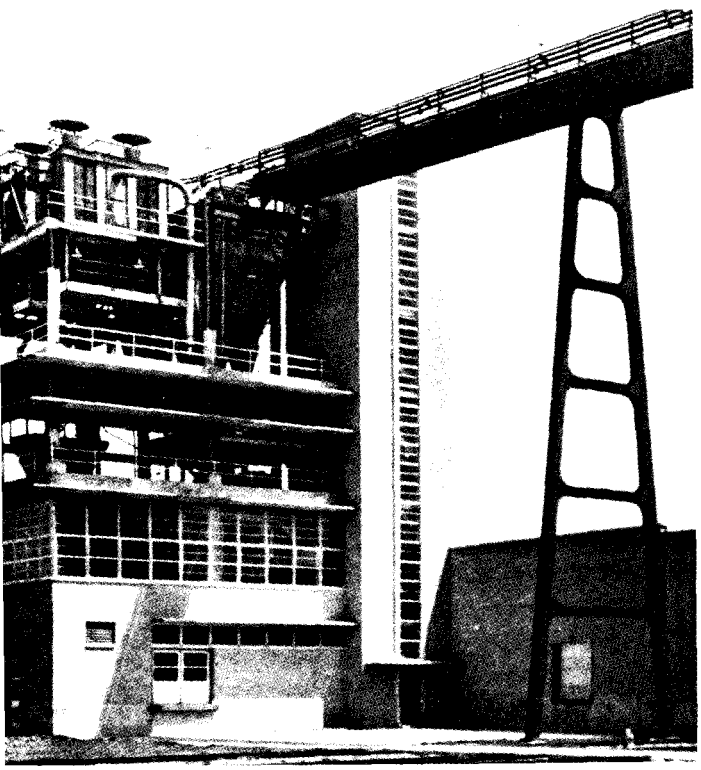
91

92

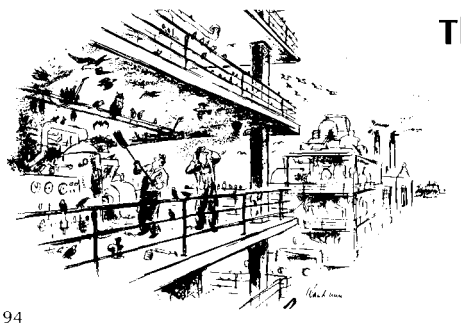
From the RECORD: *"Home designs may stem from mistaken imitation of bygone styles, from ostentatious misplaced virtuosity, or from rational creative planning."*

The industrial esthetic and churches

93

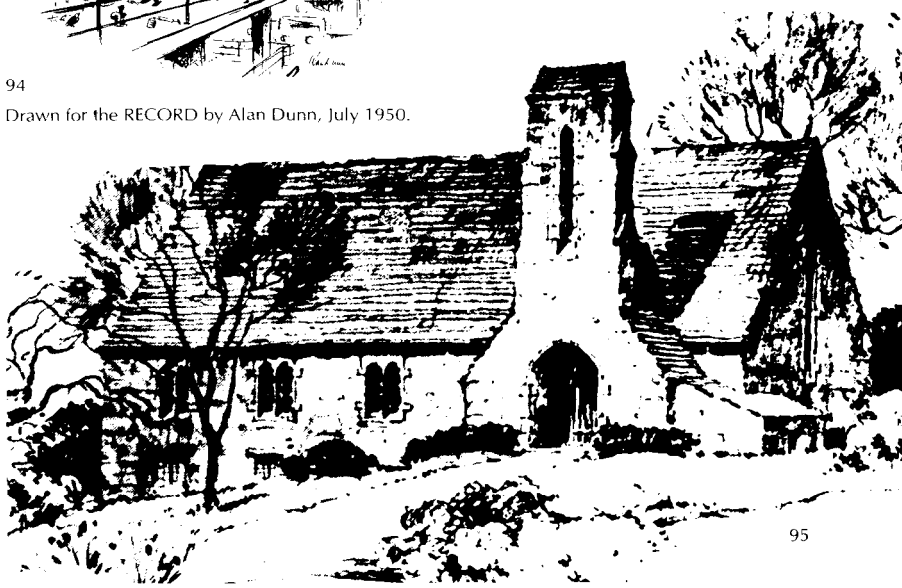


Packing house for Corn Products Refining Company, Corpus Christie, Texas; H. K. Ferguson, Industrial Engineers, Frank L. Whitney, project architect; November 1949. (Elwood M. Payne)



94

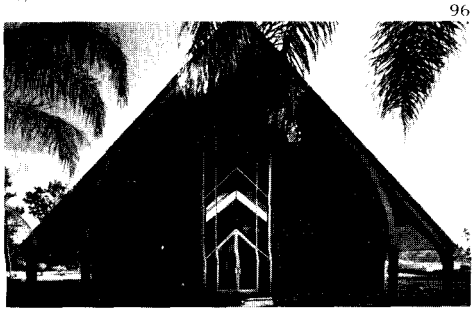
Drawn for the RECORD by Alan Dunn, July 1950.



95

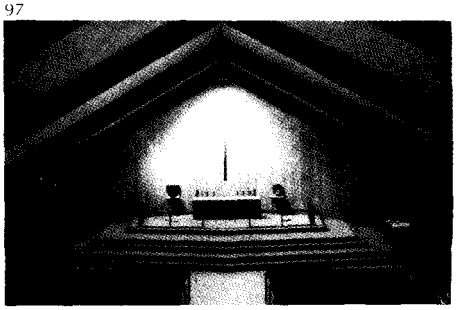
Proposed Methodist Church, Corryton, Tennessee; Barber & McMurry; September 1945.

96



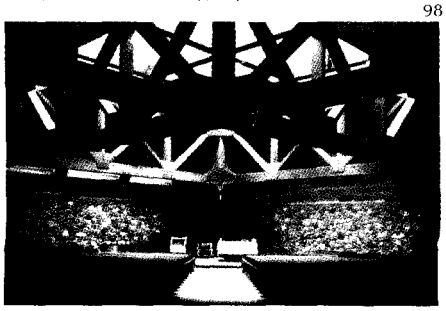
Bee Ridge Presbyterian Church, Sarasota, Florida; Victor Lundy, architect; June 1958. (Lisanti, Inc.)

97



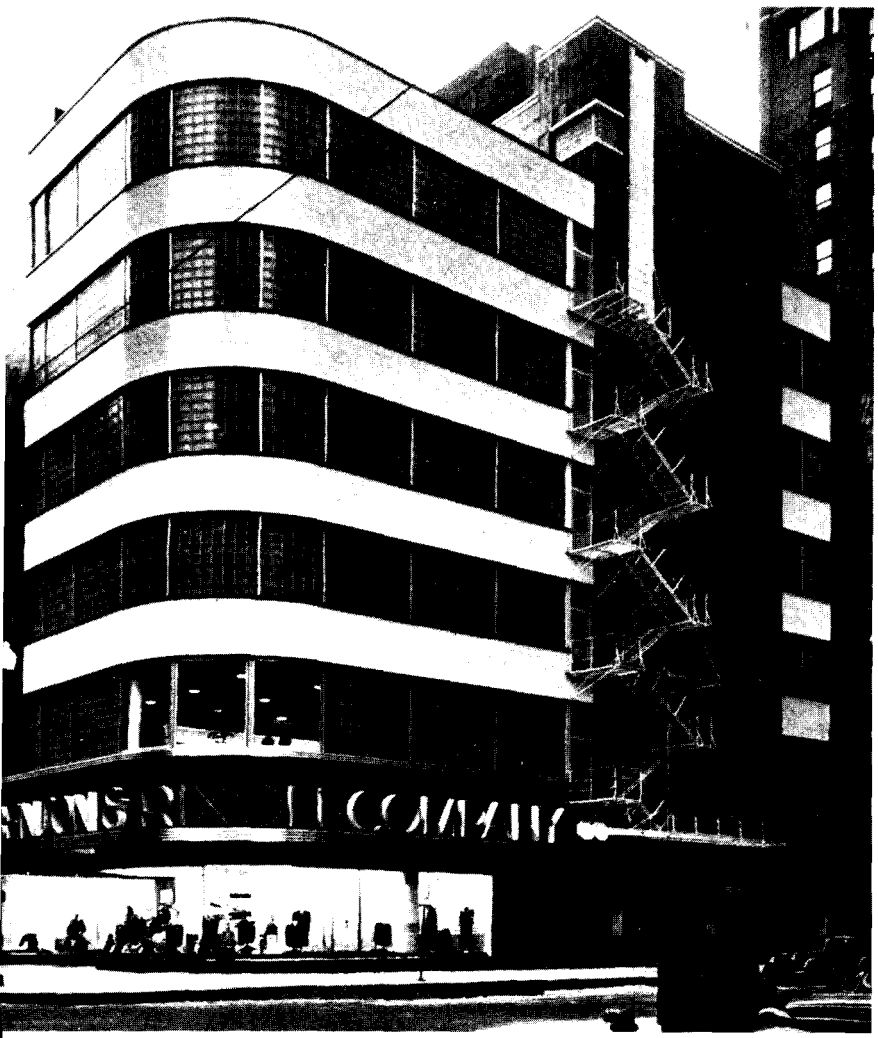
St. Mary's Episcopal Church, Tacoma, Washington; Robert Billsbrough, architect; June 1958.

98



Church, West Hartford, Conn.; Russell Gibson von Dohlen, architects; September 1974 (Charles N. Pratt)

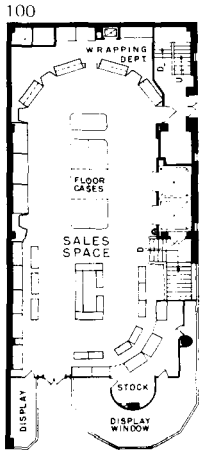
99



Benson & Rixon Store, Chicago, Illinois; Alfred S. Alschuler, architect; February 1938. (Hedrich-Blessing)

Shops and stores

100



First Floor

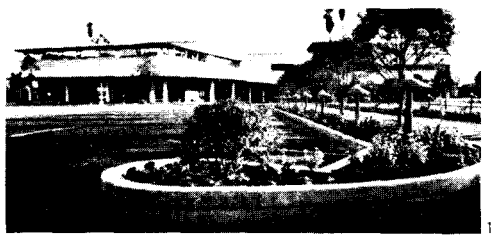
Mangel's store, Chicago, Illinois; Morris Lapidus, architect, for Ross Frankel, Inc.; February 1941. (Hedrich-Blessing)

Rainbow Shop, New York City; Morris Lapidus, architect for Ross Frankel, Inc.; February 1941.

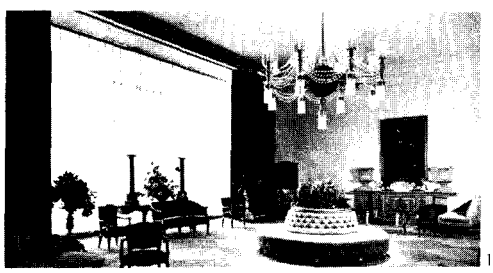
Irene Burke store, Long Beach, California; Kenneth S. Wing, architect; April 1948. (Floyd Ray)

107

Flight Bar, La Guardia Airport, New York City; Lester C. Tichy, architect; July 1948. (Ben Schnall)



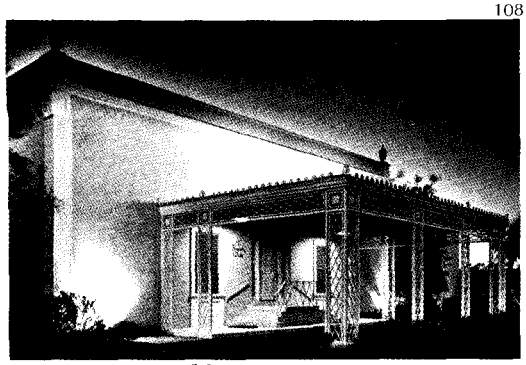
Bullock's Pasadena, California; Welton Becket & Associates, architects; May 1954. (Julius Shulman)

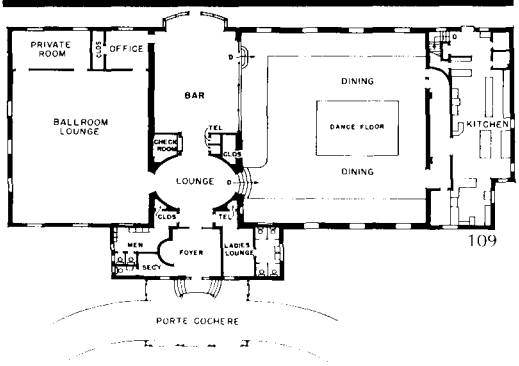


Bonwit Teller, Chicago; William Pahlmann Associates, interiors; October 1949. (Hedrich-Blessing)

Dutchland Farms Restaurant, Rockville Center, New York; Joseph Watterson, architect; Febr. 1942. (Murray M. Peters)

108





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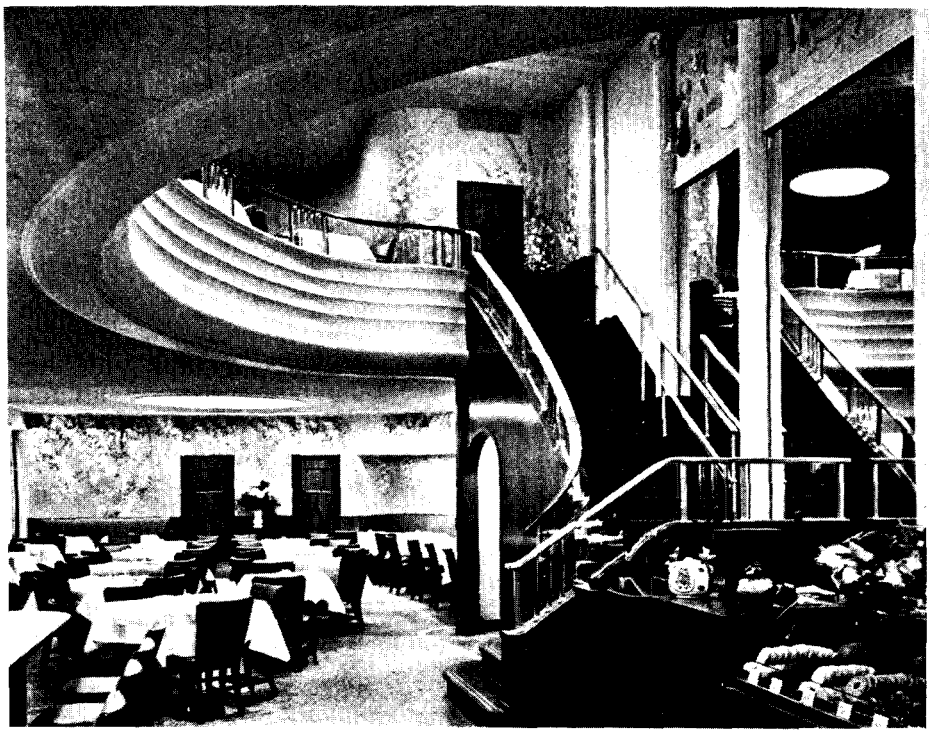
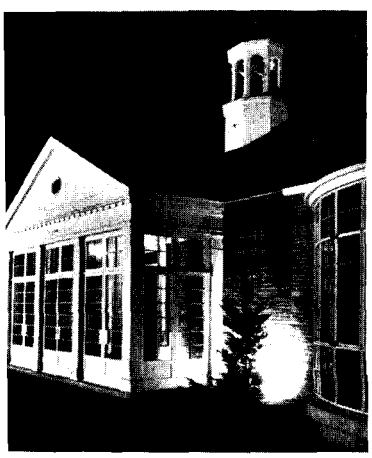


Schrafft's restaurant, New York City; Bloch and Hesse, architects; January 1939. (Gottscho) 111

Restaurants and bars

The Brook Club, Miami Beach; Robert Law Weed and Edwin T. Reeder, architects; January 1940. (Gottscho)



Candlelight House, St. Louis, Missouri; Maritz, Young and Dusard, architects; January 1940. (Piaget) 113

114

Crate & Barrel, Chicago; Garufo Roberts Associates and Bonesz, Maas, Buccola, architects; January 1976. (Ezra Stoller)

. . . and today's shop in Barnyard Bauhaus

THE BUILDING TYPES STUDY AS A NOT-TOO-CLOUDED CRYSTAL BALL

There follows an affectionate and not-totally-immodest account of the RECORD's soothsaying ability. What has been predicted was usually right, sometimes wrong and occasionally humorous. And it *always* gave a much-needed perspective on the times

On the following pages, it can be seen that the Building Types Study has not only recorded architecture as it was built, but that it has often charted the course of what would be built. A long series of RECORD editors and contributors have devoted endless energy to analyzing, criticizing and (as emphasized in this article) predicting the profession's directions. And it has often been uncanny how accurate their predictions were—be they design-philosophy speculations or observations on mechanical equipment.

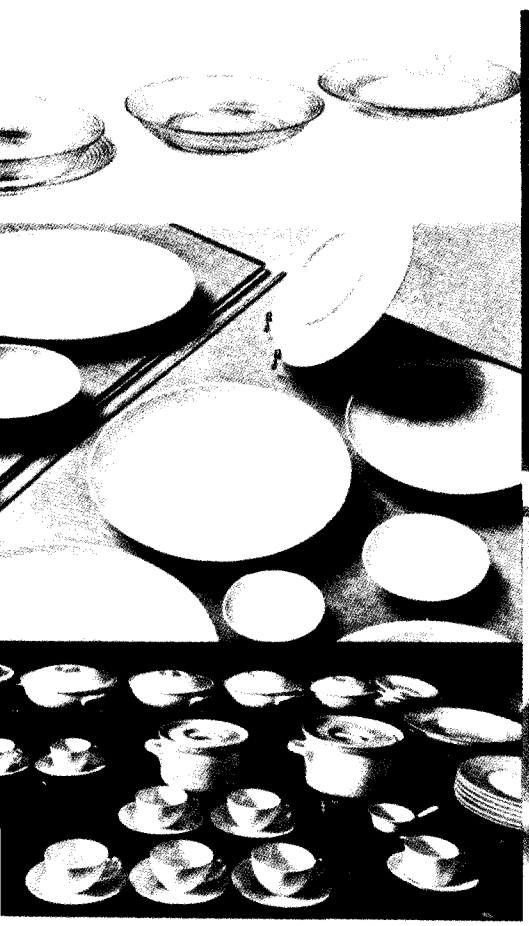
Soothsaying is not always long-range. In general, it usually takes some time for clairvoyance to prove itself, and most of the period covered on the following pages is divided into the prewar years, the war years and the years immediately after the war. But it is interesting to note that many of the current editors can recall much more recent incidences of proven wizardry. Barclay Gordon wrote in August, 1971: "Elected officials are reluctant to spend tax money on prison reform, because the crisis in prisons has not yet reached high tide." The uprising at Attica happened one month later. In the July, 1967 issue Mildred Schmertz wrote a study which focused in part upon the desirability of the revival of older neighborhoods—long before the economy, historic appreciation and the cessation of Federal housing funds made such activity the popular one that it is today. And Herbert Smith can recall a study meant to encourage better military architecture, that was being researched just before the outbreak of the war in Korea—and the attendant military-construction boom. He also recalls the many articles on energy conservation that appeared before the "crunch"—especially those on houses which analyzed heat loss and sun angles at almost greater length than they described the basic concept. A tragic-comic outcome of one of Smith's articles on the architectural impact of the new concept of team teaching was the receipt of a perfectly-conventional set of plans with the confined rooms labeled "team teaching spaces." Not every reader got the message. But we haven't always been right. I, for one, encouraged unsuspecting architects to establish offices in Beirut in June of 1975, proving that at least I am not infallible.

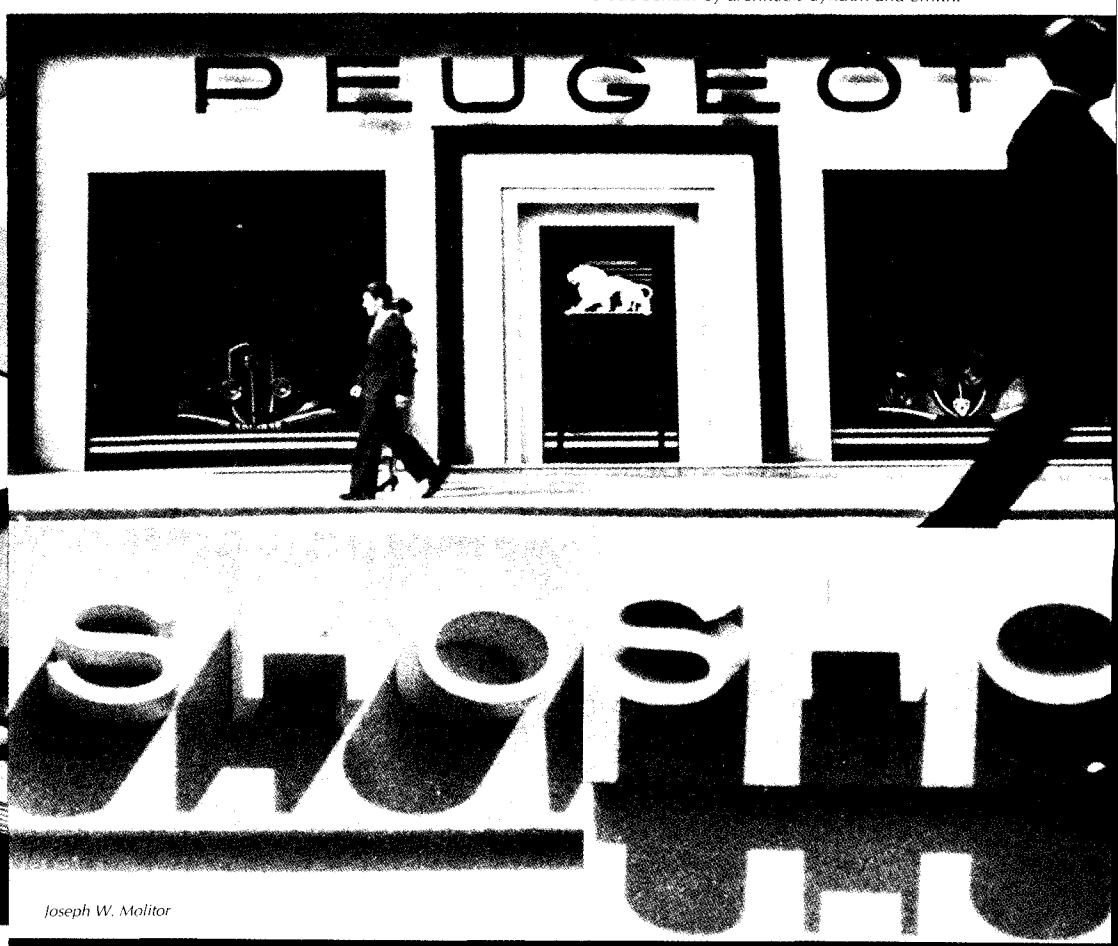
Are wizards relevant? Of course, predicting future political and social events (as well as all other forms of conjuration) has its place in an architectural magazine only insofar as it influences architecture. And on the following pages, it can certainly be seen that such forces do influence architecture. The ability to foretell the temper of the times directly influences the relevance of future planning. The movements away from cities, rising costs, quickly changing philosophies about the use of buildings—not to mention economic stability and wars—have all determined the sort of ingenuity that designers have mustered to meet new challenges ahead.

