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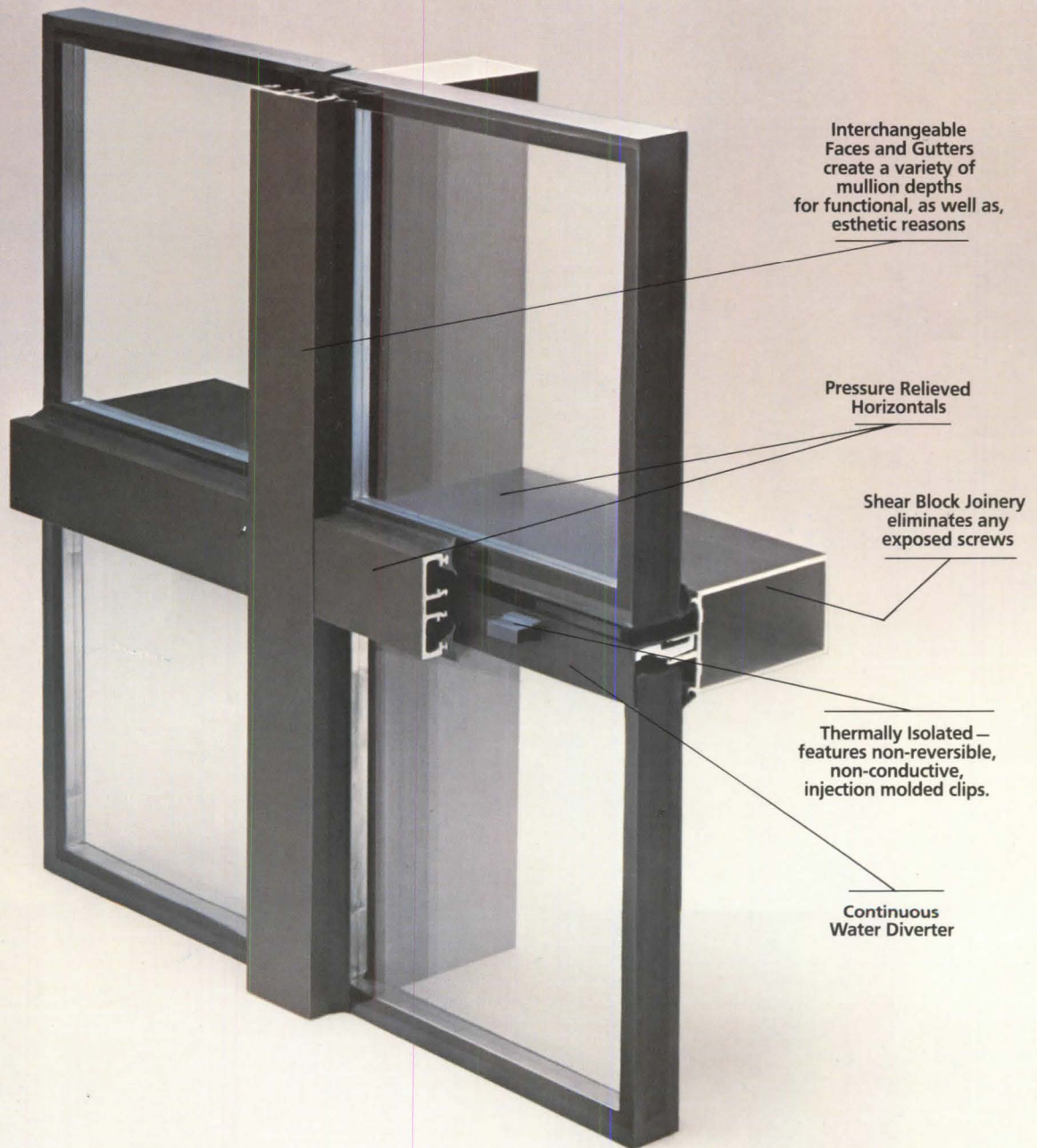
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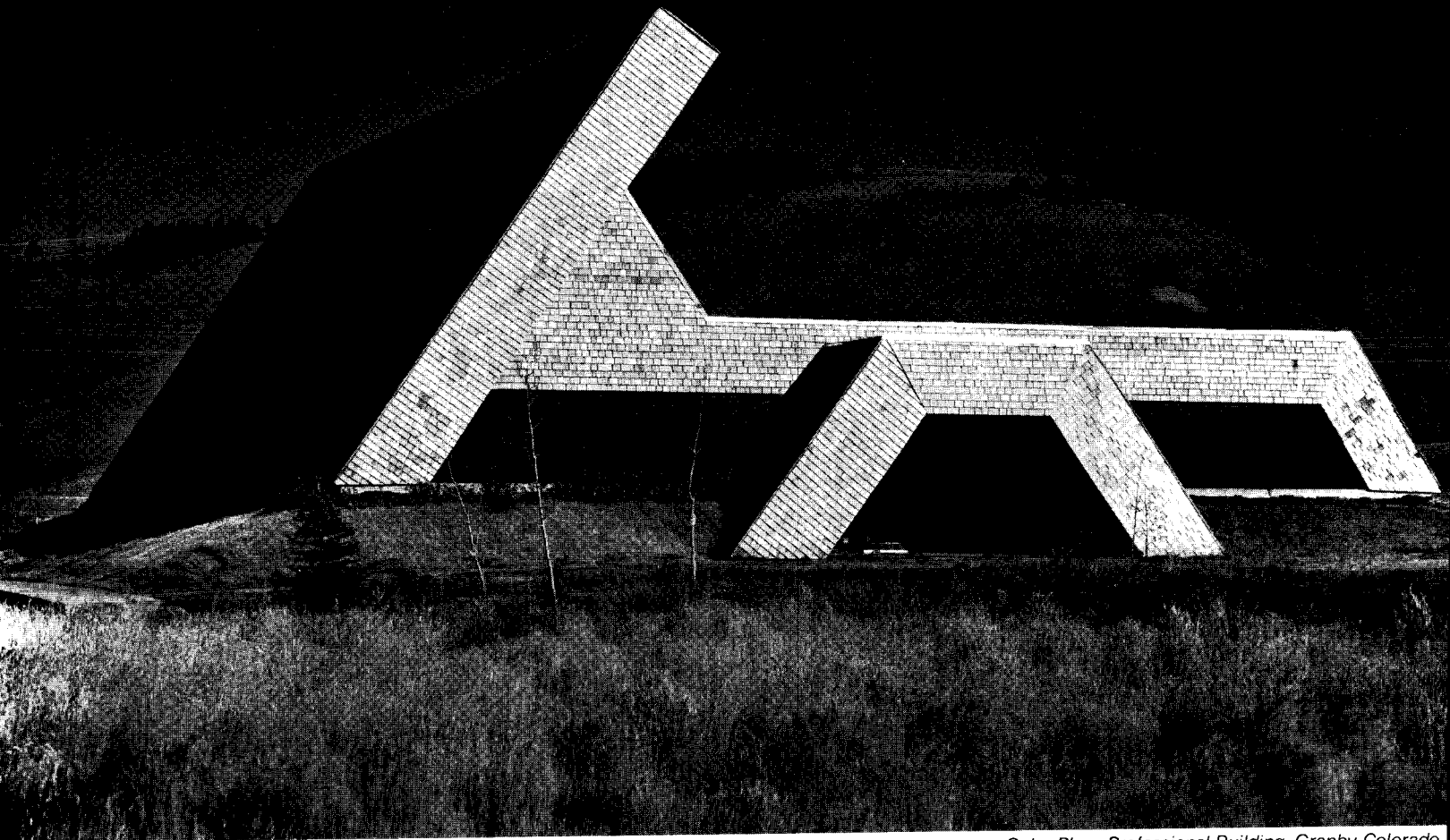
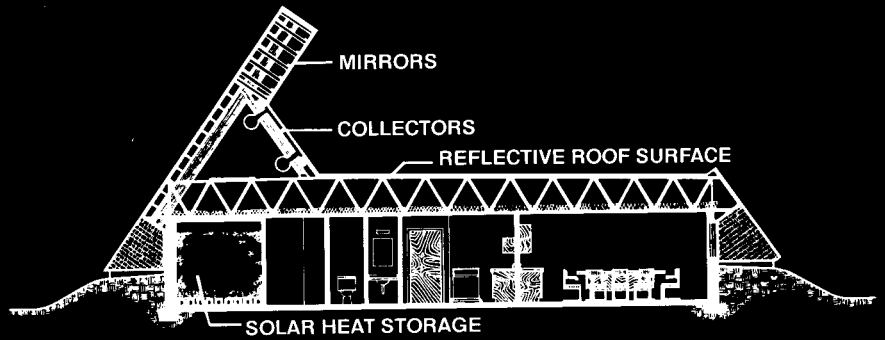
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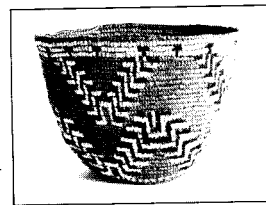
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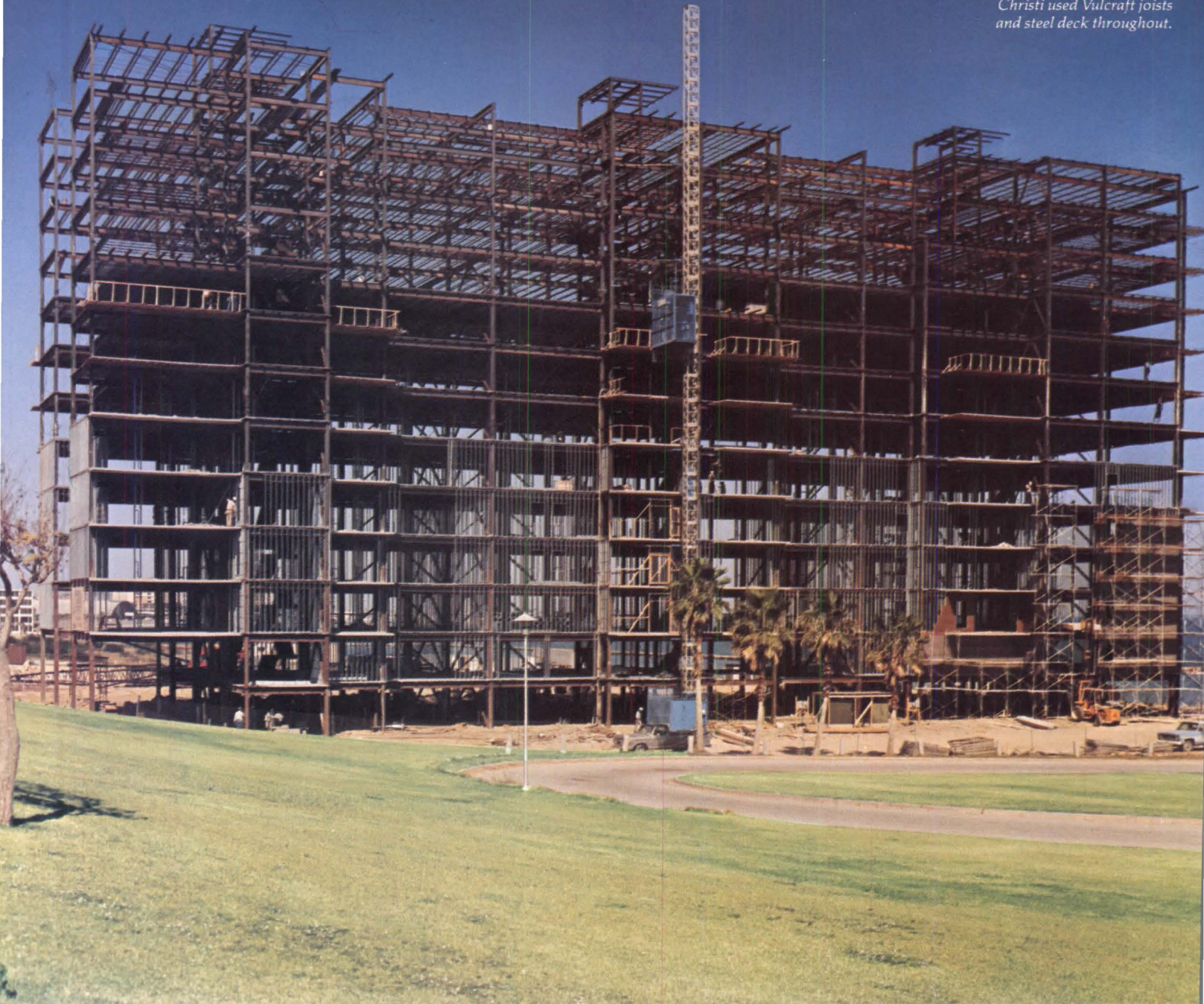
- 34 *Giancarlo de Carlo continues his engagement with an historic hilltown. By Mark Maves and Spencer Hall*
- 40 **A Platform as Both Forecourt and Transition Point**
- 44 **A Law School Created out of a Former Convent**
- 46 **An Introverted Education School Reflective of the Town**
- 51 **Art School, Housing Project at the Town's Outer Edge**
- 53 **Colleges that Cascade Down a Neighboring Hill**
-
- 56 **Metrication: Coming Slowly but Inexorably Closer**
'It's not a question of whether, but when, conversion will be made.' By Thomas Vonier, AIA
-
- 58 **Evaluation: A Building That Succeeds in Losing Itself**
The Willis Faber & Dumas offices, 'one of Britain's most uncompromising modern buildings.' By Annette LeCuyer
-
- | | | | |
|----|----------------|----|--------------------|
| 6 | Events | 70 | Books |
| 6 | Letters | 76 | Furnishings |
| 11 | News | 92 | Advertisers |
-

Cover: Photograph by Morley von Sternberg of the Willis Faber & Dumas building, Ipswich, England, designed by Foster & Associates (see page 58).

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EVENTS

May 1-2: Historic house and garden tours, Providence, R.I. Contact: Providence Preservation Society, 24 Meeting St., Providence, R.I. 02903.

May 4-5: Institute on Photovoltaics, University of Wisconsin, Madison.

May 4-6: Docks and Marinas Institute, University of Wisconsin, Madison.

May 6-10: Scandinavian Furniture Fair, Copenhagen, Denmark. Contact: Scandinavian Furniture Fair, Hellerupvej 8, DK-2900 Hellerup, Denmark.

May 9: Expo '81—Solar, Wind, Biomass Energies, Jordan College, Cedar Springs, Mich. Contact: Linda Bouwkamp, 360 W. Pine St., Cedar Springs, Mich. 49319.

May 11-13: Interfaith Forum on Religion, Art and Architecture annual conference, Chicago. Contact: Judith A. Miller, IFRAA, 1777 Church St. N.W., Washington, D.C. 20036.

May 14-15: National Conference on Design Aspects of Public Transportation, Biltmore Hotel, New York City. Contact: Helene Overly, Conference Coordinator, Public Technology, Inc., 1301 Pennsylvania Ave. N.W., Washington, D.C. 20004.

May 15: Registration deadline for World Cities III conference, Berlin, Germany, June 22-26. Contact: Judith Verdino, Institute for Urban Design, Main P.O. Box 105, Purchase, N.Y. 10577.

May 16: Frank Lloyd Wright Home and Studio Foundation annual benefit house walk, Oak Park, Ill. Contact: Cathy Barker, Oak Park Tour Center, 951 Chicago Ave., Oak Park, Ill. 60302.

May 17-21: AIA convention, Minneapolis.

May 21: Solar Quest: Exploration of Energy Options, Jordan College, Cedar Springs, Mich. (See May 9 for contact.)

May 21-24: 19th Century Newport (R.I.) tour. Contact: The Victorian Society in America, The Athenaeum, E. Washington Square, Philadelphia, Pa. 19106.

May 25-29: Lighting Fundamentals for the Architect and Interior Designer, Boulder, Colo. (repeat seminar July 6-10). Contact: Lighting Design Institute, 2888 Bluff St., Suite 219, Boulder, Colo. 80301.

May 26-30: Solar Rising, annual conference of the American Section of the International Solar Energy Society, Philadelphia Civic Center. Contact: Richard Ross, Bennett Hall (B-2), 2440 Walnut Street, University of Pennsylvania, Philadelphia, Pa. 19104.

May 27-29: Conference on Computer-Aided Building Design, Concordia University, Montreal, Quebec, Canada. Contact: CABD, Centre for Building Studies, Concordia University, 1455 de Maisonneuve Boulevard, West, Montreal, Quebec, Canada H3G 1M8.

May 29-31: Monterey Design Conference,

Monterey (Calif.) Conference Center and Doubletree Inn. Contact: George Bissell, FAIA, California Council/AIA, 1736 Stockton St., San Francisco, Calif. 94133.

May 31-June 5: Summer Design Skills Workshops, University of Illinois at Champaign-Urbana. Contact: Industrial Designers Society of America, 1717 N St. N.W., Washington, D.C. 20036.

June 2-5: Course on Building Energy Analysis Using the DOE-2 Computer Program, University of California, Berkeley.

June 15-21: International Union of Architects World Congress, Warsaw. Contact: Frank Brown, AIA headquarters (202) 626-7395.

LETTERS

Of Styles and Banners: Reading the JOURNAL in recent years, I have often felt amazed—and sometimes dismayed or amused—with all this business of trying to identify the current “period” of American architecture. Meanwhile, I have read some articles wherein architect authors have demonstrated the kind of professional prose that makes it so hard for the public to understand them. But for sheer obfuscation nothing can beat the writings of some architectural critics trying to explain what an architect did and why.

My thinking along these lines really didn't jell until I read your editorial, “A Third Force in Architecture” (Feb., p. 39). Good Lord! Have we actually been going through all these styles in the 20th century? Somehow the AIA honor awards seem to have missed them—or ignored them.

By contrast, in this same issue of the JOURNAL, the article on Herman Miller describes a beautifully rational evolution in design. Even more impressive is the excellent article on “North Yemen and Its Buildings.” Balthazar Korab's first paragraph might well have been set in bold-faced type: “Today, the search for inspiration from the vernacular, the quest for universal values, takes on the added need for a solid reference to sanity when a novelty-obsessed neurosis haunts the profession.” *There* is a banner under which good architects can march.

*William H. Scheick, FAIA
Beaufort, S.C.*

The Big Subject of Architecture: We of Hardy Holzman Pfeiffer Associates (Feb., p. 40) certainly enjoyed being bracketed by your editorial call for restraint and Balthazar Korab's concern for vernacular sanity. If America can't afford the sybaritic life of the past two decades it may well be to architecture's advantage. To again confront the use of limited resources in specific places for particular people would do the profession a lot of good. “Respon-

siveness, respect and restraint” may be a long way from “commodity, firmness and delight” but then handmade blocks of stone are a long way from sheetrock.

“Postformalism” imagines an architecture far more resilient and responsive than current convention, and I would like to believe the profession could provide it. Your informed and lively JOURNAL certainly helps. It has become the proper measure of the big subject architecture truly *is* instead of the parochial opportunism of those damned formalists.

Even a bankrupt America is diverse and wealthy enough to have more than one official view of what it builds. We don't believe marching around under banners changes things, but your work certainly has.

*Hugh Hardy, FAIA
New York City*

Direction to a Loose Quote: At this time when allusion, metaphor and historical reference are of such central concern to architecture, it is distressing to see John Pastier misquote Boswell so loosely. (“A Milestone Takes Shape in California,” Jan., p. 58). My copy of *The Life of Samuel Johnson* reads as follows:

“Next day, Sunday, July 31, I told him I had been that morning at a meeting of the people called Quakers, where I had heard a woman preach. JOHNSON, ‘Sir, a woman's preaching is like a dog's walking on his hind legs. It is not done well; but you are surprised to find it done at all.’”

*Anthony S. V. Srba
Houston*

Dallas Reverse: Many Texans, and others, will notice that the sunset color photo of a bit of downtown Dallas (Dec. '80, p. 50) is reversed left to right, or a mirror image. This fact, plus the all too stunning coloration, make the photo appear quite unreal, and a fit companion for the essay it argues with.

*William E. Everett, AIA
Austin, Tex.*

The Herman Miller Story: Congratulations on Stanley Abercrombie's good piece on Herman Miller (Feb., p. 54) and on the award well deserved and justly given. It is pleasant to recall that I'm an Hon. AIA, but would I be hon. if I said nothing about credit given me undeservedly? The Eames two-people exhibition at the Museum of Modern Art was the work of Eliot Noyes, another Hon. AIA, I imagine, and I have no recollection of the preview at the Barclay Hotel. Please make an hon. man of me.

*Edgar Kaufmann jr., Hon. AIA
New York City*

Correction: In the December 1980 article on “Ornament” (p. 26), the automobile museum in Dearborn, Mich., attributed to Albert Kahn, was in fact designed by Robert O. Derrick.



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Government

AIA Backs Reins on Spending But Objects to Some Cuts

In a recent letter to President Ronald Reagan, AIA President R. Randall Vosbeck, FAIA, said the Institute supports the Administration's overall goals to bring federal spending under control, reduce the tax burden and streamline the regulatory process. The AIA board of directors endorsed an identical policy statement at its March meeting in Vail, Colo. However, AIA spokesmen have objected to specific cuts in preservation and energy programs.

Both the policy statement and Vosbeck's letter say that AIA is "fully appreciative and supportive of the vital importance, for our nation's economic health, of curbing inflation and cost escalations by reducing federal spending."

The Administration's proposed budgetary controls and reductions, the statement continues, may appear contrary to the majority of AIA's public policies of "emphasizing the importance of architectural design, historic preservation and our national environment in achieving the goal of a better quality of life." However, the statement emphasizes, the "ideals, goals and objectives" espoused in AIA's public policies "are not necessarily contradictory to better management and

budgetary restrictions of our federal establishment."

The Administration's proposal to "abolish" the historic preservation fund would "decimate historic preservation efforts nationwide," Thomas Spiers, AIA, told a House of Representatives subcommittee. The fund should not be viewed as simply another line item to cut now and make up later when the budget may be balanced or political priorities change, Spiers said. Unlike the deterring of land acquisition by the Department of Interior, "historic buildings and districts will not survive that type of budgetary approach."

The architect from Camp Hill, Pa., who testified as an AIA spokesman before the appropriations interior subcommittee, pointed out that preservation is largely funded by the private sector. The federal program provides "essential" seed money to attract investment capital from private sources, he said, and to support state preservation offices through matching funds. By stimulating private capital, he said, historic resource programs meet the primary goals and concerns of the Reagan Administration.

Preservation, adaptive use and retrofitting of existing buildings also conserve energy, Spiers said, pointing to studies that demonstrate that rehabilitation of existing buildings requires far less initial energy than construction of comparable replacement buildings. And he mentioned the role historic preservation has played in revitalizing urban centers.

Spiers asked Congress to strengthen the Historic American Buildings Survey, the Technical Preservation Services Program and the National Trust for Historic Preservation and to re-examine regionalization of historic resources programs, which AIA has consistently opposed as wasteful. "Regionalization only adds a needless and expensive additional layer of bureaucracy," he said.

AIA supports "well-conceived pro-

gram cuts" for the Department of Energy and the consolidation of the department's conservation and solar programs into a "more streamlined building energy research and development program,"

Theodore F. Mariani, AIA, recently told members of two House committees. However, Mariani continued, the Institute "sees little to be gained from severe reductions in those programs that increase private sector capacity to design and construct energy efficient buildings."

In his testimony, Mariani praised DOE's conservation programs, saying they have increased the "capacity of the architectural profession to design energy efficient buildings." DOE has built up the technical data on buildings and their energy use, Mariani said, and has increased technical knowledge on building envelopes, infiltration, heating and cooling systems, thermal insulation, energy performance, passive and hybrid solar systems and indoor air quality. "We believe no single segment of the building industry could have built this data base single-handedly," Mariani testified.

Mariani said DOE's research programs have been paramount in establishing a baseline on energy performance, that its summer institutes on energy and design were a significant contribution to the advancement of energy efficient design and that the department has increased the understanding of the requirements for energy efficient residential buildings.

Yet, DOE's help is still needed in the research of energy efficient buildings, Mariani said. For one reason, the typical small architectural firm of less than nine employees cannot "underwrite the research needed to produce truly innovative solutions for energy design programs," Mariani said. Nor is the "fragmented" building industry capable of coherent energy research, he added.

Mariani also stressed the need for DOE to support additional research needed to effectively retrofit commercial buildings and to assist the design professions to advance that practice. And too, said Mariani, architects, engineers and builders need DOE assistance to develop uniform audit procedures, computer software for building retrofit strategies, computer software to evaluate the cost effectiveness of retrofit options, among others.

