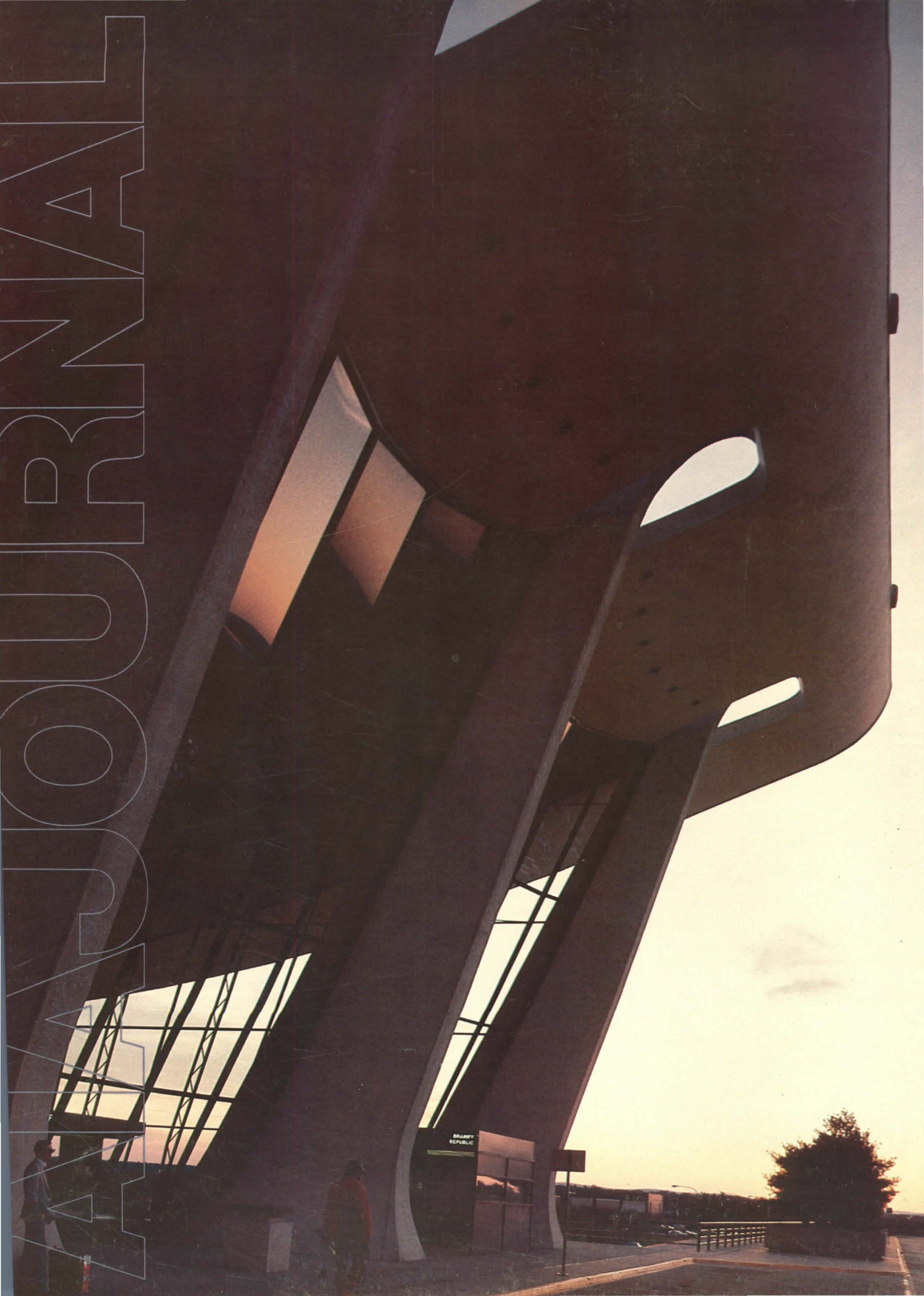


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**Some conventional ceiling systems give you high-quality light. Some furniture-mounted systems give you low-energy light. Only Tascon™ task lighting gives you both.**





Here's a dramatic improvement in lighting systems that can cut lighting costs by over 65% in either open plan or conventional offices. (See chart below.)

The principle behind Tascon lighting is simple. The lighting fixtures, because they're moveable, can be positioned to provide light only in the areas where it's needed. So a properly positioned Tascon fixture provides ESI values of 40 to 60 and up to 90 maintained footcandles on the work surface.

With one fixture for every 100 square feet, Tascon provides this high-quality lighting for less than one watt per square foot. And the 120-volt fixture with optional on/off capability can cut lighting costs another 15%.

**Unlike some low-energy systems, Tascon provides comfortable light.**

Because the Tascon pendant fixture illuminates from both sides, as well as above and behind, it distributes high-quality light evenly without the glare, shadows, and

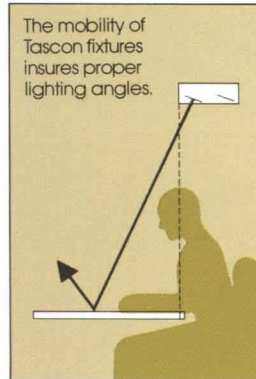
reflections some furniture-mounted task lights create.

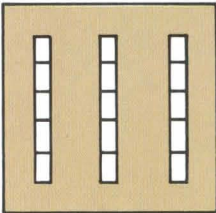
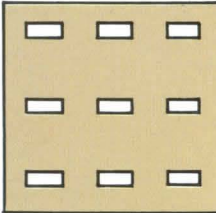
And Tascon directs 20% of its light upwards to create visual interest and ambient illumination.

**Armstrong Tascon fixtures fit most types of ceiling grids.**

The tracks that support Tascon fit most ceiling grid systems. And you can relocate them to reposition the fixtures easily. So Tascon gives you the quality of ceiling-mounted lights and the energy savings of furniture-mounted lights along with flexibility that neither can offer.

For more illuminating information about Tascon lighting fixtures, write Armstrong, P.O. Box 3001, Dept. 0BNAJ, Lancaster, PA 17604.



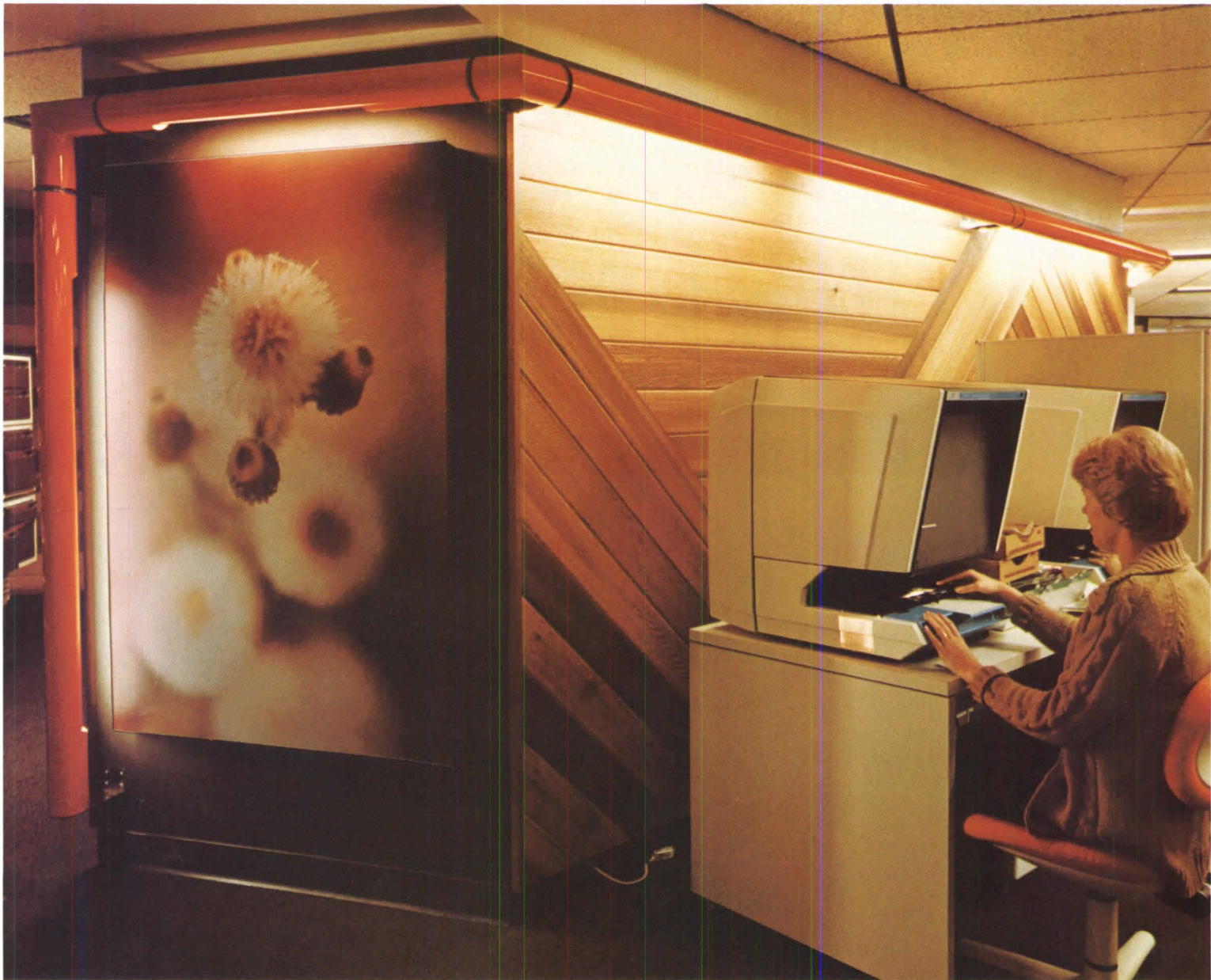
Performance Comparison – Conventional vs. Tascon			
Room size	30'x30'x9'		
Reflectances			
Ceiling	80%		
Walls	50%		
Floor	20%		
Task	#2 Pencil		
Lumens/Lamp	3150		
		<b>2'x4', 4-Lamp Recessed Troffer (prismatic lens)</b>	<b>2-Lamp Moveable Tascon Fixture (prismatic lens)</b>
No. of fixtures		15	9
No. of lamps		60	18
ESI (equivalent sphere illumination)		40 (80% area coverage)	40-60 (on work surface)
Classical footcandles (maintained)		95 (CU method)	90 (on work surface)
Watts/work station 100 sq. ft.		307	92
Watts/sq. ft.		3.07	.92



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Fluorescent lighting that goes up, ...  
over... down... or around corners...  
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**Specification  
Lighting**

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Circle 2 on information card

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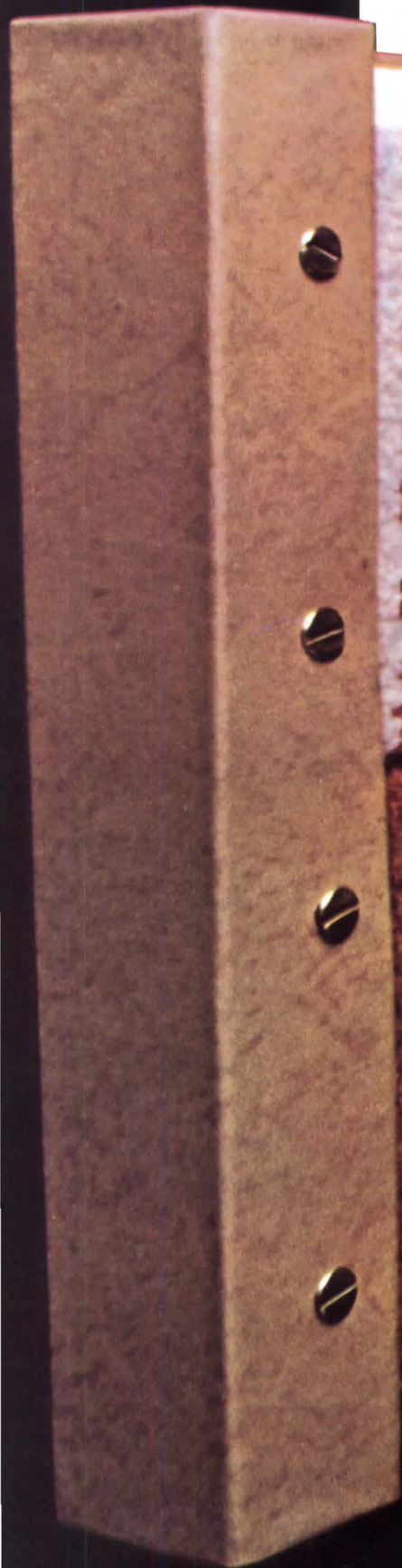
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**Cover:** Photograph by Allen Freeman of Eero Saarinen's Dulles Airport (see page 46).

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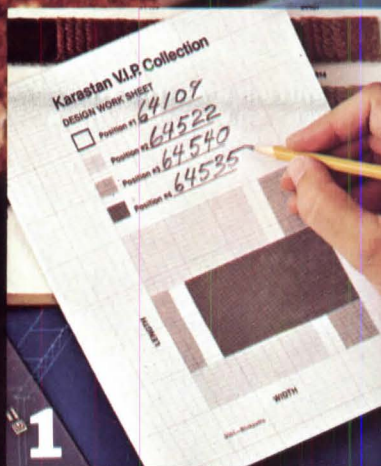
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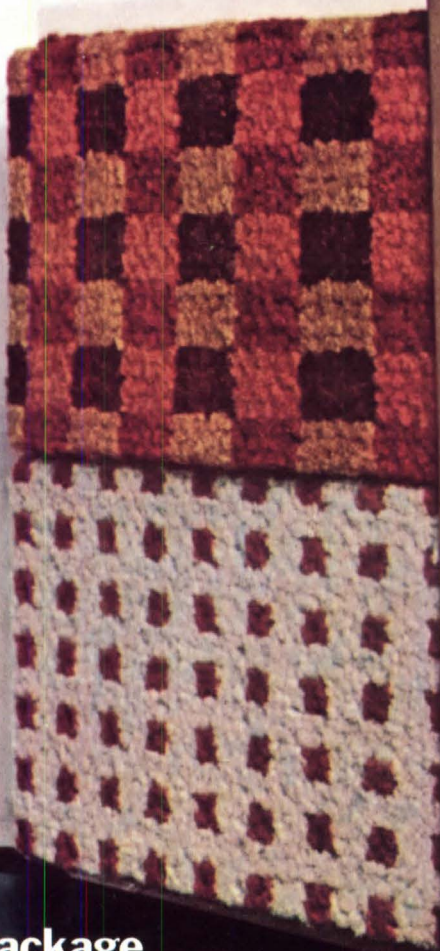
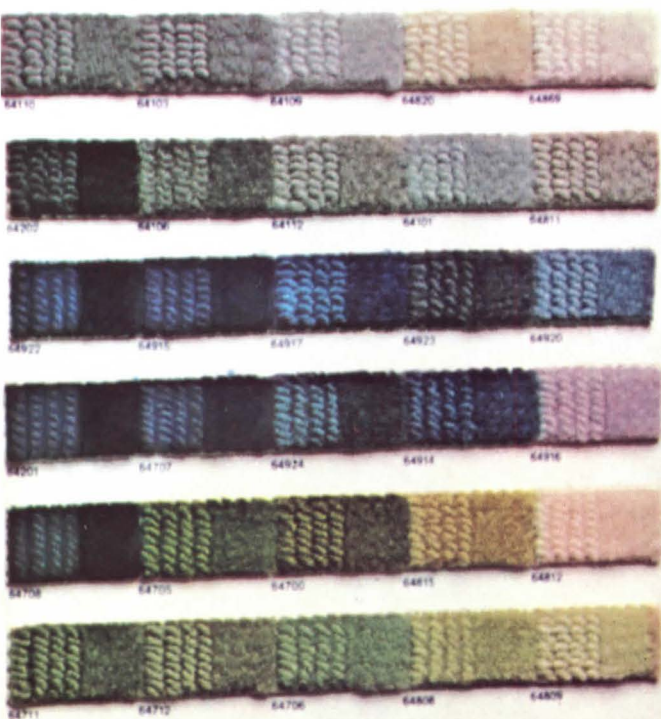
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2

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## EVENTS

**Dec. 1:** Entries deadline, plywood design awards program. Contact: American Plywood Association, Box 11700, Tacoma, Wash. 98411.

**Dec. 1-2:** Course on Construction Contract Claims and Damages, University of Wisconsin, Madison.

**Dec. 2-3:** Symposium on Metric Conversion in Construction, Hyatt Regency O'Hare, Chicago. Contact: Brian Landerger, Consultative Council, National Institute of Building Sciences, (202) 347-5710.

**Dec. 3-5:** Professional Marketing Seminar, Salt Lake City. (Repeat seminar on Dec. 10-12, San Francisco.) Contact: American Consulting Engineers Council, 1015 15th St. N.W., Washington, D.C. 20005, (202) 347-7474.

**Dec. 5:** Course on Thermal Inertia in Architectural Walls, University of Texas at Austin.

**Dec. 7-11:** Conference on Renewable Energy Technologies, Honolulu. Contact: Donni S. Hopkins, Hawaii Natural Energy Institute, University of Hawaii at Manoa, 2540 Dole St., Holmes 246, Honolulu, Hawaii 96822.

**Dec. 7-12:** International conference on housing and the built environment, Miami Beach. Contact: Department of Conferences, Florida International University, Tamiami Trail, Miami, Fla. 33199.

**Dec. 8-9:** Seminar on Construction Claims, Scottsdale Doubletree Inn, Phoenix. Contact: Margaret Miller, Pepperdine University School of Law, 2210 Wilshire Boulevard, Santa Monica, Calif. 90403.

**Dec. 8-9:** Conference on Synthetic Fuels Production, Stouffer's National Center, Arlington, Va. Contact: Energy Bureau Inc., 41 E. 42nd St., New York, N.Y. 10017.

**Dec. 8-10:** International Conference on Noise Control Engineering, Miami. Contact: Institute of Noise Control Engineering, Box 3469, Arlington Branch, Poughkeepsie, N.Y. 12603.

**Dec. 11-12:** Workshop on Energy Standards and Codes, University of Wisconsin, Madison.

**Dec. 11-12:** Course on Community Solar Programs, Orlando, Fla. Contact: Energy Programs, Jordan College, 360 W. Pine St., Cedar Springs, Mich. 49319.

**Dec. 15-17:** Workshop on Design Tools for Passive Solar: Small Computer Systems, University of Wisconsin, Madison.

**Jan. 11:** Annual Human Factors Workshop in Transportation, Sheraton Park Hotel, Washington, D.C. (Deadline for application is Dec. 15.) Contact: James K. Williams, Transportation Research Board, 2101 Constitution Ave., Washington, D.C. 20418, (202) 389-6466.

**Jan. 19-23:** Roofing technology seminar,

Tarrytown House Executive Conference Center, Tarrytown, N.Y. Contact: Roofing Industry Educational Institute, 6851 S. Holly Circle, Suite 250, Englewood, Colo. 80112.

**Jan. 31:** Nominations deadline, Pritzker architecture prize. Contact: Carleton Smith, Secretary to the Jury, 230 Park Ave., New York, N.Y. 10017.

**May 17-22:** AIA convention, Minneapolis.

## LETTERS

**Productivity?** I have just finished the article "Workplaces: The Open Office Revisited" (July, p. 50) and thank you for it. However, I still can't understand why the issue of productivity remains such a puzzle. The statistics quoted in the article tell more about the problem than is realized. If 53 percent of all employed persons work in offices, and I believe this is correct, what in God's name are they doing?

Office workers are essentially managers of one form or another. This means that of every 100 workers, 53 are planning, organizing and directing the work of the remaining 47. Now, with a ratio like that, how can anyone get anything done?

What is happening is that the thing is feeding on itself. Every manager needs a secretary and an assistant. This, in turn, means more people in the personnel, payroll, insurance and tax departments. These added employees, of course, in turn, need more managers, secretaries and assistants. Each office worker, in effect, tends to create work, paperwork, for other office workers.

As the paperwork builds, the answer seems to be to hire more people to handle it. The tragedy in all of this is, of course, that nothing significant is achieved, and many office workers, at least subconsciously, realize this. Since it is hard to take pride in, or be inspired by, meaningless and nonproductive efforts, many office workers find it difficult to concentrate on their work or to expend much effort in doing it. This necessitates a study on productivity. And who makes such a study? A consultant firm comprised of yet more office workers.

There is a solution to this problem, however, and it can be initiated by large and small organizations alike. Instead of hiring more office personnel when the need arises, consider letting the least efficient people go and thereby get to the root of the problem.

The benefits would be great for everyone. The laid off workers could seek blue collar work. This would tend (unions notwithstanding) to increase competition and lower the price of labor which could become manifest in lowered prices for goods and services, thereby making the

productive sector of our economy more affordable for everyone.

*Frederick H. Herrmann, AIA  
Ann Arbor, Mich.*

**Quickborner Team:** I was never a member of the Quickborner Team (July, p. 50). I was, however, an early supporter of its concepts and ideas and worked closely with the team on the interiors of the now legendary Mercedes-Benz of North America project. *Hans Krieks  
New York City*

**San Francisco:** I was interested in the article on Market Street in San Francisco in the August issue (p. 31). As project architect and joint venture director, I have an intimate knowledge of the people and process responsible for it. While I enjoyed the photographs (Joshua Freiwald nearly always does an excellent job) and have little objection to the text, I am more than a little distressed by the credits indicated.

The Market Street project is the product of a joint venture of the firms of Mario J. Ciampi & Associates, John Carl Warnecke & Associates and Lawrence Halprin & Associates, and *not* the product of a joint venture by three individuals as indicated, nor was it designed in part or whole by those individuals, either severally or jointly.

*All work by all individuals was performed in a joint venture office by a joint staff, including several designers supplied by the three firms. It is not correct in either spirit or fact to indicate that Halladie Plaza was "by the Warnecke firm," or that U.N. Plaza and Fountain was "by Halprin."*

The reference on page 34 to "Ferry Building Park" is not technically correct, although it may be referred to by some by that name. The working title for the project was Embarcadero Park; upon completion, it was dedicated as M. Justin Herman Plaza, in memory of the late director of the San Francisco Redevelopment Agency. *William R. Hull, AIA  
President, CHNMB Associates  
San Francisco*

**Corrections:** The statement was made in the article "How Competitors View Competitions" in the August issue (p. 56) that Mitchell/Giurgola was one of the three finalists in a competition for the design of the Public Service Building in Portland, Ore. The entry was submitted by the team of Mitchell/Giurgola/Broome, Oringdulph, O'Toole, Rudolf & Associates, P.C.

In the September issue (p. 32), the statement was made that Forest Gerald Gast won an honorable mention in Milwaukee's lake front competition. The correct name is Gerald Gast, AIA.



# NEWS ABOUT SEALANTS

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

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



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



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

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

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

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

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

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

# Lone Star

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

The 1,000-room hotel is completely curtained in LOF Vari-Tran® silver-coated glass windows and spandrels that mirror the 50-story tower and its Vari-Tran-glassed geodesic dome top.



Special features within the complex include the hotel's 18-story glass-roofed atrium and 6-story glass wall that give hotel guests spectacular views of Reunion Tower and its surrounding parks. And glass-enclosed elevators that rise within the atrium, pop through the roof and ascend in a mirror glass shaft to the upper floors.

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Contractor: Tracey Trombley Construction Company  
Structural Engineer: John P. Stopen

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For information about a free computerized cost-analysis of retrofit options for your building, including pay-back estimates based on fuel savings, write: H. H. Robertson Company, Department J-11, 400 Holiday Drive, Pittsburgh, PA 15220.

\*Based on typical (as of March 25, 1980) fuel costs of \$0.87/gallon, annual estimated savings today are \$15,225.00. (Fuel savings estimates and U-value measurements by Cappuccilli-Bell.)  
Formawall, Durasil, Versacor and Vitralume are registered trademarks.



Before: Prior to Formawall retrofit, Salmon River School had a 1.10 U-value for glass and a 0.20 U-value for wall panels. (Photo by Dennis Spina, Cappuccilli-Bell.)

**Robertson**

Circle 6 on information card

Practice

## Survey Finds Most Graduates Staying in Architectural Field

There is no evidence from any serious study to support the oft-quoted figure that suggests that half or more of architectural graduates do not enter the profession, according to a survey prepared by Roger Schluntz, AIA, and Gordon Gebert, AIA, for the Association of Collegiate Schools of Architecture under a grant from the National Endowment for the Arts. The survey finds that a "clear majority" of the 3,000 to 3,500 annual graduates with professional degrees in architecture find work either in architecture or in a closely related field.

The survey tracked 1967, 1972 and 1977 graduates of 25 schools, selected to represent 30 percent of those with accredited programs. It sought answers to such questions as: Where do they go? What happens to them? What type of work do they engage in? Those surveyed were asked to describe their type of employer and their primary work activity in five-year increments following their first year after graduation. For example, 1967 graduates reported job and activity in 1968, 1972 and 1978. Thus, from the more than 3,000 survey responses comparisons could be made in employment trends and observations made on entry into and exit from the profession.

In a comparison of the three groups of

graduates (1967, 1972 and 1977) over a 10-year period, it was found that there is little difference in the respondents' current employer. A "fairly consistent" plus or minus 60 percent are either in architectural or architectural/engineering firms. From 8 to 10 percent are in building/construction/development firms, and a "surprisingly low" 8 percent are in firms other than those related to the design professions.

About 7 percent are in government work, 4 percent of whom are in activities closely related to architecture. About 3 to 5 percent of the 1967 and 1972 graduates are teachers. "With 1 percent unemployed, only about 9 percent of all graduates appear to be in other clearly unrelated employment."

An examination summary of work activities for all graduates, regardless of employer, reveals that 43 percent are either in general architectural practice or architectural apprenticeship; 12.5 percent are involved primarily in working drawings, and 7.7 percent specifically in design. Seven percent of the sample are engaged in structural design, specifications writing, cost estimating, field supervision/observation and mechanical/electrical activities; slightly more than 6 percent are in administrative positions.

Another 6 percent are in graphic design, interior design, planning/urban design and landscape design; about 4 percent are engaged in further study, and 1.7 percent are teachers—weighted lower, according to the report, because of the 1977 graduates. "With less than 2 percent not responding to the question and 1 percent unemployed, only 6 percent can be clearly determined to be in activities significantly unrelated to their architectural degree."

About two-thirds of the 83 schools with accredited degree programs still offer the traditional five-year bachelor of architecture degree. Many changed, however, to a "4+2" program (or a "2+2+2"), one

premise being that there would be greater opportunity for those with a "liberal" education to continue at the master's degree level in such specialized areas as urban design, business management or even law. The survey found, however, that "there is no supportive evidence . . . that this assumption has yet been realized to any significant level." Evidently many so-called nonprofessional graduates are going into and staying in architecture, "ignoring the anticipated later benefits of a professional master of architecture degree."

The report points out that the result of the entry of some schools into the non-traditional programs has "substantially" increased the number of architectural students, while at the same time decreasing the number of professional degrees awarded. But the number of people "studying architecture" cannot be answered, although estimates are usually in the 30,000 plus range.

"What is known, and is significant, is the actual number of professional degrees awarded each year, as well as the number of four-year nonprofessional degrees (e.g., a B.A. or B.S. in architectural studies or environmental design, which may be followed by a two-year master of architecture first professional degree)." In 1977, the 83 accredited schools awarded 2,315 bachelor of architecture degrees; 581 masters' degrees following a four-year nonprofessional degree, and 224 masters' degrees following a first degree in another field. At the same time, the same 83 schools conferred a total of 2,275 four-year, nonprofessional degrees. It is not known, according to the report, just what percentage of the latter group "will either complete a professional architectural degree or enter the architectural job market (possibly becoming licensed) without the basic academic credential."


## ACEC Adopts New Ethics Code, Seeks Justice Suit Dismissal

The American Consulting Engineers Council's board of directors has approved a new code of ethics that contains five "fundamental canons." In the fulfillment of their professional duties, ACEC members will: "hold paramount the safety, health and welfare of the public . . . ; per-

*continued on page 14*

### Practice

<i>Survey of architectural graduates</i> (above)	
<i>ACEC adopts new ethics code</i> (right)	
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*Structural Engineer:*

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*General Contractor:*

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*All of Houston, Texas.*

# Only steel made possible a major redesign in Houston's newest Allen Center building.



When the steel for Allen Center's newest building, a 50-story, 1.3-million square foot tower, was almost half erected, a major downtown banking institution, Capital National Bank, requested a large

block of space on the lower floors. To accommodate the bank's needs, the floors were redesigned to provide an open atrium-like area for banking and office levels. This major redesign was only possible because of the building's steel frame.

The imposing, bronze-tinted Capital National Bank Plaza building is one of Houston's tallest skyscrapers, a \$100-million addition to Allen Center—a \$1-billion complex in the central business district.

## Steel Tubular Design Frame

The steel tubular design frame—the first of its kind in Houston—is made up of 54 perimeter tree columns on 10-foot centers.

Two stories high, these narrow prefabricated assemblies of exterior columns and exterior beams not only help reduce construction time but provide more window area, enhancing the leasability of the space.

The building's unusual eight-sided shape, intended to provide tenants with a variety of views and extra corner offices, also created eccentric wind loadings which are more efficiently handled by tubular design. 16,500 tons of steel went into the building—most of it supplied by U.S. Steel.

The unique story of this newest Allen Center tower is one more example of the flexibility of structural steel. In this case it permitted redesign and changes in a part of the structure already completed; without affecting the scheduled opening date of June, 1980.

To find out more about this building, and for information regarding the many applications for structural steel, contact a USS Construction Representative through your nearest U.S. Steel Sales Office. Or write for the USS Building Report (ADUSS 27-7675-01) to P.O. Box 86 (C1269), Pittsburgh, PA 15230.



**United States Steel**

*Circle 7 on information card*

### Practice from page 11

form services only in areas of their competence; issue public statements only in objective and truthful manner; act in professional matters for each client as faithful agents or trustees; avoid improper solicitation of professional assignments." The code's preamble calls for "adherence to the highest principles of ethical conduct" on behalf of public and clients.

The new code deletes three professional guidelines that had prompted a lawsuit by the Department of Justice (see Oct., p. 21).

The old guidelines, never enforced, discouraged ACEC members from acceptance of contingency agreements that could compromise professional judgment, performance of free services except for charitable groups and participation in design competitions except where competitors were compensated.

"The new uniform code was approved by our board, as we told the Department of Justice it would be, on four occasions prior to the suit," said ACEC President Everett Thompson. ACEC now seeks dismissal of the suit.

In other action in Indianapolis last month, the ACEC board voted to establish a legal defense fund "to permit ACEC to support the filing of amicus briefs or other legal efforts to challenge lawsuits or government agency actions which handicap the practice of consulting engineering."

According to ACEC, this action resulted from "questionable practices" by the Environmental Protection Agency's office of inspector general and from "potentially precedent-setting rulings by the Occupational Safety and Health Administration affecting the engineer's liability in safety inspections."

The OSHA ruling pertains to a fine placed against a consulting engineer "who happened to be at a demolition site at the time of a safety inspection," said ACEC.

The action protested by ACEC regarding EPA's inspector general's office concerns a suit brought against a Louisiana A/E firm. The inspector general demanded that the firm supply records for 1977 through 1979.

According to ACEC, the firm agreed to supply 22 of 27 requested items "but sought . . . justification for such records as bank statements, director minutes and current and past employee records." EPA refused to provide audit guidelines, initiated a grand jury investigation and notified public clients that EPA grant funds for projects in process would be frozen until the firm gave up all its records. "The steps occurred despite a lack of specific charges of any misconduct by the firm."

ACEC's board called the EPA actions "a frightening display of big government at its worst," and authorized an immediate assessment "of up to \$5 per index number based on firm size for legal efforts. . . ."