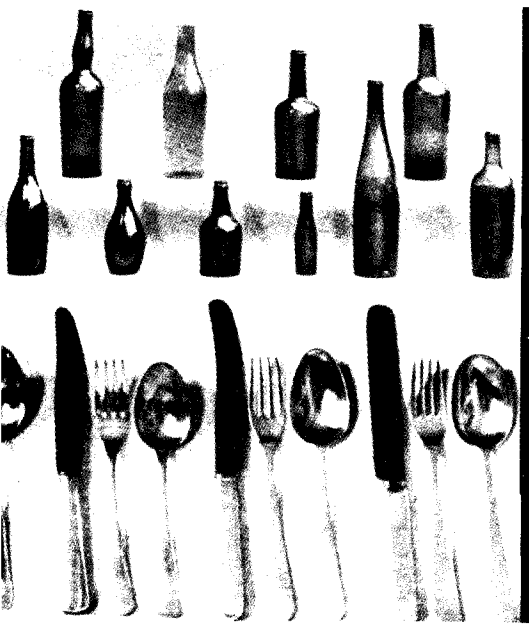
It is more than knocking off the tail fins—or other style changes. As Mildred Schmertz has written in her introduction to this section, it was the need to provide the practical tools for ingenuity to use which gave rise to the concept of the Building Types Study in the first place. In addition to showing endless and previously out-of-reach data and details (on everything from airplane-hangar doors to cabinets in stores), the early studies discussed new broad concepts: the influence of the architect over the design of buildings designed non-professionally (the old "trickle-down" theory), ways to cope with shrinking space standards, and ways to meet changing-use patterns (such as planned obsolescence). The early studies even discussed the now-current concerns of architects in the current "post-modern" movement.

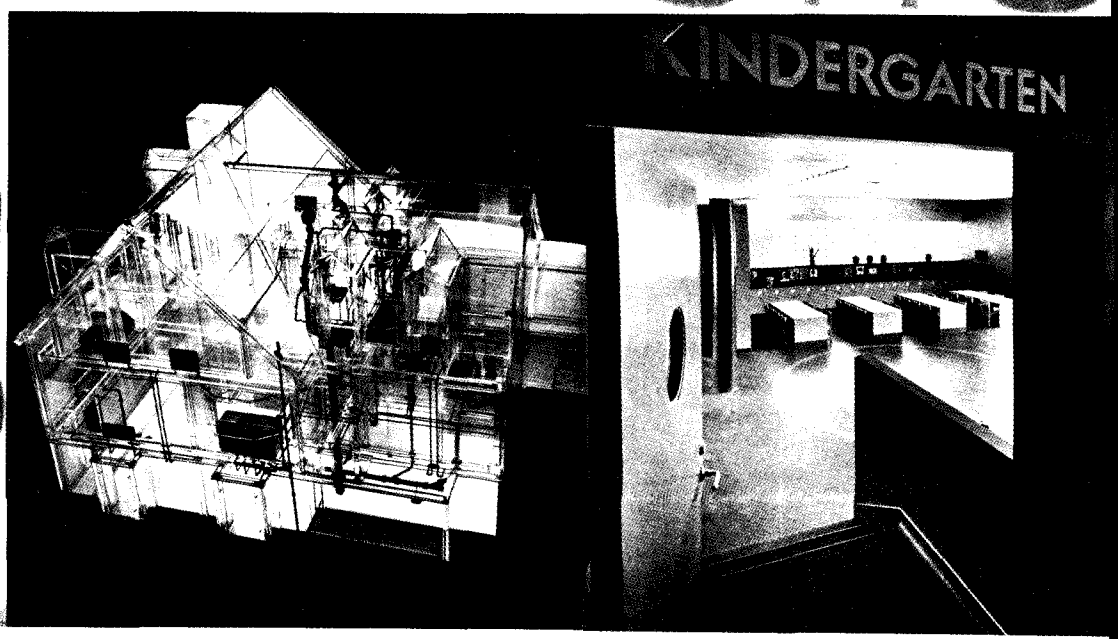
The introduction of the study was in itself visionary at a time when many changes, both technical and social, were to occur. For the study is not a descendant of the dogmatic style-books of the nineteenth century. If Webster defines "style" as historical allusion or "external fashion," the primary concern is rather with the style of how to—how to consider together all of design's elements, practical and visual, which are the essence of Architecture. Accordingly, not all of the examples from the Building Types Studies' early years were "pretty" or even amusing. All were chosen to illustrate points about basic planning and technological directions. Still, "style" was certainly there (as can be seen in some of the photos opposite). Possibly because architects have absorbed many of the past's more practical lessons so well, the examples in current Building Types Studies can now be chosen from a much broader range of projects which are both visually pleasing, *and* illustrate the points.—*Charles K. Hoyt*

From the first, the Building Types Study was concerned with "Design"—which would both reflect the best thinking of the times and the future. Photos left and below from January 1937: restaurant equipment courtesy of "Die Forme" and the Peugeot showroom in Paris; photos center, June, 1962 from "Control of Graphics" by Edward Larrabee Barnes; photo bottom, left, November 1939: the Crane Company's model to illustrate the possible complexity of residential mechanical equipment; photo bottom, right, April, 1937: The Northville Grade School by architects Lyndon and Smith.









Joseph W. Molitor

1937/1941

THE PREWAR YEARS: As part of the national efforts to overcome the Depression, there arose in these years the most sweeping changes in social values that the United States (even as former colonies) had ever produced. Architects reacted quickly. Many formalized design values vanished, and "technology" (coupled with new planning ideas) became the all-purpose answer to meeting mass needs. The only problem was that no one knew that much about the answer. It was in this climate that the Building Types Study was born.

It may be surprising that many of the basic construction methods that are used today were unknown or little-used in 1937. A vast number of innovations were first explained or indeed introduced in the early studies: cavities that worked in masonry walls, vapor barriers, expansion joints in concrete, fireproof construction around mechanical areas, the effect on concrete of its mix and of vibration, applied insulation, residential air conditioning and so on. Prefabricated houses (see top photo for one of the first) were discussed in 1937. Both "Time Saver Standards" and the "Dodge Reports" on industry activity were incorporated into the studies, and served as practical references to gauge how projects would be built and where and when.

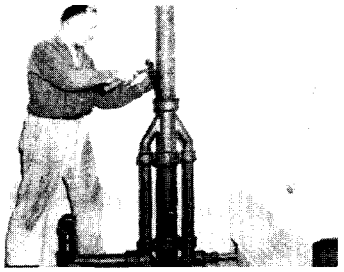
The role of architects as creators of form was certainly not forgotten. It was to take both dynamically innovative and curious routes, which were predicted (even when for the worse) by the studies, as we shall see. On the innovative side, there was the introduction of new concepts to cope with financially troubled times—such as, of all things, re-use. It was also answered with responsive designs, and a broadening of the professionals' role. On the curious side, there were the battles on "style"—as well as the realization that everything architects do influences buildings, even where no architects are directly involved. The early studies showed what would become builders' "standards" in ensuing decades—standards copied in often visually-strange terms.

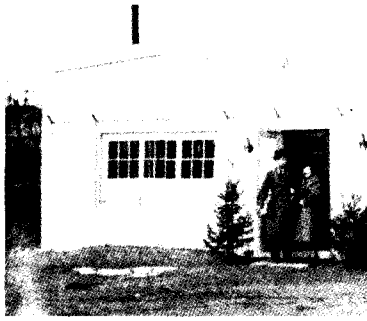
The first Building Types Study was on stores. It illustrated the vast body of practical information that was then generally unavailable to the profession. It took 56 pages just to describe current innovations (from ceiling-hung unit heaters to grocery carts) and new marketing concepts like the shopping center. Architect Sumner Gruzen correctly predicted the trend towards the supermarket.

The first housing study included—besides prefabrication—early examples of the "Planned Unit Development." It also discussed the possibilities of a closer alliance between architects and developers, and of more flexible planning in fewer larger rooms with multiple uses. An article by developer Allie Freed stated: "Older cities are grafting on alien patterns to their rotting cores."

In a few other examples from the first years, Dr. Haven Emerson predicted that the older urban centers' populations would stop growing by the 1960s. And Charles Neergaard of the American Hospital Association predicted the demise of the then-current system of wards and single-occupancy rooms in favor of multiple-occupancy rooms—as well as the inability of hospitals to support themselves because of the inflationary impetus built into welfare and insurance programs (all in July 1937). Secretary of Commerce Daniel Roper predicted the dispersal of factories away from urban centers, and Charles Wood of Lockwood Greene predicted the coming problems with industrial waste disposal (August, 1937). Architect Ben Schlanger predicted that new movie theaters, influenced by the then nascent television, should not exceed 1000 seats—shortly after construction of the 6000-seat Radio City (July, 1938). On the other hand, F.H. Randolph and C.I. Sayles may have pointed out in January of 1938 why the divergence between reality and expectations has produced some problems (see caption, opposite under "SOCIAL CHANGE"). The article described the ideal hotel as containing almost as much space for the public and services as for guests.

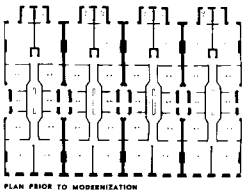
FROM THE RECORD:
"No survey of residential air conditioning can be attempted without recognizing the powerful influence that the coming idea of summer cooling has exerted on the home owner's mind."
—Brewster Beach, September 1937.

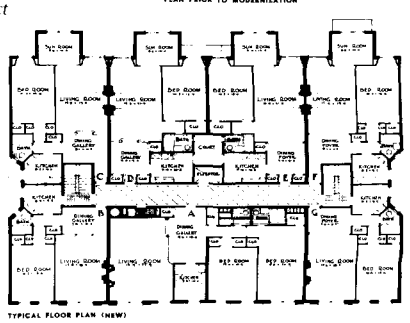




"Our forfeit is that we must look (and think) like an engineer. We must have—God forgive us—an engineered house."
—Joseph Hudnut, Dean of Harvard's Graduate School of Design, May 1945.

"The architect is constantly aware of the time lag between the best practice and public acceptance of it. It is a discouragingly slow process. The so-called modern house with open plan is completely rejected. The architect must learn how much weight to give mistaken desires, and how much real missionary work to do."—Architect Burton Bugbee, November 1940.


PLAN PRIOR TO MODERNIZATION


TYPICAL FLOOR PLAN (NEW)

"When modern gets out of control there are no time-proven rules to restrain it from being expensive and in obvious poor taste. It is regrettable that it is so difficult to get a dispassionate discussion of the relative advantages of modern and traditional houses."
—Royal Barry Wills, May 1945.

"This is a period when the architect should take leadership in planning sound, new neighborhoods from scratch to finish—from the winding road around an age-old tree to the ultimate in kitchen layout, equipment, and decoration. Speculators or 'jerry' builders who pay a pittance for stock plans do not enter the picture in this case."
—Architect Marcel Villaneiva, November, 19-

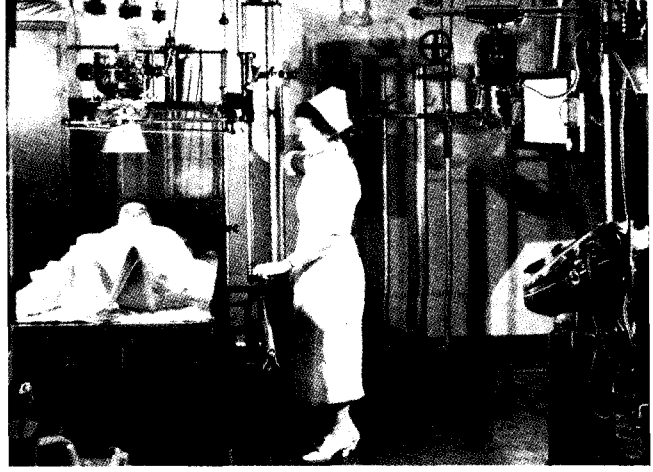
Student Anson Phelps Stokes Jr. to mother: "I will be bringing some '96 men home for the weekend." Mother: "There are many guests here already; don't bring more than 50," 1894—The New York Times, February 27, 1977.

"These are the first all-steel houses ever built, as well as the first houses to be completed ready for occupancy inside a factory. No information on costs is yet available."—March 1937.

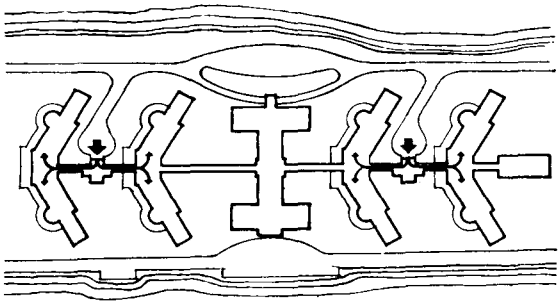
"In looking forward today, we can again see enormous possiblities, but will be less surprised at finding a weak link in a perfect sounding argument." "Our cars beat our houses." —Douglas Haskell, June 1943.

LEAPING TECHNOLOGY

Many technological innovations which are "new" today have been shown to the RECORD's readers for many years (photo, extreme left: an early prefabricated bathroom "plumbing wall" in November, 1939, which also included a prefabricated kitchen and a kitchen-dining room "passthrough"). Factory-built construction was explored in the very first Study on housing in March, 1937 (center photo: the all-steel-"truckable" house developed by R.G. Le Tourneau, Inc.). In other areas, the then-new "X-ray" was shown in December, 1939 (photo, right).



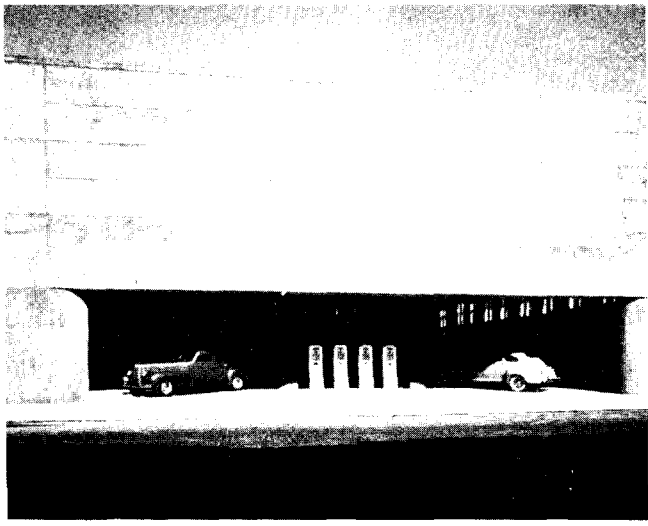
"The public hospital will be a far cry from the comparatively simple structures that, a few decades ago, cared for 'charity cases' in large wards."—Charles F. Neergaard, American Hospital Association, December 1939.



NEW IDEAS

There were "revolutionary" concepts in planning long before they became popular (plans, opposite: tenements converted into apartments by architect Louis Ordwein, October, 1937). The General Chronic Hospital (August, 1938 and plan, left) was an almost literal response to planning, circulation and sun angle diagrams. The concept of re-using existing structures received an early boost by the remodeling of an abandoned theater into the garage shown on the right by architect Robert Braeckel (November, 1940).

Thomas Korn Studio

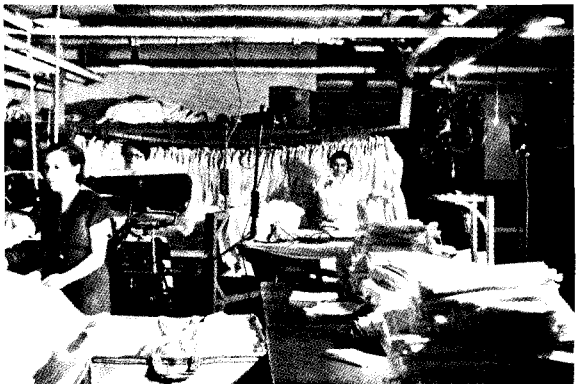


"The housewife tells her neighbor: 'Well, when we move I'm going to have one room Modernistic,' in the same voice as if she were saying that she would have one room Colonial."—Talbot Hamlin, September, 1937.

MORE NEW IDEAS

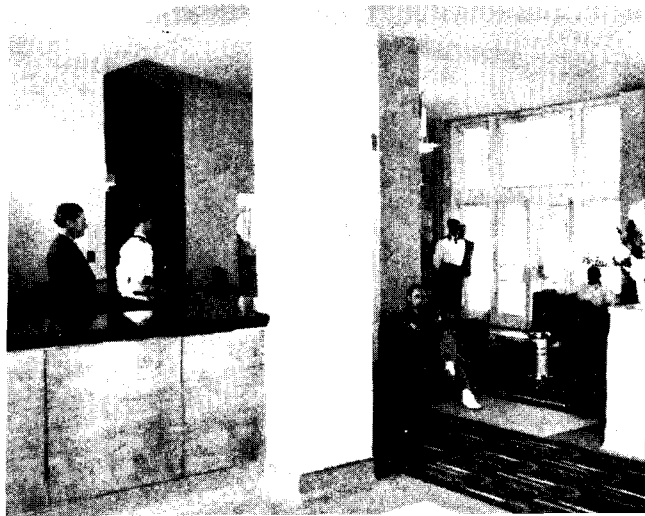
The belief that what architects designed would eventually "trickle-down" to guide the course of all design (and-not-so designed) work was a repeated theme of the editors. Witness the Jack Tar Restaurant by architects John Croft and H.S. Shannon (opposite page and January, 1940). Similarly, the houses designed by architect Marcel Villaneuva (left and November, 1940) were to be prototypical of "tract" houses today—if not *every* American's dream. The photo at the right (courtesy of the U.S. Gypsum Company) might illustrate Hamlin's observation, left.

"From the guest's standpoint, service is the deciding element in the selection of a hotel." —F.H. Randolph and C.I. Sayles, January, 1938.



SOCIAL CHANGE

The inevitable shrinking size of "adequate" accommodations and the quality of services were met with fresh ingenuity (photo, opposite, bottom: convertible bed-sitting arrangements in the prewar Washington, D.C. Statler Hilton in September, 1943). But, many serious changes would be slower in coming (photo, opposite top: "The-under-$25,000-house" in October, 1938; photo, left: a hospital laundry room in December, 1939; photo, right: attendants in a small residential hotel lobby, January, 1938).



1942/1945

"BACK THE ATTACK": With the now-grimly humorous title of the RECORD's sixty-first Building Types Study on "defense" factories, the deadly serious spirit of the times was summed up. There was again "a war to end all wars," and at no other time has the national spirit reached such heights of determination and inventiveness—inventiveness that was to have far-reaching implications well on into the future.

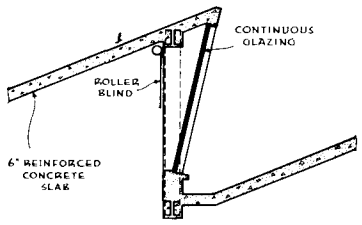
When bombs were falling on Pearl Harbor, the RECORD was going to press with a special issue on defense plants. (Of course, such installations were prophetically featured in Building Types Studies from the beginning as seen in the photo above). But now, the whole emphasis had shifted. What normal person had heard of "bomb-proof" construction, camouflage or Defense Department requirements (several pages were included). "The required design stresses were unheard of a few months ago." Albert Kahn wrote: "It is questionable whether the program for national defense is generally appreciated." The editors pointed out the problems ahead: limited materials, lack of precedent and the need for construction speed—even while materials and labor were delayed or not forthcoming. "Architects are going to design plants around (and with) entirely new manufacturing techniques. They must pile miracle on top of miracle."

With almost equal clairvoyance, the editors devoted the next wartime Study (February, 1942) to a not-so-high-priority building type, restaurants and bars. "What the war-necessary travel curtailments will do to roadside business is obvious. Such problems, of course, do not affect the cocktail-lounge, night club type of restaurant. In times like these, people will feel the need to relax somewhat violently." Other Studies in 1942 were devoted to meeting the ongoing needs of a growing civilian population without the normal means to do so; a California school looked curiously like a miniature version of the laminated-arch hangar (photo opposite, top). There was much discussion of the "Victory" house which patriotically would have small windows and a gravity heating system, to conserve motors and heat. Indeed, energy conservation reached the level of concern that it has in the 1970's.

Much of the technology (and the familiarity with it) during the war was to affect life afterwards. (One concept of the postwar house in the drawing, right, fortunately was not—nor were large-scale dormitories for travelers, developed from defense housing.) Howard Vermilya of the FHA predicted in June, 1943 a wider use of fluorescent lighting and heat-conservation measures, and the new use of radiant and infra-red heating, plastic piping and much more electrical wiring (and consumption) as direct outcomes of war-related development. Other innovations (photos, opposite, top) surely would be seen later. Perhaps the greatest changes that would come directly from the war were those affecting lifestyles—and directly, architecture. The real end of the concept of personal service and the urge to travel (especially by plane) were among the most important. According to Elwyn Seelye in July, 1943: "A vast number of planes in a wide variety of sizes will meet the growing demand for postwar air transportation."

This was especially a time of vision. Mackesey (see quote, opposite), who saw the coming dispersal to the suburbs due to the automobile, also wrote: "There will be new cities to design among the wheat fields of the West and cotton fields of the South." The same author predicted the multiple use of buildings for economic reasons.

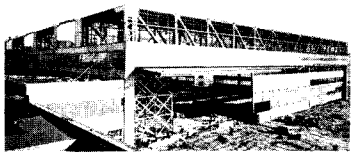
In June, 1943 Architect Elisabeth Coit argued for saner planning for low-income housing projects: incorporation of recreational and commercial facilities, rooms that accommodate real uses (such as the eat-in kitchen) and the elimination of concepts that had been unsuccessfully adapted from upper-income projects (such as the eat-in foyer). And Ely Jacques Kahn talked about urban centers: "Will decentralization reduce the demand for concentrated business areas where enterprises of specific types congregate? Are our big cities on the decline or are particular cities directed toward a debacle?" (April, 1943).



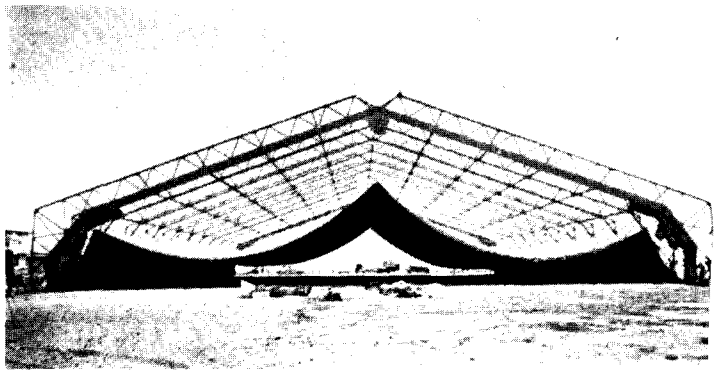
SAWTOOTH MONITOR CONSTRUCTION DESIGNED TO MEET WAR-TIME REQUIREMENTS

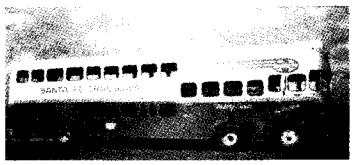
● NO GLITTER ● SAFETY FROM FALLING GLASS ● BLACKOUT AND CAMOUFLAGE EASY

"In meeting these demands to date, we have produced not makeshifts, but rather new wonders of design, engineering and construction which are incredible advances on previous practice. Thus, our war effort has caused us to cram into a few short months the progress we would not normally achieve in years." —January, 1942.



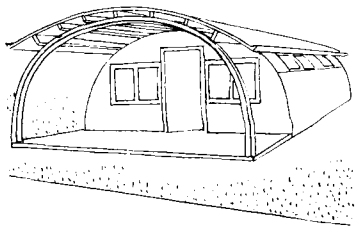
"We must produce with speed—speed—speed!"—January, 1942.



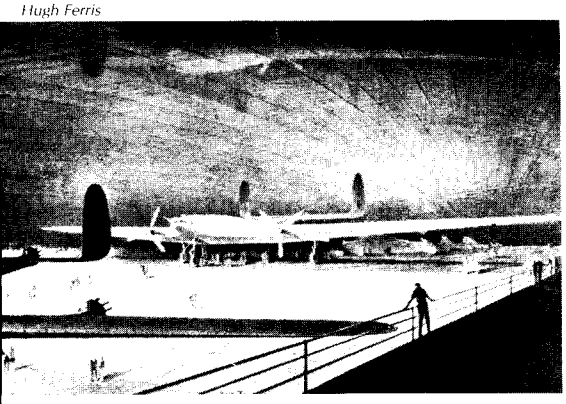


"Although people in general will have more money to spend after the war, it is doubtful if their increased buying power will compensate for the increased cost of construction."—Royal Barry Wills, May, 1945.

"No crystal ball is required to see that the war necessity will mother important advances in wood and concrete construction, and speed the acceptance of many progressive techniques—some already available to architects, engineers and contractors." —May, 1942.