Government continued on page 14

Government

<i>AIA backs spending curbs</i>	(above)
<i>Public buildings program in Congress</i>	14
<i>Liability insurance relief</i>	14
<i>Indoor pollution standards</i>	15
<i>Claims against Iran</i>	17
The Institute	
<i>'Fine tuning' intern program</i>	19
<i>91 named Fellows</i>	19
<i>Ethics statement approved</i>	22
Awards	
<i>An aviary for New Orleans</i>	25
<i>Michael Graves wins competition</i>	26
Energy	
<i>Greece, Germany plan housing project</i>	27
Cities	
<i>Delays for Pennsylvania Avenue plan</i>	84

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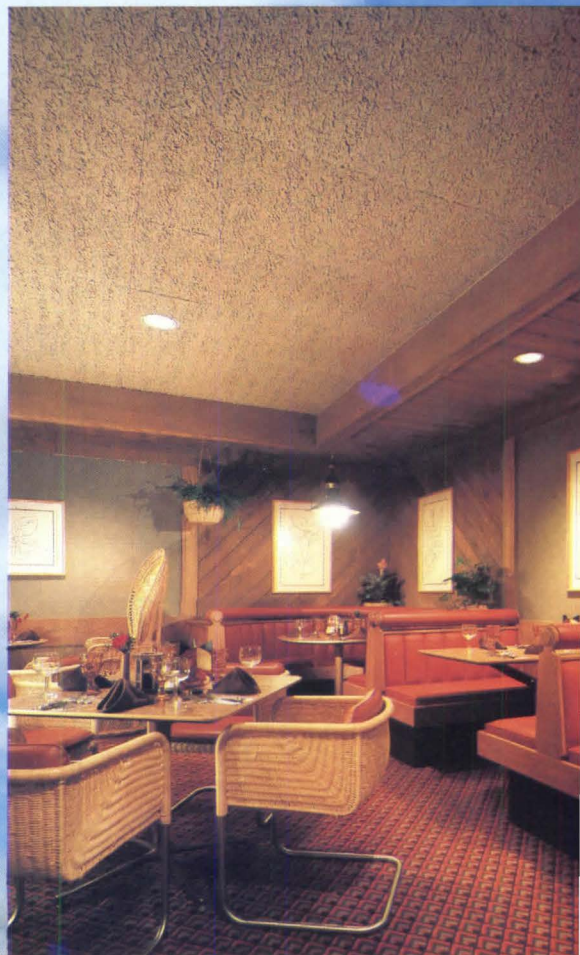
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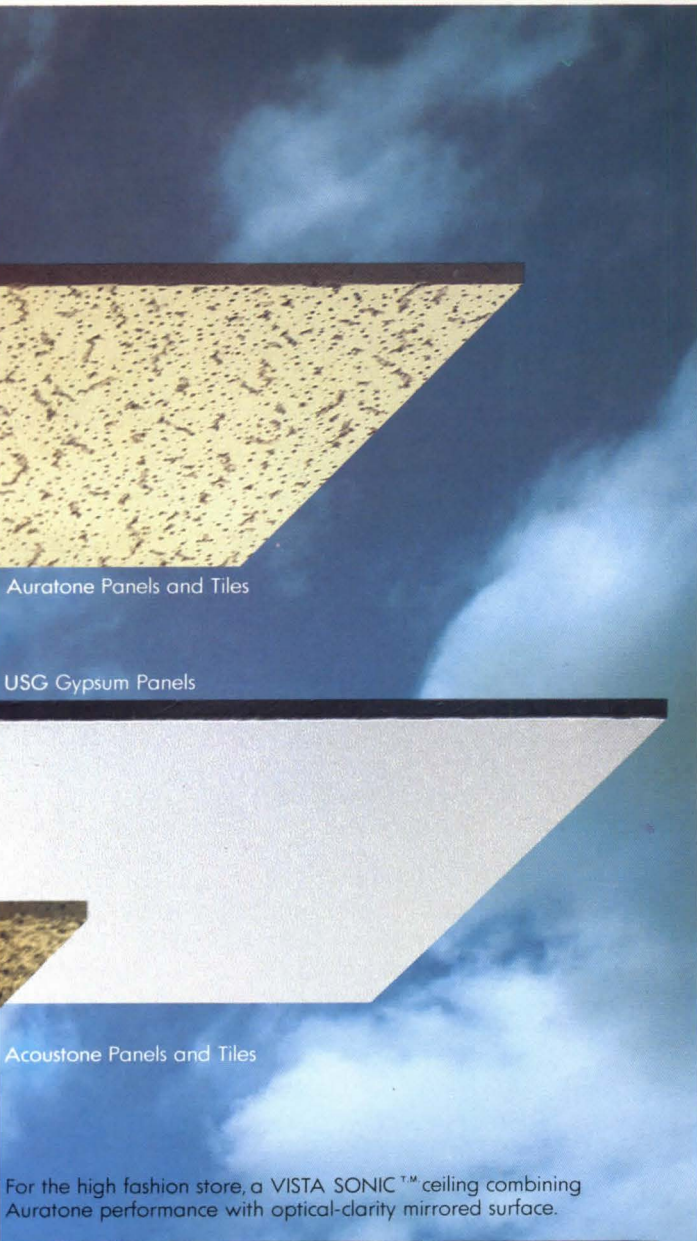
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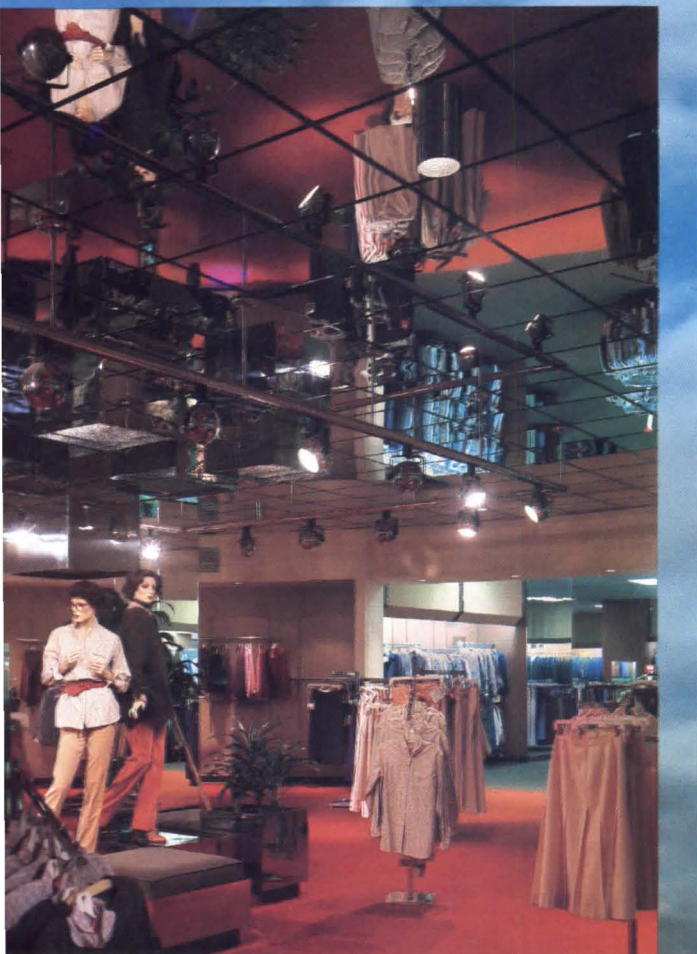


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House and Senate Again Differ On Federal Design Competitions

Before the 96th Congress adjourned, a House/Senate conference committee failed to reach a compromise on two pieces of legislation that would have revamped GSA's public buildings program. Recently, bills almost identical to last year's versions were reintroduced in the House and Senate. Both bills favor building over leasing but disagree on such controversial issues as mandatory design competitions and increased design responsibility for government agencies.

The Senate bill (the Public Buildings Act of 1981, S. 533) and the House bill (the Public Buildings Act Amendments of 1981, H.R. 1938) would both require the GSA administrator to annually submit a priority listing of the country's public building needs for the coming fiscal year, as well as longer range plans for a five-year period.

The Senate legislation is more specific, however, stating that within 10 years after the legislation's enactment no fewer than 60 percent of federal employees would be housed in government owned buildings and, within 20 years, no fewer than 75 percent.

The Senate bill differs from the House legislation in calling for design competitions among no fewer than three qualified architectural firms for at least half of the public building construction and renovation projects expected to cost more than \$5 million.

The competitions would last no longer than 60 days from the time the firms received the program until preliminary design concepts would be submitted. Total stipend to all firms in any one competition would be "a sum equal to no more than one-half of 1 percent of the expected cost of the design and construction. . . ."

The Senate legislation says that design professionals employed by GSA shall prepare plans, drawings and specifications for some federal buildings to maintain their professional skills and training. The position of a supervising architect within GSA would be authorized, but there is no requirement that the position would be restricted to a registered architect. The House bill calls for a registered architect for that position.

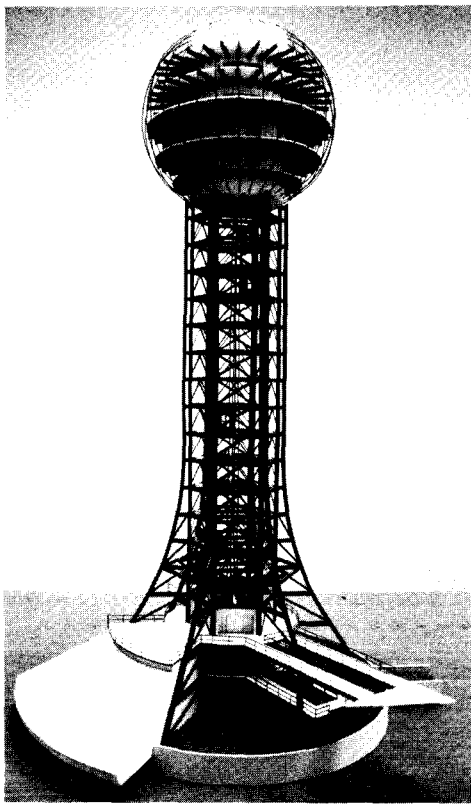
It is now unclear how the Senate and the House will compromise on these differing issues. Last year an amendment to add a provision for design competitions was rejected by the House. And in the House/Senate conference committee, House conferees did not agree to the requirement for an annual authorization bill for government properties. Because

of this, the provisions on the use of design competitions, quota limitations for leases and the accessibility standards for federal buildings were never resolved.

Meanwhile, Robert Burley, FAIA, representing the Committee on Federal Procurement of Architectural/Engineering Services, testified on the Senate bill before the committee on the environment and public works. COFPAES consists of representatives of AIA, the American Consulting Engineers Council, the American Society of Civil Engineers, the National Society of Professional Engineers and the American Road and Transportation Builders Association.

While COFPAES believes that "for the most part" the Senate legislation is a "positive statement to increase the quality of building design," it disagrees with the provisions for design competitions, the supervising architect and accessibility standards.

COFPAES does support design competitions for projects of unique national or regional significance, but believes they should not be used for the majority of federal buildings.



Oh, the Towering Feeling—Remember the Space Needle? Meet the Sunsphere, dominant structure of the energy-themed '82 world's fair in Knoxville, Tenn. From its flaired base, the hexagonal tower will rise 195 feet and support the steel-framed sphere, 74 feet in diameter. Four elevators and a stairway will lead to the ball, which will house a kitchen and, you guessed it, restaurants, bars and an observation platform. Community Techtonics, Knoxville, is architect; Lindsey & Associates, Nashville, is consulting structural engineer.

"The legislation implies that design competitions will allow undiscovered talent to spring from a few presentation boards. . . . The legislation seems to say that design competitions will lead to an increased public dialogue on design quality and an increased public scrutiny of the selection process. We think the legislation is well motivated but will not produce the intended results," Burley testified.

Design competitions prove a risk for the majority of A/E firms and are more costly for both A/E's and the government, Burley added. The decision to use design competitions should be left to the supervising architect, rather than mandated by law, he said.

Burley suggested that the position of supervising architect should be filled by a registered architect. As the legislation is written, Burley said, "it allows the title of supervising architect to be given to someone lacking the professional qualifications to practice architecture."

As for accessibility standards, both the Senate and the House legislation call for use of the new standard developed by the Architectural and Transportation Barriers Compliance Board. Burley stressed the fact that the ATBCB standard differs from the American National Standards Institute's ANSI 117.1, the accessibility standard that is now used widely by state and local governments. COFPAES would prefer that the federal government adopt the ANSI standard, but if not, stressed that it is important for the government to establish a uniform standard for all federal agencies.

New Bills Introduced to Relieve Burden of Liability Insurance

Legislation was recently introduced in both houses of Congress that, if enacted, would allow architects and engineers to set up partial self-insurance funds to cover professional liability claims.

Introduced by Rep. Frank Guarini (D.-N.J.) and John Duncan (R.-Tenn.) as the Service Liability Partial Self-Insurance Act of 1981 and by Sen. Charles McC. Mathias Jr. (R.-Md.) as the Service Liability Insurance Supplement Act of 1981, the bills are virtually identical.

And they are very similar to the legislation introduced last year in both the House and Senate. Hearings were held last year, but the bills were never voted on.

The legislation is to alleviate the burden of skyrocketing liability insurance coverage for architects and engineers. In the last few years, professional design liability premiums have increased substantially, along with the levels of deductibles. Increasingly, A/E's have had to pay claims and legal fees up to the level of their deductible from "out-of-the-pocket."

And because of high insurance costs, a growing number of firms are "going bare."

The bills now before Congress would allow A/E firms a limited tax deduction for funds set aside to satisfy professional liability claims and associated expenses. These "trust" funds could be invested in low-risk investments such as government securities or government insured bank accounts. The assets could not be invested in the business of the firm, and all funds withdrawn for nonliability purposes would be taxable. When the funds are used to satisfy liability claims or associated expenses the firm would receive an offsetting tax deduction.

The amount of a firm's annual deduction would be determined by the severity of its liability insurance program. For example, firms that are unable to obtain \$1 million of liability insurance coverage at a premium cost not exceeding 2 percent of annual gross receipts would be permitted to deduct the lesser of: 5 percent of the current year's gross receipts from services, or \$100,000.

All other firms would be permitted to deduct the lesser of 2 percent of the current year's gross receipts from services or \$25,000 until the firm accumulated a fund equal to 10 percent of its average gross receipts from services.

Both AIA and the American Consulting Engineers Council strongly support the legislation. At last year's Senate hearing, AIA President Charles E. Schwing, FAIA, urged passage of the bill calling it a "piece of urgently needed legislation that is of prime importance to the entire design profession as well as the public."

States Expected to Move Soon On Indoor Pollution Standards

By midyear, several states should begin incorporating revised standards to curb indoor air pollution, says Charles F. Sepsy, president of the American Society of Heating, Refrigerating and Air-Conditioning Engineers. ASHRAE approved a revised standard to avert such pollution earlier this year.

The revised standard, designated 62-1981, calls for measurement of various pollutants and provides specific steps to deal with them. It replaces a standard that required a specific number of changes of air per minute, depending on the use of the enclosed space. Engineers at the ASHRAE meeting at which the new standard was approved said very few buildings today can meet the new standard.

Indoor pollution results in part from the sealing of buildings to conserve energy. At an ASHRAE seminar, Jan A.J. Stolwijk of Yale University said "... we cannot sacrifice indoor air quality to the

continued on page 17



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Atrium and west face of Jeppesen Sanderson headquarters, Denver, Colorado. Johnson • Hopson & Partners Architects.

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Government from page 15

demand for energy conservation. We must reconcile the two."

Said James E. Woods, who helped write the standard, "Indoor air pollution is an international problem, but it is especially acute in colder climates like our own where natural ventilation is not always possible. . . . With proper control, like the kind proposed in the ASHRAE standard, we can maintain good or better indoor air quality while also reducing energy consumption. But without the necessary control, indoor air quality will certainly deteriorate."

At least two common pollutants are carcinogens—formaldehyde and the by-products of radon, both of which are found in certain building materials. Others, such as carbon monoxide and sulphur dioxide, are toxic. One of the major pollutants is tobacco smoke. Where smoking is permitted, it takes two to four times as much ventilation to produce clean air as in areas where there is no smoking, according to ASHRAE.

Research in residential buildings has shown that air exchange rates less than one air change per hour may allow the concentrations of certain contaminants to reach health risk levels, reported George Rand of UCLA's school of architecture and urban planning (see Oct. '79, p. 38). In institutional and commercial buildings, carbon monoxide, particulates from tobacco smoking and emanation of toxins from certain building materials could provide a substantial risk at these low ventilation rates. A specific instance of pollution poisoning was reported at refurbished offices of the National Broadcasting Company in New York City (see March, p. 34).

Claims for Tribunal Against Iran Put on Hold by Administration

Claims against Iran by U.S. interests have been suspended but not terminated by the State Department, according to an Administration official responding to an inquiry by the American Consulting Engineers Council.

"The Department of Justice is seeking a stay of proceedings in connection with these claims, not a dismissal of the actions," according to the official. "Further, the claims suspended by the order are only those that may be presented to the Iran-U.S. Claims Tribunal. If a particular claim falls outside the tribunal's jurisdiction, the executive order would not preclude a continuation of litigation in U.S. courts."

The process of submitting claims against Iran to the tribunal was about to begin as the JOURNAL went to press.

News continued on page 19



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Evaluators of Intern Program Call for Further 'Fine Tuning'

During the past few years, concern has grown over whether the intern-architect development program, IDP, is workable and successful in providing exposure to office practice and project management during an architect's internship years. Now, after extensive evaluations by both AIA and the National Council of Architectural Registration Boards, the program is to be "fine tuned" to achieve a "more effective and accountable level of operation," in the words of the IDP Coordinating Committee.

Basically, IDP calls for training in 14 areas of professional knowledge and activity prior to licensing. Twenty-eight states have either initiated such a program or are in the process of initiation. A few states have adopted provisions making IDP a prerequisite to registration.

The IDP Coordinating Committee is made up of three representatives from NCARB and three from AIA. Since the program's inception in mid-1977, NCARB's responsibilities have been the development and maintenance of a recordkeeping system and assistance to state boards in the revisions of regulations for the incorporation of all or a portion of the IDP training criteria. AIA's role has been the recruitment and supervision of professional advisers outside the office in which the intern-architect works, and the preparation and dissemination of SupEdGuides—experimental learning resources that an intern-architect can use to supplement experience gained in the office.

The program has been both praised and criticized. Many say that the structure of the program does indeed replace the traditional haphazard situation in which many would-be entrants to the profession have been more or less forgotten in the period between formal education and practice. Others say it is an unrealistic burden on the intern-architect and that it can only work if the intern learns to take the lead and if the architectural firm is truly committed to the training program.

Basically, the IDP Coordinating Committee believes that the two independent evaluations revealed no "serious disagreements with the original purpose, objectives and concepts of IDP, and that they have reinforced the need for and the ultimate value of an organized and effective national internship program."

The AIA evaluation task force presented nine recommendations (approved

by the AIA board in December 1980) to the IDP Coordinating Committee. The nine recommendations and responses are:

- AIA recommended that IDP should be open to all students and intern-architects and should not be based upon any kind of official enrollment process. The IDP Coordinating Committee agreed, but reaffirmed its belief "in the necessity of some form of state enrollment procedure, a formal means of identifying those individuals who are in the process of satisfying the state's examination eligibility standards through participation in IDP."

- AIA, with the advice of NCARB and active support of the American Collegiate Schools of Architecture and the Associated Student Chapters/AIA, should develop basic information documents and programs on architectural practice and career planning. The IDP Coordinating Committee supports this recommendation.

- AIA encourages NCARB to continue to endorse the principle that internship training can be acquired through participation, observation or supplementary education. This, too, was fully supported.

- AIA urges NCARB to eliminate the specific value unit as internship requirements for certification. While the IDP Coordinating Committee agreed to simplify requirements, it believes that the "current value unit system provides a significantly more comprehensive and valid means of measuring and assessing the quality of internship activity than a general durational requirement."

- AIA should develop a flexible instrument to assist intern-architects in recording experience acquired in the recommended IDP training areas in time units. The IDP Coordinating Committee disagreed and instead recommended the continued use of the existing instrument, the IDP periodic assessment form.

- The Institute should develop a catalogue of supplementary educational resources and programs, which was approved.

- AIA should continue to review the SupEdGuides and update them to reflect current architectural practice and Institute policies relating to professional practice. This was also adopted.

- AIA recommended that the identification, testing and implementation of qualitative measures of internship progress remain the goal of all involved in administering IDP. The IDP Coordinating Committee believes the current IDP training guidelines represent a responsive ap-

proach to the eventual fulfillment of the AIA's recommendations.

- AIA recommended the establishment of a committee/commission/vice president linkage to the AIA board of directors. This is supported.

Both AIA and NCARB will begin a new effort to promote IDP among all segments of the profession. And ASC/AIA is once again supporting IDP on the basis of the "fine tuning." At the AIA March board meeting in Vail, Colo., the formal response to AIA's concerns was presented and approved.

91 Members Are Advanced To Fellowship in Institute

Fellowship in AIA is conferred on corporate members of 10 years' good standing "who have made notable contributions to the advancement of the profession in one or more of the following areas: architectural practice, construction, design, education, government, industry, historic preservation, literature, public service, research, service to the profession or urban design." Advanced to fellowship are the following 91 AIA members:

Raymond C. Abst, Modesto, Calif.
Stanley Nance Allan, Chicago
Robert O. Biering, Houston
John D. Bloodgood, Des Moines
Peter Quadfordt Bohlin, Wilkes-Barre, Pa.
David C. Boone, Orinda, Calif.
Paul D. Bowers Jr., Grand Rapids, Mich.
Irving Henry Bowman, Charleston, W. Va.
Ellis W. Bullock Jr., Pensacola, Fla.
Kenneth Harvey Cardwell, San Francisco
Earl Kai Chann, Tucson, Ariz.
G. Cabell Childress, Denver
George W. Christensen, Phoenix
James Walker Christopher, Salt Lake City
John M. Clancy, Brookline, Mass.
James Arthur Clutts, Dallas
Robert Traynham Coles, Buffalo
David A. Crane, Boston
Robert Diamant, Chicago
James Charles Dodd, Sacramento, Calif.
Harold Edelman, New York City
Judith Edelman, New York City
Peter D. Eisenman, New York City
Robert J. Evans, Marshall, Calif.
Richard Faricy, St. Paul
Milton Glass, New York City
Curtis H. Green, St. Paul
James Arthur Gresham, Tucson, Ariz.
Charles Gwathmey, New York City
William Hamby, New York City
Andrew L. Heard, Chicago
Sanford Hirshen, Berkeley, Calif.
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continued on page 22

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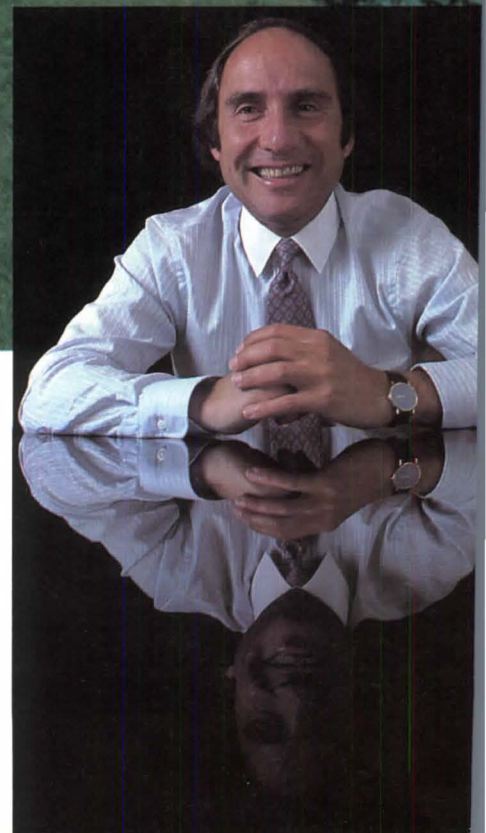


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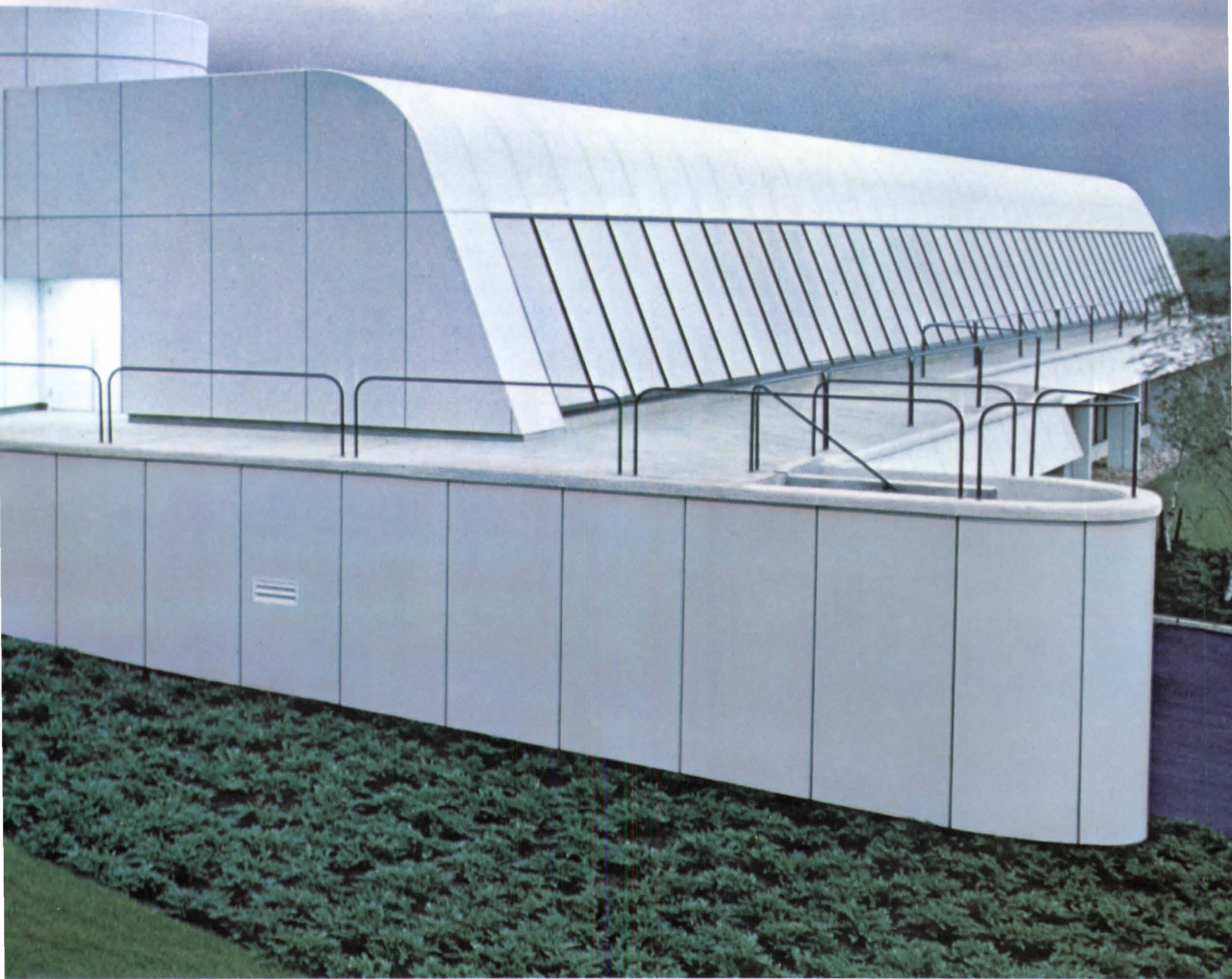
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members in fulfilling the "highest standards of professionalism, integrity and competence." It applies to all professional activities and addresses members' responsibilities to the public, to clients and users of architecture, to colleagues in architecture and the building industry and to the art and science of architecture.

Each of the 12 principles is followed by an explanatory note. The full text will be distributed to current AIA members and will be included in information sent to prospective members.

In other business, the board approved in principle the report of the AIA long-span building panel and referred it to the executive committee. The report, "Toward Safer Long-Span Buildings," analyzes problems peculiar to such buildings and offers observations and recommendations to help reduce the risk of future incidents. The panel was formed in response to the collapse of several long-span structures in the past few years, including four major buildings in the U.S.

A change in the AIA bylaws that will allow an associate member to serve on the board of directors was also approved. This action was in response to a resolution adopted at the 1980 convention.

The board approved San Antonio as the convention site for 1986.

Three AIA policies were reaffirmed.

continued on page 25

Board Approves Ethics Statement And Long-Span Buildings Report

At its March meeting in Vail, Colo., the AIA board of directors approved a new voluntary statement of ethical principles. The Institute's mandatory code of ethics and professional conduct was repealed by delegates at the 1980 convention.

