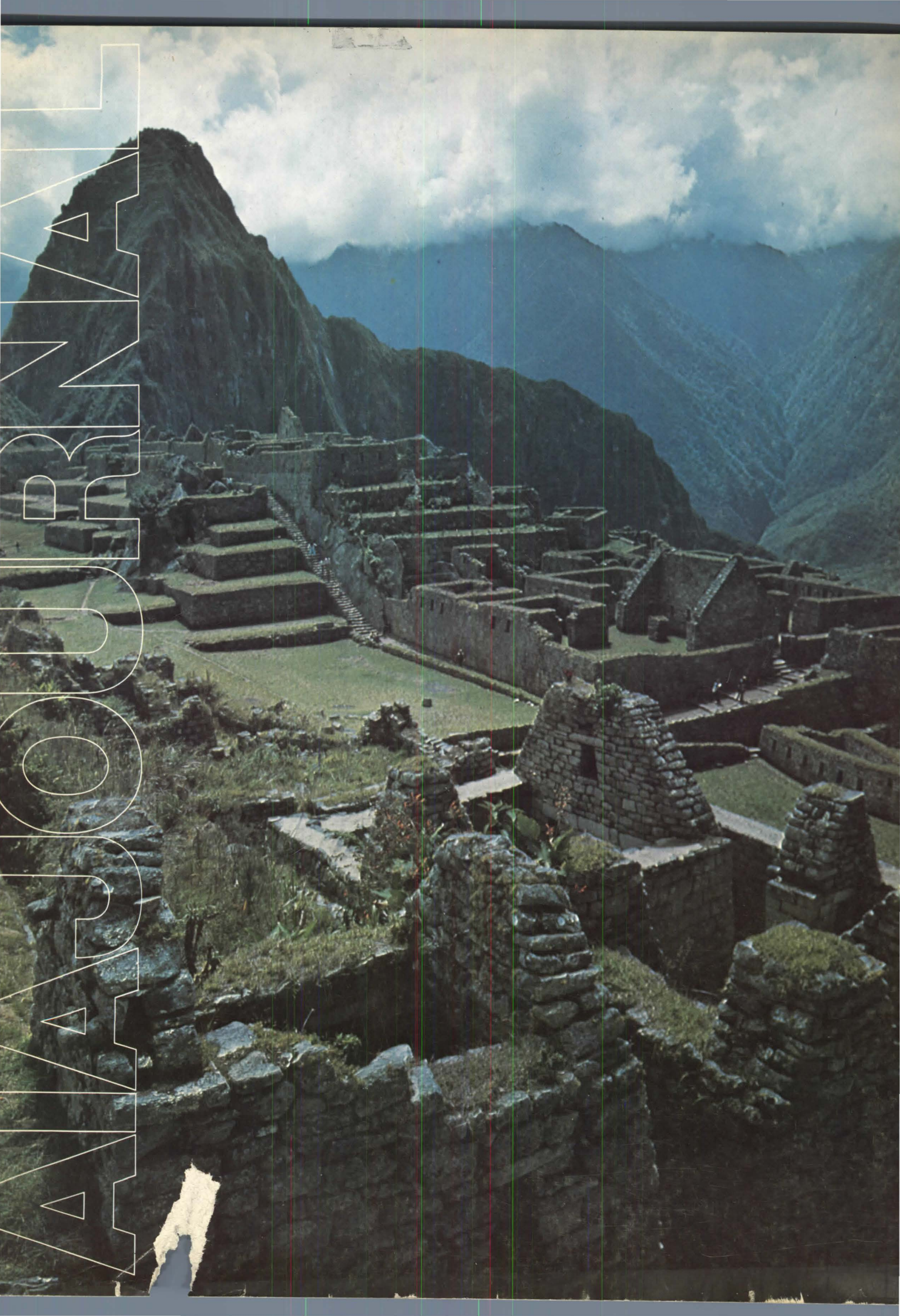


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Functional accents of stainless steel for Dallas Federal Savings.



This 12-module Halsey Taylor service wall creates a focal point for the south wall, first floor, of the Dallas Federal Savings & Loan Association Tower.

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For complete details, specifications and a modular wall system design kit, write to Halsey Taylor Division, King-Seeley Thermos Company, Freeport, IL 61032.



Dallas Federal Savings & Loan Association Tower:

Architect: Mark E. Miller, Dallas, Texas
Interior Architect: Steven O. Nall, Dallas
Mechanical Engineer: Herman Blum Consulting Engineers, Dallas
Mechanical Contractor: Allied Mechanical Contractors, Dallas

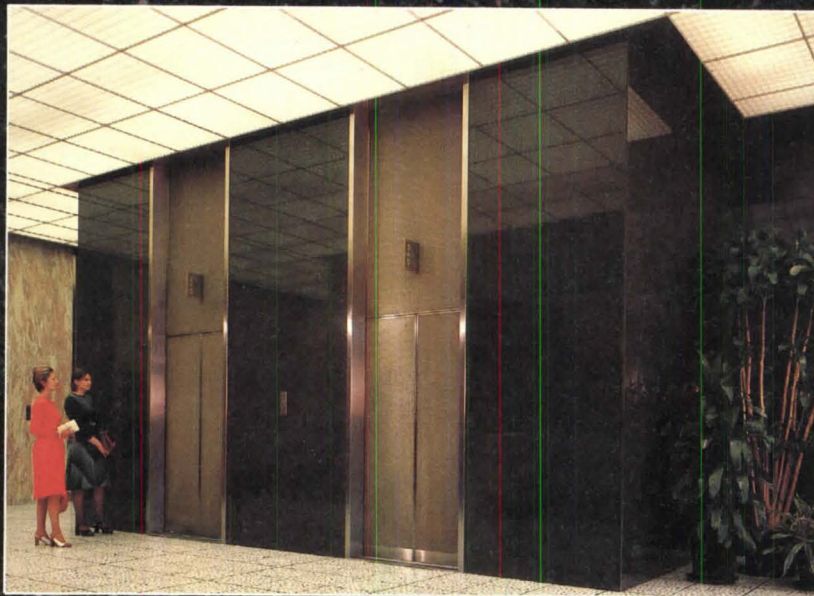
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Champlain Black

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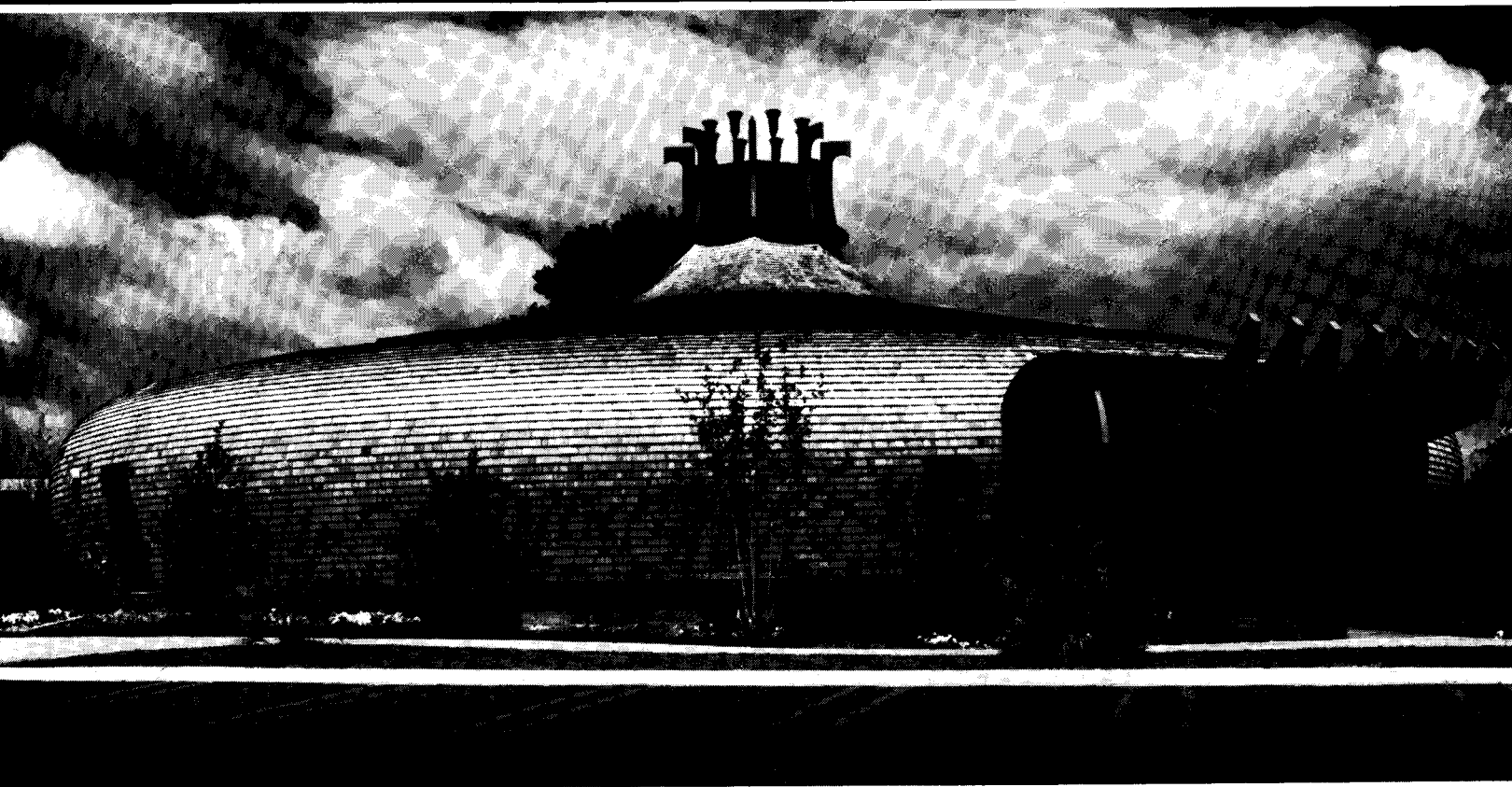
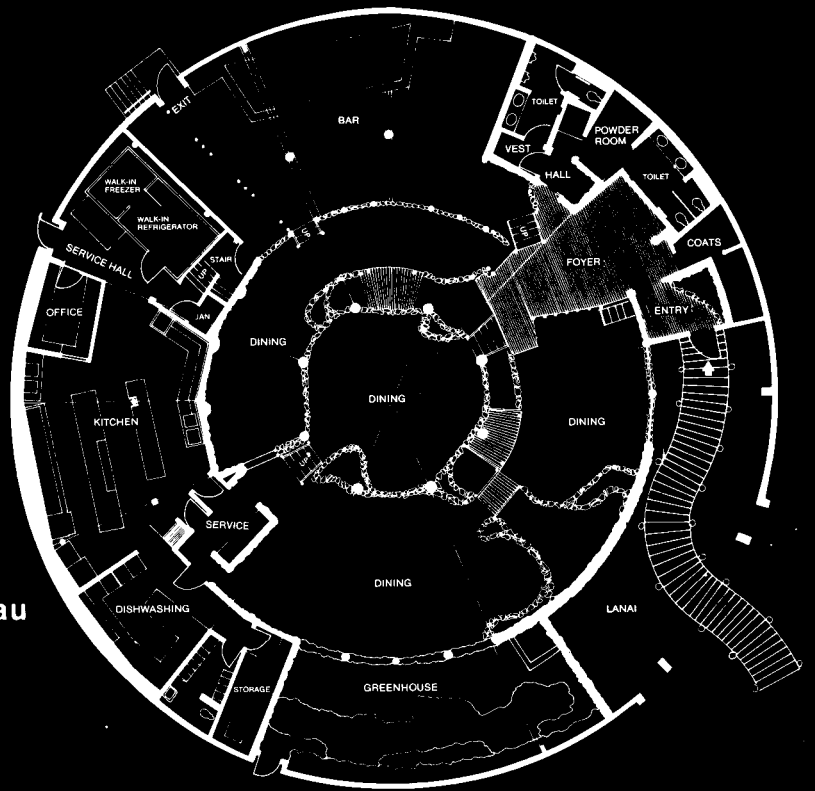
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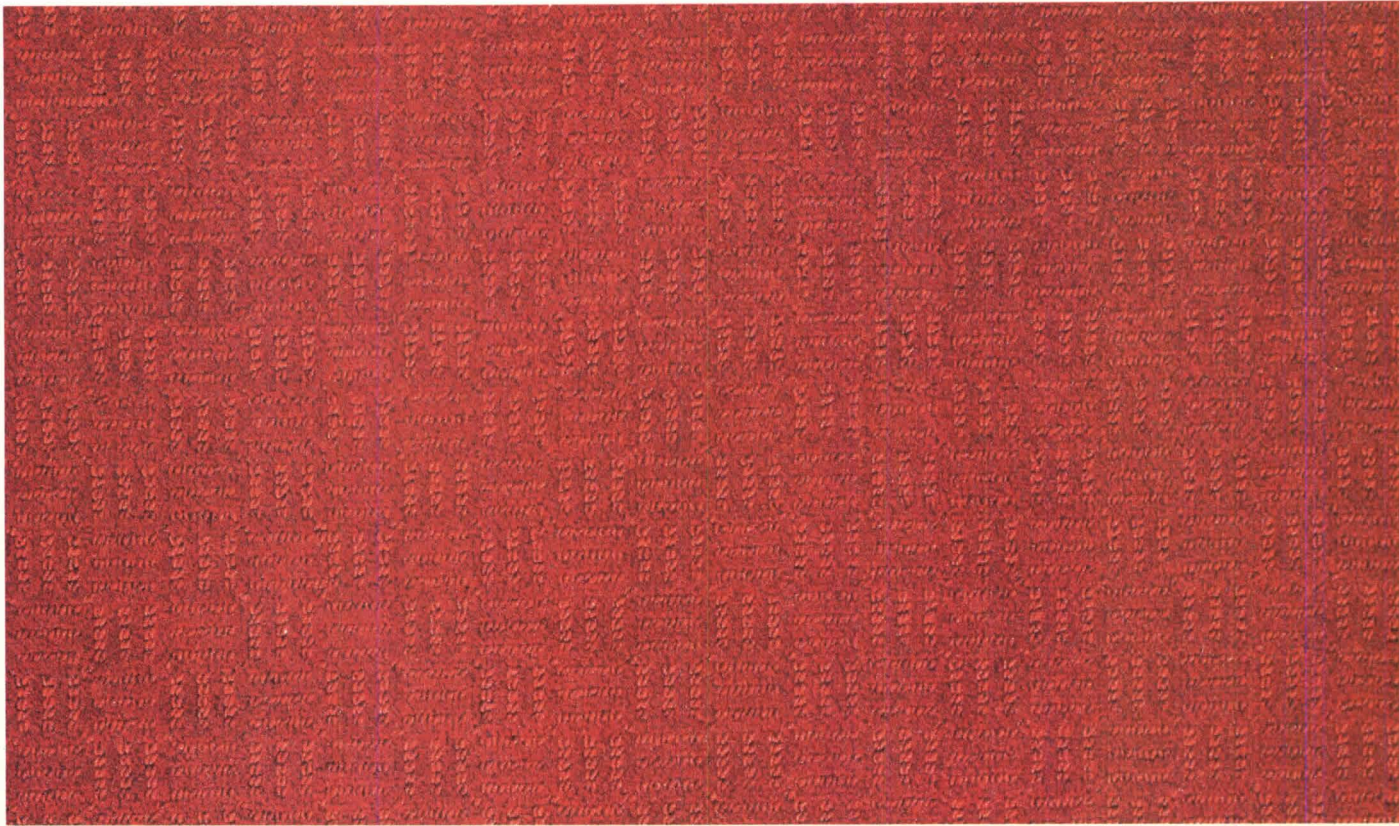
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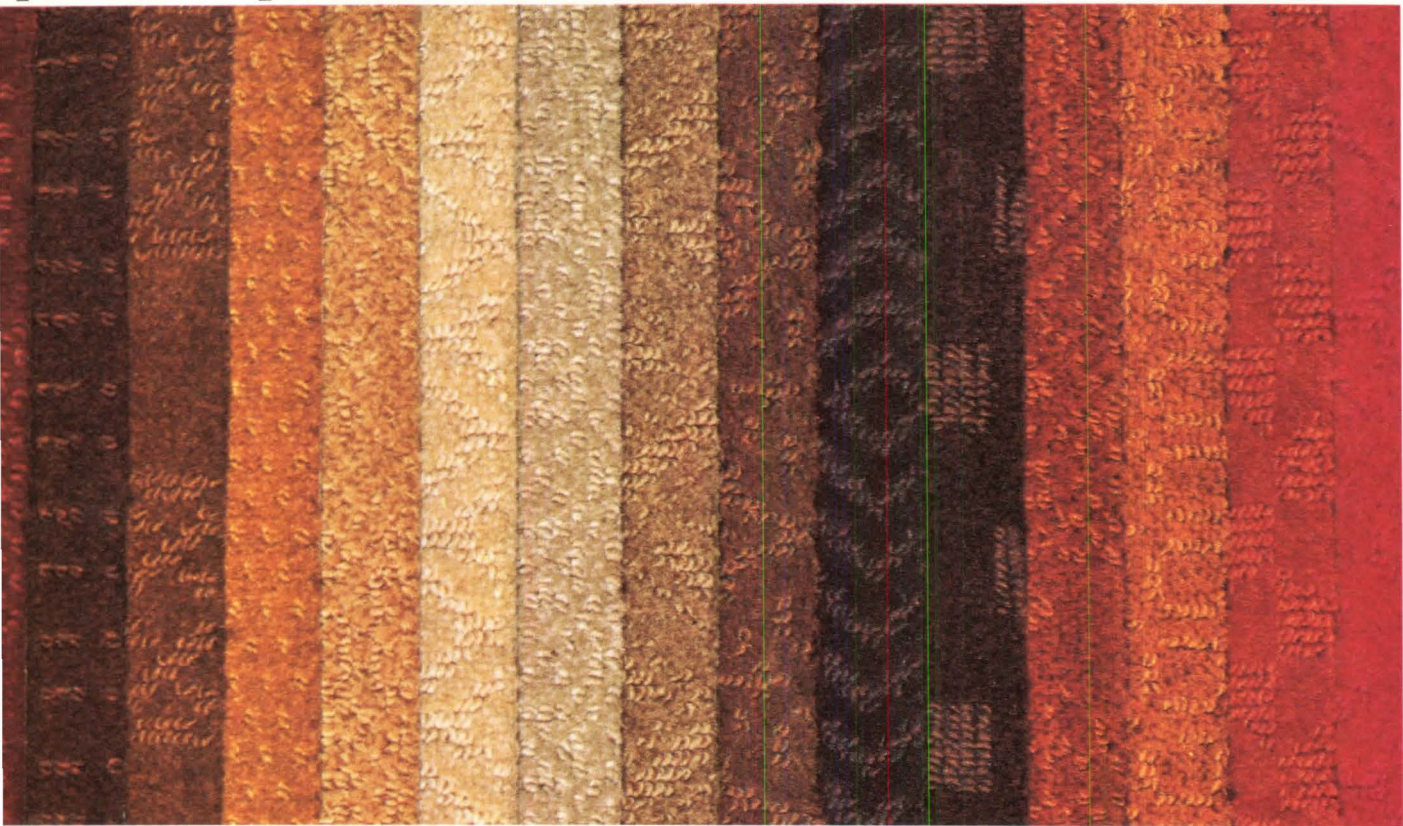
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Marshall Plan Executive Says Cities Must Draw Affluent from Suburbs