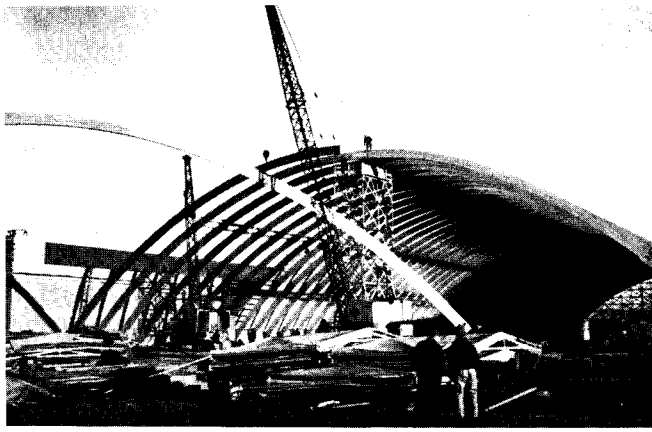
Hugh Ferris



INGENUITY

The previously rapid development of technology reached a near frenzied pitch in meeting the demands of war production (photo, opposite: the prophetic Glen Martin plant with 300-foot roof-spans and door-widths, August, 1937; diagram opposite: a "bomb-proof" monitor, January, 1942. A proposal for a 1200-foot-in-diameter air-supported roof by engineer Herbert Stevens was shown in December, 1942 (photo, left). The shortages of steel for long spans led to the use of wood laminated arches (October, 1943 and photo, right).

Unit Structures Inc.



"Of course, no one is blind to the possibility of alien wings over America. But we've gotten the impression that development of air-raid facilities would be premature and therefore unnecessarily alarmist."—December, 1940.

SPEED

Integral with ingenuity was the need for unbelievable speed in construction (photo, opposite and October, 1943: a prefabricated steel hangar from Butler Manufacturing that could be flown to combat areas assembled quickly, and accommodate a fabric roof, which was raised into place on the underside of the structure). The photo at right is courtesy of Keabey & Mattison.

"Boy, nothing there but a vacant lot 97 days ago!"—Joe Wingworker, 1943.

"The rebuilding of our cities must be on a big scale. During the war we are learning that obstacles can be swept out of the way of progress when there is the will to do it."
—Thomas Mackesey, January, 1943.

VISIONS OF THE FUTURE

When victory seemed assured, thoughts turned to what would come next (photo and drawing opposite: wartime innovations that would *not* in these cases carry on—the plywood bus (courtesy of Douglas Plywood) and the Victory house of the Pierce Foundation. About the house Douglas Haskell said: "Needless to say, the key to flexible planning is the roof" in November, 1943. Typical urban-street congestion led to architect Norman Bel Geddes' vision (January, 1943 and photo, right).

"Today, because of inefficient transportation, the movie and the saloon, the solar cycle is used badly rather than well."—Le Corbusier, June, 1937.

"People will feel the need for relaxing somewhat violently."—February, 1942.

AND SOME ESCAPE

The pressures of hard work led to short periods of concentrated relaxation and hence to an increased demand on recreational facilities of every kind (photo, right: Al Remler's Night Club, Savannah, Georgia by architects Levy & Clarke, February, 1942).

1945–

ON TO THE FUTURE: Not too long after the war, it became apparent that many of the previous speculations about the future were coming true—while some, like the plywood bus, would not. "Technology" was firmly with us—as were a whole host of new attitudes about national and personal directions—and how to better house them. If there is any shift of emphasis away from those now-more-standardized details in the Studies, it is that which encourages a fuller perspective on the times and hence on our buildings.

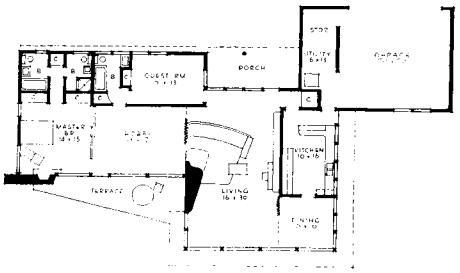
Aside from obvious new types of buildings, the advanced design of almost every existing building type has changed so radically since the war, that it is unrecognizable as the same species. The switch in terminology from "landing fields" to "airports" is a meaningful one. The vision that every then-new terminal would have to grow endlessly was advocated at least as early as the Study of April, 1945. Six years before, the president of Johnson & Johnson had said that factories would have to be radically improved to keep workers; the Study in August, 1948 described the sweeping changes that would come—including the introduction of vivid colors to differentiate equipment and raise morale. Freer planning for houses, described as "inevitable" since the first housing Studies, received impetus from publication of the plan shown above. The broad implications of change did not go unnoticed either—like those of the flight from cities: "As decentralization of our cities continues, steps which will preserve the economic balance of our cities take an added importance" (Kenneth Welch, March, 1951). The February, 1945 Study had been much more specific; it had already published a revitalization plan for downtown Grand Rapids.

Partially born in the war effort's development of technology and partially in the demise of personal service, the interest in efficiency (the quest to keep our buildings and lives running smoothly) took increasing importance. It has affected buildings in very direct ways (see "EFFICIENCY"). Along with the development of efficiency came a not-so-happy trend, the desire to appear efficient—even at the expense of irreplaceable visual variety, the national heritage and efficiency itself. This trend was countered by articles on the architecture of the past.

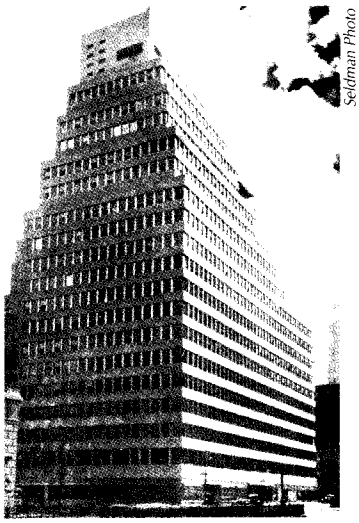
The new concern for the public welfare was discussed in such articles as those on public health centers—often done in collaboration with the Public Health Service. The first of these was in September 1940 (see, "PUBLIC WELFARE," overleaf). The study in June 1937 investigated Community Recreation Centers, and almost every study on schools discussed the alternate use of facilities by the community.

As architects have evolved physical form, to meet new needs in a climate released from old restraints, there has been thoughtful consideration of what these forms ought to be. In May of 1945, Joseph Hudnut (see quote, above) wrote an article entitled "The Post-Modern House," and he came to many of the same conclusions about preoccupation with technical proficiency that characterize the group who now term themselves "Post-Modernists." A further article by Hudnut in December, 1947 stated that if the International Style had "cleared our buildings of some of the past load of ancient techniques, speculative esthetics and cant, that was not in order that these buildings should achieve dogmatic asceticism, but that our architecture might be set free upon a new foundation."

In the Study in September of 1948, editor Kenneth Stowell gave definite shape to a thought only briefly covered in previous issues: that architects really design all buildings—even those with which they have nothing directly to do. "The thoughtfully-designed building of today becomes the model for imitators all down the line tomorrow." Examples shown in the same issue (in that case, on houses) were to prove how right he was. In planning concepts, appearance and materials, the products fashioned by developers, owners (and even some architects) have tended to *emulate* the best designs that architects could produce within the constraints of past decades.



"More in sorrow than in anger, one housing project manager remarks;" they use their kitchen for things they ought to use their living room for." "Housing From the Tenant's Viewpoint"—Elisabeth Coit, April 1942.



Seldman Photo

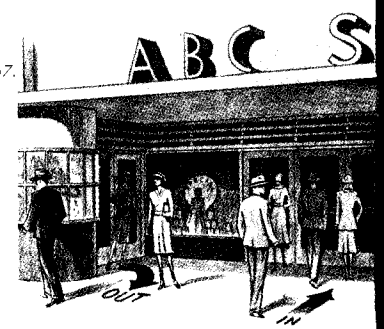
"A 'fearless affirmation' of the functions of nutrition, dormation, education, procreation and garbage disposal is quite a false premise for design."—Joseph Hudnut, Dean of the Harvard School of Design, May, 1945.

"Some day simple, direct solutions in which money will be spent on the amenities and not on ornament, will be the order of the day." —Albert Kahn, April, 1943.

"Those who think the American people can't take an idea (with new breadth, depth and directness) through the eyes have sadly underestimated them." —Douglas Haskell, June, 1943.

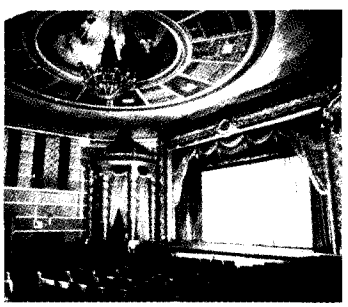
"Within recent years, for example, the layout of the nursing unit itself has evolved through circles, triangles and racetrack corridors." —Editor William B. Foxhall, September, 1967.

"One manager, contending that both marble and terrazzo floors are expensive to maintain, says that the ideal floor for the entire building is concrete slab covered with ¼-inch battleship linoleum."—December, 1938.

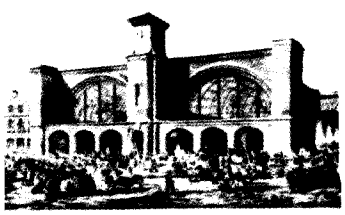


"Must the passenger puddle-hop from waiting plane, climb to an exalted upper level only to descend again and mix ingloriously with the baggage? Oh, for some way to get him directly from upper level to plane."—Architect Gordon Ca January, 1951.

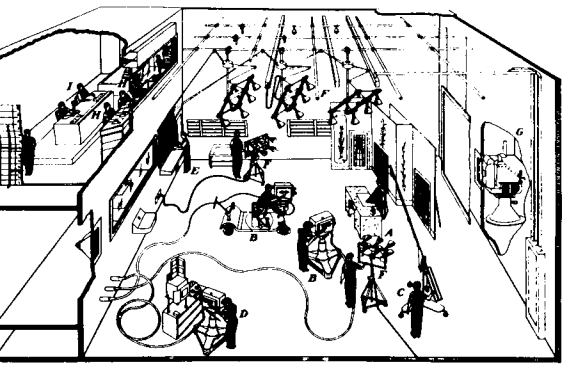
"One cannot have lived in James Gamble Roger's Memorial Quadrangle without realizing that it has spatial and formal qualities that go far beyond the application of superficial historical ornament."—Editor Jonathan Barnett, April, 1962.



"We have all but eliminated the 'atmospheric' treatment of the auditorium and its indefensible competition with the exhibition."—July, 1938.



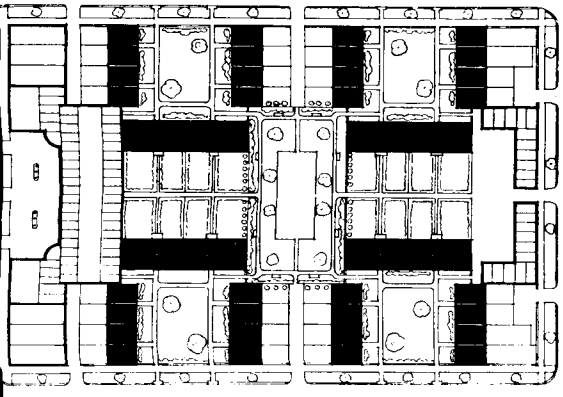
"When television does arrive and its special needs are established, one may expect a new theater type."—July, 1938.



NEW TYPES

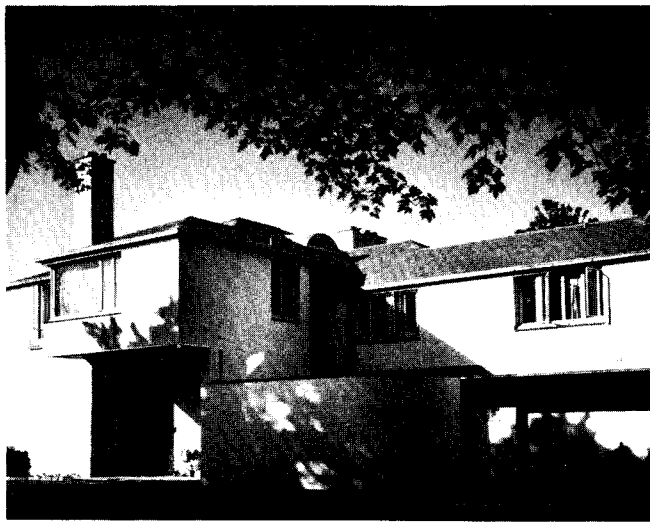
In the last 32 years, new types of buildings have been born, and old ones have become practically new (plan, opposite: "The Post-Modern House" with a *really* open plan by architects Plan-Tech Associates, May, 1945). Television studios are a completely new type (drawing, left and June, 1949). The North Park addition by architects Omniplan (photo, right and RECORD, January, 1976) is a multiple-level shopping center, as predicted in April, 1966.

"A reassertion of the separate and equally necessary roles of public and private space applies to the design of high rise as well as low rise housing."
—Arthur Drexler, Another Chance for Housing, 1973.



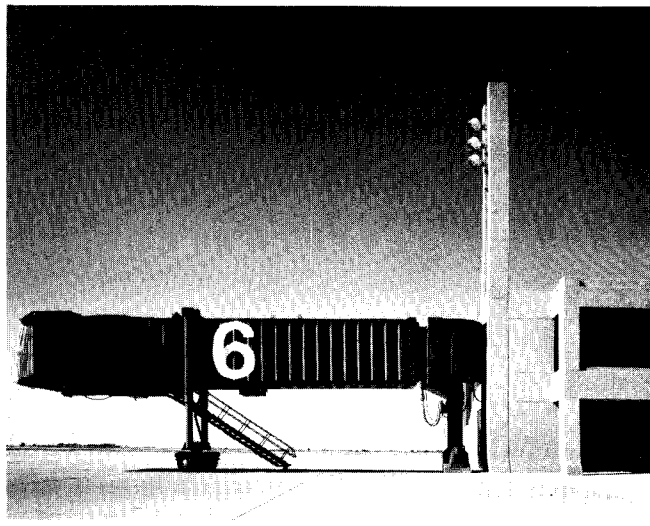
SERIOUS THOUGHT

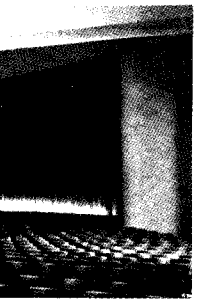
The RECORD has not been afraid to comment on contemporary trends or to discuss ideals (opposite page, photo of the first fully air-conditioned office building by architects Kahn and Jacobs in October of 1947, and earlier comments on "functionalism"). Detailed studies of FHA recommendations (September, 1938) included the now "new" concepts of achieving territorial protection by the order of public, semi-public and private spaces. The "post-modern" house was discussed in May, 1945 (photo right, a house by architect Kenneth Day in November, 1939).



EFFICIENCY

Part of the radical change in building types has been due to the desire for efficiency (drawing opposite; an early separation of high-volume pedestrian traffic in April, 1944). Boarding a plane was described as "an event" in July, 1943 and photo, left. By January, 1951, better ways were anticipated (drawing, left and quote opposite, bottom) and eventually in practice (January, 1976 and photo, right: Lubbock Regional Airport by architects Hellmuth, Obata/Kassabaum/Whittaker & Hall).



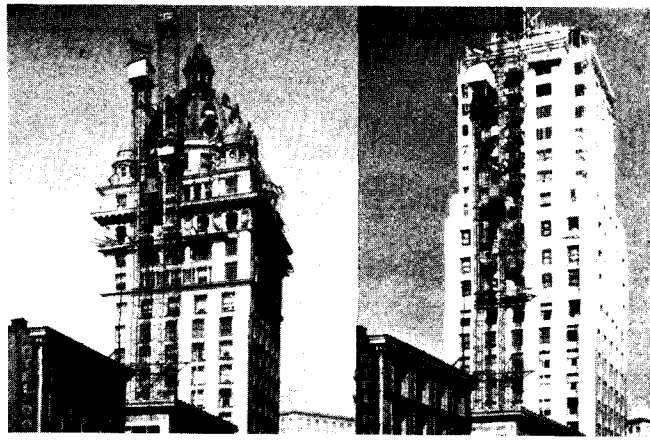


"Is today's office building basically different from those of years ago, or is it the same thing in a shiny skin?"
—Editor James Hornbeck, April, 1957.

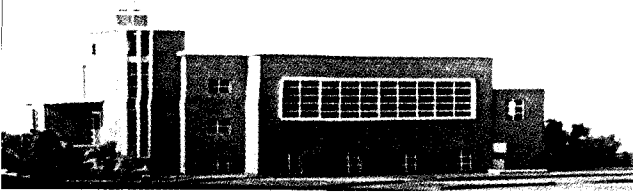
"Next, let's subdivide the great big floor area. We shall start by boldly cutting off the whole corner. What we shall do with it can be told just a little farther on. In this lobby, we shall no longer endeavor to keep the character of one big, undivided room. A "guest island" is protected by a breast-height partition which is topped by artificial flowers. These are changed with the seasons and contribute an air of cheer that will greatly be desired."
—Architect Francis Keally, "Revitalize Hotels for V-Day Revenue," January, 1944.

LOOKING EFFICIENT

While the RECORD encouraged appreciation of the past by such articles as that in October, 1948 on historic railroad stations (photo opposite, left: King's Cross, a first in the integration of waiting room and shed) it could not help but report on the prevalent urge to be current at any cost (November, 1948 and photos, left: The Strand Theater, Hartford, Connecticut before and after). San Francisco's Call Building survived the 1906 earthquake to the apparent dismay of its owners (photo, right and December 1940: before and after refacing).



TRICKLE DOWN–OR UP?



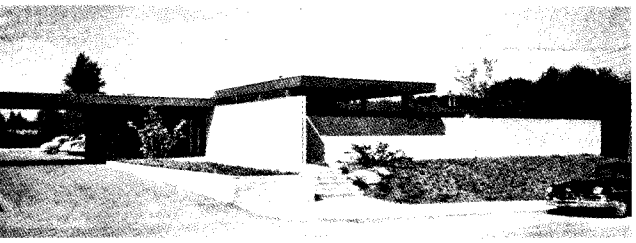
While the West Roxbury Fire Station by architect George Robinson (July, 1944 and photo, left) clearly appeared advanced for its time, its many reincarnations produced by civic engineering departments would not during subsequent decades—although some current architects will disagree. Farsighted architects have always fashioned that which would be copied in curious ways by untrained designers later on. This is a strong newly-realized responsibility for the profession (photo, right: an early" split-level" shown in September, 1948) by architects Moore & Salisbury.

"He has in mind, if I have understood him correctly, a Cape Cod cottage which, upon being opened, will be seen as a refrigerator-to-live-in."
—Joseph Hudnut, Dean of Harvard's Graduate School of Design, May, 1945.

THE GOOD LIFE

The broad-based goal of obtaining the luxuries previously available only to the few is a sustaining characteristic of national drives. Much of current and future construction is and will be derived from this new stabilizing force (photo, left and April, 1945: a private airfield in St. Louis; photo right: the elegant decor of the Plaza Club by architect Roche Dinkeloo and Associates, January, 1977.

"With thousands of pilots returning from the war, the result will be a vast extension of private flying facilities."
—Architect Gordon Carr, July, 1943.

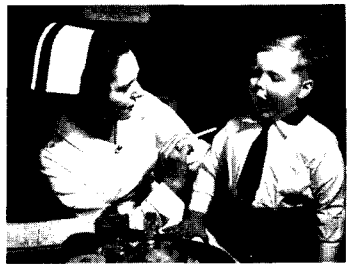


"Since World War II, many health units have moved out of standard facilities, and into functionally designed ones."—United States Surgeon General, August, 1955.

THE PUBLIC WELFARE

A basic concern—indeed a cause of the technical and social changes which produced the Studies—was increased interest in the general well-being of everyone. While the Federal government was only beginning to explore the physical facilities that would meet such concerns, the RECORD published standards and examples for public-supported health clinics, recreational facilities, community-oriented schools and housing (photo, left and August, 1955, a clinic in Washington State by architect Paul Kirk; photo right: public health care as viewed in July, 1942).

"Upon entering a community, I proceed directly to the basement of the City Hall. This is done on the reasonable assurance that the health department will be found there. Occasionally my assumption will be wrong—it will be in the attic."—Joseph Mountin, Assistant Surgeon General of the U.S. Public Health Service, July, 1942.



"The station is the railroad's storefront, its public face—at present the face of a "dying industry."—Editor Douglas Haskell December, 1943.

. . . AND ONE DINOSAUR

Because of increased war-time travel and because general travel by planes still seemed sometime off, there was a brief revival of interest in railroad stations—although not in those that were the statements of civic spirit in previous decades (photo, left and December, 1943: a model of the-then-current visions of efficiency, the Austin, Austin, Minnesota station which replaced a rambling Victorian edifice).

"Note that a station of today tends to have freestanding furniture and fluorescent lighting."—December, 1943.

Building automation: what it does, what its benefits are, how the economics fare

by Donald E. Ross, partner
Jaros, Baum & Bolles, consulting engineers

Engineer Ross clears away some of the mystery surrounding building automation—explaining, simply, the terminology, and telling how electronic control is applied to building hvac, life-safety management and security. Next month, the author concludes with computer optimization of building system operation, hardware and software costs, and the nature of savings to be derived.

Design professionals are finding it increasingly difficult to keep abreast of the new and sophisticated techniques continually being introduced in the field of mechanical systems for buildings. Nowhere has this dynamism been as extensive as with centralized control known as "building automation." Not only are many new techniques being used, derived from computer-based technologies, but many new and expanded functions have been added that rarely were included 20 years ago.

Building automation: how it is different from automatic temperature control

For years it has been possible to control room comfort conditions by adjusting a wall-mounted thermostat that regulates the amount of heating or cooling delivered to a space. Similarly, controls have been available that raise or lower the temperature of the stream of air or water being delivered throughout a large-size building to provide thermal comfort. Finally, traditional hvac design has included the ability to modify the operating mode of central equipment so that, for example: 1) controls at the supply-air system can set the system for either minimum outdoor air (summer cycle for a fan system), or variable outdoor air (winter cycle for a fan system), or 2) the flip of a switch can change the scheduled control temperature of a water system from cooling to heating, or 3) an operator, by adjusting a control-point adjuster, can raise or lower the temperature of the hot or cold water to modify performance for daytime or nighttime conditions. Also, the starting and stopping of fans and pumps could always be effected by depressing a start or stop button mounted somewhere near the unit. This type of regulation for a particular space or apparatus traditionally has been called automatic temperature control. Regardless of the function or means used to get a particular result, automatic temperature control involves the local adjustment of a device to achieve a desired effect.

But as soon as the control functions just described are centralized in a building so that a room thermostat, or the operating mode or supply temperature for building systems, can be adjusted from the building engineer's office, or a fan or a pump can be started from a remote centralized location, it can be said that the automatic temperature controls have been escalated to a building automation system.

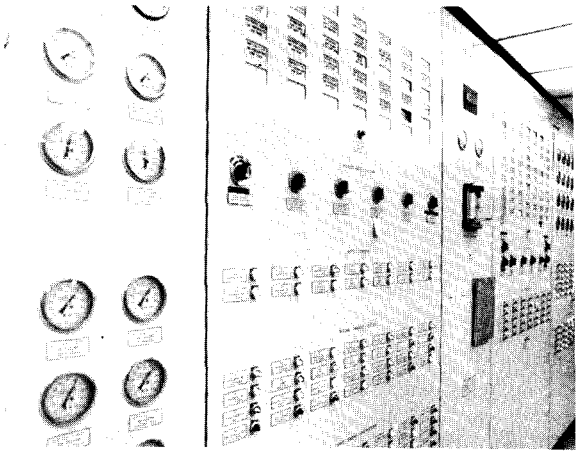
Economics generally dictate sophistication of the air-conditioning system for a building

The consulting engineer has a limited number of alternatives to consider for the hvac system of a particular building. He is constrained by the architectural design, size of building, energy alternatives, and, finally, by the use of the building. Assuming comfort factors are relatively equal, the selection process is based largely upon economics: initial costs must be compared with operating and maintenance costs to permit an intelligent choice. The bottom-line rate of return on investment typically will control the decision process. Having selected the economically-correct system, the design engineer will provide for local automatic temperature control for the air and water systems, and local space temperature control as is required.