The new statement is a set of guidelines pertaining to the conduct of AIA

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The Institute from page 22

One states that "AIA endorses the efforts of the National Endowment for the Arts to preserve our nation's cultural heritage" and the Institute "supports continued reauthorization of the endowment and its programs at necessary and substantial budgetary levels." Another policy deals with the Service Contract Act Amendments. It states that "AIA believes that the extension" of the act by legislation "to have professional salaries under federal contracts set at prevailing rates or at some other level unrelated to individual performance would be detrimental." The third is on common situs picketing. AIA is "opposed to legislation amending the

national labor relations act in order to legalize common situs picketing at construction sites."

Also at the board meeting, the following directors announced their candidacies for AIA offices. For the position of first vice president will be Jay W. Barnes, FAIA, Austin, Tex.; Robert Broshar, FAIA, Waterloo, Iowa, and George M. Notter Jr., FAIA, Boston. For vice president will be Ellis W. Bullock Jr., FAIA, Pensacola, Fla.; James C. Dodd, FAIA, Sacramento, Calif.; James R. Nelson, AIA, Montchanin, Del., and William A. Rose Jr., FAIA, White Plains, N.Y. Henry W. Schirmer, FAIA, Topeka, Kan., is uncontested for treasurer.

to moderate the closed judging session. According to Brown, selection of the Irwin/Torre design was unanimous on the first closed ballot. "Everyone believed it was a scheme with magnificent animation, day and night," says Brown. "There is a sculptural notion about the whole environment, and it is in scale with the surrounding area. The design, in a very dramatic way, puts a focus on this open space and makes it a 20th century version in keeping with the 17th, 18th, and 19th century open spaces existing in New Orleans. It is a marvelous blending of sculptural and architectonic elements that also accomplishes a lot of critical needs."

The competition called for selection of three artists by a panel of people prominent in the arts. Eight landscape architects familiar with the plants of the region were similarly chosen by a second panel. Then, in February, all 11 participated in a three-day charrette at Tulane University, during which a detailed program was developed and site and feasibility analyses were made. During the charrette, each of the three sculptors chose a partner from the eight designers. (Competition rules defined the artists as team leaders.) The other two teams were made up of Lloyd Harmol of Venice, Calif., paired with Charles Tapley, Houston, and Martin Puryear of Chicago with Charles Caplinger, New Orleans.

After the initial charrette, participants were given a month's "incubation" period to form the ideas of their final designs. Then the three teams returned to New Orleans in March for three final days to put their concepts into presentable form. On the fourth day, each team was given an hour to present its ideas, drawings and models. Each team member received a \$5,000 honorarium.

continued on page 26

Awards

Huge Aviary Wins Competition For Downtown New Orleans Park

A soaring aviary design by sculptor Robert Irwin of Los Angeles and landscape architect Ace Torre of New Orleans has been chosen for Duncan Plaza, a neglected triangular green space fronting New Orleans' city hall. Their scheme was selected in an experimental competition—suggested by an AIA Regional/Urban Design Assistance Team early last year—that paired artists and landscape architects into design teams. The mayor's office sponsored the competition and the National Endowment for the Arts administered it.

The winning design is a single, 65-foot-tall pyramid, earth-bermed for approximately half of its height and topped by a space frame that supports nylon netting. The steel-framed structure contains a 1.2-acre aviary, which would be the world's largest. A suspended catwalk at the level of the space frame's base bisects the aviary, and a restaurant is notched into the berm, its exterior side glazed as an extension of the space frame and the interior side providing views into the aviary, which is landscaped with an elevated lake, waterfalls and tropical plants.

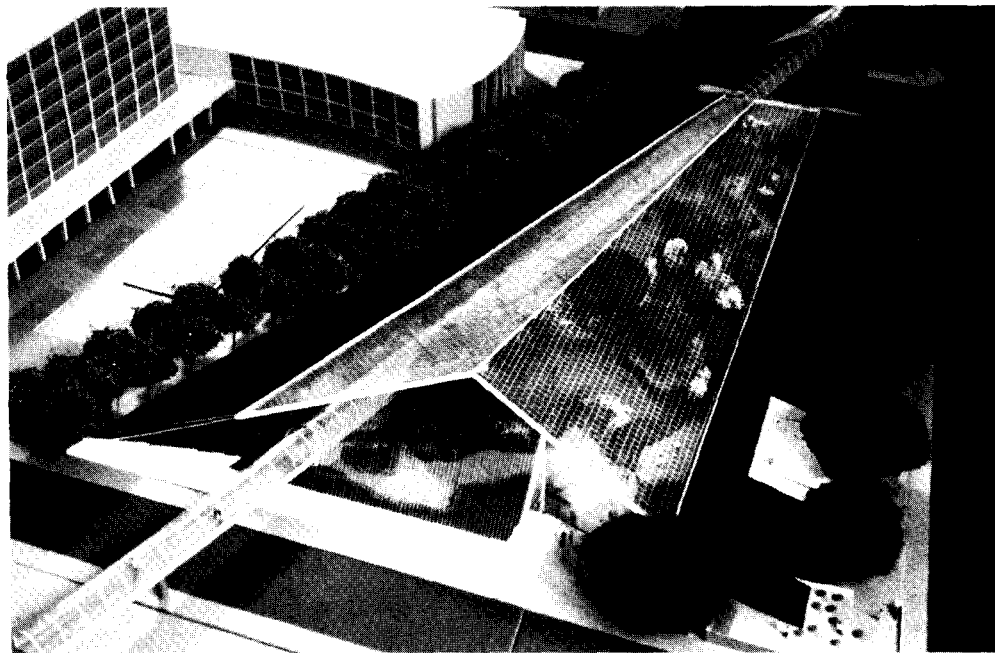
Outside the restaurant, a double colonnade of golden rain trees provides a walkway as a major pedestrian route through the plaza. Directly in front of city hall, a football-field-sized plaza provides space for ceremonial events. The slopes of the pyramid are gentle, reiterating the levee forms of the nearby Mississippi River and providing a place for sitting or reclining on the grass.

The aviary is proposed as an "urban satellite showcase" for New Orleans' Audubon Park Zoological Garden. Because of the zoo and restaurant components, the

project is conceived to produce income.

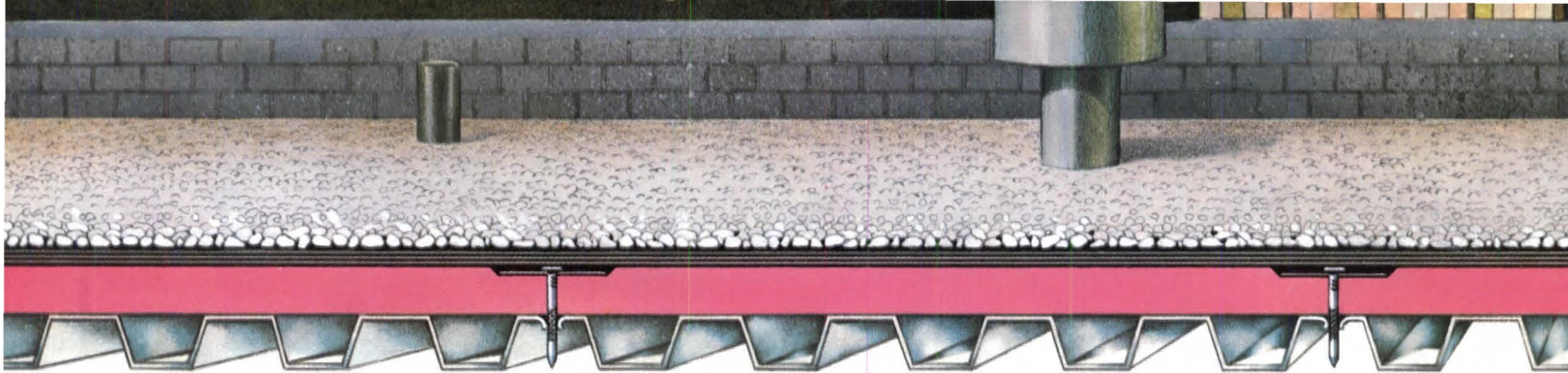
Jurors for the competition were architect Lance Brown, consultant to the National Endowment for the Arts; Laurie Olin of Olin-Hanna, Philadelphia; James Demetrior of the Des Moines Art Center; Henry Hopkins, director of the San Francisco Museum of Modern Art; John T. Scott, fine arts department chairman, Xavier University, and Lin Emergy and Caroline T. Sharp, both of New Orleans. O. Jack Mitchell, FAIA, dean of the school of architecture, Rice University, was professional adviser. Competition winner Ace Torre is a principal with Cashio.Cochran.Torre Design Consortium.

Lance Brown was elected by the jury



Model of steel-framed, earth-bermed design by Irwin and Torre.

Michael Bruce



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Awards from page 25

Betty McDermott, project manager for the mayor's office, says the competition went smoothly and she is pleased with the results. "We got a design with a lot of pizzazz," she says.

Stone Awards Go to Synagogue, '30s Library, Arkansas House

The Building Stone Institute's Tucker Awards for 1981 cite an addition to a New York City synagogue, the 1930s Detroit Public Library and a house in Arkansas. This year's jurors were John Burgee, FAIA, William E. Pedersen, AIA, and Robert A. M. Stern, FAIA.

The addition to Park Avenue Synagogue was designed by Schuman, Lichtenstein, Claman & Efron, with James R. Jarrett, AIA. The jury said the addition "ties in remarkably well to the older sanctuary. The use of rusticated pattern adds to the differentiation between the planes and displays the adaptability of building stone to design concept."

The Detroit Public Library, built during the Depression and designed by William Kapp and Amedeo Leone of Smith, Hinchman & Grylls, won in the classification of stone structures completed at least 25 years ago and still in use. Commented the jury: "This building uses stone the way stone was always used, and displays great subtlety, with a classical creation of

dramatic effect by minor variations in detail. . . . We would be very happy if our buildings stand the test of time as well as this one."

E. Fay Jones & Associates is architect of the country house in northwest Arkansas. "This residence is in true command of stone as a building material," said the jury. "Its overall greatest accomplishment is its absolutely beautiful integration with the surrounding landscape."

Building Stone Institute is a national trade association of quarriers, fabricators, dealers and installers of natural stone. The award is named for Beverly Tucker Jr., a past president of the institute.

Maki Will Judge Competition For House of the 20th Century

Metabolist master Fumihiko Maki will judge *Japan Architect's* 1981 Shinken-chiku residential design competition. A total of one million Yen is to be awarded in prizes.

The competition is for "the quintessence of the urban detached house," Maki explains in an announcement. He alludes to the shrinking market worldwide for detached houses, saying that in Japan "the role and very existence of the urban detached house are coming to an end without ever having secured a definite place in the city context." Mentioning the Bavinger house and Glass House,

Villa Savoye and Falling Water, Maki says such houses have made contributions to the 20th century not as machines for living but as "machines for thinking."

The competition house will "stand in a corner of the garden of an imaginary Museum of the 20th Century. . . . Whether the house you design represents a summing up of the 20th century or an anticipation of the 21st century is up to you," Maki says. The design must be something that can be built and used by a family, not just an abstract image.

Entries deadline is Aug. 31, 1981. Competition requirements are available from: Shinken-chiku-Sha Co., Ltd., Attn: Editorial Section of *Japan Architect*, 31-2, Yushima 2-chrome, Bunkyo-ku, Tokyo, 113 Japan.

Graves Wins Competition for San Juan Capistrano Library

Michael Graves, FAIA, is the winner of a design competition for a library for the town of San Juan Capistrano, home of one of California's original missions. Graves was chosen from a field of 47 applicants; the other finalists are Moore Ruble Yudell and Robert A. M. Stern, FAIA.

The library will be sited a few hundred yards from the old mission grounds and will be visible from the freeway. Next to the library site, the local Catholic parish



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is constructing a reproduction of the original stone mission, which was built in 1806 but destroyed by an earthquake in 1812. Between the library and the church will be a common entry court with rows of cypress trees and parking space.

In his design, Graves uses elemental parts and forms of masonry construction—thick piers, towers, pyramidal roofs, clerestory windows under a basilican roof. Both the clerestory and "light chim-

neys" will introduce natural light deep into the building.

The library will be organized around a courtyard that ties all the various activities of the building together. On one side of the court is the adult section, on another the children's wing, the third an auditorium and garden gazebos on the fourth. Reading gazebos run alongside the adult section. The library will have an open plan for the bookstacks.

four years as data base comparisons for future construction. Active systems will include a diesel-fired central heat pump for hot water distribution to radiators in the units and a diesel electrical generator to power individual heat pumps, which will be assisted by passive absorber roofs. Waste heat from both the central heat pump and generator will be recovered and cycled into the system.

Thirty-four dwellings—22 row houses and 12 apartments—will be heated by passive solar systems. The row houses will demonstrate six systems: two-story mass Trombe walls; thermosiphoning air panels alternated with direct gain panels; one-to-two-story water storage walls; one-story greenhouses combined with two-story mass walls; direct gain and water bench systems protected by increased insulation for nights, and one and one-half-story greenhouses feeding heat into a large, whole-house loop.

The 12 apartments in the three- to six-story passive multifamily buildings will demonstrate three passive solar system types selected to counterbalance the different requirements of ground, middle and top-story locations. The ground floor units will use a direct gain system; middle floors, where less collection efficiency is needed because of shared warmth above and below, will have greenhouses to provide more usable space, and top floors, where ceiling temperatures are cooler in

continued on page 82

Energy

Greece, Germany Jointly Plan Experimental Housing Project

In the small Greek community of Lykovrissi near Athens, the governments of Germany and Greece are jointly funding an energy efficient, solar assisted housing project for 431 low income families. The village will demonstrate the economic practicality of designs for energy, comparing solutions ranging from passive solar systems to nonconventional active systems, in row houses, lowrise apartment buildings, schools, a day-care facility, a community center and an energy information center.

Involved in the project are the German

firm INTERATOM and the Greek firm Alexandros Tombazis Associates. Solar consultant is Demosthenes Daskalakis. The German government is funding 90 percent of the initial study and design work and 60 percent of construction costs, with Greece providing the remainder. Data will be evaluated from several viewpoints, including investment, operation and maintenance costs; connection with the public energy system; reliability, and considerations of the environment and esthetics.

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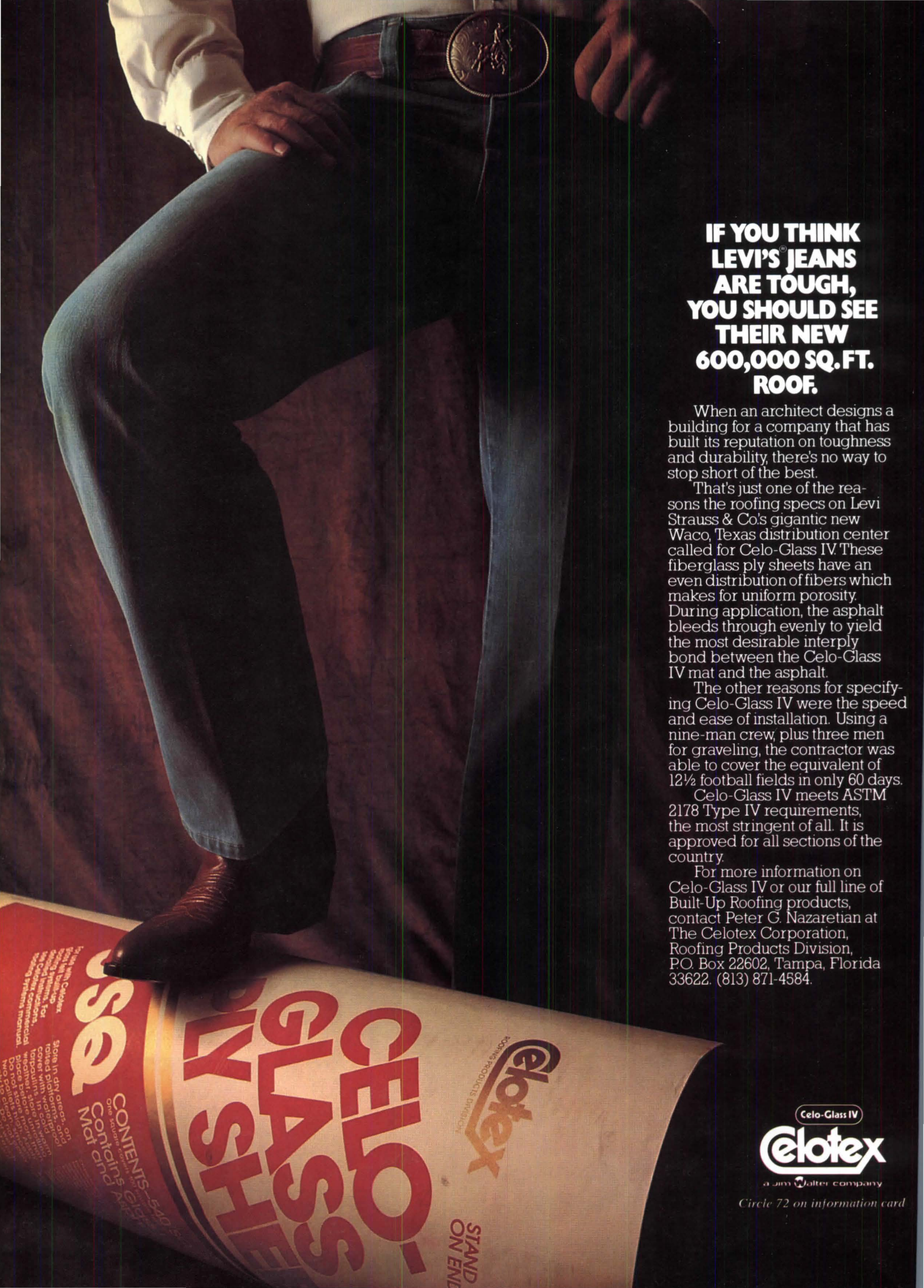
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AIA JOURNAL

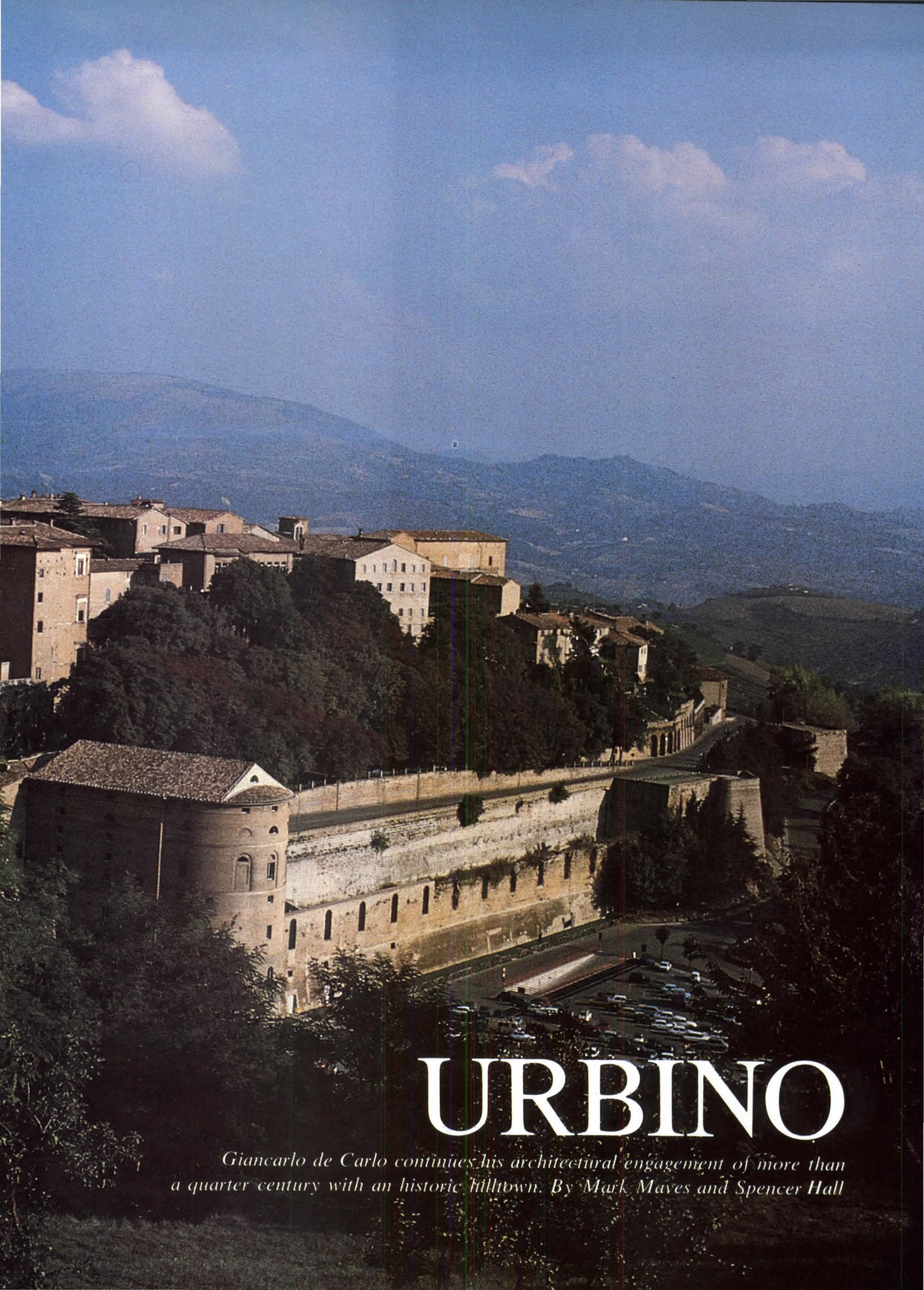
An eminent woman in architecture, and a cherished friend, called to chide me for the way I introduced last month's announcement of our photography contest in this space. As diligent readers may recall, I started by noting that the average architect is convinced that "he and his profession are misunderstood and undervalued; he can design anything from a skyscraper to a stage set to a magazine, and he takes great pictures."

My caller's complaint was the repeated use of the masculine pronoun in this flippant trilogy. I replied that I had thought of this as a potential problem but let it remain that way on grounds that I was talking about "the average architect" who is, by all of the distressing statistics of exclusion, decidedly male.

This may be technically correct, she suggested, but it and similar usages still send the message that architect means male, especially to the younger women in and aspiring to the profession. She is concerned because many of these young women are not as concerned as they once were about such symbols. She fears that they may underestimate the hurdles still facing women as they pursue the profession, and may be in for a rougher time when they encounter these hurdles later on.

I am convinced. I could and should have found another construction for my introduction, one that held no possibility of offense or harm. *D.C.*





URBINO

Giancarlo de Carlo continues his architectural engagement of more than a quarter century with an historic hilltown. By Mark Maves and Spencer Hall



he city of Urbino is a small, Italian hilltown rising above a splendid landscape of rolling agricultural land 120 miles east of Florence. Giancarlo de Carlo is a Milanese architect with roots in the modern movement combined with a loyalty to a humane social order. The interaction of Urbino and de Carlo over the past 25 years provides a discussion of the processes of a city and an architect that is a way of talking about architecture.

Historically and culturally rich, Urbino is different from most Italian hilltowns. It has reached the 20th century as more than a frozen piece of introverted medieval vernacular. Renaissance and neoclassical thinking have greatly enriched its fabric and its presence in the landscape. It also is fortunate to have some potential alternatives to its dying economic base of agriculture.

The city had its beginnings in the sixth century B.C. By Roman occupation in the third century B.C., the town lay on a single hill straddling the main north-south route between Rimini and Rome. (This axis coincides with the present ceremonial axis off which the Ducal Palace, the cathedral and their related piazzas pivot. This road corresponds to what now is Via Saffi entering from the south and Via Lavagine from the north.)

Mr. Maves is an architect in the Washington, D.C., firm of Keyes Condon Florence. Mr. Hall is an architect with Rockrise Odermatt Mountjoy & Associates, San Francisco. They are co-founders of Archiffitti Inc., a nonprofit public education organization.

36 AIA JOURNAL/APRIL 1981

Photograph on previous pages by Mary Griffen



Later, medieval wards expanded the city around the Roman town and over to the adjacent hill.

As the Renaissance approached, the Duchy of Urbino grew in its political power under the rule of the Montefeltro family. They visualized Urbino as the gateway between Rome and the rest of Europe. To enrich the perceived role of a gateway, the Montefeltros embarked on a program to make Urbino a cultural locus. The Renaissance transformation was stimulated by Duke Frederico de Montefeltro who reigned from 1444 to 1482. The Duke's patronage brought to Urbino artists like Piero della Francesca, Paolo Uccello, Boticelli and Giovanni Santi. (Raphael and Bramante were later born there.) To re-order the form of the city, the duke employed architects Lucian Laurana and Francesco di Giorgio Martini, a master of modifying Renaissance models to fit the realities of specific settings.

Laurana was given the task of unifying the old Gothic of the palace with new Renaissance ideas. To the east the palace grew

quietly along the town's residential streets, edging Via Saffi with an almost plebian scale and detail. But to the southwest of the palace, fronting the road from Rome, Laurana thrust up two large, cylindrical towers (the Torricini). This emboldened the entry facade of the city, a part of a carefully conceived shift of the symbolic presence of Urbino from its east side to the southwestern edge.

A new "gateway" axis was established across the saddle between the town's two hills. The route combined the old Via Lavagine from the north with Via Valbona and its gate in the southwestern wall. To provide a terminus for the road from Rome at the Valbona Gate (redesigned for the arrival of the Duke's new wife) and a marketplace for the residents (Urbinati), Montefeltro directed di Giorgio to build a platform over the ravine outside the gate. He responded with a major formal plane (the Mercatale) that served as foreground for the Valbona Gate, a visual base for the great upward thrust of the Torricini and an ideological support for the political power of the duchy.

For the use of the Duke and his retinue, di Giorgio designed an enclosed ramp (La Data) that elegantly spiraled up from the Mercatale as a more direct route to the ducal stables on the city wall and the palace above. It was another cylindrical form, supporting the landmark forms of the Torricini and adding a strong figural element to the Mercatale.

At the intersection of the new gateway axis and the older ceremonial route past the Ducal Palace, the Renaissance archi-

Left, the historic town sits atop two hills. Below, major elements of the townscape are (left) the bell tower and dome of the cathedral; (right center) the twin-towered Ducal Palace, and (right) the partly cylindrical ramp and theater. Left, a 15th century painting of the ideal city depicting Francesco di Giorgio's concept of the cylinder as a pivotal form.

ects fashioned a joint at the Church of San Francesco that connected the new order with the old. It represented the junction of the functional and visual classes of the city in a single space.

During the next three centuries, further development essentially followed the plans set by the Renaissance architects. The principality came under papal control in the early 1600s and with the stimulus of Urbino born Pope Clement XI and the initiative of like-born Cardinal Annibale Albani, significant new buildings were blended into the complex urban mixture of both stately and plebian forms and functions.