**The Darwin D. Martin House:** Designed by Frank Lloyd Wright (1904-06), the Martin house in Buffalo is being restored by its owner, the State University of New York at Buffalo, for use as a Canadian-American cultural center (photo above). The D. D. Martin house complex, which includes the George F. Barton house, designed by Wright for Martin's sister, and a gardener's cottage, is on the National Register of Historic Places. Significant architecturally because it was designed according to Wright's "grammar" of relating all elements to the whole (site, space, structure, materials and furnishings), the house symbolically represents an almost ideal client/architect relationship. Martin was responsible for Wright's obtaining six commissions in Buffalo, including the revolutionary Larkin Building (1905) now demolished and Martin's lakeside home southwest of the city. Wright also designed a house for Martin's brother in Oak Park, Ill., and the E-Z Polish Co. factory in Chicago for the two brothers.

### Probing the Uneasy Alliance Of Architects, Preservationists

Do current training and practice foster partnership or alienation between architects and preservationists? What is the state of the art in developing designs that are compatible with older environments? Are there limits of compromise? These were some of the questions posed to a panel on "Architects and Preservationists" during the annual meeting of the National Trust for Historic Preservation in New York City last month.

The five panelists were Paul Goldberger, architectural critic of the *New York Times* (moderator); John Belle, AIA; Hugh Hardy, FAIA; Frank Sanchis, administrative architect for Manhattan's landmarks preservation commission, and Robert A. M. Stern, AIA.

The remarks of the panelists reflected the somewhat awkward alliance between architects and the "new" preservationists, and also the fact that there is a fresh, strong energy and broad sophistication in today's preservation movement.

The energy was typified in the meeting's opening remarks by Michael Ainsley, the new National Trust president. "In the last 10 years . . . historic preservation has become a national movement," he said.

"We have a vocal constituency," Ainsley said, "that has influenced legislation and urban policy. We can show that preserva-

tion creates jobs, saves energy, revives neighborhoods and generates taxes. Preservationists have become experts in urban design, real estate financing, zoning law, community organization and high level arm-twisting."

In the panel's discussion of the architect's role in preservation, Goldberger said, "We dance around the word 'preservation' and feel uncomfortable." He said that the issues raised two and a half years ago at a National Trust conference on "Old and New Architecture: Design Relationship" remain the urgent ones. That is, the "search for some sort of alternative to what had been the unfortunate polar opposites of sort of a Williamsburg-like kowtowing reproduction of older architecture on the one hand and the arrogant must-be-different stance of modernism on the others." What is needed, he suggested, "is the very difficult and subtle achievement of the in-between."

Sanchis said that "part of the problem may be the nature of historic districts themselves, which are composed of buildings not designed by architects at all. It's a difficult task to subdue design tendencies . . . and conceive of a building that must . . . in order to be compatible, be self-effacing and unobtrusive."

Historic districts vary, Sanchis said. "Some are composed of highly designed, highly ornamental buildings. In such districts, an architect's most flamboyant ex-

*continued on page 16*





# The elevators were running before the building was finished.

Delivered on time. Installed on time. Operating ahead of time. That's the story of the 22-elevator installation at Clinical Science Center of the University of Wisconsin-Madison, one of the most ambitious building projects ever in the state of Wisconsin.

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## Practice from page 14

pression probably would be the compatible thing, and not a subdued structure concentrating on maintaining scale and material. Architects, therefore, must develop judgments about the nature of historic districts beyond matters of scale and size."

Sanchis also said that "preservationists have been perhaps too zealous in their efforts to save buildings by freely advocating recycling rather than investigating methods of maintaining their existing uses." Some buildings had been saved, he said, but others had needlessly been "awkwardly converted," that reuse formulas have "led to a tendency for all buildings to look alike."

Stern predicated an end to "this panic philosophy . . . that any old building is better than any new building." Goldberger agreed, saying that much of the preservation movement had been based "in large part on a negative impulse rather than a positive one, not so much out of a belief that the buildings that we save are so good as out of fear that the buildings that replace them will be no better, or will be inferior." He said that the issues must be dealt with in terms of specific cases. "We can talk long into the night and not come up with a set of guidelines that will work. . . ."

The panelists seemed to agree that training and practice foster more alienation than partnership between architects and preservationists. Sanchis said that "architectural training fosters an emotional attachment to the process of design, to the exciting challenge of creating a new thing." In contrast, preservation training "creates an emotional attachment to what has already been created."

Stern said that an architect's education must include "a physical involvement with buildings and historic form. . . . We must learn how to make designs in the historic styles, as exercises at the very least, in order to become familiar and comfortable with these buildings and to understand how they were put together and to be able to carry them forward in time."

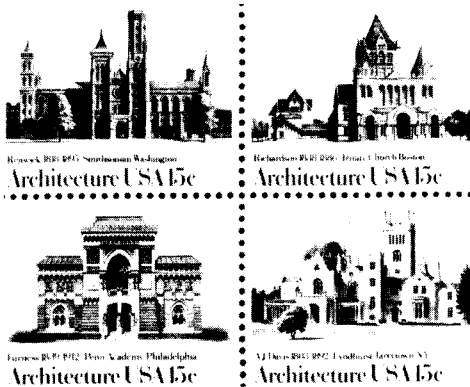
The fact that architects have abandoned a serious investigation of historic styles, he said, "shows terribly when architects are faced with preservation problems."

Stern added that "preservationists had to go into schools of architecture and found their own programs because there truly was an alienation." It was only after historic preservation became so popular, he said, that "we had to extend, dissolve and build a very specialized graduate field before the core of that program became the core of the generalist architect's training." *Judith Helm Robinson, consulting editor, Traceries, Washington, D.C.*

## Four New Commemoratives

The second round of U.S. postage stamps in the American architecture series features 19th century buildings—the original structure of the Smithsonian Institution, Washington, D.C. (James Renwick), the Trinity Church, Boston (Henry Hobson Richardson), the Pennsylvania Academy of Fine Arts, Philadelphia (Frank Furness) and the Lyndhurst Building, Tarrytown, N.Y. (Alexander Jackson Davis).

The four commemorative stamps are the design of Walter D. Richards of New Canaan, Conn., who also designed the first four stamps in the series issued in 1979. The first series depicted Thomas Jefferson's University of Virginia Rotunda, Benjamin Latrobe's Baltimore Cathedral, Charles Bulfinch's Boston State House and William Strickland's Philadelphia Exchange (see July '79, p. 21). This year's first-day of issue ceremonies were held in conjunction with the annual convention of the National Trust for Historic Preservation last month in Philadelphia.



## UIA Sets Registration Deadlines For June Congress in Warsaw

American architects who expect to attend the 14th congress of the International Union of Architects in Warsaw on June 15-21 are requested to return registration forms no later than April 15. For additional information, contact the assistant secretary's office at AIA headquarters. The registration fee before March 1 is \$240; afterward, \$264 (students, \$120 and \$132, respectively).

The theme of the congress is "Architecture-Man-Environment." Many work groups have already met preliminary to the congress in preparation of the program, including the committee organized in 1978 to prepare the final version of the Warsaw Declaration of Architects (see Aug., p. 25).

In addition to congress discussions and deliberations, there will be daily trips to sites of interest in and near Warsaw, such as to Warsaw's renowned Child Health

Centre; Zelazowa Wola, the birthplace of Frederic Chopin, and Lowicz, one of Poland's oldest towns, situated on the Bzura River and famous for its rich folklore festival on the day of Corpus Christi, which falls in 1981 on June 18.

Before and after the congress, architects may opt for trips to Cracow, Gdansk, Wroclaw and other historic Polish cities, as well as to cities outside Poland, including Budapest, Sofia, Prague, Moscow and Leningrad. All bookings must be paid for before April 15.

An accompanying seminar to the congress, to be held in Lodz on June 22-23, has as its theme "Tradition-Modernism: Confrontation and Inspirations."

## Nine Concrete Projects Cited for Esthetics, Function, Economy

There are nine top winners in the 1980 awards program established by the Prestressed Concrete Institute. Winners were selected "for their achievements in esthetic expression, function and economy using precast prestressed concrete, architectural precast concrete, or both."

The winners are:

- Central Pre-Mix Concrete Co. corporate headquarters, Spokane, Wash. (Walker, McGough, Foltz Lyerla, architect).
- John Fitzgerald Kennedy Library, Dorchester, Mass. (I. M. Pei & Partners, architect).
- Asheville, N.C., general mail facility (Six Associates, Inc., architect).
- Robert Morgan Vocational-Technical Institute, Miami (Perkins & Will Group, Inc., architect).
- Interchange Building, Atlanta (Cooper, Carry & Associates, Inc., architect).
- Bar Point Harbor expansion, Anchorage (Corps of Engineers, Alaska District, engineer).
- Athabasca Falls vehicular and pedestrian bridges, Jasper National Park, Calgary, Alberta, Canada (Reid, Crowther & Partners Ltd., engineer; Stevens, Graham, MacConnell Milton Partners, consulting architect).
- KY 676 over the Kentucky River, Frankfort, Ky. (American Engineering Co., engineer).
- Interstate 55, LaPlace to Ponchatoula, La. (Louisiana Department of Transportation and Development, Office of Highways, designer).

The jury was chaired by Charles E. Schwing, FAIA, president of the Institute. Other jurors were Gilbert R. Beatson, president of the Royal Architectural Institute of Canada; Irvan F. Mendenhall, president-elect of the American Society of Civil Engineers; William H. Kessler, FAIA, and Fazlur R. Khan of Chicago.

*News continued on page 19*

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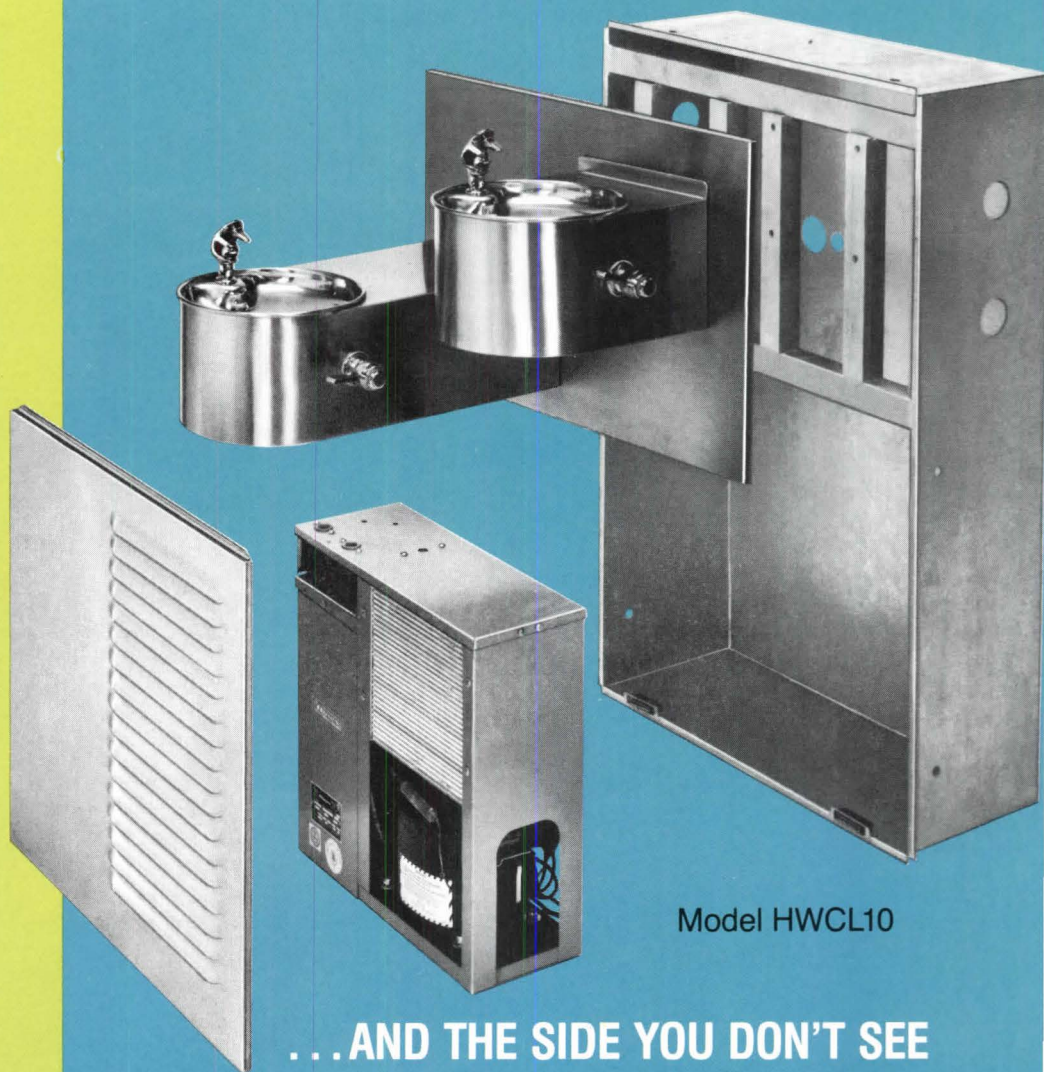


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**Haws**

# U.S. Building Museum Founded; Pension Site Approval Awaited

The Committee for a National Museum of the Building Arts has officially founded the national building museum and appointed a 22-member board of directors. Meanwhile, legislation is pending in Congress to establish the museum in the 1883 Pension Building in Washington, D.C., (below) under the direction of GSA and the museum's board of directors.

Museum authorization is contained in the National Historic Preservation Act Amendments of 1980, legislation approved by House and Senate committees. The bill makes the government-owned Pension Building available to the committee without charge for the establishment of the museum.

The bill states what kinds of programs the museum should house. The museum would, says the bill, collect and disseminate information concerning the building arts, establishing a national reference center for current and historic documents, publications and research; foster educational programs relating to the history, practice and contribution to society of the building arts; display temporary and permanent exhibits illustrating, interpreting and demonstrating the building arts; sponsor or conduct research and study into the history of the building arts and their role in shaping our civilization, and encourage contributions to the building arts. These programs are essentially what the museum's board of directors has in mind.

The museum's first director, Bates Lowry, and the board of directors plan to establish the building's vast central space as a "national showcase for innovative design solutions developed to meet local architectural problems in communities throughout the country."

"Building arts" as defined in the bill include architecture, archeology, construction, building technology and skills, landscape architecture, preservation and conservation, engineering, urban design and renewal, city and regional planning and related professions, skills, trades and crafts.

Although providing no funds to renovate or restore the Pension Building, the bill states that GSA should begin immediately to "preserve, enhance and restore the distinctive and historically authentic architectural character of the site consistent with the needs of a national museum of the building arts and other compatible uses." Money would be requested by GSA, and the bill proposes that federal historic preservation funds be made available.

The cost of renovation of the Pension Building for a "nonspecific building type" has been estimated by GSA at \$14.3 million. Conversion to a building museum would cost an estimated \$1.6 million additional. These figures were arrived at in a GSA design concept study. In 1978, GSA was directed by Congress to make preliminary studies of the existing condition of the Pension Building and what would be needed for renovation.

Since the cost of converting the building into a museum after renovation is "so slight," says the GSA report, the plan for the building museum is a "most attractive proposal." GSA also says that the Pension Building "will most definitely prove to be an ideal host for the activities" of a national building museum. "The exterior and interior of this remarkable structure," the report continues, "is a tribute itself to American architectural and engineering expertise and innovation."

The museum's founding committee reported that it would be the first institution founded solely to focus attention on the built environment through a national program of exhibitions and publications.

The board of directors is to raise funds for the museum's operation from individuals and from corporations and labor unions involved in the building industry. To broaden its base, the committee appointed two labor leaders and two businessmen to the board: Robert A. Georgine, president of the AFL-CIO building trades department; John T. Joyce, president of the International Union of Bricklayers and Allied Craftsmen; William B. Moore Jr., corporate executive of Reynolds Metals Co., and David S. Miller, a management consultant.

The first president of the museum is Albert Bush-Brown, Hon. AIA, architectural historian and chancellor of Long Island University since 1971.

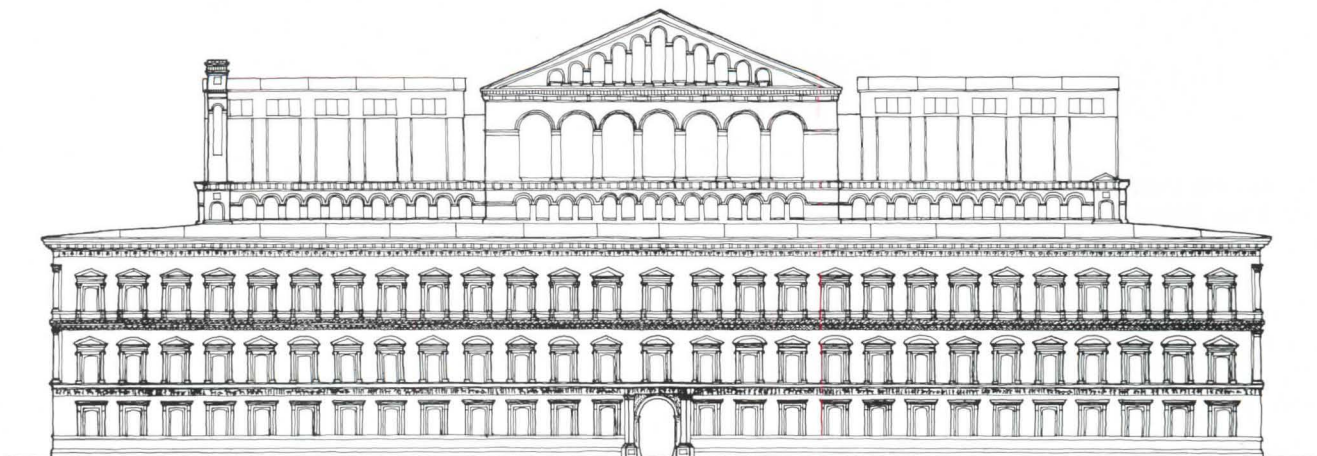
Bates Lowry is former director of the Museum of Modern Art in New York City, a cofounder and president of the Committee to Rescue Italian Art, and founder and president of the Dunlap Society, which promotes the study of American art and architecture.

Other board members are Mrs. Prosser Gifford; Lois Craig; Cynthia R. Field; Harold C. Fleming, Hon. AIA; O'Neil Ford, FAIA; Herbert M. Franklin; Paul Gapp; Edward T. Hall; Charles A. Horsky; Richard H. Howland; Bill N. Lacy, FAIA; Phyllis Lambert; David Olan Meeker Jr., FAIA; Mrs. Eric Mendelsohn, Catha Grace Rambusch; Chloethiel Woodard Smith, FAIA; Mrs. Adlai Stevenson, and Beverly Willis, FAIA.

## Registering for Federal Work

Architects and landscape architects can now register on a continuous basis for federal employment. In the past, registration has been opened for only about six weeks at a time. The government's intent is to draw a greater number of qualified design professionals into federal work,

*continued on page 20*



## Government from page 19

according to a spokesman at the U.S. office of personnel management.

Each architect and landscape architect desiring employment must submit an application form and a portfolio of 35 millimeter slides illustrating knowledge, skills and abilities. When a sufficient number of applications has been received, a panel of professionals from both private and public organizations will review the applications and assign a rating to each one.

Architects will be rated on ability to control and order work, research ability, technical knowledge and skills, ability to conceptualize ideas and communicate. When accepted for the register, an applicant will be considered for federal em-

ployment for one year and can remain on the register after that time by written notification.

When a government job becomes available, the applicants with the highest ratings will be interviewed and a selection will be made based upon rating and the interview. Approximately 70 architects and 35 landscape architects are hired each year by the federal government. The agencies with the largest number of jobs are GSA, and the Departments of Interior, Agriculture and Defense. Starting salaries range from \$14,618 to \$29,375.

For more information, contact a federal job information center or Frank Musica, director of federal agency liaison, at Institute headquarters, (202) 626-7382.

## Deregulating Small Business

Legislation designed to lessen the burden of federal regulations on small businesses was recently signed into law. The Regularity Flexibility Act (PL96-354) states that uniform federal regulatory requirements have placed "disproportionately burdensome demands including legal, accounting and consulting costs upon small businesses, small organizations and small governmental jurisdictions with limited resources." The failure to recognize differences in size "has in numerous instances adversely affected competition in the marketplace," creating entry barriers and discouraging innovation. The law calls upon federal agencies to "seek to achieve statutory goals as effectively and efficiently as possible without imposing unnecessary burdens on the public."

To fulfill this mandate, the law requires federal agencies to publish in the *Federal Register* twice yearly a description of any rule that is "likely to have a significant economic impact on a substantial number of small entities." Also, each rule must be analyzed, with a statement given of its needs and objectives.

Further, federal agencies must systematically review all rules that may affect small entities adversely in order to determine "whether such rules should be continued without change, or should be amended or rescinded. . . ."

The principal provisions of the act go into effect on Jan. 1.

AIA has long supported and worked for the reduction of the regulatory burden on small businesses.

## Vietnam Memorial Competition

A nationwide design competition for a memorial to the veterans of the Vietnam War has been announced. Sponsored by the Vietnam Veterans Memorial Fund, a nonprofit organization, the competition is open to architects, sculptors, landscape architects and artists.

The memorial will be located in Washington, D.C., near the Mall on a two-acre site known as Constitution Gardens. The use of the land for this purpose was approved by Congress and signed into law by President Carter on July 1. Only private funds will be used for the design and construction of the memorial.

The memorial is to be a "symbol for national unity and reconciliation after the controversy of the Vietnam War." The names of the Americans who died in Vietnam will be inscribed in the memorial.

Those interested in the competition must register by the first week of December. For more information contact: Vietnam Veterans Memorial Fund, Design Competition, Suite 806, 1730 M St. N.W., Washington, D.C. 20036, (202) 659-1151. News continued on page 23



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**Johns-Manville**

*Circle 12 on information card*

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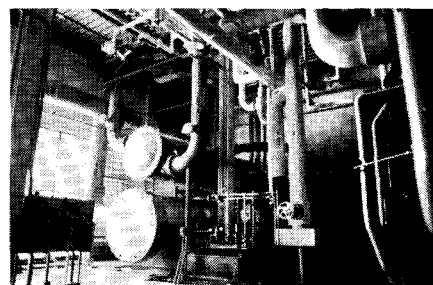
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## Gas: The future belongs to the efficient.

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## ASHRAE Revises Nine Parts Of 90-75 Conservation Standard

The American Society of Heating, Refrigerating and Air-Conditioning Engineers has revised the first nine sections of its 90-75 standard, "Energy Conservation in New Building Design." The revisions, which have been approved by the American National Standards Institute, are designed to help engineers, architects and building owners "reduce energy consumption in new buildings," says ASHRAE. However, ASHRAE officials declined to estimate how much energy could be saved.

Sections one through nine cover the building envelope, HVAC systems and equipment, domestic water heating, energy distribution within the building and lighting. The lighting portion was written by the Illuminating Engineering Society of North America.

While the standard's basic format remains unchanged, some requirements have been updated or eliminated and new ones have been added. Examples of the changes reflected in the revised portion, called ANSI/ASHRAE/IES 90A-1980, follow.

- A new provision has been added that promotes the capture and reuse of con-

denser heat, other waste heat and solar energy in the production of domestic hot water.

- Compliance of the roof-ceiling combination through the use of a formula called an OTTV (overall thermal transfer value) has been added.
- More efficient air moving systems in HVAC equipment are required through a change in the value of the "air transport factor," the ratio relating the amount of sensible heat removal to the energy needed to operate the required fans.
- The previous requirement of a "power factor" (the relationship between reactive power and real power) has been eliminated.
- Mandatory individual energy metering has been eliminated.
- An improvement in energy efficiency ratios that must be posted on all HVAC equipment is mandated.
- Design data have been updated.
- Requirements for heated swimming pools have been stiffened.

In announcing the adoption of the new standard by ANSI, Charles F. Sepsy, president of ASHRAE, noted that 45 states have adopted or have borrowed heavily from the original standard. "It seems likely," Sepsy said, "that these states and perhaps other states will now want to incorporate the revised standard

in their building codes."

The new standard also includes ASHRAE/IES 90B-1975, which is sections 10 and 11 of the original ASHRAE standard and provides alternative approaches designers can use to achieve an energy consumption level equal to or lower than ASHRAE's component approach.

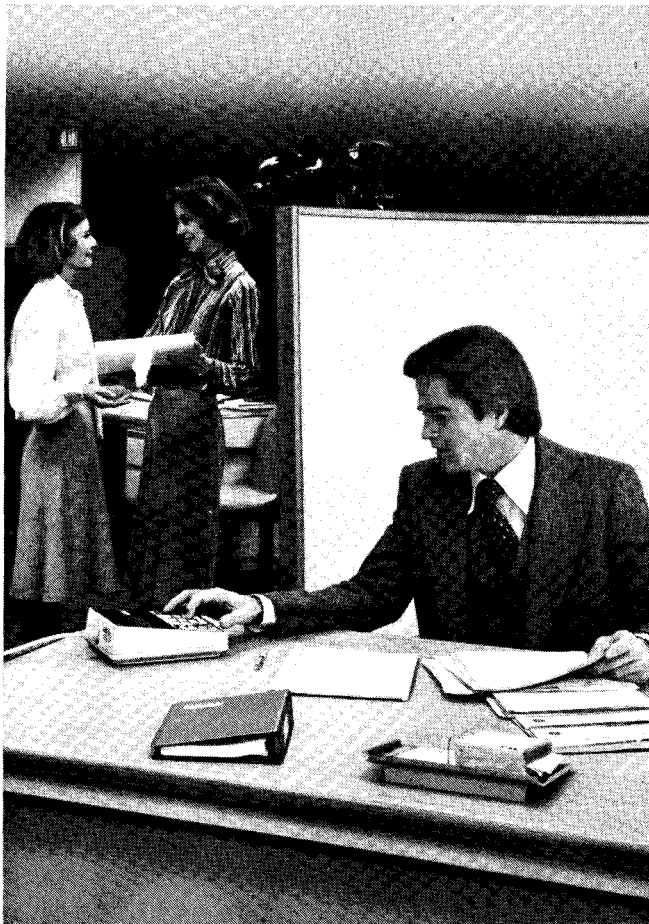
Also included is 90C-1977, which is section 12 of the original standard and provides a method of reporting the amount of energy that a designer anticipates will be used annually in a proposed building.

Copies of the new standard can be ordered from ASHRAE, Publications Division, 345 E. 47th St., New York, N.Y. 10017; \$5 for ASHRAE members, \$10 for others.

## Building Standards Delayed; DOE Plans Interim Program

House/Senate conferees have decided to delay final promulgation of the building energy performance standards (BEPS) until April 1, 1983. Before then, the Department of Energy will be required to issue interim regulations and conduct a 12-month "real world" demonstration program.

*continued on page 27*



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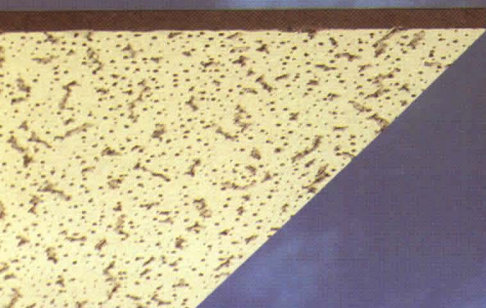


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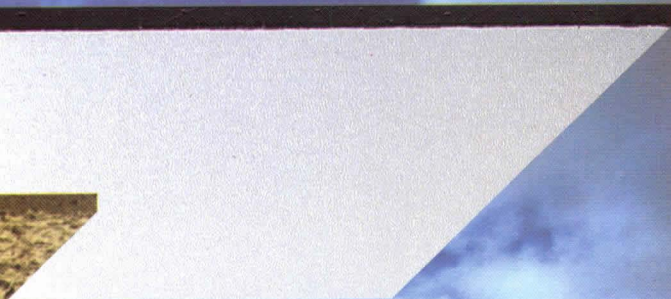
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Right, Acoustone "F" Fissured pattern ceiling.

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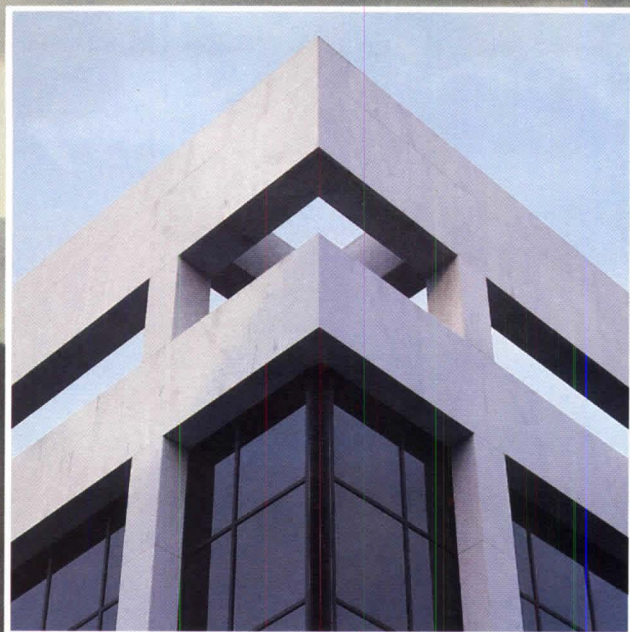
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### Energy from page 23

This plan, outlined in the Brown amendment to the Housing and Community Development Act, was earlier approved by the House. The Senate had originally approved an extension of BEPS promulgation to Aug. 1, 1982.

The conferees also approved a provision to transfer the administrative responsibility for BEPS after promulgation from HUD to DOE. This provision had earlier been approved by the Senate.

The interim regulations, which will be issued by DOE by Aug. 1, 1981, will apply to all new federal buildings. These regulations will be the base for the demonstration program in which DOE will analyze the effects of BEPS on commercial and residential buildings in at least two geographical areas.

At the conclusion of the program, DOE must report to Congress on energy savings realized, cost of compliance, impact of cost on ability of low- and moderate-income persons to buy or rent homes and the impact of BEPS on small builders. When BEPS are finally promulgated, the law states that they will not automatically apply to federally assisted housing or replace HUD minimum property standards.

The conferees' action effectively pushes back compliance with BEPS until August 1984. The original 1976 BEPS legislation called for implementation of the standards a year after they are promulgated.

In introducing the amendment in the House, Rep. Clarence J. Brown (R.-Ohio) said, "The essential question is whether BEPS encourages innovative construction and conservation or whether the regulatory burden they impose is so great that the goal is never achieved."

The Brown amendment is supported by the building and construction trades division of AFL-CIO, the National Association of Home Builders, the National Conference of States on Building Codes and Standards, the American Consulting Engineers Council, the National Association of Home Manufacturers, the National Society of Professional Engineers, among others.

AIA has supported implementation of BEPS as rapidly as possible, and has supported a two-year phased-in implementation period, during which time "needed improvements can be made, workable standards produced and technical and administrative capacity established."

### California Solar Incentives

In an effort to save an estimated 1 million barrels of oil a year, California state officials have ordered the state's four major utilities to offer customers incentives for installing solar water heaters.