"Many of our great cities are sick—losing population, losing jobs, losing financial solvency, losing the convenience, safety and attractiveness which are the reasons for their existence in the first place," said Rep. Henry S. Reuss (D-Wis.) in his opening remarks at a 10-day series of hearings before the House committee on banking, currency and housing. Some 60 witnesses from academic and neighborhood organizations testified on what committee chairman Reuss called "the nation's top domestic priority—the rebirth of the American city."

Reuss said, "Obviously, we lack both a theory and a program for helping our cities recover. These hearings are designed not to fix the blame for what it is—there is enough to go around for all of us—but to seek solutions." Already, he said, major social and economic forces are at work "which can help the cities recover if they can be nudged in the right direction."

Lead witness Paul R. Porter, former regional administrator for the Marshall plan in Europe and author of *The Recovery of American Cities*, said that one policy essential for the rehabilitation of cities would be to transform decayed and obsolete inner city districts into "neighborhoods attractive enough to compete with suburbs." Rebuild from scratch if necessary, he said, and provide "mostly high-income housing" and schools of the quality of the best in suburbia. Designs "should provide esthetically pleasing settings for a neighborhood that will be family-oriented, protected from through-traffic" and near "self-contained shops and services."

Porter also suggested that the poor "be enabled to resettle outside cities" in places where there is "suitable housing and nearby work opportunities." Other witnesses called instead for greater assistance to inner city poor residents, asserting that Porter's theory tends to "blame the victim of discrimination" and does not

deal with such problems as adequate jobs, better schools and the "odious greed" of slum landlords.

The witnesses discussed such problems as the rehabilitation of older housing in cities, the economic development of city neighborhoods, local tax reform and the design of cities to reduce waste of land and energy.

In his summary of the hearings, Reuss said that a series of proposals for the rebirth of the American city had emerged. Among them:

- "Bring jobs to people, and people to jobs." Probably, the city's single most pressing problem "is the poverty of its residents." Jobless citizens "make no contribution to a community's revenues, but add greatly to its costs for welfare, crime and social ills generally."

Economic development programs must be initiated to bring new jobs, white and blue collar, into the central city. Federal, state and local income tax programs should be "refocused" to prevent waste of scarce vacant land, induce job-creating activity and make rehabilitation more attractive to owners and investors. Inner city youths should be educated for nearby white collar jobs in education, government, etc. A retraining and relocation program, on an individualized basis, should be undertaken so that the unemployed inner city resident can move where new jobs are created. Public service jobs, especially for the young, in both country and city, should be developed and made available as long as needed.

- "Restructure federal aids." More is needed than full employment to help beleaguered cities. The poor should be the responsibility not of cities but of the nation, and the federal government should assume costs of welfare and other programs for the poor and unemployed.

The real value of federal tax transfer payments should be equalized, taking into consideration the higher cost of living in older cities. Federal payrolls should be guided into areas of high unemployment, and federal grants, such as general revenue-sharing, should be restructured to eliminate present inequities toward older cities.

- "Help regions and neighborhoods." Migration from city to suburbs should be reversed, thereby placing people closer to work and helping to conserve scarce fuel and improve the city's fiscal base.

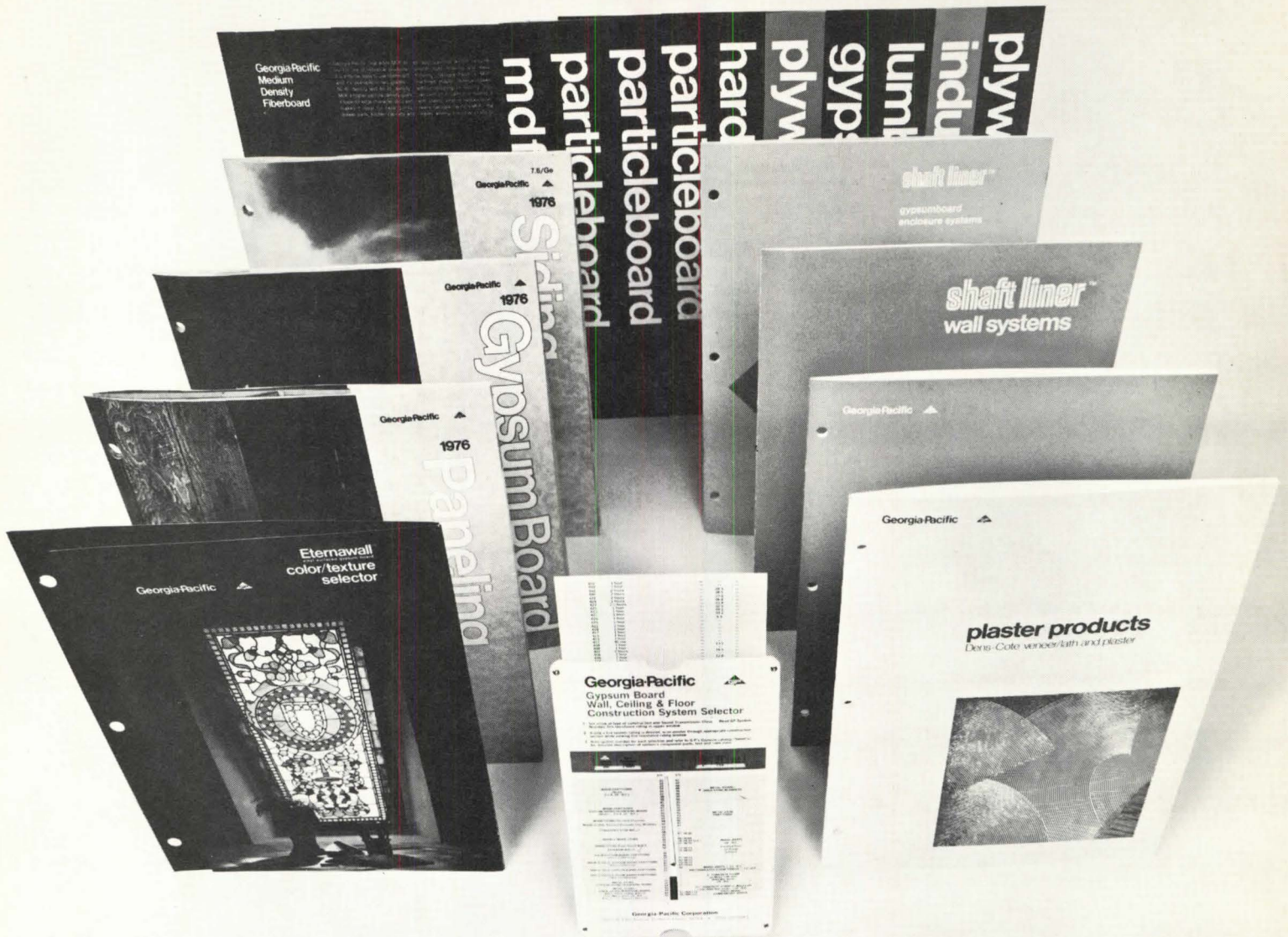
Housing programs, aimed at low- and moderate-income people, should be funded, with priority placed on rehabilitated housing. Sufficiently large subsidies should be provided to permit low- and moderate-income people to stay in their homes and neighborhoods. Low-income groups should be encouraged to develop their own economic institutions, and neighborhood groups should be delegated increased decision-making authority politically. Incentives should be provided to induce lending institutions to make credit available to poor neighborhoods, and maximum cooperation between public and private sector interests should be encouraged.

Better planning at state and local levels will be required "to avoid hardship from the reverse migration and to create more livable metropolitan areas." Future urban policy should emphasize multifamily housing. Single use zoning ordinances, which separate homes from business and cultural opportunities, "should give way to less restrictive and more people-oriented zoning." City planning which "enables people to live near their jobs is far superior to endless freeways and even to advanced but very expensive mass transit."

Profits Found Deficient For A/Es in Federal Jobs

"Studies undertaken by our firm in the last few years both at national and state levels have shown that, on the whole, work done by A/Es for federal agencies does not yield adequate returns." This statement is made in a recent report entitled "An Analysis of the Impact of Government Overhead and Profit Allowances on Architect-Engineers Firms," prepared by management consultants Case & Co., Inc., and commissioned by the Committee on Federal Procurement of Architect-Engineer Services (COFPAES) which consists

continued on page 10



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Going On from page 6
of five professional A/E organizations,
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Bruce Schafer, director of federal agency liaison at AIA and a member of COFPAES' task force on allowable costs and audits, says that the report has resulted from discussions with the General Services Administration regarding various items of overhead disallowed by federal procurement regulations. In an effort to reach mutual agreement, GSA asked COFPAES to review the matter. Although the independent analytical Case report has not been finally approved by COFPAES, Schafer emphasizes that the findings "will be of great interest to all A/Es who do government work."

Case finds that "there are economic factors inherent in A/E firm practice which are not adequately reflected in guidelines and regulations for allowable overhead and profit applied by federal agencies when negotiating amounts of compensation for A/E projects." The report focuses primarily on "insufficient overhead and profit contribution brought about by an unrealistic amount of compensation being allowed for these needs." A/E firms often incur additional expenses on government projects which are not recognized by federal regulations, and private clients should not have to contribute toward such indirect firm expenses, says the report.

Profit, says the report, is not a "superfluous bonus," but is necessary if the firm is to continue to render high quality services to clients and society. An A/E firm's profit depends upon a necessary return on each of a number of separate capabilities and services which the firm makes available to clients.

Contrary to the belief of some people, the Case report writers say, government agency projects, on the average, "produce significantly lower contribution margins than those for private clients," despite the fact that overhead is often higher for government projects. Reduced contributions for overhead and permissible profit on government work are due to specific federal regulations. The report says that individual overhead items not allowed by these regulations "account for a significant portion of the typical A/E's indirect expenses and therefore of the total revenues which must be earned to recover them."

To arrive at an equitable compensation for A/Es on government projects, Case proposes a new approach to compensation, a part of which calls for all clients, federal and private, to provide the "same proportional amount of contribution to general overhead and to profit." Each client, then, would be treated equitably. "Hence, each project, and therefore each client, is not only paying the full,

true costs of its project, but is also making the same proportional contribution to general overhead and profit."

The report says that this contribution approach to compensation for projects undertaken by A/E firms for the government would be beneficial for the government since overall costs might be reduced. "This would occur because such an approach emphasizes those elements of project and office management which are most critical to financial success of an efficient A/E firm."

Using the Case report and other relevant materials, COFPAES has prepared a "Report to the General Services Administration on Allowable Costs and Audits." The report points out that "the profit margin is inextricably tied to allowable costs and audits" and urges government agencies to use Internal Revenue Service criteria in the determination of allowable costs. Thus, COFPAES maintains, the accounting and audit burden will be reduced but there would still be federal control.

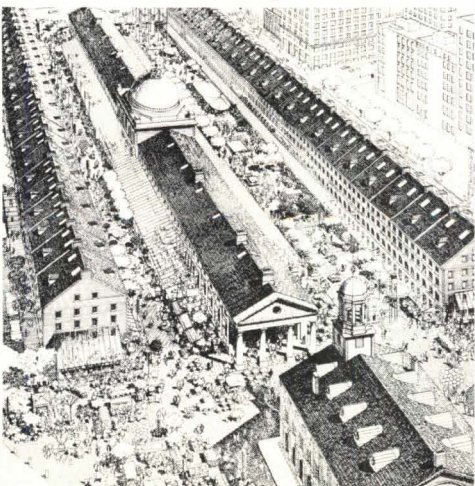
Copies of both reports may be bought for \$10 from: COFPAES, Suite 713, 1155 15th St. N.W., Washington, D.C. 20005.

For further information about the reports, contact Schafer at AIA headquarters.

Boston Renewal Project Recycles 1826 Buildings

Six acres of new shops and office space have been added to Boston's historic downtown as the result of the recently reopened Faneuil Hall Markets. One of the largest recycling projects ever undertaken as part of an urban renewal program, the renovated markets are an aspect of the Boston Redevelopment Authority's waterfront program.

The markets are a link in a pedestrian pathway which begins in Government Center and terminates in a new 4.5-acre waterfront park. The path joins such structures as the new city hall with the



waterfront, where a residential community has been created from old wharf and warehouse buildings.

The Faneuil Hall project consists of three 500-foot-long buildings and adjacent streets and plaza. The buildings, constructed in 1826, were erected on filled land.

The central structure, known as the Quincy Market building, was owned by the city, and 46 flanking buildings on North and South Market Streets were sold to individuals. But all the structures had to conform to design criteria established by Alexander Parrish, architect of the Faneuil Hall Markets. The 1826 development is often called the nation's "first urban renewal project" because action was initiated by the city, using reclaimed land, and the buildings were planned according to uniform design standards.

Over the intervening years, the market area became a wholesale center for produce dealers and changes were made in the buildings. By the 1950s, the area had fallen into disrepair. When the waterfront renewal program was initiated in 1964, it was decided to relocate the wholesalers outside the city and to restore the old buildings to their original use.

"Anyone who has followed the transformation of this area from a run-down, cluttered and unsightly complex of wholesale houses to a renewed and vital marketplace knows that this project has been a complex one to carry out," says Robert T. Kenney, BRA director.

The installation of new utilities and exterior restoration has cost about \$10 million, the greater part in the form of HUD funding. The exterior renovation, for example, by the Boston architectural firm of Stahl Associates, cost about \$2.3 million, the funds being provided by a HUD historic preservation grant. The interior renovation was accomplished by Benjamin Thompson Associates of Cambridge, Mass. The project is being developed by the Rouse Co. of Columbia, Md.

Taxes and Preservation

The Tax Reform Act of 1976, now signed into law by President Ford, includes a measure which encourages the preservation of historic landmarks. This aspect of the changes in the federal tax laws has been supported by AIA (*see Aug.*, p. 8).