The first major departure from the plan came in the 19th century. Still under papal guidance, the city was to get a new institution—a theater, significant as the first building other than a church for public gatherings. Its architect, Vincenzo Ghinelli, took this opportunity to alter the plan, upsetting the carefully designed Renaissance balance. At the junction of the gateway and ceremonial axes, he carved out a new piazza, now Piazza Republicca, and from there sliced a new road, Corso Garibaldi, south between the base of the Ducal Palace and the ramp and atop the wall around to the valley road to Pesaro. The new square acknowledged the activity potential of the San Francesco intersection and the new road provided a wider and less precipitous way for growing traffic and the use of carriages.

Ghinelli then placed the Theatre Lirico atop the ducal ramp, using the ramp as the theater's foundations. Closed and filled with rubble, the spiral ramp was eventually forgotten. Unfortunately, the intrusion of the new piazza and street disrupted the activity balance of the city. The piazza in front of the Ducal Palace, once a place for trade and meeting, became deserted. As activity shifted to the north, the once dynamic southeastern section began to deteriorate.

During the 20th century, a declining agricultural base slowly robbed Urbino of its vitality. The youths of the area left in-



creasing numbers for major cities. Mass media presented ideas of contemporary life styles seemingly incompatible with the forms and structures of the historic city. This, coupled with the growing mobility provided by the car, encouraged residential development outside the walls. Such movement undermined the town's strong visual place in the landscape, damaged the social vitality within its walls and led to further abandonment of the historic buildings with outdated functions. The citizens began to perceive the fabric of the old town as an anachronism of a previous era, inappropriate to modern life even though it continued to function both in reality and subconsciously in their Italian life style.

Ironically, the two remaining growth activities—the Urbino Free University, with its nationwide attraction, and tourism—increasingly acted as foreign bodies, threatening Urbino's remaining, fragile social and physical vitality. The population of the university was rapidly approaching that of the city (8,000) with resultant economic competition for housing and an increasingly intrusive and transient student social activity largely alien to the existing social fabric of the residents. Tourism endangered the livability of the small city as it had other Italian hilltowns. It is a highly specialized economy that often leads to a restored shell of a town peopled by nonparticipatory and transient masses that interfere with the normal activity of the town and put its residents uncomfortably on exhibit.

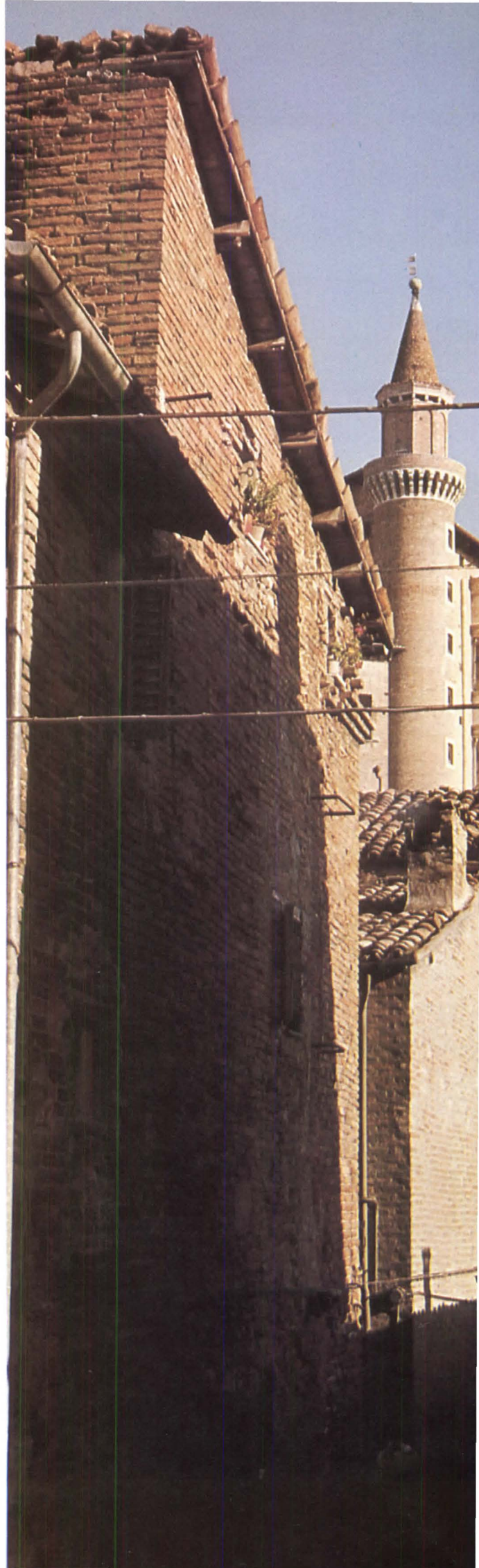
To confront its decline, the Urbino administration resolved in 1958 to draw up a master plan for the revitalization of the region and the city and hired Giancarlo de Carlo to prepare it. De Carlo, a young architect with a practice in Milan and a faculty position at the college of architecture at the University of Venice, had recently completed a renovation of the building housing the Urbino Free University. In addition to his practice and teaching, he was immersed in an international debate of the successes and failures of planning and design maxims of the modern movement. Identifying with and later joining the newly emerging Team X, he was exploring a reintegration of social responsibility and architectural invention.

It was a propitious time for de Carlo to have a laboratory like Urbino. The city had successfully absorbed several different eras of planning and design ideas in its strong urban form. The architects of the Renaissance had adapted models based on then-new concepts of man and esthetic structures. And the city harbored a potential dialogue with the 15th century di Giorgio on the dynamic balancing of utopian models of the Renaissance with contextual reality.

Below, a characteristic Urbino street scene. Right, two views of the Ducal Palace and its towers, the Torricini.



Donlyn Lyndon





Donlyn Lyndon



Spencer Hall

Stimulated and questing, de Carlo embarked on the master planning process. The survey and analysis involved a comprehensive array of participants, from within the city and university and from outside. The study re-interpreted the threat of the expanding university and tourism as constructive cultural activities (education, art and architecture, theater, forums), necessary and manageable means for the city's revitalization.

An intensive and well documented effort resulted in a meticulous and sensitive master plan. Both the plan and de Carlo's subsequent projects are heavily based on a carefully evolved set of urban typologies drawn both specifically from Urbino and generally from other Italian hilltowns. The typologies cover hierarchies of social and physical functions, varied and sequential spaces for social and economic exchanges, topographically related circulation patterns and mutually sympathetic forms, materials and colors.

The master plan identified the health of the historic center as key to the health of the town. To control the expansion outside its walls, zoning and architectural guidelines were proposed to limit its visual and social competition with the walled city and the broader landscape. The economic and social competition of the students with the residents was to be reduced by university-built student housing, a new idea for an Italian education tradition of purely didactic activity.

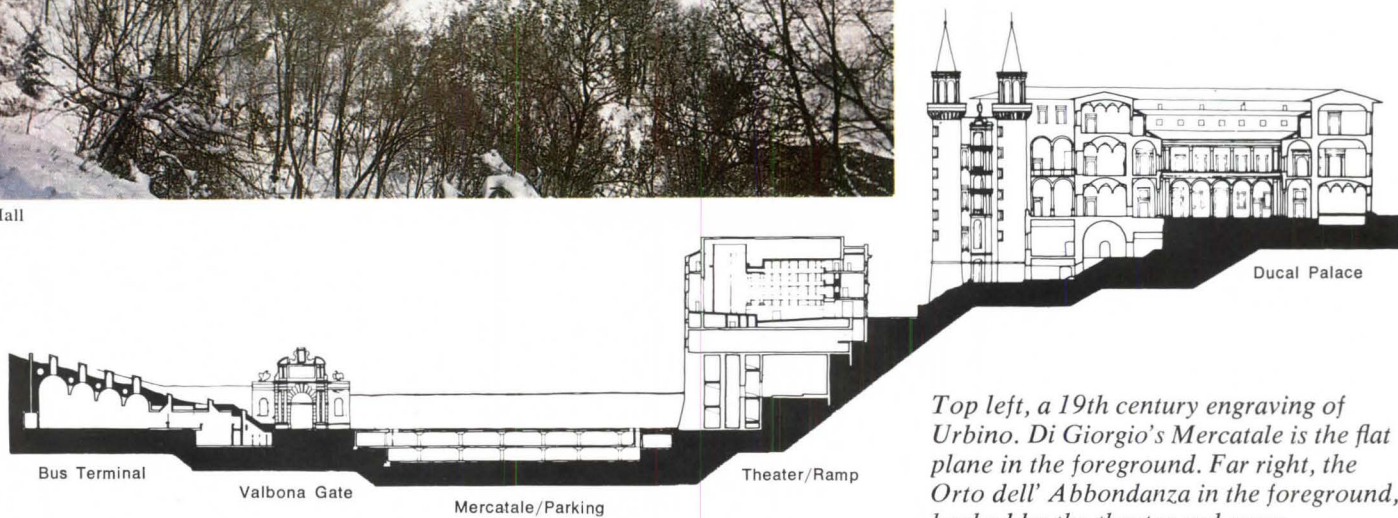
University expansion and tourism related funds, combined with small amounts of scarce local money, were to be used to restore and enhance the previous urban balance. These entities would be used to provide community facilities and to rebuild the deteriorating and outmoded but historic southeastern section.

The master plan was completed and approved in 1964. De Carlo's dialogue with the town's residents and urban evolution had begun. With both the city and university as clients and the residents as the prime beneficiaries, he proceeded to integrate Urbino's rich past and present with its emerging social and economic future.



Spencer Hall

A Platform as Both A Forecourt and a Transition Point



Top left, a 19th century engraving of Urbino. Di Giorgio's Mercatale is the flat plane in the foreground. Far right, the Orto dell' Abbondanza in the foreground, backed by the theater and ramp.

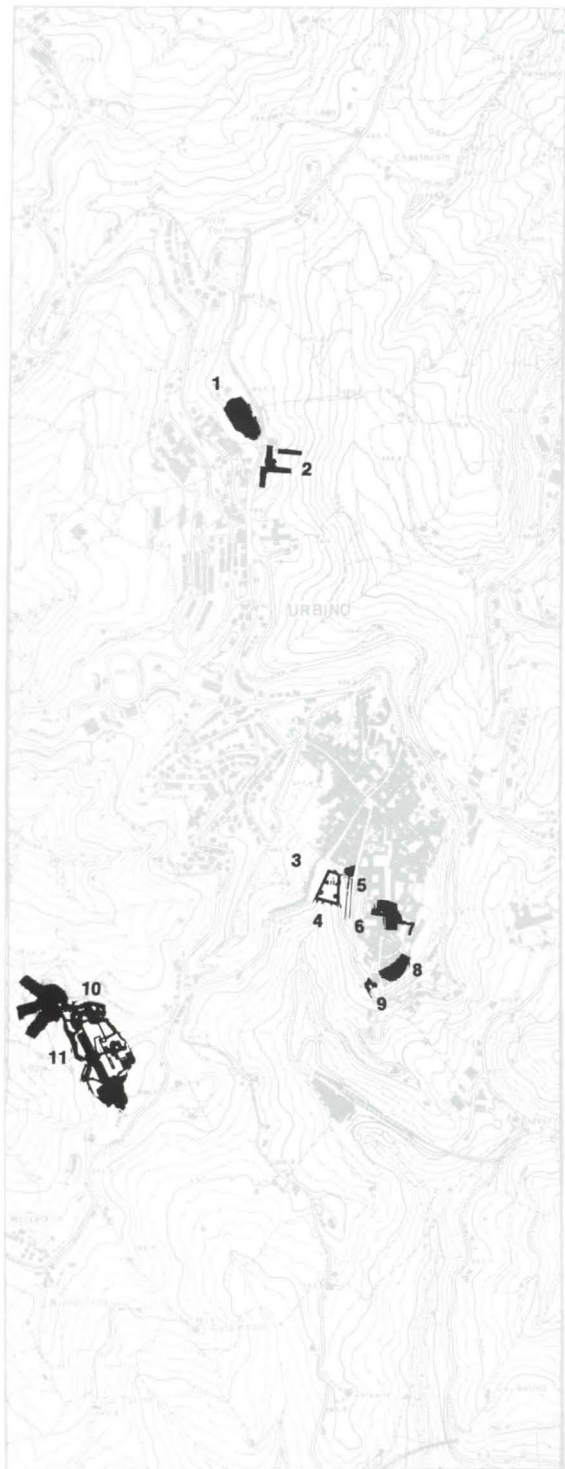
In the architecture of Italian buildings and cities, the transition from outside to inside has historically been significant. It is fashionably discernible today in the much published Italian shop designs. The doors are typically treated as symbols of the importance attached to the entrance as a transition from the public to the private, from the general to the specific.

The Mercatale serves as the primary basis for establishing the transition and entry into Urbino. It also serves as the figural support for the many surrounding elements that make up that composition of transition. Because of its significance, the master plan treats the Mercatale as an integrated whole. The projects related directly to the Mercatale include an underground garage, a hillside covered bus terminal, reopening of the ducal ramp, reuse of Ghinelli's neoclassical theater atop the ramp and the

reuse of the ducal stables, the Orto dell' Abbondanza.

A two-level parking structure has been hidden beneath the Mercatale, so parts of the historic center could be closed to automobiles, regaining its pedestrian quality. The top of the parking structure was originally designed for landscaping and use for bocce ball, special transient markets, fairs, etc. Unfortunately, a naive mayor belatedly discovered and exercised an old and obscure segment of law that required the tops of such parking structures to be designed to accommodate military tank maneuvers. Thus planting depth gave way to increased structure, and landscaping and pedestrian paths gave way to treadable asphalt.

The underground parking structure so successfully reduced traffic that the delighted city administration also forced the



- 1. School of Art
- 2. Pineta Housing
- 3. Bus Station
- 4. Mercatale and Underground Garage
- 5. Ramp and Theater
- 6. Orto dell' Abbondanza
- 7. Central University Building
- 8. Magistero
- 9. Law School
- 10. Old College Housing
- 11. New Student Housing



Spencer Hall

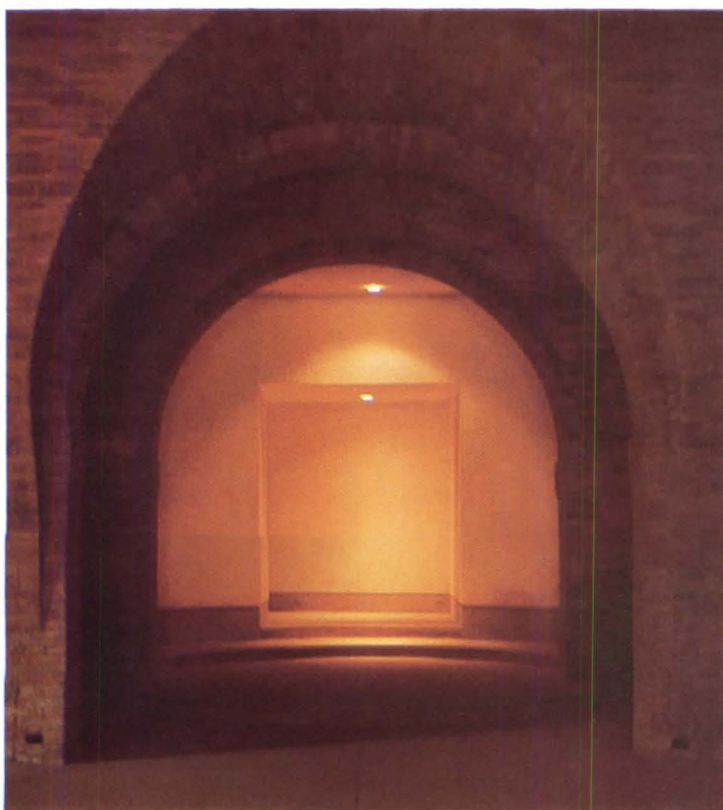
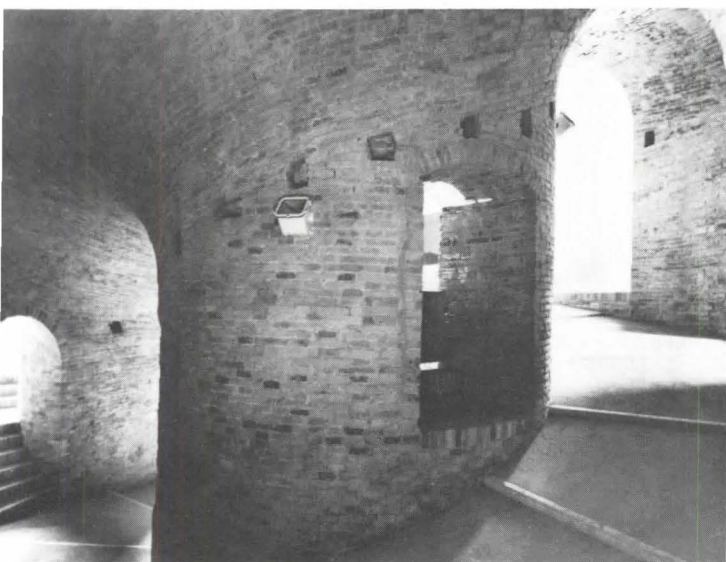
“temporary” use of the top for parking until additional structures could be built at other vehicular entrances. This has caused a jumble of cars and buses that badly mars the broader urban composition. Fortunately, the residents are becoming more vocal about returning the Mercatale to its original pedestrian oriented communal use.

De Carlo has also proposed the construction of an earth covered bus terminal in the hillside adjacent to the Valbona Gate. This project, threatened by lack of funds, would remove tour buses from the Mercatale and the street passing through the gate.

De Carlo’s discovery of the ducal ramp began as one of his frequent visits to a cabinetmaker with a shop below the closed theater. On this occasion de Carlo happened to notice the hole in the floor in which his craftsman friend threw his scraps. His

friend said that he didn’t know why it was there, but it was convenient for him. He said that the next time he cleaned it out he would contact de Carlo. In response to his friend’s call, de Carlo found in the recently emptied trash pit a carefully bricked, round hole with a rubble bottom several meters deep. His curiosity peaked, he delved into di Giorgio’s treatise *Trattato*, where he discovered references to a spiral ramp for the duke that di Giorgio was obviously proud of since he wrote more on it than any other of his Urbino projects.

A later visit to the blacksmith shop in the base of the cylindrical form confirmed his suspicions when he found an arched opening at the rear of the shop, blocked by years of accumulating wrought iron castoffs. It then took eight years of patient encouragement to get the city to reopen this important link.



He has made the point that it would have been senseless to simply reopen the ramp without making reference to its modern urban uses. For de Carlo, one "can't reuse an existing space except by redesigning it, and that means going through an operation which 'de-structures' it from its previous context and 're-structures' it in the new one." The spaces, elements or forms can gain their value through relationships to existing or historical socializing or circulation patterns, nodes, continuity of street edges or evidences of historical events and urban evolution. This may be the unique streetside garden of the law school or facade and chapel of the education school. The remaining spaces are transformed to the extent that they differ from the forms of the new functional organization.

The stepped ramp spirals up from the Mercatale around a central shaft probably used for animal fodder. In the exterior wall, openings in sequence give views outward to the landscape, an important and omnipresent element in Urbino and the work of de Carlo. The ramp now culminates one level beneath the theater in a long vaulted space, reworked by de Carlo as an interior piazza serving as a gallery for tourist and cultural activities.

Unfortunately, the creation of a new exit from the gallery to Corso Garibaldi was complicated by the theater above, resulting in an unsatisfying stairwell conclusion to the vertical processional experience. De Carlo is aware of this shortcoming and this segment is being reworked. As contemporary counterpoint to the pedestrian ramp, elevators have been inserted in the vertical volume Ghinelli had added to the cylindrical form.

From neoclassical times the theater atop the ramp had been



Across page, the ramp. The bottom photo shows its top level gallery, used for cultural and tourist activities. At left, a walkway on the city's wall leads to the rounded prow of the theater. Below, the theater's classical interior, under the renovation by de Carlo.

intended to function as an important element in the cultural activities of Urbino. De Carlo is currently restoring it to its original use and form with the benefit of modern technology and the new ramp access from the Mercatale.

The final element relating closely to the Mercatale is the Orto dell' Abbondanza. Its concurrent positions as a part of the foreground of the Ducal Palace and as part of the background of the Mercatale make it a critical element in the urban composition. Over the centuries it has fallen into a state of neglect with its once tiled roof now lying in pieces on the stable floors. Several schemes have been proposed for the long, open volume, including a mensa or central cafeteria for the students, a cultural center and a museum.

The most recent and favored design divides it into areas for bocce (Italian lawn bowling) and a public library. The bocce courts would return a use long connected to the Mercatale area. It would also serve as a loggia overlooking the countryside, a public counterpoint to the Ducal loggia in the Torricini above.

Prior to the Renaissance shift of Urbino's symbolic facade to the southwest and the drift of the business center north, the south entrance to the city had been the locus of the city's major urban activity and development. This activity had long since been replaced by a growing vacuum. Yet this vacuum offered an opportunity for new development without interfering in the existing social fabric. The master plan identified the area as prime location for university expansion to re-activate, through reinterpretation, the activity locus of the old Roman and medieval entrance.



Gabriele Basilico



A Law School Created Out of a Former Convent

A new law school was the university's first expansion into the southern section. Built in the 16th century as a convent, the small structure played an unusually significant role in Urbino's southern facade. It paralleled the road-topped outer wall with a fully exposed facade. The building was also endowed with a unique, open roadside garden, an unusual entryway in the tight urban fabric.

Since its origins as a convent, the introverted structures had undergone a variety of uses and alterations until its most recent conversion to a military barracks at the beginning of this century. By the 1960s it had been abandoned and was rapidly deteriorating.

To begin renovation for its latest use, the random additions and decorations of the centuries of use were stripped away, restoring it to its basic architectural integrity. The activities most appropriate to the original circulation and spaces—classrooms and administrative offices—were then located around the internal courtyard. The upper level cells of the nuns, with individually ornamented vaults, were restored for faculty offices. The existing street and pedestrian ways to and around the simple

Above, the roadside garden entrance to the law school, with skylights serving the library reading room (left). At right, a seminar room in the foundation vaults.

building were preserved and its exterior restored with minor transformation of the windows overlooking the town's wall and the landscape beyond.

Major new design idioms were introduced where de Carlo went below grade to gain space for a program larger than the existing bulk. Excavating beneath the entry garden and the interior courtyard, he inserted a striking, skylit law library and book stacks. These are connected by the old brick cellar vaults which were converted to entry halls, meeting rooms and communal facilities. Large red steel doors with round glass windows mark the entrances to the new spaces. The quiet, white interior of the reading room is softly skylit, creating a warm reflective quality similar to that of an Aalto library.

The library's round skylights located amidst the walkways and landscaping of the entry garden are an integrated hint of a 20th century conversion. De Carlo believes such contemporary technology should be present in Urbino, just like the technologies of earlier periods. Yet he cautions about the use of the new technologies, likening them to wild animals needing taming. He applies them in a way that respects the continuity of the specific setting.

De Carlo also uses new materials and technologies to evidence changes in building use. Change and growth are essential

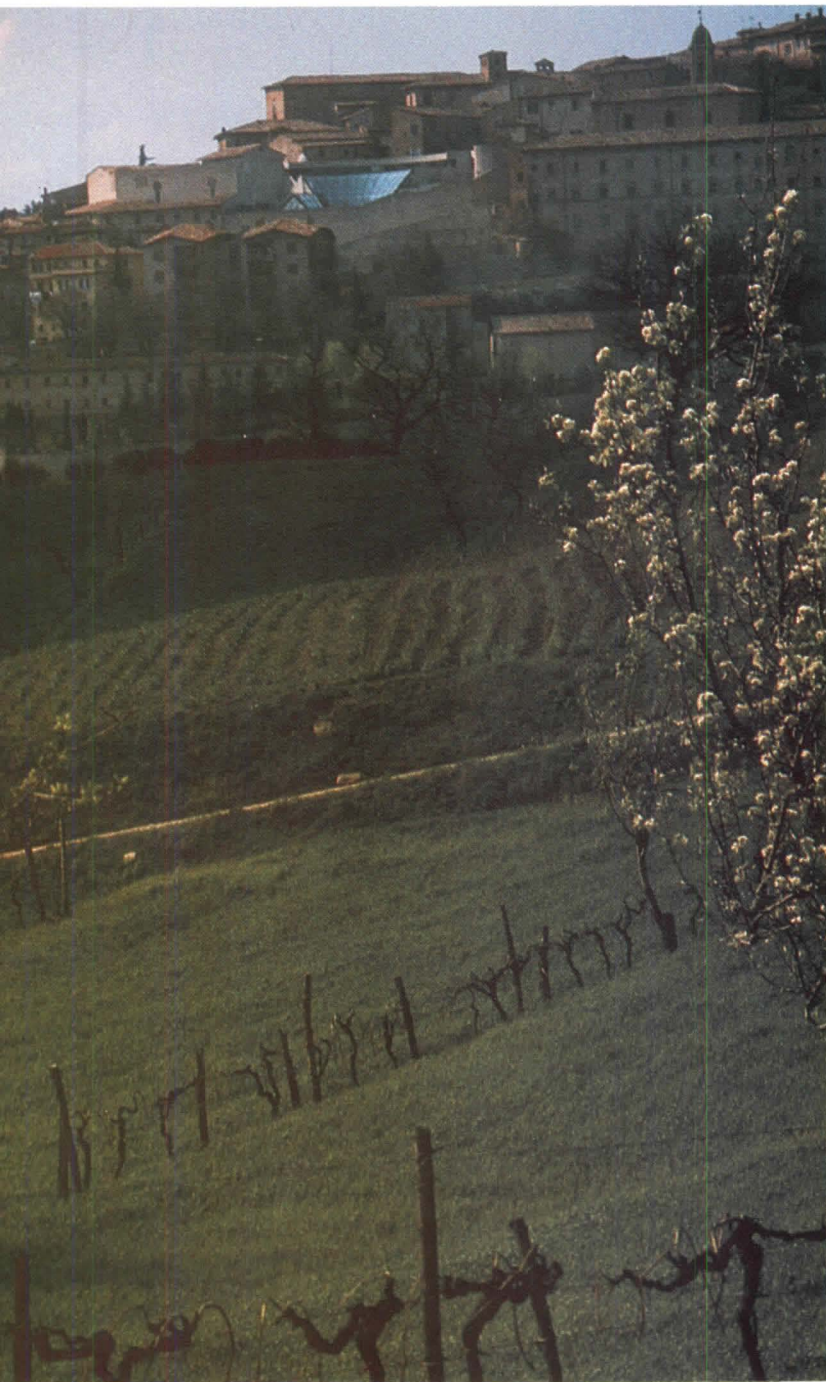
to the health and vitality of cities and evidence of them is critical to people's sense of that vitality. The process of "de-structuring/re-structuring" by its very nature implies change and, where appropriate, he shows it without self-consciousness, but comfortably.