Whether the local temperature control should be advanced to central automation is governed by the same economic rules as for hvac system selection. Savings and/or convenience of alternatives must be compared. Savings in operating costs can result from reduction in energy use, as well as from a possible decrease in operating staff. The ability to tie alarm or malfunction points into an automation system can be not only a convenience and safety precaution, but also a money-saver through early notification of malfunction. This can reduce accompanying damage that might result from delay in removing the cause of alarm. Though justification of an automation system can be made, substantially, on economic grounds, subjective factors (prestige, for one) may also influence the decision.

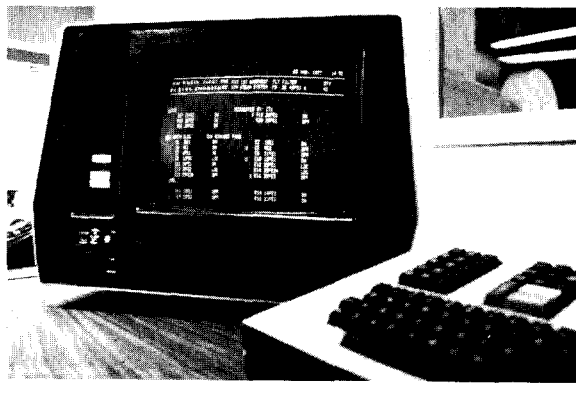
Building automation, itself, has various degrees of sophistication—and costs

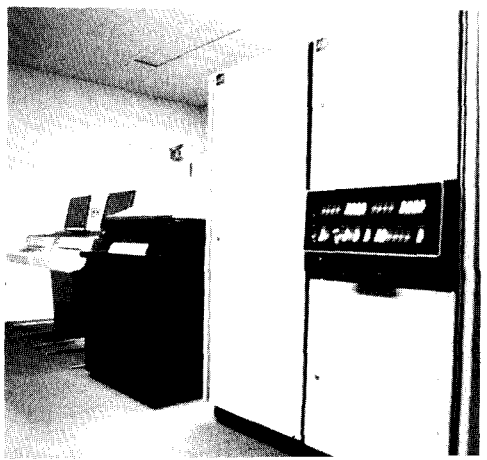
The ultimate automation system can provide, in one or more centralized control centers in a building, automatic monitoring and modification of the performance of a number of dif-



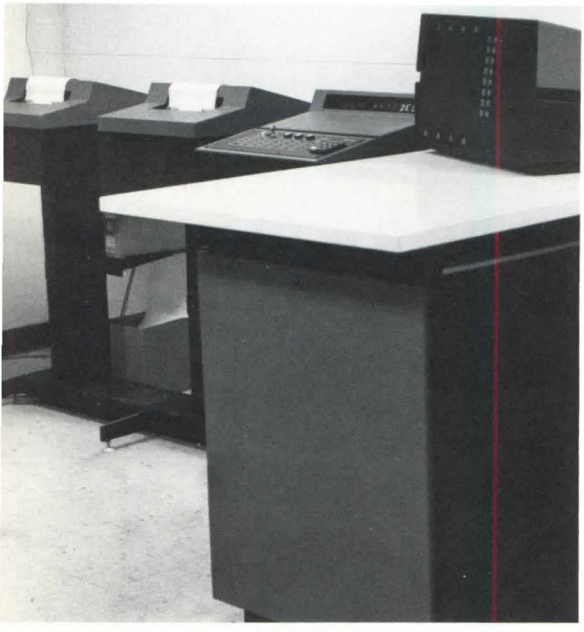
Before electronic technology was applied, building automation comprised panel-mounted indicators, alarms and controls that were hard-wired to individual sensors and devices at hvac equipment.

Now, with electronics, instructions can be transmitted faster, information presented faster and in more convenient form, and building operation optimized. Shown are a cathode-ray-tube display unit and operator's module (top); also the automation-system computer, a printer, and slide projectors (bottom).



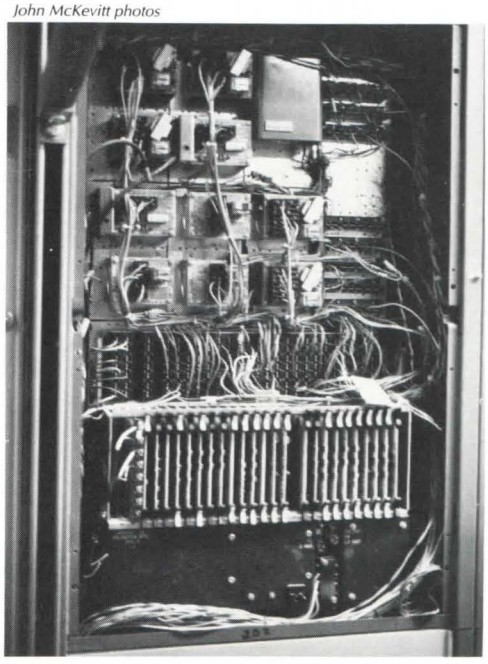


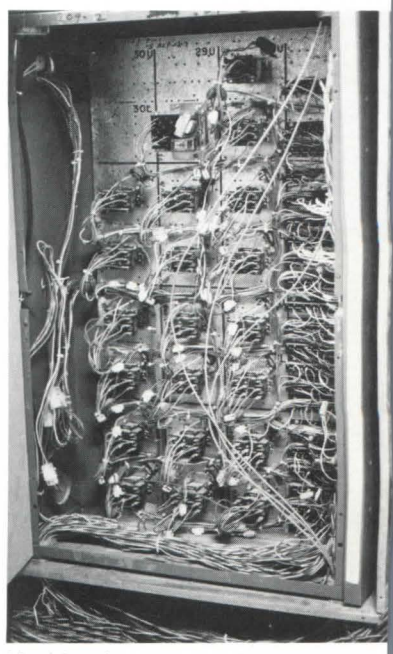
Control and monitoring of subsystems for a large high-rise building is accomplished with equipment shown below: a central processor, operator's module, printers and slide projector. Electronic messages are coded and uncoded by a multiplexing unit (near right), and action is initiated by relays in an interlock panel (far right). Temperatures are measured by analog sensors, and on/off and alarm conditions are detected by digital sensors on equipment such as shown across page.



Control-center equipment in the engineer's office

John McKevitt photos





One of many multiplexing cabinets (left). Interlock panel for life-safety system (right).

ferent building subsystems, including: 1) environmental control systems, 2) communication system, 3) life-safety and fire-management systems, 4) security system. It is this ultimate automation system that has been getting the most attention lately. There are, however, intermediate automation systems that, while not as exotic, are still applicable in smaller buildings.

Typical of these simpler systems is one that has dedicated hard wiring between each point or function within the system and a central control panel. This means that each control point has a pair of wires carried from it back to the central control panel. This hard-wired system usually permits remote starting and stopping of equipment, alarm indication, and perhaps some selected temperature indications. While this type of system may require the operator to start or stop a fan manually from the central control panel, it is possible to add sophistication by tying the individual fans into a time clock, or even a computer. Until about 15 years ago, the hard-wired system with a multiplicity of alarm lights and start-stop buttons on a panel in the building engineer's office was the only type of automation system being used. And it is still widely applicable for smaller, less complex buildings.

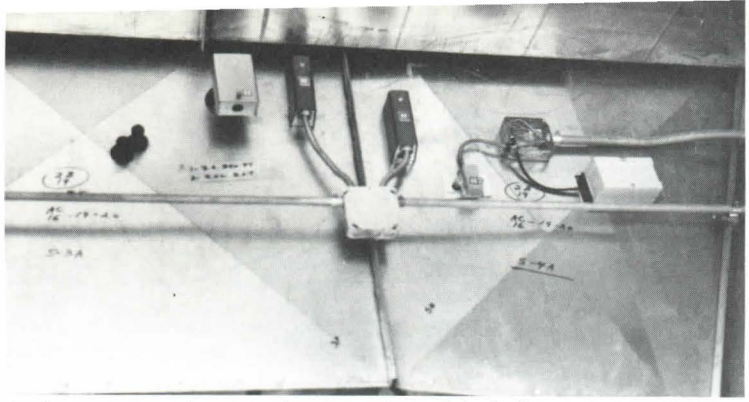
More recently it has become possible, through electronic technology, to transmit coded messages from a multiplicity of alternate types of points over a single trunk cable system to a central processor where they are deciphered. Over the same pair of wires it is possible to transmit requests for information, or to issue instructions that will cause a desired change to occur at the addressed point. The signal transmission system that has had the widest application in the larger and more complex buildings comprises a two-wire or coaxial cable routed through the buildings. This type system is called a multiplexed system in that simultaneous multiple messages are transmitted and/or received over the same pair of wires. It is possible, however, to transmit the electronic signals over multi-conductor cable, with each point within the system having its own pair of wires, but this is being applied less frequently today than two-wire or coaxial cable systems.

How building automation works can be seen from a description of its basic components

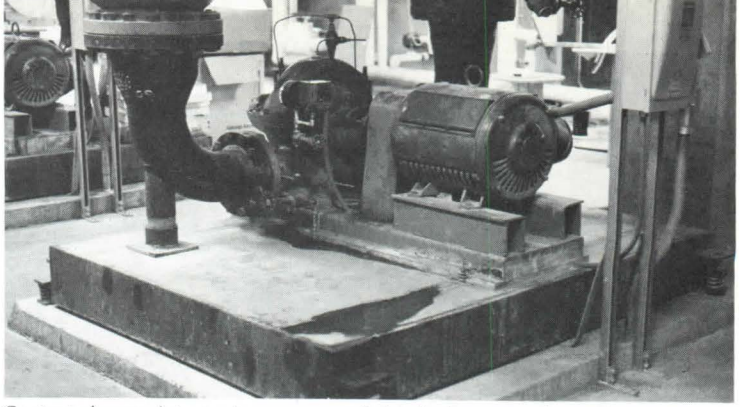
The basic components are sensors and other remotely located devices that can transmit data to a central control facility. When interrogated by a central processing unit, these sensors cause an electronic signal to be generated that is transmitted to the central processing unit where it is deciphered. The deciphered message may be printed by a system-driven typewriter, appear on a cathode ray tube, initiate a visible or audible alarm, or even, automatically, cause some adjustment to be made in the system via a preprogrammed computer. The total system, when installed in this fashion, is a real-time system, or on-line system, in that the computer is analyzing data and acting on the data to effect an ongoing physical process from which the data is being received.

Though there are some proprietary differences in hardware and arrangements, it can be separately typically into the following generic types and functions:

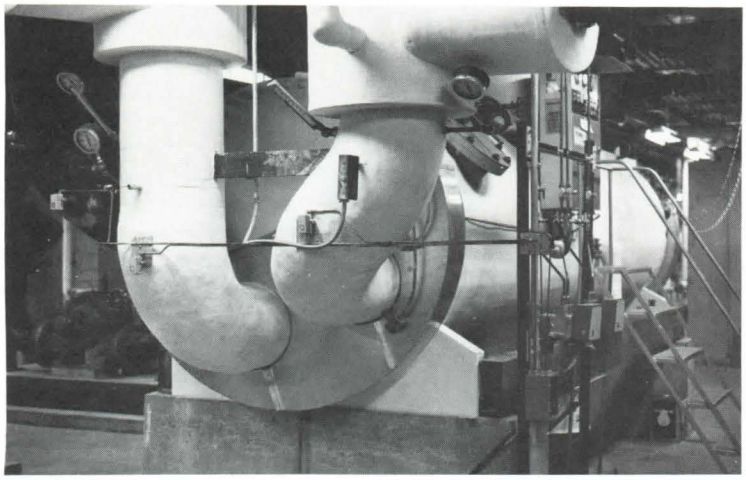
- Analog Sensors are remotely located devices that measure temperature, pressure or flow. These sensors will measure quantities that vary as a function of time, such as temperature of an air- or water-supply system.
- Digital Sensors are remotely located devices that indicate at the central control facility whether a particular piece of equipment is in an open or closed position, such as a fire-sprinkler flow alarm, heat detector, motor-starter contactor, or a door contactor used for security. These devices tell whether equipment is "on" or "off", "open" or "closed".
- Resettable Devices are those such as a on-off motor control, door-security control, or opening or closing of a damper of an air-supply system. These devices initiate the action which is monitored by the digital sensors. Another resettable device is one that can change the set point of a thermostat or air-handling-system damper to whatever value is desired.
- Multiplexing Cabinets are remote enclosures located throughout a building to which the sensors or controllers are connected by a pair of wires. They contain devices that convert the signals transmitted to and received from the central control facility into electronic pulses to which components of the system can respond.
- The Transmission Trunk is a two-wire or coaxial cable, not essentially different from the antenna wire used for television sets, that is looped through a building and connects, in series, the various multiplexing cabinets. The



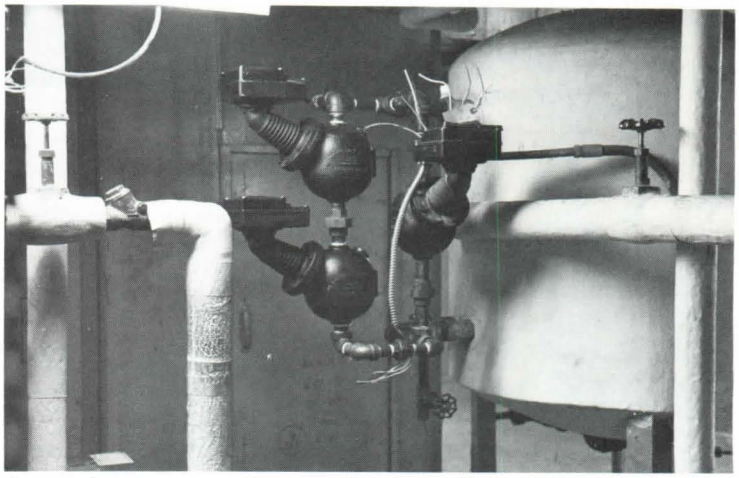
Analog sensors on duct can relay dew point and dry-bulb temperature of air.



Contact closure detects via pressure switch whether pump is running or not.



Analog sensors on chiller supply and return measure water temperatures.



Contact closures on expansion tank give alarm at high and low water levels.

cable terminates at the central processing unit.

- The Processing Unit is the central equipment that contains the logic for management of the total system. It can transmit and receive multiplexed information, and cause it to be presented. It has the ability to process all data in an orderly fashion, and controls the timing and flow of information to and from other elements of the over-all system. This processing unit may or may not include a computer. The significance of this is discussed later.
- Peripheral Devices are pieces of equipment attached to the processing unit in the central control facility to permit operating personnel to receive and transmit information to the system. They can include typewriters or other printers, a slide projector containing visual representations of the various building systems, a real-time clock (real time in this context means the actual clock time at which a physical process transpires), and a control module through which the operator can address the individual points in the over-all system, or request specifically programmed and retained information of what is happening in the building. Also typically contained within the control center is two-way voice communication to remote sections of the building through an audio channel that terminates, most often, at each multiplexing cabinet. This communication ability is handled by a separate wiring system in addition to the cable indicated above.

In review, then, the total system requires the installation of temperature, pressure and flow sensors, as well as, possibly, door-monitoring devices or alarm devices that are capable of transmitting data in the form of electronic signals to a central processing unit over the trunk cable that is looped through the building. The other function of the processing unit is to send instructions over the cable to change operational characteristics of systems by starting and stopping fans, adjusting temperature controllers, modifying damper positions, opening or closing locks on doors, etc. All of the transmission of data or instructions in either direction is digital and is handled in such a way as to be fully compatible with a computer.

In contrast to the hard-wired system, the multiplexed building automation system is easily expansible after installation. With the hard-wired system, more panel sections and more wiring have to be added for the additional points. The digital system can be expanded in several ways, offering a whole range of potential uses.

Firstly, the system can be expanded by wiring additional sensors and devices into the existing multiplexing cabinets by making provisions for this in the original design.

Secondly, the system can be extended by adding multiplexing cabinets and trunk cable, if and when the project is expanded. This can be done without interrupting the functioning of the original system.

Thirdly, if there are extensive distances involved (for example, between a group of buildings miles apart), which makes it impractical to connect them by the trunk cable, communication to remote points can be accomplished by using voice-grade telephone lines. A device called a modem changes the telephone signal into a digital signal, and vice versa. This means that the central control facility need be included in only one building, though peripheral devices such as printers, cathode ray tubes, etc., could be installed in the owner's satellite buildings.

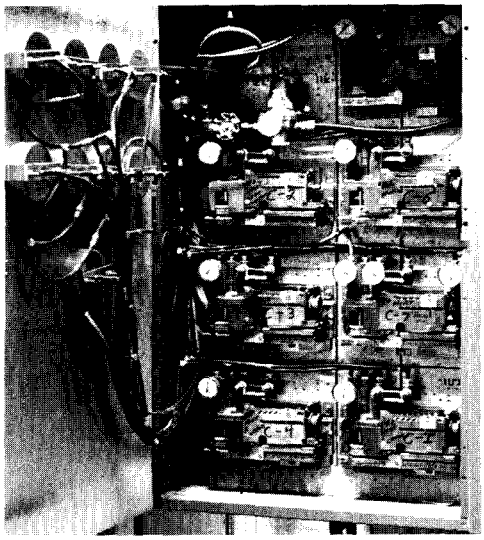
Building automation is offered on a fee basis where costs preclude an in-house system

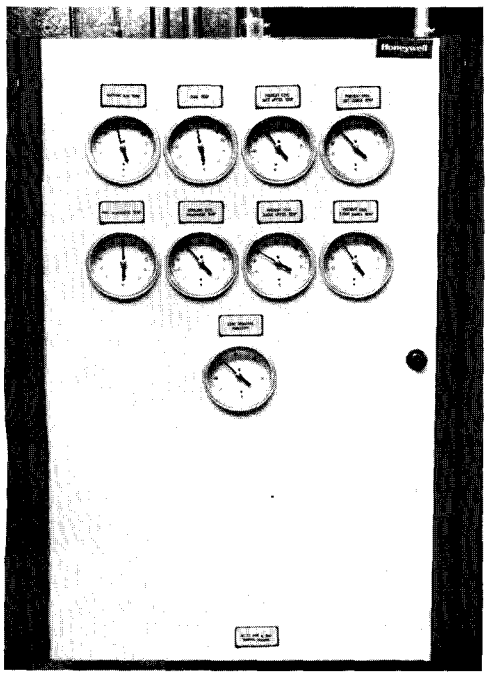
The capability of using telephone lines for transmission of data and instructions has been the impetus for several automation manufacturers and companies offering remote building monitoring and operation on a contractual basis. The companies, themselves, have a central control station on their premises, just like those installed in private buildings. Large numbers of buildings can be tied in, by means of leased telephone lines, to the company's central control station that is manned 24 hours a day by automation company personnel.

Such an arrangement permits scheduled start-up and shutdown of equipment in accordance with time, temperature or other variables, without the need for operating people performing these functions in remote buildings.

Furthermore, security points as well as fire-control functions in the remote buildings can be monitored at the automation company's central station.

The above-described approach permits many sophisticated techniques to be used in small buildings on a rental basis at reduced





Local control panel for a large air handler is shown in these photos. Electronic signals from the central processing unit are converted to pneumatic signals to activate reset devices within the panel. In turn, the reset devices actuate valves that control flow of hot and chilled water. On the panel cover are dials that indicate temperatures of water coils, temperature of supply air, zone temperature, zone relative humidity, and outside air temperature.

cost. These buildings, of course, must have had sensors and devices installed for the functions that are to be handled by the automation companies. The economics of this approach depends upon how many remote points are being handled. As the number increases, the cost of the service could reach the point where a separate system on the building premises is affordable. This is a great automation growth area, however, and will find wider and wider usage in the years ahead. Properly employed, it can save capital and operating labor for many buildings.

Once used mainly for environmental control, building automation now is more versatile

Centralized control is often used today to combine the building environmental, life-safety and security subsystems into a total integrated facility, though there still can be three separate control stations with different locations for each.

The environmental control station used by the operating engineers for controlling the environmental equipment typically is located in a room within or near a mechanical equipment room.

Location of the control station for life-safety and fire management, often called a fire-command station, is governed by requirements of the local fire department. While it can be part of the environmental control station, it is frequently located on or near the main floor of a building for ease of access by the fire department.

The security control station's location will depend upon the particular organization of the security staff.

All of the above stations are tied into a single, multiplexed, total-integrated building facility, with dedicated peripheral devices installed at each station. They usually will be interconnected by hard-wired telephones. The over-all integrated system should be so designed as to buffer the individual points monitored and controlled by each of the subsystem stations. It is not prudent, for example, to permit building operating engineers to access the security points in a building, and be able to permit secured spaces to be opened. Conversely, building security personnel should not be able to start or stop fans or pumps.

To enhance the reliability and flexibility of the over-all system, however, functions could be permitted to be switched back and forth between the various stations by means of a manual keying device or through electronic passwords. This allows continuous control, in the event of component failure at any one station. It also permits the manning of one station at night or on weekends by fewer people.

Degree of automation for the hvac system varies with building size, type, operation

In a relatively small building of less than 250,000 sq ft, and with a single mechanical equipment room, the ability to start and stop fans in the engineer's office on the same floor probably could not be justified. On the other hand it could be reasonable to start and stop fans (as well as boilers and/or refrigeration equipment) from a remote-site automation system over voice-grade telephone lines, as discussed earlier. Money could be saved by reducing the on-the-job hours of operating personnel.

In a large building, say in excess of 1-million sq ft, with multiple fan rooms and more complex operating schedules, automation systems usually will be included. For buildings between 250,000 and 1-million sq ft in size, the ability to support an automation system, and the extent of its complexity, can be resolved only through a careful engineering study of the building, its hvac and other systems, and its operating schedules.

With any building automation system, virtually all of the supply, return and exhaust fans and pumps will be started or stopped at the central control facility. Starting and stopping can be made automatic by providing a real-time clock at the central processing unit, avoiding possible human failure or delay.

Also, building automation systems will use their central processing units to scan analog temperatures throughout a building and compare them with stored temperature values (minimum and/or maximum) to determine whether there are excessive space temperature fluctuations. If such a condition exists, an alarm will be indicated by one of the peripheral printing devices.

Furthermore, the processing unit would continually scan the status of alarms on many building mechanical components and subsystems that indicate excessive or low water or air temperatures or pressures, high or low water levels on expansion tanks, etc.

And as mentioned earlier, both space temperature thermostats, and thermostats that control air- and water-supply temperatures, can be configured to be adjustable centrally.

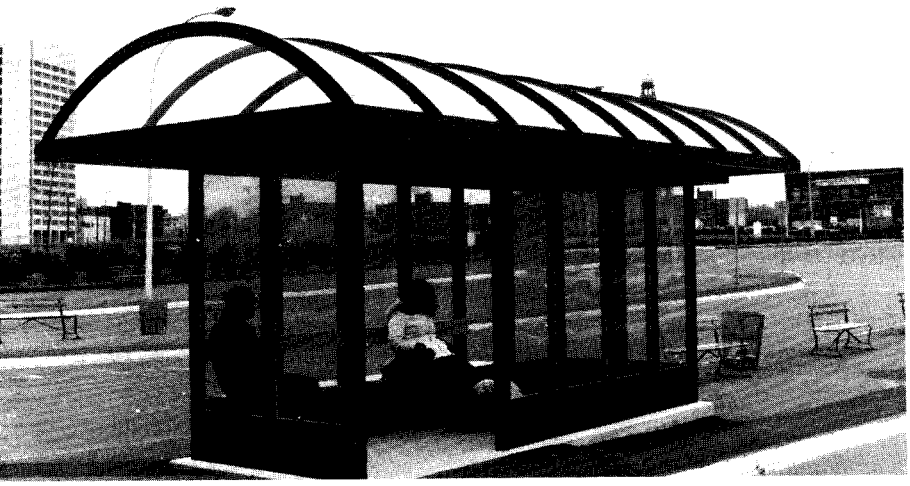
With the automation of hvac systems, operators can check space temperatures and discharge temperatures of air-handling systems to analyze what changes need to be made (such as adjusting the discharge thermostat) to better control space conditions while also minimizing energy consumption.

The peripheral devices included with a building automation system permit the printing of hard copy of what is happening in the building for supervisory review. Among the types of logs that could be printed automatically on request are: 1) analog and digital alarm logs, as each occurs, 2) return to normal of these alarms, as each occurs, 3) alarm summary logs of all points currently in alarm, 4) individual point recording as a function of time, 5) groups of points indicating status, temperature, pressure, etc., on a programmed basis, 6) all-points logs indicating the status, temperature, pressure, etc. of all points connected to the system.