*continued on page 29*



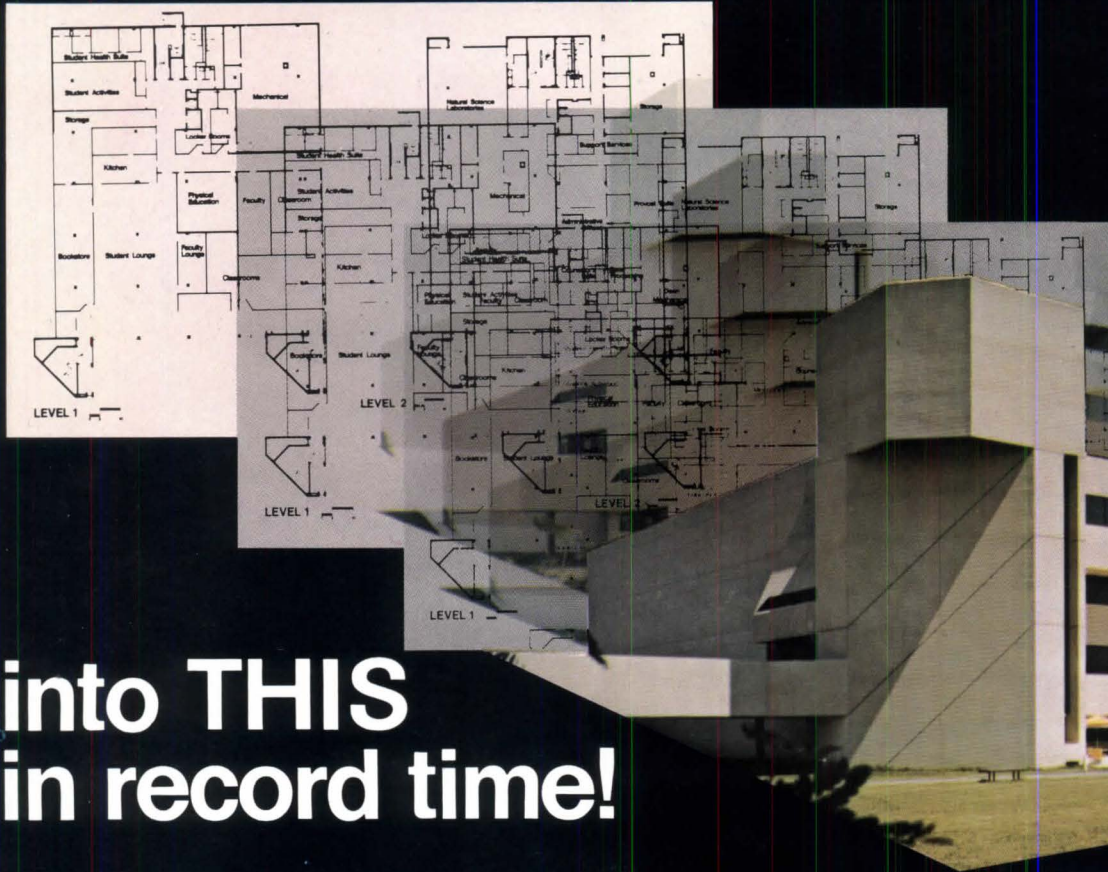
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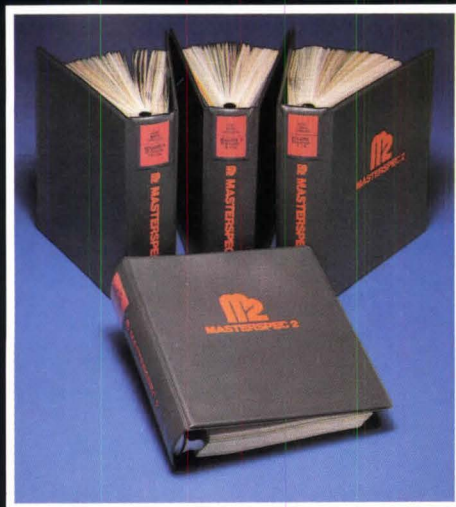
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## Energy from page 27

Described as the first program of its kind in the nation, it will involve approximately 375,000 of the state's 8.5 million households. Participants will purchase a solar unit and select a contractor to install it. They will receive monthly rebates from the utilities, a tax credit and lower energy rates.

## Survey Finds Most Consumers Unaware of Solar Tax Credits

A recent survey by Arthur D. Little, Inc., in which nearly 4,000 consumer and business respondents throughout the country were interviewed, concluded that 52 percent of the American consumer public is not aware that there are federal and state solar energy tax credits. Federal income tax incentives, enacted two years ago, were recently increased to reduce the cost of residential and commercial solar energy systems by 40 percent and 15 percent, respectively. Many states have also enacted tax credits for solar energy measures.

The survey also projected that 50 percent of the public has never seen a solar water or space heater. Of the consumers interviewed, 73 percent said that they did not have enough information about solar energy to make a purchase decision, as did 53 percent of the business managers. When asked if the existence of a significant tax credit would make them more likely to buy a solar energy system, 60 percent of consumer homeowners answered positively, as did 45 percent of potential commercial purchasers.

Martin M. Glesk, director of the survey, said that "greatly increased efforts by both industry and government are needed to educate people about solar energy and to publicize the tax credits."

The interviews were conducted between March and May of this year, with the findings drawn from 2,051 personal interviews among a national probability sample of the U.S. adult population and from 1,679 telephone interviews with members of the general public and the business community. The survey is part of a multi-client study of the U.S. solar energy industry.

## Cities Called 'Blind Spot' In National Energy Planning

The national solar energy plan, outlined by the Administration in June 1979, set the goal of meeting 20 percent of the nation's energy needs from renewable resources by the year 2000. Yet neither the plan nor the domestic policy review that preceded it made any mention of the use

*continued on page 30*



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AIA JOURNAL/NOVEMBER 1980 29

**Energy from page 29**

of new energy technologies in cities, nor was any consideration given to the possibility that solar energy subsidies may encourage urban sprawl. So says a recent report entitled "Compact Cities: Energy Saving Strategies for the Eighties," prepared and approved by a majority of the House subcommittee on the city, chaired by Henry S. Reuss (D.-Wis.). The report is based upon subcommittee studies and hearings over a three-year period.

"To neglect the urban implications of the solar energy plan jeopardizes two national goals—reducing dependency on foreign oil and preservation of cities," the report says. The report, which is concerned with energy and urban form, focuses on energy saving land use pat-

terns and on appropriate renewable energy sources and conservation incentives for cities. "As America prepares for a transition to renewable energy—solar, wind, water power, biomass—it is important to make sure that sprawl is not inadvertently encouraged and cities harmed," the report says. Unless solar strategies are adapted to high density areas, cities will be forced to rely upon scarce, expensive fuels and will face even more serious economic disadvantages as other areas gain long-term price stability through abundant, renewable fuels.

Urban sprawl, the report says, is a waster of energy, yet many federal, state and local programs and policies have given subsidies to sprawl-type growth while at the same time discouraging in-

city growth. The report cites many agencies and programs that contribute to sprawl. For example, sewer line extensions, which the report calls "powerful promoters of scattered, spread-out development," are supported by such agencies as the Farmers Home Administration, the Environmental Protection Agency, HUD and the Commerce Department's economic development program. Such subsidies to localities "indirectly subsidize developers at the fringe, letting them compete with previously sewered close-in sites."

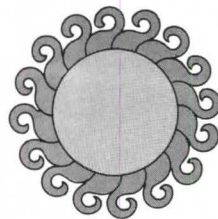
Billions are spent as well as on the construction of water projects, the report says. Although designed to improve rural and small town life, "these projects frequently promote sprawl." Highways are a major contributor to sprawl and urban decline—"cutting through existing neighborhoods, displacing city dwellers, isolating those who are left and tearing apart the fabric of communities." Even the tax code has an anticity bias, the report says.

Leapfrog growth is energy consuming because it requires a duplication of public works left behind in the city, the report contends. Even churches "chase after their flocks, pouring energy into new structures." Inroads are made on prime farmlands while urban sites are bypassed, partly because of tax advantages. The report suggests that "public fees and charges, based on the real costs of dispersed urbanization, would slow down premature development and improve local government finances. To the extent sprawl persists, at least the sprawlers, instead of being subsidized, would pay their own way."

The report depicts the city as an energy saver. Not only is energy saved in transportation—the primary culprit in energy waste—and by in-place public facilities, but compact development permits economies and efficiencies in energy use and production, says the report. For example, the common walls of apartments and row houses reduce energy needs. Compact development also saves energy by creating "heat islands" and by buffering the wind. The report recommends that cogeneration—capturing and using the heat that is lost while producing electricity—and district energy systems be developed on a neighborhood basis to further save energy.

Cities have been "the blind spot in the national energy plan," according to the report, and major urban areas are short-changed by the current research, tax credits and loans that are all weighted in favor of the solar conversion of single-family residences. Although alternative energy systems appropriate for cities are technically feasible and have been widely used in Europe for a long time, their development has been neglected in this country.

*News continued on page 33*



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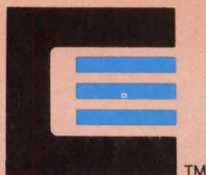
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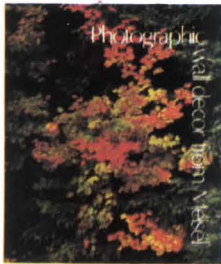
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## News/Urban Affairs

### A Questioning Second Look At 'Back-to-the-City' Trend

The so-called urban renaissance or "back-to-the-city" movement proclaimed in the 1970s may not be a fact of life, according to research conducted at the Urban Institute contained in the study *The Urban Household in the 1980s: A Demographic and Economic Perspective*, prepared by Thomas Muller, Carol Soble and Susan Dujack. Between 1970 and 1977, the total nonmetropolitan population increased by almost 11 percent compared to a 4 percent increase in metropolitan population. And in the 1980s, the researchers say, the trend toward living in nonmetropolitan areas will increase as industry expands into the urban periphery.

As households move into nonmetropolitan areas to be near jobs, the population in central cities and inner suburbs will continue to decline, with a reduction in the economic and political significance of cities, the researchers believe. Generally, households that move out of central cities have a higher income than those that remain. Between 1975 and 1977, the mean income of families leaving the city was \$16,000 compared to \$15,000 for those moving into the city, according to the research. During these years, this exodus of higher income families meant a loss of \$17 billion in central city income.

Moreover, the racial makeup of central cities has been affected since the percentage of black households with incomes over \$15,000 is substantially below that of white families. As white families have moved out, the number of black central city families, both with and without children, has increased. The researchers also found that more childless couples of both races are staying in the city, but few suburban families with children of school age are returning.

The single most important factor affecting urban issues in the 1980s will be household formation, the researchers say. Household formation determines both housing demand and public service needs and also determines, to a considerable extent, where people decide to live within urban areas. The number of households has risen from almost 53 million in 1970 to a projected 80 million in 1980, but the researchers forecast that during the second half of the 1980s the rate of new household formation will decrease. The *type* of household is also significant, and the research indicates that the percentage of single adult households is rising as husband-wife households decline.

Income growth in the 1980s is projected to be somewhat lower than in the 1970s, and urban poverty rates may be even

higher than previously because of the projected increase in the number of women as heads of households. Almost one in three of such households is below the poverty line. And increases in income in the 1980s will probably be concentrated in higher income groups.

The population gains in most large Southern and Western cities has come from annexation, the researchers say. Such cities as Richmond, Va., and San Francisco that have constrained boundaries are like Northern cities in patterns of population loss. In the 1980s, most large cities will have fewer opportunities for annexation since plans for incorporating nearby areas in many instances have been completed and state legislatures are imposing constraints on expansion.

### HUD Announces Aid Programs For Downtowns, Public Housing

HUD recently announced grants in three programs meant to encourage downtown development, aid commercial revitalization in the nation's smaller cities and help to modernize public housing projects.

The program for aiding downtown sections and neighborhoods is a new effort to demonstrate methods by which city, neighborhood and downtown interests can participate in the development and implementation of joint investment activities. Known as "triangular partnerships," the program involves the participation of HUD, the Charles Stewart Mott Foundation in Flint, Mich., and the U.S. Conference of Mayors. Initial funding amounts to \$350,000, with \$100,000 coming from HUD and the rest from the foundation.

The program for helping the country's smaller cities is known as "national main street" and brings together seven federal agencies and six nonprofit organizations in a cooperative effort to aid commercial revitalization. HUD's contribution of \$200,000 is augmented by funds from the Economic Development Administration, the Department of Transportation, the National Endowment for the Arts, the Farmers Home Administration and the Small Business Administration, with technical assistance provided by the Heritage Conservation and Recreation Service.

Finally, HUD recently made awards totaling nearly one-half billion dollars for the modernization of public housing projects. About half of the amount will come from the current fiscal year budget, with the remainder made available during the next fiscal year, subject to appropriations and compliance with legal and administrative requirements. A part of HUD's overall modernization program for low-income housing projects, funds will aid 57 public housing agencies.

Briefs on page 82

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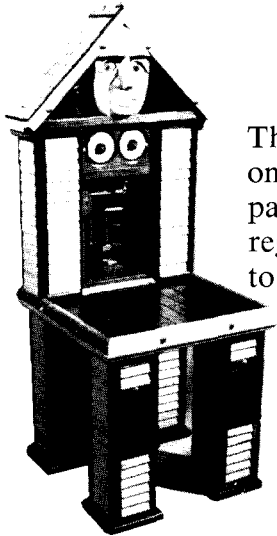


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# AIA JOURNAL



This is to introduce a new section on furnishings. It is to be found on page 74 and will appear in every regular issue (those not devoted to a single theme).

It will present furnishings both "as resources for design and objects of design." This duality of interest goes back to a special issue on the subject which we published in October 1974. In that issue

we quoted the late and very much lamented Charles Eames as saying, "In designing furniture I like to think of myself officially as an architect. I can't help but look at problems of structure—and structure is architecture."

The new section will deal with furniture as architecture, and with other objects and appointments designed for interior use. In part, its introduction reflects the new significance of interior design in architecture. But it also gives emphasis to an interest in interiors that has been consistent through this magazine's recent editorial history.

Many of the things that will be shown will be manufactured objects, but some will be the work of craftsmen (like the 1977 Housewife Chair, above, by David Holmes, shown this summer at the Milwaukee Art Center). They will be chosen for publication without any ties to trade shows, showroom visitation days or advertising. They will be chosen on the same basis as we choose works of architecture for publication—on the basis of perceived quality. *D.C.*

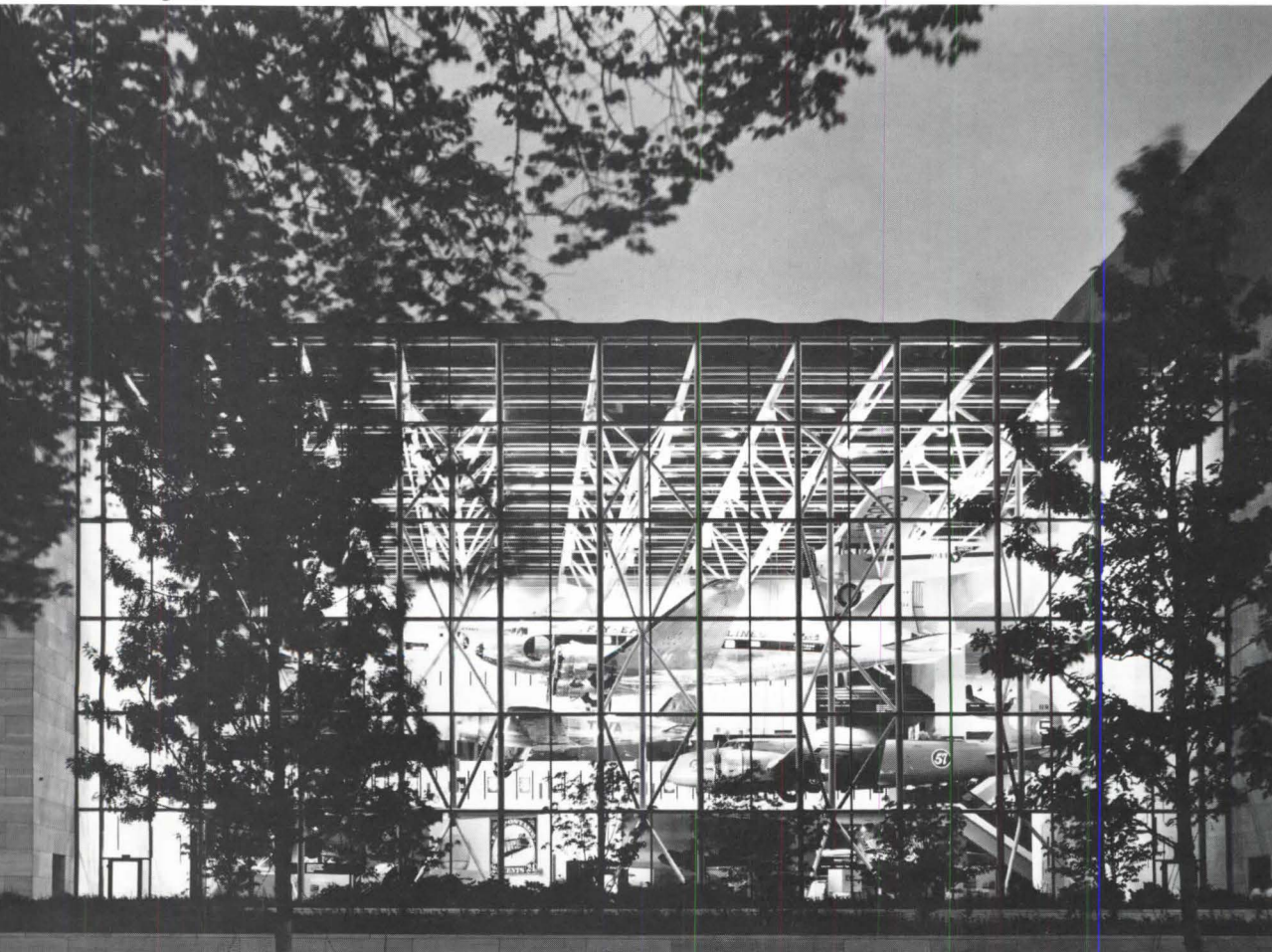
# Evaluation: The World's Most Popular Museum

*It is the Smithsonian's, and HOK's, Air and Space Museum on the Mall. By Andrea O. Dean*

It is like no other museum in the world. The Smithsonian Institution's National Air and Space Museum is unique as a treasure trove of the air age, which spans the 66 years from Kitty Hawk to the conquest of the moon. It is stuffed with tantalizing chunks of recent history and objects ranging from the sublime to seemingly silly—airplanes suspended from steel trusses like huge toy mobiles, rockets embedded as though ready for takeoff, balloons that rise and fall, engines that open and shut, things that move and talk, exhibits that recreate critical moments in history, a film projected on a five-story screen that in effect puts the audience in the pilot's seat, a planetarium and much, much more.

It is singular in other ways as well. The museum was completed on schedule and below budget, which so impressed the perennial critic of bureaucratic boondoggery, Senator William Proxmire of Wisconsin, that he cancelled his "fleece of the month" award for June 1977 and instead gave the Smithsonian

Retoria/Y. Futagawa



*Viewed from the Mall at night, the museum's giant—115x124-foot, six-story-high—acrylic bays become transparent to reveal aircraft afloat as in a huge hangar (left). Looking out toward the National Gallery of Art from one of the three large galleries (above), sky, lawn and trees become a part of the display. Aircraft and spacecraft are hung from tubular trusses, which span the ceilings between upright pylons of the same construction. The three open galleries are covered by a glass bubbled roof.*



Allen Freeman

an "award of merit." The museum opened on July 1, 1976, four days early, and cost \$39.5 million, or \$500,000 less than its projected cost when approved 12 years earlier. And it included at least four major features not provided for in the original plans, a large theater, planetarium, art gallery and facilities for disabled visitors.

All this was accomplished by a designer with no prior museum experience, Gyo Obata, FAIA, of Hellmuth, Obata & Kassabaum, working with a director and deputy director neither of whom was a museum man, nor bureaucrat, for that matter. Former astronaut Michael Collins, who orbited the moon in Apollo 11, was appointed to launch the new museum in 1971 and chose as his deputy Melvin Zisfein, an aeronautical engineer who was then associate director of the Franklin Institute's research laboratories. With zero experience in exhibit design, Zisfein was put in charge of packaging the story of flight into some 20 gallery themes. The creation that resulted from these three men's collaboration is, judging from attendance figures—40 million visitors in four years—the world's most popular museum.

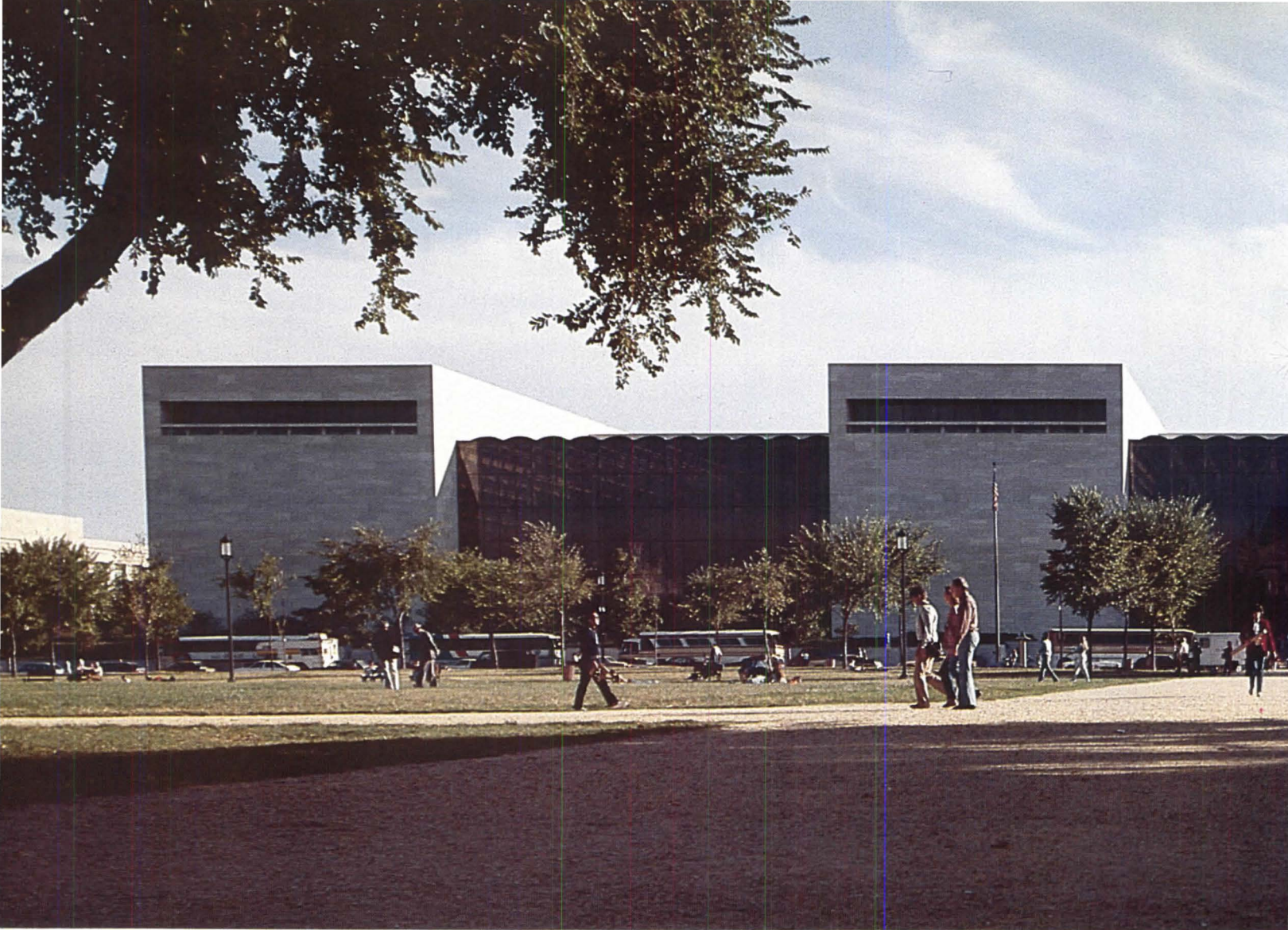
Only one other can compare with it as a magnet for people, namely the Centre Pompidou, completed in Paris just one year after Air and Space. The French museum, however, serves as a lodestar mainly because of its exterior attractions. A technicolor, tinkertoy-like building, it evokes, by coincidence, images of Cape Kennedy launch pads and is set in a public square that

hosts a constant street festival of vendors, sword swallowers, tumblers, exhibitors, demonstrators.

The Washington museum's attractions, by contrast, lie primarily within, although one architectural critic has called its exterior "personable," and another has pronounced it "charming . . . despite its great size." These adjectives may sound less like malapropisms when the building is compared to such supremely uncharming, unpersonable Washington behemoths as the nearby Rayburn building and the Kennedy Center. Still, its essential image is that of a sober, benign but uninspiring neighbor to its fellow monuments on the Mall, supposing that a monument *can* be a good neighbor at all.

The museum's most striking features from without are its great size—it stretches 685 feet, or the length of three city blocks, and is 225 feet wide—and its repeated marble-clad cubes joined by tinted acrylic-enclosed bays. The 65-foot-high building's structural system consists of steel framing on tubular trusses, whose web-like L-shaped bents support a variety of aircraft and suggest a huge hangar. The marble facing of the cubes is made of panels only one-and-one-quarter inches thick that hang on the steel frame as would a curtain wall.

The building presents its best face to the Mall where four ground-to-roof cubes are separated by three canopies of steel and glazing, which contain the large exhibits and give a glimpse from the Mall of temptations within. More important is the

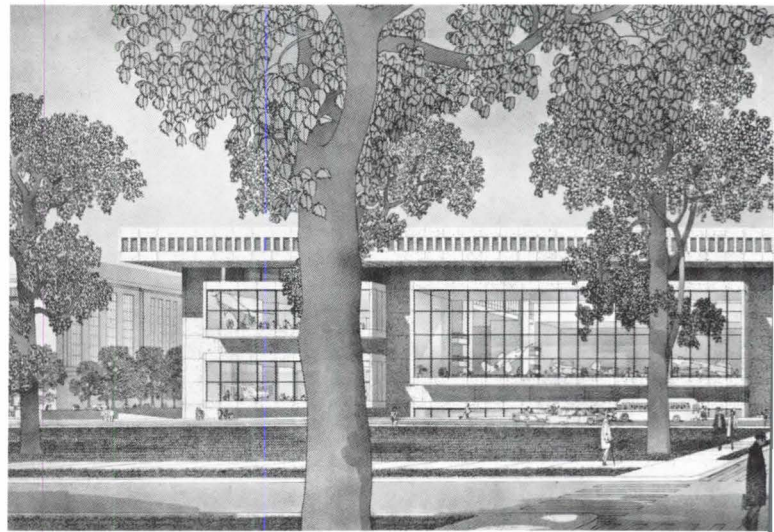


## The Mall facade: as built and as first designed.

effect of the panes inside. They open the museum to wide views of the Capitol, National Art Gallery, trees and lawn of the Mall and all but bring the history-laden surroundings inside to become a part of the display.

The museum's south facade is its least appealing feature. It is composed of four full height marble blocks, alternating with three cantilevered cubes; each of the seven elements is separated by slivers of glazing. Obata's idea was to break up the parade of like-sized big units marching down the avenue ("get some kind of rhythm going of small and large masses") and provide a central entrance portico through the cantilevering device. The three raised elements, however, appear to jut incongruously over thin panes as though hung over or supported by them. The overall effect of the south elevation is one of a procession of closed-faced volumes of indiscriminate scale. Obata's explanation for his design of this facade underscores the fact that the NASM was planned primarily as an interior building: "I felt that from the inside looking out Independence Avenue was not as important as the Mall."

The museum's location on the Mall naturally exerted strong influence on its exterior form. Its height was dictated by that of the National Art Gallery just across the greensward; it is wrapped in the same pink marble; its Mall entrance is on axis with that of the gallery. Because of its setting amidst monumental buildings, Obata explains, his inclination was to create a retiring, plain-faced structure, in essence a nonmonumental building in every respect but its size. Also, he says, "In the early '70s, there was a sense of not wanting to do a fashionable sort of building; contemporary architects were more uptight than now, more rigid about dogmas. You oversimplified, were more



*The Mall facade as it looks today with alternating marble-clad cubes and acrylic bays (top) and looking north toward the Hirshhorn Museum (across page). HOK's 1964 scheme (above), had a heavy cornice, more glass, more levels and was much larger than the built design.*

diagrammatic. And very important was the influence of the Commission of Fine Arts, which had to approve our design. They told us over and over again, 'Keep it very, very simple.'

Far less simple was HOK's original scheme for the museum, which was designed and approved in 1964, though no funds were appropriated for its construction because of the financial drain of the war in Vietnam. It had more levels than the built scheme, which was designed in 1972, a greater number of vari-

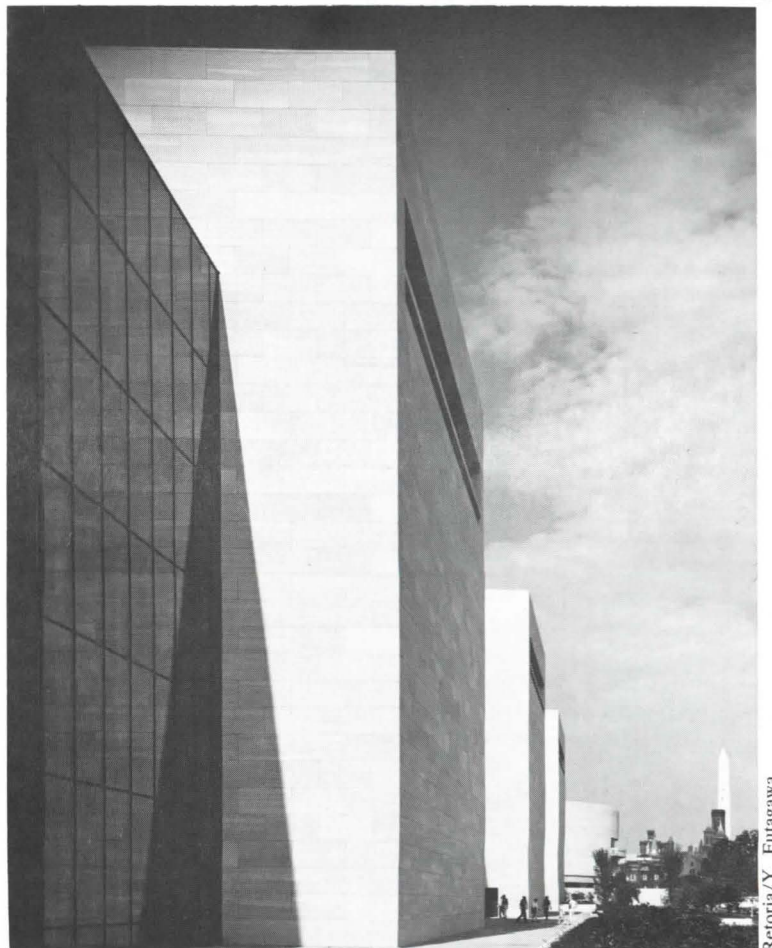




Allen Freeman



ously sized galleries, a huge cornice, more glass on the north and still less on the south. Both the original and final designs are topped by curatorial offices, a library and public cafeteria with views over the Mall. Absent from the '60s scheme, however, were concepts basic to the existing building, notably the stage set-like, closed galleries, which show historic moments as theater, alternating with large, open spaces where planes hang as though in flight. "They hadn't gotten beyond the idea of treating planes like shrines on pedestals," explains Michael Collins, whose involvement with the museum began only after the 1964 scheme was scrapped. Obata's recollection is that "the program was still very, very vague. At the time they had this quonset hut chock full of airplanes; the people in charge didn't really know what they wanted in the new museum."



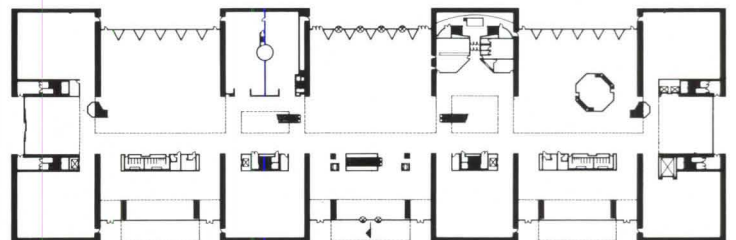
Retoria/Y. Futagawa



## Along Independence Ave., procession of blocks.

In 1971, with war expenditures reduced and influential congressmen like Barry Goldwater strenuously lobbying for the new museum, plans for it were revived. In June of 1971, Congress appropriated the \$40 million in construction funds that had been approved (though not appropriated) seven years earlier.