On the second level of the law school, a cafe was designed with its own exterior entrance from a hillside walk. The cafe was to be used by both the residents and the students, a common ground. The cafe was an early manifestation of de Carlo's evolving philosophy of education. He postulated that the Italian tradition of organized education was stultifying by its very nature of repetitive, lecture oriented classes. This contrasts sharply with his concept of education as an experientially based process, the more diverse and frequent the experiences, the better the education.

Accepting that architecture can't cause a better education, it should at least provide for possibilities of situations that create educating experiences. The cafe was one of those possibilities for a mixture of residents, students and faculty. Unfortunately, it faltered and the law faculty quickly grabbed it for other uses. However, this approach has had a chance to mature in later projects, less restricted by limited space, especially in the Facultadi Magistero, the recently completed school of education.

Spencer Hall





Spencer Hall

An Introverted Education School Reflective of the Town

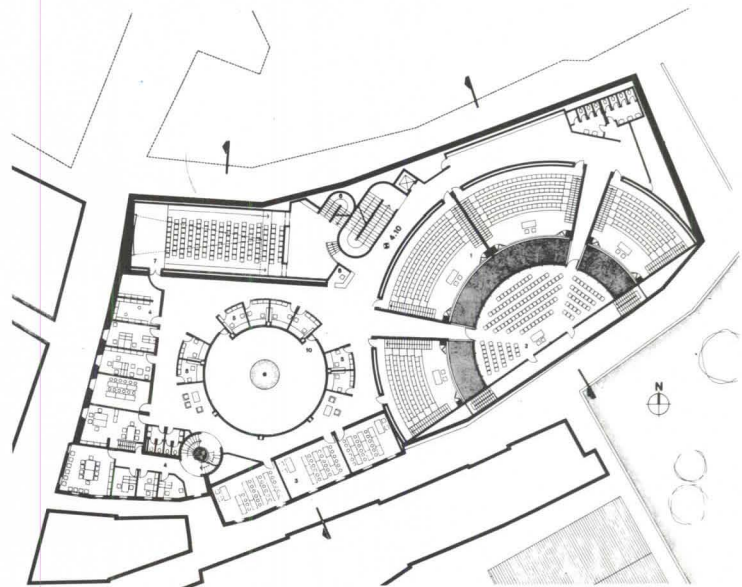
The Magistero is complex and rich, interpreting many of the town's spatial and sequential experiences within its walls. The structure, originally an 18th century convent and chapel used in the 19th century as an orphanage, is surrounded on three sides by narrow streets with a small church piazza on the fourth. The "destructuring" process identified the remaining artifacts of "value" as the exterior wall and forms along the old ceremonial Via Saffi and the tall interior chapel.

The remaining space was organized around two central elements: an open courtyard and an immense semicircular lecture

Above, the Magistero skylight shines in the townscape, signifying the university's presence. Above right, the Magistero's humble entrance. Across page top, the fan-shaped skylight and circular faculty courtyard amid the roofs and terraces of the southern portion of the town. Right, the roof garden and skylight.



Mark Maves



hall. Secondary spaces house a cafe and lounges on the upper floors overlooking multilevel roof gardens and the surrounding countryside. A cinema and a library have been inserted into the volume of the chapel.

The cylindrical courtyard is the focus of concentrically arranged faculty offices and seminar rooms. It has an introverted, contemplative and private quality—a dramatic contrast to the nearby lecture hall, a demanding volume with a capacity of 1,000 people. The hall, or theater, is a remarkably creative and homogeneous response to the needs of the Italian educational system's wildly fluctuating class sizes and the city's need for a large gathering place. The solution is a semicircular lecture theater backed by two radiating tiers. These smaller stepped areas can be closed off from the main volume by manually operated partitions. A spectacular semicircular skylight surmounts the central hall.

In winter, students use the theater during off hours for a rich variety of events to which the community is invited: classical and rock concerts, plays, conferences, festivals and feasts. In spring and summer, the city sponsors lectures, seminars and conferences on culturally related subjects. Other mutually used



Palma Fulvio



Mark Maves



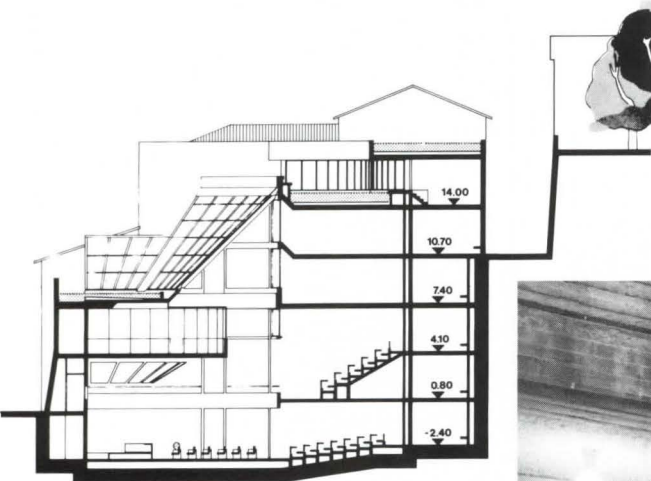
facilities include the cinema and the cafe, each with its own exterior entrance.

The lecture theater's tall skylight functions in a symbolic role paralleling that of the towers of the Ducal Palace. As part of the city's facade, the skylight proclaims the power and civility of Urbino and the life blood presence of the university. Its 20th century technology openly but subtly represents the architectural era of its transformation.

Additional parallels to the Ducal Palace include functional organization around two major courtyard elements—one for public functions and the other having a private nature. "Hanging" gardens top the palace, providing landscaped foreground to views of larger landscape beyond the city walls. This parallels similar upper level experiences in the Magistero. Both buildings present quiet, unassuming edges to the city's streets. These quiet facades with a humility of textures and scale belie the complex interplay of internal grandeur and spaces.

This nonrevealing face of the school has led to criticism. Searching along Via Saffi for the Magistero, some people have expected to come upon a new building with "modern" expres-

Bottom, the faculty courtyard. Below, a section of the lecture hall. Photo below right shows the lecture hall's central space ringed by tiers that can be subdivided into smaller rooms.



sion of its internal functions. But de Carlo doesn't care for the "problem of showing outside everything that is inside. Why should you see from the outside where the toilets are? It is too simple an idea." Such external revelation precludes the enriching qualities of mystery, discovery and surprise. And de Carlo says of Urbino that there is never "congruency between exterior and interior of any significant building or else there is a congruency but a very complicated kind which refers to the multidimensionality of the town and to the subtlety of the relations which it establishes with its surroundings.

"The feeling of duality is one which you constantly have in important buildings in Urbino, but it also applies to the town as a whole: From the country it looks like a tale told by Marco Polo—the facade of Ducal Palace, all those bell towers, the cathedral. It looks immense but it is only a small town. Since this duality is embedded in the character of Urbino, I have taken up the idea in the Magistero. You can be very discreet toward the public while being very free in the private realm."

After entering the humble gateway of the Magistero's main door, one progresses through a sequence of light and dark, open and enclosed, reminiscent of the exterior streets one has just left. The homogeneity of materials, the array of visual surprises and spatial excitement, framed views of the landscape, the sense of verticality—all seem very familiar. There is a conceptual continuum between the urban fabric and the school's internal configuration.

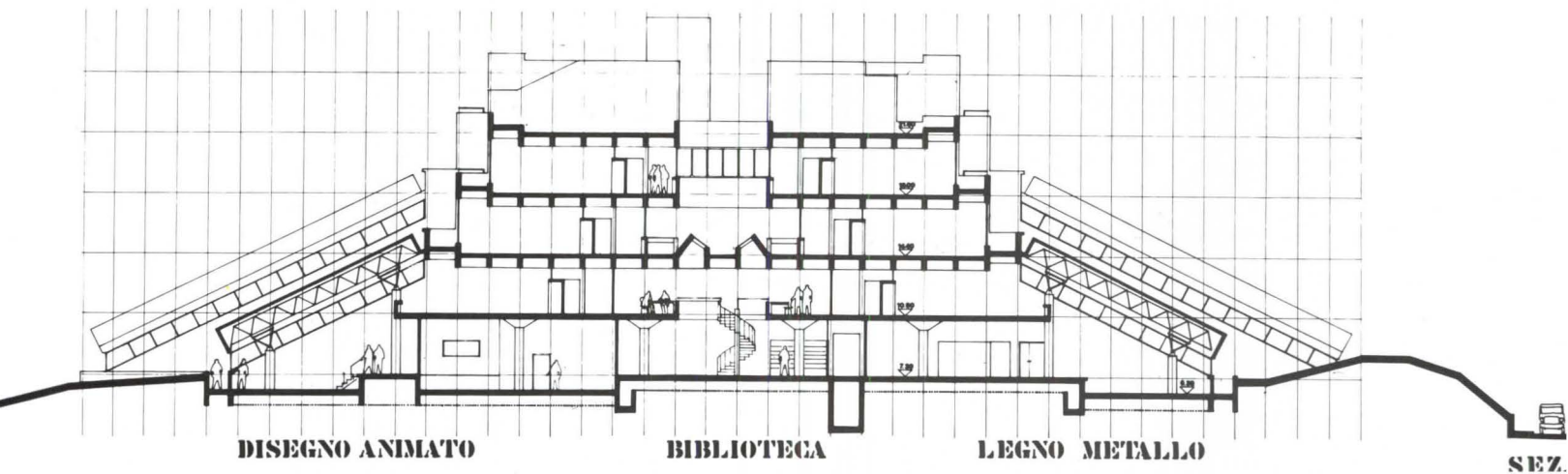
A stepped ramp and spiral staircases provide vertical circulation. The lecture hall and circular courtyard fall below as well as open up from you on the entry level. Further encounters with the vertical continuity of space may be found in the open well between the lounges and the cutouts in the floor before the "keyhole" windows overlooking the town and landscape below.





At right, de Carlo with students and faculty of the International Laboratory of Architecture and Urban Design, which he founded in Urbino in 1976. The laboratory participants are small student/faculty teams from supporting universities in Italy, Belgium, Spain, Norway, Yugoslavia, Sweden, Switzerland and the U.S. (the university is M.I.T.). De Carlo describes the laboratory as a place where participants 'compare their views and the outcomes of their activity, work together on theoretical and design problems that are real' both in their countries and in Urbino.





DISEGNO ANIMATO

BIBLIOTECA

LEGNO METALLO

SEZ.

An Art School and a Housing Project at the Town's Edge

De Carlo designed two projects to symbolically terminate town expansion along a ridge north of the walled city, an area within the strict architectural control of the city administration. The first design came as a resolution of a dispute between the city and a developer who didn't want to follow the area's guidelines. The developer refused the city's conciliatory suggestion of hiring de Carlo as his architect for the low income housing project. Because of the significance of the site above the proposed new road from Rimini and its importance as low cost housing, de Carlo chose to donate its design to the city, which in turn gave it to the developer. The result was La Pineta (across page), a strong foreground feature to Urbino from the north.

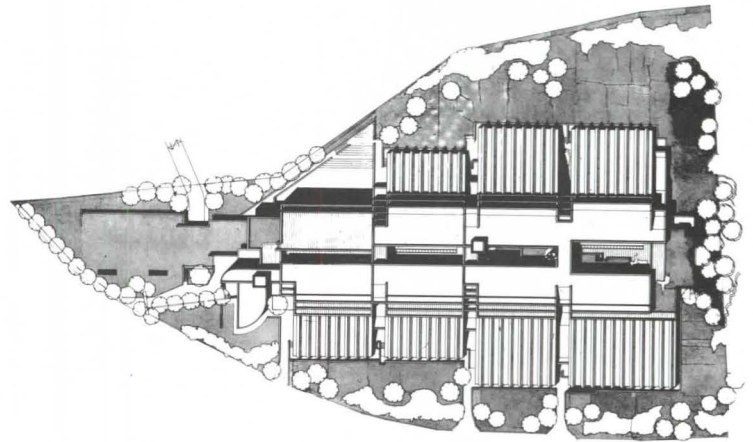
The project, begun in 1968, consists of two kinds of elements. Three-story buildings parallel the ridgetop road and sit on below-grade parking. Well endowed with balconies, they have sweeping views of the countryside. Highrise buildings, instead of protruding above the ridge, extend out laterally as fingers, growing down the hillside. The rooftops at the level of the ridgetop road allow sweeping views over the buildings. The rooftops were designed for play areas, cafes and entrances from which a resident walks or takes an elevator down to the units. The interior layouts of the units were designed by the developer. It's interesting to see here the use of the modern residential slab building typology scaled and massed to work within the strong Urbino landscape.

The other project to the north is an art school (this page), straddling a ridge near La Pineta. Another 20th century model, the megastructure, is being tested here. The stacked trays gently slope down along the ridge from Villa Maria Hill and simultaneously step down on each side of the ridge top. Here is a clear example of de Carlo's heavy reliance on sections as design tools.

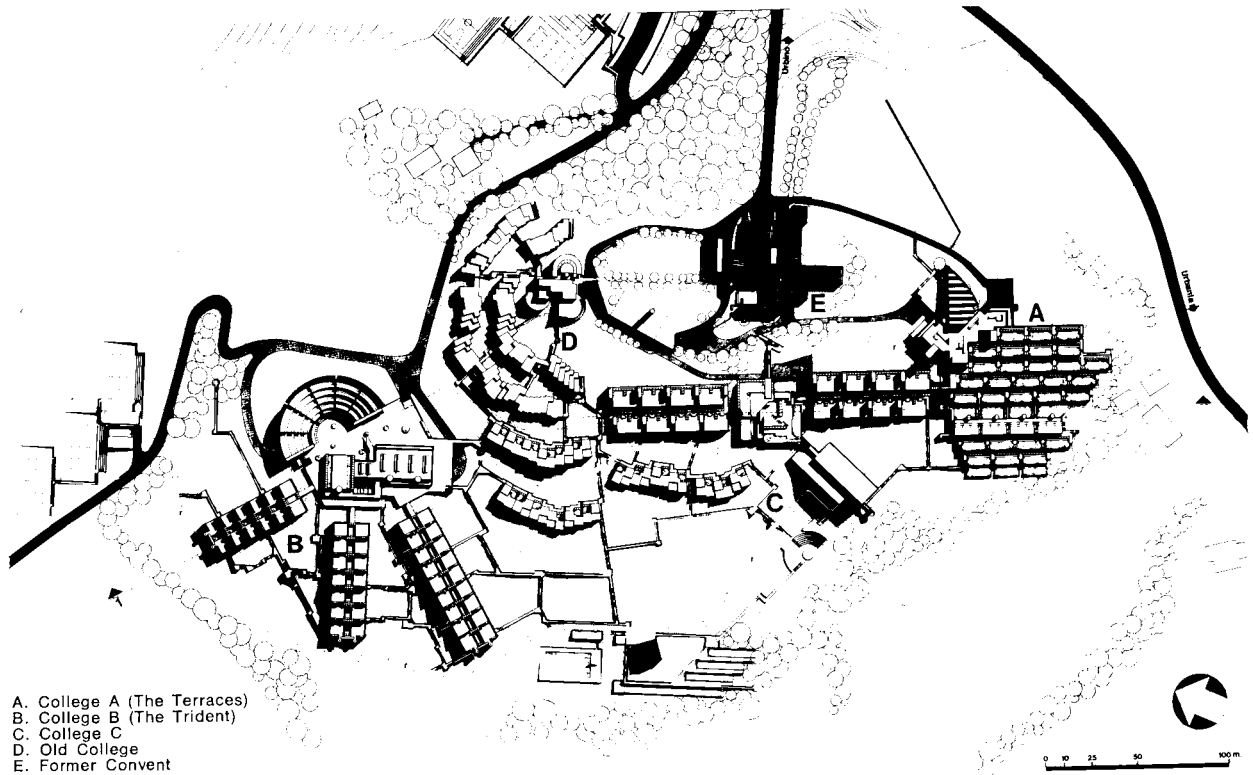
A strong, multilevel spine runs along the ridge. It contains the support areas in sequences of classrooms, open courtyards, workshops, a library, offices and gymnasium. Studio spaces consist of staggered open trays on each side of the spine, covered by sloping space frame skylights. Each studio segment (not continuous like Harvard's Gund Hall) is assigned to a discipline such as ceramics, cabinetmaking or graphic design.

The multiplicity of levels, diversity of circulation paths and sequences of open and closed, light and dark create a complexity parallel to that of hilltown spaces. This variety combined

with the diversity of work and learning areas configured in an extroverted way would seem to admirably allow opportunities for the students and faculty to have a stimulating range of experiences. The modularity of the studio segments and the expensive space frames provide both the opportunity for and a sense of potential growth and change. Yet this complexity is contained in a strong, readable form of homogeneous colors and materials as part of the landscape, characteristic of Italian hill-towns without mimicking the nearby historic center. Unfortunately, state politics has left the construction uncompleted.



Bill Rawn/M.I.T. Rotch Library



A. College A (The Terraces)
B. College B (The Trident)
C. College C
D. Old College
E. Former Convent

Colleges That Cascade Down A Hill Neighboring the Town

In the early 1960s the University of Urbino decided to build its first student housing on the Hill of Cappuccini. Out of the walled city de Carlo was free to explore his understanding of Urbino and hilltowns in more open and abstract way. The result, now called the Old College, is a combination of forms that have become an integral and reinforcing part of the landscape.

Paralleling his unitary concept of Urbino, de Carlo has conceived the project as a single organism. It consists of two main parts: a communal facility near the top of the hill formed by intersecting cylindrical shapes and rectangular bedroom units for 150 students arrayed along the contours below. A complex of pathways connects the parts.

The communal node contains the dining rooms, common living room, a small library, reading rooms, administration and a conference room. The cylindrical forms acknowledge the shape of the contours on which they rest and have as precedents similar figural qualities of the historic center's la Data and the towers of the Ducal Palace.

The study-bedroom units below are built of exposed concrete and bricks made in a local brickyard that supplied the 16th century Ducal Palace. Their forms, materials and color relate to similar characteristics of Urbino.

The pedestrian links, a mixture of "streets," alleys, paths, terraces, steps and staircases, both covered and uncovered, are supposed to fulfill all of the social, circulation and experiential roles the Urbino counterparts perform. And all of this is designed so the presence and movement of the students is an essential element in understanding the organism.

The project's departures from the hilltown model speak as

Left, the old and new colleges of the University of Urbino spread across a hill neighboring the town itself. Below, the student housing of the Old College.

strongly to the understanding of the model as do its similarities. Unlike medieval hilltowns whose designs expressed the potential dangers of the open countryside, the Old College is dramatically extroverted. All the student units (replete with Aalto furniture) have large picture windows offering sweeping views of the undulating agricultural landscape. The complex itself incorporates a major swath of the natural hillside inside its plan. This extroversion also readily accepts a concept of growth and change that fortified walled cities couldn't manifest. The design provided both a method and a vocabulary for expansion of the student units.

If there are echoes of Urbino in Old College, there are also contradictions. The college suffers from being too diagrammatic: private spaces connected by paths to communal spaces. The open pathways laid on the captured landscape contrast sharply with the streets and paths of the hilltown, which are formed by the buildings they serve. This enclosure and intimacy reinforces an intensity and subtlety of use more appropriate to an Italian's sense of privacy, semiprivacy and public than is afforded by the exposed pathways. This lack of enclosure also reduces the opportunity for discovery and surprise.

At the same time, the layout of the paths allows students to easily bypass the common facilities, and internal distances often make a casual trip to the game room a seemingly major effort. This has led to a greater isolation of individuals than de Carlo would have liked.

The diagrammatic configuration of the college has unnecessarily isolated functions from each other. Curiously, this is counter to de Carlo's own warnings about specialization. He believes that it is the relationships and interactions between functions (such as the Athens Charter's living, working, circulation, leisure) that are dynamic, not the functions themselves. Yet in the college the pathways have become such exaggerated symbols of the relationships that it has weakened them.

In the early 1970s de Carlo received an opportunity to expand the student housing. The new population goal was 1,100 students. Designed for modest expansions, the tremendous jump in scale required significant change in conceptualization.



Bill Rawn/M.I.T. Rotch Library

The new complex could also benefit from a “reading” of the existing housing. Recounts de Carlo:

“I noticed that the students tended to live in this building [the Old College] as if it were a hotel. The communal part was not intensely used. They went only for practical things—to eat, to get coffee. But they never built a life together. In the rooms, they lived in a very private way. Sometimes I saw ‘Do Not Disturb’ signs on the doors. That’s scary; it’s the representation of a hotel—that secret, separate life in a hotel where you don’t communicate at all.

“For this reason I completely changed the overall organization. I put in-between the communal parts and the private parts many steps in order to get from the private to the public or communal. It has a series of more and more public spaces, changing in scale at each step, starting from small groups to increasingly sizable ones, ultimately to big rooms where many can congregate, even with town residents.”

These varied sequences of public/private spaces are seen in three primary new groupings, Colleges A, B, and C. (Students have less abstractly renamed them Trident, Serpentine and Terraces, respectively.) Together with the Old College and the historic convent on the crown of the hill, they create a tightly conceived whole. The complex is an aggregation of five nodal elements with the old convent figurally seated at the head. The convent, scheduled for reuse as administrative and guest facilities, serves as both the physical and symbolic gateway to the complex. Below, College C serves as the organization spine.

Each communal node contains similar facilities such as cafeterias, seminar rooms, theaters, study areas, lounges and game rooms. To reduce parochial tendencies within each self-contained college, the balance of the facilities in each node varies. For example, College B has the main piazza, chief mensa (cafeteria) and the major conference rooms; College C contains the student shops and main library, and College A includes the main cinema used heavily by both the students and the community.

To further the opportunities for social and educational exchange, the housing consists of a diverse mix of sizes and groupings. As a reference to the fabric of the nearby historic center, each of the new colleges organizes its units around one of three abstracted hillside streets: horizontal (A), steeply vertical (B) and laterally rising or dropping (C).

Despite the symbolic entrance of the convent at the top of the hill, College B, with its below grade parking and location near the pedestrian path to the historic center, is likely to become the primary entrance to the complex. Coming down the access road, one is led into a large piazza, a platform to which the communal facilities are anchored. Radiating conference rooms, reminiscent of similar collective spaces by Alvar Aalto, and the upper volume of a major communal area enclose the piazza and

funnel one’s sight to a break in the enclosure and the framed view beyond.

To reach the housing units configured in three sloping fingers (the Trident), one enters the multilevel communal areas. These are visually interconnected by two-story spaces, an internal landscaped courtyard and three torricini housing skylit spiral staircases. Corresponding to the tripartite housing, these make formal gestures to the landscape similar to those of the Ducal Palace. The communal areas connected by them are richly endowed with a diverse sequence of naturally lit spaces for lounging, gathering, studying and eating.

The communal facilities connect to the housing through three surprising glass tubes. The source of the futuristic tubular forms is unclear. Students refer to them as “lunar” and one visitor described them as “mannerist humor.” Regardless of one’s point of view, the tubes are strong visual connections and they announce a modern technological presence.

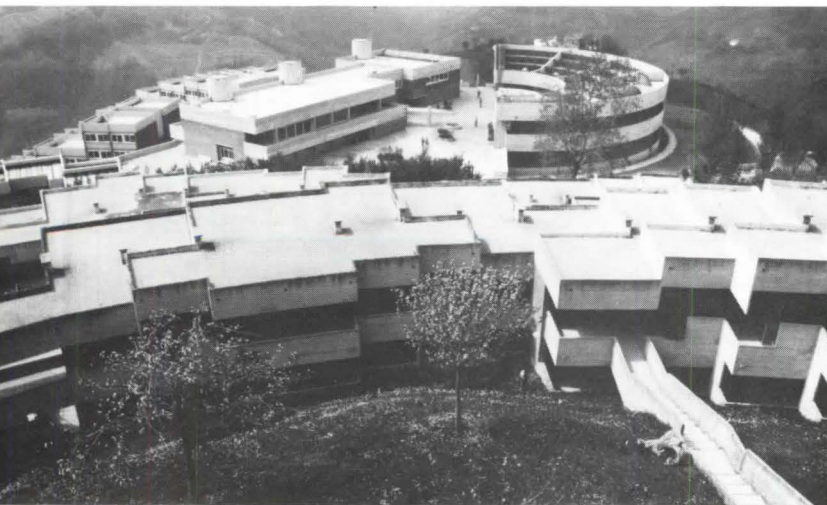
The housing consists of paired residential modules stepping rapidly down the hillside, straddling a steep, staired interior street. Each module has four single rooms, a common living/dining area and a kitchenette. The toilet and shower facilities bridge over the interior street and are used by the students in the two linked units, another device for interaction.

Unfortunately, the steep interior path has a consistent width and a lack of spaces with a “sense of place.” The overhanging restrooms contribute to a heavy feeling of enclosure that leaves the street less satisfying than other ones in the complex. And the strong forms splayed down the hillside seem to compete with the landscape rather than reinforce or enhance it.

The communal node of the Trident connects with College C by various exterior paths similar to those of the Old College. Amid these paths, the Old College has been expanded with three additional serpentine elements, integrating it more directly into the complex. In this expansion, the individual self-contained units have given way to group units designed within the original vocabulary. This expansion likewise connects to the organizational spine of College C.

Rising laterally up to College A, the spine consists of a two-tiered street, jogging and stepping between two- and three-level housing units. The configuration of this college generates the most organic sequence of varied spaces and conveys a sense of natural evolution.

The communal node at the intersection of the main spine and the ceremonial axis from the convent above is one of the most exciting spaces in the complex. Here a Piranesiesque volume, a vertical piazza, pivots around a free column that rises from the lowest floor, bypassing intermediate levels to the high ceiling. The structure of the stepped amphitheater protrudes above. A diagonal ramp reaches out beyond the space to establish a





Donlyn Lyndon

Far left, Old College housing with the circular communal building and piazza of College B beyond. Left, housing units straddling the axis of College C. Above, the housing fingers of College B reaching down the hillside.

dynamic relationship to the library building sited at 45 degrees to the surrounding structures.

From this concatenated node, the spine continues up to a rather awkward connection with College A. The circulation is a woven fabric of primary horizontal routes and secondary perpendicular stairs. The pattern is similar to that of the hilltown Gubbio some 70 kilometers south of Urbino. The resulting single loaded corridor arrangement creates a steeply terraced composition with students' rooms facing out over planted rooftops to the long views beyond, reminiscent of the landscaped

foreground of "hanging" gardens in town. Here, as in Urbino and College C, there exist many routes between two points, allowing choice and change in movement. At the intersections of the horizontal routes and the vertical stairs, the routes broaden out into seated areas intended as spontaneous gathering spots.