For the first time, the federal tax law allows a five-year write-off of expenses incurred in the rehabilitation of commercial buildings that are historic landmarks. Also, under the new law, an owner of a certified historic structure will not be allowed a deduction for the costs of demolishing the building. Further, a developer of a new structure to be erected on

continued on page 19

745 Fifth Avenue
New York, New York 10022

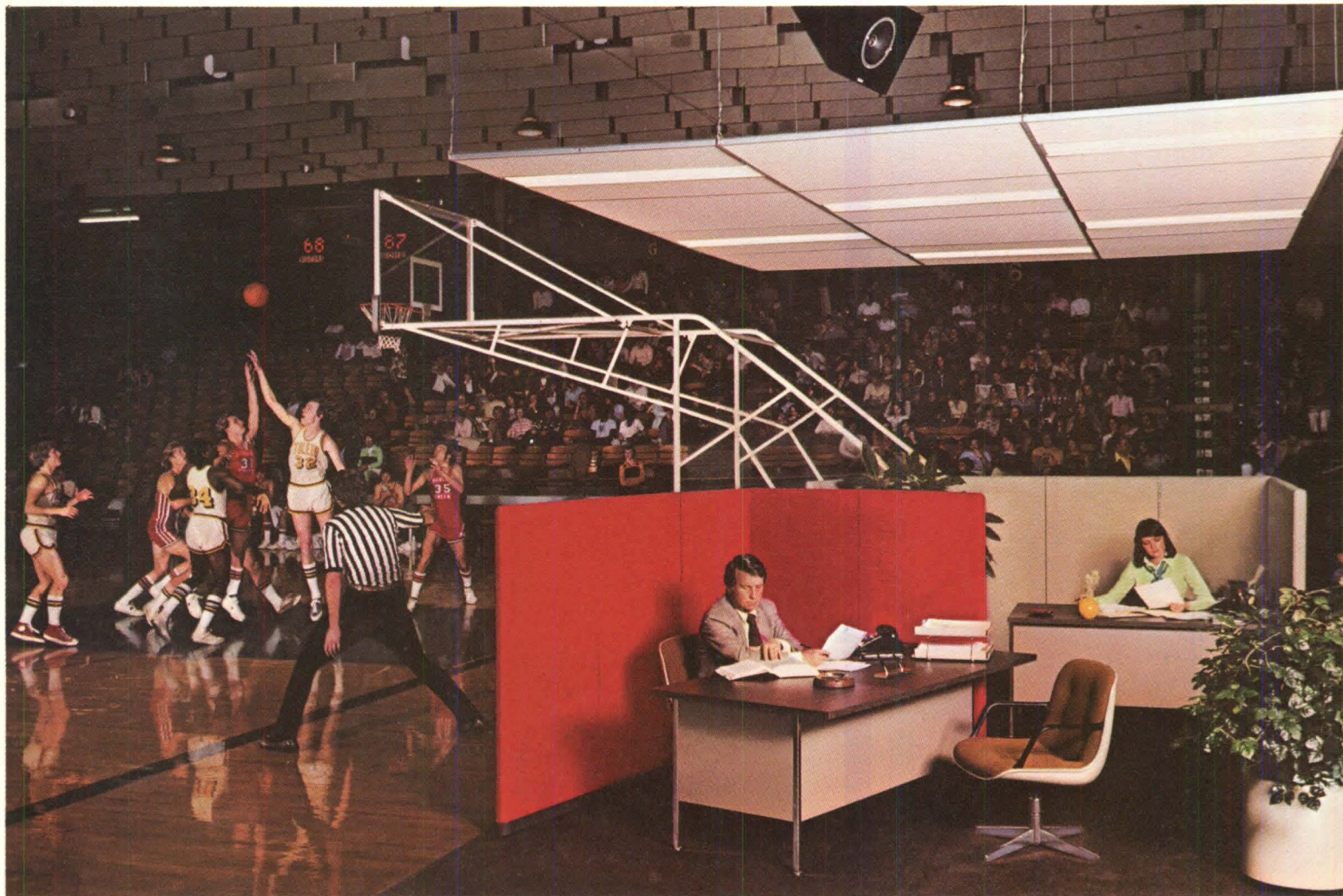
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sound attenuation as the open sky—a Noise Isolation Class (NIC) rating of 23.

An independent acoustical testing laboratory examined eight ceilings, including costly coffered and baffled systems. Their verdict: Owens-Corning's Nubby II Fiberglas* Ceiling Board, in any standard exposed grid suspension system, is *best* for achieving speech privacy at economical installed cost. In these tests, Nubby II was the *only* ceiling board with an NIC' as high as 20 in a flat configuration.

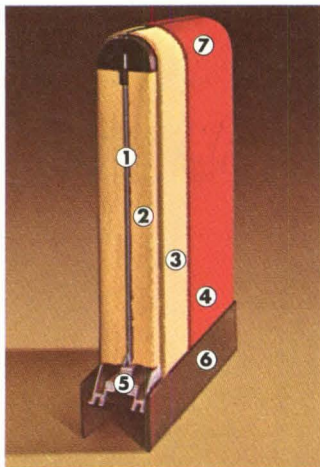
Some architects prefer the look of ceilings with *concealed* grids. Caution: As yet, *no* such ceiling provides the minimum NIC performance necessary to achieve satisfactory acoustical privacy in an open office.

In this league, handsome is as handsome *does*.

Acoustical screens.

"Don't just stand there. Do something."

The sound screen, visual symbol of the open office, offers flexibility, economy, personal privacy, and acoustical control. It has *two* acoustical functions. First, to block direct sound transmission from one work zone to another. Second, to absorb sound, reducing flanking reflections into adjacent zones. Owens-Corning's sound screen is the *most* effective screen available. Its engineering features include:



1. A metal septum—to block sound transmission.

2. One-inch Fiberglas core on each side of septum—to absorb sound.

3. Sturdy special Fiberglas sound diffuser (Glastrate)—for abuse resistance.

4. Stain-resistant Dacron® Polyester fabrics. These fabrics are washable, colorfast, and fire-retardant (Class 25).

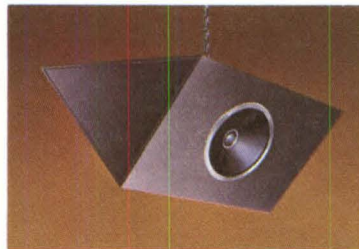
5. Extruded aluminum frame, fastened to septum—for strength and stability.

6. Painted anodized aluminum kickplates—for additional abuse resistance.

7. Top and side radii designed to minimize sound defraction over edges.

Masking sounds. The sounds of silence.

Even the finest acoustical ceilings and screens cannot do the whole job of providing speech privacy. An electronic sound masking system of speakers, installed in the plenum, is necessary.



This sound must be unobtrusive—and *uniform*. Even at a few decibels above the desired $NC_{40} = 40$ rating, the masking sound causes

people who are working in the office to begin raising their voices, defeating the whole purpose of the masking.

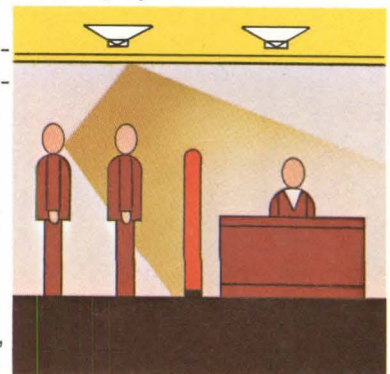
Owens-Corning's experts can recommend a background masking system that meets these requirements.

Owens-Corning system gets it all together.

For the open-office concept to be successful, the ceilings and screens must be tuned carefully to work *together*, and *with* the masking system.

Owens-Corning will be happy to provide you with all necessary information on achieving acoustical control in your open office. Or to guide the development of the whole acoustical system for you.

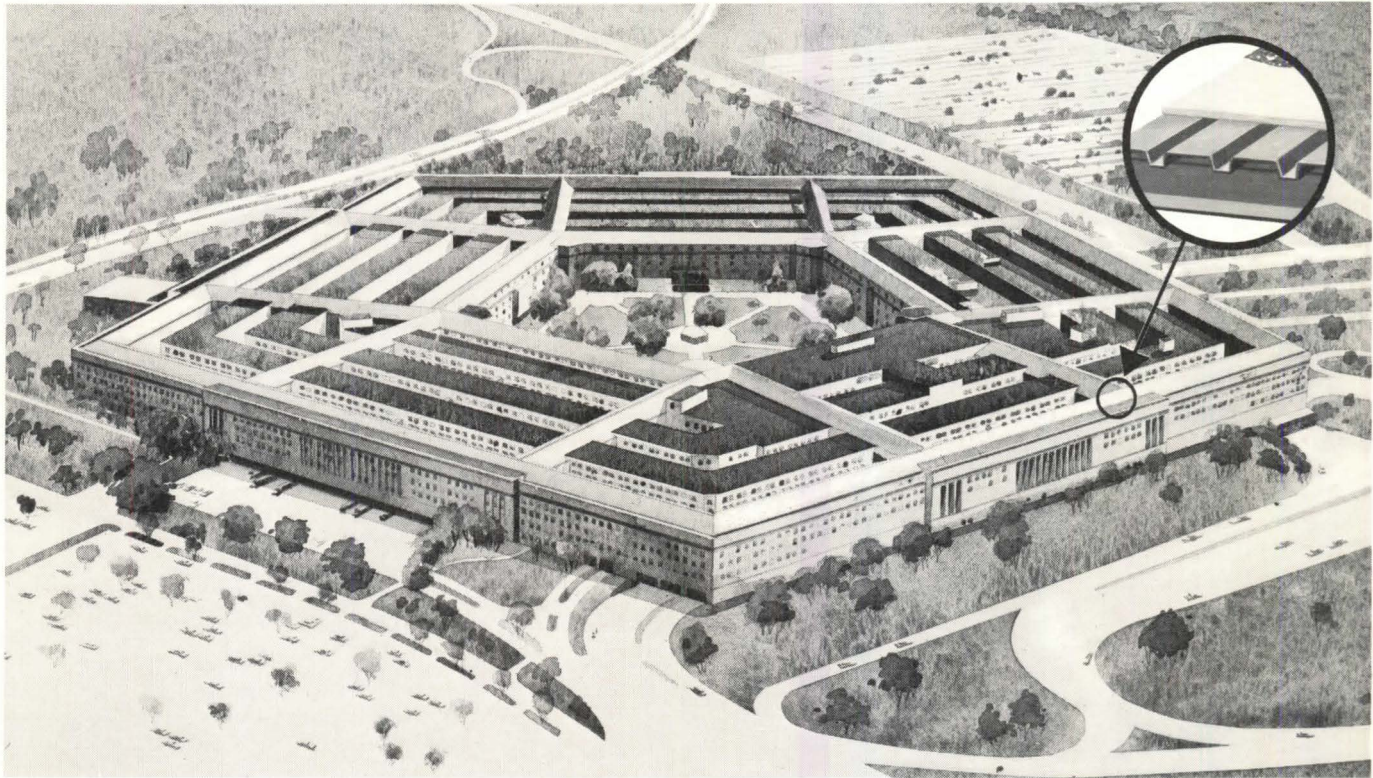
Write E. W. Meeks, Building Products Operating Division, Owens-Corning Fiberglas Corporation, Fiberglas Tower, Toledo, Ohio 43659.



Owens-Corning is Fiberglas

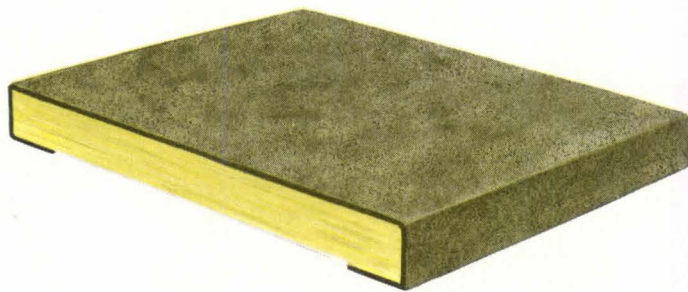
OWENS/CORNING
FIBERGLAS
TRADEMARK ®

Insulation is



Projected cost to heat and cool the Pentagon for the next 20 years, if it were built today using only 15/16-inch Fiberglas roof insulation:

\$2,541,454



Owens-Corning Fiberglas roof insulation—the only glass fiber roof insulation on the market. Dimensionally stable. Retains thermal value. Easier to apply than organic/mineral boards. For over 30 years, the *best* base for built-up roof decks.

The Pentagon—world's largest office building.

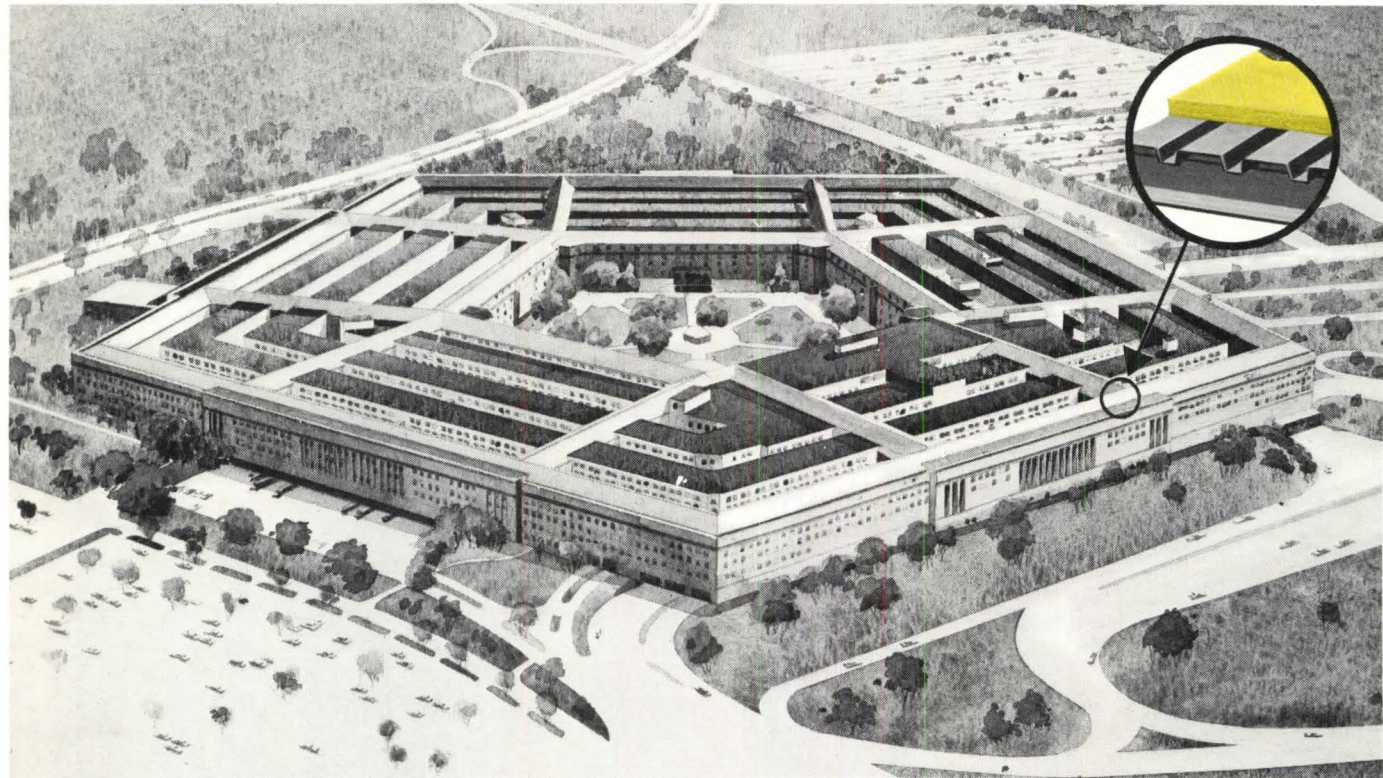
If it were being designed by *today's* architects for *today's* soaring heating and cooling costs, we trust it would have the specifications of the version on the right.

This version has a full 2¼-inch layer of roof insulation, instead of the thinner layer that has been usual for offices, schools, stores and other commercial buildings for the past 20 or 30 years.

Using thicker 2¼-inch Fiberglas*

*T.M. Reg. O.-C.F.

cheaper than oil



Projected cost to heat and cool the Pentagon for the next 20 years, if it were built today using thicker 2¼-inch Fiberglas roof insulation (after allowing for the cost of thicker insulation!):

\$1,207,500

roof insulation saves money two different ways:

A saving of \$1,333,954

1. It saves on energy costs. Estimated savings per year, based on gas heat and electric cooling in the Washington area, with a projected increase in energy costs at 7% per year and estimated future savings discounted at 10% per year: \$66,697 — or \$1,333,954 every 20 years.

2. It saves on construction costs. The estimated first cost of this en-

ergy-tight Pentagon would be *lower* than if the less efficient version were built! Reason: the improved thermal performance of the roof would permit use of smaller-capacity, *less costly* heating and cooling equipment. Amazingly, the estimated savings would be large enough to cover the added cost of the thicker roof insulation *twice* over.

Important: Thicker Fiberglas roof insulation also makes sense when it's time to re-roof *existing* buildings. It should pay for itself in a few

years, then go on saving thousands in fuel bills for years to come.

Ask our "talking" computer

Our EMS II (Energy Management System) computer can give you savings figures on your next roofing job — by phone! You'll get projected energy *and* equipment savings, plus *payback* period. (Actual savings may vary.) For details, call your local O.-C.F. rep, or write: I.B. Meeks, Owens-Corning Fiberglas Corp., Fiberglas Tower, Toledo, Ohio 43659.

Owens-Corning is Fiberglas





Monokote® fireproofing provides basic protection for Detroit's Renaissance.

The farsighted men behind this spectacular urban complex recognized that, no matter what combination of sprinklers, smoke detectors and other devices are used, there can be no trade-off in basic structural protection. And that's why you'll find Monokote® fireproofing in the Renaissance Center.

- Monokote fireproofing becomes an integral part of the structure, sheathing supporting members with a permanent, durable, protective coating.
- Monokote fireproofing protects steel columns and beams with a monolithic coating to minimize or prevent costly structural steel repairs.
- Monokote fireproofing meets or exceeds all General Services Administration requirements for adhesion, corrosion resistance, bond impact, surface hardness and damageability resistance.