As Collins puts it, "The building designed by HOK in 1964 would have cost about \$68 million by the time the project got underway, so it had to be rescaled from 800,000 square feet to 550,000 and other ways found to reduce costs." Crucial to bringing the project in at cost and on schedule was use of a construction manager (Gilbane Building Co. of Providence, R.I.), a first for a government project, and appointment of a single manager by GSA with authority to cut across bureaucratic lines. This meant, says Collins, "that all we needed was to get four people together for 15 minutes—myself, Gyo, the man from Gilbane, the man from GSA—and we could make a decision in five minutes." Important, certainly, was Collins' schooling in and habit of efficiency. Once the final design was approved, he allowed virtually no changes. As he put it at the time, "The perfect plane never flies—it just sits in the hangar and gets improvements."

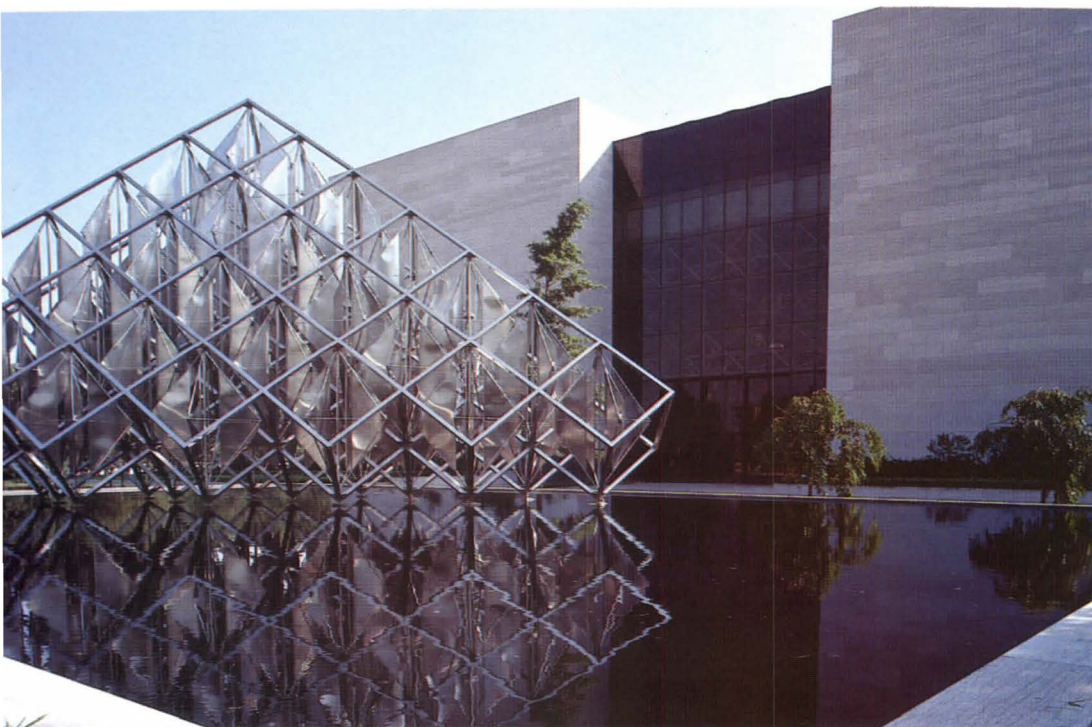




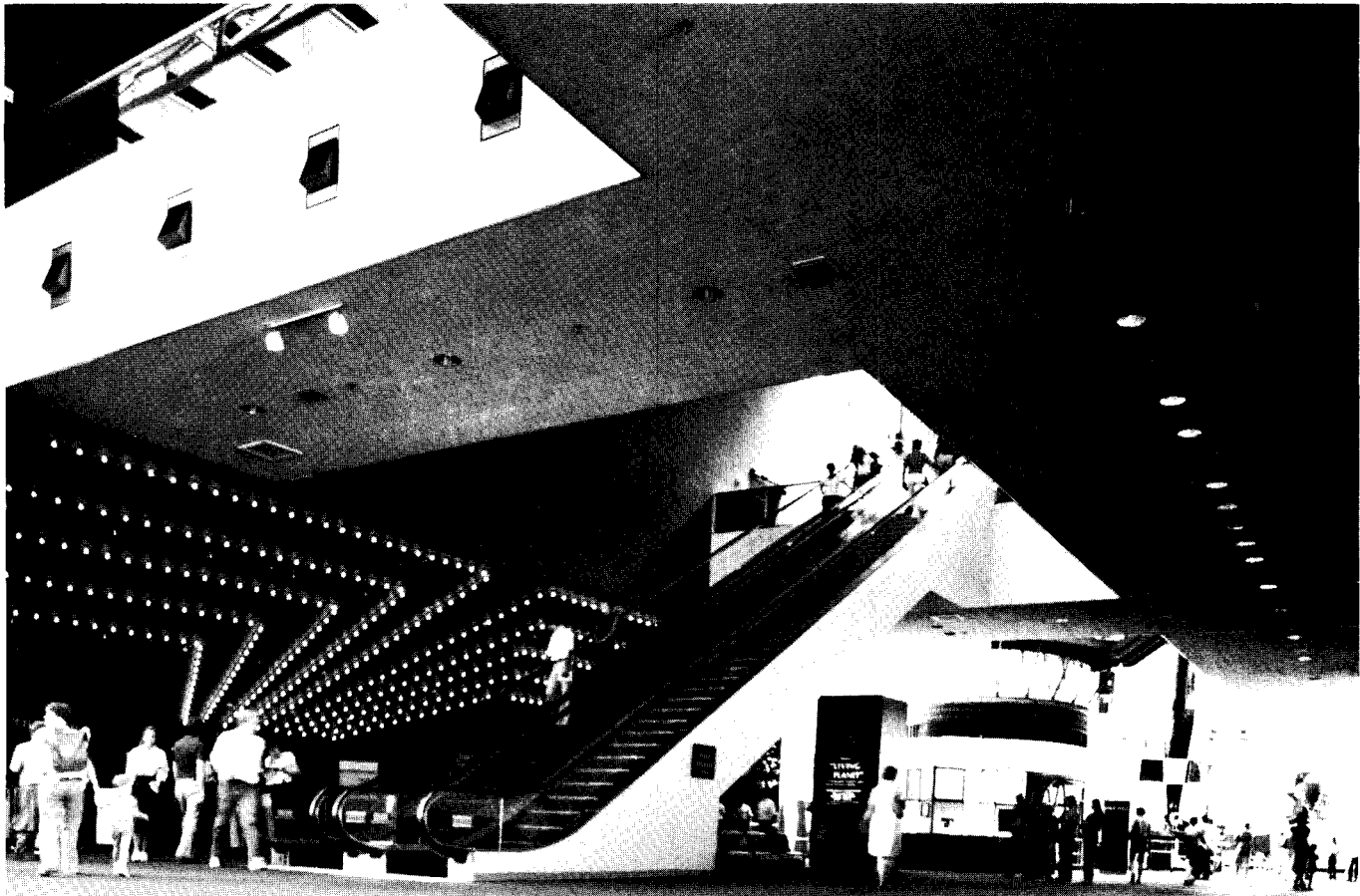
Photographs by Allen Freeman

By 1972, those responsible for the museum's design had very clear ideas of what they wanted. Collins envisioned it not as "a monument to machinery, but rather as an honest exhibition of the trials and errors that led to flight, a place where people could wander in and relax among the planes and spacecraft and feel at home." It was deputy director Zisfein's idea to create a cross between the three major museum types: the art museum with its exhibits of beautiful objects; the science museum with its numerous displays, dioramas and artifacts, and the so-called science center that demonstrates principles through "things that work and move and things that you can do with your hands," as Zisfein puts it. "My thought was that we were constituted to be a mostly history museum. We had to tell the story of flight or it would be pointless for us to be here. But why not have a part where art is appreciated and used? Why not have parts that are graced by objects and artifacts? Why not have other things that shake and move, explain and instruct? And why not house it all in something soaring in concept, so that no matter where you are and how many objects are around you, you won't feel hemmed in?"

Creating a feeling of openness ("an enclosed outdoor-like space," in Obata's words) and easy movement of large numbers of people soon became primary design considerations. "We were worried to death about bottlenecks," says Collins. "As Gyo's plans emerged, we imagined how people would congregate and how they would move and how they would bump into one another and where the cul-de-sacs and turning places would be." Obata's solution was to create a wide, two-level circulation spine traversing the three double-height bays, 115 feet wide and 120 feet deep. These would contain the major exhibits, the



*The facade from Independence Avenue (top), with vendor's stand (across page, bottom), plus first floor plan. At near left, sculptor Alejandro Otero's 'Delta Solar.'*



*Wide balconies and bridges in the second level give closer views of the suspended aircraft. Across page, the Space Hall and its skylab.*





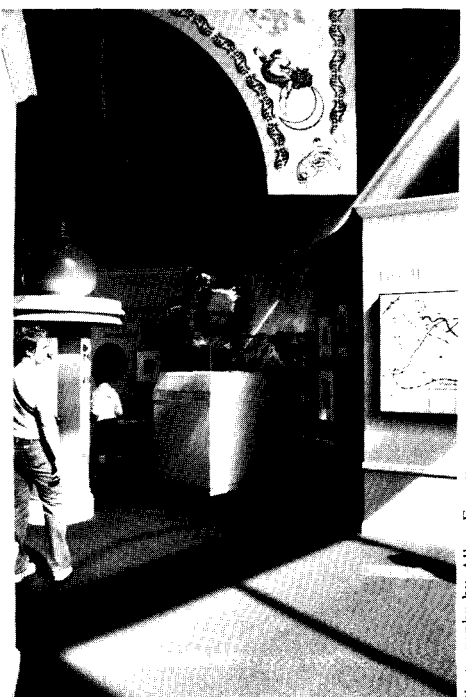
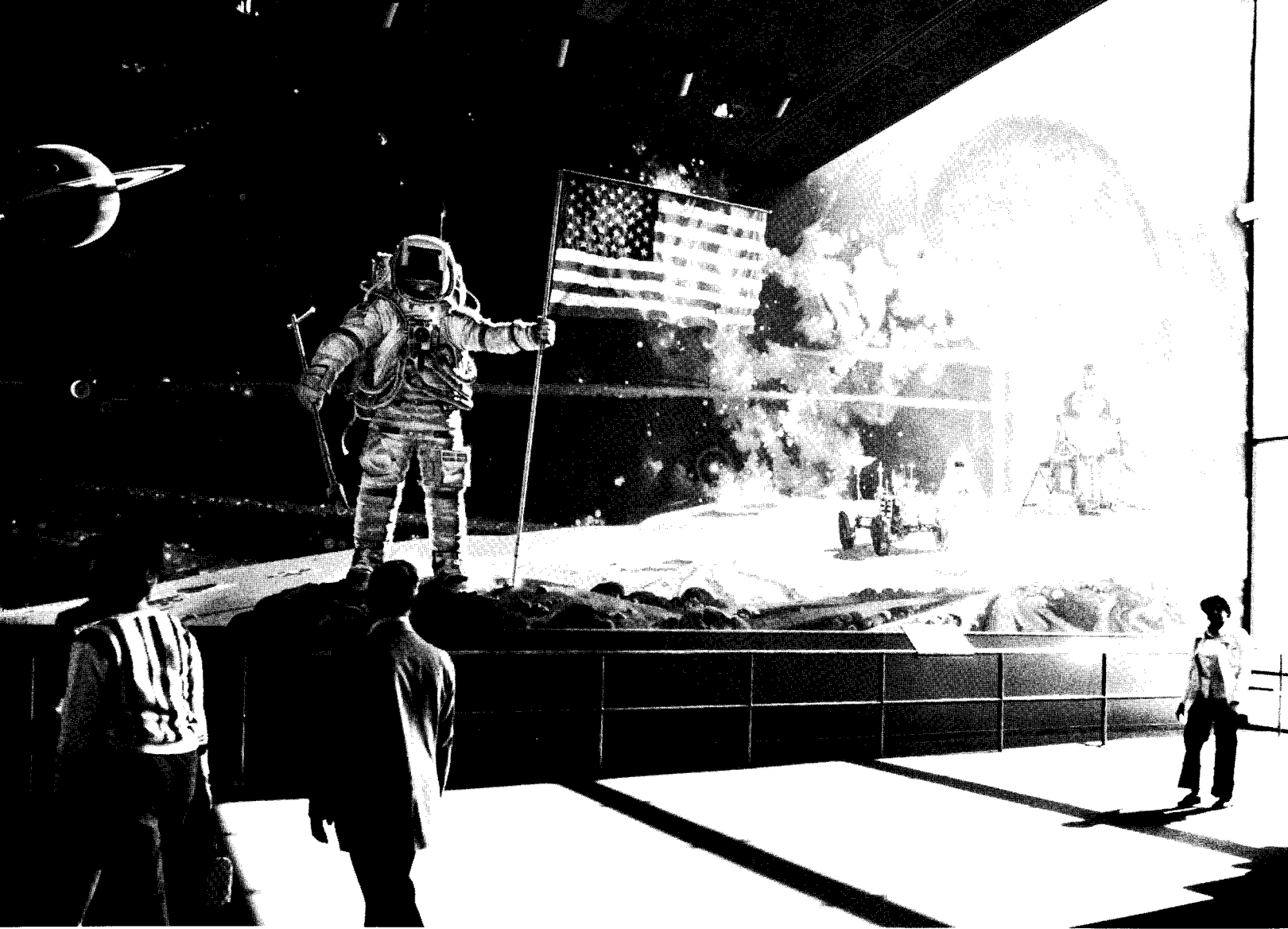
Photographs by Allen Freeman

“Hall of Air Transportation,” “Milestones of Flight” and “Space Hall.” Projecting from them like fingers would be 23 smaller (typically 75-foot-square) enclosed galleries.

Obata saw the plan as analogous to a shopping mall “where people come in in the middle and then go into any of the exhibit areas off the central spine. A lot of architects were beginning to view the street and what it leads to as a design consideration. It was always in my mind, that and the idea of alternating closed and then open spaces, which would constantly relate back to nature and the outside.” Yet, as Zisfein says, in some ways the plan of the NASM is the antithesis of the shopping mall “where the central space usually has no well defined traffic

pattern, is confused and calculated to make you feel uneasy and restless, the better to drive you into the money-making shops.”

Obata’s scheme has, in fact, resulted in a series of easily comprehensible spaces in which one can wander at leisure, gape, study, daydream for hours without getting lost or feeling museum fatigue. The museum is a smashing success for the clarity of its organization, the drama of the steel and glass galleries with ever present views (and ever present spaceframe), the pleasure it gives. By contrast, its competitor for warm human bodies, the Centre Pompidou, makes much of circulation, flow and movement on its exterior, while its interior remains a muddle of unmodulated, often confused and uninviting spaces.



Photographs by Allen Freeman

*Top, 'The Space Mural: A Cosmic View' by Robert T. McCall, positioned at the Independence Avenue entrance. Above, two of the smaller galleries. Facing page, the Hall of Air Transportation.*



### **Spatially successful, but it will never fly.**

Yet, despite the basic simplicity of organization and grandeur of its main halls, in places the museum tends in the direction of the penny arcade. While HOK's bilingual graphics are effective and simple, exhibit explanations, designed by Smithsonian staff members, tend toward visual noise and fight with the exhibits for attention. Especially dismaying are two huge murals portraying giant-sized spacemen and accoutrements covering the walls of the Independence Avenue entrance, also the idea of the Smithsonian.

Some of Obata's decisions on use of materials and color also tend to confuse rather than clarify. Because the budget permitted only minimal use of marble inside the museum, he saved his allotment for the side walls of the central hall where one enters it from the north. The rest is sheetrock except for a foreign-looking strip of marble trim encircling the entire wall where it meets the overhead truss. The overall effect is to give the stone the feeling of wallpaper and to sound a note of incongruity. Collins also admits that some of the cost-cutting devices, including the use of marble veneer, leaves the durability of the museum open to question.

Despite these problems and shortcomings, the museum is perhaps best characterized by the word competence. It succeeds best where most design emphasis was placed, in the experience of its interior spaces. It is least successful as an object. Heavily earthbound, it has none of the soaring quality of Washington's Dulles airport (see following pages). It is hard not to wonder what kind of air and space museum Dulles might have made or, more to the point, what such a museum might have been in the hands of Eero Saarinen. □



*The concrete and glass surfaces reflect the warm colors of twilight. A current extension project pushes the back doors toward the jet apron through two low appendages. The red steel frame of one structure is visible above at far right; a similar extension beyond the control tower is complete and in use (photographs, next page).*







# The World's Most Beautiful Airport?

*It is, at least arguably, Saarinen's Dulles and it is underutilized. By Allen Freeman*

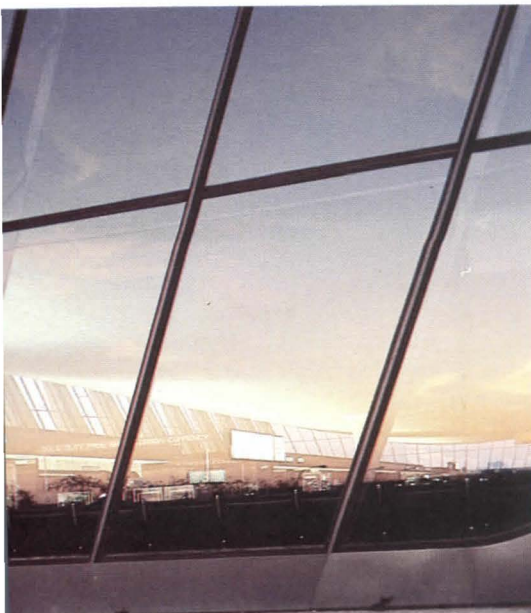
Twenty years ago this month, Dulles International Airport was rising on the northern Virginia countryside. The expectations of its owner, the Federal Aviation Administration, were that it would one day become Washington, D.C.'s major jetport. Its designer, Eero Saarinen, 50, had hit his professional stride, with 10 or so projects in design or construction, including CBS's Manhattan tower, the Illinois headquarters for Deere & Co. and his North Christian Church for Columbus, Ind.

Ten months later, Saarinen was dead of a heart attack. Today, what many consider his greatest design concept, the sweeping hammock of wire and concrete, is undergoing expansion. Yet this most admired of recent American buildings—so voted in the JOURNAL's bicentennial poll—is the least used of Washington's three jetports.

Explaining his basic conception for Dulles shortly before his death, Saarinen wrote: "Federal architecture is traditionally static, but we felt a jet airport should be nonstatic, expressing the movement and excitement of modern travel by air."

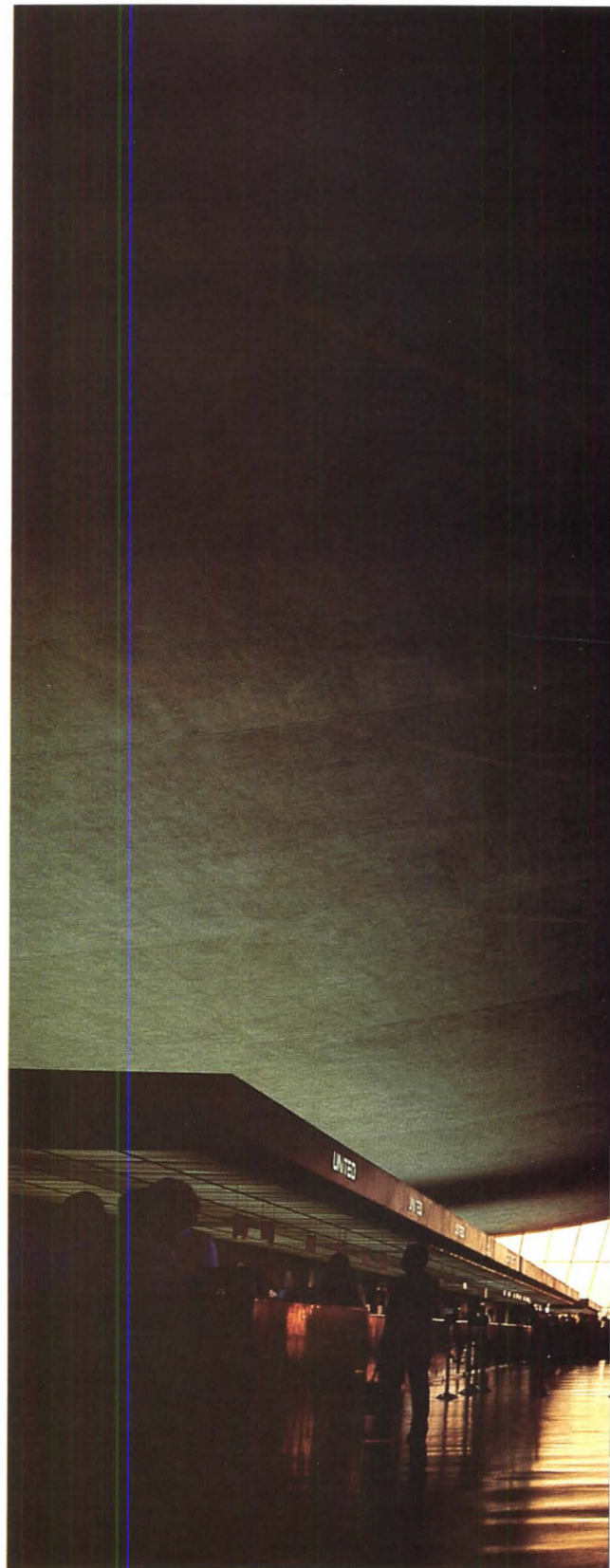
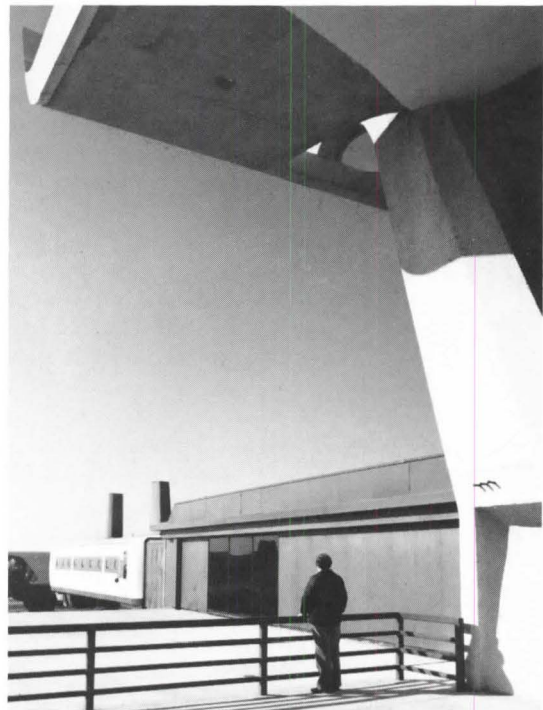
Once the concept of the mobile lounge was accepted (more about this later), Saarinen saw the terminal as a single compact structure 150x600 feet, "a strong form that seemed both to rise from the plain and to hover over it," he wrote. The roof "should be tilted forward so the building would be seen. . . . Gradually, we arrived at the idea of a curved roof, high in the front, lower in the middle, rising again at the back." Constructed of light suspension cables and poured-in-place concrete panels, it is supported by two rows of columns 40 feet apart, 65 feet high on the approach side, 40 feet high on the field side. These concrete "trees," as Saarinen called them, slope outward to counteract the pull of the cables, their tilt exaggerated as is their rear compressive flange. Passenger approach is from three levels flanking the front and forming a giant stairstep base. The sculpted concrete control tower is centered behind the terminal, its placement orienting the axis, both on approach and from inside the terminal, where it is seen through the rear windows. Interior circulation is on two levels, the upper for departures, the lower for arrivals. Passenger progression is a simple trek across the building's narrow dimension.

Far different is Dulles's main competitor, Washington National. The FAA's only other airport, it is a nightmare of dingy finger gates appended to a 1940 terminal and sandwiched between an incomprehensible maze of access roads and parking



Photographs by Allen Freeman

*Below, the completed extension as viewed from the control tower. Skylights the width of the low extension are positioned at each of the terminal's rear columns (interior, bottom left). Bottom right, the extension from the east end of the terminal with a mobile lounge at dock.*



lots on one side and cramped runways on the other. Nonetheless, last year National handled 15 million passengers compared to Dulles's 3.4 million, a popularity in part attributable to National's proximity and accessibility to Washington's population center. It is a 10-minute taxi ride to the White House and serviced by Washington's Metro. Dulles, by contrast, is 40 minutes from downtown, and a Metro connection is at least 10 years away. National is the favorite of key congressmen guiding FAA policy and a great annoyance for those living in its densely populated approach path, including Georgetowners.

Since its opening 18 years ago, Dulles's use has reflected the trends and fortunes of the airlines that service it. Although its

passenger load is now five times that of 1964, the number of flights there has leveled off and declined in recent years. This is because Dulles handles most international and long-range domestic flights, the ones now serviced by stretched and wide-body jets. The advent 10 years ago of planes carrying 300 to 350 passengers and the need for security gates cramped the terminal Saarinen planned for airliners carrying 150 passengers. He and the FAA envisioned more and bigger planes, but not huge ones, and his expansion plans called for a lateral stretching of the terminal to provide more gates. Indeed, the original design and construction extended the approach platform to accommodate this eventual expansion. But the first need was for more space



between the terminal's front and back doors to handle greater passenger load per plane, an expansion that is now almost completed.

Designed by the Washington office of Hellmuth, Obata & Kassabaum, this "fattening" leaves the great terminal structure practically untouched. The back doors—entrances to the mobile lounges—are being pushed 50 feet toward the jet apron through a pair of low sheds appended to the south facade and separated from each other by the connector to the control tower. Below, on the ground level, the baggage sorting space is also being enlarged. One extension is now in use; when the other structure is complete in a month or so, security gates will be moved to the

terminal's south wall and circulation in Saarinen's tent will be unhampered once again. Currently, the security line bisects the structure lengthwise.

Another problem caused by the unpredictable turns and trends of air travel has been the need for a more efficient customs facility. These functions are now carried out in a low, temporary building east of the terminal. Programmed in the late '50s when international air travel was much less important, this makeshift customs area with four mobile lounge docks has to suffice until a new facility is built into the west bays of the east-west expansion. But that is still at least five years off. Meanwhile, the temporary building has been nearly doubled in size

## High drama after a quiet country drive.

and redesigned to handle the congestion of the 747 generation.

Airport growing pains are to be expected and, by common measure, Dulles has stood up well. The architect did his homework. Armed with stop watches and passenger counters, the ever-methodical Saarinen first conducted painstaking studies to find out how travelers move at airports and how long it takes them. He charted the data, coordinated them with traffic rate projections and came up with the mobile lounges, an idea borrowed and refined from the European airport bus. As the director of Washington metropolitan airports, James Wilding, points out, without the concept of divorcing planes from terminal, Dulles would have required new construction 10 years ago—before the first wide-body plane landed.

By all accounts, Saarinen & Associates, which was associated with structural engineer Ammann & Whitney and mechanical engineer Burns & McDonnell, had no problems selling the FAA on a radical solution to airport design. The relatively small and aggressive governmental agency had picked the team knowing Saarinen's reputation for innovation, familiar with his precedent-setting TWA terminal at Idlewild (now John F. Kennedy). Fifteen FAA professionals worked on Dulles and monitored its

*As the access road approaches the terminal, it passes a litter of small and undistinguished buildings (bottom), then loops around the vast parking lot that is the building's forecourt (below).*



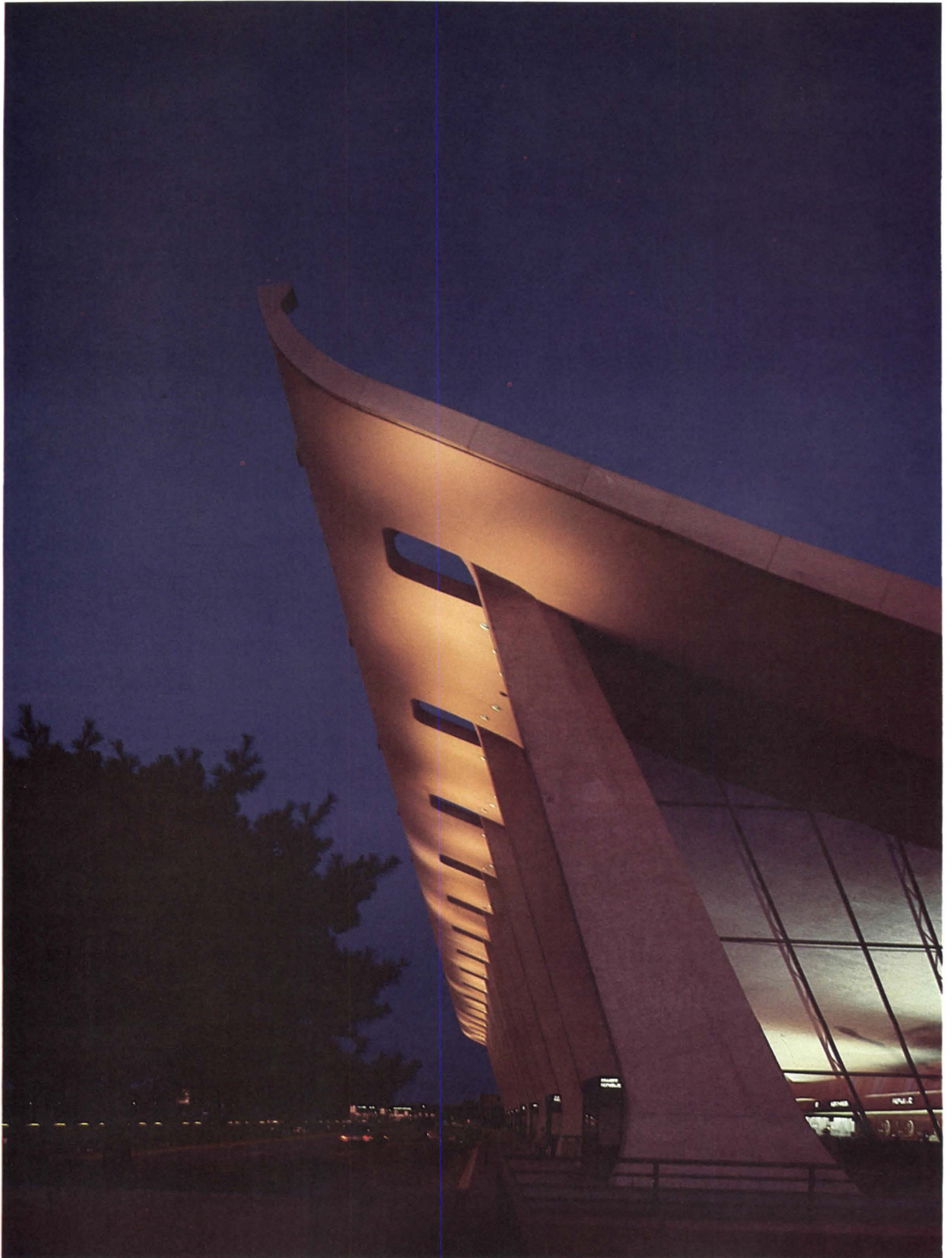
design progress. But to sell the plan to the airlines, Saarinen commissioned Charles Eames to make an animated commercial presenting the lounges as the fastest and cheapest proposed enplaning device. Construction, maintenance and airconditioning of finger gates would be eliminated. With jets parked half a mile away, taxiing and noise in the terminal would be reduced.