The complex appears to bring a communally rich density and diversity to the Hill of Cappuccini. The lessons learned from Urbino and the early housing may well have succeeded in "restructuring" the Old College by placing it into a broader context. However, the complex is only now nearing completion, so it is premature to assess the success of the evolved residential concept. De Carlo has already selected his primary evaluation criteria: "The test will be to see if the students produce culture, if they take the initiative to promote many things in order to make this place very alive and very interesting." □

Metrication: Coming Slowly but Inexorably Closer

By Thomas Vonier, AIA

Since the Treaty of the Meter, signed in 1875 by more than 50 countries including the U.S., there has been discussion about conforming the U.S. to what has by now become a standard measurement system for virtually all of the rest of the globe. In use today by most of the same countries that met over a decade ago is the *Système International d'Unités*, or SI, adopted by the General Conference on Weights and Measures in 1960.

Although the movement has been with us for years to "go metric" within the U.S. generally and the construction industry particularly, the debate has until recently been rather quiet. As groups such as the automotive, machine tool, pharmaceutical, equipment and beverage industries have moved forward aggressively with metric conversion over the past decade, the issue has laid virtually dormant within the construction industry. Despite progress made in establishing the plans and conventions that might be followed in a building community shift to SI, there has been little in the way of concerted action and the matter has seemed to recede from industry attention.

The debate was renewed and given fresh force in the last days of 1980 when the National Institute of Building Sciences sponsored a major building community symposium on the subject in Chicago. The session's 125 attendees, who represented about as broad a cross section of the industry as ever assembles these days, left the two-day gathering with two distinct conclusions. First, it's not a question of whether, but *when* the conversion will be made; and second, the industry needs an organization like NIBS to help bring the change about in an orderly and equitable way.

Not all elements of the industry welcome the prospect of metrics—and even those who do welcome it don't do so for the same reasons. Hailed on the one hand as a boon to rationalization of domestic construction technology and as the key to international markets for building products and services, conversion to use of SI measurement is seen on the other hand as an unnecessary and vastly overrated movement that will benefit a few at the expense of many.

Many people see dimensional coordination and "rationalization" of building systems as the handmaidens of metric conversion for the U.S. Some of these advocates fall into rhapsodies reminiscent of those voiced in the 1930s by Albert Farwell Bemis, architect-industrialist champion of the four-inch module and of "industrialization" for the building industry. For every proponent there is an opponent, however, and for every believer a skeptic.

Supporters of a prompt and decisive move to use of the metric system for the construction industry include certain building product manufacturers and designers whose practices are active abroad. With the need to meet the now modest demands from abroad and from Canada for metric products, these producers have also seen how conversion could lead to a substantial reduction in the variety of sizes of dimensioned products. With this reduction in the variety, would come savings in production costs

Mr. Vonier, who heads the Washington, D.C., architectural firm bearing his name, has a special interest in new technology that will influence the building industry. His height is 1.73 meters.

that appear to be very substantial indeed. It would seem that nearly any manufacturer with a potential market in metric countries would see U.S. industry conversion as highly desirable, but not only because it might serve to broaden exports.

The most serious metric advocates in the building community are lobbying for a move to what is described as "hard" conversion. Unlike its less ambitious counterpart, "soft" conversion—which would entail simply translating inches, feet, pounds and the like into their exact metric equivalents—hard conversion would involve a complete rationalization and resizing of building products and components into even metric units. Thus, with hard conversion a 4x8-foot sheet of plywood would not become a 1,219.2x2,438.4-millimeter sheet, but would instead become a 1,200x2,400-millimeter piece.

The subject of soft versus hard conversion is concerned with questions of accuracy and tolerances. For example, one can't just round off the conversion of a 4x8-foot sheet of plywood to 1,200x2,400-millimeters, because the sheet would actually be too large for exact equivalence by 19x38-millimeters ($\frac{3}{4}$ x $1\frac{1}{2}$ inches). Hard conversion means new and different dimensions, generally based on the "preferred" SI metric sizes and the 100-millimeter module. The "hard-converted SI preferred metric product" is a *different* product, not an equivalent one—the sizes are generally different enough to preclude equivalence with U.S. customary sizes of the same product.

It is this prospect of product rationalization that has metric proponents most excited. The opportunities for reducing variety in product sizes and for expanding export markets are principal motivations, but there are also arguments that have to do with cost economies, error reductions and design simplicity in planning and constructing buildings.

Weyerhaeuser Co. is among the largest and most influential of U.S. building product manufacturers to make significant commitments to use of the metric system. "I think it's fair to say that we've done everything we can do at this point," says Jack Firkins, the company's metric coordinator in Tacoma, Wash., "but it's important to point out that we're not trying to act unilaterally and drive the entire industry toward metric—I'm not even sure we could do that if we wanted to. This kind of change takes movement in concert by the building industry, and without the rest of the industry going along, we aren't really able to go all the way." Still, the company has done a great deal.

The entire research and development organization at Weyerhaeuser uses SI as its only measurement and specification language. It is currently involved in planning—cautiously described as "tentative" at this point—for a Pacific Northwest sawmill that will produce all metric-sized products for export. Outside of its R&D operations, Weyerhaeuser markets and bids many products in metrics for export. In their pulp operations, for example, metric conventions are used even for products sold domestically.

Weyerhaeuser has undertaken internal planning for metric conversion on a major scale. "In 1980," Firkins explains, "we completed a plan that examined what would be involved in converting all major areas of our operations to metric. In 1981 we are extending and detailing that plan substantially." While

readily acknowledging that the country's building community is years away from anything like complete conversion, Firkins sees a day when the change will be here. "It will probably take a decision on a large scale, perhaps even reconsideration by Congress of the voluntary approach. One way or another the day will come and we want to be ready."

Weyerhaeuser's view of the situation is tempered, however, with knowledge that metrics has not produced the carefully integrated, rational building systems that were expected in other countries. "The rest of the world is really a mishmash of dimensions and products," says Firkins. "The U.S. is probably still the most efficient and modularized construction industry in the world, but this won't always be the case. The situation will change and is changing now, especially in Western Europe. The point is, if we don't act to take a leadership role, we are going to get caught. Foreign markets will become very difficult to compete in."

Detractors of the metric movement—or at least those who seem to be urging that the conversion take place less widely and at a much slower pace—include makers of products that seem to have virtually no chance for success on the export market, dimensioning aside. The gypsum manufacturers, for example, see the costs of retooling as returning very little economic benefit. Labor and trade representatives, too, have expressed misgivings, wondering who will bear the cost of the training and education that would be necessary to acquaint construction workers with the new system.

"We see this as leading to a reduction in gypsum industry capacity," says Herb Carlson of the U.S. Gypsum Association. In an industry that produces 18 billion square feet of board annually and has virtually no prospect of exporting, reluctance to join the pro-metric movement is understandable. "We're not anti-metric," says Carlson, "but we just don't see the benefits." He and many others cite the problems of dual inventories as being nearly insurmountable, and point to the problems and costs that might be associated with obtaining new fire-resistance ratings for metric-sized products. In the gypsum field, a one-eighth inch difference in board thickness may make the difference between success or failure in a fire test.

A main concern is centered on the need for retaining dual product inventories for long periods of time. One wallboard manufacturer has said that in this country it will always be necessary to maintain dual inventories, especially with the ever-increasing volume of nonmetric building rehabilitation projects. Retooling is a large problem for some industries, a very small problem for others. As to retraining or "familiarization" costs, there is disagreement.

Speaking for the United Brotherhood of Carpenters and Joiners of America, which he describes as the largest skilled trade union in the world, Nicholas Loope says there is "no question as to the vulnerability of all construction craftsmen, laborers and their employees." He asserts that nearly all of the country's four million construction workers would need training in metrics. Although some apprentice programs already include metrics, Loope sees substantial problems and costs. "It might take roughly three days' training per journeyman. At an average hourly rate of \$15, including fringe benefits, times 24 hours each for four million workers, the total in lost time alone is nearly \$1.5 billion."

Nobody disagrees that the job of conversion is large and will have major consequences. Naturally the inclination is to look to the experience of our Canadian neighbors, whose "M-Date" came for the building industry on Jan. 1, 1978, and to the experience in Great Britain, where metrics has been used for well over a decade. The experience has been different in these two countries, perhaps because the motivations for conversion were so very different.

In England, conversion to SI appeared to be a matter of survival to the industry, which has had increasingly to look to the

continent and to former colonies for its livelihood. In Canada, where construction practices most closely parallel those in the U.S., the motives had little to do with that country's position as a trading nation. Instead, conversion was seen as an unparalleled opportunity to increase efficiency and reduce error.

What clues for U.S. experience are to be found from conversion abroad? In England, there have been few problems of any magnitude, and SI is certainly an easier system in which to make the calculations that accompany any job. But, if there have been few difficulties, there have also been few of the hoped for benefits. Metrication has not yielded the totally rationalized and beautifully integrated modular construction systems that some believed would result from conversion. There is, in the view of several observers of British conversion, every bit as much site-cutting of dimensionally coordinated materials and there is surely still a wide variety of product sizes and shapes. Dual inventories continue to be kept for many components, as work on older buildings is an important part of total construction volume in Britain.

Andrew Rabeneck, a British architect with The Ehrenkrantz Group, has thought long and hard about the question of U.S. conversion, basing his views on what he has seen transpire in Britain. He frames the issue in terms of misconceptions about how the building industry actually works. "Dimensional coordination is based on the use of invariant grids that are assumed to set up a frame of reference on site," he told the group in Chicago. "That is metriloical nonsense! Anyone can make a theoretical product fit a theoretical hole and real products may even fit into theoretical holes. But a real product either will or will not fit into a real hole."

His point is that it has taken the U.S. building industry a long time to devise the conventions that make good construction possible. "The result of all this in Britain is that we have just as much cutting and fitting as ever on site, a phenomenal dependence on mastics and sealants, and designs that make it harder than ever to achieve visual satisfaction." It is wrong, Rabeneck

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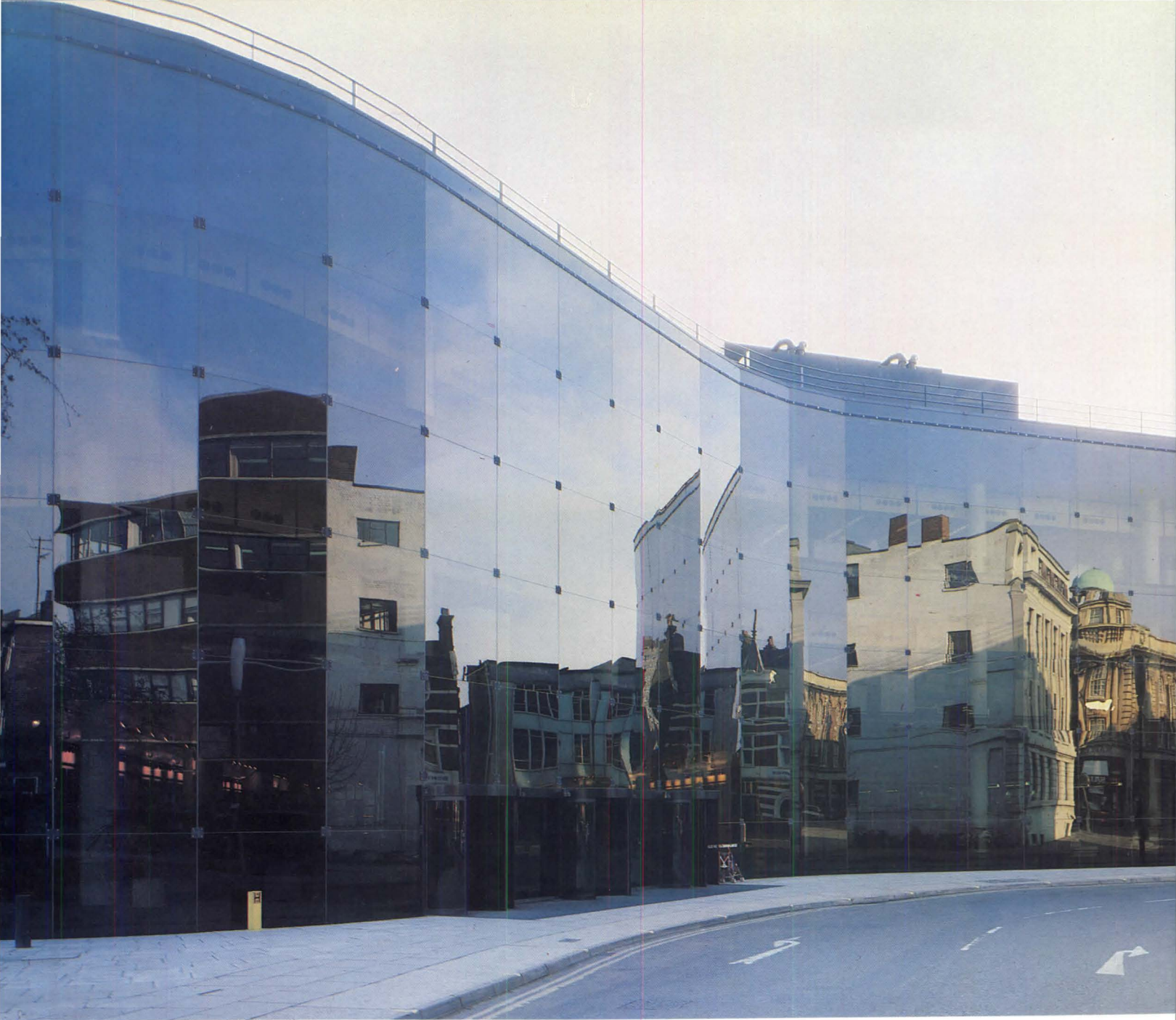
'Suppliers tend to say they can't produce metric components without the demand, and designers tend to say they can't design in metric without the supplies.'

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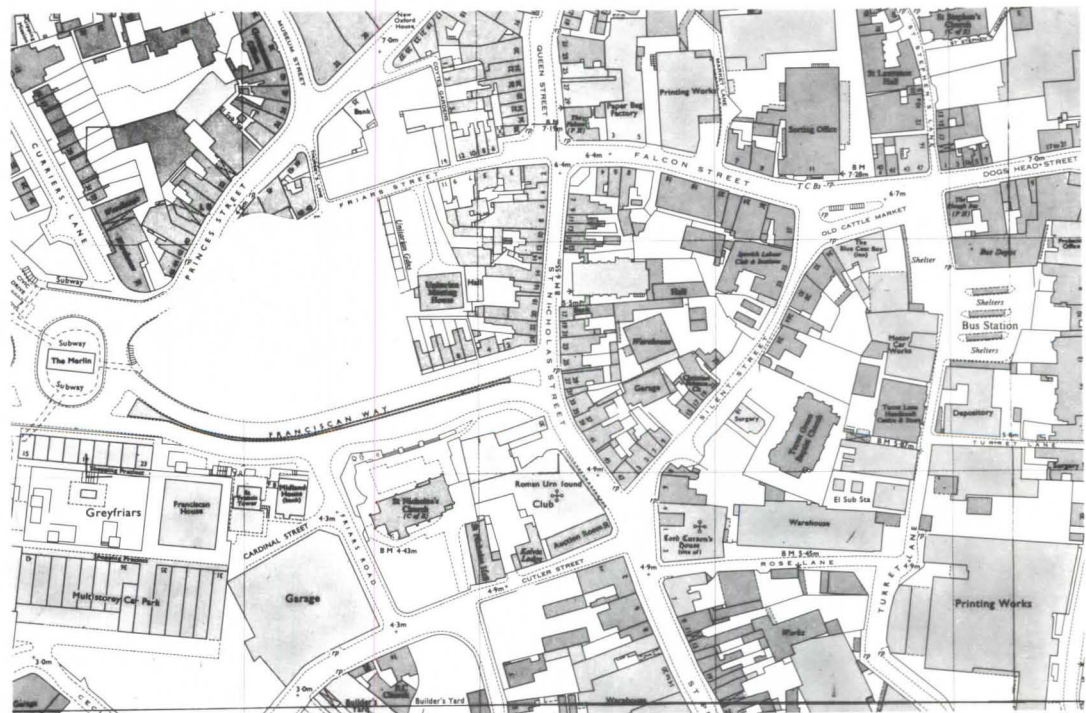
says, to assume that conversion to the 100-millimeter module will produce a rash of dimensionally coordinated, integrated building systems.

In Canada the experience is shorter, but seems to be going smoothly enough. The dual inventory requirement is even greater there than in Britain, and some producers who expected a windfall demand for metric products are still sitting on vast quantities of their first production runs while shortages of the "inch-pound" predecessors appear periodically. Even the problem of replacing workers' tools (there is not, as has been re-

continued on page 90



Filling its site, the building's facade follows the curving streets of Ipswich. The glass, a mirror by day, becomes transparent at night when the perimeter circulation system on the upper floors becomes apparent.



Evaluation: A Building That Succeeds In Losing Itself

The Willis Faber offices. By Annette LeCuyer

The brief that Willis Faber & Dumas presented to its architect in 1971 requested a "distinguished building . . . not overambitious and yet not too pedestrian." With such wording, it might easily have found itself housed in new, functional and architecturally middle-of-the-road offices. However, in the hands of Foster Associates, the client's essentially conservative requirements were translated into one of the most uncompromisingly modern buildings in Great Britain and one that attracted international acclaim. Then in the limelight and now, after five years in residence, Willis Faber & Dumas is immensely proud of a building which on many levels of interpretation is distinguished, overambitious and definitely not pedestrian.

One of the largest insurance brokerages in the world, Willis Faber & Dumas previously operated out of several offices in London's financial district and in Southend, Essex. However, the overhead costs of running a business in the City of London were already escalating rapidly in the late '60s. This, combined with the imminent expiration of the firm's office leases, led to the decision to move a substantial portion of its business operations and 1,250 jobs out of London.

Unlike many national and multinational corporations that have abandoned cities for green field sites, Willis Faber & Dumas chose to build its new offices in the heart of a smaller, more livable town. Ipswich, the county seat of Suffolk, has a population

Ms. LeCuyer is an American designer and writer in London.



Photographs by Morley von Sternberg

Democratic in planning as well as elevation.

of nearly 125,000. A good deal of the success of the firm's move can be attributed to this wise choice of location, for existing public transportation networks and the nearby lively commercial center of Ipswich provide the very amenities which green field developments inevitably lack.

Of the 1,250 people to be employed in Ipswich, 425 had to be enticed to move from London and Southend (the English are not as mobile as Americans) and the remainder were recruited locally. Most of the jobs which Willis Faber transferred to Ipswich were clerical back-up positions for the brokerage that remained in London. Therefore, Willis Faber was keen to provide numerous amenities in the new workplace, initially to convince people to work in Ipswich and, in the long term, to create the best possible environment for deskbound work.

The site is between the historic town center to the north and a bleak zone to the south which was given over to speculative redevelopment in the '60s. A four-lane ring road that forms the southern boundary of the site clearly divides old from new. The amalgamation of a number of small residential, business and light industrial/workshop properties and the closure of two minor streets resulted in a 1.5 acre plot that is, with the exception of required sidewalks, 100 percent covered by the office development.

While this four-story building with a rooftop pavilion neatly avoids the problem of towering over the older three- and four-story buildings adjacent to the site, the insertion of such a large scale building "footprint" into the English streetscape might well have proved disastrous. Street life easily dies when a healthy

mixture of small enterprises, each with its own front door and showcase onto the street, is replaced by a single use.

However, the fact that the Willis Faber building enlivens the street in spite of its vast plan area can be attributed to two important design decisions: The building clings to the street edge, thus avoiding the awkward, windswept leftover pavement areas from which more self-consciously sculptural modern buildings suffer, and the glass skin transforms the entire street edge into a shop window that more than compensates for the single understated front door. In addition to showing off the entrance hall and the offices above, the enormous shop front displays an unconventional collection of goods—the computer suite, mechanical plant, a swimming pool and the loading bay. The even-handed treatment of the perimeter of the building avoids all of the nasty problems of facades versus backsides and of public versus private zones. The glass also becomes a trompe l'oeil device, for the extensive homogeneous curtain wall reflects the smaller scale of the numerous and varied surrounding buildings. A development which set out to lose itself in the town landscape does so with great panache.

The democratic elevational treatment of Willis Faber is more than skin deep and, indeed, has permeated the internal planning as well as the use of the building. The fact that plant rooms, service areas and the like are on display means that the traditionally unsightly parts of the building are immaculately maintained. The same finishes are used in the main entrance hall, service spaces (plant rooms, escape stairs, toilet rooms) and the loading bay. This consistency not only creates pleasant working environments for all the staff but, by sidestepping cer-

As a security measure, a glazed balustrade funnels entrants next to the reception desk (right), constricting circulation in the entrance hall. The escalator well (facing page) is the building's only major interior volume, providing a sweeping view to the white steel space frame.





Photographs by Morley von Sternberg

tain architectural conventions, gives the building a physical vitality that more conventional plush office developments lack.

The key concept describing the interior of Willis Faber is open plan. To many, open planning may be old hat and as such is being abandoned in favor of more articulated and hierarchical plans. However, through Willis Faber it is clear that the much-used *bürolandschaft* concept can be refined, developed and improved. The extraordinary quality of the Ipswich development may again be attributed to the architect's doggedness in translating concept into reality and in proselytizing the client to believe in the open plan gospel.

The building is a sandwich of functions: amenities and back-up services at the ground and roof levels hold two floors of offices between. Unity is achieved by a series of escalators carrying people from the entrance up to their workplaces and to the roof

level restaurant. Within the glazed container of the external wall, the only solids are the service cores and the rooftop kitchen.

The ground level, with a multiplicity of functions, seems most vulnerable to division. However, nearly all internal partitions are fully glazed so that the swimming pool, for example, looks into the cafeteria and entrance hall, the plant rooms, the data processing center and out to the street. On each of the office floors, 500 people—both staff and management, including the firm's chairman—sit in the open. Management is situated adjacent to the perimeter circulation route. Sessions with administrators, instead of being held behind closed doors, take place at tables adjacent to the circulation zone. Large groups use the glazed meeting rooms that are part of the services cores.

While one might predict that the enthusiasm for open plan and "open house" might evaporate after the heady initial months



Photographs by Morley von Sternberg

The open plan mainly has met expectations.

of experimentation, this is not the case. Willis Faber is still strongly committed to operating its Ipswich office in a style compatible with the physical design of the building. Its London office, by contrast, is in an Edwardian cellular plan building that reputedly contributes to a more "starchy" working atmosphere.

The only place where hierarchy seems to have crept into the Ipswich premises is the restaurant. While the intention was that directors should mingle with their staff at lunch time, practice proved that both parties had a mutual need for privacy in the restaurant. Therefore, the long-standing tradition of the directors' dining room has been reinstated. At one end of the lofty space, room-height movable partitions have been added to form a small private area for directors and guests of the firm.

During the design of the building, one of the strong arguments supporting the open plan was the client's desire for flexibility. Certainly, the potential of buildings to change quickly and simply is one of the hallmarks of the work of Foster Associates. Willis Faber has indeed found that the Ipswich building measures up in terms of flexibility. Management cites the example of moving a department of 160 people together with their machines and furniture from one floor to another. The migration was executed over two weekends. The electric bus bar and telephone service ducts that run throughout the offices at six-foot centers in the suspended floor contribute significantly to this flexibility. These ducts enable the firm to reorganize office floors literally within a couple of hours and, most importantly, without having to depend on the vagaries of outside labor. In addition to the

trunking, portions of the plant that are located in the services cores are mobile and are easily accessible by the removal of the painted steel cladding panels of the cores.

The major changes in the building thus far have been at ground level. Facilities for child care were originally planned, an unusual amenity in office developments of this nature but one that Willis Faber anticipated would aid in the recruitment and long-term retention of staff. However, this service proved unnecessary. Initially the space was given over to a computer tape library and now houses data processing and programming. Likewise the small workout/weight room near the swimming pool was moved to the new sports and recreation club that the firm built on the outskirts of Ipswich. That space is now a machine room for the computer suite.

The snack bar at ground level has become a more significant part of the building than was anticipated. Originally planned to be a low-key operation selling packaged sandwiches and drinks, the snack bar now offers a more complete range of food including hot dishes, and serves 300 to 400 lunches daily. With the increased usage and the accompanying food smells and noise, the area could not remain part of the entrance hall foyer. A glazed screen has therefore been added behind the escalators. Could the popularity of the snack bar been foreseen, Willis Faber would have considered more sound absorbent finishes than the Pirelli rubber floor and the waffle slab above. They also concede that some of the attraction of the bar may be its lively acoustics, a contrast to the areas where people spend most of their working day.

The only planning criticism voiced by Willis Faber is the

location of the computer suite. While there have been no problems to date, management feels uneasy, both in terms of security and environmental control, with computers in a fully glazed space at street level. There is some sentiment that a location deep in the plan would have been preferable.

Although the *bürolandschaft* concept was trimmed during design from the 120-square-foot standard suggested by the U.K. Department of the Environment to 88 square feet per person, the open office floors seem to work well. With some 500 people and at least as many machines on each floor, the high density is apparent even to the casual observer. Nonetheless, the work areas are quiet because of the sound absorbent carpet and divider screens and because of the white sound background noise.

Lighting levels, designed for 88 lumens, appear to be extremely low when one looks *across* the office floor. Because of the recessed fluorescent parabolic reflector fittings, custom designed by Foster Associates, there mysteriously appears to be no lighting whatsoever. The only clue is the pool of light created where the light track meets the wall of the services core. When in the work areas, however, the floor seems well lit, and the fact that no task lighting has been added testifies to the efficiency of the design. Instead of lights, what are visible in the suspended aluminum ceiling are the muted reflections of color and movement of people at work as well as reflections of the ever-changing natural light of the Suffolk skies. This device also works well from the exterior, particularly at night. While most of the staff is not visible from the street, the animated ceiling can be seen deep into the building.

To ensure that the open plan did not become a myth once the client moved in, the architect was careful that no furniture

—cloakrooms and files included—was more than four feet high. To gain a clear vista across the building, one needs only to stand up. However, the claims for outside awareness from all work areas may be slightly spurious. Granted, everyone can see windows or the central well (when standing), but some from such a distance that real awareness of the outside must be minimal.

While the building has measured up to the client's expectations in terms of flexibility, there is a limit. Willis Faber's personnel department, for example, is located in a conventional adjacent office building that provides the privacy often needed for staff recruitment and the handling of personnel problems. Staff training requires enclosed darkrooms for projection of films. As these rooms cannot be accommodated in the new building, they are also housed across the road.