A total integrated building automation facility usually includes a two-way intercom. First of all it permits conversation between the central control facility and remote locations. But also it offers audible monitoring of the starting, stopping and running condition of remote motors, through control module commands. A separate hard-wired communication system should be provided for the life-safety and fire-management control system.

(To be concluded next month)

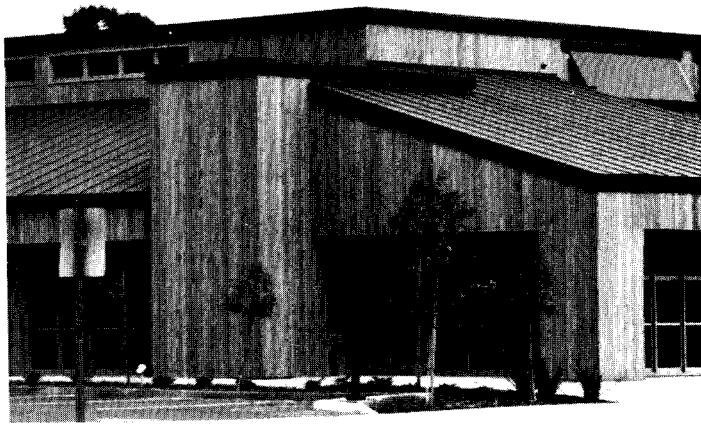
more information, circle item numbers on
der Service Inquiry card, pages 225-226.



ransit shelter is available in custom configurations and dimensions

ased on a 5- by 5-ft module, is aluminum-framed shelter n be extended optionally. Re-ovable window units glazed *Plexiglas* or *Lexan* are mounted in a tamper-proof manner. Various anodized finishes are offered. ▪ Columbia Equipment Co., Jamaica, N.Y.

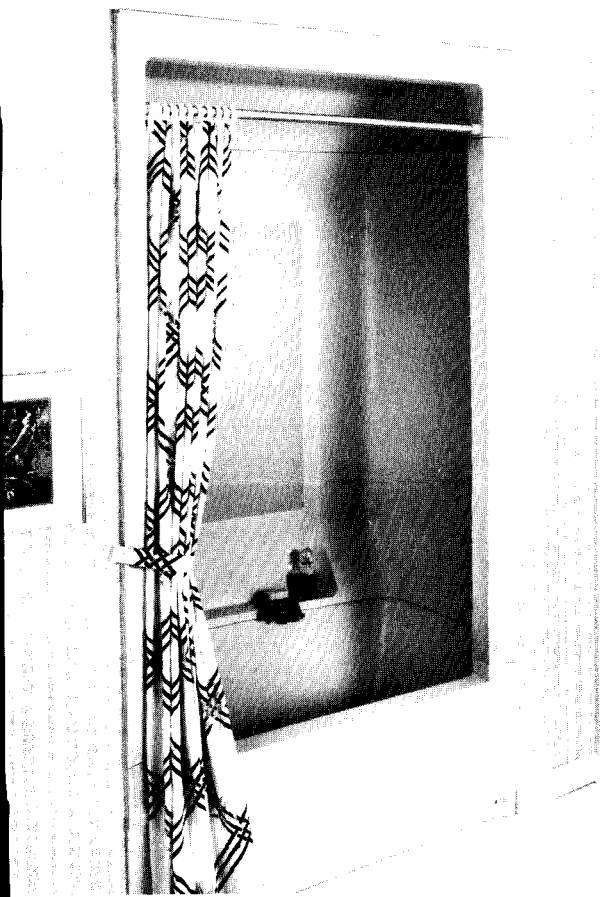
Circle 300 on inquiry card



Weathering copper finish for steel roofing

A coating that duplicates the look of weathered copper is recommended for application to aluminum or galvanized steel roofing, siding, fascia and wall panels. The coating is formulated in part of pure ground copper suspended in water-based acrylic resin. ▪ Architectural Engineering Products Co., San Diego, Calif.

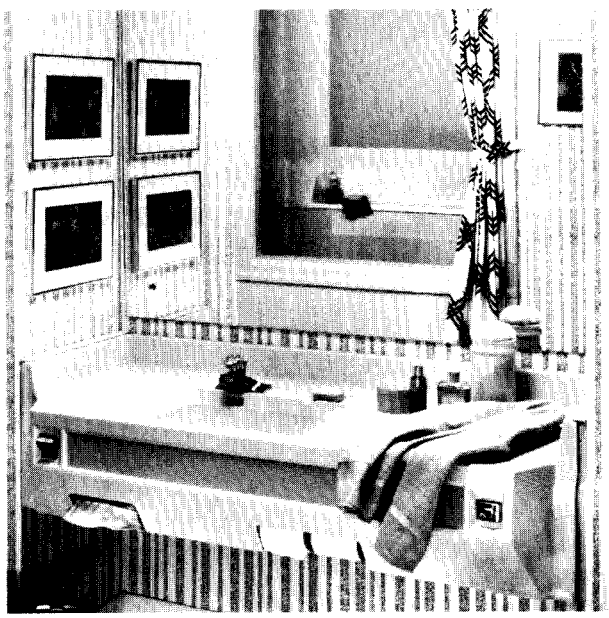
Circle 301 on inquiry card

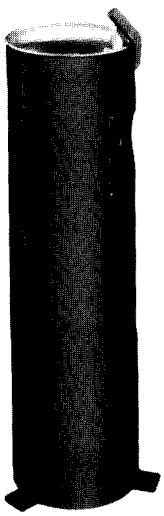


Tub/shower and vanity-lavatory install quickly

Designed for high-rise, multi-unit housing and hotels (notably the Detroit Plaza by John Portman), these molded, glass fiber-reinforced units are said to effect installation and housekeeping economies. The tub/shower consists of a 5-ft "non-handed" tub with center drain bathing well, wrap-around backwall, two end walls, a dome top and front closure panels. The controls are placed inside the front corner. The 5-ft long, one-piece lavatory unit features factory-installed facial and toilet tissue holders and offset controls. ▪ Owens-Corning Fiberglass Corp., Toledo, Ohio.

Circle 302 on inquiry card





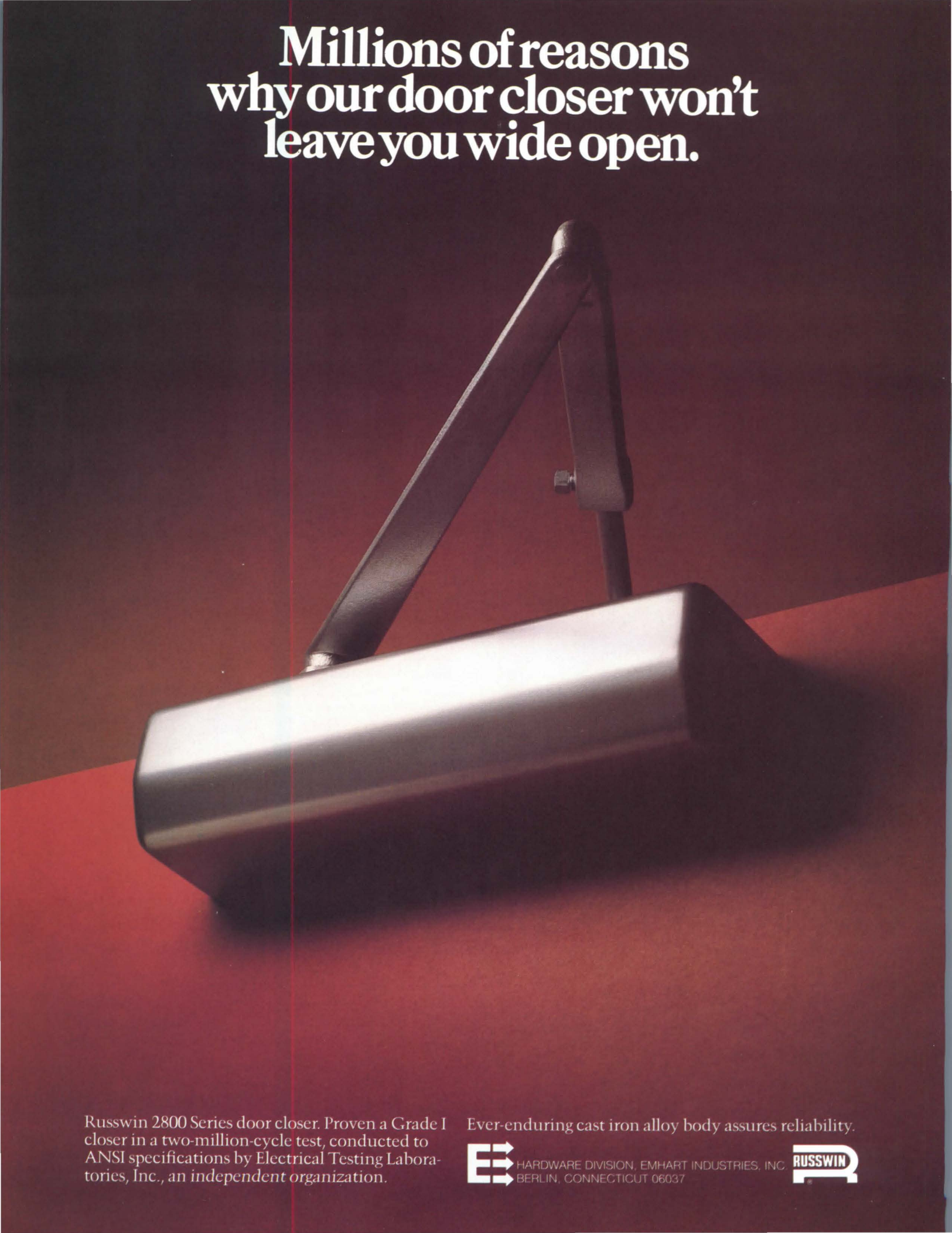
Cold-weather drinking fountain resists abuse

A freeze-proof drinking fountain incorporating a hand-operated valve is supplied with an 18-in. bury. Model "35-HFP" is 36 in. high and has a 10-gauge rolled steel pedestal, with an epoxy finish. ▪ Western Drinking Fountains, Glen Riddle, Pa.

Circle 303 on inquiry card

more products on page 159

Millions of reasons why our door closer won't leave you wide open.



Russwin 2800 Series door closer. Proven a Grade I closer in a two-million-cycle test, conducted to ANSI specifications by Electrical Testing Laboratories, Inc., an *independent* organization.

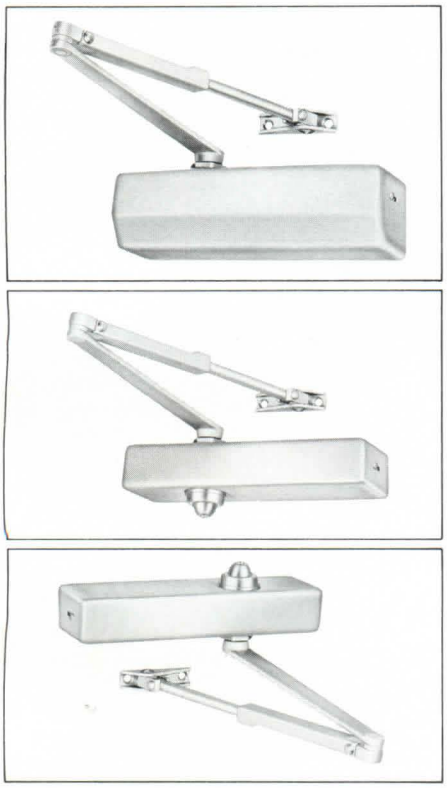
Ever-enduring cast iron alloy body assures reliability.

HARDWARE DIVISION, EMHART INDUSTRIES, INC.
BERLIN, CONNECTICUT 06037

RUSSWIN

Two million cycles of testing to tough ANSI specs prove the reliability of the Russwin 2800 Series door closer.

A continuous, 2 million cycle test, conducted by Electrical Testing Laboratories, Inc., documents the dependable design and performance of the Russwin 2800 Series door closer.



Tested to ANSI specification A156.4-1972, the closer was door-mounted under a static load and activated every 4 to 6 seconds over an eight month period. In post-cycling, static tests, it functioned flawlessly in every area of operation: range of checking control; adjustable closing speed; closing force; closing efficiency and cylinder operations. Qualified in every respect as an ANSI Grade I door closer. Ever-enduring cast iron alloy body.

On institutional building projects, specify the Russwin 2800 Series door closer . . . the closer that made the grade. Write for more details on the complete Russwin line of dependable door closers.

HARDWARE DIVISION, EMHART INDUSTRIES, INC.
BERLIN, CONNECTICUT 06037

RUSSWIN

For more data, circle 71 on inquiry card

For information, circle item numbers on Reader-Service Inquiry card, pages 225-226.

METAL BUILDING PANELS / The product catalog includes samples of the 12 colors standard for this line of metal building panels for walls, roofing and fascia. Full dimensional data are given for factory-assembled acoustical wall and ceiling panels and roof deck; field-assembled wall, fascia and mansard panels; deep wall span panels; and the *Roof-Lok* standing seam roof. ▪ Architectural Panels, Inc., Pontiac, Mich.

Circle 400 on inquiry card

PNEUMATIC WASTE COLLECTION / The bulletin describes several types of pneumatic collection systems for handling trash and soiled linen in hospitals, hotels and institutions. Recent projects utilizing these collection systems, with the architectural firm involved, are listed in the brochure. ▪ Trans-Vac Systems, Div. of Montgomery Industries, Jacksonville, Fla.

Circle 401 on inquiry card

CUSTOM SKYLIGHTS/ENCLOSURES / An illustrated bulletin explains the advantages and design features of this structural skylight system using concealed exterior fasteners. The skylight's tubular structure can also incorporate triple-glazed lights or solar heat collector panels. ▪ Imperial Glass Structures Co., Wheeling, Ill.

Circle 402 on inquiry card

GLAZED CONCRETE BLOCK / Included in the *Spectra-Glaze* catalog are data on fire ratings, insulation and sound loss factors, USDA and OSHA compliance for sanitary surfaces, and installation photos showing this line of factory-finished glazed concrete block. ▪ The Burns & Russell Co., Baltimore, Md.

Circle 403 on inquiry card

PERFORMING ARTS EQUIPMENT / Music education accessories from conductors' podiums to sousaphone stands are covered in an illustrated product catalog. Included are portable risers and flat stages for both indoor and outdoor use; standard and custom acoustical shells; and sound controlled, self-contained movable practice rooms. There is also a section on the "Showmobile," a stage and acoustical shell on wheels. ▪ Wenger Corp., Owatonna, Minn.

Circle 404 on inquiry card

ROOFING SPECIALTIES / Aluminum construction products are presented in an illustrated 1977 catalog. Information is included on the "Econosnap" roof edge system designed for single-ply roofs, as well as "Safeguard" and "Slimline" gravel stops. Detailed drawings and installation photos help explain each product. ▪ W. P. Hickman Co., Asheville, N.C.

Circle 405 on inquiry card

CONCRETE FORM PANELS / "MultiPour," a concrete form panel designed for jobs requiring panel re-use and a smooth uniform concrete surface, is described in a six-page brochure. Load factors in concrete form design are outlined, and load determination for all pours is given in tables for suggested design pressures. ▪ Simpson Timber Co., Seattle, Wash.

Circle 406 on inquiry card

CERAMIC TILE / A folder contains full color illustrations of many ceramic, marble and quarry tile patterns imported from all over the world. A price list is included. ▪ Agency Tile, Inc., Spring Valley, N.Y.

Circle 407 on inquiry card

CONCRETE ADDITIVES / A brochure describes a line of chemicals for curing, hardening and sealing concrete. Application rates and performance data are included. ▪ Symons Corp., Des Plaines, Ill.

Circle 408 on inquiry card

SHEET STEEL PRODUCTS / Stressing steel's attributes in providing solutions to design and construction problems, an illustrated book covers such building elements as walls, floors and roofs, lightweight framing, pre-engineered systems, finishes and other architectural products. ▪ American Iron and Steel Institute, Washington, D.C.

Circle 409 on inquiry card

SIGNS / A file of fact sheets illustrates interior and exterior illuminated signs, and describes custom graphic and design facilities. ▪ Mandeville Signs, Inc., Pawtucket, R.I.

Circle 410 on inquiry card

GARAGE DOORS / A color folder shows several styles of the *Driftwood* all-wood garage door. The wood has been specially treated to produce a raised grain and weathered appearance; the surface can be stained or painted. ▪ Phenix Mfg. Co., Inc., Shawano, Wis.

Circle 411 on inquiry card

OFFICE SEATING / A full-color product folder provides photos and dimensional data on the "Race Chair Series" for office and clerical use. This chrome-plated tubular chair is available with and without arms, and in a variety of bases. ▪ JG Furniture Co., Inc., Quakertown, Pa.

Circle 412 on inquiry card

NATURAL FIBER WALLCOVERINGS / Volume 11 of the "Imported Natural Weaves" wallcovering collection contains 135 patterns of handcrafted natural fibers. Included are grasses, reeds, rush, hemp and millett fibers interwoven with threads and yarns, all paper backed. ▪ Reed Forest Products, Inc., Atlanta, Ga.

Circle 413 on inquiry card

ACOUSTICAL DOORS / A bulletin describes the "1850" acoustical door system, said to help industry meet OSHA noise level requirements. The door system consists of a flush-type, 4-in.-thick acoustical door; a set of seals to eliminate sound transmission around the perimeter; and heavy-duty supporting track and hangers. Model "1850" has a sound transmission class rating of 47 dB. ▪ Richards-Wilcox Mfg. Co., Aurora, Ill.

Circle 414 on inquiry card

PLUMBING FIXTURES / Text and illustrations describe this manufacturer's line of washfountains, drinking fountains, showers and safety fixtures for commercial, institutional and industrial applications. Products to accommodate the handicapped, emergency eye-face wash and drench showers, and washfountain "vandal-proof" features are also covered. Full details, including water use data, are given for each. ▪ Bradley Corp., Menomonee Falls, Wis.

Circle 415 on inquiry card

TILE / A 36-page color catalog presents a complete product line of glazed, quarry and ceramic mosaic tile, many pictured in actual installations. The manufacturer's color coordination, mural and design service is also described. Several new colors and patterns are introduced in the catalog. ▪ American Olean Tile Co., Lansdale, Pa.

Circle 416 on inquiry card

more literature on page 173

75% of all catalogs end up in the Circular File or other terrible places.*

Which is one reason it pays to go to Sweet's first.

If your company library isn't exactly the Happy Hunting Ground, don't feel like a lone ranger.

Recent studies of 146 leading manufacturers show that only 25% of their catalogs can be found in the files of 295 top architectural and engineering firms.

But nobody throws away Sweet's. And with volumes so fat with information, it's not likely your Sweet's will be mislaid, misfiled, left at job sites, or squirreled away in somebody's private files.

So chances are you'll save time going to Sweet's first.

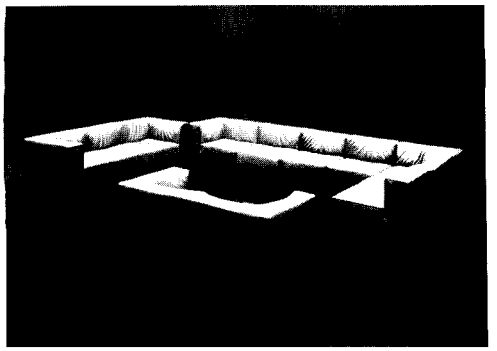
It's the quickest way to locate over 10,000 products from over 1,400 manufacturers in over 400 product classifications.

That's the real reason nobody throws away Sweet's. And why it pays to go to Sweet's first.

*Source: Based on *Availability of Manufacturers' Catalogs in the General Building Market*, conducted by Smith, Stanley and Company, Inc., 1976.

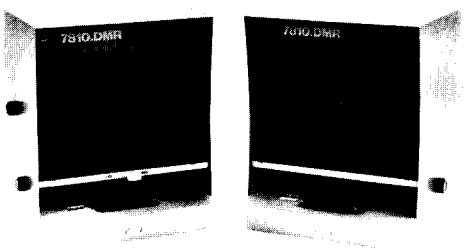
Sweet's. You can't beat The System.

The Sweet's System: Details on over 10,000 products from over 1,400 manufacturers ■ Instant information retrieval through triple indexing by product, trade name and firm name ■ GuideLines® Organization, the AIA-endorsed method for developing product information for specifiers and buyers ■ Yearly updating to keep data current ■ BUYLINE 800®, the fastest way to locate reps.



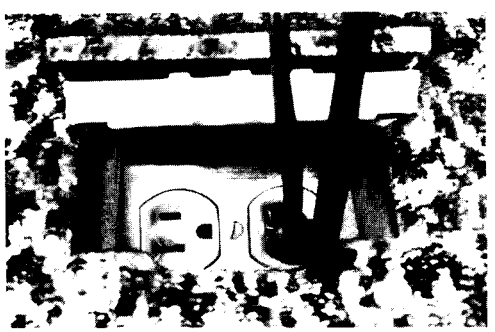
CONTRACT FURNITURE GROUPINGS / Each individual section of the "Speed" furniture collection is 26- or 30-in. wide for office or lounge arrangements. Pieces include corner seating, two- and three-section sofas, and several armless chair units. "Speed" contract furniture is available in leather upholstery, or a choice of fabric coverings. ▪ Brayton International, Inc., High Point, N.C.

Circle 304 on inquiry card



MICROFICHE READER / Model-"7810.DMR" tabletop microfiche reader is available with either a single- or dual-lens capacity. Both units can accommodate a number of formats on a 15½-in.-wide by 11½-in.-long screen, at magnifications of either 24, 32, 42, or 48x. The reader's lamp and condenser system offers 500 hours of high-intensity, and over 2000 hours of low-intensity lamp life. Additional features include an adjustable reference line; a choice of colors for both metal hoods and non-glare screens; and fanless operation. ▪ GAF Corp., New York City.

Circle 305 on inquiry card



SERVICE FITTING / The flip-up hinged lid of the UL-listed "RFD-20FL Dual Flush Service Fitting" can be raised without removing any retaining screws. Intended for use with the manufacturer's cellular metal floor raceways, the fitting is installed flush with the surface of the floor in a pre-set insert. Carpeting is cut along the outline of the hinged lid, and comes up with the cover when it is raised. ▪ Roll Form Products, Inc., Boston, Mass.

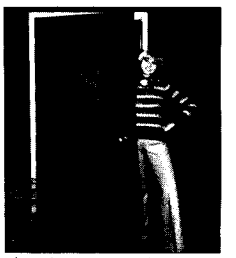
Circle 306 on inquiry card

FIREPROOF COATINGS / *Concrylic* coatings are

acrylic-based cementitious formulations that are sprayable onto plywood, drywall, concrete, hardboard, urethane foam, polystyrene foam, steel, and other surfaces. The dense coating product has a Class A, zero flame spread rating, and is said to be waterproof and extremely weather resistant. After mixing the blended powders, liquid, and pigments, *Concrylic* coatings are applied directly without primers or bonding agents, using conventional plaster mixing and pumpspray equipment. The textured coating dries to the touch in a half-hour; only water is needed for clean-up. ▪ Durox Corp., Santa Ana, Calif.