The mobile lounge concept accepted, the FAA tested a prototype vehicle and then bought 20 more. All 21 are still in use, their original twin gasoline engines replaced by diesels. They have been supplemented by 12 of a modified design and larger capacity.

The planners of Dulles were anxious to do all they could to avoid its obsolescence in the foreseeable future. Runways were heavy-duty engineered; space was provided to increase aircraft parking positions to 90; buffer zones at the end of runways were stretched at least 8,000 feet to the airport boundary; the property was encircled by a 1,000-foot-wide tree belt; the area was master planned for low-key ancillary buildings (with, however, generally dreary results), and a four lane, 13.5-mile highway was built. From the terminal, this limited access strip passes the new town of Reston, Va., and Wolf Trap Farm Park, a summertime outdoor performance center, both built since Dulles, and ends at Washington's perimeter Interstate. Two exceptions to the Dulles-only traffic rule have been made. The ramps at Wolf Trap are opened at performance times—not peak Dulles hours—and the Reston ramps are available at rush hours to commuter buses and car pools of four or more. Through the years, the FAA has steadfastly resisted pressures to open more access ramps, pointing out that the right-of-way provides space for extra commuter lanes. The state of Virginia is now planning to build these lanes.

Today, the approach to Dulles is an unharried drive through horse farm country. Over a final slight rise, the terminal appears in three-quarter profile a mile and a half distant. At night, dramatic lighting sets off the belly of the catenary roof against the dark sky, and there is no doubt that this is an exceptional building. Eighteen years of use have proved its concept sound.

Saarinen's Dulles has turned out to be probably the last heroic terminal in the line extending back to the first great rail sheds of 100 years ago. As such, it has more in common with Grand Central Station than with subsequent decentralized air facilities like Dallas-Fort Worth, Kansas City and Atlanta's just opened mid-field facility. But Saarinen, who said of Dulles, "Maybe it will explain what I believe about architecture," was wary of appraisals based on esthetics. "I don't think it should be evaluated as just a work of art," he wrote. "We faced this job as an architect's problem in total relation to the present world." And his partner John Dinkeloo recently underscored Saarinen's feelings when asked what images informed Dulles's design: "It is not an allusion to anything past, present or future. We just wanted to make the best damn terminal in the United States." □





Courtesy, U.S. Army Corps of Engineers

# Designing Against Flood Damage

*A research project yields some guidelines. By Donald Geis and Barry Steeves*

Rivers and seacoasts have always been focal points for development. Access to water has provided drinking supplies and sanitation, an important source of energy and a valuable part of the transportation system. Recreational opportunities and esthetic enjoyment further stimulate waterside development.

This development pattern, however, leads to a conflict between the natural and built environments. The need for direct access to water places human settlements in low-lying areas

**Mr. Geis** and **Mr. Steeves** are, respectively, project manager and research associate for an AIA Research Corporation project on flood design sponsored by the federal insurance administration, part of the federal emergency management agency. End product of the project will be a manual, *Design Guidelines for Flood Damage Reduction*, which will be published by the agency late this year. This article is drawn from a draft of the manual.

subject to periodic inundation by rivers and the sea. In the U.S., more than six million dwellings and a large number of nonresidential buildings are currently located in the nation's 160 million acres of flood plains. Flooding of these flood plains is responsible for more damage to the built environment than any other type of natural disaster. The following figures indicate the seriousness of the problem:

- In the six-year period between 1973 and 1979, 193 major natural disasters and 77 Presidentially declared emergencies occurred; approximately 80 percent involved flooding.
- The total flood damage in 1978 has been estimated at \$3.8 billion.
- The estimated average property loss in the 1970s was over \$1.7 billion a year.
- In 1978, 17 states suffered flood damage serious enough to be declared as disaster areas.

• In 1979, Hurricane Frederick alone caused \$1.8 billion in damages, much of it from flooding.

Floods are part of the natural hydrologic process. Riverine flooding is associated with a river's watershed, the natural drainage basin that conveys water runoff from rain and melting snow. Water that is not absorbed by soil or vegetation seeks surface drainage lines, following local topography and creating rivers and other streams. Flooding results when flow of runoff is greater than the carrying capacity of watershed streams.

Flooding usually involves a slow build-up of water and a gradual inundation of surrounding land. However, flash flooding, a quick and intense overflow with high water velocities, can result from a combination of steep slopes, a short drainage basin and a high proportion of surfaces impervious to water and unable to absorb runoff.

Coastal flooding is generally due to severe ocean-based storm systems. Hurricanes and tropical storms are the principal causes, with flooding occurring when storm tides are higher than the normal high tide. This is known as a storm surge. The maximum intensity of a storm surge accompanies high tide, so storms that persist through several tides are the most severe.

Coastal flooding is most frequent on the Atlantic and Gulf Coasts, which are made up of a succession of barrier islands, beaches, dunes and bluffs. These physiographic elements are maintained in dynamic balance as sand is moved by wind, waves and ocean currents. This self-replenishing beach dune

system takes the brunt of the force of storm tides and surges and helps buffer inland areas.

In coastal areas the removal of beach sand and the leveling of dunes, along with the construction of seawalls, jetties and piers, are common practices. Yet, these help destroy the shoreline's natural protection system, exacerbating the impact of storm surges and high winds.

In addition to the direct threat to buildings, development in riverine flood plains alters natural topography, modifying drainage patterns and usually increasing storm water runoff. Development also displaces much of the natural vegetation that formerly absorbed water and decreases the permeability of the soil by covering it with buildings or with nonporous surfaces for roads, sidewalks and parking. The effect of these changes is to increase the severity of flooding throughout the riverine environment.

Thus, development along coasts and rivers has transformed periodic floods from benign components of the natural hydrologic cycle into potential human disaster.

There have long been attempts to moderate the impact of flooding, with major federal efforts in the U.S. since 1936. Until recently, these efforts have been concentrated on flood control measures devised to reduce or eliminate flooding itself—chiefly, dams, levees and similar structural works. Despite a number of positive results, these measures have not succeeded in reducing flood damage.

Since the mid-1960s, therefore, federal policies have reflected a recognition that structural works need to be complemented by nonstructural measures. Rather than trying solely to prevent floods, current programs address the need to reduce the losses incurred when inevitable flooding does happen.

*Ravages of coastal and riverine floods. Left, a foundation has insufficient reinforcement to withstand a Lake Michigan shoreline flood. Below and overleaf, devastations of the Big Thompson River flood, Colo.*



Courtesy, U.S. Army Corps of Engineers

## The first significant steps involve siting.

Thus, in many communities development has been prohibited or minimized in the most hazardous areas and carefully monitored to avoid undesirable effects in others. Architects, in carrying out their role in the development process, should parallel these efforts, consciously including damage reduction strategies in the design process. Such action requires that the architect be aware of both site specific flooding characteristics and appropriate techniques for mitigating flood damage through project design.

The complexity of the development process involves a wide range of decisions that directly influence the subsequent project design. The architect's role in making these decisions varies according to the nature of any given project, but generally centers on project analysis and evaluation.

As with any aspect of a design problem, the starting point in analyzing the potential flood impact on a project is the collection and analysis of pertinent data. This research adds the relevant regulatory and technical information to the client's initial program of needs and resources and illuminates the connections between the individual site and its surrounding environment.

Development in flood prone areas is subject to a number of interrelated local, state and federal requirements. The primary impetus for most of them comes from the National Flood Insurance Program, which provides guidelines and incentives for local jurisdictions to implement flood plain management regulations. Its main component is a stipulation that federally subsidized flood insurance—the only insurance obtainable in flood prone areas—is available only in communities that have implemented flood plain planning regulations in their hazardous areas.

Designers working on flood plain sites should consult the appropriate local agencies on both these regulations and the insurance rate differentials and restrictions of federally guaranteed loans that accompany them. At the same time, the designer

should consider the potential for going beyond regulatory minimums, providing maximum protection wherever possible.

Information on the regulatory restrictions and incentives affecting development in a community must be complemented by technical information concerning the site. Available from a variety of local, state and federal agencies, such flood hazard data is essential in determining the degree of hazard that is likely at any proposed site, the expected impact of proposed development on future flooding severity and the relative effectiveness of the various available design strategies for mitigating flood damage.

Data on the proposed site encompass a number of elements, the most basic being flood hazard boundaries, depths and velocities. The architect must be concerned with the effects of the water pressure associated with flooding, which can cause lateral displacement, overturning, uplift or flotation of buildings, as well as increasing erosion and sedimentation on the site.

Other pertinent factors are duration and frequency of flooding and local climate and weather patterns. These influence the saturation of soils and building materials, the amount of seepage and the length of time that facilities might be inaccessible or inoperable, which can have a major economic impact.

A number of specific physiographic site characteristics also affect flooding and the choice of strategies for flood damage reduction. The location of stream channels, drainage courses, wetlands and slopes, for example, should be identified to indicate which areas of the site should be avoided or protected during development. Such features will help identify advantages and constraints to be considered in site development.

Soil permeability and vegetation determine the degree of water absorption, which, in turn, influences the rate of storm water runoff, erosion and ground water storage—all of which relate to flood severity. Surface water storage, such as ponds or surface depressions, aids in control of water runoff by holding excess runoff until it can be released gradually into the watershed, thereby avoiding the rapid accumulation that causes flooding.



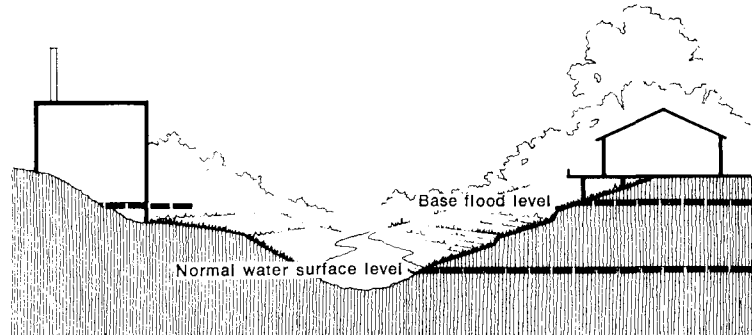


This predesign analysis enables the architect to incorporate data on the flood related aspects of a site into the client's basic program of needs and resources. At this point the focus shifts to generating design alternatives and, ultimately, to detailed design decisions.

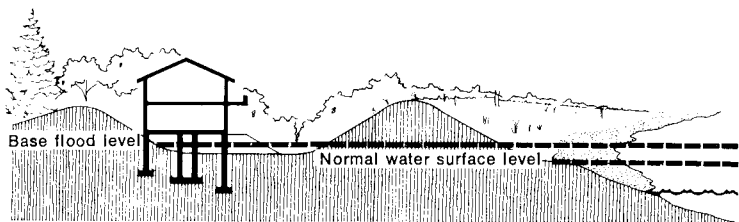
With proper flood plain planning and project analysis, buildings will be sited so that they are not subject to inundation. Yet there are situations where this will not be the case. For example, a site might be subject to only partial flooding or to mild and infrequent flooding. Likewise, a project may include existing buildings that cannot be moved or replaced because of their historical or economic significance. In such instances site and building design techniques can be used to mitigate damage.

Site design techniques for flood damage reduction fall into two categories—the distribution and density of built elements on the site and control of storm water runoff. These techniques should be used in varying combinations to fit the unique circumstances of each site and design program.

The primary objective in siting individual buildings is to locate them so that they will be safe from flooding. In practice this means locating on the higher levels of the site that analysis of basic flood data has indicated will not be flooded. When this



*Buildings in the riverine watershed should be located above base flood level.*

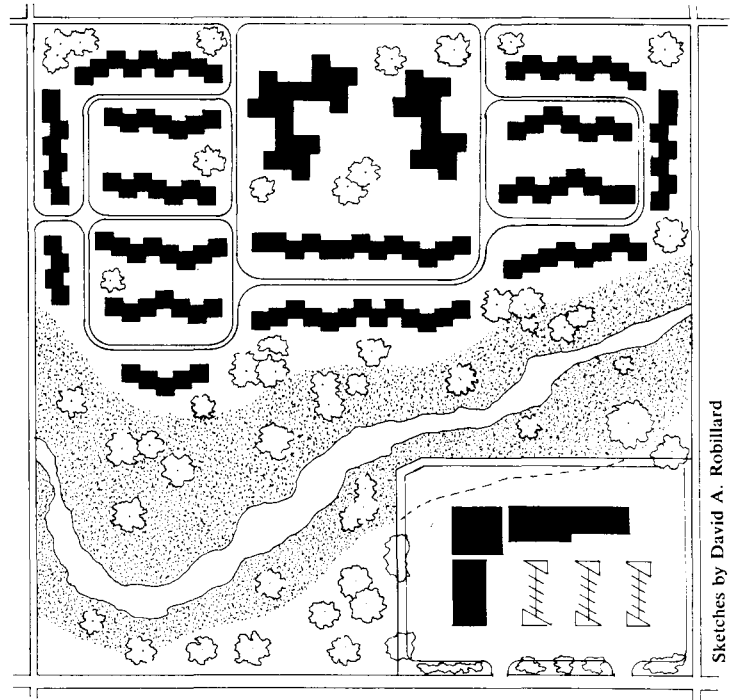


*Coastal area buildings should be behind or in trough between dunes, not on them, and elevated above base flood level.*

is not possible, both insurance and flood damage mitigation needs can often be satisfied by designing the first floor to be above the base flood level. Even here, however, the building should be oriented so that foundations and flood proofed walls minimize obstruction of flood flows. Natural drainage lines and other natural features that help control storm water runoff should also be preserved. These measures avoid raising the level of flood water and minimize negative impacts on downstream property.

Coastal areas require additional safeguards in locating buildings. There should be no construction on beaches or dunes; buildings should be sited behind the back dune or in the troughs between the dunes, since these areas are more tolerant to alteration. It is also important that the stabilizing composition and vegetation of dune systems not be disrupted. And buildings should not be located, nor should any fill material be used, in wetland areas.

Where multiple buildings are to be placed on the same site, the objective of site design is the same as for an individual building. One approach is to disperse buildings throughout the site, applying the criteria discussed above to each building. An



Sketches by David A. Robillard

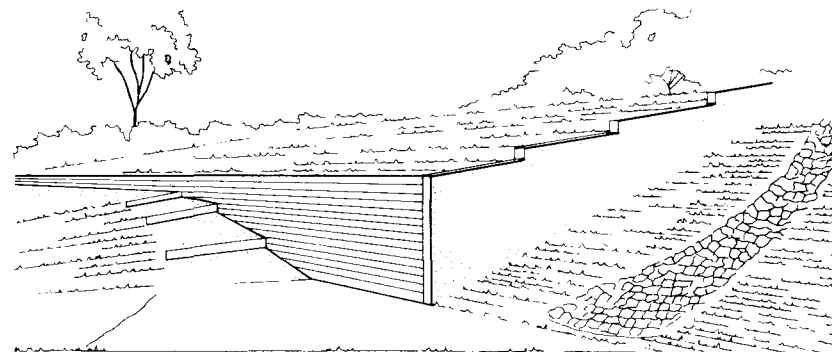
*Shaded portion in flood plain is recreation and parking, while development is clustered on the safe part of the site.*

alternative to such dispersal, when local zoning ordinances allow (e.g., a planned unit development ordinance), is grouping buildings in clusters on the safest parts of the site, leaving the more vulnerable areas open. This approach not only reduces flood damage but can also allow greater flexibility in protecting the natural features on the site.

What happens to storm water runoff—water entering a site either as precipitation or as runoff from upstream—is a major influence on flood severity. If through development of a site there is an increase in the volume or velocity of runoff, there will be an increase in flood levels. This is particularly significant in urban areas where there is a greater concentration of development.

Ideally, runoff rates after development should not exceed predevelopment rates. This ideal may not always be possible, but should remain the objective of site planning and design. In meeting this objective the designer should consider several site characteristics.

Soil composition should be porous enough to allow percolation of water into the ground and to allow water to drain away from buildings. Vegetation should be retained or introduced to the site in locations that are most susceptible to runoff, such as on exposed slopes. Large expanses of water-impervious surfaces, such as concrete, should be minimized. Parking areas should be punctuated with vegetation and roads, sidewalks and parking areas should be constructed of porous materials wherever possible. When feasible, temporary water storage should be



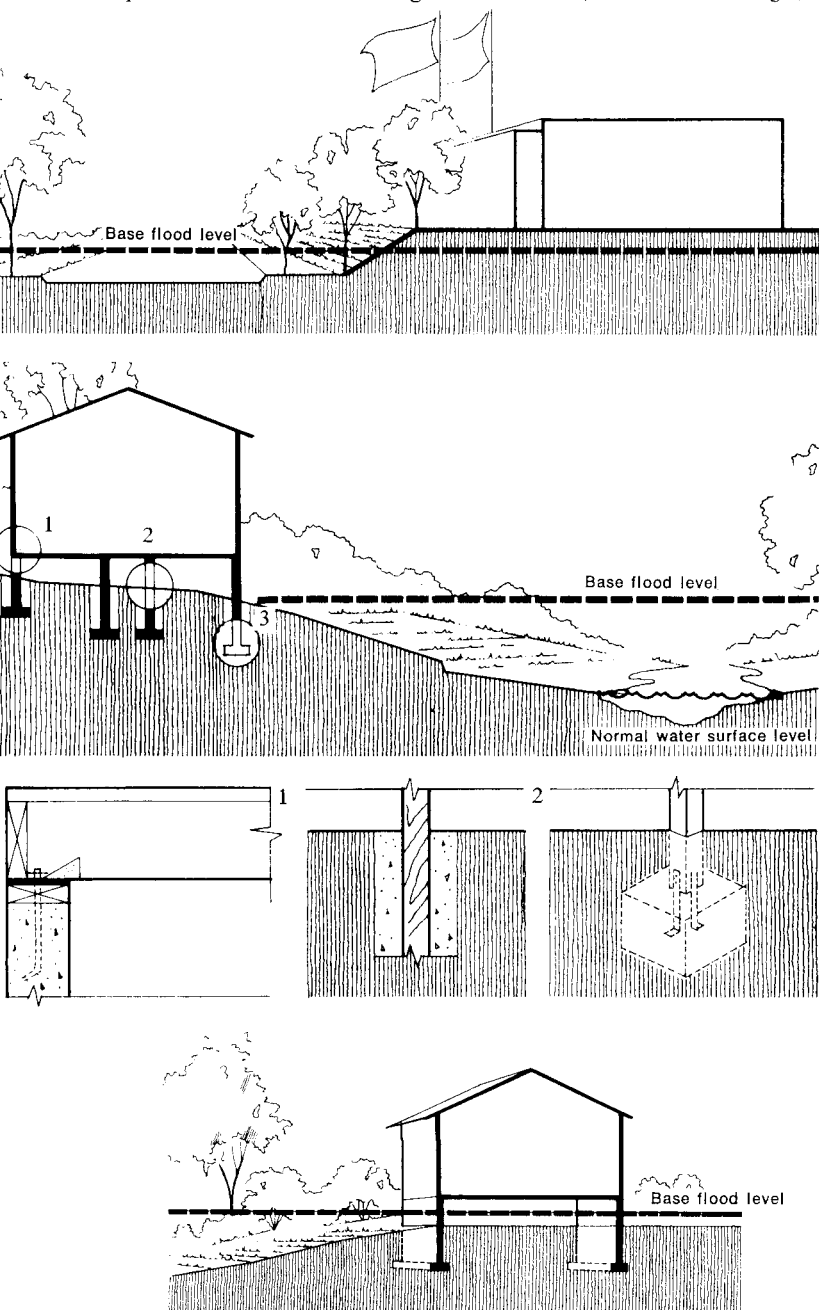
*Retaining walls, terraced slopes and lined channels can be used as part of site development to control storm water runoff.*

## Providing added protection in building design.

provided, possibly by retaining or creating surface depressions in open areas or parking lots. Attention should also be given to channels for directing the flow of water, as well as to streets, curbs and storm sewers as components of the site's drainage system.

A number of building design strategies can be used to reduce the threat of flood damage to buildings that must be located in flood hazard areas. Entrance of water through building openings should be minimized, building finishes and contents should be protected, seepage through walls, floors and foundations should be eliminated. Attention should be directed to counteracting the forces of water pressure on foundations, walls and floor slabs, and to preventing the back-up of water through sewer systems.

To deal with these problems adequately, the architect can incorporate any of a variety of damage reduction techniques, termed flood proofing, into the design of buildings. These techniques interact with site design features and, as with site design,



*Buildings can be elevated on fill material (top); on posts, piers or columns, with building anchored to posts (1, 2) and posts secured in soil by backfilling (3), and (bottom) on extended foundation walls.*

will vary with respect to individual circumstances. Such strategies are particularly appropriate where only moderate flooding (i.e., low flood stage, low velocities and short duration) is likely, or where flooding can be anticipated but buildings' uses require riverine or coastal locations. The principal approach to achieving this objective is to keep buildings dry during flooding. This usually involves either raising buildings above the base flood level or waterproofing portions of the building that are below it.

It should be noted that, in buildings without waterproofing, water entering the building serves to equalize water pressure that builds up on its exterior. If this equalization is eliminated by waterproofing, then the building is likely to collapse. If a strategy is adopted that keeps water out, then the building must also be made structurally capable of withstanding these exterior water pressures.

Elevating buildings above the base flood level is a common technique for reducing flood damage. Flood insurance requirements mandate that residential buildings in flood prone areas be elevated and that other types of buildings be elevated and/or flood proofed. It is a particularly useful technique where site elevations are consistently below the base flood level and offers the greatest assurance of keeping a building dry during flooding.

One method of raising buildings is to use fill material to achieve the desired elevations. This technique interacts with the various site design issues and requires consideration of the type of fill, compaction and settlement of fill, protection against erosion and the effect of altered land forms on the flooding levels elsewhere in the watershed system.

Another approach to elevating buildings is to raise them on some form of stilts, such as piers, posts or columns. This method puts the building above the base flood level and leaves the ground level predominantly open for recreational uses and parking. It offers the added advantage of not impeding a significant volume of water, thus minimizing increases in downstream flood levels.

In using stilts, the designer must consider the size and spacing of stilts to ensure adequate support with minimum obstruction. Stilts should penetrate to bearing soil and be firmly anchored to ensure that they will be able to resist water pressure and debris impact loads.

Extended foundation walls can also be used to elevate buildings above flood levels. However, as with the use of fill material, the vertical surfaces of walls can obstruct the flow of water and are subject to greater lateral water pressure. Such walls should be located parallel to the flow of flood water to minimize these dangers and should be anchored to prevent displacement or flotation. With any technique for elevating structures, the designer must consider access to and from the building during flooding, as well as the protection of utility inlets.

Spatial organization is also important. The internal spaces of buildings in a flood plain should be organized to minimize damage in the event of inundation. The most vulnerable elements of the building should be located above flooding levels. This would typically include placing all mechanical equipment on the upper floors or roof of the building. Depending on the respective elevations, machinery and similar equipment should be raised off the floor or anchored to prevent flotation. Particularly valuable and vulnerable contents, such as computer equipment, should be located in areas above flood levels or otherwise securely protected from inundation.

The most vulnerable components of the basic building fabric are the points where walls below flood levels are penetrated for doors and windows, utility inlets and, in some cases, underground tunnels to adjacent buildings. Ideally, all doors and windows should be above the base flood level with access provided via ramps, stairs or fill. Rubber gaskets can be used to seal openings below the base flood level, and waterproof conduits can be used to protect utility lines.

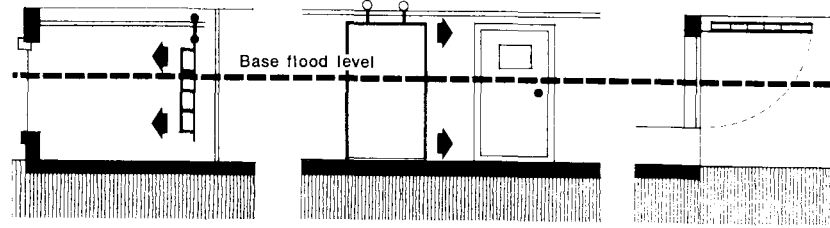
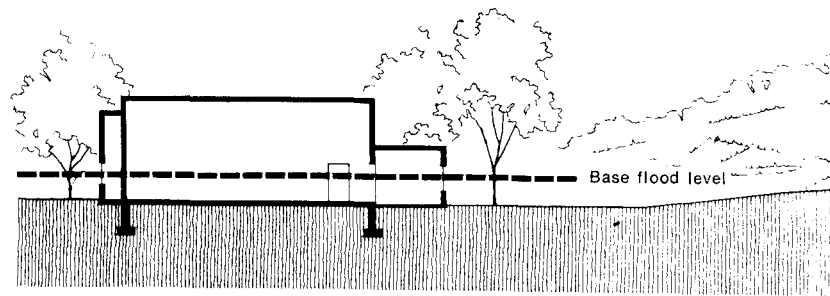
Openings for doors and windows unavoidably located below

flood levels can be protected by flood shields that can be put in place on receipt of flood warnings. These shields can cover openings ranging from small areas to large display windows. They can sometimes be incorporated in the building's structure, out of the way when not needed and put into place using hinges and rollers when necessary. They can also be separate from the structure and stored when not in use.

Openings below the base flood level in existing buildings can often be eliminated, with alternative entry points provided at higher levels. Windows below flood level can sometimes be replaced by glass bricks, which allow light but can withstand moderate amounts of water pressure during flooding.

An additional method for protecting openings is to use levees and walls to keep water away from all or part of a building. Earth berms, either freestanding or directly against the building, can serve the dual purposes of providing flood protection and access routes. Retaining walls can be incorporated into buildings as fences or patio enclosures to protect openings that are below the base flood level and at the same time enhance privacy and amenity.

Such control measures should be designed to resist lateral and vertical water pressures, minimize erosion and impede minimal volumes of water. Enclosures designed to protect openings should be combined with sump pumps to maximize their effectiveness and could be combined with flood shields. Levees and walls can be appropriate for any size or type of building, but their use should be carefully coordinated with site design issues.



*Doors and windows below base flood level can be protected by flood shields, such as examples above using rollers and hinges, which are put in place at a flood warning.*

In adopting any of these flood proofing techniques, there are a number of special considerations that should not be overlooked. Water resistant building materials should be used in any portion of the structure exposed to water. All structural walls should be designed to accommodate water and debris impact loads. Floors should be designed to withstand the vertical pressures associated with flooding. Footings and foundations should





Courtesy, American Red Cross

be at sufficient depth to provide the necessary resistance to water pressure. Walls, floors, foundations and footings should be securely tied together and anchored to resist water pressures. And sump pumps should be installed in basements to remove small quantities of water.

These and other site and building design techniques for reducing flood damage are both feasible and effective. They are also worth the extra cost. Studies published by the federal emergency management agency indicate that flood proofing buildings is cost effective in both riverine and coastal environments. One study looked at four different strategies as applied to a small commercial building. Analysis found that three of the four were economically justifiable. Another study found that, in the high hazard areas of the *Atlantic and Gulf Coasts*, new homes ele-

vated above expected storm surge levels are also economical, both because of reduced flood losses and because of lower insurance premiums.

Unquestionably, the most effective means of reducing flood losses is to locate out of flood hazard areas. However, if this is not possible, flood proofing and site development alternatives should be explored. The architect with a firm grasp of these techniques is better prepared to generate appropriate design responses for each specific project and site. Increased knowledge allows the designer to accept the creative challenge of designing to meet programmatic and esthetic standards, while simultaneously reducing flood losses throughout the natural and built environment. Thus the architect is able to meet professional responsibilities in benefiting both the client and the community. □

# Boston Gathering Of 'Great Cities'

By Stanley Abercrombie, AIA

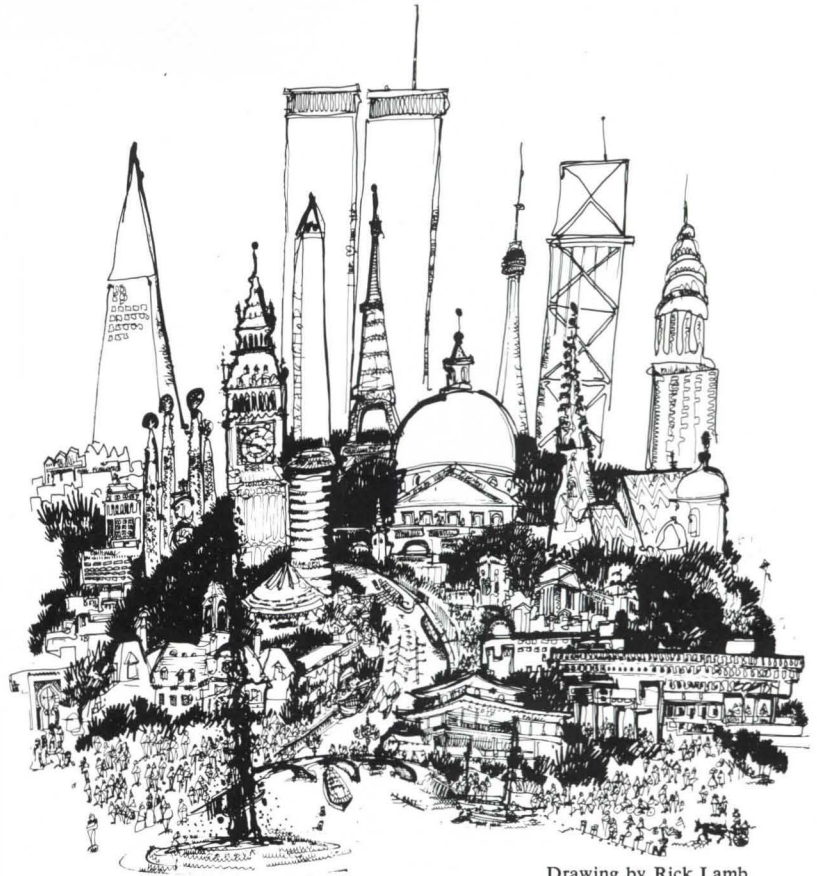
At the end of September, Boston celebrated its 350th birthday. There was all the predictable hoopla—a Boston Symphony concert, a parade, a huge cake with 350 candles and general gambling on Boston Common. But there was also an event that was not predictable and that may prove to be a valuable gift from Boston to the rest of the world: a weeklong "Great Cities of the World" conference attended by the mayors and chief planners of 37 cities in 31 countries. (To name just the first few, alphabetically: Alexandria, Amsterdam, Athens, Baltimore, Bangkok, Barcelona, Bombay, Buenos Aires.) The Athens delegation included Antonis Tritsis, who, throughout the week, asked the toughest questions; the Dublin delegation included Francis Feely, who told the most charming tales, and the Toronto delegation included Jane Jacobs, who made the most sense. Hong Kong and Hangzhou showed the most spectacular slides, and Strasbourg brought along the largest model (too big for the doors of City Hall, it had to be shown in the public library).

In both content—different problems, different policies—and in logistics—different languages, different schedules—it must have been a hell of a week to organize. Orchestrating the whole thing were Katherine Kane and Susan Goodwillie of the mayor's office and Boston Mayor Kevin White himself. The imperturbable moderator was urban affairs columnist Neal Peirce. The money came from the National Endowment for the Arts, the German Marshall Fund and other sources. And hosts for various parts of the week included the Boston Redevelopment Authority, the Massachusetts Institute of Technology, Harvard's graduate school of design, Harvard's Kennedy school of government and the Institute for Urban Design. (Perhaps only the last of these needs some introduction. The Institute—let's avoid its acronym—was established just last year by Ann Ferebee. It has offices at the Purchase campus of the State University of New York, support from NEA and an impressive board of directors. It publishes a bimonthly magazine and, prior to Boston, had already sponsored conferences in Philadelphia, Paris and Helsinki. Its 1981 plans include Galveston, Tex., and Berlin. For information, write Main P. O. Box 105, Purchase, N.Y. 10577.)