The one sort of change that the Willis Faber building cannot accommodate is growth. This is not criticism, but merely a statement of fact. Unlike the Sainsbury Centre, which implies infinite linear extension, Willis Faber is a finite object. The height is limited by planning restrictions. The critical relationship of the office space to the glazed perimeter and the central well would be lost if the building were to spread in plan. The introduction of another strip of escalators to accommodate expansion would destroy the singlemindedness of the building, its strength both in concept and in fact.

It is important to note that Willis Faber has accepted this limitation and has not used the open plan as an excuse for cramming ever more people and functions into a finite container. Like the sports club and the personnel department, in-house support facilities such as printing presses, an engineering shop and storage have been located in other buildings in Ipswich. Willis Faber has recently purchased the Greyfriars development across the road to the south, conceivably to provide a convenient location for some of its future back-up services and warehousing. The purchase of Greyfriars, in addition to serving Willis Faber's needs, is a bonus to the community. The development, a mix of housing, offices, shops and parking, is one of the less attractive speculative ventures of the '60s and much of the unoccupied project has deteriorated badly. Whether Willis Faber intends to use the existing buildings or redevelop the site, it is anticipated that an unsightly area of Ipswich will be improved.

The internal and external openness of the Ipswich building is admirable. However, although it is visually public, Willis Faber functions as a private building. Access is therefore highly controlled so that security is an easy task. Apart from the escape doors invisibly integrated into the curtain wall, there is one entrance and one exit. The only backlash of the open house approach has been that the curious, attracted by the strong presence of the building on the street, entered en masse. Reception, situated at one side of the broad foyer, was not able to intercept the curiosity seekers before they reached the escalators and thus had the run of the entire building.

Willis Faber has therefore modified the entrance hall by introducing a glazed balustrade and display case that funnels people directly from the front doors to the reception desk. Although quite transparent, the balustrade—diagonal in plan—effectively destroys the strong linear circulation route through the building. If reception had been moved to a central position in front of the escalators, security could have been improved without the detour.

Circulation is in fact one of the most successful aspects of the building. Although all appears to be revealed from the street, one is surprised in the simple act of moving from the

Concealed lighting makes patterns on the walls as a backdrop to the open office landscaping (facing page). Office floors are densely populated, with sound-absorbent carpet. At left, a small conference area interrupts the perimeter path.





High levels of amenity and sociability.

outside into the entrance hall. What the darkly tinted glass conceals is the light, bright atmosphere within.

The strength of both major circulation elements—the central swath of escalators and the perimeter corridor on all floors—is their definition in relation to light and to landscape. The escalators, lit from above, offer ever-changing vistas of the office landscape. Arrival at the restaurant is marked by a landscape surprise: The roof garden turns the building upside down, for it really feels as if it is ground level. The roof garden not only enhances Willis Faber's premises, but considerably improves the outlook of surrounding taller buildings. In this respect, the roof functions as a city green, a significant improvement over the usual roofscape of asphalt and vent pipes.

Likewise, the corridors adjacent to the glazed edge of the building provide a complete panorama of the surrounding town. Because Ipswich is on the coast, weather changes rapidly. Light and shadow are therefore in constant flux, moving in tandem with people in the building.

The only change that has been made regarding circulation is the addition of solid copings on the glazed balustrades around the escalator well. This has been done primarily for psychological reasons, for although the original balustrades—simple sheets of toughened glass with no stanchions or copings—met all building codes and regulations, some staff was uneasy about approaching the edge of the well.

While the curtain wall is not chopped up into individual offices, Willis Faber has not been particularly rigorous about keeping the perimeter clear. Numerous trolleys and filing cabinets stand against the glass wall, some with jackets and other paraphernalia casually hung on them. One might imagine that these real-life blemishes might mar the otherwise perfect architectural complexion of the building on the street. However, the deep tint of the glass is strong enough to contain these "unprogrammed uses." The glass allows views but obscures details. Likewise, nocturnal up-lights on the soffits of slabs cleverly avoid any obstacles placed at floor level.

The circulation scheme also seems to have fulfilled the social goals it set out to achieve. Rather than standing in stony silence on lifts, people *do* speak to one another on the escalators. The shrewd positioning of managerial offices adjacent to the perimeter corridors (unprotected by secretaries in front offices) means that managers see and have the opportunity for casual conversations with many employees with whom they would normally have no contact. While 1,350 people cannot be expected to know one another personally, Willis Faber's staff sees more

Employee amenities are clustered at the top, including the restaurant (left) with views down the escalator well, and the swimming pool, which remains open for employee families in the evenings.

of each other than people in tower block or cellular offices. The recognition of colleagues carries out of the building into the town where a lunch hour shopping trip is punctuated by numerous "hellos" and short chats.

The main amenities, like the design of the circulation, have added to the esprit de corps among the staff. The restaurant serves 500 meals daily and hosts evening variety shows and staff parties. In the cool English climate, the roof lawn is primarily a visual amenity, but on mild summer days it is used for after-lunch relaxation and occasional sunbathing. The pool is well-used, with the firm registering around 23,000 users annually (approximately 65 swimmers daily). Flexible working hours mean that staff members can swim before work, at lunch and in the late afternoon and evening. While the restaurant is strictly private to staff, the pool is open to employees' families evenings and on Saturday and Sunday mornings. Hence, the end of the working day often finds children waiting in the foyer for their parents to go swimming. Some staff had to adjust to seeing families in the building, for many years of commuting in London had completely isolated work from home.

The Willis Faber offices were designed in 1970-71 before the first energy "crisis" and before energy conservation became



Maximum results from the simplest of means.

cocktail conversation. There was subsequently much discussion about the fully glazed external skin, but the architect demonstrated that with the deep plan the area of glass was half that of a conventional office development of the same area. In addition, the three-foot thickness of the turfed roof acts as an insulating blanket over the entire building. Early criticism of the cost of fully conditioning the building was countered by the argument that a stimulating work environment leads to higher productivity—i.e., energy conservation in a wider sense.

In practice, the interaction of the glazed wall and the HVAC systems has caused unanticipated environmental conditions on the office floors. A single duct system supplies air to both the office areas and the perimeter corridor. This design presupposed that cool air would be supplied in the summer and hot air in the winter. It was intended that, due to solar gain and loss, conditions adjacent to the curtain wall would be hotter than the office in summer and colder in winter. The corridors would be comfortable for people in motion but not cozy enough to tempt people to move desks to the windows, thus eroding the circulation zone.

This scheme has worked well during the summer. However, on sunny, cold winter days the perimeter heats up. With thermostats situated centrally in the building, the single duct system was heating the relatively cooler work areas deep in the plan *and* was supplying heat to the warm perimeter. The result was an overheated corridor and uncomfortably hot offices adjacent. Willis Faber considered installing a new duct system but, due to the cost, opted instead for the installation of cooling batteries at the perimeter air nozzles. While it is clearly not rational to heat air and then cool it at the delivery point, Willis Faber determined that in the long term this solution was more cost effective than redesigning the ducts.

While the concrete floor slabs effectively restrict sun penetration to the six-foot-wide corridor in summer, the low angle of the winter sun allows direct light to penetrate the perimeter work areas. Because of the glare, Willis Faber has installed vertical Venetian blinds on all floors on the south side of the building and in the roof restaurant. The dark gray blinds, hardly noticeable from outside, cut out both glare and light within. While the staff lobbied heavily for the blinds, they are infrequently

used. The blinds, like the balustrade copings, may serve psychological more than physical needs. People like to feel that they have some control over their environment whether or not they choose to exercise it.

The use of portable electric fans in some work areas toward the center of the building is also attributed to the individual's need to exercise control over his environment. While the effect of the fans is negligible in changing the temperature of such extensive spaces, they probably serve to create air movement—a substitute for fresh air—in the still centers of rather large environmentally controlled areas.

Willis Faber finds its Ipswich offices economical to operate and, to increase energy efficiency, has recently installed a computerized monitoring system. When energy consumption, particularly electricity, approaches a peak, energy in parts of the building is shed and diverted to where it is needed. The firm is investigating ways of incorporating the swimming pool into the services systems by using it as a heat sink.

One design argument in favor of the glazed skin was ease of maintenance. By contrast with the streaky, crumbling concrete and masonry buildings across the road, Willis Faber sets a shining example. One of the most important benefits of the glass is its resistance to vandalism. Spray painted graffiti is quickly and cheaply washed away. The toughened glass also stands up to the missiles of passing soccer crowds.

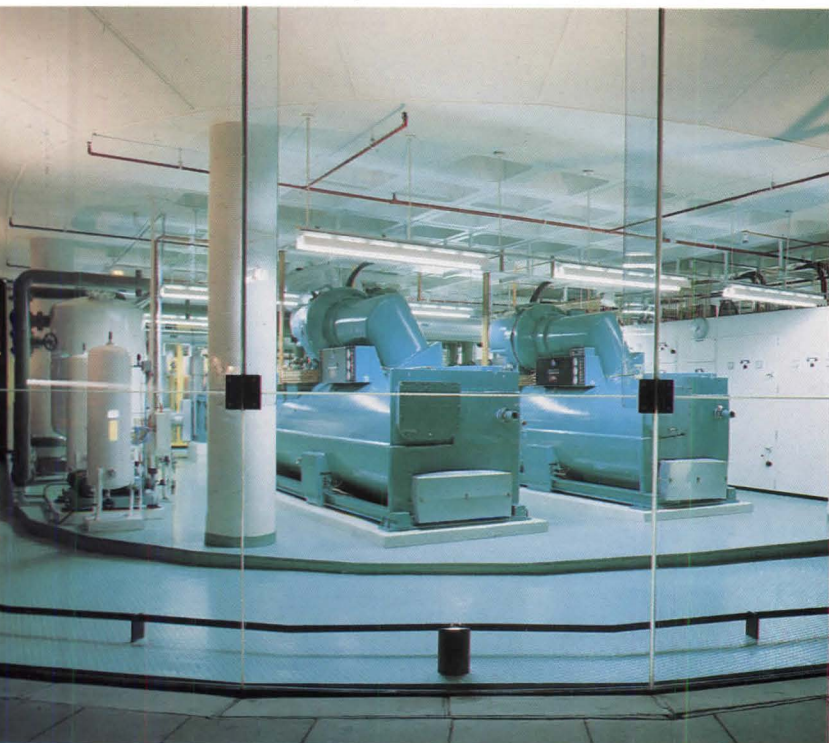
The glazed wall, suspended from the roof, has performed well technically and there have been no problems with the assembly system developed by Foster Associates and Pilkinton's specially for the Willis Faber project. Seven sheets of glass have shattered in five years, and most of these can be traced to errors such as tightening the bolts in the assembly beyond the specification. All glass is toughened and therefore crazes into relatively harmless granules that should remain in place. In the roof restaurant, however, the glass that has broken has fallen out. To avoid any possibility of danger to staff, Willis Faber has applied a transparent adhesive film to the roof level glazing to hold the glass in place should there be any further breakage.

Willis Faber emphasizes that, in spite of its splashy style, the Ipswich building was constructed and is run economically. It was completed and furnished in 1975 for approximately \$72 per square foot, compared to the budget cost of quality office space at that time of \$92 per square foot. Maintenance is inexpensive and minimal.

The 24-month contract for the 220,000-square-foot project was fast by British standards. Even so, Willis Faber, with its in situ concrete columns and slabs, is probably the wettest, heaviest and slowest building that Foster Associates has undertaken. Foster designs consciously to condense contract periods by minimizing site work—particularly wet processes—and maximize prefabrication. Its subsequent work, including the Sainsbury Centre and the recent tower scheme for the Hong Kong and Shanghai Bank, are more pure assemblies of steel and glass.

Willis Faber is deceptive, for although it feels plush it is tough and bare-boned. Marble and chrome have given way to paint, rubber and glass. The office floors are spare. There is no art work, no lounge to relax with a cup of coffee and, with the exception of the central well, no planting. The firm decided to omit planting during the design phase because of exorbitantly high maintenance costs. The pool is austere and unadorned and, in the restaurant, the only decoration is the lattice of the white steel space frame structure. The roof lawn is there because it is doing work as well as providing a pleasant view.

What appears to be luxurious high style is in fact a case of deriving the maximum result from the simplest possible means—contexturally, technically, functionally, socially and esthetically. The Willis Faber building must surely be an optimistic sign for those who, in the midst of pervading pessimism and reversion to historicist gestures, believe that it is possible for architecture to be uncompromisingly modern *and* good. □



Reflections (right) and a brilliant display of machinery.



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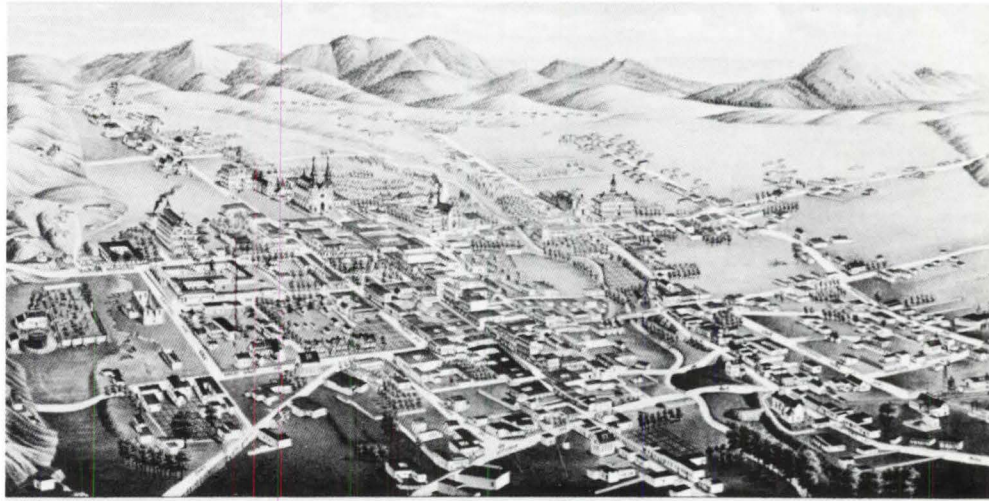
Our Frontier Cities: How The West Was Planned

Cities of the American West: A History of Frontier Urban Planning. John W. Reps. (Princeton University Press, \$75.)

During the past 15 years, John W. Reps has produced a series of significant works on the history of urban planning in the U.S. This book is the second in his projected "regional studies." Like its predecessor, *Tidewater Towns* (1972), it is intended to "supplement, correct and extend" material treated more cursorily in Reps' broad survey, *The Making of Urban America* (1965). Those familiar with the corpus of Reps' work have come to expect from him a masterful organization of material, lucid prose, insightful, well-documented analysis, a gentle wit and well-chosen graphic materials. On these matters, *Cities of the American West* does not disappoint. Eight years in the making, it is a work of enormous scope and erudition. It examines in 20 succinctly written chapters the history of urban planning in the trans-Mississippi region from the Spanish settlements of the 16th century to Oklahoma's "overnight cities" of the late 19th century. The text is supplemented by more than 500 illustrations, including military surveys, plats, town plans, color lithographs, photographs and informal sketches and drawings by early residents. The publication of these graphic materials alone constitutes a significant contribution to American urban history.

Reps begins with a spirited refutation of Frederick Jackson Turner's depiction of the role of cities in the founding of the trans-Mississippi West. In an 1893 address, "The Significance of the Frontier in American History," Turner posited a prototypical sequence of settlers—first trappers and hunters (primitive cabins and subsistence gardens), then farmers (small agricultural villages) and finally "men of capital and enterprise" (transformation of farm villages to "spacious" towns or cities). Reps argues that, on the contrary, towns for the most of the West were the "vanguards of settlement," which "stimulated rather than followed the opening of the West to agriculture." They did not grow randomly from small villages, but were deliberately planned in advance by their founders.

Having stated the fundamental error of Turner's thesis, Reps proceeds in the re-



mainder of the book to document his criticism through a thorough exploration of the development of the trans-Mississippi urban frontier. He focuses on three main topics: the history of the founding of towns and cities, their original plans and the initial stages of their growth and development. The result of this inquiry is an abundance of evidence which decisively refutes Turner on every point. Such a refutation is, of course, nothing new. Richard Wade accomplished this convincingly 20 years ago in his study of the Ohio Valley, *The Urban Frontier*. What Reps has done is to assemble a wealth of evidence for the primary role of towns and cities in the settlement of the West as a whole.

Reps' organization of his material is masterful; it is part geographical, part chronological. He conducts the reader on a "peripatetic journey" which does justice to the fact that the Western frontier did not develop in a clear, sequential sweep from the Mississippi to the Pacific, but consisted of a series of leaps and retrograde developments on a number of isolated frontiers.

He examines in turn Anglo-American and French settlements east of the Mississippi, Hispanic towns in the Southwest and California and their later transformation by large-scale Anglo settlements, and mining camps in California and Nevada. He then backtracks chronologically to consider the Mormon tradition of town

planning, urban planning in the Pacific Northwest and the Central Plains, mining camps of Colorado, Idaho, Montana and South Dakota, railroad towns of the Mountain States, Southern Plains and Southwest and, finally, the towns and cities of the Oklahoma land rush of the late 1890s. He concludes with a summary chapter on conditions of the urban West at the end of the era, which notes that of the 31 Western settlements containing a population in 1970 in excess of 200,000, all except Tulsa, Okla., had been established by 1890. An extensive bibliography provides a valuable resource for further inquiry, although one should heed Reps' caution that it was compiled in 1973.

The patterns that emerge from Reps' study are both fascinating and redundant. The gridiron plan was well-nigh ubiquitous, for knowledge of sophisticated town planning was almost nonexistent on the American frontier. Had such knowledge existed, it probably would have had little effect since "speed" and "speculation" rather than "beauty" and "monumentality" were the criteria which shaped the whole. There is much color and eccentricity in Reps' history. Perhaps the most interesting chapter deals with Oklahoma's overnight cities, which Reps regards as "the most disorderly episode of urban settlement in the country, or perhaps in the world."

Reps' history is a formidable achievement
continued on page 72

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Books from page 70

ment, yet it is not without its shortcomings. There is a tendency in portions of the text for description to eclipse analysis, and certain chapters tend toward a mere cataloging of towns. More space could have been given to a discussion of the interrelationship between towns in a given region, as well as the interaction of specific towns with their surrounding agricultural or mining areas. Those of us in the design professions would welcome more analysis of the spatial structure of towns, supported by the appropriate graphic materials. Further, Reps takes no account of the defense of the ubiquitous gridiron plan and the exploration of its symbolism in the provocative, if controversial, work of J. B. Jackson, nor are Jackson's writings included in the bibliography. Had Reps addressed some of the important issues raised by Jackson's work, it would have enhanced his analysis of the gridiron plan itself. Finally, a word of caution is in order concerning Reps' use of color lithographs of bird's-eye views of town plans. Since these views were frequently used as promotional propaganda, they often contain distortions, presenting towns in a pristine purity that frequently did not exist. They need to be supplemented with more contemporaneous photographs to balance their romanticized visions.

Reps is, of course, aware that his study leaves many issues unresolved and urges further research into Western urban history along the lines suggested by Oliver Knight's programmatic essay "Toward an Understanding of the Western Town" (*Western Historical Quarterly*, IV, 1973). Indeed, in the last footnote of the book, he confesses that had he known of Knight's essay (it came to his attention only after he completed the manuscript), he might "have abandoned the project before its start as a hopeless quest." We can be thankful that he did not. This is a definitive work which will serve as a well-spring of research for years to come. Not the least of its merits is its intention to provide a historical perspective to inform the work of contemporary urban designers charged with the task of shaping "a contemporary urban civilization."

However, Reps reminds us in his concluding remarks concerning the subordination of social, esthetic and functional concerns to economic speculation in much of Western town planning: "History has a heavy hand, and we are still held within its grasp. To loosen its tightened fingers we will need creative but realistic visions of an urban future as inspiring as those dreams of power, wealth, freedom, conquest and opportunity that led men into the American West to people it with towns and cities." *Reuben M. Rainey, Division of Landscape Architecture, School of Architecture, University of Virginia*

Classic American Railroad Stations. Julian Cavalier. (Barnes, \$17.50.)

Forty American railroad stations from New Hampshire to California are depicted and described in this book. These are not big city stations such as Grand Central in New York City, but rather small and moderate sized ones that the author has chosen as classic designs. Many are unique in their architecture and in total represent a broad cross section of architectural styles.

For each station there is a brief history recording the railroads involved and the date of construction. This is followed by a description noting architectural features and then a verbal indication of the layout and use of rooms. The text concludes with a statement of the current status—whether still in use as a station, reused, abandoned or destroyed. Listing on the National Register of Historic Places is mentioned where pertinent.

Each station is illustrated by at least two or three pictures, with as many as a dozen in some instances. In most cases there are both early and late views. Ypsilanti, Mich., presents the most striking sequence, with an original three-story ornate structure with truncated tower. A derailment resulted in loss of the tower remnants and other modifications. There are eight color illustrations in the book

and, since most do not accompany the text and are not listed or indexed, their identities are not easily findable. The jacket includes two additional color illustrations not in the book, so save the jacket. Although not captioned, they can be identified as stations in Menlo Park, Calif., and Lebanon, Pa.

The most noted station architecturally is probably H. H. Richardson's in North Easton, Mass. One of the most striking is that at Strafford, Pa., which is reputed to have been built in Japan and shipped to America as the Japanese pavilion for the 1876 Centennial Exposition in Philadelphia. The author notes that this is not verifiable. It was later a station at Wayne, Pa., in the late 1800s before being moved to Strafford where it has since remained.

This is an interesting collection that has merit because of the extensive photographic documentation revealing changes and for the author's recognition of the preservation aspects of his subject. *George E. Pettengill, Hon. AIA, Arlington, Va.*

Preservation: Toward an Ethic in the 1980's. National Trust for Historic Preservation. (Preservation Press, \$8.95.)

The National Trust for Historic Preservation sponsored a national conference in 1967 in Williamsburg, Va., to con-

continued on page 74



Santa Barbara Architecture, from Spanish Colonial to Modern. Photography by Wayne McCall; text by Herb Andree and Noel Young; introduction by David Gebhard. (Santa Barbara, Calif.: Capra Press.) This second edition of a work first published in 1975, now edited and designed by Bob Easton and Wayne McCall, contains almost 150 new photographs and depicts and describes many buildings designed since 1975. The selections in the book, taken on a block-by-block survey, were made for "purity of style, historical significance and uniqueness as art objects." The style shown above draws from medieval Spanish influences (the Dieterich house, Montecito, 1929-30, Addison Mizner, architect). The text says that Mizner used "many high art details not generally found in the area—authentic column capitals, tracery windows, coffered ceilings, sculptured portals—while maintaining the Santa Barbara characteristic of pure design."



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Books from page 72

sider the future of the preservation movement. Those attending were still flushed with the success of the passage of the National Preservation Act of 1966 which signaled the maturation of the movement from childhood to adolescence. In the following years, preservation grew substantially, with the National Trust increasing its membership from 12,000 in 1967 to more than 155,000 today. The Tax Reform Act of 1976 and the National Historic Preservation Fund provided needed economic stimulation. The 1978 Supreme Court decision on Grand Central Terminal supported the validity of laws creating landmarks and historic district commissions in the U.S. Every state now has a historic preservation office charged with protecting its historical and architectural heritage. Hundreds of local preservation organizations have developed to contribute to what is called today "the preservation ethic."

The nature, scope and direction of this ethic is the subject of this book. It is a somewhat disjointed collection of papers, responses, questions and recommendations taken from two sources, the 1979 National Preservation Conference in Williamsburg and the Future Directions Symposium, part of the National Trust's 1978 annual meeting in Chicago. Both meetings covered a wide range of subjects related

to the development of preservation in the next decade: roles and objectives of preservation organizations, standards and practices, education and the professional preservationist, communication and the use of the media, terminology, funding, legislation and information resources.

The book's first section is devoted to the issues identified by the participants at the 1979 conference. The second section consists of presentations by John Kenneth Galbraith, Sen. Patrick J. Leahy and others who recognize the great strides preservation has taken in the past few years but warn of the greater challenges that success can bring. The third section is comprised of papers and discussions from the 1978 Chicago meeting. An essay of particular interest to architects is Paul Goldberger's discussion of architecture and preservation, a theme greatly expanded at the 1980 annual meeting of the National Trust. Goldberger sees a strong connection between the growth of preservation over the past decade and the shift from the modernists' dogma in new architecture. Unfortunately, the preservationist and the architect are often adversaries rather than partners.

The book concludes with a series of "issue papers" prepared by the National Trust staff, written after the Chicago meeting to stimulate thought and discussion at Williamsburg. They serve to pre-

sent the very real questions that preservationists must answer in the coming decade. The book both documents the maturation of the preservation movement and challenges its members to consolidate a vision for the future. The task for the 1980s is to develop the past enthusiasm into a national ethic. *Richard Wagner, Assistant Professor, College of Architecture and Design, Kansas State University*

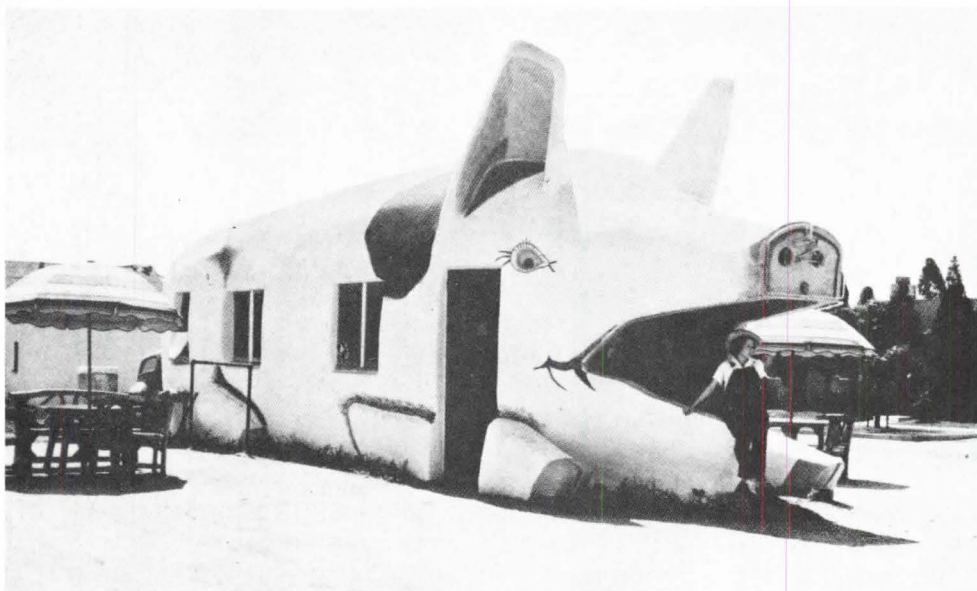
Designing Against Vandalism. Design Council, London. (Van Nostrand Reinhold, \$8.95.)