- Monokote fireproofing application is fast and economical.
- Monokote fireproofing has been tested and classified by Underwriters Laboratories Inc. for fire resistance ratings of 1 to 4 hours in over 40 classifications.

For complete information on fireproofing that is as basic as the steel it protects, contact your local Zonolite Monokote representative or write Construction Products Division, W. R. Grace & Co., 62 Whittemore Avenue, Cambridge, Massachusetts 02140. In Canada, 66 Hymus Road, Scarborough, Ontario M1L 2C8.

Owner: Renaissance Center Partnership, Detroit, Michigan; Architect: John Portman, Atlanta, Georgia; General Contractor: Tishman Construction Co., New York, New York; Fireproofing Contractors: The Berti Co., Detroit, Michigan; Service Art Co., Detroit, Michigan; McNulty Bros. Co., Chicago, Illinois.

GRACE

Circle 10 on information card

Going On from page 10

the site of a demolished landmark building will no longer be allowed accelerated depreciation which enabled him heretofore to quickly recover actual cash investment.

"Very soon, the great significance for all Americans of the new historic preservation tax adjustments will become apparent," says James Biddle, president of the National Trust for Historic Preservation. "The private owner now has a true choice between demolishing and rebuilding, on the one hand, or retaining and rehabilitating on the other," Biddle says.

Design/Build/Bid Probed For West Virginia AIA

Concerned that the "public interest be fully protected by maximum competitive bidding procedures for construction contracts based on plans and specifications sufficiently detailed to assure competitive bidding by contractors," the West Virginia Society of Architects/AIA engaged a law firm to investigate design/build/bid on municipal construction projects.

The legal opinion rendered says it appears that "any revenue bond-funded construction contracts entered into by a West Virginia municipality or a municipal public body on the basis of design/build or design/bid/bill" is "illegal and subject to challenge by a citizen of a municipality." Accordingly, the society has issued an information alert to municipal officials in the state.

The law firm engaged to render the opinion reported that the West Virginia code states in part that "no contract or agreement with any contractor or contractors for labor or materials, or both, exceeding in the amount the sum of \$1,000 shall be made without advertising for bids. . . ."

The opinion states that "it is essential, and usually expressly required by the statute or ordinance governing the letting of such contracts, that plans, specifications and estimates be prepared in advance and filed or given out to all persons interested in the bidding, sufficiently definite and explicit to enable them to prepare their bids intelligently on a common basis." The law firm concludes that the "so-called 'package deal' type of contract arrangement would appear to be illegal and subject to challenge. . . ."

Recently, the Indiana Society of Architects/AIA sought the opinion of the state's attorney general on the legality of design/build/bid for public school construction in that state (see Aug., p. 13). The attorney general said that a public school corporation "must follow the public competitive bidding requirements" found in Indiana law.

Foreign Markets

American architects and engineers increasingly are being afforded the opportunity to plan and design projects in foreign countries. Currently, for example, Near Eastern and North African countries are among the world's most dynamic marketplaces.

Over the next five years, these countries will earn over \$500 billion in oil revenues, and they plan to spend significant portions of these vast financial resources on developmental programs that require the expertise of U.S. A/Es.

To inform readers about job opportunities in foreign countries, the AIA JOURNAL, in cooperation with the Institute's government affairs department, will note, as occasions arise, positions available to A/Es.

Recently, the U.S. Department of Commerce notified AIA that A/Es are being considered for work in the following countries:

Algeria: Prequalifiers are sought for the design and construction of 3,000 houses on different sites. Under the country's second four-year plan (1974-77), \$2.1 billion was allocated for housing. The primary objective of the four-year plan is to train and create new jobs for a population that is growing at a rate of 3.4 percent annually and adding over 140,000 new workers a year to the labor force.

Contact: Andras Behr, business facilitation staff, U.S. Department of Commerce, (202) 377-4441.

Saudi Arabia: Design services are needed for infrastructure and utilities in the new city of Jubail. The project cost is estimated at \$10 billion.

The prequalification statement should include area of specialization, previous experience and firm records, detailed specifications of company products (if suppliers) and any other pertinent information, such as annual reports and brochures.

Contact: Cherie Lou Staunau, business facilities staff, U.S. Department of Commerce, (202) 377-4441, or Directorate General, Jubail Complex, P.O. Box 657, Al Khobar, Saudi Arabia.

Also designers are required for the expansion of a 7-Up bottling plant in Jiddah. The estimated project cost is put at \$10 million.

Saudi Arabia's second development plan (1975-80) projects expenditures of \$142 billion, including \$17 billion for industrialization. Industrialization is concentrated in the eastern province, particularly in Jubail on the country's gulf coast and in Yenbo on the Red Sea.

Contact: Andras Behr, business facilitation staff, U.S. Department of Commerce, (202) 377-4441.

Syria: Prequalifiers are sought for consulting services and master planning for the city of Homs. Also, Syria expects to publish a development plan for the 1976-80 period. The 1976 budget allocates \$2.9 billion for development, which indicates the amount of money this country would like to spend annually over the next five years for infrastructure, industrialization and agricultural projects.

Contact: Andras Behr, business facilitation staff, U.S. Department of Commerce, (202) 377-4441.

For additional information about these new opportunities and about the countries' economic development plans and priorities, AIA members may telephone Patricia Parker, assistant director, federal agency liaison, at Institute headquarters, (202) 785-7384.

Staff Reorganization At AIA Headquarters

A reorganization of the AIA headquarters staff, presented to and approved by the Institute's board of directors at its pre-convention meeting in May, has been substantially put into effect. The three major objectives of the reorganization are to establish clear lines of authority and responsibility; to reduce the number of people reporting to the executive vice president, and to consolidate fragmented promotion/marketing activities.

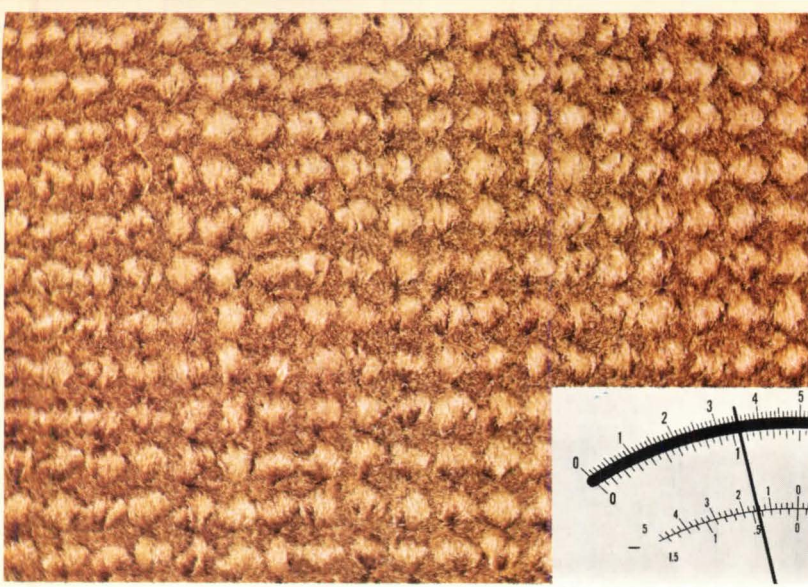
Five areas, encompassing all AIA programs, will be supervised by an executive management team, and the five group executives will report directly to William L. Slayton, Hon. AIA, executive vice president, who, in turn, reports to the executive committee and the board of directors.

Four of the five areas to be supervised by the group executives are: program development, information management, records/ethics/legal counsel and finance/business management. The AIA Research Corporation, which will be more closely related to AIA functions in the future, is the fifth area.

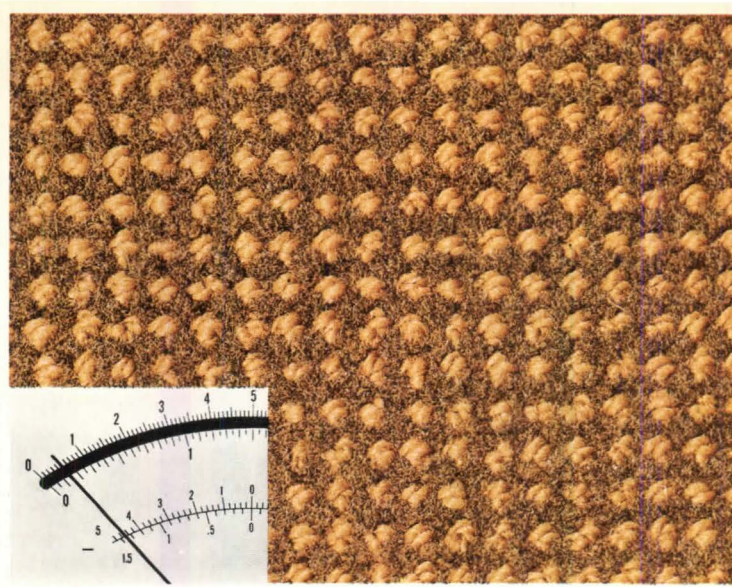
The five group executives are: James A. Scheeler, FAIA, program development; Richard H. Freeman, information management; Nancy Truscott, assistant secretary and legal counsel; William G. Wolverton, Hon. AIA, assistant treasurer/controller, and John P. Eberhard, AIA, president of the AIA Research Corporation.

The office of deputy executive vice president, formerly headed by Scheeler, has been eliminated. J. Winfield Rankin, Hon. AIA, who has served as assistant secretary, will retire at the end of the year, and his duties will be assumed by Mrs. Truscott. Freeman has assumed his re-

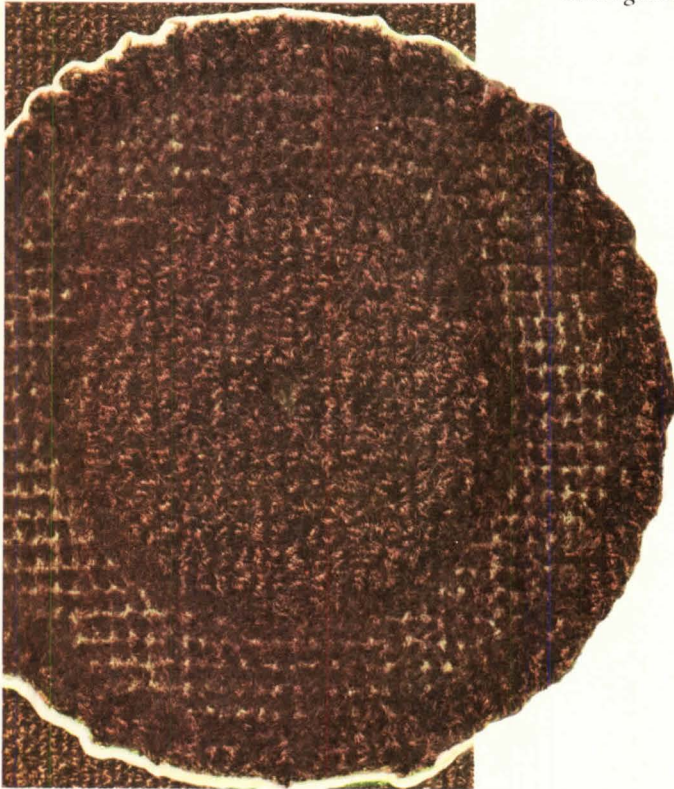
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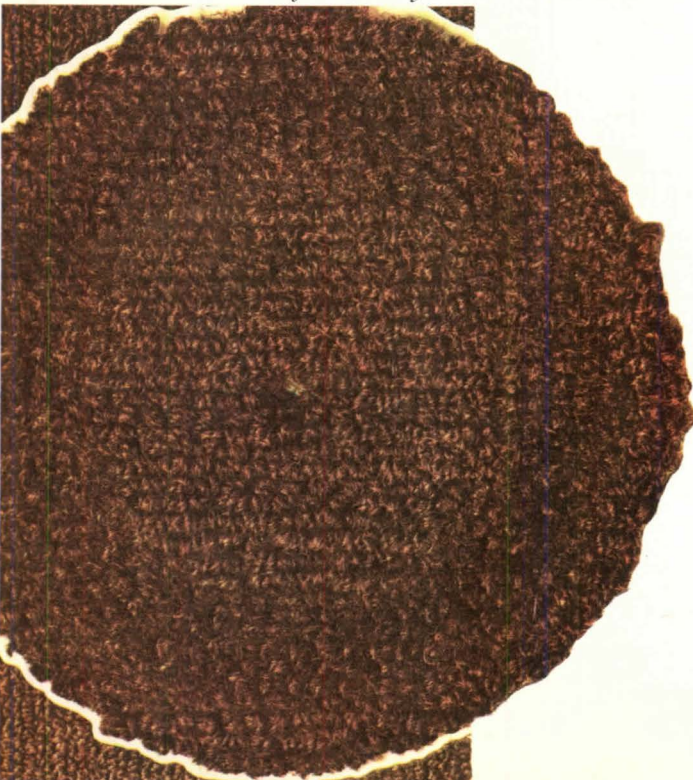
Static generated by nylon.



Static generated by Fortrel PCP.



*Acrylic after 1,800 cycles on a Taber Abrader.
Fortrel PCP after 1,800 cycles on a Taber Abrader.*



Which carpet

You're looking at photos of the actual results of three tests conducted by Certified Testing Laboratories, Inc. on carpets of Celanese Fortrel PCP producer colored polyester, and commercially available carpets of similar construction in different fibers.

Fortrel PCP outperforms them all.

More Durable.

After only 1,800 cycles on a taber abrader (taber abrasion test ASTM D-1175), the carpet of acrylic fiber reached the breaking point (abraded to the backing) and registered a pile weight loss of 11.6%. The carpet of Fortrel PCP polyester didn't reach the breaking point until 22,000 cycles! And didn't lose 11.6% of its pile weight until 29,900 cycles!

Less Static.

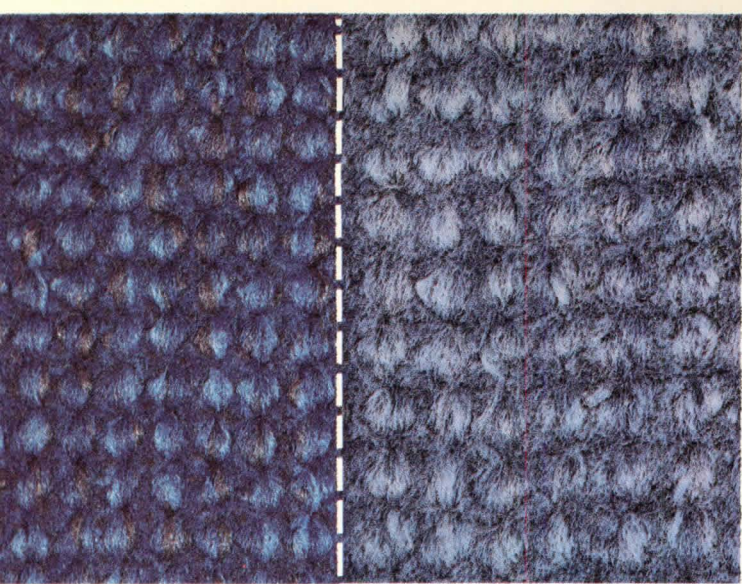
In checking static generation, the AATCC Walk Test with Neolite Soles (134-1969) was conducted.

Carpet of Fortrel PCP polyester generated a mere .5 kilovolt, well below the threshold of human sensitivity.

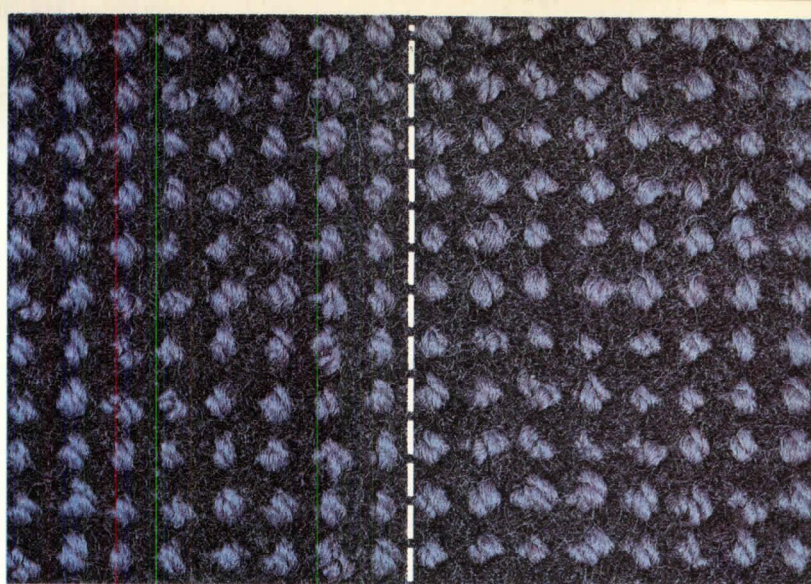
(Even below the level necessary for such delicate applications as computer rooms and hospitals.) The carpet of Antron II, even with metallic protection, generated seven times as much static—3.5 kilovolts.

No Fading.

In the AATCC Colorfastness to Light Test (Test Method 16E), the carpet of Fortrel PCP polyester showed no evidence of fading or color change after



Nylon before & after exposure to 1500 hrs. of Xenon-Arc lamps.



Fortrel PCP before & after exposure to 1500 hrs. of Xenon-Arc lamps.

do you want on your floor?