Circle 307 on inquiry card

ADJUSTABLE DOOR/FRAME ASSEMBLIES / The

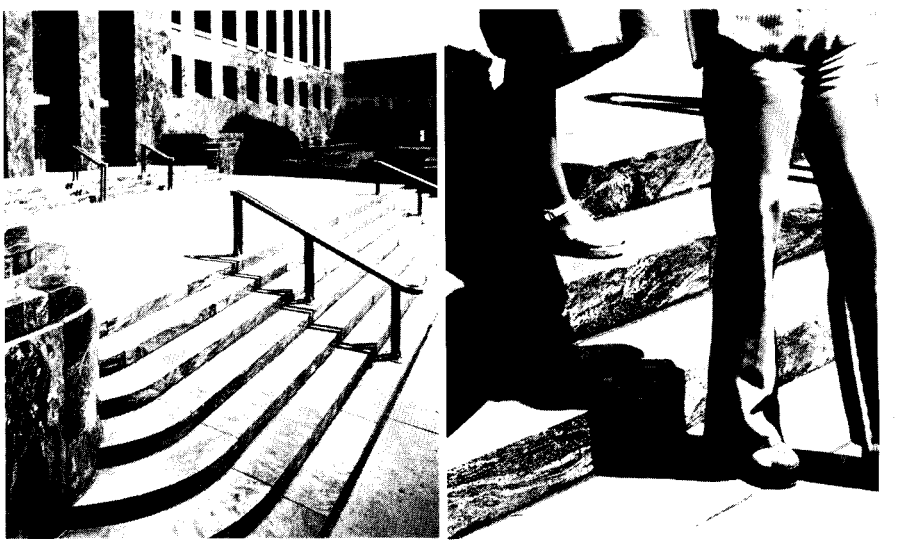


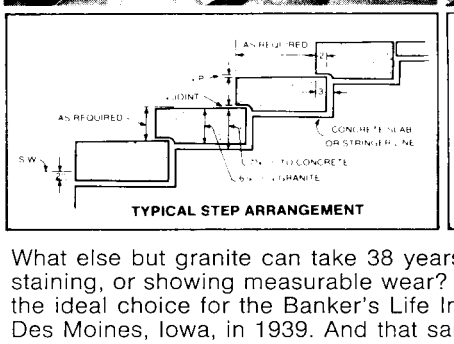
Doormaster line of prehung interior doors comes with adjustable aluminum or steel frames that can be fitted over existing finished wall and frame systems of from 3½- through 8½-in. thickness. Vinyl gasketing cushions door closing for sound privacy. The doors may be selected from a range of *Formica* laminate, wood, embossed hardboard, and hollow metal units, including acoustical lead lined, and fire rated types. Door/frame assemblies are prehung on fixed pin hinges, and are said to be readily relocatable. ▪ AMPCO Products, Inc., Hialeah, Fla.

Circle 308 on inquiry card

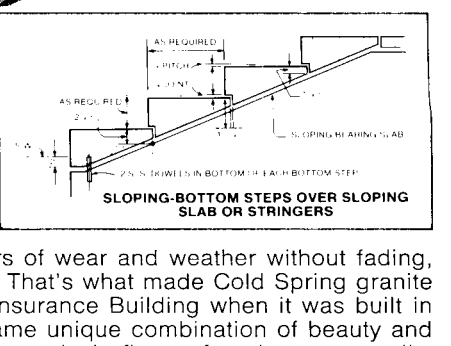
more products on page 161

Granite.
Tough enough to take the thunder of 10 billion feet.





TYPICAL STEP ARRANGEMENT



SLOPING-BOTTOM STEPS OVER SLOPING SLAB OR STRINGERS

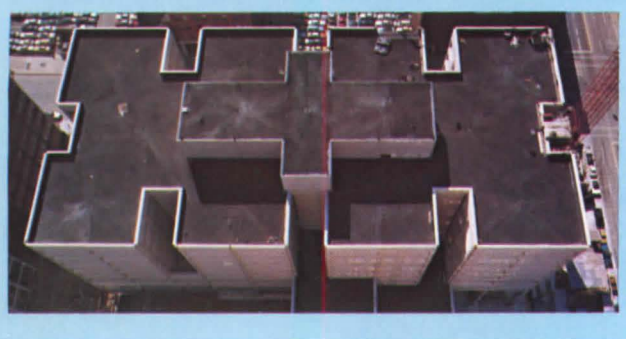
What else but granite can take 38 years of wear and weather without fading, staining, or showing measurable wear? That's what made Cold Spring granite the ideal choice for the Banker's Life Insurance Building when it was built in Des Moines, Iowa, in 1939. And that same unique combination of beauty and unsurpassed durability make it ideal for today's floors, facades, core walls, steps, malls and walkways — wherever you need maximum durability that's virtually maintenance-free.

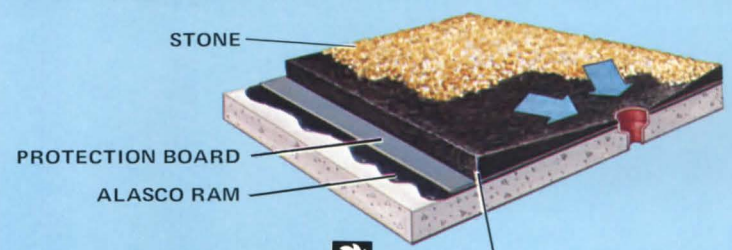
For more information, plus a free copy of our 16-page, full color catalog showing all 18 Cold Spring colors available, call toll free **800-328-7038.** In Minnesota, call (612) 685-3621. Or write to the address below.

Cold Spring Granite Company, Dept. AR 4 202 South 3rd Avenue, Cold Spring, MN 56320

For more data, circle 72 on inquiry card

Architects: Prindle, Patrick, and Partners
Construction Manager:
Turner Construction Company





All-weather Crete®

The defense never rests on the roof of the Cuyahoga County Justice Center!

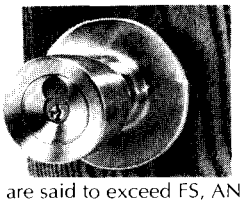
To defend the roof and plaza decks of the Cuyahoga County Justice Center in Cleveland against energy losses and the onslaught of the elements was of prime importance to the designers. Over 200,000 square feet of deck had to remain water tight, perform efficiently and have little or no maintenance for years. All-weather Crete Insul-Top and Plaza Systems were used. Two unique materials account for the success of these systems. One is All-weather Crete, a monolithic insulating fill applied hot and dry, and having an excellent K factor. The other is Alasco RAM, a rubberized asphaltic waterproof membrane that retains it's elastic "life" indefinitely. On both roofs and plazas in the Justice Center, Alasco RAM was poured to form a seamless waterproof membrane directly on the flat structural deck. Protection board was adhered to the hot Alasco RAM. All-weather Crete was then compacted over the membrane system, and sloped to drains. The result—a seamless insulating barrier with positive water runoff. Thus, for the life of the building, AWC defends the membrane against thermal shock, ultra-violet rays, the elements, puncture and water ponding. Send for AWC brochure.

SILBRICO CORPORATION

6300 RIVER ROAD • HODGKINS, ILLINOIS 60525
CHICAGO PHONE (312) 735-3322

For more data, circle 73 on inquiry card

KEY-IN-KNOB LOCKSET / Model "77K" cylindrical lockset offers several security features: outside knob can be removed only by special control key; a spring-loaded pin secures the outside rose. Strength characteristics are said to exceed FS, ANSI and BHMA standards. A deadlocking latch bolt is standard on all keyed units. The removable-interchangeable lock core allows for change of combinations for internal relock control. The "77K" locksets may be keyed into most doors, as well as office desks and file cabinets. ▪ Best Lock Corp., Indianapolis, Ind.

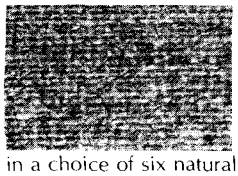


Circle 309 on inquiry card

LAMINATING SERVICE / This manufacturer of specialty laminated plastic furniture components, such as the gametop shown, is now offering a custom laminating service for architects, interior designers and furniture and fixture manufacturers. Customers can supply their own graphics to fit specific applications for volume production; the artwork will be preserved in laminated plastic. ▪ Wilson Art, Temple, Texas.

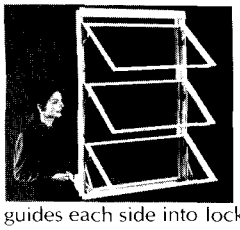
Circle 310 on inquiry card

WOOL FIBER WALLCOVERINGS / Made with undyed North African wool on paper backing, "Croft" is one of the Berber wool wallcoverings in the "Weaves" series. This particular pattern comes in a choice of six natural colors, from pale beige to grays and browns. The English-made wallcovering is manufactured in 1-meter widths, and is intended for either contract or residential use. ▪ Eurotex, Inc., Philadelphia, Pa.



Circle 311 on inquiry card

AWNING WINDOWS / Completely weatherstripped awning-style window units are available in a durable baked-on white finish. A self-locking action is said to ensure a tight, weatherproof fit: as the vents close, a cam-device guides each side into locking grooves. Windows are suitable for either new construction or remodeling applications. ▪ V. E. Anderson Mfg. Co., Inc., Owensboro, Ky.



Circle 312 on inquiry card

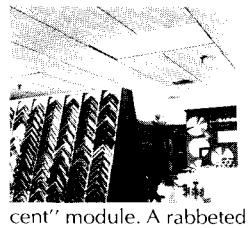
MOBILE PLANTERS / Formed from one piece of seamless, corrosion-resistant *Trexiloy,* these metal planters incorporate a caster platform into the recessed base of the unit itself. Filled planter may be easily rotated for uniform exposure to daylight, rolled aside for cleaning of area, etc. Caster platform raises the planter 1-in. off the floor, eliminating condensation damage to floor from temperature changes. Round planters are available in diameters up to 30-in., in six finishes. ▪ Architectural Supplements, Inc., New York City.

Circle 313 on inquiry card

ARCHITECTURAL SIGNAGE / Pictured is an 8-ft-high identifying monolith, part of a complete signage system designed by Hauser Associates, Inc., for Detroit's Renaissance Center (John Portman, architect). Intended to unify the complex, and guide visitors and office employees in controlled traffic flow patterns, the signage system includes illuminated building directories, cast and fabricated bronze plaques and letters, reverse screen printed signs, and the bronze and fiber-reinforced polyester monoliths. All materials used are scratch- and vandal-resistant. ▪ Jas. H. Matthews & Co., Pittsburgh, Pa.

Circle 314 on inquiry card

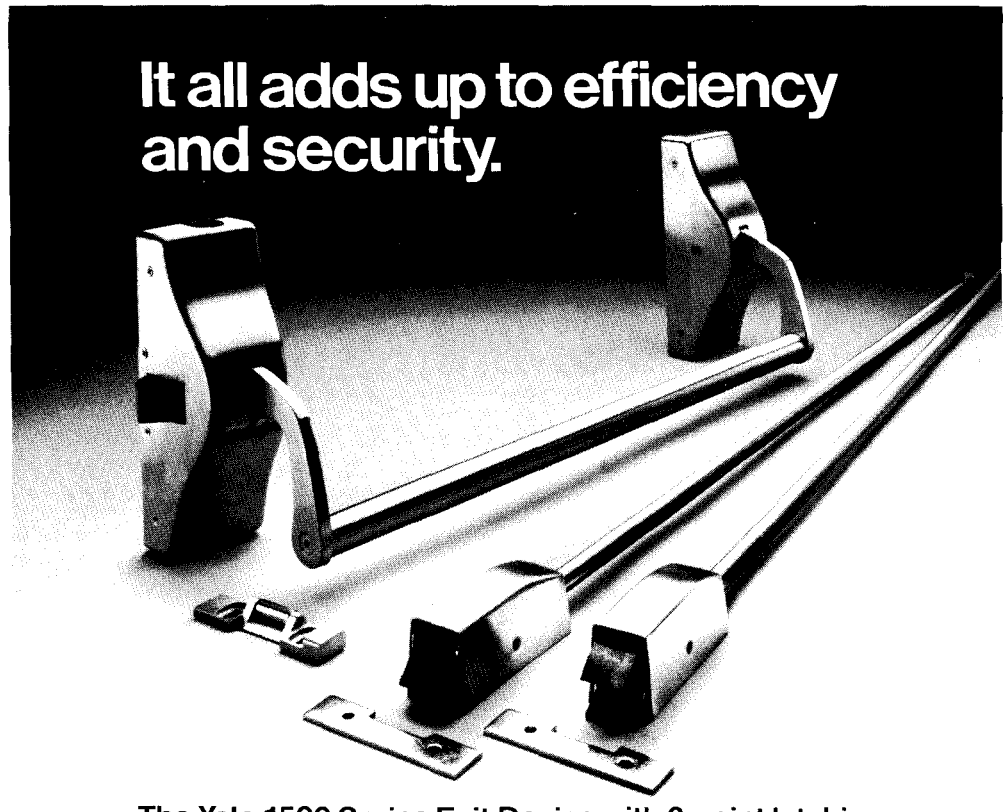
CEILING SYSTEM / The "Accent Ceiling System" is based on a 4- by 6-ft suspended grid structure, and is offered with 2-ft-sq "Rock Face" and "Natural Fissured" tile. Plenum space is accessible through the center one-third (8 sq ft) of each "Accent" module. A rabbeted edge provides a fine black line of exposed grid, said to eliminate lipping and lighting problems. Headers for either permanent or relocatable partitions can be installed without defacement to the tile or replacement of suspension components. ▪ Conwed Corp., Commercial Products Div., St. Paul, Minn.



Circle 315 on inquiry card

more products on page 163

It all adds up to efficiency and security.



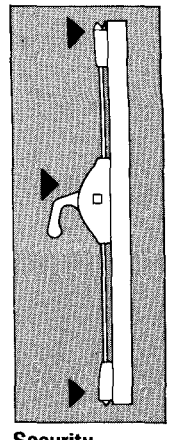
The Yale 1500 Series Exit Device with 3-point latching.

When you add a vertical rod to the Yale® 1500 Series Exit Device, you get triple security—horizontal latching at the edge of the door together with latching at both top and bottom.

Available with Surface or Concealed Vertical Rods, these devices work with single or double door combinations, are reversible, and are available with an assortment of strikes and thresholds.

Top name. Top efficiency. Top security. The Yale Exit Device with 3-point latching shuts the door on security problems.

See our Distributor or Representative for full details, or write Yale Marketing Department, Box 25288, Charlotte, N.C. 28212.



E•T•N Security Products & Systems

Security. As easy as 1-2-3.

For more data, circle 74 on inquiry card

You haven't got a lot of time to think about water coolers? Ask us to help.

Call Louis Benua.

Louis Benua is the president of our company.

And yes, he has more important things to do than answer the phone all the time.

On the other hand, if our customers or prospective customers need more information before specifying their water coolers, nothing is more important to him.

So call Louis if you have any questions about Oasis water coolers. And if it takes a follow up call to handle your problem, he'll have someone get in touch with you immediately. And that man can help you in a dozen different ways. He can explain, for instance, how Oasis is the water cooler that's built without shortcuts. Or tell you about our new Wheelchair Model with its "Soft Touch" control, perfect for serving the handicapped as well as everyone else. Or about all the different colors and styles and finishes Oasis can offer you. Or about —

But that's enough for now. Let's leave something for Louis. Call him at 614/861-1350.

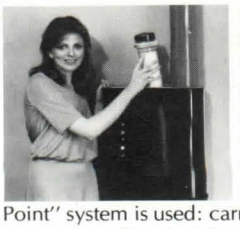
Oasis

The word for water coolers.

EBCO Manufacturing Company, 265 North Hamilton Road, Columbus, Ohio 43213

For more data, circle 75 on inquiry card

PNEUMATIC TUBE SYSTEM / Said to be especially suited for existing building and limited space installations, the *Courier* pneumatic tube system features either wall-mounted or recessed stations. Where only a few stations are needed, the "Point-to-Point" system is used: carriers are propelled by pressure in one direction; by vacuum in the other. PVC tubing, in diameters of up to 5½-in., is used for this *Courier* installation, as well as for the "Multi-Station" system for larger requirements. Station front panels are transparent acrylic. ▪ Powers Regulator Co., Skokie, Ill.

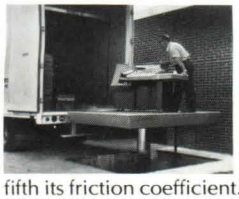


Circle 316 on inquiry card

HIGH SECURITY LOCKS / All locks in this high security line feature a double action pin tumbler which combines elevation with the proper degree of rotation to make the cylinder "virtually pickproof." In addition, hardened steel pins within the cylinder resist drilling. The "Omega" line has specially designed keys that are not available for duplication: each lock cylinder within the series is unique among 190,000,000 non-interchangeable combinations. Up to 10 serial-numbered keys are provided with the lock; no additional keys are available. The "Ultra 700" security deadbolt prevents removal of the lock from the door by prying or twisting. All security cylinders are UL-listed, and are said to be compatible with the locks of most hardware manufacturers. ▪ Medeco Security Locks, Inc., Salem, Va.

Circle 317 on inquiry card

HYDRAULIC LIFTING RAMS / These lifting rams for freight docks, heavy equipment assembly stations, cargo pallets, etc., feature bearings of *Roulon-Durite,* said to have 11 times the wear resistance of bronze, and one-fifth its friction coefficient. Ram seals impose no bind to restrict lowering speed; seals can be completely replaced in 10 minutes, according to the manufacturer. The electro-hydraulic power units are self-contained, incorporating motor, pump, check and relief valve, and oil reservoir lowering valve. ▪ Autoquip Corp., Guthrie, Okla.

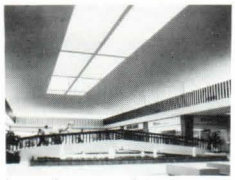


Circle 318 on inquiry card

OFFICE LANDSCAPE GRAPHICS / Intended to personalize open office work stations, this graphics series includes 12 photographic scenes hand silk-screened on fabric-covered metal panels in widths of 30- to 48-in. The group contains images from nature, seascapes and urban scenes in a variety of colors. Also, custom photographs of products, plants, corporate logos, or original designs of any type can be reproduced on panels and free-hanging stretched artist canvas, in almost any color combination. ▪ GF Business Equipment, Youngstown, Ohio.

Circle 319 on inquiry card

SKYLIGHT PANELS / A translucent sandwich unit for skylighting and sidewall glazing, the *Panelux* skylight is fabricated of fiberglass-reinforced acrylic polyester skin laminated to a non-conductive, non-metallic fiberboard core. This construction is said to offer excellent insulation and light transmitting qualities, and to prevent frosting or condensation on the inside of the panel. The lightweight skylight has an integral curb flashing which allows a completely flat top surface. The grid core shows one of several dark line patterns; face skins may be clear, white, or tinted. *Panelux* lights are available in maximum dimensions of 5½ ft by 25 ft aluminum jointing accessories are used for large area multiple-panel installations. ▪ Cemcel Corp., Greenbrae, Calif.



Circle 320 on inquiry card

BOOKCASES / Seven lines of bookcase units have been designed to coordinate with this firm's contract office desk and credenza groups. Each style ("Octa" is shown) is available in eight basic dimensions and in a choice of 10 wood finishes. ▪ Helikon Furniture Co., New York City.

Circle 321 on inquiry card

more products on page 165

At no extra cost... steel door frames with faces as narrow as 1 inch

Your slim-line decor doesn't have to stop with the first floor. Curries makes steel door frames with face widths of 1, 1¼, 1½, 1¾ and 2 inches.

These are pre-engineered frames, sold by Curries Distributors all over the country. They come either knocked down or welded—with jamb depths from 4¼ in. through 12 in., in ⅛ in. increments.

Pre-engineered Curries doors and the finish hardware to go with these narrow face frames—can be obtained from the same, single source. Call your Curries Distributor for details. He's in the Yellow Pages under "Doors" or "Doors-Metal".

Or see Sweets/8.2, or write: Curries Manufacturing, Inc., 251 9th St. S.E., Mason City, IA 50401. (515) 423-1334.

CURRIES
THE METAL DOORMEN

For more data, circle 76 on inquiry card

A spectacular motor hotel.

ELEVATORS BY DOVER

The stunning new Stapleton Plaza Motor Hotel in Denver is built around a soaring atrium-lobby. Glass-enclosed elevators silently speed guests to and from their rooms, and give them a fascinating view of the lobby and its activities. For information on Dover Elevators write Dover Corporation, Elevator Division, Dept. A, P.O. Box 2177, Memphis, Tn. 38101.

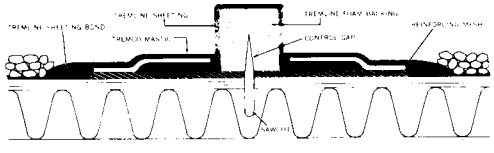
Stapleton Plaza Motor Hotel.
Architects: Paul R. Reddy, Denver, Colorado.
James Ream and Associates, Inc., Design Consultants, San Francisco, California.
Contractor: Hensel Phelps Construction Company, Greeley, Colorado.
A distinctive Howard Johnson facility developed, owned, and managed by First Financial Management Corporation, Denver, Colorado.
Three Dover geared traction passenger elevators and one Dover Oildraulic® passenger elevator installed by Dover Elevator Company, Denver, Colorado.

DOVER

For more data, circle 77 on inquiry card

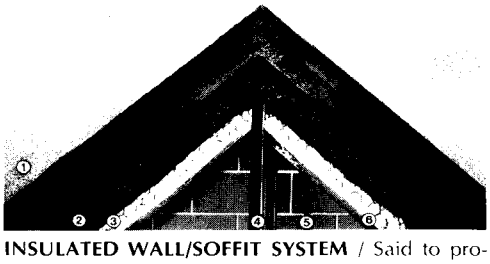
CONTRACT FURNITURE / A series of tubular chrome reception furniture pieces is offered in 11 contemporary seating styles and 11 coordinated tables. ▪ All-Steel Inc., Aurora, Ill.

Circle 322 on inquiry card



ROOF MEMBRANE CONTROL JOINT / Intended to relieve membrane stress while maintaining a durable, flexible, watertight seal, this control joint system will accommodate at least 1½-in. of membrane shrinkage in builtup roofs. The control joint consists of: closed-cell, polyurethane foam backing; reinforced elastomeric sheeting; bonding mastic; reinforcing mesh; and a compatible protective coating. The system is recommended for use where a 2-in. ridge will not adversely affect roof drainage. A lower profile control joint, consisting of a bondbreaker and elastomer, is also available. ▪ Tremco, Cleveland, Ohio.

Circle 323 on inquiry card



INSULATED WALL/SOFFIT SYSTEM / Said to provide maximum energy conservation for both new construction and renovation projects, this insulation system is applied to exterior brick, block, poured concrete or curtain walls. The mechanically-fastened furring members retain the insulation and lath; completed installations will withstand 50 cycles at 450 foot pounds of impact under ASTME 72-74 with no observable effects. Shown in the cutaway photo are: 1) exterior finish; 2) scratch coat; 3) metal lath; 4) *Z-Furring* members; 5) exterior wall; and 6) rigid foam insulation. ▪ Allied Structural Industries, Inc., Detroit, Mich.

Circle 324 on inquiry card

more products on page 169

Architects and Engineers E&O.

Like Art and Architecture, insurance underwriting is a continually evolving discipline. Keeping pace with ever-changing conditions—escalating claims, an inflationary economy, changing industry standards and more—requires constant adaptation and evolvement of new, better approaches to professional liability underwriting.

Shand, Morahan & Company is America's second largest underwriting manager of architects and engineers insurance. But, we're America's foremost underwriting manager of "claims-made" insurance—today's most advanced and effective form of professional liability coverage.

With limits to $10 million—additional capacity may be arranged—Shand, Morahan can very likely improve your present protection while keeping rates competitive, thanks to the claims-made concept.

The state of the art.

Increasingly accepted as the preferred form of liability coverage by more and more professionals—lawyers, accountants, physicians, even insurance agents and brokers—claims-made insurance is definitely *the* state of the underwriter's art for Architects and Engineers E&O.

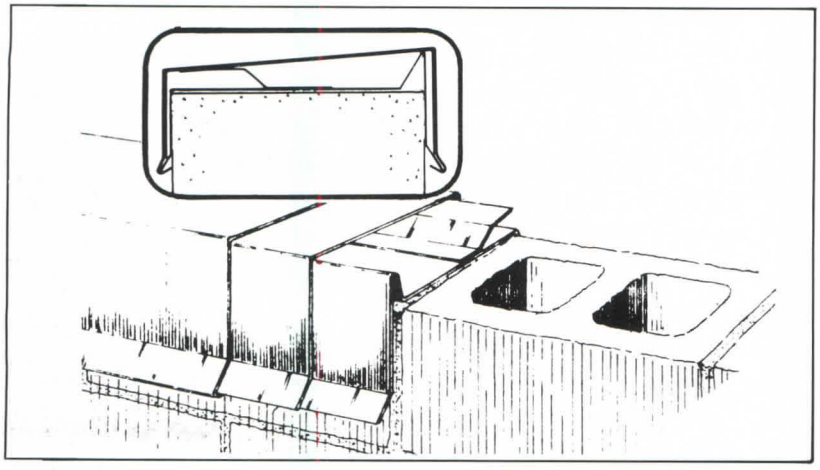
Shand, Morahan's growing number of top ENR 500 clients attests to the fact that there *is* a better answer to professional liability insurance.