There is a shocking photograph in this book of little children digging up a tree. The caption says that this is play to them, but the end results will be "indistinguishable from deliberate vandalism." The young are the major vandals, and sometimes things get out of hand when destruction generates its own momentum. But vandalism is not confined to playgrounds and schools, nor to children. This book, first published in Great Britain, points out that vandalism occurs both in inner city slums and in rich, rural counties of England and Wales. Individual contributors discuss the causes of vandalism and suggest remedies. The main thesis of the book is that design plays a key role in combatting criminal damage and that the problem has to be met by creating environments "on a human scale" that generate "respect and belonging," thus discouraging "even thoughts of vandalism." One contributor says that "vandals rarely attack property that appears to belong to someone who cares about it."

Cast and Wrought: The Architectural Metalwork of Richmond, Virginia. Robert P. Winthrop, with photographs by Katherine Wetzel and a foreword by Margot Gayle. (Valentine Museum, 1015 E. Clay St., Richmond, Va. 23219.)

Robert Winthrop, an architect who is associated with the Richmond, Va., firm of Glave Newman Anderson, has been a participant in the restoration of historic buildings in that city. He has worked for 10 years to extend the work, begun in the 1930s, of Mary Wingfield Scott and Richmond's Valentine Museum on the city's architectural metalwork. According to Margot Gayle, president of Friends of Cast Iron Architecture, few cities are as rich in cast iron architecture and decorative ironwork.

The book's first three chapters consider cast iron fences and railings, porches and fronts. Following chapters cover Richmond in the 19th century, iron manufacturers in the city, early designs and metals and 20th century metalwork. The book is handsomely presented, with Katherine Wetzel's photographs adding a dimension. □



California Crazy: Roadside Vernacular Architecture. Jim Heimann and Rip Georges. (Chronicle Books, \$8.95.) This picture book of California roadside attractions joins other recent books on monuments to this country's "auto-mania." Assembled by illustrator and graphic artist Jim Heimann and graphic design consultant Rip Georges, it contains nearly 100 photographs of buildings that look like doughnuts, ice cream cones, coffeepots, wigwams and so on. They were created to catch the eye and advertise the wares sold therein. An introductory essay by critic and author David Gebhard dignifies these strange creations by calling them "programmatic architecture." He explains that "an enlarged dog which sold hot dogs exemplifies a first step in the process of injecting indirect meaning into the architectural vocabulary." The Pig Cafe, shown here, is of 1934 vintage; its location is unknown. For some people it's enough to make them give up porkburgers for life. And it's hard to swallow it as "architecture."



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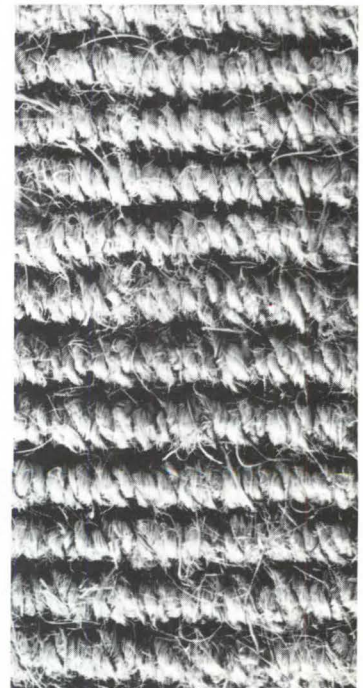


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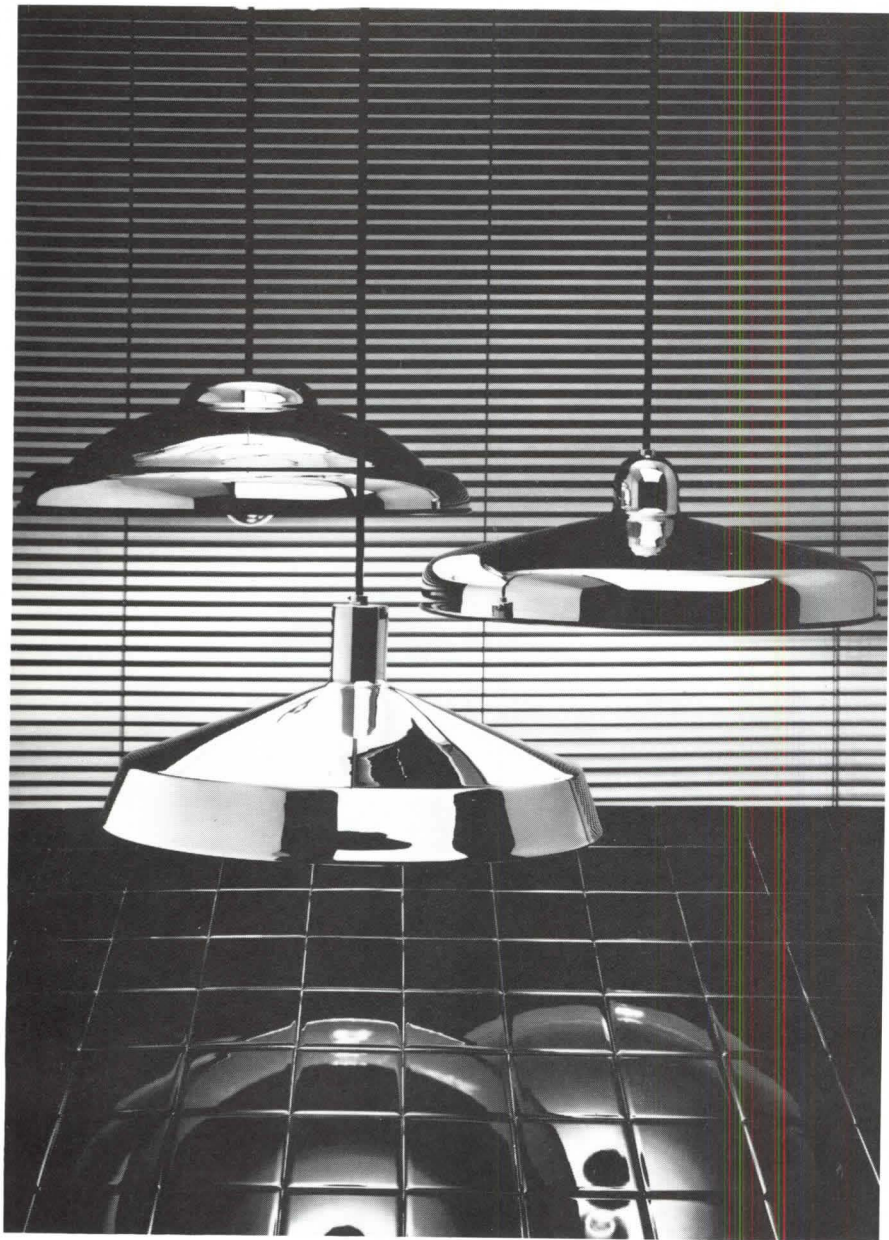
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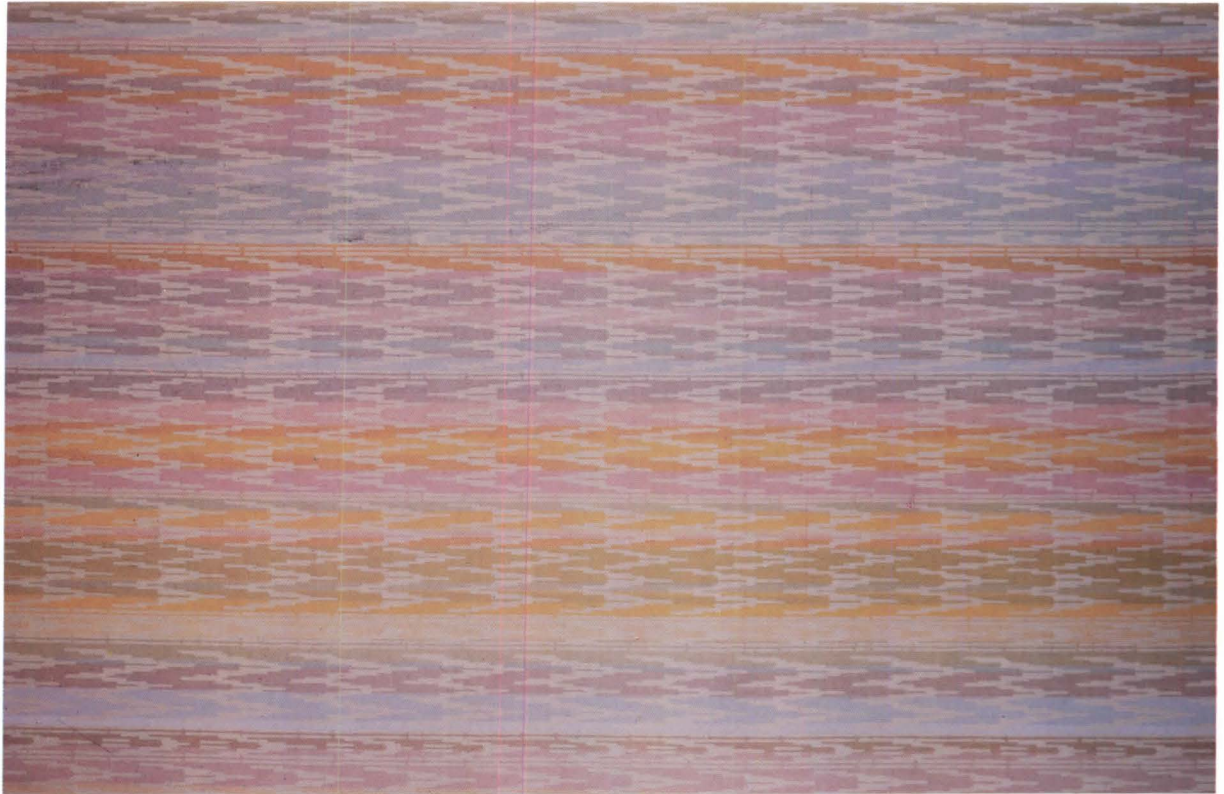
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Robert Wilson is best known as the author of avant-garde plays ("Life and Times of Sigmund Freud," "Einstein on the Beach" and "Death Destruction and Detroit"), but his theatrical tableaux have also been seen in museums and have even included furniture design; his aluminum chaises longues (1) were recently shown at New York's Marian Goodman gallery. A less theatrical aluminum chair is the adjustable folding model designed by Isabelle Bishop of London (2); the tubing supports a canvas sling, and the back legs can be fixed at various heights. Available from Jack Lenor Larsen are a number of durable hard fiber carpets of coir (made from coconut husks) and sisal (a Yucatan fiber usually used for ropemaking); "Colombo" (3) is available as a rug or as carpeting and comes in a dozen natural colors; "Calicut" (4) is available as carpet or as carpet tile and comes either in a dark natural color or bleached. Pendant lighting hoods in polished chrome, plated metal finishes or painted finishes (5) from Robert Long Inc. are available through Metropolitan. A 1927 chair design by Marcel Breuer (6) is now being produced in Germany by Tecta. Designed by Antti Nurmesniemi for Vuokko of Helsinki is an armchair covered in a removable black and white striped fabric (7).



7



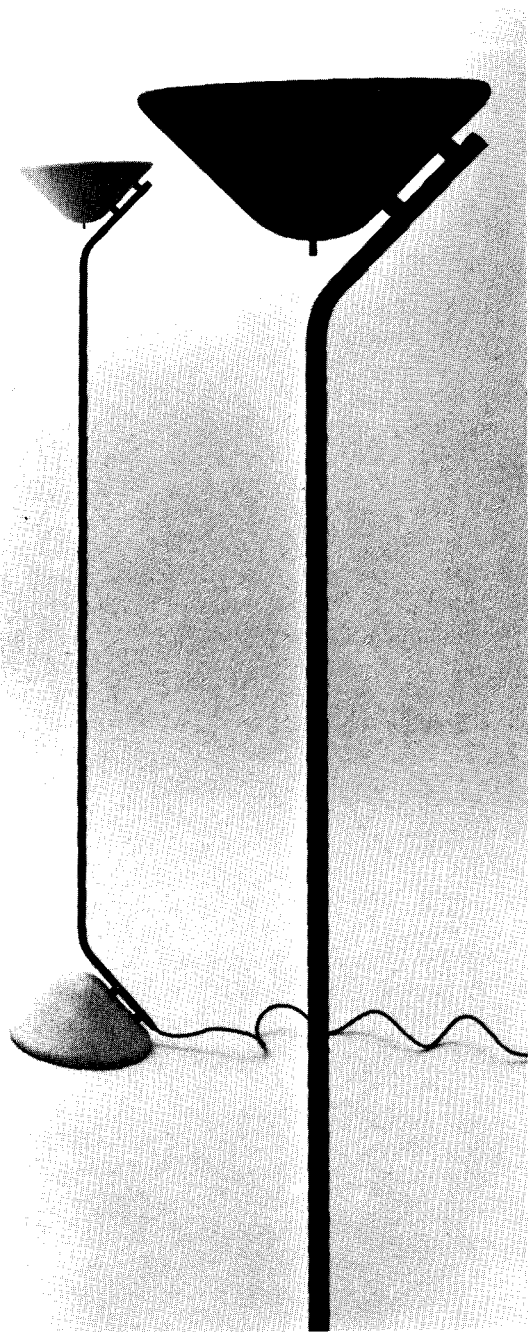
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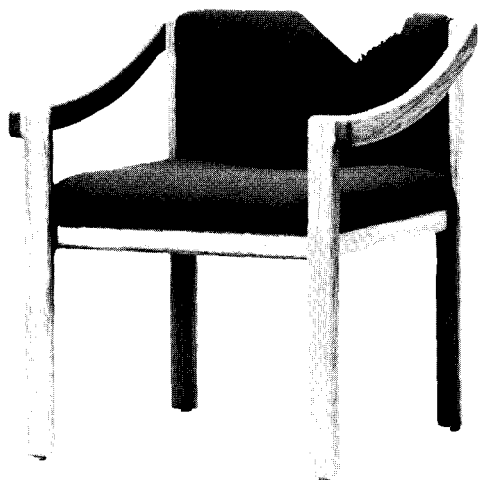


A cotton satin fabric suitable for window or wall covering as well as for upholstery is "Sarawak" (1) from Jack Lenor Larsen; three separate printings produce its 25 shades of soft color, in the combination shown here or in two others. Designed by Friedrich Hill for Brayton is the "Plus" seating system, its soft-edged units ganged together to any desired length (2). An office chair that swivels or tilts and that has the unusual touch of an upholstered arm is the "Echelon" chair from Vecta (3); there are 10 different models—for office, guest and conference use—and it can be covered in leather or fabric; it is also available with aluminum arms or even without arms. The "Clessidra" floor lamps (4), almost the same at top and at bottom, are designed by Raul Barbieri and Giorgio Marianelli for Tronconi Illuminazione of Milan; they have a halogen bulb with an electronic dimmer; bases and reflectors are in white or black painted metal, vertical supports in black, chrome or polished brass. The "Atherton" side chair, by Brian Kane for Metropolitan (5) has an exposed frame of oak or walnut and simple upholstered seat and back cushions. The steel-framed "Series 38/39" chair group (6) is designed by Jens Ammundsen for Fritz Hansen of Denmark and is imported here by ICF (International Contract Furnishings); it is available with high or low back, with or without arms, covered in fabric or leather, single or ganged together in groups. The series includes complementary table designs. □

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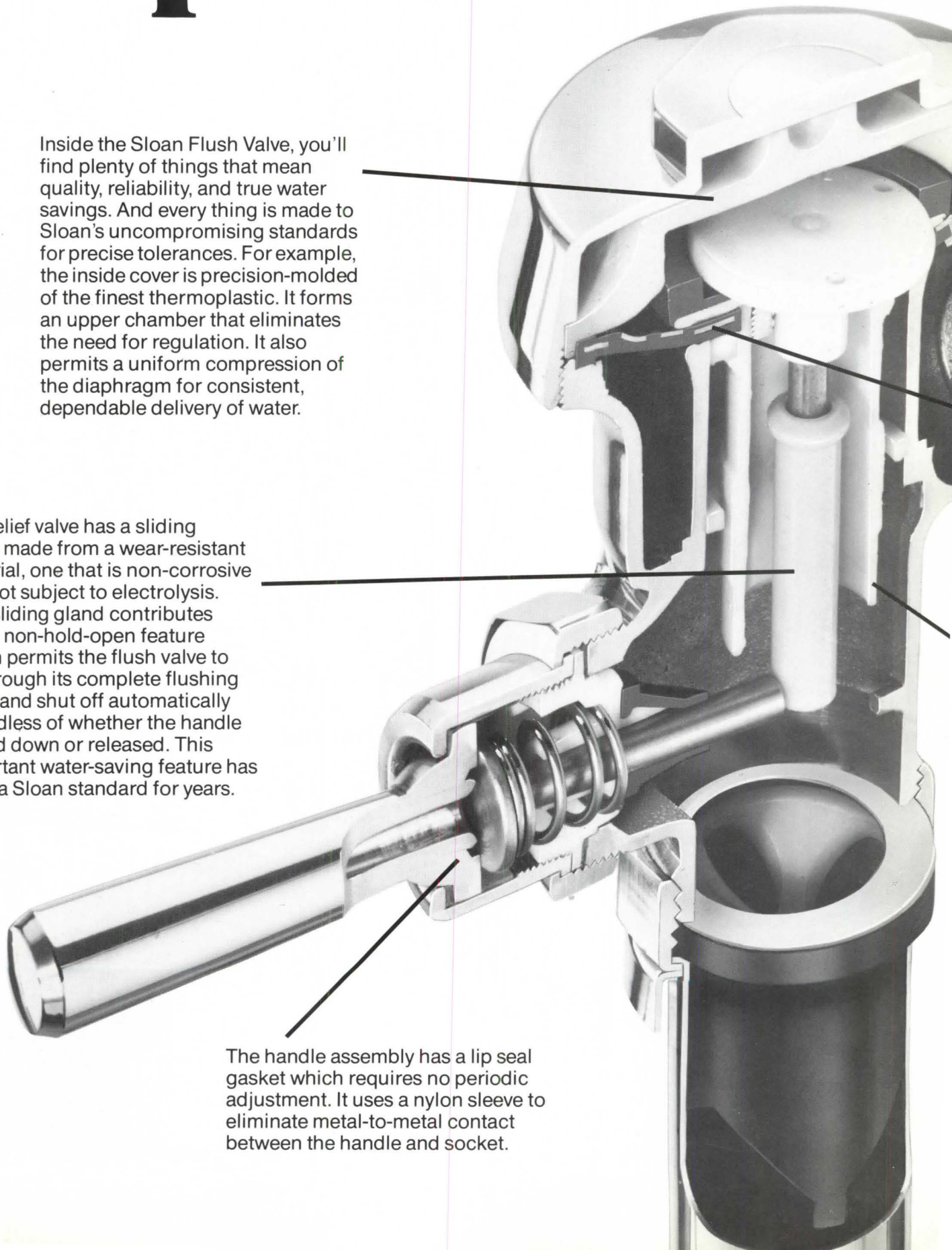
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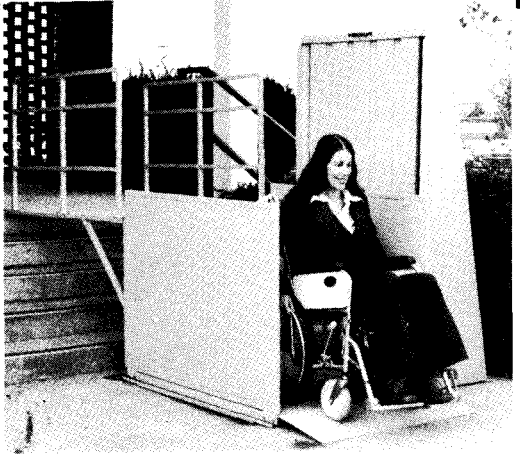
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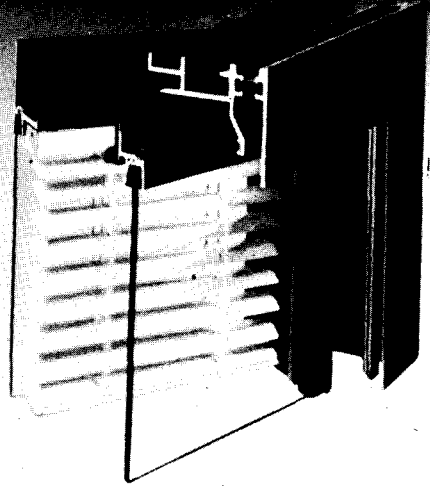
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Metrics from page 57

ported elsewhere, any such thing as a metric hammer) has been overcome, by means of tax credit for the cost of metric tool replacements.

The Canadian transition has not involved every single building product and component. In fact, even dimensioned lumber products were not included on the list of materials considered essential for hard conversion to rational metric sizes. Recognizing that many materials and products used in buildings have little or no effect on the dimensional framework, the Canadian industry committee responsible for construction identified a relatively small number of products whose availability in rational metric dimensions would be essential for metric construction. These included precast concrete components, reinforcing and rolled steel, metal siding, unit masonry, wood-based and gypsum panel products, certain extrusions, glass, doors and windows, ceiling panels and tiles, prefabricated partitions and recessed lighting fixtures.

S. Don Chutter, a Canadian consulting engineer who served as cochairman of that country's construction sector committee, speaks to the transition costs incurred by industry there. He notes, pointedly, that a voluntary conversion plan may preclude certain industries from going to government with requests for aid, while acknowledging that a nongovernment program is likely to be far less expensive overall. He also sees the costs of training and retooling as generally overstated. "We chose to call it familiarization rather than training because the matter has to be kept to scale. There is, of course, a learning period, but generally speaking in design offices it is said to take about a week for architects, engineers and draftsmen to get the hang of metrics."

For architects the prospect of conversion is hardly threatening from a design point of view. Indeed, those with experience in the system regard the familiarization process as relatively simple and certainly the use of SI is, once mastered, preferable to the current mode. The principal problems seem to lie in adjusting building codes and standards to work with SI measurements. Difficulties also have been encountered with computer hardware and software. But even these increasingly important design tools are now becoming available in metric equivalents.

Design professionals who do a substantial amount of work overseas are most persuaded of the benefits that would come from metrication and are most adamant about the need for a prompt U.S. shift to metrics. "Even if it's true that only 12 to 15 percent of our products are going overseas," says Avi Ariel, head of civil and architectural engineering for the Lummus Co. of New Jersey, "this is a *critical* amount. We don't stand to lose jobs by converting, we stand to gain them. We need this conversion now, before the rest of the world is so far ahead that we'll never catch it." His company designs many major projects in the Middle East and Africa, where there is no language for construction other than metrics.

His firm, like others that work in metrics, found no particular problems in mastering them. A major problem seems to be the costs associated with trying to find U.S. building products that will be compatible with their foreign metric counterparts. Lummus, for example, prefers to specify and design to U.S. codes, thus creating opportunities for the use of U.S. products. It found recently, though, that it was not possible to obtain products from the U.S. that would work economically for a project in the Middle East.

In what is frequently characterized as a "chicken and egg" situation, suppliers tend to say they can't produce metric components without the demand, and designers tend to say that they can't design in metric without the supplies. In the question of who is ready to lead the industry, producers appear now to have an upper hand. This is not necessarily for want of action on the part of architects or as a result of any difficulties inherent in learning to use metrics. Cleveland architect T. Clark Tufts, AIA,

has led the industry efforts to coordinate conversion, in part through his long service as chairman of the American National Metric Council's construction industries coordinating committee.

Several of the national model building codes are now being revised to follow conventional units with soft metric equivalent values wherever possible and appropriate. There is some belief among the model code organizations that by 1985 all model codes would be so amended. People have suggested that the movement toward metrics should also provide an opportunity to rationalize (or at least reconsider) certain fundamental provisions of existing building codes, not only for reasons of dimensional coordination, but also to eliminate outmoded or ill-founded concepts and provisions. Currently there is little action in this direction, however.

Transition to use of metrics is not accepted by everyone as inevitable. National Association of Home Builders' Vice President Milton Smithman thinks the industry has not decided at all the question of whether it wants the change. "You have to ask why? Just because everybody is buying a black suit doesn't mean that I can't buy a blue one," he says, being careful to observe that the NAHB has long had a policy of neutrality on metric conversion. Smithman thinks many important issues are as yet unanswered. "We're a very depressed industry right now and we don't need anything that is going to disrupt us further." Home builders, he suggests, cannot simply pass the costs of working in metrics to home buyers. Unlike general contractors, he says, home builders must absorb these costs while trying to keep the cost of the final housing product down. "A general contractor can bid to whatever has been designed. It's not his problem if metrics leads to greater construction costs, if that's what his client wants." Smithman would like to see the industry study cost questions in greater detail while recognizing the unique situation he believes his organization's members face.

The U.S. government's policy toward metric conversion is embodied in the Metric Conversion Act of 1975, in which Congress expressed preference for a voluntary approach and established, among other things, the U.S. Metric Board. This group has an educational and technical assistance role, designed to aid the process of voluntary conversion. Its activities have seemed to some to be rather more promotional than was intended by Congress, but such comments tend to come from those whose interests are not well served even by voluntary conversion.

Industry spokesmen agree, characteristically, that the federal government's approach to metric conversion should retain its voluntary character. But many people have ideas about ways to spur voluntary action. Tax breaks for the costs of retooling and other expenses are advocated most often. This approach might work well for the producers of certain kinds of building products, whose capital costs could be substantial, but would be more difficult to apply to, say, the costs of retraining workers or employees.

Metric proponents also look to other marketplace inducements. "What if the Department of Defense, for example, required all bids or designs to be tendered in metrics?" asked Weyerhaeuser Vice President J. L. Kulp in the Chicago session. "I'll wager that would have a dramatic effect. You'd see a great number of architects, engineers and building materials suppliers taking a sudden, intense interest in metrics." Like many other people, Kulp sees the design professions as being crucial to the transition.

Given the call for *unified action* that emerged from the NIBS Chicago symposium and the movement that is being carried forward from that forum and elsewhere, it would seem that conversion is upon us now. With concerted leadership from a handful of members, AIA has worked since 1974 to ready the profession for this eventuality. With those efforts and the experience of other countries to draw from, architects seem to be an element of the industry that is well positioned—if not yet quite prepared—to help lead an orderly transition. □

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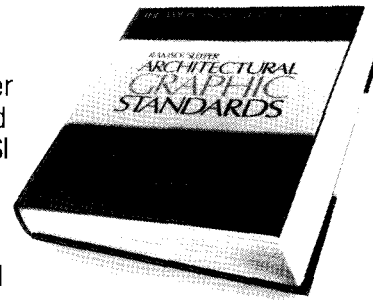
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