But what of the actual content of this impressive convocation? Presumably, the most valuable moments of the week were the most private. What did the Lord Mayor of Dublin ask the First Architect of Leningrad? What was Kyoto's advice to Dakar? We wish we knew.

In the public gatherings, generally limited to 15-minute presentations on specific topics, the delegations were sometimes platitudinous, sometimes obsessed with self-promotion. Much of the talk was superficial. Yet, often there were frank exposures of serious problems, and some sessions really caught fire.

On the second morning, MIT professor Julian Beinart presented an intriguing filmstrip focusing on cultural conflict. His examples were racial conflict in Johannesburg, across-the-border conflict in the pairs of towns along the U.S.-Mexican border, colonial-national conflict in Delhi and urban-rural conflict in Cuba. This brought a roar of protests from the Mexico City delegation, supported by others, who thought the presentation



Drawing by Rick Lamb

arrogant and unfair. Beinart calmly explained that he had assumed it was unnecessary to add that he deplored many of the situations he had shown. It was a confrontation that seemed based on misunderstanding, but it woke everyone up and introduced some frank talk to the public sessions.

Two mornings later, there was a more substantial confrontation. Architect Moshe Safdie, the new chairman of Harvard's urban design program, said that "we must conceive new urban models to humanize our cities," and developer James W. Rouse, Hon. AIA, called for "the big human plan," quoting Burnham's "Make no little plans; they have no magic to stir men's blood." Then Jane Jacobs came forward and let them have it. "Believe me," she said (and the capacity crowd in Faneuil Hall certainly seemed to believe her), "our cities are not going to be humanized by conceiving new urban models at Harvard."

But most of Jacobs' scorn was for the Rouse-Burnham call for big plans. Burnham, she pointed out, didn't say big plans were good, or that they met needs, but just that they stirred blood. "Whose blood?" she asked. Burnham's own, certainly, and that of "those powerful men who needed to be stirred to come up with the financing." (Women, she added, "have always been willing to consider little plans.") She deplored the stifling of alternatives wrought by big plans and suggested a rule of thumb: "Don't make plans extend any farther than you absolutely must." One of her examples of big plans gone awry concerned transportation policy, a subject touched on by many delegations. In New York City, she pointed out, there are young people fighting the Westway scheme who were not even born when the interstate highway system became a long-term federal commitment.

In addition to transportation, recurring concerns included housing for lower income groups and the relationships between cities and water (not just the scenic value of water but also practical problems of clean water supply). It was clear that all these concerns were really rooted in one overriding problem: the continuing boom in the growth of our cities. Athens, for example, is suffering the effects of the arrival of 120,000 mi-

*continued on page 81*

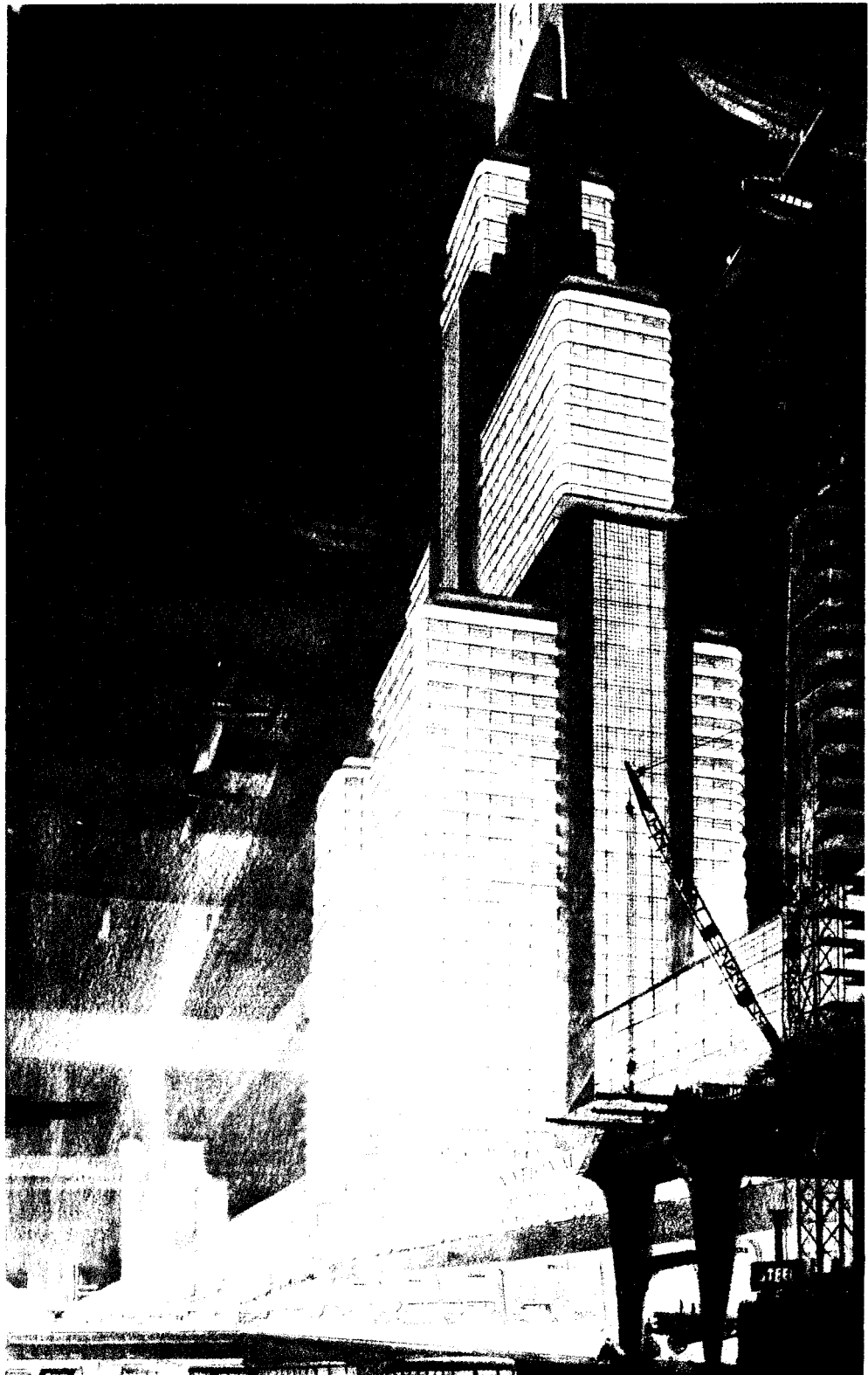
# Books for Giving, 1980

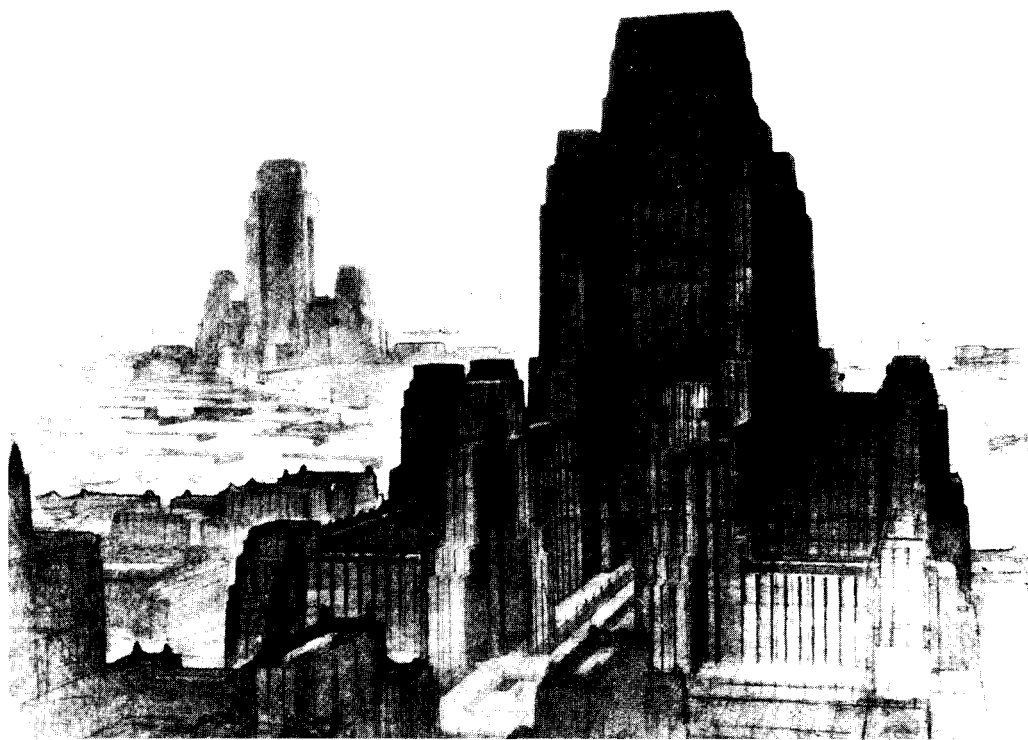
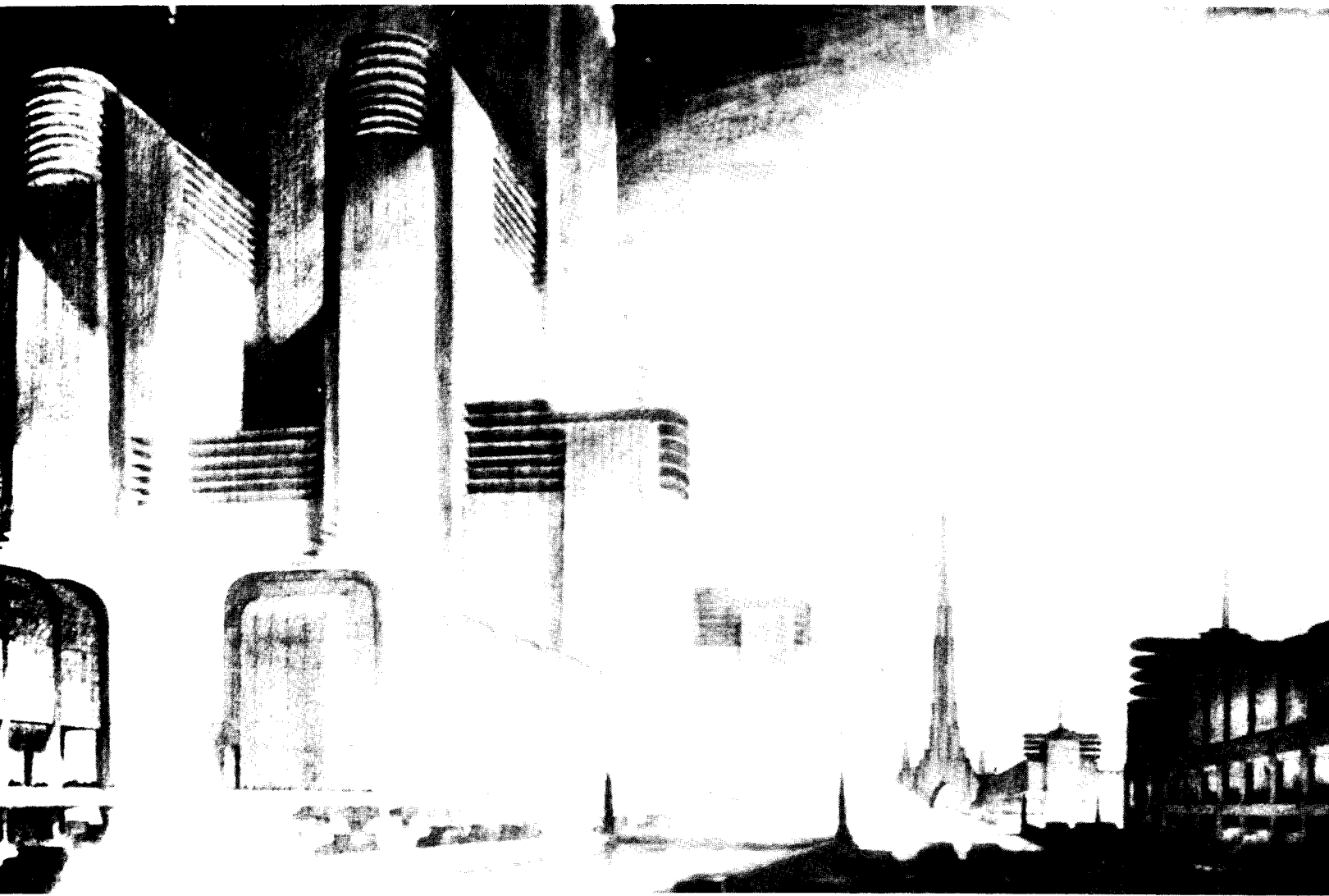
An architect friend told us recently that his life's dearest treasures were his wife, his time and his books, "and not necessarily in that order of priority." Spouses and the valuable commodity of time aren't giveaways in the ordinary course of events, but books surely are, and our friend's remark was somehow in mind as we thought of the approaching Christmas season when books as gifts are a natural topic of consideration. As John Ruskin once said, "All books are divisible into two classes: the books of the hour, and the books of all time." The books noted here may be only "of the hour," for the intent is not to present candidates for any year's brightest and best books. The basis of selection is simple and twofold: The books have not been reviewed in these pages previously, and they will please, we believe, almost any architect who receives one—provided, of course, that he or she has the abiding love of the printed page that our friend does. *Mary E. Osman, Hon. AIA*

## Hugh Ferriss: The Piranesi of Futurism

**Architectural Visions: The Drawings of Hugh Ferriss.** Jean Ferriss Leich, with an essay by Paul Goldberger; foreword by Adolf Placzek. (Whitney Library of Design, \$19.95.)

Hugh Ferriss (1889-1962) was a master artist, as well as an architect. In the foreword to this handsome book, whose preparation was made possible by a Brunner scholarship award from the New York Chapter/AIA to Jean Ferriss Leich, Hugh Ferriss's daughter, Adolf Placzek says that "not since Piranesi has architectural draftsmanship been used with such stunning visual effect." But Piranesi, Placzek says, looked to the past for inspiration, while Ferriss looked to the future. After an introductory essay by Jean Leich and an assessment of the architect's contributions by Paul Goldberger, the drawings presented are divided into two parts. The first section, on "Dreams," shows Ferriss's visionary concepts of future cities and buildings; the second, on "Realities," includes drawings of significant completed buildings. The beautiful drawings are captioned by Hugh Ferriss's own words.





*Ferriss's 'The Metropolis of Tomorrow' (1929) made a significant impact on the architectural thinking of the era, revealing his belief that the city is 'man's noblest creation.' Across page, towers of steel and glass in his imaginary city; top, the science center; left, the philosophy center; above, the business center.*

# A Dialogue on Architecture Among 'a Gamut' of Ten

**By Their Own Design.** Edited by Abby Suckle. (Whitney Library of Design, \$19.95.)

Here are 10 viewpoints by 10 architects that run, as the editor says, "the gamut of design stances." In the introduction Abby Suckle explains clearly what the book is all about. "What each architect does is present his own design philosophy and show how it is resolved in one or more recent buildings." The architects are Arthur Erickson; Cesar Pelli, FAIA; Kisho Kurokawa, Herman Hertzberger, John Johansen, FAIA; Fumihiko Maki, Gerald McCue, FAIA; Richard Rogers, Harry Seidler and Norman Foster.

It isn't really fair, but some random quotes from this distinguished group give the general flavor of the book, which has to be read in its entirety to be fully appreciated.

• Arthur Erickson: "Contrary to most contemporary theories of architecture, perhaps, my opinion is that on observation a building should not reveal immediately how it is built."

• Cesar Pelli: "I think that architects work within the context that happens to coincide with their own particular interests and ways of searching. Some architects are working at the edge, pushing. Some may be pushing for the maximum recollection of history, some for the maximum expression of industrialized materials. But these efforts are really at the edge. The edges are always the silhouette; they immediately become noticed."

• Kisho Kurokawa: "Architecture is nothing more or less than an aggregate of extremely capsulized and diverse functions; it may be defined as a group which comes into being when a number of capsules encounter each other."

• Herman Hertzberger: "When we are designing, we have to explore our memory continuously for all the experiences that can be brought to bear on what we are making. What we create can be different from, but never more than, what has become part of ourselves as experience."

• John Johansen: "As there is slang in the literate world, defined as effective, brash, colorful, sometimes crude or impudent, so there is slang in the visual language of architecture. It is through acceptance of a new, more forceful speech that language, particularly the 'American language,' is continually updated and enriched. The same is indeed true for the language of architecture."

• Fumihiko Maki: "We have long ac-

cepted the industrial product in architecture. But it is how one seeks out the special sweetness of those products as suited to specific conditions of the problem and how one uses those special qualities to serve one's attitude in design that is the important issue for me."

• Gerald McCue: "If there is an inadequacy in modern architecture, it has been the superficial concern for expression rather than concern for broader principles. When visual and formal concerns become effects rather than an expression of both purpose and means, they lose the essential dimension of their meaning; buildings which are a collection of effects have little meaning."

• Richard Rogers: "An architecture of possibilities is rooted in the constant of change. For in the dynamic and changing society in which we live, it is impossible to freeze time."

• Harry Seidler: "Design concept and constructional means must be an integral, married part of each other. If they are divorced, lead separate lives, or point in

different directions, they become invalid and are supportable only by artificial means."

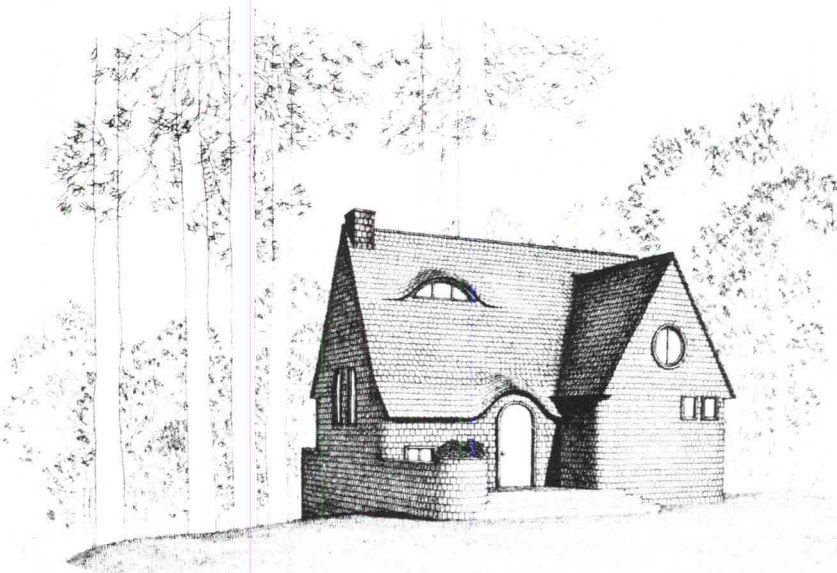
• Norman Foster: "Our design philosophy could thus be expressed as a process which resolves and integrates those views and polarities which might otherwise be in conflict. Another part of the approach is and always has been a conscious and deliberate attempt to put all those dry objective pieces of the jigsaw (research, statistics, cost schedule, site analysis, structural options—the checklist is endless) together with some very subjective joy—a kind of celebration! That is what architecture should be about."

This book is about architecture, and it is hard to think that any architect who likes to hear another viewpoint would not enjoy this collection. Its editor is currently employed at Hardy Holzman Pfeiffer in New York City.

## American Architecture Is 'Even-Handedly' Assessed

**Encyclopedia of American Architecture.** William Dudley Hunt Jr., FAIA. (McGraw-Hill, \$35 to Dec. 31; afterward, \$39.95.)

Dudley Hunt has written—not edited—this 640-page collection of 202 essays



**Drawings: Architecture & Leisure.** Bon-Hui Uy. Forewords by Philip Johnson & Edward Larrabee Barnes. (Bon-Hui Uy, Crow Hill Road, Mount Kisco, N.Y. 10549, \$15.) "In the old days of modern architecture," says Philip Johnson, FAIA, in his foreword to this book, "we could learn through models and make presentations to clients by means of models. Now, however, the details, the framings, the moldings are too elusive to be worked by the modelmakers. Renderings are the only fair way. Bon-Hui Uy is one of the best renderers we have." And Edward Larrabee Barnes, FAIA, also points out that renderings "take the viewer inside the design, make him feel the voids, the lightness and the weight of architecture." This book, without further text except for captions, is satisfying to the eye, as indicated by the pencil sketch of a house designed by Philip Johnson for his own use in Big Sur, Calif. The book will make a neat "stocking stuffer" for all who like drawings.



within which are organized American architectural history, biographies, practice, the building industry, structural components and systems, building materials, building types, technical terms and major architectural concepts. As might be expected from the author of *Total Design* and editor of *Comprehensive Architectural Services: General Principles and Practice*, this is a work of large scope. For an equally ambitious comparison, one really has to go back to Viollet-Le-Duc's *Dictionnaire raisonné de l'architecture française*. Talbot Hamlin's *Forms and Functions of Twentieth Century Architecture* and *Eléments et théorie de l'architecture* by his predecessor Julien Gaudet are not really comparable. The several dictionaries of architecture do not match Hunt's scope. It is an impressive one-man performance.

But one must ask who will be served by such a book, "written in nontechnical language," with more than 500 illustrations, but generally lacking plans, technical drawings and photographed details. Certainly, the layman interested in architecture will find here an up-to-date and comprehensive work of ready reference. The architect with larger expectations will probably wish for more specialized treatments and, in spite of the excellent index providing access to a greater number of topics than the main headings, he will not find them. One must conclude that while undoubtedly the best and most up-to-date reference work of its kind, it may fail to meet many reasonable expectations aroused by its title.

The references accompanying individual entries are designed to guide one to further reading—but of a general sort, many of them at less than a professional standard. The principal reference to Thomas Jefferson, for example, is to Desmond Guinness's coffee-table book. Under Frederick Law Olmsted, a citation is given to the single volume of Olmsted letters that has thus far appeared; but the reference on the abundantly documented history of Washington, D.C., architecture is to the AIA guide. The reference apparatus also takes some getting used to. One finds nothing under "Washington, D.C.," but a relatively complete entry under, "Capital, United States." It requires an exercise in definition before accepting Hunt's description of James Portues (sometimes spelled Porteus, ca. 1660-1737) as America's "earliest builder-architect" (p. 76). But these are quibbles of a conventional sort, and do not really diminish the importance of this book.

The objectivity that should characterize a work of this description is an elusive quality. Hunt has a point of view and he belongs to a certain generation. (He is a mainliner.) Both are difficult to describe



Lester Levine

**Landscapes for Living.** A *Landscape Architecture Book*. Edited by Grady Clay. (McGraw-Hill, \$19.95.) There are no "instant gardens" in this intriguing book, says editor Grady Clay, "no mass-produced scenes, no trite copies off the shelf," for gardens don't just happen, "but are made and often achieved after a lifetime of effort." The articles included in the book are by an array of experts who describe an array of lovely gardens. For example, Peter Bohlin and John Brown tell of a subtle area in a Pocono Mountain ravine; David Gates describes how to shield privacy from nearby public throngs; John Alden Bentley discusses how an 1840 estate was redesigned for expanded entertaining, and Joan S.L. Greentree fascinates the reader with a description of an "amazing non-garden garden" (photo above). This book will please all who love gardens, those delectable places of "personal achievement as well as escape." Nor are all these gardens for the wealthy only, for many have been achieved with modest means, albeit hard work.

but, if he leans, it is to the conservative side; and his chronological stance is about a decade back—before the rise of post-modernism, the re-evaluation of the Ecole des Beaux-Arts or even Venturi's "complexity and contradiction."

Nevertheless, his assessments are fair, calm and even-handed, and he does not trim his sail to every passing breeze. More to the point, this standard of editorial judgment supports the decision to adopt the essay format, which encourages a more literary style as opposed to the deliberately deadened presentations found in conventional volumes of reference.

Here is a work of such soundness in research that it may be recommended to libraries and educational institutions, that will satisfy and inform the layman and which architects will read with unexpected pleasure, particularly as they con-

sult such entries as—at random—"Education," "Finance," "Feasibility Studies," or the biographical sketches of Cass Gilbert, Irving Gill or Peter Harrison. *Frederick Gutheim, Hon. AIA, Washington, D.C.*

## Early Roman Planning from A Hilltop Town's Vantage

**Cosa: The Making of a Roman Town.** Frank E. Brown. (University of Michigan Press, \$20.)

No other archeological site has revealed as much about the architecture of early Roman colonies as ancient Cosa, the subject of this book. Founded in 237 B.C. on the Italian coastline north of Rome, Cosa was a military outpost in conquered Etruscan territory—a frontier settlement of the expanding Roman Republic. Frank

Brown, the former director of the Cosa excavation (which began in 1948), here offers a comprehensive interpretation of the site, focusing attention on the town's architectural development, while also documenting its political and social history. Many of the findings at Cosa have been previously published in separate studies; now, however, this material is drawn together and condensed, with much new information added. Because of the author's broad outlook, this fine book should appeal not only to specialists in the field of architecture and city planning, but also to readers with a more general interest in Roman civilization.

The volume is divided into five chapters that trace the history of Cosa from its founding to its sacking by marauders in the decade of the 60s B.C. The general sequence of the chapters is chronological, beginning with a discussion of the political background of the settlement at Cosa and the planning of the town, and then documenting the construction in different parts of the site historically. Public architecture (which has been most fully excavated at Cosa) receives the greatest attention, with residential buildings treated separately in the last part of the book.

The initial chapter offers an excellent summary of the early colonial policy of ancient Rome and Cosa's role within it, as well as a detailed explanation of the manner in which the physical site of the town (a rocky promontory overlooking the Tyrrhenian coast) was plotted by Roman surveyors. Cosa in fact shows the most unified grid plan of the early Roman hilltop colonies. An especially valuable contribution of later chapters is the author's description and reconstruction of the forum, or town square, at Cosa. This is the most complete example we have of this type of public space among early Roman colonies. Moreover, Brown and his collaborators have been able to detect no less than six chronological phases in the construction of the forum—gradually filling in a presumed master plan, designed by colonial administrators in Rome.

Individual monuments of note in the forum include, among others, an assembly place and senate house, a jail, commercial atriums, a basilica and a monumental arch, all of which are significant early examples of these kinds of Roman structures. Part of the interest for the reader is Brown's eloquent manner in describing buildings and relating them to their social context. One also admires his imaginative and carefully documented archeological interpretations. All of the architectural and topographical features at Cosa that have been mentioned are richly illustrated with photographs, maps, plans and other drawings—including excellent reconstructions of the forum.



**The Enigma Of Stonehenge.** John Fowles and Barry Brukoff (London: Jonathan Cape, £ 6.95.) Stonehenge has a curious fascination, principally because it is an utter conundrum. In this small book, John Fowles, novelist and essayist—literary weaver of strange, haunted and inexplicable strands of stuff—examines the various mysteries of its creation. How, for instance, could its builders have transported the huge stones? While he doesn't accept antiquarian William Stuckeley's conviction that it was the work of the Druids, "I could not quite take that enticing clutter . . . as man-made." Designer Barry Brukoff's photographs show Stonehenge in all its moods, most strikingly as "see-throughable," as Fowles calls it.

Regarding other parts of the text, reference is made in this review only to selected items. There are fine descriptions of the arx (or acropolis) and port at Cosa, the former of which has been published in great detail in the *Memoirs of the American Academy in Rome* 26, (1960). Cosa is the only one of the Latin colonies known to have a *capitolium*—modeled on the temple by the same name in Rome. Of particular interest, moreover, is the author's discussion of domestic architecture at Cosa, especially the town houses, which have unusual, asymmetrical plans differing from the typical Roman atrium house. By contrast, the suburban villas of the colony represent a style of architecture common to villas at Pompeii and other Campian sites (archeologists are currently exploring these types of buildings at Cosa). Among the notable landowners at that site were the Domitii Ahenobarbi, ancestors of the Roman Emperor Nero.

Overall, this book is highly recommended as a very clear and stimulating account of the architectural form and evolution of an early Roman colony—viewed within its political and social setting. This is architectural history of the most rewarding sort, combining precise archeological analysis with a broad sociological interpretation. *David Parrish, Associate Professor of Art History, Department of Creative Arts, Purdue University*

## The Genius of Place Ingeniously Portrayed

**Genius Loci: Towards a Phenomenology of Architecture.** Christian Norberg-Schulz. (Rizzoli, \$19.95.)

On the opening page of this handsome and extraordinary book, Christian Norberg-Schulz complains that "too much confusion is created today by those who talk about everything else when they discuss architecture." Now, that's a risky way to start a book, putting us immediately on the alert to catch the author wandering from his subject. And, indeed, the first three chapters ("Place?" "Natural Place" and "Man-Made Place") do ramble, talking of the most general generalities.

Even when he is specific, Norberg-Schulz seems to be concerned here with what most of us would consider urban design, not architecture. But he has a broad definition of architecture in mind: "The making of places we call architecture. Through building, man gives meanings concrete presence, and he gathers buildings to visualize and symbolize his form of life as a totality." And Norberg-Schulz does keep his promise that his book will "not treat economical and social problems," although much of what he says has social implications, for, as he points out, our "alienation is . . . first of all due to

man's loss of identification with the natural and man-made things which constitute his environment."

Whatever doubts we may have had about the vague generalities of the first three chapters are swept away by the next three, which are absolutely splendid portraits of three very different cities. The first is Prague. "Other cities may be grander, more charming, or more 'beautiful,'" Norberg-Schulz says. "Prague, however, seizes you and remains with you as hardly any other place."

The second city is Khartoum, little known to many of us, and really a trio of quite separate settlements at the meeting of the Blue and White Niles—the colonial city of Khartoum, the labyrinthine Arabic town of Omdurman and the industrial town of Khartoum North.

The third is Rome, a city about which so much has already been written that one hardly expects any fresh news about it. But, whereas most writers dissect Rome by examining the differences among the coexisting remnants of Republican Rome, Imperial Rome, renaissance Rome, baroque Rome, etc., Norberg-Schulz sees Rome whole, emphasizing

the qualities that have been unchanging contributions to its character. Rome's *genius loci*, he tells us, depends on the conjunction in one place of three symbolic landscape features, each of them meaningful elements of Roman history: the infernal world of the Etruscan landscape, the God-inhabited classical world of the Alban hills and the *cardo-decumanus* planning scheme of perpendicular axes. The same city could not have grown in any other place, and "it is possible," he shows us, "to preserve the *genius* without interfering with the needs of successive historical situations."

*Genius Loci* is a book about concepts, but only about concepts based on reality. It is a book "towards a phenomenology," by which Norberg-Schulz means a "return to things," a focusing on natural and built phenomena, excluding conclusions based on intangibles. But it is only in the final sections that his book turns to the subject of actual individual buildings. This is where his discussion of nature, towns and cities has been leading all along, for these individual buildings, he thinks, will be "sterile as long as the local circumstances are left out. . . . 'Education

through Art,'" he says, "is . . . more needed than ever before, and the work of art which above all ought to serve as the basis for our education is the *place* which gives us our identity. Only when understanding our place, we may be able to participate creatively and contribute to its history."