We're proving it with every Architects and Engineers policy we write. For more information call your insurance agent or broker.

Shand, Morahan & Company, Inc.

For more data, circle 78 on inquiry card

Hard & Fast.



Snap-Lok Coping System

HARD, PERMANENT ALUMINUM COPING

Hard and strong enough to stand on, it's there for good. No exposed fasteners. No need to wait for dry weather and solvent-cleaned surfaces to apply adhesives. Mechanically anchored, Snap-Lok coping is a permanent, beautiful way to prevent dripping, leaking and staining. Great for the client and your reputation.

FAST INSTALLATION

Precision fabrication makes installing Snap-Lok systems fast and simple. You'll save time in the field. And you'll save the expense of extra skilled labor.

MM SYSTEMS CORPORATION

"The materials make it; the system shows it."

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write for a FREE brochure or refer to SWEET'S 7.3/MM

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WHILE WE DIDN'T EXACTLY INVENT THEM, WE DO MAKE THEM... ALL KINDS OF TELEPHONE BOOTHS!

If you want to specify public telephone booths, you'll have to know all about them. And, our 25 years of telephone booth experience is yours for the asking.

Call on the public telephone booth experts for the data you need to specify public telephone facilities properly. We also can give you a seminar on public telephones. Our technical specialist in your area will be happy to do it.

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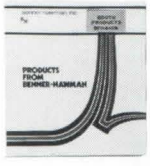
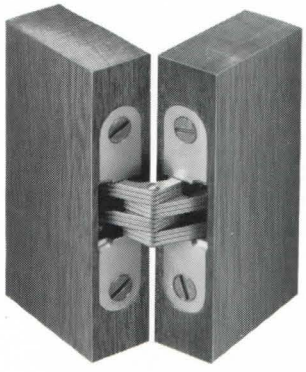


For more data, circle 80 on inquiry card

The hinge that hides



NOW YOU SEE IT

NOW YOU DON'T

The Soss Invisibles—for a custom look for any room! These amazing hinges hide when closed, eliminating unsightly gaps, hinges, and door jambs. They're the perfect hidden touch for doors, doorwalls, storage cabinets, built-in bars, stereos, and TV's. Specify the Soss Invisibles wherever looks matter. See listing in Sweet's or write for catalog: Soss Manufacturing Co., Division of SOS Consolidated, Inc., P.O. Box 8200, Detroit, Mich. 48213.

the SOSS Invisibles

For more data, circle 81 on inquiry card

For more data, circle 82 on inquiry

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Mexico	Jim Inlow	(314) 581-1314
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St. Joseph	Guy Humphreys	(816) 233-1321
St. Joseph	Court Rush	(816) 233-1321
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Billings	C. Ben Martin	(406) 252-5366
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Trenton	Robert Myers, Sr.	(609) 882-8862
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TEXAS		
Amarillo	C. W. Hefley	(806) 353-4551
Brownwood	Lew Bennett	(915) 646-0619
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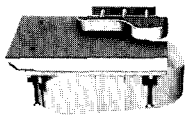
CANADA		
Thunder Bay	Bob McGonigal	(807) 344-3881
Calgary	Hans van der Woerd	(403) 253-8660

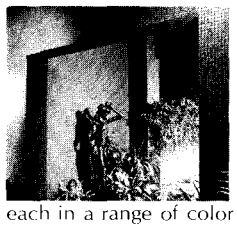
PRODUCT REPORTS continued from page 165

OFFSET DOOR CLOSER / The "Q Series" offset door closers require only one worker to detach the connecting arm between the door and the closer, and to remove the unit for repair or replacement. The door itself need not be taken down, and may be operated manually even without the closer. "Q Series" automatic closers may be used on either interior or exterior doors; one or more intermediate pivots are required. ▪ Rixon-Firemark, Inc., Franklin Park, Ill.



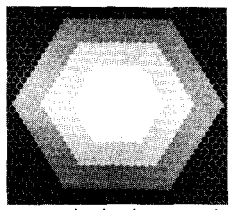
Circle 325 on inquiry card

CONTRACT WALLCOVERING / "Parade" is a sculptured geometric design, of the *Genon* line of commercial contract wallcoverings. Classified as a Type II wallcovering, "Parade" is available in both plain and dappled background versions, each in a range of color choices. The wallcovering has a drill fabric backing and a finished weight of 32 oz.; it is available in 54-in. widths. "Parade" conforms to FS CCC-W-408A. ▪ The General Tire & Rubber Co., Wallcovering Group, Hackensack, N.J.



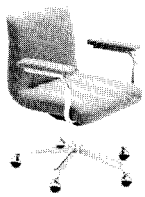
Circle 326 on inquiry card

HEXAGON-SHAPED TILE / Available in any of 43 solid and flecked colors, this 2-in. unglazed hexagon-shaped ceramic mosaic tile comes mounted on 2-sq-ft paper sheets. Tile may also be ordered face-mounted in any specified design. The tile is ¼-in. thick; frostproof; and suitable for both wall and floor use in homes, institutions, pools, etc. ▪ American Olean Tile Co., Lansdale, Pa.



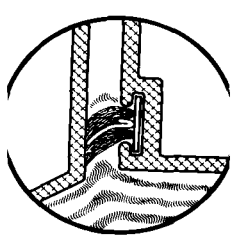
Circle 327 on inquiry card

OFFICE SEATING / Designed to provide long-term seating comfort and improved user safety, this contoured clerical chair is available with or without arms. The seat gives support for both back and legs to reduce fatigue; the five-pronged base is said to virtually eliminate the possibility of accidental tipping over. The "HB" clerical chair comes in a variety of fabrics, with either polished chrome or antique bronze base. ▪ Harbor Universal, Inc., San Leandro, Calif.



Circle 328 on inquiry card

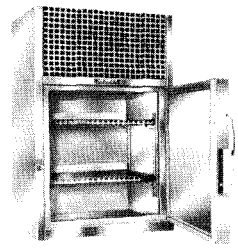
WINDOW WEATHERSEAL / A recent installation on the operative windows of Toronto's CN Tower space deck required *Fin-Seal* weatherstripping to resist 190 mph winds and water. *Fin-Seal* strips combine silicone-treated polypropylene pile fibers on both sides of a polypropylene fin. ▪ Schlegel Corp., Rochester, N.Y.



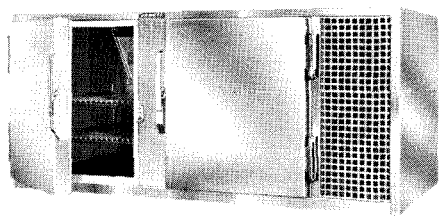
Circle 329 on inquiry card

WE FIT IN

STAINLESS STEEL WALL MOUNTED REFRIGERATORS, FREEZERS



WM-CW* series eye-level, wall mounted refrigerators are offered in 4 sizes featuring cold wall cooling systems with push-button defrost and automatic reset. Two removable, adjustable stainless steel shelves are provided. Front mounted grille removes easily for servicing.
WM-1-CW Capacity—1.5 cu. ft. (45 ltr.)
WM-2-CW Capacity—2.3 cu. ft. (65 ltr.)
WM-3-CW Capacity—3.2 cu. ft. (95 ltr.)
WM-4-CW Capacity—4.3 cu. ft. (125 ltr.)
WM-3-F-CW freezer is available only in a 3 cu. ft. (85 ltr.) capacity and has a manual hot gas defrost.
Capacity—3.0 cu. ft. (85 ltr.)



WM-BC series space saving, double-door, wall-mounted refrigerators are available in 2 sizes. Furnished with 4 perforated stainless steel shelves, they have a blower-coil cooling system with automatic off-cycle defrost and a condensate evaporator. Condensing unit is easily serviced by removing front mounted clip-on grille.
WM-7-BC Capacity—6.6 cu. ft. (190 ltr.)
WM-10-BC Capacity—9.6 cu. ft. (275 ltr.)
*With explosion proof interior only.

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

JEWETT
REFRIGERATOR
2 LETCHWORTH ST.
BUFFALO, N.Y. 14213

For more data, circle 84 on inquiry card

For more data, circle 85 on inquiry card

Lost in the *Wallcovering Jungle?*

Words. Words. Words.
Specs. Specs. Specs.

You're surrounded by them — but where's the information you want? Isn't it time somebody made a vinyl wallcovering guide especially for specifiers?

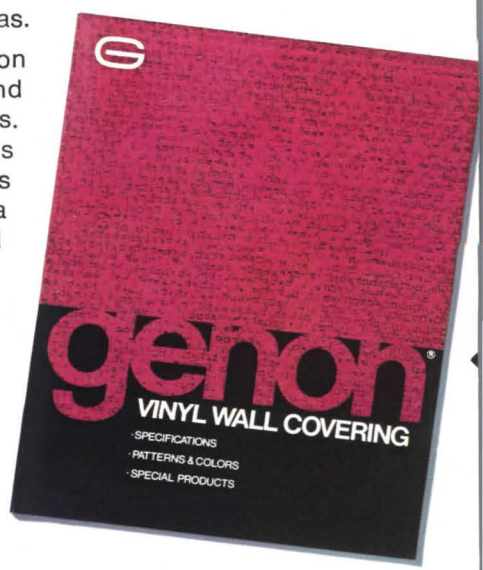
Somebody has.

It's General Tire's 16-page booklet on Genon Vinyl Wallcovering. Designed and written by specifiers — for specifiers. With patterns, colors, weights, backings and price categories. All the details including how to write a spec. Plus a life-cycle cost comparison and interior design ideas.

There's even more help.

Our research and development program. Design Center capabilities. Quality control and prompt deliveries. And the largest combined sales and distribution network in the industry.

You see . . . there is a way out.



CUSTOMIZED WORK AREAS / According to this company, whether you are designing a work station, technical station, work table or complete work room, most requirements can be met with standard components. A 44-page catalog describes the "Building-Block Modules" series of work station equipment. Featured is a section showing an actual recently installed "Work Flow System," using a powered roller conveyor to move small computers from station to station for assembly. ▪ Workplace Systems, Inc., Londonderry, N.H.

Circle 417 on inquiry card

SECURITY HARDWARE / A three-ring binder contains information on a full line of electric strikes and deadbolts, key switches, electric gate locks, central control consoles and other security hardware. Included is data on a Grade 1 (BNMA) electric strike that is UL-1 listed both as a burglary protection device and fire door accessory. ▪ Folger Adam Co., Joliet, Ill.

Circle 418 on inquiry card

FLUORESCENT LAMP / The *Ultralume* lamp is said to provide illumination matched to the eye's ability to see. An engineering bulletin describes how *Ultralume* fluorescent lamps use three shades—blue-violet, pure green and orange-red—to provide natural-appearing lighting with bright coloration. Details on the white fluorescent light source include color chromaticities and lamp life. ▪ Westinghouse Electric Corp., Lamp Commercial Div., Bloomfield, N.J.

Circle 419 on inquiry card

SPACE CONDITIONING COSTS / The results of an extensive study of residential energy consumption, performed by Energy Utilization Systems, Inc. of Pittsburgh for the Electric Environmental Equipment Section of NEMA, have been published in "Energy Consumption and Life-Cycle Costs of Space Conditioning Systems." Efficiencies of energy generation and distribution were included in this comparison of the five basic systems of heating and air conditioning under installed and operating conditions: gas, oil, and electric furnaces with central air conditioning; the electric heat pump; and electric zonal baseboard heating with room air conditioning. Resource information compiled includes case history data from 25 electric utilities. Individual copies are $5.00 each from the National Electrical Manufacturers Assn., 2101 L St. N.W., Washington, D.C. 20037.

EXPLOSION SUPPRESSION SYSTEMS / How to stop explosions after they start is discussed in a 12-page brochure. The material describes an explosion as a fast-moving fire which has a measurable time interval between ignition and the build-up of destructive pressures: high-speed suppression systems act during this millisecond interval. Several types of explosive situations common in many industrial plants are described, along with typical suppression systems which protect against destructive forces. ▪ Fenwal Inc., Ashland, Mass.

Circle 420 on inquiry card

FLUORESCENT LENSES / A four-page reference guide provides illustrations and basic specifications for three *Controlens* fluorescent lenses: designer, wraparound and specialty types. The injection-molded acrylic lenses are said to offer precise light control, optimum clarity and mechanical stability. A chart lists available sizes, prism types, over-all thicknesses, minimum unpenetrated thicknesses, and special features for each *Controlens*. ▪ Johns-Manville Service Center, Holophane, Denver, Colo.

Circle 421 on inquiry card

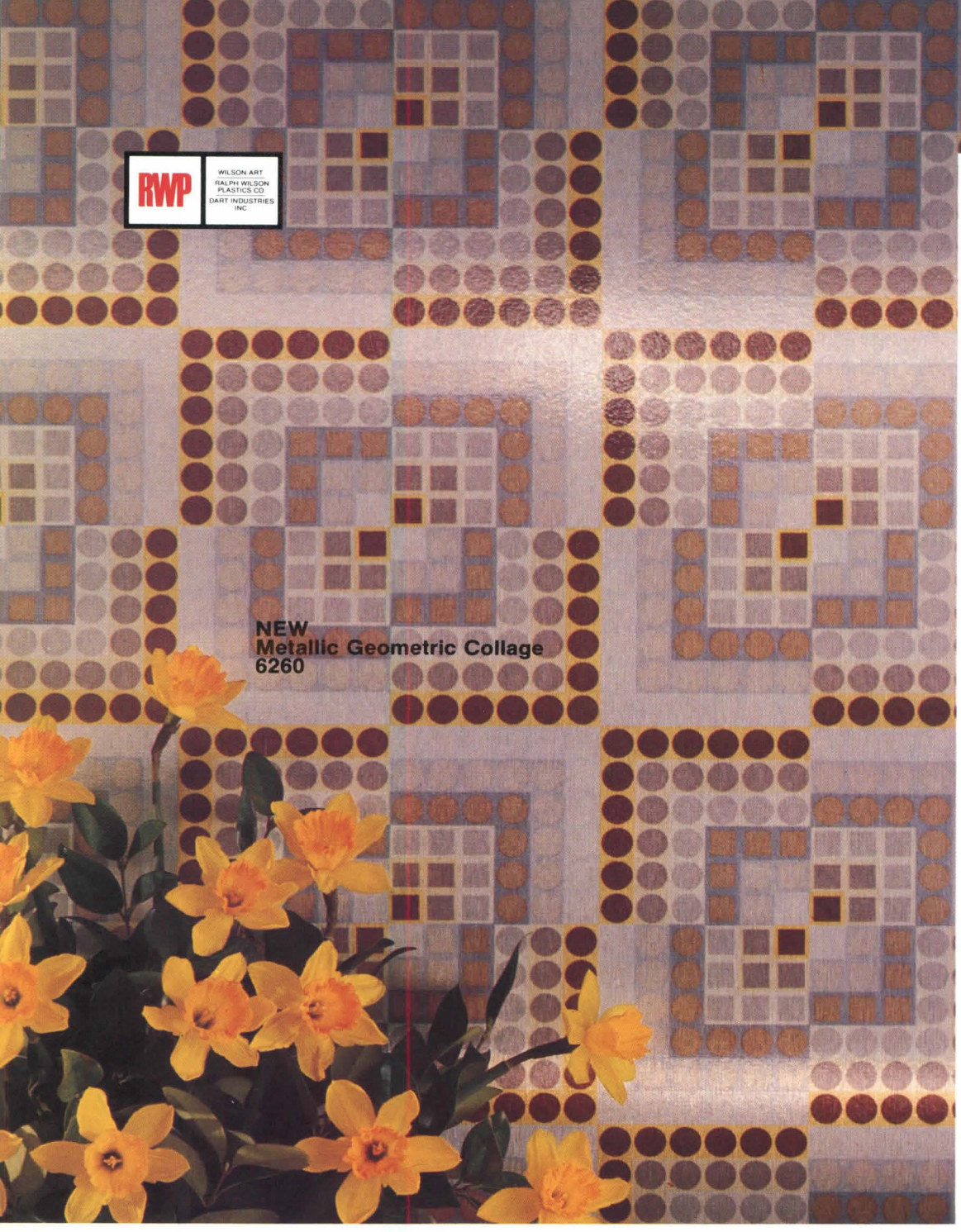
Polymarble Drinking Fountains by HAWS

The most exciting, most popular drinking fountain material to appear on the design horizon for many years. Perfect color saturation throughout. Vandal resistant too! Available in standard white or Cerulean Blue, Tan or Yellow Mist at no extra cost. For complete details, contact **Haws Drinking Faucet Company** *Main Office —Berkeley: 1441 Fourth St., Berkeley, CA 94710, 415/525-5801. Los Angeles: 6007 Bandini Blvd., Los Angeles, CA 90040, 213/724-1120.*

Haws®

DRINKING FOUNTAINS

For more data, circle 86 on inquiry card



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Now...to add to our 12 copper and aluminum bas-relief laminates are 10 new and most unusual pattern innovations.

Color on color! An exceptional number of very different design interpretations! And dynamic media for light - always changing, always interesting.

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Tomorrow's design innovations . . . available for the way we live today.

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Wilson Art—manufacturers of Wilson Art high-pressure laminated plastics, Chem-Surf, Tuf-Surf, Dor-Surf, Metallics and Contact Adhesives.

For more data, circle 87 on inquiry card

New associates, promotions

Smith, Hinchman & Grylls Associates, Inc. announce the promotion of five members of the firm to the title of associate. They are: **Roy J. Brockert, Leo Osmialowski, Andrew A. Vazzano, David E. Weida** and **John J. Labosky.**

Sverdrup & Parcel and Associates, Inc., announce the following promotions: **W. H. Rivers** to president; **C. N. LeTellier** to senior vice president; **W. F. Knapp, W. J. Clarke, J. E. Gast, R. E. Beil** and **J. L. Hack** to vice presidents; **G. R. Pennington** to vice president-manager and **T. E. Wherle** to treasurer.

Kirkham Michael and Associates announce that **Paul J. Watson** has joined the firm as a design architect, and **Anne Bunting** as an interior designer.

Marquis Associates are pleased to announce two new partners: **Phyllis Martin-Vegue** and **James E. Caldwell, Jr.**

EDAW, Inc. is pleased to announce the addition of **Karen Northcutt, Brent Daggett** and **Larry Mouri** to the EDAW staff.

Joseph A. Oddo has joined Grage & Associates as partner and executive vice president.

Omniplan Architects is pleased to announce that **Gray G. Henry,** AIA has joined the firm as a principal.

Clyde A. Jackson has joined Gensler and Associates to manage the firm's architectural design projects.

Bernard Johnson Incorporated has announced the promotion of **Ronald W. Kilpatrick** and **William E. Ferro** to vice presidents.

Meyer, Strong & Jones is pleased to announce the appointment of **Thomas R. Marshall** as an associate.

Ellis/Naeyaert Associates, Inc. has appointed **Donald F. Riha,** AIA to director of design group and **Norman P. Bojalad** to controller.

E. Lee Kennedy, AIA has been named managing director to head the newly opened office of Whiting Rogers Butler Burgun.

Architects Plus announces that **R. Vic Michiels, Jr.** has been named manager of their new regional office located at 1800 Century Boulevard, Suite 800, Atlanta, Georgia.

Richard Badham has been appointed director of architectural services for Associated Engineers, Inc. headquartered in Fort Dodge, Iowa.

Shepley Bulfinch Richardson and Abbott announces that **Geoffrey T. Freeman** has become an associate of the firm.

Berdell Buckley has been named a partner of The Kling Partnership.

Warren A. Waters has joined the firm of James M. Sink Associates.

Steven Peters and **Donna Johnson** have been named associates of Pierce-Goodwin-Alexander, Architects, Engineers, Planners.

Audrey Herz has been appointed director of project development at Hugh Carter Engineering Corp.

Powers-Willis and Associates announces the appointment of **Roy C. Neumann** as partner and executive vice-president.

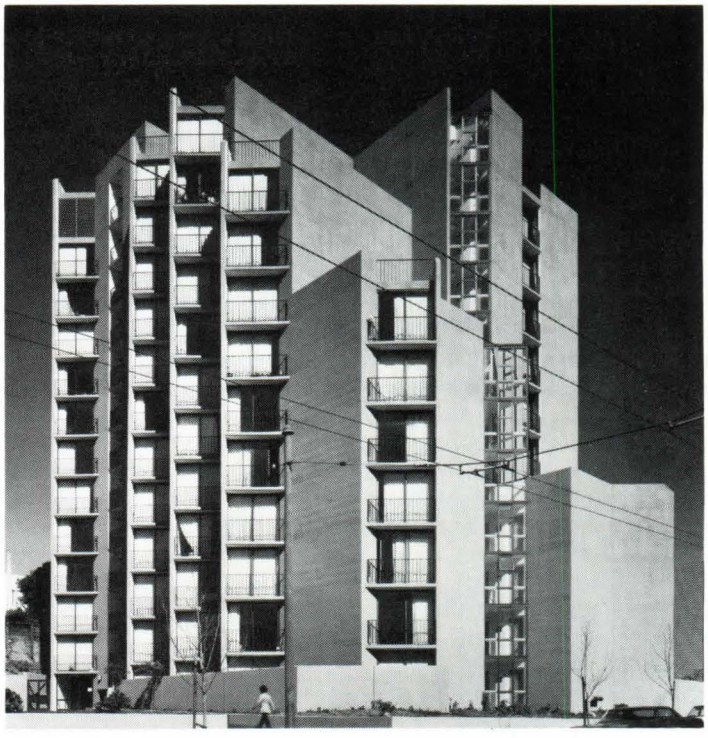
Environmental Planning & Research, Inc. announces the appointments of **Virgil R.**

continued on page 177

SENSITIVE QUESTION:

How do you humanize urban apartments on a limited budget?

SENSIBLE ANSWER: Reinforced concrete.



Reinforced concrete unleashes the imagination to bring both concern for the occupants and economy to so-called "public housing." This solution dramatically contrasts with the sterile, box-like forms that are so often the expedient answer.

The Housing for the Elderly structure in San Francisco is a good example. This 12-story building has 97 units. Its stepped-back design is unobtrusive. And there is plenty of open space around it.

Angular bay windows bring sunshine into each apartment and give each individual living unit an unobstructed view.

The structural system is simplicity itself. All 12 floor levels are similar. "Flying" forms were used to economize on the repetitive forming of the constant-thickness floors and walls.

Seismic capacity is provided by the transverse shear walls between units. All shear walls are reinforced with grade 60 reinforcing steel to ensure high ductility for earthquake resistance.

The inherent soundproofing and fire-resistance of reinforced concrete also make it the natural choice for all types of apartment buildings.

Where there's a limited budget, as well as a concern for human comfort, it's only sensible to turn to reinforced concrete.

For a Case History Report on this project, ask for Bulletin 7701.

Architect: Marquis and Stoller, Architects & Planners, San Francisco.
Structural Engineer: Forell/Elsesser Engineers, Inc., San Francisco.
General Contractor: The Pacific Co., Engineers & Builders, Berkeley, Calif.
Owner: San Francisco Housing Authority, San Francisco.