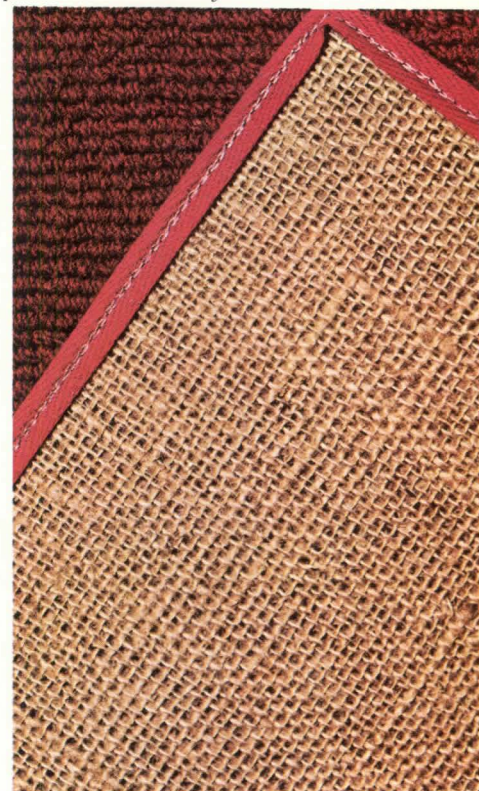
1500 hours of exposure to Xenon-Arc lamps. (That's 18 times the industry standard.) The carpet of nylon had faded substantially well before 1500 hours.

Wear Guaranteed.

These are only three of twelve exacting standards that every carpet of Fortrel PCP polyester must meet before it is awarded our five-year wear guarantee. It's the *only* wear guarantee available anywhere on contract grade polyester carpeting and it guarantees that "if the surface pile of the carpet wears more than 10% within five years from the date of initial installation, Celanese will replace the affected area with equivalent carpeting at absolutely no cost to you."

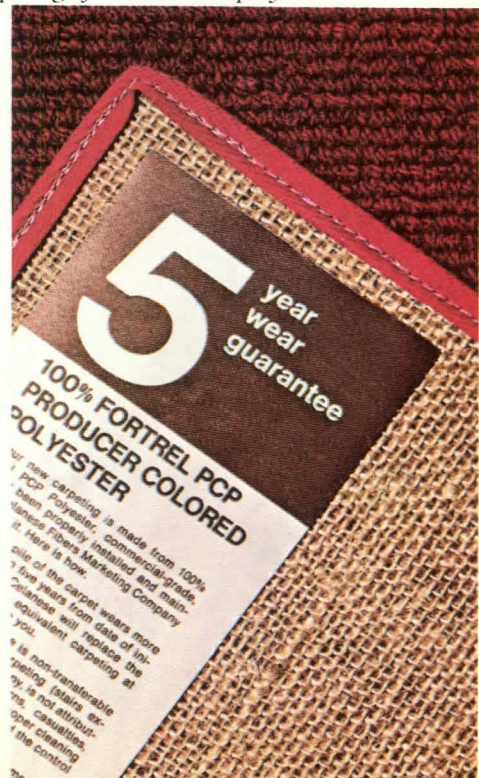
Now you can be sure which carpet you want on your floor. The one that resists static, fading, wearing, staining, soiling, and mold. And has the only five-year guarantee around.

Fortrel PCP.



The back of most carpeting.

The back of carpeting of Fortrel PCP polyester.



If your new carpeting is made from 100% Fortrel PCP polyester, commercial-grade, and has been properly installed and maintained, Celanese Fibers Marketing Company guarantees it. Here is how.

If the surface pile of the carpet wears more than 10% within five years from date of initial installation, Celanese will replace the affected area with equivalent carpeting at absolutely no cost to you.

Note that the guarantee is non-transferable and applies only to carpeting (stairs excluded) for which wear, if any, is not attributable to negligence or burns, casualties, cuts, pulls, and the use of improper cleaning methods or other causes beyond the control of Celanese.

This guarantee applies only to commercial-grade carpet as defined in Fortrel Polyester Carpet Performance FT-207.



Fortrel PCP is a trademark of Fiber Industries Inc., a subsidiary of Celanese Corporation. Celanese Fibers Marketing Company is a division of Celanese Corporation.

**Your next five years are guaranteed with:
FORTREL PCP**

5 year wear guarantee
100% FORTREL PCP PRODUCER COLORED POLYESTER
Our new carpeting is made from 100% Fortrel PCP Polyester, commercial-grade, and has been properly installed and maintained. Here is how:
If the surface pile of the carpet wears more than 10% within five years from date of initial installation, Celanese will replace the affected area with equivalent carpeting at absolutely no cost to you.
This guarantee is non-transferable and applies only to carpeting (stairs excluded) for which wear, if any, is not attributable to negligence or burns, casualties, cuts, pulls, and the use of improper cleaning methods or other causes beyond the control of Celanese.

This time do it right.

Floor Coverings Department, Celanese Fibers Marketing Co., 1211 Avenue of the Americas, New York, N.Y. 10036, (212) 764-7640.

Circle 12 on information card

Going On from page 19

sponsibilities as group executive for information management.

Freeman and Truscott are new staff members. For more than 20 years, Freeman has held profit-producing publishing promotion and management positions, having been associated with such firms as Simmons-Boardman Publishing Corporation, McGraw-Hill, Inc., and Time, Inc. Just prior to coming to AIA, Freeman was advertising sales manager of *Banking*, the official journal of the American Bankers Association, published by Simmons-Boardman. Truscott, who was graduated from the Harvard Law School, is active in professional, civic and community affairs. Before coming to AIA, she was a member of the Washington, D.C., firm of Shapiro & Mayer and before that a member of the firm of Howard, Poe & Bastian, also headquartered in the District of Columbia.

Program Putting Designs On Walls in Eight Cities

A series of wall paintings on the exteriors of buildings is being created in eight cities throughout the U.S. under a bicentennial program called City Scenes '76.

Walls in two cities have already been completed under the program and are shown here, before and after completion. To the right is the Kansas City, Mo., wall by artist Marilyn Propp; below is the Louisville, Ky., wall by Jean Henderson. Three more walls, in Boston, Atlanta and Oakland, Calif., are about to be executed, and paintings for walls in Chicago, Houston and Denver are in the planning stages.

The program is being sponsored by the National Paint and Coatings Association, in part "to support the growing trend toward using painted walls to introduce color excitement into drab urban areas and to revitalize dreary urban environments."

NPCA has allocated \$50,000 for the program, the National Endowment for the Arts has awarded a grant for \$50,000 to



help funding, and local paint and coatings associations are volunteering to cosponsor individual walls and contribute \$650.

Professional coordination for the program is being provided by City Walls, Inc., a private, nonprofit New York organization, which has organized wall painting projects in cities throughout the U.S.

The designs of both very famous and still unrecognized professional artists are being used for the paintings.



Arts Grants Awarded

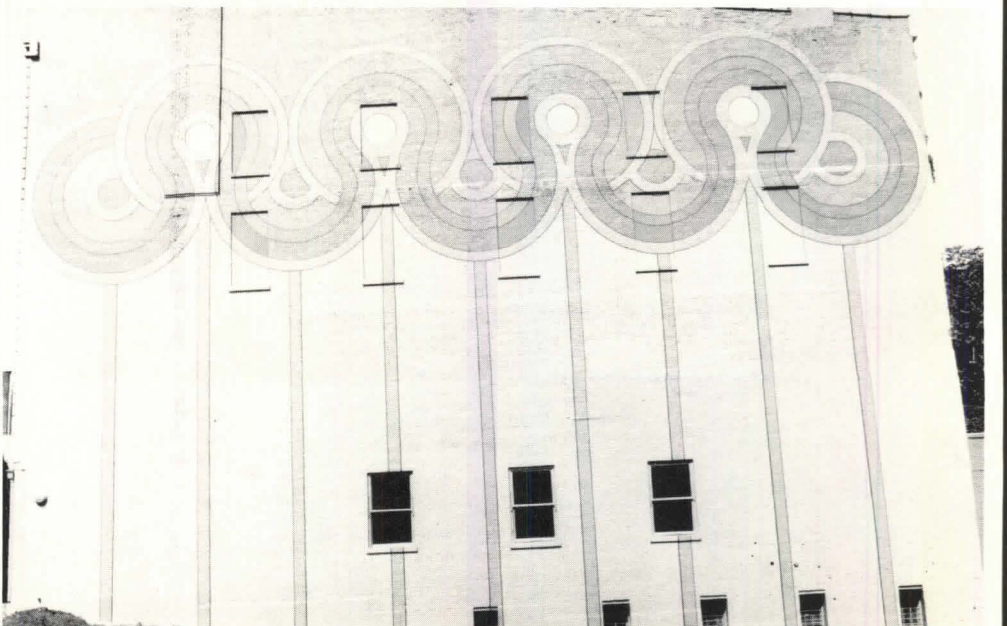
Citing "an increasing need for community cultural centers and performing arts facilities around the country," the National Endowment for the Arts has awarded 41 grants to finance research on the design, planning and use of buildings for cultural purposes.

The grants were received by local government and public and private organizations in 21 states and the District of Columbia, and total \$443,865.

Of the 41 grants, 29 involve renovation and adaptive use of existing buildings. Nancy Hanks, chairman of NEA, says, "This indicates a departure from the prevalent idea that each organization must have its own newly constructed building, and shows that Americans are becoming much more aware of the environmental and economical assets of reuse."

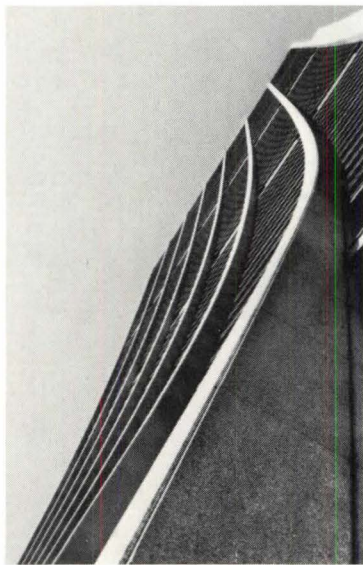
According to Bill Lacy, FAIA, director of the architecture program at NEA, a principal concern in awarding the grants was to "meet the long-range needs of

continued on page 26



Deciding on an insurer? Among the ENR 500, the shift is to Shand, Morahan.

We specialize in E&O coverage for the largest design-construction firms in the world.

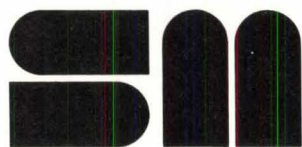


In fact, 24% of the top 55 and 20% of the remaining ENR top 500* firms already insure with us. And more and more top companies are discovering us each day.

The reasons? Broader protection in many cases, competitive rates, and immediate, no-red-tape, no-long-wait quotes and service—to mention just a few. Switching your E&O insurance to the field's second largest underwriting manager—Shand, Morahan—puts your company right on the trend.

If yours is an ENR 500 firm, and you want to know more about us, ask your broker to give us a call. Our fast, efficient, professional approach to E&O insurance may be just what both of you need.

*Engineering News-Record, May 20, 1976



Shand, Morahan & Company, Inc.

801 Davis Street Evanston, Illinois 60201 312/866-9010
Cable Shanmor Telex 72-4328



United Airlines just took off 13 years.



Architects—Terry and Egan, Seattle, Wash.
Glazing Contractor—Savoya Glass, Bellevue, Wash.

A facelift with LOF Vari-Tran® can make an old building new again.

When United Airlines was considering a new Seattle headquarters, they wanted something a bit more in tune with their image than a 13-year-old government office building.

And they got it. Via LOF Vari-Tran coated glass.

United isn't alone. Many businesses are taking a second look at their old buildings, instead of spending top dollar for a new one.

Why not recommend Vari-Tran reglazing to your clients. When creative architecture helps stabilize older neighborhoods, everyone takes notice. And that means more business and good public relations for your firm.

Available in five attractive hues, Vari-Tran helps to add the kind of excitement that calls attention to a building and its occupants.

But it's more than just a pretty face. Coated Vari-Tran cuts air-conditioning costs all summer long.

For more information about reglazing with Vari-Tran glass, write Ralph Hayward at Libbey-Owens-Ford Company, 811 Madison Avenue, Toledo, Ohio 43695.

LOF

Going On from page 22

large but sparsely populated regions of the country." Grants were awarded, for example, to the Southeast Alaska Regional Arts Council and the Washington State Arts Commission.

The NEA grants cover costs of research and preparation of studies and reports, but not acquisition of real property, capital construction or renovation or modification of existing structures.

For further information contact Susan Wagner, Cultural Facilities, Architecture and Environmental Arts, National Endowment for the Arts, Washington, D.C. 20506.

Problems of Metrication Are Anticipated in Report

The metrication of America is anticipated by many with fear, but a recent government publication balances the conversion experience against the resulting benefits and finds the project worthwhile.

Système International, as the new system is called, has a rational base and is not just a sophisticated evolution of a series of grunts and whistles, as the report puts it, so that the amount of material that must be committed to memory is a fraction of what is required to learn English, for example. Learning the basic key recognition points is seen as the real problem.

The SI, currently being adopted by Britain, Canada, Australia, New Zealand and South Africa, is similar to the metric system long used in Europe and other parts of the world. One of the differences is the new SI unit of force, the newton, which supplants the kilogram of the older metric system. The kilogram has been used to indicate force and mass, similar to the American pound.

A major advantage of the SI is internal coherence, illustrated in the report by a series of diagrams. This means that the quotient or product of any two unit quantities in the system leads to the unit of the resultant quantity. For example, when the unit length is divided by the unit time, the result is unit velocity, and when unit length is multiplied by unit length, the result is unit area. If the current U.S. system were coherent and the foot were a unit of length, the square foot would be a coherent unit of area but an acre would not.

Dimensional coordination is the aspect of SI expected to go over best with architects and the building industry as a whole. The concept of a direct relationship between the dimensions selected in the design of a building and the size of the components used in its construction dates back to Alfred Bemis' 4-inch cube. However, the idea never achieved its potential, either in the U.S. or in Europe where a 100-millimeter cube was used. Designers

endorsed the concept, as did manufacturers, but each group waited for the other to implement the system. With SI, dimensional coordination is an idea whose time has come.

A major hurdle for SI is a coordinated approach to metric conversion, an aspect made difficult by the fragmented and centerless nature of the U.S. building industry. The Australians have set the pace in this regard, having reasoned that the longer the transition period, the longer a dual product line would have to be dealt with by designers, manufacturers and constructors. Investing heavily in detailed planning and scheduling, the Australians virtually have completed conversion in less than five years. Britain, by contrast, is almost nine years into conversion and is far behind the Australians.

The 25-page report, "Metrication Problems in the Construction Codes and Standards Sector" (National Bureau of Standards Technical Note 915) can be ordered from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. The price is 75 cents, including postage within the U.S.

Blondheim of Alabama Is President of NCARB

Charles A. Blondheim Jr., FAIA, president of the firm of Blondheim, Williams & Golson, with offices in Montgomery, Birmingham and Eufaula, Ala., was elected president of the National Council of Architectural Registration Boards at the organization's annual meeting in San Francisco. At 42 years of age, Blondheim, who succeeds William C. Muchow, FAIA, of Denver, is not only one of NCARB's youngest presidents, but also the first to come from the Southeast.

Other officers elected by NCARB are: Paul H. Graven, AIA, Madison, Wis., first vice president and president-elect; Lorenzo D. Williams, AIA, Minneapolis, second vice president; Mace Tungate Jr., FAIA, Houston, treasurer. NCARB's secretary, John R. Ross, AIA, of San Luis Obispo, Calif., continues a two-year term.

NCARB named John Amundson, AIA, president of a Springfield, Ore., firm bearing his name, the first recipient of the Dean Gustavson award for distinguished service to architecture. The award was created by NCARB two years ago to honor Dean Gustavson, FAIA, the organization's president in 1969. Amundson, chairman in 1971 of NCARB's professional examination committee, has been recognized for his leadership in the development of the present four-part, machine-graded examination. During his term of office as president of the National Architectural Accrediting Board, he directed a major restructuring of that organization.

Solar Homes Cataloged, Design Concepts Described

The nation's first large-scale test of solar energy to provide information on the practical applications for heating and cooling homes was conducted by the AIA Research Corporation under a grant from HUD. A catalog of the first 55 solar systems being used in HUD's residential solar energy experiment is now available.

Entitled *Solar Heating and Cooling Demonstration Program: A Descriptive Summary of HUD Solar Residential Demonstrations Cycle 1*, the book lists sites and architects, engineers and builders and gives details of each house. Included in these details are drawings and descriptions of the house and the solar system and the climate of the location.

HUD has issued a second publication, *Solar Dwelling Design Concepts*, also accomplished under contract with AIA/RC. This book gives a brief history of solar energy experiments and lists solar dwellings and systems. There are discussions as well on the factors that influence solar design, such as climate, landscaping, site planning, etc. Also included are sample illustrations of solar dwelling and site design concepts.

Both documents may be bought from the U.S. Government Printing Office, Washington, D.C. 20402. The stock number of the first book mentioned is 023-000-00338-4, and it sells for \$1.15. The second book's stock number is 023-000-00334-1, and its price is \$2.30.