There are some tedious patches in the book, as we've already complained, and the proofreader seems to have nodded off now and then, but *Genius Loci* is a beautiful book—illustrated with 350 very special black and white photographs—and a book of substance. For our growing concerns for environmental sensitivity and regional character, it provides a valuable theoretical foundation. *Stanley Abercrombie, AIA*

## Modern Movement Origins Pushed Farther Back

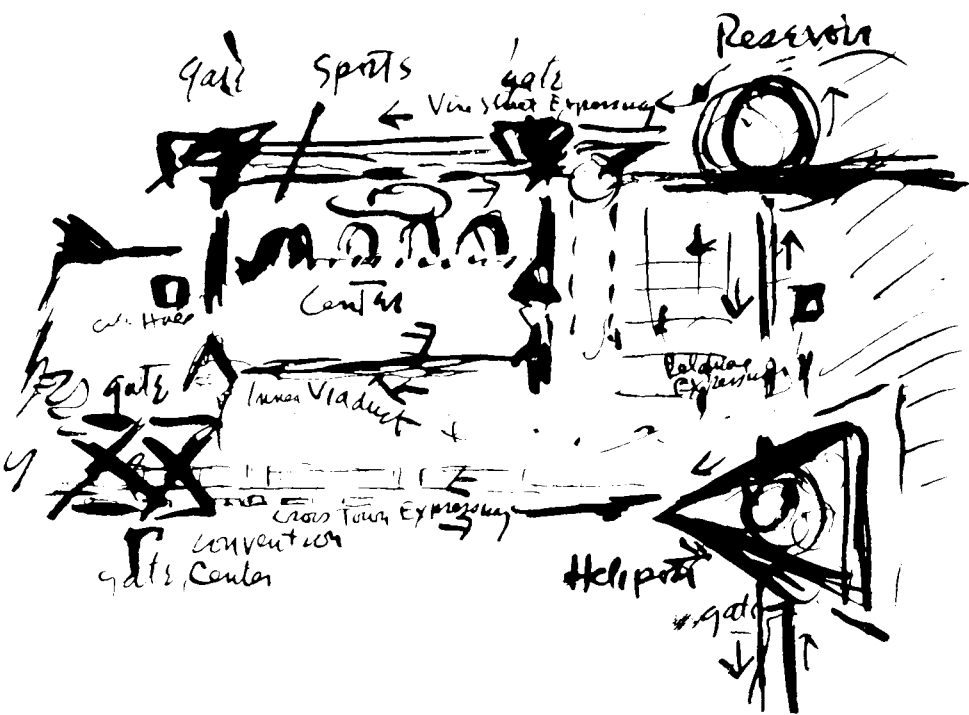
**The First Moderns: The Architecture of the Eighteenth Century.** Joseph Rykwert. (MIT Press, \$50.)

The modern movement in architecture has its basis in the rejection of history. The 19th century saw radical changes in thought and in material and in social conditions. In the area of thought, Freud rejected the idea that human nature was a theological or moral issue, contending that it was a function of psychological dynamics; Darwin rejected the notion that human beings were created 5,000 years ago in a garden, and showed that they have evolved over millions of years from lower animals; Marx rejected the concept that the social order was a manifestation of spirit, contending instead that it was a consequence of the material means of production, and subject to scientific understanding and control.

The social and materials environments were radically altered by the decline of the influence of Christian theology, the rise of democracy and the onrush of the Industrial Revolution. These factors, taken together, constituted a change, the radicalism and rapidity of which had never been experienced before in history. Confronted with this change, many architects (as well as many others in other fields) felt that a radical break with the past was the only meaningful course of action. History—architectural history—had become irrelevant.

The debate of the styles, Gothic vs. classical; the choice between rounded and pointed arches; the rummaging around in the past for forms, motifs or images—all became trivial before the onslaught of this change. Architecture could only throw out history and start from the beginning: an analysis of social structure, a study of new institutions (schools, hospi-

*continued on page 70*



**Graphic Thinking for Architects and Designers.** Paul Laseau. (Van Nostrand Reinhold, \$18.95). Laseau believes that the interaction between thinking and drawing is critical to the designer. Sketches facilitate exploration and diversity in the designer's thinking and open up means of communication. The way a designer records his ideas in drawings is an integral part of how he thinks and, if he knows how to sketch in a facile manner, the result will be more flexible and creative thinking, Laseau says. Graphic thinking, then, is thinking assisted by sketching. Its potential lies "in a continuous cycling of information from paper to eye to brain to hand and back to paper." Laseau describes how to develop the basic skills in a graphic language and then relates graphic thinking to design processes. He tells how to go from abstract thinking to concept in individual design, in team work and in communication with the public. The late Louis Kahn was a graphic thinker, as his concept sketch for central Philadelphia, shown above, reveals.

## Scholarship 'Benchmark' Appraises Hunt's Influences

**Richard Morris Hunt.** Paul R. Baker.  
(MIT Press, \$37.50.)

The publication of Paul Baker's biography of Richard Morris Hunt marks an important step in the reassessment of 19th century American architecture. The lack of a major work on one of the century's most influential architects has been a regrettable lacuna in the scholarship of the period. Hunt sometimes has been remembered chiefly for his role as the architect of elaborate, lavish palaces for America's elite—the Vanderbilts, Wetmores, Astors and Belmonts—but Baker sets the record straight by proving that Hunt's commissions were varied both in style and building type.

He was the first American to study architecture at the Ecole des Beaux-Arts in Paris. Hunt's return from Europe marked his entry not only into professional work, but also into an influential public role. Baker aptly describes him as the "ambassador of art." Hunt saw himself as a bridge between the European and the American. Even before the founding of the first American school of architecture at the Massachusetts Institute of Technology in 1868, Hunt formed an atelier in New York City which trained Frank Furness, Charles Gambrill, George B. Post and William Robert Ware. Books, photographs, casts, paintings and assorted *objets* that Hunt had collected in Europe filled his office and undoubtedly created an ambience that influenced American design.

In commissions over the next two decades, Hunt developed an approach which integrated his Beaux-Arts schooling with the prevailing American idiom, the stick style. Unlike many other architects of his time, he was equally at ease with a variety of styles: néo-Grec, Gothic revival, French renaissance and Moorish. These were applied to a diverse range of works.

In 1857, Hunt joined with Richard Upjohn and 10 other architects to found The American Institute of Architects. During the early years, he served as trustee, librarian, the organization's first secretary and later was elected AIA's third president. His lifelong activity with the Institute contributed significantly to the professionalization of architecture in the U.S.

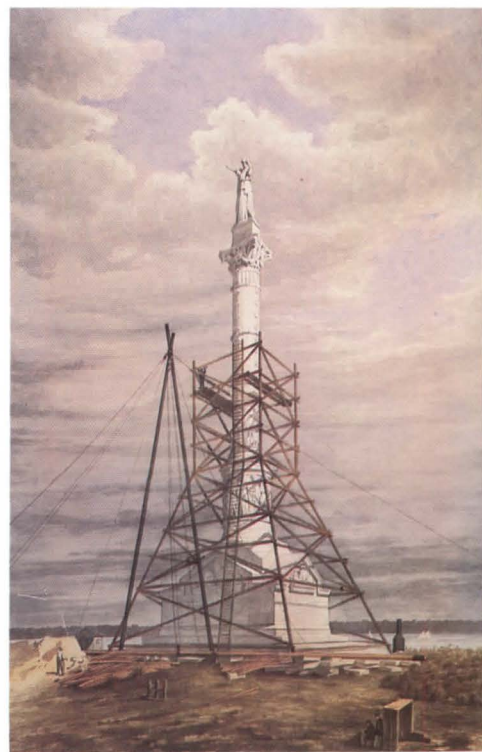
*Richard Morris Hunt* is a biography very much in the tradition of Talbot Hamlin's Benjamin Henry Latrobe and Charles Moore's Charles Follen McKim. Baker's considerable achievement rests on the straightforward organization of information from a vast quantity of previously inaccessible family papers, personal journals, letters, scrapbooks, the then-uncataloged Hunt architectural records at

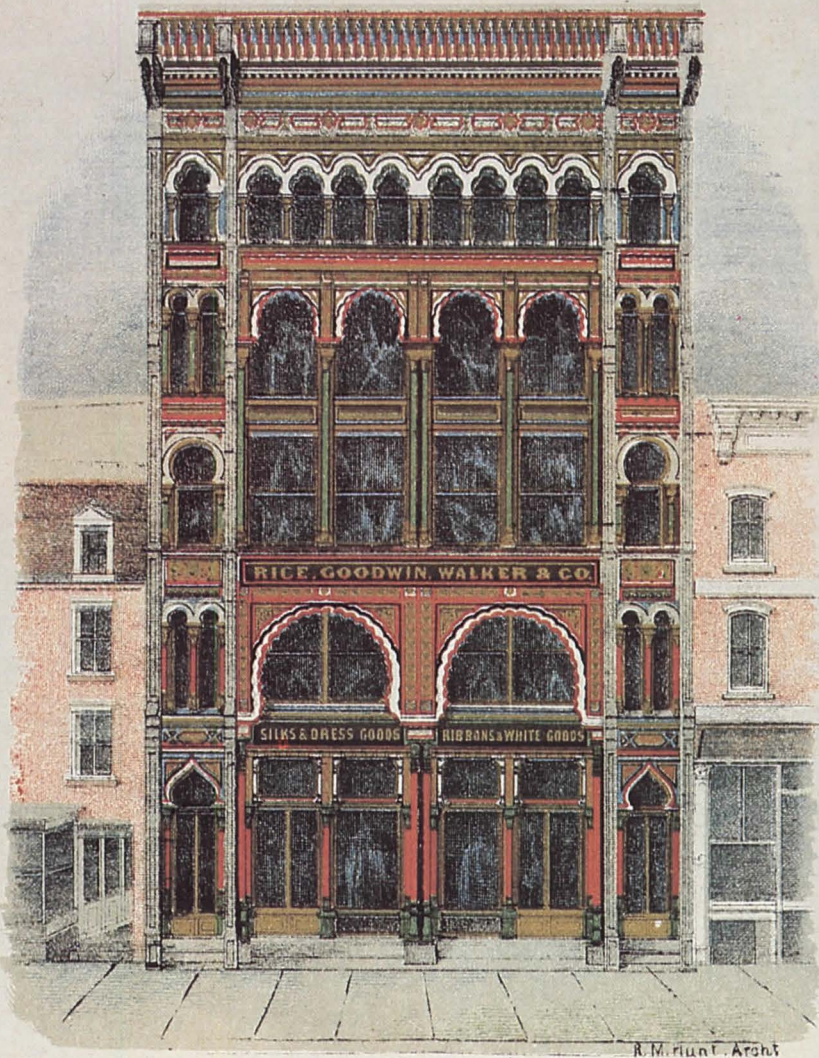


*Hunt designs: above, the Tribune Building, New York City, 1873-76; right, the Yorktown (Va.) Monument, with sculptor John Q. A. Ward and Henry Van Brunt, 1889-84; across page, the Rice, Goodwin, Walker & Co. building, New York City, 1871-72.*

the AIA Foundation and, particularly, an unpublished biography of Hunt written by his wife, Catharine Clinton Howland Hunt. A list of architectural projects is provided, but illustrations are not.

Baker's comprehensive and well-documented work paves the way for future scholarship in a number of areas. More detailed analysis of Hunt's architecture would be very valuable. Much is still to be learned about Hunt's experiences at the Ecole des Beaux-Arts, his early domestic designs and the competitions he lost in the 1870s. Baker's biography will provide a benchmark for a good deal of this research. *Susan R. Stein, Director of the Prints and Drawings Collection, AIA Foundation* □





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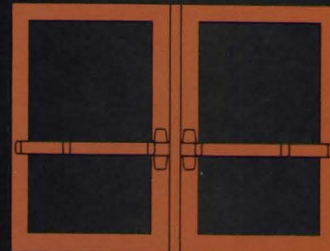
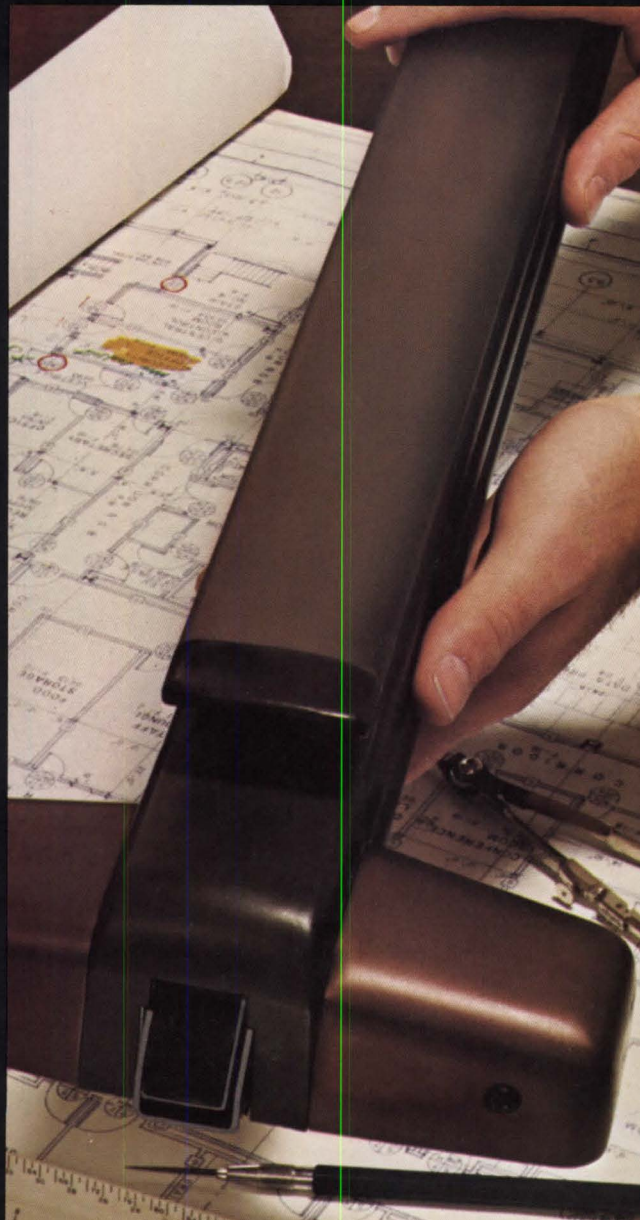
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**Books from page 65**

tals, housing, etc.) and a responsiveness to structure, materials and methods of construction.

The new architecture would be integrated (or "organic"). It would grow out of the site, the spaces and the materials of the building. The honest expression of these would be architecture, not clothed in any historical dress, but standing stark, naked and proud. Style was over.

A new timeless architecture, beyond style, was born. It lasted 40 years, from the 1920s to the 1960s. Today, it is seen as just one more style—the International Style.

Of course, modern architecture has always had its historians: Giedion, Hitchcock and Scully immediately come to

mind. But the closeness of these historians to the movement they wrote about had to prejudice their views. In *The Shingle Style Today*, Scully presents a theory of creative development called "swerving."

An architect (or other artist) picks a predecessor to confront. The predecessor's style is deliberately misread, being eventually remade into the current architect's own style. The architect will seldom acknowledge the predecessor, but will praise other architects whose influence was not really important. Thus, Frank Lloyd Wright praised Sullivan, and never mentioned the shingle style, and Louis Kahn praised Le Corbusier, but never mentioned Wright or Mies. The theory of swerving is interesting, and it probably

applies to movements as well as individuals.

Thus, today, we can see the powerful influence that the rationalism of 17th, 18th and 19th century academic architecture exerted on the modern movement, yet the Beaux-Arts was derided by the modern movement architects and ignored by historians. Today, with the perspective made possible by the decline of the orthodoxy of the modern movement, we can look at the history of modern architecture with a new clarity.

Rykwert, in *The First Moderns*, covers the period from 1650 to 1775, documenting the disputes between Blondel and Perrault in France, as well as the work and thought of Inigo Jones, Wren, Hawksmoor, Burlington, Kent, Hogarth, Piranesi, Lodoli, Winkelmann and J. B. Fischer von Erlach.

The fascinating thing about this period and these architects is that the issues they confronted are the same we confront today: the foundations of architectural truth and the relationship of architecture to nature (seen in Kahn's explorations); the role of technology in esthetics (Mies); the role of history (the postmodernists), and an idealist/mystical world view versus a pragmatic/rational world view (Mies vs. Gropius or Kahn vs. Venturi).

Rykwert's book not only pushes back the origins of modern architecture, but also re-establishes our intellectual heritage. The issues we have been struggling with have a history and a context. They are tied to the culture of the Enlightenment. A reawakened awareness of our heritage can only enrich our self-awareness, and this book will help make us more aware. *John Lobell, Professor of Architecture, Pratt Institute*

**The Life and Work of Alexander Thomson.** Ronald McFadzean. (Routledge & Kegan Paul, \$38.50.)

Those who regard biography as the most delightful form of reading will enjoy this book on Alexander Thomson (1817-75), a prominent and unorthodox architect in Glasgow in the mid-19th century. In this first major work on this controversial architect, the author has carefully scrutinized all surviving information on Thomson in an effort to establish its authenticity, since he found that many of the earlier writings about Thomson "are contradictory and often wildly inaccurate in factual data." The reader is informed about this man called by some an "architect of genius," and by others, "an architectural picture-maker."

Although the Greek revival was on the wane in Scotland when Thomson began his practice, he elected to follow Greek principles. He took "the courageous step of rejecting the Gothic revival," McFadzean says, satisfying himself "that the de-

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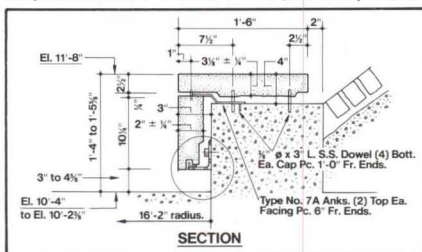
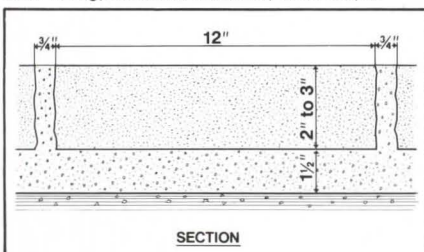
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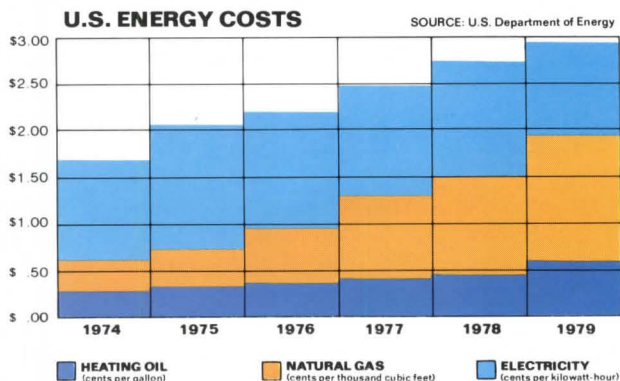
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### Books from page 70

velopment of a modern architecture was more likely to be evolved from Greek principles." But there were other influences as well. Thomson "absorbed the massive stillness, stability and monumentality" of Egyptian architecture; the Italianate style gave him "the inspiration for the picturesque massing"; he obtained his "daring spatial and structural ideas" from Gothic or Romanesque architecture, and Assyrian or Hindu work provided him with a knowledge of decorative elements—and even his use of timber "may have been suggested by Japanese ideas." McFadzean says that there seems to be no limit to the range of sources from which he drew inspiration.

The architect of villas and houses, warehouses, schools, banks and other building types, Thomson is perhaps most well known for the churches he designed. His final achievement was the Queen's Park Church in Glasgow, which the painter Ford Madox Brown in 1880 regarded as "above everything" he had seen in all of Europe. The author of this book says that this building's greatness rested on "its astonishing interior which was not only a splendid essay in spatial design but also an example of extraordinarily imaginative interior decoration." (No illustrations of its interior are provided.)

McFadzean sifts and weighs all the possible influences on Thomson and carefully analyzes his major works. This remarkable architect was always searching for new means of architectural expression, and it's no wonder that he confounded his contemporaries and critics. McFadzean says that what is really important about Thomson for architects of the 20th century is his example. "Here was a man who, after prolonged study, decided to pursue an unfashionable approach to architecture because he believed that, in the end, he would be proved right. We can learn much from the continuing self-education, steadfast integ-

riety and sense of conviction of men like Alexander Thomson." He can be seen now, according to his biographer, as a 19th century architect who, "for a brief moment, glimpsed the coming 'modern movement' of 50 years later."



**Islamic Ornamental Design: 1001 Ornamental Motifs.** Claude Humbert. (Hastings House, \$35). This book, with its ornamental motifs in green, black and white, is a visual guide to Islamic ornamental design from the 7th century to the present day. The selections come from an area extending from India to Spain, and the examples are grouped in seven sections according to type—floral, animal and script. There are concise introductory comments (in French, English and German) by the author, who is a professor at the School of Decorative Arts in Geneva, Switzerland. The designs, which reveal an amazing diversity, may be used, says Humbert, "as an inexhaustible source of creativity, no matter what the form employed may be."

**St. Louis & the Arch.** Photographs by Joel Meyerowitz. Preface by James N. Wood. (New York Graphic Society in association with the St. Louis Art Museum, \$29.95.)

Commissioned by the St. Louis Art Museum to respond photographically "to what he found of visual interest in the city," Joel Meyerowitz made four trips

to St. Louis, studying and photographing it. "On any given day in St. Louis I was excited, surprised, lonely, fatigued, entranced, saddened or moved," he writes. He found Eero Saarinen's Jefferson Westward Expansion Memorial, which everyone calls the arch, to be "deeply moving, profound. . . . It was pure form, the beauty of mathematics, a drawing on the heavens, perfect pitch. . . . Once, I cried, for no reason. . . . I watched what people did when they came to see the arch and was surprised by the forms their ritual behavior took. . . ." This exceedingly handsome book of color photographs has the arch at its core. But there are many photographs of St. Louis in which the arch is not seen, although its presence always seems to be lurking somewhere. "St. Louis never disappointed me," Meyerowitz writes. "She was there at every turn. Turn from the river with your back to the east, and you can see the dust of the prairies granulating the light. I'm tempted to say ululating, for there is a persistent tremor in the light at that particular point in our geography where St. Louis rests. There is no place like it."

**Otto Wagner, 1841-1918.** Heinz Gerel-segger and Max Peinter. (Rizzoli, \$25.)

Otto Wagner—precursor of modern 20th century architecture in Austria—was one of those overwhelming talents at the threshold of dramatic change at the turn of the century who constantly teetered in his struggle between tremendous triumphs and defeats. Other European countries had their precursors, such as Behrens, Fischer, Moser, Van de Velde, Berlage and Perret, each of them strong individuals.

Wagner began to design in the traditional classicistic manner though not always with strict fidelity to any recognized canon, sometimes reminding us of what Maybeck did to classical design. Eventually, Wagner joined the newly

*continued on page 80*

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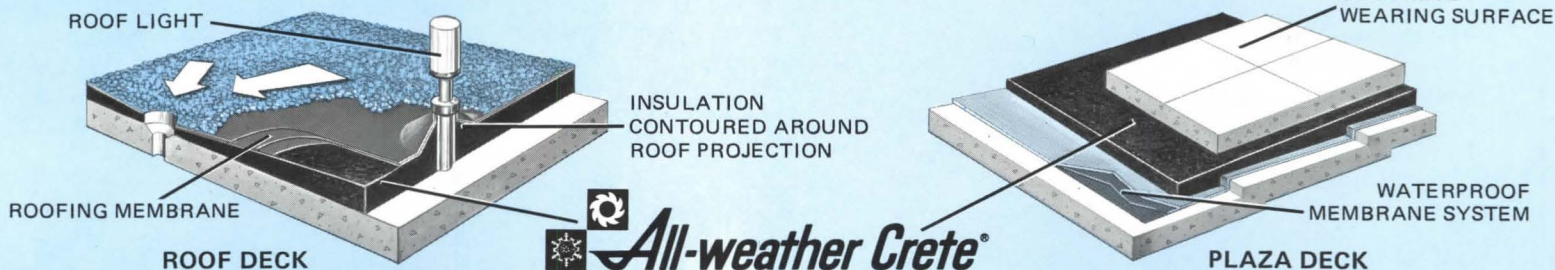
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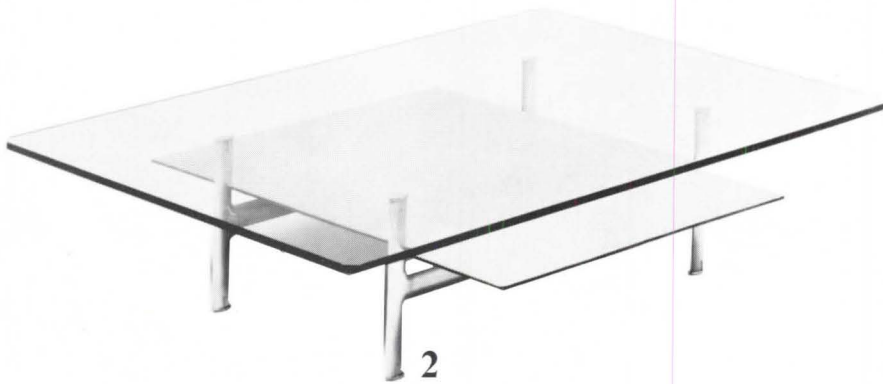
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1

# Furnishings

*As resources for design and objects of design. By Stanley Abercrombie, AIA*



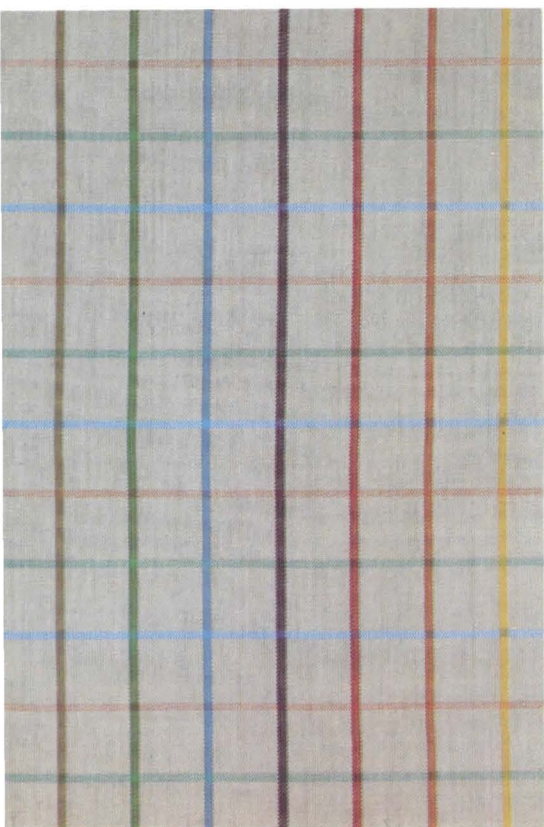
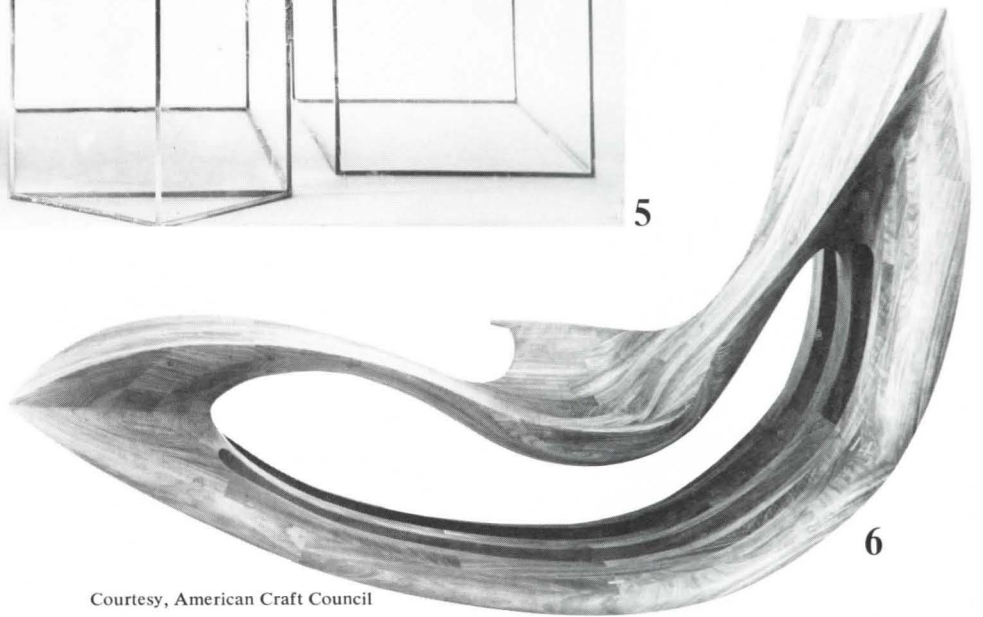
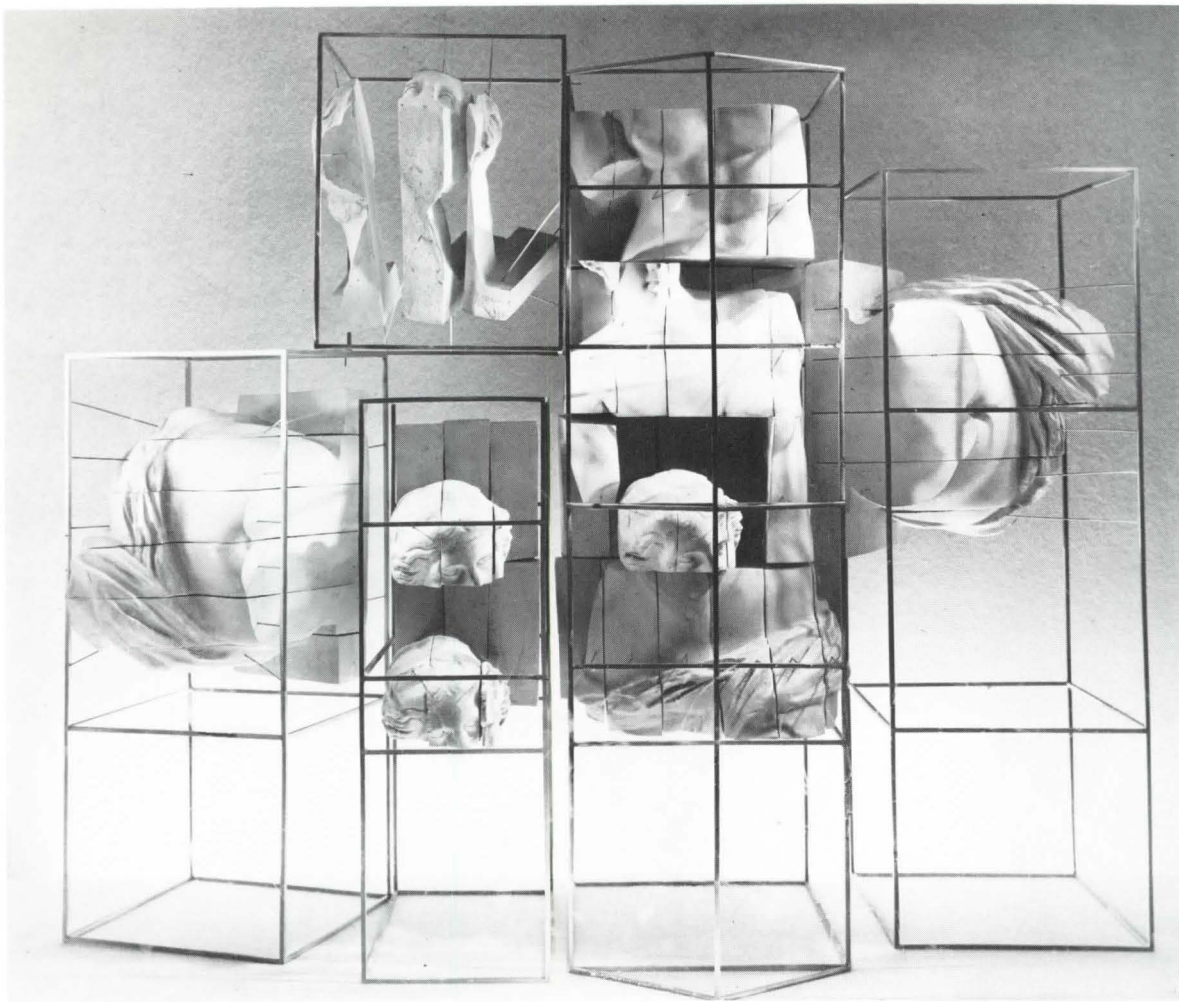
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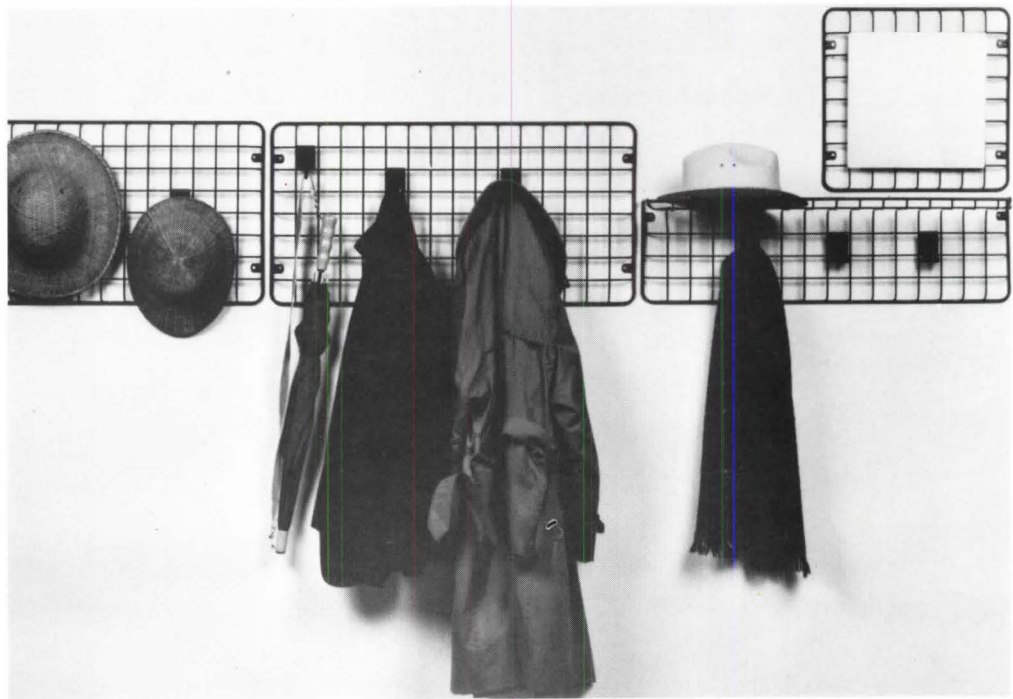


Courtesy, American Craft Council

**J**oseph D'Urso's new table collection for Knoll includes several variations with lozenge-shaped tops, all rolling along on brightly colored legs with casters (1). The "Diesis" tables by Antonio Citterio and Paola Nava for B&B America (2) have tops of clear or frosted glass, shelves covered in leather, and frames of satin nickel, black nickel or gray enamel. Rudd International has reintroduced its laminated wood "S" chair (3) designed by Rud Thygesen and Johnny Sørensen. Also of laminated wood is Marcel Breuer's "Long Chair" (4) first produced in 1935 (based on his even earlier aluminum chaise). It was manufactured briefly again in the '60s, and is now in production again in England, imported here by Claud Bunyard Design, Winchendon, Mass. Brooklyn sculptor Samuel Gallo has cast fragments of the Venus di Milo in polyester resin and suspended them in a four-foot-high cage of polished brass rods (5). "Aphrodite" (6) is a rocking lounge chair of carved and laminated wood by Michael Coffey, shown at the American Craft Museum, New York City. "Gran Cube" fabric (7), part of Arc-Com's "Medarc" collection, is flame resistant, washable to 160 degrees, recommended for hospital cubicles, bedspreads and panel coverings.