CONCRETE REINFORCING STEEL INSTITUTE
180 North LaSalle Street, Room 2108
Chicago, Illinois 60601

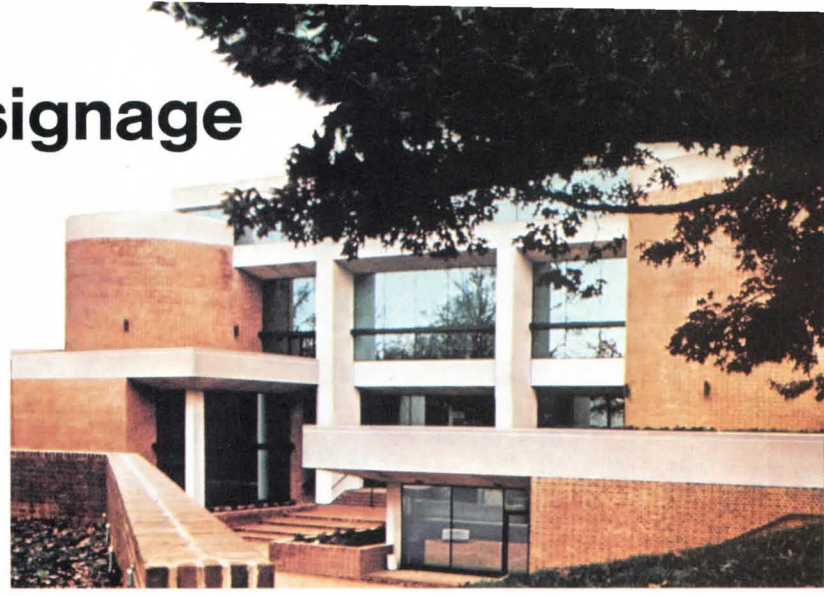
CRSI

THE ANSWER'S IN REINFORCED CONCRETE.

For information on Professional Membership Program, write to Director of Marketing.

For more data, circle 88 on inquiry card

Matthews makes signage a fine art at the Virginia Museum.



The Virginia Museum of Fine Arts celebrated its 40th anniversary by dedicating a new North Wing, the culmination of a 10-year program.

In addition to giving the museum much-needed space, the wing helps the museum accomplish something rather unique with visitor traffic flow. The museum's exhibits are arranged in chronological order, but because of the placement of the original entrance, visitors entered right in the center of civilization's time span. Now, by entering through the new North Wing, visitors may start with the classical world of Greece and proceed straight through to the Modern World.

The North Wing houses three new galleries; one a permanent display of Art Nouveau, one devoted to a series of loan exhibitions and the last will offer a schedule of one-man exhibitions by Virginia artists. Strikingly modern, the new wing departs from the Georgian style of the original building but employs the same red brick and limestone, creating a strong visual relationship.

If there's any structure in the world where the signage must be pleasingly informative rather than loudly intrusive, it's a museum. Slapped-up signage would never do. That's why the architects and designers, aware of the need for an efficient traffic moving system, specified a complete signage program in their initial plans.

And that's why Matthews was called upon. We supply total signage systems. The Virginia Museum of Fine Arts exhibits our full line of interior signage; monoliths, plaques, cast metal letters and pressure sensitive letters. All of the signage is highly visible, with coordinated letters and colors, but does not detract from what's really important, the art itself.

If you'd like to know more about Matthews' total signage responsibility, please give us a call.

Talk to us for total signage systems.

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Chicago, Illinois

Signage Contractor:
National Seal Works, Inc.
Richmond, Virginia

JHM MATTHEWS
Architectural Division

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Carter, AIA and **Harold C. Kallaway** as vice-presidents in the firm.

3D, and 3D/International announce the appointment of **Walter Cunningham** to senior vice-president/director of engineering.

William A. Feathers has joined Syska & Hennessy as director, development.

The Board of Regents for Oklahoma State University and the A&M colleges has approved the appointment of **John H. Bryant, AIA** to head the OSHU school of architecture.

Charles M. Poll has been named senior corporate vice-president of Benham-Blair & Affiliates, Inc.

Jones/Mayer and Associates, Inc., has announced the appointment of **Carl D. Reinhardt** as director of housing and residential development.

Robert and Company Associates has announced the promotion of **Raymond Lo, AIA** to the position of director of archtectural design.

RTKL Associates, Inc. wishes to announce that **Archibald C. Rogers, FAIA** has retired from active architectural practice and assumed the title of chairman emeritus and will act as consultant to the firm.

F. Jack Harden, AIA has joined the firm of Gee & Jenson engineers.

Lowell Brody, AIA, has joined Marcel Breuer & Associates as director of project development.

Payton Abbott, III, James P. Cagnina and **Melvin J. Wilson** have been named associates in the firm of Fujikawa Conterato Lohan and Associates.

Shepley Bulfinch Richardson and Abbott, have elected three new directors: **George R. Mathey, Lloyd P. Acton,** and **Leo O. McEachern.**

Hugh Stubbins and Associates, Inc. elected **Hugh A. Stubbins, Jr.** as president and **Merle T. Westlake** and **Edwin F. Jones** as vice-presidents and directors and announced the appointment of **W. Easley Hamner, Richard J. Green** and **Hugh Stubbins III** as new vice-presidents and directors.

Name changes, new firms

Robert D. Kirk, AIA and Kay D. Kennedy, AIA have established the firm of **Architectural Concrete Associates, Inc.,** located at 15304 B. Dooley Road, P.O. Box 953, Addison, Texas.

Booth & Nagle/Ltd. is pleased to announce that **John F. Hartray, Jr.** has joined the firm as a principal. The name of the firm will now be **Booth Nagle & Hartray/Ltd.**

Perry Dean Partners Incorporated and Stahl Associates Incorporated are pleased to announce the formation of **Perry, Dean, Stahl & Rogers, Incorporated,** located at 177 Milk Street, Boston, Massachusetts 02109.

Esherick Homsey Dodge and Davis has moved to 2789 25th Street, San Francisco, California.

David Jay Flood & Associates has named **Doug Meyer** partner in charge of design and planning. The firm name has been changed to **Flood, Meyer & Associates, Inc.**

Gensler and Associates has opened an

continued on page 221

BUILDING BOOKS

A PATTERN LANGUAGE
Towns, Buildings, Construction
Christopher Alexander, Sara Ishikawa and Murray Silverstein with Max Jacobson, Ingrid King and Shlomo Angel. 253 "patterns," or architectural solutions to environmental problems, that make it possible for laymen to design their own surroundings. 500 halftones and line drawings. $25.00

THE ARCHITECT
Chapters in the History of the Profession
Edited by Spiro Kostof. A carefully researched collection of essays by noted experts tracing the evolution of the architectural profession, from ancient Egypt to the present. "An excellent and varied collection of essays ...unique in the field."—James S. Ackerman, Harvard Univ. 70 photographs, 10 drawings. $19.50

RICHARD MEIER, ARCHITECT
Introduction by Kenneth Frampton. In the first volume devoted to the works of Richard Meier, drawings and photographs illustrate the houses and institutional buildings that have distinguished him as one of America's foremost contemporary architects. 90 photographs, 165 drawings. $35.00 cloth; $15.00 paper

BAY AREA HOUSES
Edited by Sally Woodbridge. Introduction by David Gebhard. Noted architectural authorities show how this distinctive local tradition has flourished, changing with the times, from the end of the 19th-century down to the present. 291 halftones, 75 drawings. $24.95 through 12/31/76; $29.95 thereafter

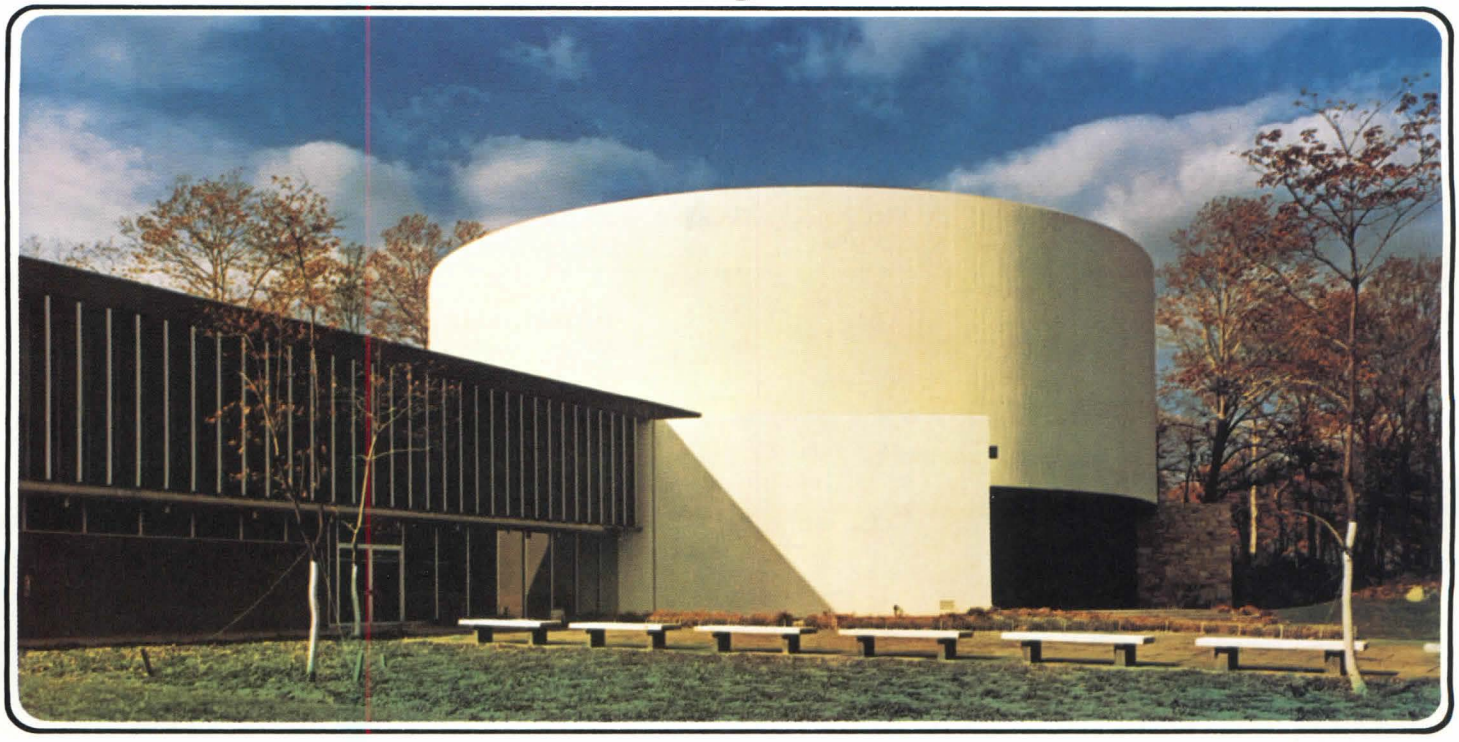
PNEUMATIC STRUCTURES
A Handbook of Inflatable Architecture
Thomas Herzog, Gernot Minke, and Hans Eggers. Three experts in pneumatic structures survey the major worldwide achievements in this exciting new field, providing essential technical data for architects and engineers. 700 illustrations, 40 tables. $30.00

OXFORD UNIVERSITY PRESS
200 Madison Avenue, New York, N.Y. 10016

For more data, circle 90 on inquiry card

16 year old surface looks great!

...and still will 16 years from now.



Visitor's Center & Cyclorama Building, Gettysburg National Military Part, Pa.
Arch: Richard J. Neutra & Robert E. Alexander, Thaddeus Longstreth Assoc. Painting Cont.: Ralph E. Jones, Inc. Harrisburg, Pa.

SPEEDY, SPRAYED-ON WATERPROOF TEXTURED FINISH.

This Cyclorama Memorial at Gettysburg, Pennsylvania was built 16 years ago using poured concrete. The architect designed vertical flutings that were a very essential part of the design. The problem was the finishing and protecting of these unusual architectural details without losing any of the dramatic effect. An overall waterproof texture was achieved with a coating technique that at that time was revolutionary. THOROSEAL PLASTER MIX was applied using a plaster type spray gun. ACRYL 60 was added to the mixing water to provide positive adhesion and built in curing. After 16 years the building still has its "brand new" look.

THOROSEAL PLASTER MIX protects surfaces with a decorative, durable waterproof textured finish. It adds uniformity. Light or heavy textures can be achieved. It fills and seals holes, voids, form marks and honeycombs thus eliminating rubbing. It possesses high density and compressive strengths, great durability, hardness and is waterproof. Comes in dry form; just add water. This building is our testimonal! Write for cir. #71.

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For more data, circle 91 on inquiry card

How San Francisco's luxurious One Market Plaza saves $35,570 a year with Sylvania SuperSaver fluorescent lamps...without short-changing its lobby.

It cost $81,000,000.

It has a total of 1,500,000 square feet in two towers.

And its 6-story-high atrium-lobby, lit by Sylvania decor lamps on gleaming space frames, is one of the most distinctive sights, in a city where far-out architecture is the rule.

But after the glamour, in the day-to-day job of lighting hallways, offices, service areas—the answer was Sylvania SuperSaver 35-watt fluorescent lamps... 77,000 of them, using about 10% less energy than standard 40-watt fluorescents, yet without skimping on light.

In all, these lamps will save more than 1.6 million kilowatt-hours of energy—$35,570 worth—every year for Galbreath-Ruffin Corp., developer and operating manager of the building complex, which is a joint venture of The Equitable Life Assurance Society of the United States and Southern Pacific Land Company.

Whether you're lighting a building or building a lighting system for anything under the sun—there's a way to do it better and more economically. Your Sylvania Independent Electrical Distributor is a quick way to get started.

GTE SYLVANIA

For more data, circle 93 on inquiry card

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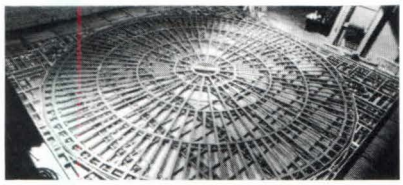
FOR OFFICE BUILDINGS
In cramped areas, reliable, rugged Macton vehicle turntables cut traffic snarls, delivery time, and materials handling costs; increase usable space; and pay for themselves in reduced operating costs.

FOR SCHOOLS
Macton Turntable Divisible Auditoriums turn idle auditorium space into useful classrooms for only a 10-15% increase in capital cost.

FOR RESTAURANTS
Rotating rooftop restaurants using silent, smooth Macton turntables attract up to 50% more business than comparable ground-level restaurants.

FOR SPECIAL PURPOSES
Macton's Special Products Division will design, engineer, fabricate, and provide necessary control systems for *any* kind of special turntable or dynamic steel structure.



CONTACT: THE MACTON CORP., ON-THE-AIRPORT, DANBURY, CT 06810. PHONE: (203) 744-6070

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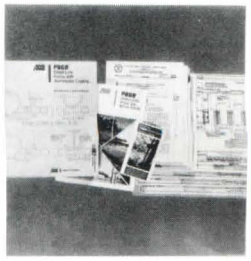
AE/UPDATE

A classified advertising section devoted to helping architects and engineers keep up to date on building product manufacturers.

FREE FENCE SPEC KIT SAVES TIME, TROUBLE! Invaluable for planning chain link fencing. Kit includes drawings on styles, wire gauges, gates, fittings, framework. Also includes lab reports, work sheets and specifications. *Page®* aluminized fabric lasts 3-5 times longer than the best of galvanized. Page Fence Division of Acco, P.O. Box 430, Bridgeport, Conn. 06602. American Chain & Cable Company, Inc., Member of the Babcock & Wilcox Ltd. Group of Companies.



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RECORD IMPRESSIONS CATALOG

SEND FOR A COMPLETE, DETAILED CATALOG of "Record Impressions." A convenient service offering reprints of Building Type Studies, Interiors and Special Reports. Offered are more than 50 items including back issues of Record Houses; Product Reports and the practical reference guide, "Air Conditioning: A New Interpretation." Address your request to: Record Impressions, Architectural Record, P.O. Box 501, Princeton Road, Hightstown, New Jersey 08520.

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Please send a Sheaffer Advertising Specialty Counselor to see me.

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Sheaffer Eaton Division of Textron Inc.

For full details on these striking new Kaleidoscope designs, and the Sheaffer program that goes with them, just send in the coupon. We'll help you add these new designs to your sales program!

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EQUIPMENT FOR SALE

Charrette/White Flat Files: Self-contained file with integral cap. Drawers operate on ball bearing rollers/hinged front depressors. Stack units to any height. White files blend well with any office decor. Four sizes for immediate shipment in wooden/crates. Mail orders and information: Charette Corporation, 2000 Massachusetts Avenue, Cambridge, Massachusetts 02140.

MISCELLANEOUS

Frank Lloyd Wright & Erich Mendelsohn recorded live in lectures in 1952 & 1953. Collectors items first time offered, complete on 3, one hour cassettes. $64.00 postpaid, VOP Productions, PO Box 18251, Okla. City 73118.

OVERSEAS JOBS GUIDE

Overseas Job Hunters Guide & Directory of 600 + firms. Details on job sources, resumes, taxes, etc. $6.00 + $.50 P&H (Foreign + $2.00 P&H). Friar Books-AR, 8956 E Ardendale, San Gabriel, CA 91775.

REAL ESTATE

Quaker Hill Contempory Home—Over 5,000 Sq. Ft., Magnificent view of Dutchess County, Brook. Suitable for professional use 185,000. Box 303 Pawling, NY 12564. 914-855-1543 (Eves.).

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To place a non-display advertisement, fill out this form, including your name, street address, city & state with ZIP code, attach it to a separate sheet containing your advertising copy, and mail it to:

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NEW YORK, N.Y./10020

Rates: $5.25 per line, minimum insertion three lines, six words to a line, box number counts as one additional line. Display rates on request.

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Advertisement to appear . . . . . time(s)

. . . . . .
Signature

OFFICE NOTES *continued from page 177*

office in Los Angeles located at Two Century Plaza, Suite 570, Los Angeles, California. It will he headed by **Edward C. Friedrichs, AIA** and **Marvin L. Taff, AIA.**

Michael L. Bobrow and Associates has announced a change of name to **Bobrow/Thomas and Associates,** following appointment of **Julia Thomas, AIP,** as principal of the firm.

Seymour Jarmul & Bernard Brizee announce that **Abraham D. Levitt** has become a partner. The firm name will now be **Jarmul, Brizee & Levitt, Architects and Planners.**

G. H. Forbes Associates Architects have moved their offices to 231 South Woodward, Birmingham, Michigan 48011.

Horner Blessing Associates have moved to 101 West 11th Street, Suite 1100, Kansas City, Missouri.

Leggett & Irvan Consulting Engineers has merged with **G. Reynolds Watkins, Inc. Dr. James L. Leggett** has been elected vice-president in charge of GRW's structural division, and **Robert F. Wray** has been named an executive vice-president.

Merrimack Engineering Services is pleased to announce the opening of a new office located at 66 Main Street, Suite 13, Andover, Massachusetts.

Donald R. Goldman, AIA, has established a new practice at 3920 Third Avenue, San Diego, California.

Michael S. Adams, AIA has opened a new office located at 1204 Hollis Avenue, Cherry Hill, New Jersey.

Clark & Enersen, Hamersky, Schlaebitz, Burroughs & Thomsen has announced its new corporate name as **The Clark Enersen Partners.**

Charles Hugh Crain and Keith A. Petitjean announce the formation of **Charles Hugh Crain Associates, Architects,** located at 233 Rue France, Lafayette, Louisiana.

F. Daniel Cathers, AIA, and William W. Lukens announce the opening of their offices **Cathers/Lukens Architects,** The Farmhouse, Great Valley Corporate Center, Morehall Road, Malvern, Pennsylvania.

Douglas T. O'Donnell, P.E. and Myron B. Silberman, AIA & ASCE, have formed the architectural and engineering firm of **O'Donnell & Silberman Associates, Inc.,** 604 East 4th Street, Marshfield, Wisconsin.

James B. Phillips and Kent D. Dounay have formed the **Design Group, Inc.** at 4131 North 48th Street, Phoenix, Arizona.

Jenkins-Fleming, Inc. has opened an office in Atlanta, Georgia. It will be headed by Lafayette R. Beamon.

Brian J. Pape has formed **Habitat Design** located at the Stephens Building, Columbia, Missouri.

Edgar Tafel announces relocation of his offices to 14 East 11th Street, New York, New York.

M. R. Newberry, AIA and Gary C. Pullin, AIA announce the establishment of a partnership to be known as **Newberry/Pullin Architects,** 302 First National-Ely Building, Abilene, Texas.

Skidmore, Owings & Merrill announces the opening of an office in Houston, Texas.

A one-piece roof, 42′ x 196′.

No field seams.

No sweat.

No special equipment.

And a 5-year warranty.

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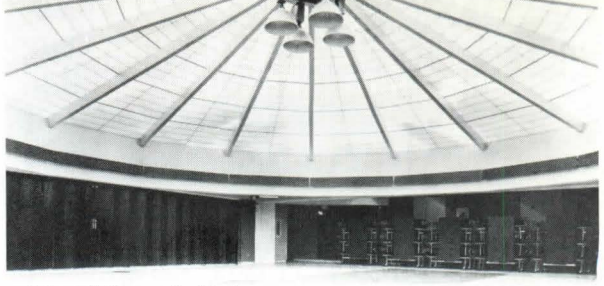

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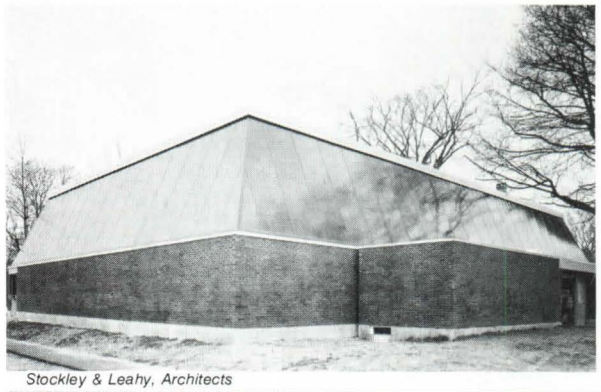

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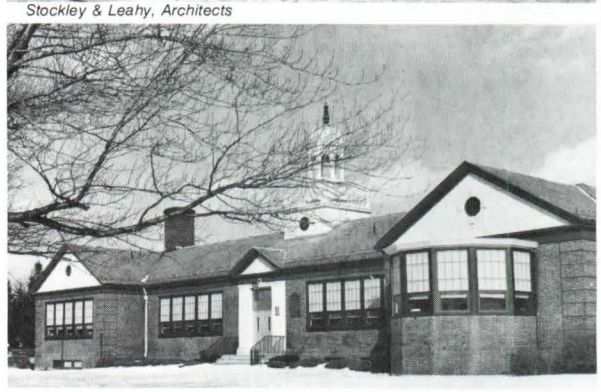

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PUT THE LIGHT WHERE YOU WANT IT

In the above interiors, only the lighting effects are different. The hidden light source fixtures in the ceiling are the patented Controlux Cone Downlight by Moldcast ®. Varying lighting effects are created by adjusting the directions and widths of the beams of light.

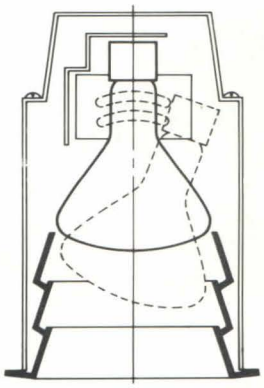
The top left photograph illustrates the directional beam adjustment to produce wall washing. To the right, the dramatic effect of accenting is produced by aiming selected Controlux Downlights. The lower left view demonstrates illumination of a horizontal surface by concentrating the light from a number of fixtures. The fourth photograph shows the sum of all effects, plus general illumination — All using the same fixture type to produce hidden-source illumination from an architecturally coordinated ceiling.

The heart of the Controlux Cone Downlight is an efficient, variable focus reflector that eliminates distracting glare. The unique, stepped contour of the optical system has a far smaller aperture than parabolic cone downlights — making it even less noticeable.

Variations in both width and direction of the light pattern are easily produced on the job. Only the Controlux Cone has the ability to provide this range of control efficiently and without glare. In addition to lighting effects, increased beam width can allow as much as 40% greater spacing between fixtures where 45° cutoff is not required. This means up to 40% fewer fixtures and lamps.

the flexible CONTROLUX CONE DOWNLIGHT

Freedom to adjust the pattern of light solves many problems such as varying ceiling heights, sloped ceilings, or fixture positions not directly over the subject area. If changes are to be made in the layout of the interior or if corrections in lighting design are required after installation, the Controlux Cone's flexibility will adapt to meet the new situation.



The Controlux Cone Downlight is offered in a wide, coordinated selection that uses incandescent and HID lamps. Indoor and outdoor models are available in round and square, recessed, semi-recessed and surface versions with a variety of finishes.

For your next new project or restoration, consider the first truly versatile, hidden-source lighting tool . . . The CONTROLUX CONE DOWNLIGHT.

For further information, write Moldcast Lighting, Interstate 80 at Maple Avenue, Pine Brook, N.J. 07058
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