Military Housing Units Will Test Solar Heating

The Department of Defense, in cooperation with HUD and the Energy Research and Development Agency, has launched a demonstration of solar heating systems in 50 military housing units at various locations throughout the U.S. The goal of the project is "to demonstrate the effectiveness of selected systems to reduce energy consumption in residential buildings while maintaining quality architectural design." Commercially available heating and water cooling booster systems will be adapted for use in the demonstration project.

The design contractors selected to implement the program are Ezra D. Ehrenkrantz & Associates, New York City (architects); Minges Associates, Farmington, Conn. (engineers); Wormser Scientific Corp., Stamford, Conn., and Donald Watson, AIA, Guilford, Conn. (solar consultants).

The team will modify the design of 35 new (not yet constructed) military family

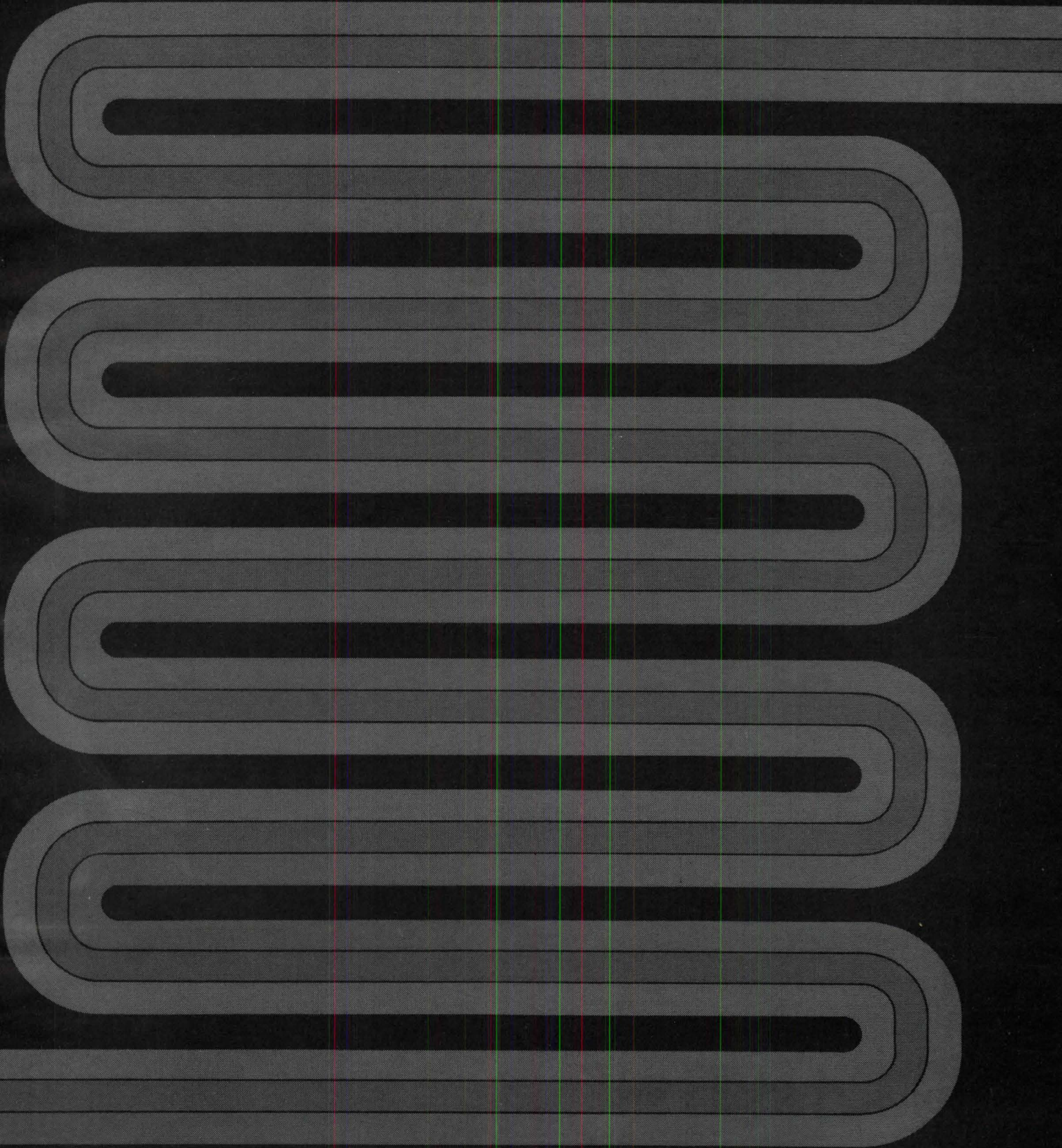
continued on page 104

CARPET SPECIFIERS GUIDE

9.27/Mo

ULTRON[®]

ADVANCED GENERATION NYLON
CARPET FIBER



Monsanto has long been a leader in the contract carpet fiber industry. With Acrilan® Plus. With Acrilan® 2000+ . The same extensive research development, and testing that created each of these, has now produced an innovative new advanced generation nylon carpet fiber especially engineered for the contract carpet market. It's Ultron® nylon.

Inside this specification guide is a discussion of Ultron, its performance characteristics, and their application in the contract market. We have similar specification material available on Acrilan acrylic which we'd be happy to forward to you. To get this information, or to get additional copies of the following Ultron specification guide, just send requests to the Monsanto address shown in the next column.

INTRODUCTION

The purpose of this guide is to assist specifiers in properly specifying carpet made of Monsanto Ultron advanced generation nylon fiber. Carpet is recognized as a standard floor covering material in both commercial and residential applications and, therefore, it is imperative that the specifier understand the basic factors affecting a sound carpet selection.

This guide will describe a variety of conditions that should be considered in arriving at the proper selection. Every effort has been made to provide the specifier with reference information and data, ranging from varying regulatory requirements, performance and construction technology to special requirements that include quality installation and proper maintenance, essential to successful carpet performance.

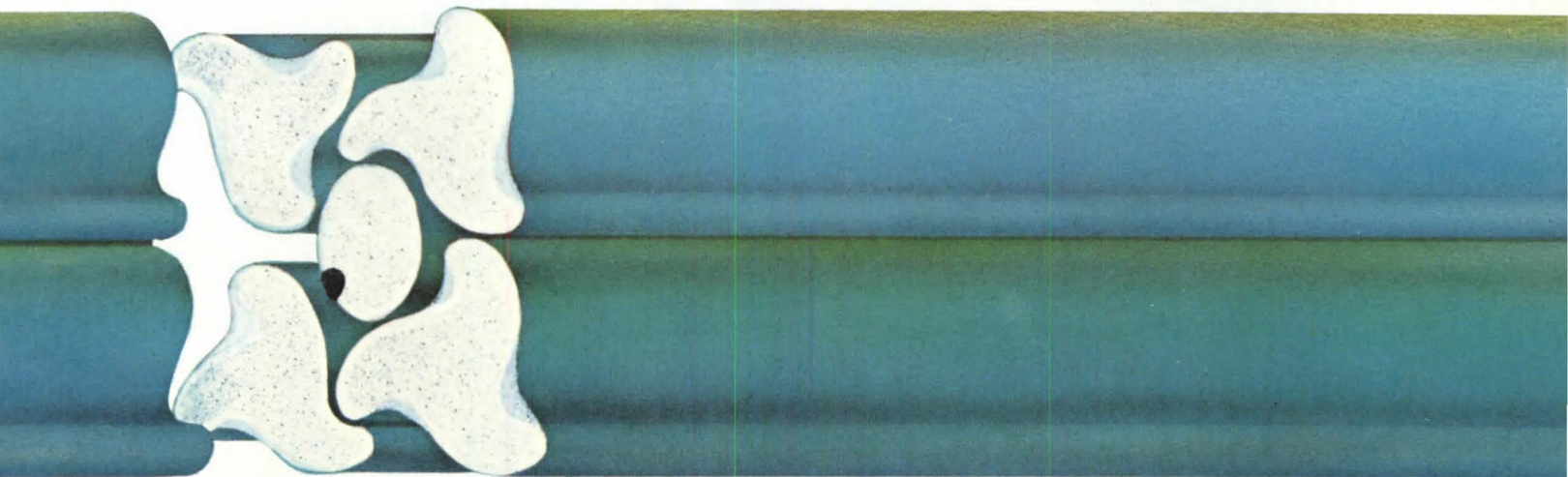
Monsanto has a professional staff anxious to advise and counsel you about carpeting and carpet fibers—their selection and maintenance. Should you have any questions about contract carpeting or mill resources, please contact us: Monsanto Textiles Company, 320 Interstate North Parkway, Atlanta, Georgia 30339 (404) 955-4000.

With the introduction of Ultron[®] advanced generation nylon carpet fiber, Monsanto has achieved an outstanding balance of performance properties which meets the most stringent requirements for carpet yarns. These performance properties include: longer effective life, superior soil resistance and soil hiding and effective control of static electricity build-up below the threshold of sensitivity in low humidity environments.

The unique technology behind Ultron achieves these performance properties without sacrificing the aesthetic assets of bulk, luster, color clarity, and resilience.

The ultimate carpet, one that never wears out, never soils, never shocks, and always looks new, is obviously, impossible to achieve in the present state of the art. However, with the introduction of Ultron, Monsanto has taken still another giant step toward the ultimate carpet.

Ultron continuous filament yarn is a 6,6 nylon that has a carefully formulated polymer system and cross section design that make it highly resistant to the abrasion that wears out carpets and to the soiling that makes them look old before their time. The polymer incorporates a proprietary additive that (1) makes the yarns less transparent, thus reducing the magnification of soil particles, (2) reduces the tendency of certain types of soil to stick to the nylon, and (3) lowers build-up of static electricity, thus inhibiting attraction of dirt particles. The cross sectional shapes of each Ultron fiber (see illustration below.) minimize the "nooks and crannies" where dirt particles may be trapped, enabling much of the deposited soil to be removed by routine vacuuming. The multi-lobal structure aids in resisting abrasive wear with the added advantage of exceptional bulk which gives maximum resistance to crushing and matting.



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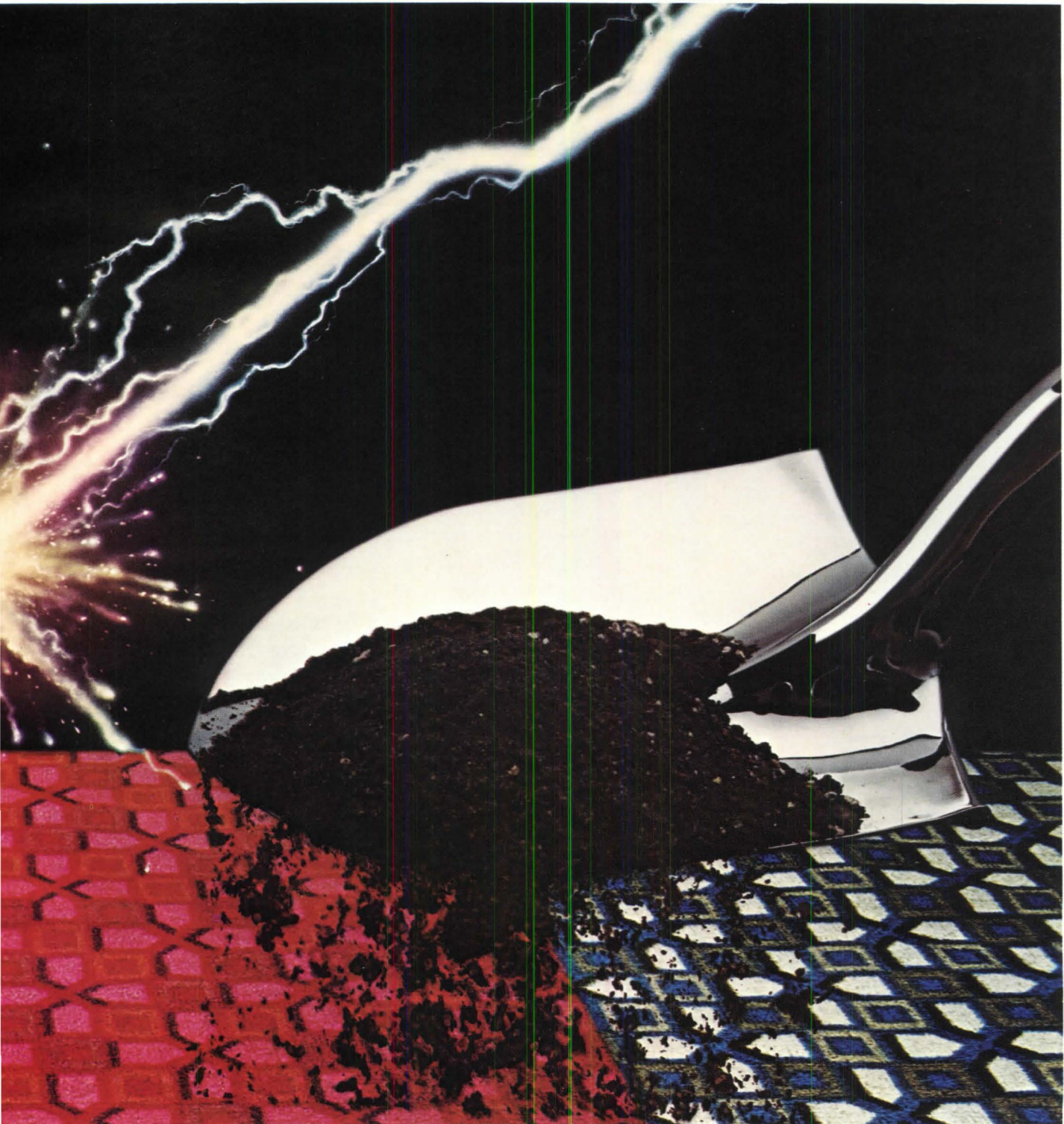
CARPET CONSTRUCTION CHARACTERISTICS 9

- Face Fiber
- Construction Methods (Tufted, Woven, Knitted, Fuse-Bonded)
- Pitch or Gauge
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REGULATORY REQUIREMENTS

When selecting carpet for most commercial and institutional installations, a major concern is, of course, the various governmental regulations that apply to a specifier's particular installation.

There are several strict federal standards regarding flammability and other performance certification requirements that must be met for carpeting to be used in hospitals, schools, hotels, dormitories, and certain residential developments.

These standards are set and enforced by agencies ranging from the Department of Commerce to the U.S. Public Health Service. In addition, there may be even more stringent requirements established by a client or institution. Testing procedures and acceptable ratings can vary depending on the purpose the carpet is to serve on the jurisdiction of the originating agency.

Fiber type alone does not assure compliance with regulatory requirements. Other factors, such as pile height and density, type of latex and type of backing in combination play crucial roles. It is fact that Ultron® nylon fiber is being used in carpet constructions that meet or exceed most regulatory requirements.

Flammability Testing

Although the general implication of flammability connotes the degree of ease of ignition or rapidity of burning, in actual practice flammability carries a meaning only with respect to performance of a product subjected to a specified test. When determining flammability of carpet, any of a number of tests may be designated.

NOTE: *Classes A to D pertain to flammability ratings only and do not relate to smoke density.

METHENAMINE TABLET TEST—U.S. DEPARTMENT OF COMMERCE DOC FF I-70 OR ASTM STANDARD D-2859-70T

This test determines the resistance to ignition and the surface flammability of carpets when exposed to a small standard source of ignition (a timed, burning methenamine tablet) in a draft-protected (free) environment. If two or more of the eight carpet specimens burn three inches in any direction, the carpet fails the test. All carpets offered for sale in the United States must pass this test.

STEINER TUNNEL TEST—PUBLIC HEALTH SERVICE & LIFE SAFETY CODE STANDARD ASTM E-84-70

This test subjects carpet specimens to a heavy flame source and uses flame spread as a comparative measure. Carpet samples 25 feet long by 1 ft. 8 in. wide, mounted pile down on the ceiling of a test tunnel, are subjected to heat and flame in a temperature range of 1600° to 1800°F (871°C to 982°C), under standard draft conditions. Test duration is 10 minutes or until sample has burned out completely, whichever is first. Progress of flame along length of test sample is observed every 15 seconds and the greatest distance of flame-spread is then used to calculate flame-spread rating. A flame-spread rating of 75 or less is necessary for floor coverings used in hospitals which receive funds through the Hill-Burton Act. Other flame-spread classifications defined by the NFPA Life Safety Codes are:

0-25	Class A*
26-75	Class B*
76-200	Class C*
201-500	Class D*

Measures of smoke density are also taken during burning test. A smoke density rating of 200 has been used in several specifications, although a national standard has not been set.

When the Floor Chamber Test UL or the Radiant Panel Flooring Flammability Test is used as a measure of flame spread, the NBS Smoke Chamber Test is often used as a method of measuring smoke density.

The standard is a *maximum* of 450 as an average of the flaming and nonflaming results.

FLOOR CHAMBER TEST UL SUBJECT 992

(While this is not currently a required federal regulatory test, it has been proposed by HEW that it be accepted as an alternative test method of E-84.) This test uses flame-propagation as its measure. Sample is placed on floor and subjected to a flame under a draft for 12 minutes, after which the burner is shut off and the flame is allowed to propagate an additional 12 minutes. A Flame Propagation Index limit of four or less (corresponds to 26-75 range of Steiner Tunnel Test) has been set in several specifications. The Index rating is reported in whole numbers between 0-25.