1



2



3



4

Designed by Erik Ole Jørgensen is "Island," a collection of virgin wool weaves for Rudd International (1); there are nine different hues, each available in three color intensities. The "Graphis Grid System" (2) from the Beylerian Design Team is a group of wire grid storage elements meant to be wall-mounted; wire hooks, flat hooks and even shelves can be attached. Italian architects Boccato/Gigante/Zambusi designed the rolling serving cart (3) of stove enameled steel; colors are white, green or red, and it is available in this country through Placewares, Wellesley, Mass. With the same function but quite a different character is the hickory cart (4) by Bruce Beeken of Burlington, Vt., shown in the American Craft Museum's "New Handmade Furniture" show. From the same museum's "Art for Use" show is Wendell Castle's mahogany hat stand (5), complete with mahogany hat and mahogany scarf. The Vola faucet (6) designed by the late Danish architect Arne Jacobsen comes in 10 epoxy colors or in chrome or brass; its handle is raised to increase the flow of water, turned to adjust temperature; available here through Architectural Complements, Lincoln, Mass. The "Eta" bookcase (7), designed by Achille Castiglione and imported by Beylerian, is in polyurethane lacquer. Stow/Davis' "Continuum" chairs designed by Warren Snodgrass (8) are available with full panel arms, open padded arms and even in a version that stacks, all in solid white oak or American black walnut.



6



7

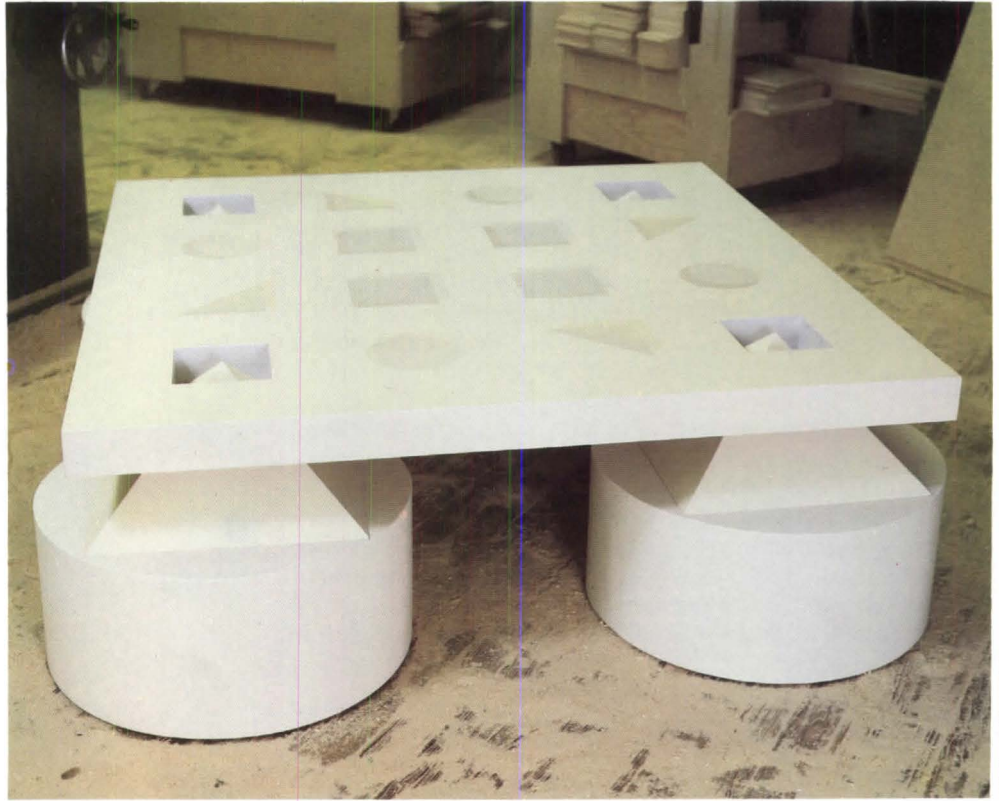
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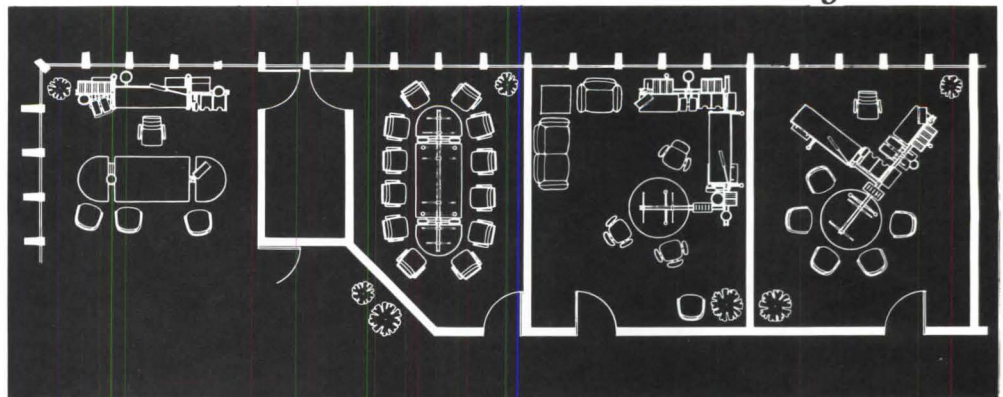
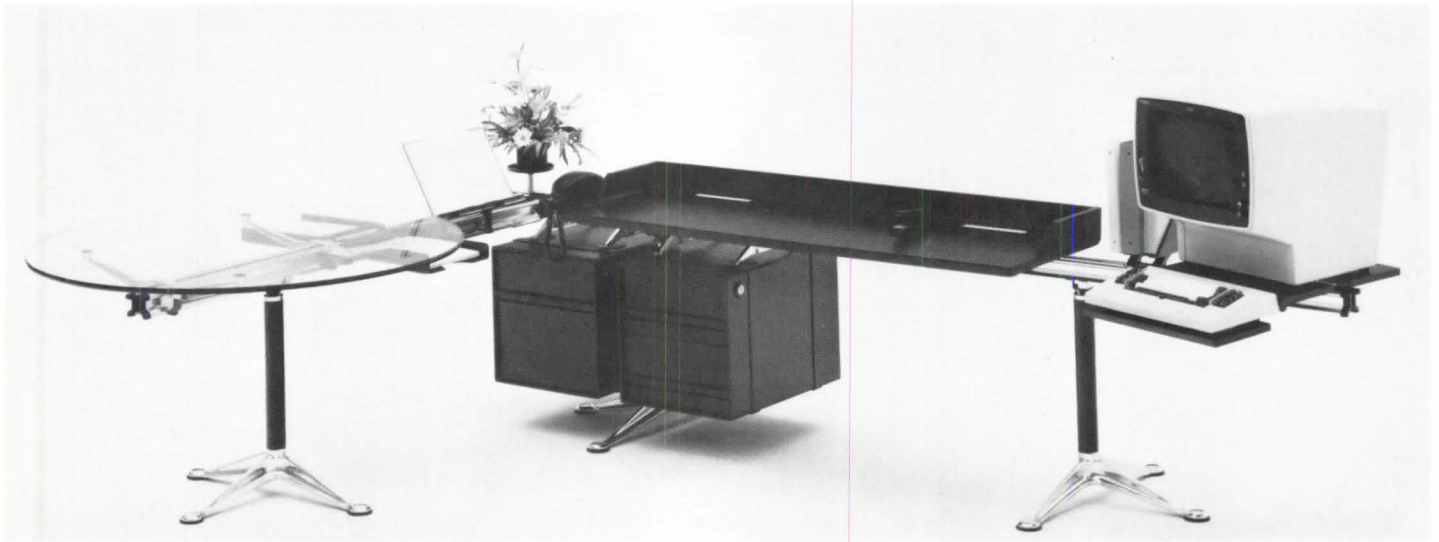
© Stan Rice



5



Michael Heisbend

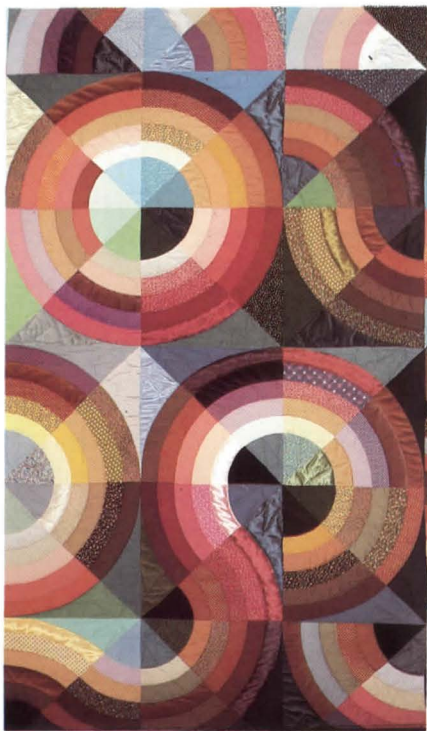




Richard Schultz's drafting stool (1) is the latest addition to his "Paradigm" chair series for Stow/Davis. James Evanson's "Hedron" table (2), available through Art et Industrie, New York City, is of lacquered wood, its top 45 inches square. The Burdick Group of "personalized work tools" designed by Bruce Burdick for Herman Miller replaces conventional desks with aluminum beams that carry wiring and from which can be hung work surfaces, storage units, telephone stands, supports for typewriters and CRTs, etc. Plans show a few of many possible configurations. A new design in an old tradition is the "Aurora" quilt (4) made by Michael James of Somerset, Mass., hand-pieced of cotton and synthetic fabrics and shown in the American Craft Museum's "Art for Use" exhibit. The museum also recently showed the table structure (5) of English brown oak and American red oak designed by Daniel Loomis Valenza of Durham, N.H. Two new products available through Design Institute America, New York City, are the table of stacked glass circles (6), two of them pivoting, available in polished chrome or brass, and the upholstered seating system (7); the system includes chairs, sofas, chaises, concave and convex corner units, ottomans and a variety of matching tables. □



Bob Hanson  
Courtesy, American Craft Council



4



7

### Books from page 72

formed art movement, the "secession," which cost him much support from the establishment. His earlier remarkable buildings for the Vienna transit system and for the Danube Canal evidently were not recognized for their revolutionary content.

His secessionistic work was not dominated by superficial art nouveau ornament, but rather by its clear, three-dimensional and structural clarity and by his then novel use of the curtain wall. The ornament was subordinated to the architectural form though it did not eradicate the classicistic ornament as did all other free form ornament of the new movement.

This richly illustrated book (294 photos

and drawings) shows Wagner's constant involvement in monumental solutions. What makes them great are the mastery of large spatial concepts and excellent proportions. His draftsmanship alone is something to be admired.

Like Sullivan, Wagner searched for principles that underlie architecture. Functional requirements had to be fulfilled into detail before anything else could happen. The authors of this book see Wagner as "one of the first scientific architects" who became noted for subscribing to the dictum that "a thing that is impractical cannot be beautiful." Wagner's notion, however, of the artist's making an "unconscious" contribution is criticized as an exaggeration. Wagner consciously

made choices among his options, including his favor of axial design. The reader will find the discussion of Wagner's struggle with architectural "vision" and other philosophical concepts quite penetrating.

Wagner, who had a positive attitude toward the large city as an environment that offered protective anonymity, was much involved in urban design. He prepared for Vienna a developmental scheme with radial and circumferential streets, subdivided into administrative districts of 100,000 to 150,000 inhabitants. He also wrote extensively on urban design ("Die Grosstadt"). His own inner city proposals show a preference for traditional large monumental schemes.

Though the authors give sufficient information on Wagner's background, polemic writings and his work, the meat of the book is its pictorial survey. It is certainly a meritorious effort by Rizzoli to bring this English version of the 1964 original to the attention of the American reader who may not be familiar with the work of this farsighted architect. He also had a tremendous influence as a teacher of an entire generation of future leaders such as Joseph Hoffmann, Joseph Olbrich and many others, including Adolf Loos. His general influence spread not only among architects but found an echo as well in the work of the "Wiener Werkstatte," which produced interiors in the arts and crafts tradition. It all added up to the "Wagner school" of Vienna.

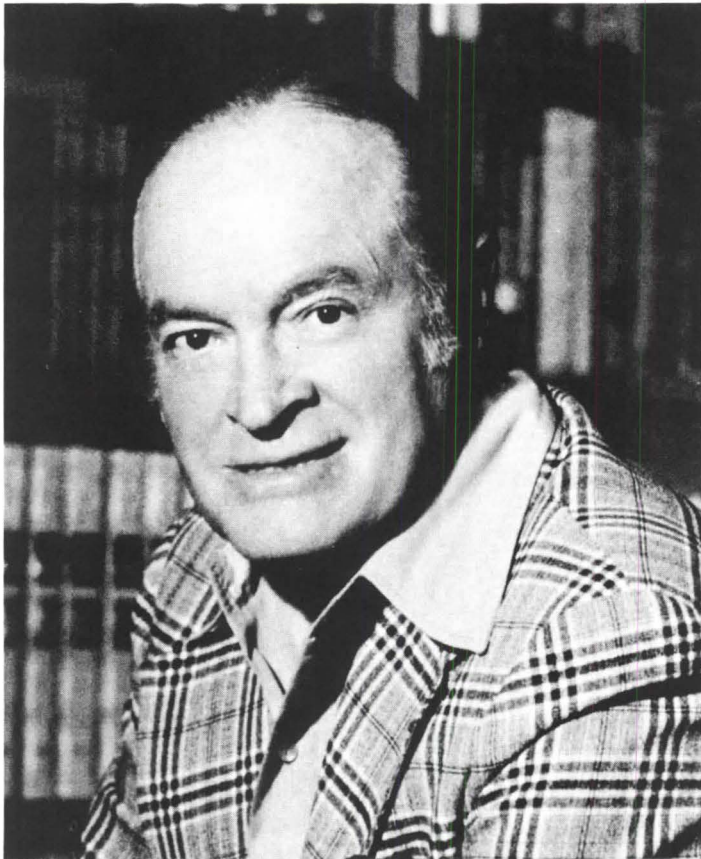
Reproduced in this edition is the very personal introduction which Richard Neutra, himself a product of Vienna, wrote for the first edition.

*H.H. Waechter, AIA*

**The Architect's Guide to Energy Conservation: Realistic Energy Planning for Buildings.** Seymour Jarmul, AIA. (McGraw-Hill, \$18.50.)

Written by an architect for architects, this book is a practical and useful manual that demonstrates how energy-saving resources can be used. As Jarmul says, it brings together previously scattered information, providing "a synthesis that forms a practical working tool for architects, so that they can design buildings within which energy conservation can be effectively and economically achieved."

The first three chapters discuss energy consumption in buildings, the incorporation of conservation into the building process and the evaluation of conservation options. Jarmul then turns his attention to building design, recycling and storing energy, energy conservation equipment and the retrofitting of existing buildings. He also discusses conservation for specific building types, including the single-family house, and gives case studies to demonstrate his points in both new and existing construction. □



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**World Cities from page 59**

grants per year, and Mexico City is growing at the rate of 1,000 people *per day*. Jerusalem, Caracas and Rome spoke of planned limits to their growth, but only Hangzhou seemed to be in control of the situation. In China, they explained, government permission is needed for a move, and although moving to Hangzhou from larger cities (Peking or Shanghai) is permitted, moving from smaller cities or rural areas is permitted only for those with specific professional skills that Hangzhou needs.

In a luncheon address on the final day of the conference, former Massachusetts Governor Michael Dukakis suggested some less autocratic approaches to urban problems. His "seven cardinal principles" were: human scale; the importance of neighborhood; the recognition of provincial capitals and smaller cities as centers for growth; heritage; participation; partnership (of government with community groups and private enterprise), and equity ("Urban revitalization cannot be . . . solely for the rich and powerful.").

Then, in the final hour, Neal Peirce distilled a week of words into three major themes: first, the problems caused by population growth; second, the devolution of power from nations to regions to cities to neighborhoods, and, third, concern for the human condition. This seemed a fair and perceptive summary, but, even though these three themes emerged as dominant, there was nothing approaching agreement as to what to do about them. What had taken place, at least, and seemed of great potential importance was that 37 mayors had met and begun to exchange opinions and information. Many of them, in parting remarks, called for more such conferences in other cities, and they thanked Boston for creating—in the words of Arnaldo Salas of Hong Kong—"this happy initiative." □

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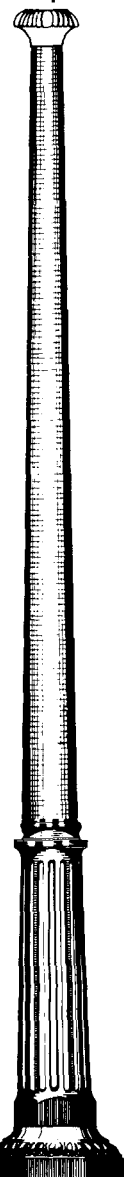
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Total number copies printed .....	44,253	45,365
Paid circulation		
Sales through dealers and carriers, street vendors and counter sales ..	n/a	n/a
Mail subscriptions .....	38,912	40,393
Total paid circulation .....	38,912	40,393
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Total distribution .....	41,927	43,371
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## DEATHS

**Arthur E. Allen**, Washington, D.C.  
**Miller Davis Barnes**, Woodstock, Ga.  
**Chester A. Brown**, Winter Park, Fla.  
**Jacob J. Buchter**, Oakland, Calif.  
**Carl C. McElvy**, Fair Oaks, Calif.  
**Robert J. McGlashon**, Cincinnati  
**Anton Skislewicz**, Longview, Tex.  
**B. Alvin Teal Jr.**, El Toro, Calif.  
**Kenneth Wallin**, Portland, Ore.

**Frederick Hoffman Voss, AIA:** President of the Westchester/Mid-Hudson Chapter/AIA in 1950-51 and of the New York State Association of Architects/AIA in 1961-62, Mr. Voss retired in 1972 as a senior partner in the New York City firm of York & Sawyer. He died on July 25 at the age of 70.

A graduate in architecture from the University of Cincinnati, he served as staff architect for the Yonkers (N.Y.) board of education from 1927 to 1936. In 1941-43, he was assistant chief architect for the U.S. Army at a Bermuda air base and was chief of buildings and structures for the army in South America from 1933 to 1944.

Active in civic and professional affairs, Mr. Voss served on AIA's committee on hospitals, was chairman of the membership committee of the N.Y. Building

Congress, a member of the New York State Board for Architecture and a member of the Dobbs Ferry, N.Y., planning board.

## BRIEFS

**Nominations for the 1981 Pritzker architecture prize** are due before Jan. 31, 1981. The prize, sponsored by the Hyatt Foundation, has been won in previous years by Philip Johnson, FAIA, and Luis Barragán, Hon. FAIA. Contact: Carleton Smith, Pritzker Prize, 230 Park Ave., Suite 751, New York, N.Y. 10017.

**After a century and a half, the paint on the east facade is being removed from the White House**—down to the bare aquia creek sandstone walls. Rudco, a Hartford-based building restoration firm, is removing the many coatings—in some places up to 30 layers—representing the history of the American painting industry. According to the National Park Service, the White House was first painted in 1798 and, in recent times, has been repainted about every four years.

**The Boston Architectural Center** is sponsoring an architectural expedition to Spain in January. Contact: BAC, 320 Newbury St., Boston, Mass. 02115.

**"Tradition: Radical and Conservative"** is the theme of *Precis*, volume two, prepared by Columbia University's graduate school of architecture and planning. It is distributed by Rizzoli, publishers in New York City, at the price of \$10.

**Glass block will continue to be produced** by the Pittsburgh Corning Corporation, despite the fact that it had been announced earlier that the only production of this material in the U.S. would be discontinued. The change in plans was due, at least in part, to protests from architects around the country. Pittsburgh Corning also has plans to reintroduce its "Solar Reflective" glass blocks.

**Victor O. Schinnerer & Co. Inc.** will now provide quotations in-house for limits up to \$25 million under both the basic A/E's professional liability policy and the project insurance policy. The policies are issued through Continental Casualty Co. Limits in excess of \$25 million can be acquired through Schinnerer's domestic and London facilities.

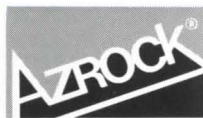
**MacDonald Becket, FAIA**, president of Welton Becket Associates, is the first architect to be singled out by the City of Los Angeles for a bicentennial salute.

*continued on page 84*

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2. Each product bearing the NSF seal or logo was subjected to original evaluation and testing in the NSF Testing

Laboratory to establish its compliance with an NSF standard.

3. Each year, NSF field representatives make repeated unannounced visits to factories to confirm manufacturing and inspection standards.
4. Products bearing the NSF seal or logo are also sent to the laboratory in Ann Arbor for *re-testing* when there is evidence that the state of the art may have outpaced these products.
5. There are no obsolete NSF standards. Periodic review and updating of all NSF standards is provided for in the standards themselves.
6. A program of informative literature, free distribution of copies of NSF standards to public officials, as well as paid messages in professional/trade journals is used to encourage suggestions, and invite participation in NSF programs.

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**Briefs from page 82**

The award was presented by the human relations commission at ceremonies to initiate the city's celebration of its 200th birthday.

**The Solar Energy Industries Association** has elected Paul W. Cronin as its president. He is president and chief executive officer of Sunsav, Inc., a Boston company that designs, manufactures and installs solar systems.

**The first international conference on human comfort** will be held in Portugal in August 1981. Deadline for registration is Feb. 1. Contact: K. Slater, Textile Science Division, University of Guelph, Guelph, Ontario, Canada N1G 2W1.

**William T. Cavanaugh** has been appointed president of the American Society for Testing and Materials headquartered in Philadelphia. He has been managing director and chief executive officer of ASTM since 1970.

**The International Centre for Conservation** in Rome, Italy, will receive applications for its 1982 annual courses until Jan. 15, 1981. The courses are open to persons who are specialists in some aspect of conservation and are professionally active in

their field. For example, the course on architectural conservation is open to architects with at least four years of experience. Contact: International Centre Committee, 1522 K St. N.W., Suite 530, Washington, D.C. 20005.

**The American Association of Engineering Societies**, representing nearly a million engineers in 42 professional organizations, has called upon the President to create a national engineering foundation. Such a foundation, says AAES, could be a counterpart to the National Science Foundation and help "stimulate advances in industrial technology and productivity."

**Ludwig Mies van der Rohe and Laszlo Moholy-Nagy** were among 11 alumni and former faculty of the Illinois Institute of Technology recently entered in IIT's hall of fame "for their professional contributions to mankind's advancement."

**William L. Ensign, FAIA**, has been named assistant architect of the capitol. A former president of the Washington-Metropolitan Chapter/AIA, prior to his appointment he was president of McLeod Ferrara Ensign in Washington, D.C.

**George S. George**, vice president and chief of specifications for Metcalf &

Eddy, Inc., in Boston has assumed the presidency of the Construction Specifications Institute.

**James Biddle, Hon. AIA**, former president of the National Trust for Historic Preservation, has been named chairman of Pennsylvania's first Historic Preservation Board.

**"Journal of Architectural Research,"** published by AIA and the Royal Institute of British Architects, has suspended publication due to increases in publishing and handling costs that make it no longer feasible to produce the magazine at practical subscription prices.

**A two-stage planning/design idea competition** for a vacant downtown site has been announced by the City of Portland, Me. Honoraria and awards totaling \$20,000 have been designated for the competition, but the awards committee "may decide that none of the entries sufficiently answers the competition program and then offer no honoraria or award." The city reserves the right to use any entry in whole or in part. Deadline for entries is Jan. 30. Contact: Douglas L. Mason, Portland Planning Department, 389 Congress St., Portland, Me. 04101. □

*Products on page 86*

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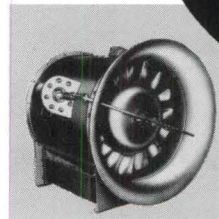
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- II. Qualified A/E firms with prior experience in the design of Hospitals and Medical Institutions are invited to submit their qualifications.
- III. All firms desiring to be pre-qualified should fill in application forms which can be obtained from:

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Medical City Administrative Office  
King Faisal Specialist Hospital  
P.O. Box 2727  
Riyadh, Saudi Arabia  
Tel: 464-7272, extension 1020  
Telex: 201050 ROSPEC - SJ

or

ROYSPEC PURCHASING SERVICES  
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HARMANS, MARYLAND 21077  
U.S.A.

TELEPHONE: (301) 796-7910  
TELEX: 908029 — ROYSPEC - BAL

- IV. Application should be submitted by mail to *King Faisal Medical City Administrative Office*, Riyadh, Saudi Arabia, before the middle of December 1980. The Administration reserves the right to select which ever applicants they find most qualified to submit a proposal for the design of the above mentioned facilities.

## PRODUCTS

### File System.

SuperFile steel drawer system provides flat storage of artwork and film. Up to 43 drawers can be installed in one cabinet. Optional accessories include dust covers, sheet depressors, drawer dividers and a slide-out work surface. (Plan Hold Corporation, Irvine, Calif. Circle 199 on information card.)

### Tables.

A variety of sizes and shapes of tables features high pressure laminate surfaced tops, T-molded color-coordinated edges, pedestal bases and chrome support columns. (Trendway Corporation, Holland, Mich. Circle 198 on information card.)

### Luminaire.

RAL Series aluminum rectangular cutoff luminaire is finished with thermoset acrylic enamel and designed for easy installation and maintenance. (Crouse-Hinds Co., Syracuse, N.Y. Circle 196 on information card.)

### Office Fabrics, Laminates.

Seating upholstery fabrics and plastic laminates are color-coordinated and compatible with the 5,000 products in the company's line. Plastic laminates are de-

signed to duplicate natural materials. (Steelcase Lnc., Grand Rapids, Mich. Circle 195 on information card.)

### Vinyl Flooring.

Seven patterns of the new Gafstar 4800 no-wax sheet vinyl floor products line are available. (GAF Corporation, New York City. Circle 190 on information card.)

### Lighting.

NRG wall- or canopy-mounted light fixtures are designed to provide twice the light of incandescents, while using up to 63 percent less energy. Fifty-watt *HPS* lamps are replaced once every five to six years. (Hubbell Lighting Division, Christiansburg, Va. Circle 189 on information card.)

### Office Furniture.

Veneer Ring Series of desks and credenzas is available in four wood combinations. A contrasting band sets off the top; another band at the base matches or contrasts with the upper band. (Helikon Furniture Co. Inc., Taftville, Conn. Circle 187 on information card.)

### Lamp.

The contemporary Touch Lamp is lit by touching any part of the metal column. Three brightness levels can be produced

from a one-way bulb by a special "Touch-tronic" unit. The 26½-inch lamp comes in lacquered or polished metal with a linen shade. (Koch + Lowy, Inc., Long Island City, N.Y. Circle 197 on information card.)

### Chairs.

Proper Chairs line of office furniture has 10 models in oak or walnut solid wood styling or completely upholstered. Three back heights include a model with a high back and an articulated head rest. Executive models have spring seats. (KT Furniture, Compton, Calif. Circle 194 on information card.)

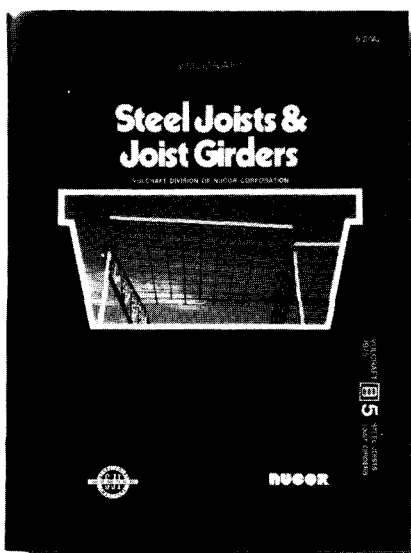
### Wallcoverings.

Jakarta collection of batik-inspired wallcoverings is available in 116 designs, 44 with matching fabrics. The wallcoverings are vinyl-coated and scrubbable. Thomas Strahan Wallcoverings, Burlington, Mass. Circle 183 on information card.)

### Office Furniture.

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These 3-hour meetings are normally held three or four times a year at most of 40 local Council chapters (usually at an early or late hour, so there's a minimum of work interference). The Council also works directly with professional groups in outlying areas (satellites) where no chapter exists.

For more information, or a complete listing of the educational programs available, write: *Manager Education Services, Construction Products Manufacturers Council, Inc., 1600 Wilson Blvd., Arlington, VA 22209, or call 703-522-0613.*



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