RADIANT PANEL FLOORING FLAMMABILITY TEST

(Proposed federal regulatory test.) This test is being developed for possible replacement of E-84 Steiner Tunnel Test and the UL992 Chamber Test. It measures flame-spread of carpets exposed to Radiant energy and flame. Samples are tested in the normal end-use configuration.

Carpet specimen is exposed to a radiant heat flux that decreases along the length of the specimen. The specimen is ignited at the highest heat flux end and allowed to burn until it will not support flaming combustion. The radiant heat flux at the point the flame extinguishes is recorded as critical heat flux. The heat flux is expressed in watts/cm². Pass-fail heat flux level of 0.5 watts/cm² or higher is recommended for corridors and exit ways in hospitals and other institutions; 0.25 watts/cm² is recommended** for corridors and exit ways in other buildings.

NOTE: **The National Bureau of Standards proposed the Flooring Radiant Panel test be used for non-sprinkled corridors and primary exit ways. The methenamine pill test would be used for room carpet and sprinkled corridors. At this writing the recommendation has not yet been accepted.

Performance Certification

In an attempt to improve performance characteristics directly related to construction elements of carpeting, the following federal regulation has been established.

MATERIALS BULLETIN UM-44C

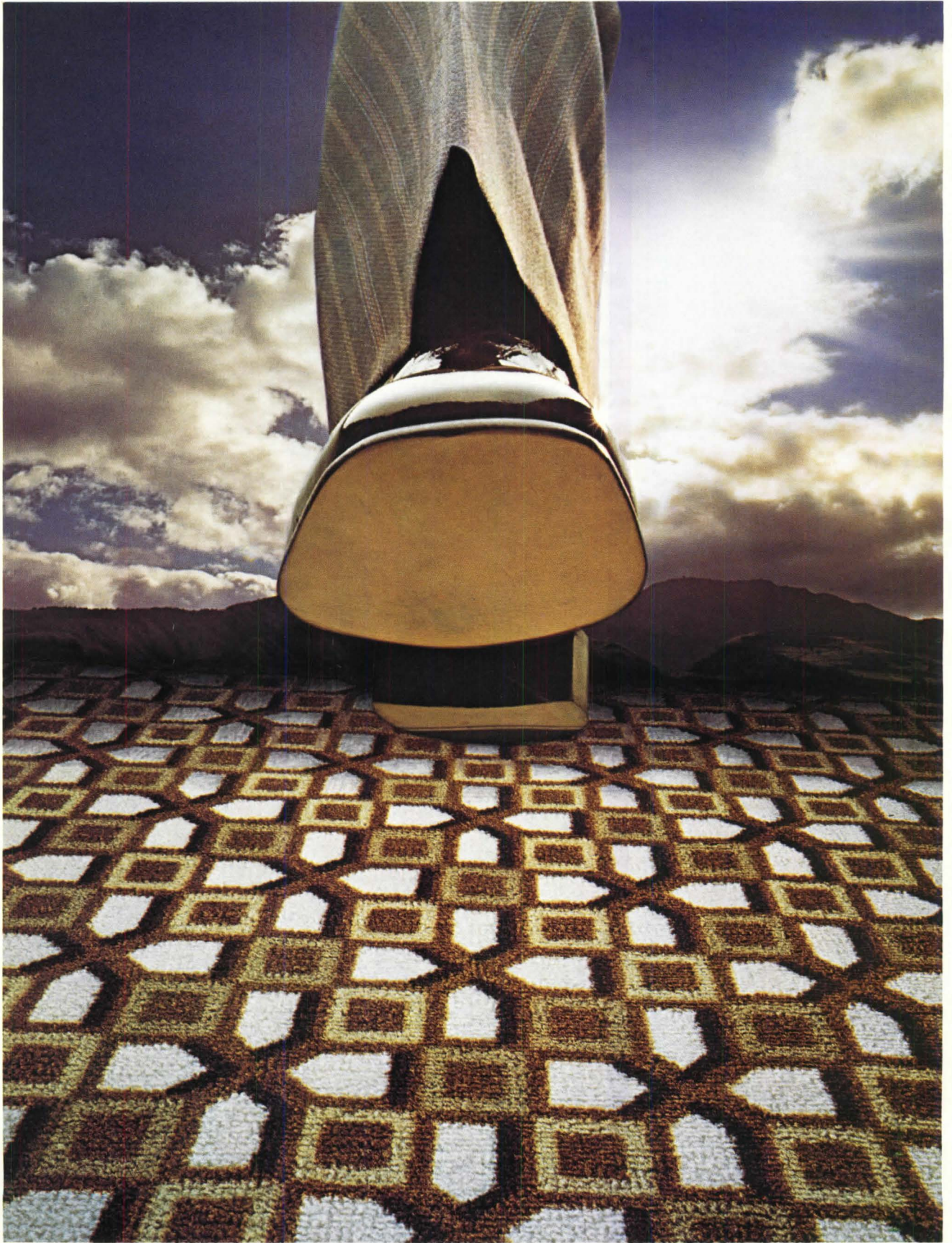
(For HUD-funded projects only). Sets forth standards for carpet and carpet certification program for residential structures and nursing and elderly homes under the jurisdiction of the Department of Housing and Urban Development and the Federal Housing Administration.

All carpets offered for the "FHA Market" must be certified by a HUD approved administrator. The manufacturer must imprint on the back of the carpet every three to six feet the following:

1. Certification mark of the administrator.
2. Manufacturer name or code number.
3. Identity of quality name or code number.

The administrators are required to publish and distribute a directory of certified products at least twice annually with monthly supplements.





SPECIFICATION TECHNOLOGY

A specification should be written based on total performance and not simply construction. A performance specification tells the manufacturer what the carpet must do without telling him how it must be made. This will give competing manufacturers the flexibility of submitting a fabric that will render the desired end-use characteristics. Extensive testing of Ultron® reveals the following performance characteristics.

Durability

In the world of carpeting, durability can be a confusing word because it means different things depending on who is using it. Durability, to some carpet fiber manufacturers, means the ability of a carpet to resist abrasion and, thus, last a long time.

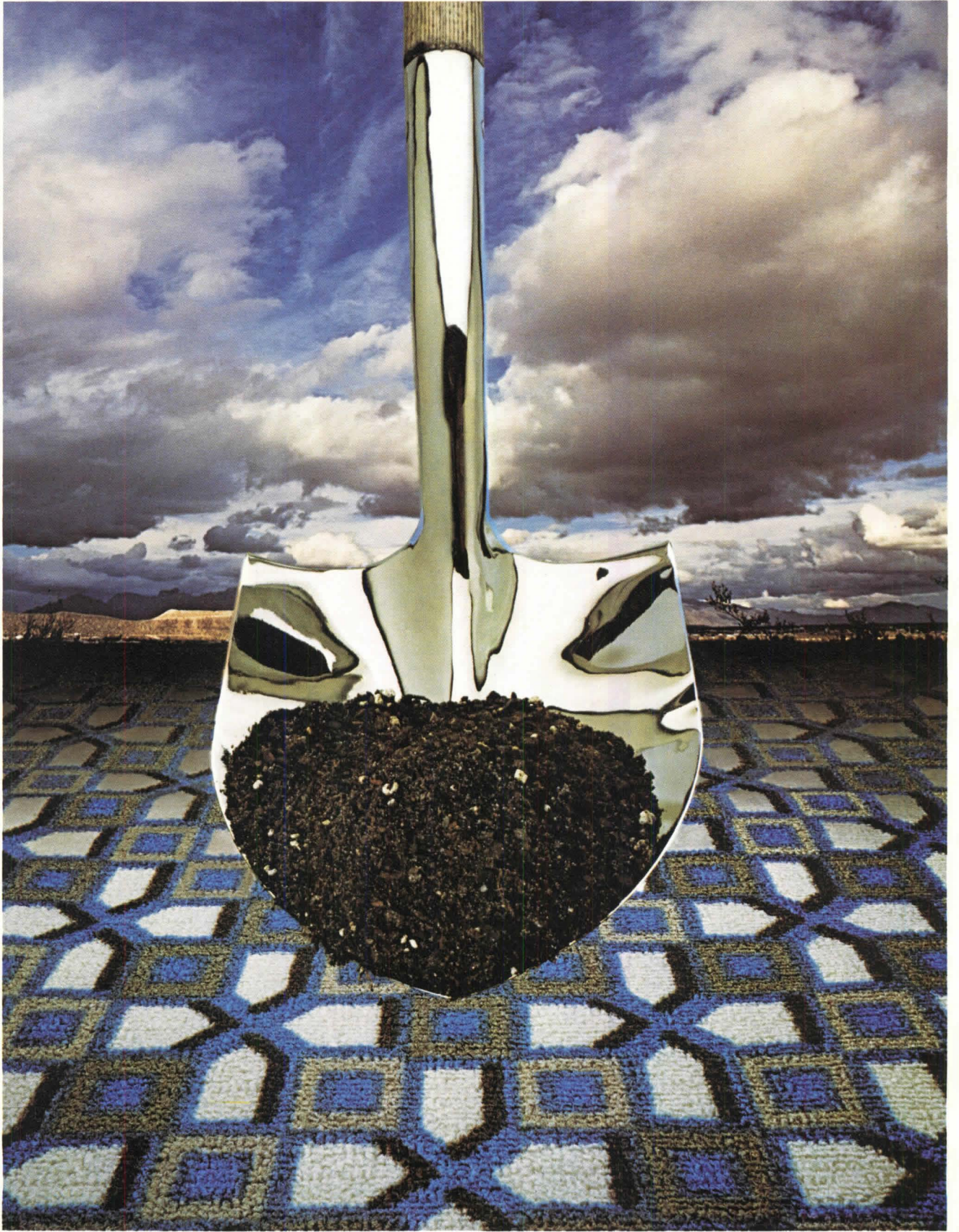
At Monsanto, when we use the word durability, we mean that and more. We mean the ability of a carpet to retain a good appearance as long as it lasts. There is quite a difference between the two meanings.

WEAR RESISTANCE

Resistance to abrasion created by foot traffic, rolling equipment, and furniture movement relates to durability but does not by itself determine the useful life of a carpet. The determination of whether a carpet is functionally acceptable is still a subjective matter. One good laboratory method for measuring abrasion resistance is by use of the Taber Abraser. The carpet sample, cut into a five-inch disc, rotates on a turntable beneath a multidirectional rubbing action of a specified pressure and coarseness. Test results are based on the number of cycles required to abrade the pile fiber completely to the primary backing.

Care should be taken when making comparisons between competitive fabrics that the same machine utilizing controlled conditions of pressure and abrasive action is employed.





Appearance Retention

The ability of a carpet to retain a good appearance as long as it lasts is the true measure of its effective life. Appearance retention qualities are inherent in properly constructed carpet made with pile fiber of Ultron® nylon. These qualities are:

SOIL AND STAIN RESISTANCE

Carpets of Ultron have the ability to resist soiling because of the proprietary additive in the polymer and because of the fiber's cross section design. The attraction of dirt particles is inhibited. The tendency of certain types of soil to "stick" to the fiber is reduced, and the soiling that does occur is actually hidden because the yarns are less transparent and do not magnify the dirt particles. Cleaning is easy because the "nooks and crannies" of the fiber have been minimized, making dirt more easily dislodged and removed.

RESILIENCE

The multi-lobal structure of Ultron nylon provides exceptional bulk which gives maximum resistance to crushing and matting from both heavy static loads and high-traffic loads. This high degree of resilience keeps carpeting from developing traffic lanes as well as deep indentations from heavy furniture. A most dramatic test of this resilience was the exposure of Ultron carpet in Grand Central Station to a million plus traffic level. The carpet exhibited exceptional performance in terms of height retained and compressed thickness.

COLOR RETENTION

Atmospheric contaminants such as ozone and other gases are a major contributor to color fading. Ultron is a type 6,6 nylon with a less open physical structure which provides resistance to gaseous penetration and thus aids in color stability. Proper dye selection and fixation will assure color clarity through resistance to fading, crocking, and repeated cleanings. Accepted industry test procedures to determine the measure of colorfastness are:

ATMOSPHERIC FADING (AATCC* 129)

This test determines the color change of the carpet when exposed to ozone gas in the atmosphere under high humidities. A shade change rating of at least 3** after 3 cycles exposure is desired.

NOTE: *AATCC—American Association of Textile Chemists and Colorists.

**International Gray Scale Ratings:

5—no change 2—considerably changed
4—slightly changed 1—much changed
3—noticeably changed



LIGHTFASTNESS (AATCC*-16E)

This method determines the colorfastness of textile materials to light in a xenon arc Fade-Ometer. After material is exposed to 60 "AATCC Fading Units" and judged visually for change, a Gray Scale rating of at least 4** is desired.

CROCKING (AATCC* 8)

This test determines the degree of color transfer from the carpet to a white cloth that is rubbed across the face of the carpet in a standard fashion. After 20 friction cycles, the color-transference is rated visually on AATCC Chromatic Transference Scale. Results should be 4** or above.

SHAMPOOING (AATCC* 138)

A measure of the color change caused by severe shampooing. Test specimens are rated visually on Gray Scale Standard. Results should not be below 4**

MAINTAINABILITY

While Ultron® is outstanding in its ability to resist dirt and stains, routine maintenance is still necessary. The real test of maintainability is the ability of the carpet to be restored to its near original appearance after having been in use in a given location.

At every stage of development, Ultron carpets were carefully tested by diverse evaluation procedures. They were cleaned by commercial procedures and spot cleaned after being subjected to soiling, water spotting and stubborn carpet stains. After cleaning, a procedure was used to determine resoil tendencies.

The excellent restorability of Ultron carpets to a near original appearance truly distinguished this advanced generation nylon.

Static Control

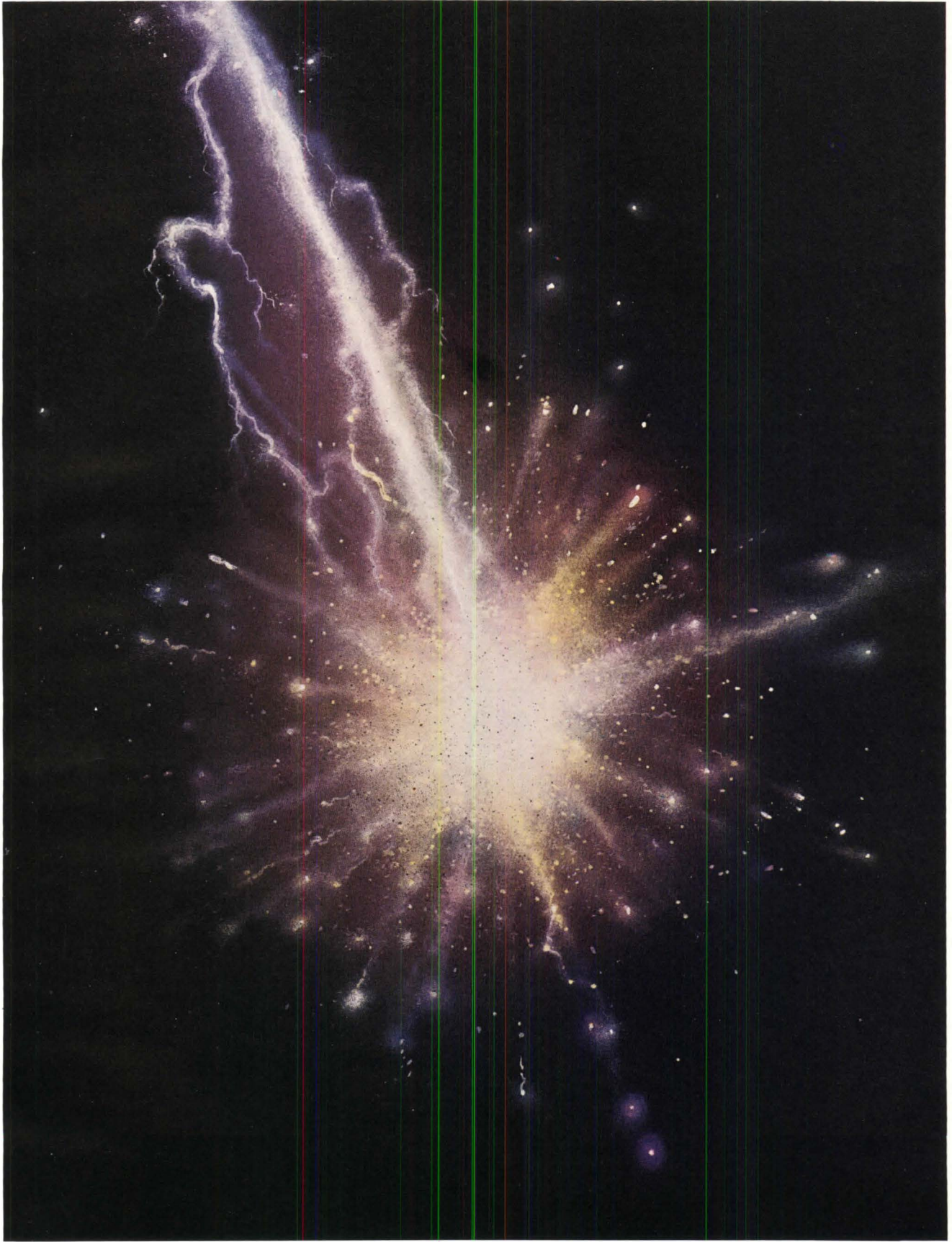
Monsanto engineers developed Ultron nylon to have highly effective control of static. With its polymer system and with a conductive element added to the yarn bundle, Ultron carpets, when constructed in accordance with Monsanto recommendations, will effectively keep static build-up well below the 3,000 volt sensitivity level. An effective test method to determine the static propensity of carpets is—

I. F. WALKER METHOD—AATCC—134. This test induces and measures static build-up on carpets by simulating use conditions under which static electricity may become objectionable. Peak charge generation (at 70°F and 20% relative humidity) developed by walking or shuffling traffic, is monitored under carefully regulated conditions and related to the threshold range of charge above which objectionable shock may be experienced. A standard of 3.0 kilovolts, maximum, should keep static discharge below the human shock level. For areas with delicate electronic equipment, you should consult the equipment manufacturer for effective static control levels.

NOTE: *AATCC—American Association of Textile Chemists and Colorists.

**International Gray Scale Ratings:

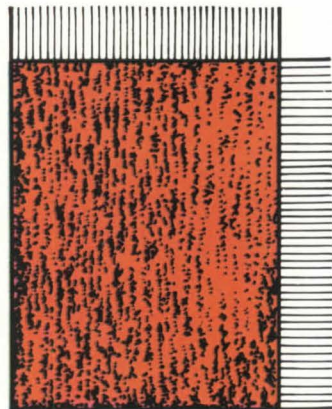
5—no change 2—considerably changed
4—slightly changed 1—much changed
3—noticeably changed



CARPET CONSTRUCTION CHARACTERISTICS

A carpet construction specification prescribes how a carpet is to be manufactured without reference to its end use or performance. Here are the construction criteria you will look at most closely.

Magnification continuous filament yarn



Number of tufts per sq. inch is determined by multiplying needles corresponding to a particular pitch or gauge by rows or stitches per inch. Example: 1/8 gauge, 8 needles times 8 stitches per inch equals 64 tufts per square inch.

PILE HEIGHT

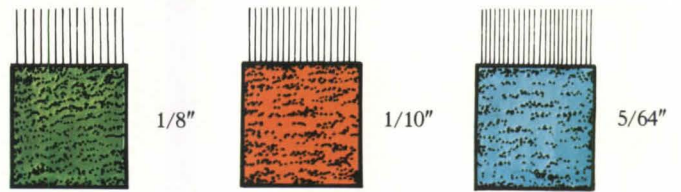


WIRE HEIGHT



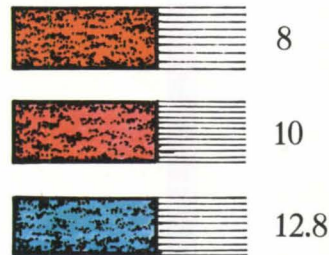
GAUGE (Tufted Fabric)

The distance between two needle points expressed in fractions of an inch.



STITCHES

The number of lengthwise yarn tufts in one inch of carpet.



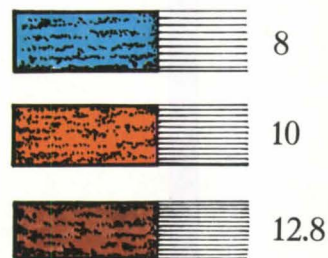
PITCH (Woven Fabric)

The number of single ends per 27 inches of width.



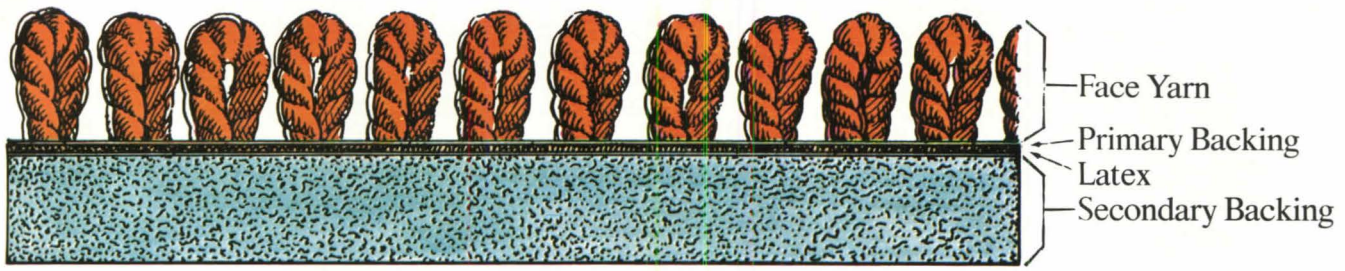
ROWS

The number of lengthwise yarn tufts in one inch of carpet.



Pitch to Gauge Conversions

Pitch	108	143.9	172.8	180	189	216	243	252	256	270	346
Needles	4	5.3	6.4	6.6	7	8	9	9.3	9.5	10	12.8
Gauge	1/4	3/16	5/32		9/64	1/8	1/9			1/10	5/64



FACE FIBER

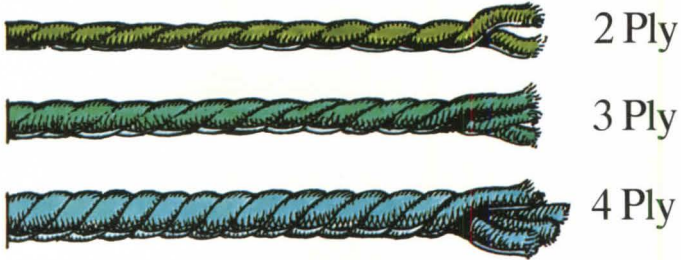
“the face yarn of carpet shall be pile of 100% ‘Ultron’ advanced generation nylon” or “the face yarn shall be advanced generation soil hiding, static resistant nylon fiber.”

Pile Weight per Square Yard

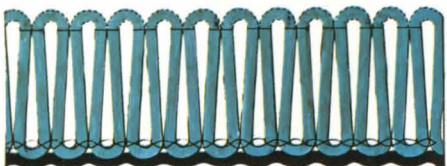
Pile weight is measured in ounces per square yard. It is the amount of yarn used in the pile of the carpet, excluding the primary backing.

$$\begin{aligned} & \text{Total Weight} \\ & \text{Pile weight} + \text{Latex} + \text{Backing} \\ & = \text{Total Weight} \end{aligned}$$

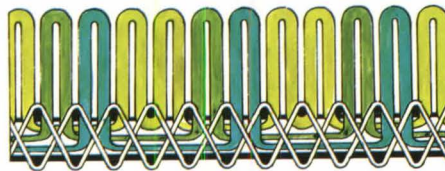
YARN PLY



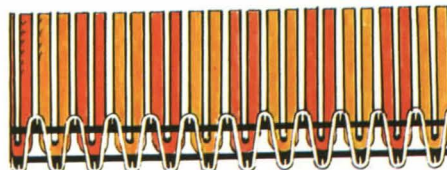
CONSTRUCTION METHODS



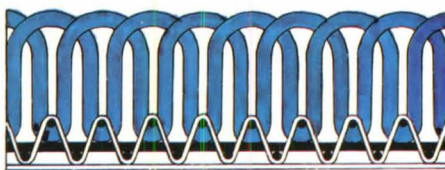
TUFTED



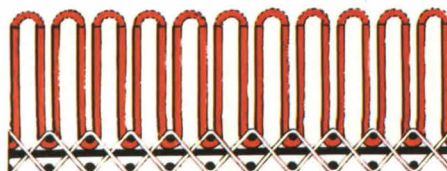
WILTON Weave



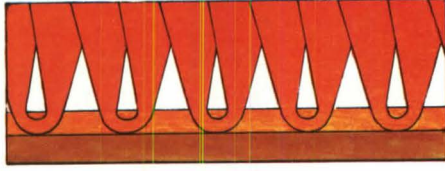
AXMINSTER Weave



KNITTED



VELVET Weave



FUSE-BONDED



SPECIAL REQUIREMENTS

BUDGET

The carpeting budget is usually the first item to be trimmed when budgets are being reviewed. Carpet takes as much abuse as any building material on the market and thus should be selected based on the performance requirements, not solely on a budgeted figure.

Ultron® nylon was engineered with “use cost” savings in mind. Longer effective life plus a high degree of soil hiding means reduced maintenance cost.

TEXTURE

Texture can be achieved by varying pile height, by a combination of cut and uncut tufts and by yarn size and construction. It should be noted that texture should never become more important than function. Under heavy traffic conditions and where roll casters are used, a low pile height, high density, level loop construction is recommended.

COLOR

Your color specification may be determined by function of area to be carpeted, by traffic, by the need to create a mood or atmosphere, by the color of the soil in your locality, or by a combination of all these factors. In general, the lighter colors, pale golds and off-whites, will exhibit soil more readily and require more frequent cleaning. This should be considered when planning colors for heavy traffic area.

TUFT BIND

A measure of how well the individual tufts are held in the structure of a carpet. The force required to pull the tuft out of the face of the carpet is determined utilizing Test Method ASTM D-1335 expressed in pounds. Tuft bind is obtained by proper application of the back coating. A single tuft should withstand a minimum of 6-8 pounds of force for most end use applications. Monsanto recommends a higher tuft bind when the possibility of deliberate ravelling exists such as in grade school installations.

Traffic Classification

Typical traffic levels of commercial and institutional installations are listed below. Determination of the traffic conditions of your installation will be most helpful in developing specification criteria. (L-M) denotes light-medium traffic, (H) denotes heavy traffic.

CARPETED AREAS

EDUCATIONAL +

1. Schools & Colleges
 - a. administration
 - b. classroom
 - c. dormitory
 - d. corridor
 - e. cafeteria
 - f. libraries

2. Museums & Art Galleries

- a. display room
- b. executive
- c. lobby

MEDICAL +

1. Health Care
 - a. executive
 - b. patients room
 - c. lounge
 - d. nurses station
 - e. corridor
 - f. lobby

COMMERCIAL +

1. Banks
 - a. executive
 - b. lobby
 - c. teller windows
 - d. corridors
2. Retail Establishments
 - a. aisle
 - b. check-out
 - c. sales counter
 - d. smaller boutiques, etc.
 - e. window & display area
3. Office Buildings
 - a. executive
 - b. clerical
 - c. corridor
 - d. cafeteria
4. Supermarkets
5. Food Services

TRAFFIC RATING

L-M
H
H
H*
H
L-M
H
L-M
H

L-M
H
H
H
H*
H

L-M
H
H
H*
H
L-M
L-M
H
H*
H
H
H

CARPETED AREAS

RECREATIONAL +

1. Recreation Areas
 - a. club house
 - b. locker room
 - c. swimming pool
 - d. recreational vehicles
 - e. boats
2. Theaters & Stadiums (Indoors)
3. Convention Centers
 - a. auditorium
 - b. corridor
 - c. lobby

TRANSPORTATION +

1. Terminals
 - a. corridor
 - b. administration
 - c. ticket counter

MULTI-RESIDENTIAL +

1. Apartments, Hotels & Motels
 - a. lobby/public areas
 - b. corridors
 - c. rooms

RELIGIOUS +

1. Churches/Temples
 - a. worship
 - b. meeting room
 - c. lobby

+Major Construction Categories

*If objects are to be rolled over an area of carpet, the carpet should be of maximum density to provide minimum resistance to rollers. For safety, select only level loop or low, level dense cut pile.

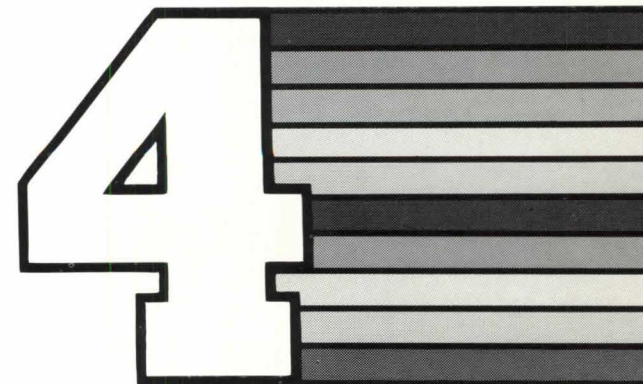
TRAFFIC RATING

H
H
H
H
H
H
H
H*
H

H*
L-M
H

H*
H
L-M

L-M
H
H



Density

Basically, density is a measure of the weight per unit volume of the face fiber in the carpet. By definition, it can be seen that this takes into consideration the height of the pile above the carpet backing as well as the weight of the yarn in a square yard of the face pile.

Obviously the denser the pile, the less weight each tuft of yarn must support. Therefore, carpets of denser pile generally give greater resistance to crushing and longer wear. The mathematical formula for calculating density and weight density is listed below:

$$\text{FHA DENSITY} = \frac{36 \times \text{Pile Wt.}}{\text{Pile height}}$$

EXAMPLE

$$\frac{36 \times 28 \text{ Oz.}}{.187} = 5390$$

$$\text{WT. DENSITY} = \text{FHA Density} = \frac{\text{Pile Yarn Weight}}{\text{Weight}}$$

EXAMPLE: $5390 \times 28 \text{ oz.} = 150,920$

Typical face weight and recommended maximum pile height constructions are listed below along with the density factor:*

PILE WEIGHT	PILE HEIGHT	DENSITY
16 oz./yd.	.125	4608
20 oz./yd.	.140	5143
22 oz./yd.	.156	5077
24 oz./yd.	.187	4620
26 oz./yd.	.203	4610
28 oz./yd.	.218	4624
30 oz./yd.	.250	4320

Assuming that the yarn denier remains the same and the same machine gauge is employed, a drop in the pile height requires an increase in the stitches per inch to obtain the same face weight fabric. This will also increase the density.

EXAMPLE: 30 oz fabric with a .250 pile height—decrease pile height to .218—density factor is increased from 4320 to 4954.

*Recommendations are for Ultron® nylon carpets.

Installation Requirements

Often the carpet specifications relate directly to the type of installation. You'll want to specify a reliable, proven installation procedure that meets the requirements of the area involved. Factors to consider before making a final decision include:

1. Traffic Classification in terms of load and nature (foot traffic, wheeled equipment, etc.).
2. Acoustical requirements, heat transfer factor, and resiliency.
3. Dimensional stability.
4. Condition and type of subfloor.
5. Budget.

There are basically two types of commercial carpet installation methods. A specification will include one or both of the following techniques depending on the size of the area to be carpeted and the attributes you expect from the carpeting.

STRETCH-IN—TACKLESS

This is the conventional method of installing carpet by power stretching over a separate cushion. A padded carpet installation offers superior sound control, resilience, and added foot comfort.

This method is not recommended for large open areas where shifting and buckling could present a problem or in areas where heavy wheeled traffic is anticipated.

A tackless strip of water resistant plywood is employed to securely fasten the carpet to the floor.

DIRECT GLUE DOWN

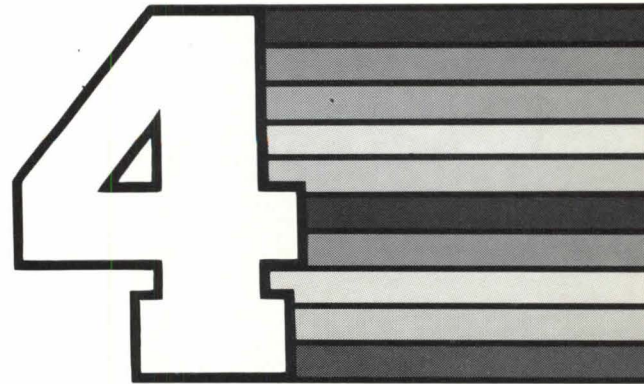
This method is recommended for large areas where heavy, wheeled traffic is anticipated and for maximum carpet stability. When the carpet is adhered directly to the floor, shifting and buckling is minimized and restretching is seldom necessary. This method also significantly reduces seam splitting and delamination problems. The initial cost of this method will usually be lower since padding purchase and padding installation are eliminated. You can minimize any loss of resilience, thermal and acoustical control by specifying correct pile density.

The direct glue down method will usually involve three basic types of carpet backing products: conventional back products—either jute or non-woven synthetic secondary back, an attached cushion back—usually high density foam rubber, or a unitary back—those finished with latex, polyvinyl chloride, or polyurethane compounds.

This method has been used effectively on all types of subflooring ranging from below-grade concrete, on-grade concrete, suspended concrete, suspended wood to existing resilient floors. Preparation of the subfloor is of primary importance when specifying this method.

SEAMING

The three main methods of seaming are heat seams, sewn seams, and latex seams. Regardless of seaming method used, all edges along seam must be sealed to prevent face yarn unravelling. Factors that influence location of seams are traffic, pile lay, economy in cutting/sewing and client satisfaction.



Maintenance

Programmed maintenance is the key to retaining the original appearance and texture of the carpet and thus extending the life expectancy. Maintenance is just as important to the life and appearance of carpet as fiber content, type of construction and method of installation. Regardless of the method used, the purpose is to keep the soil content to a minimum.

Since maintenance is so important, it should be considered and planned for before the carpet is even installed and the cost of maintenance, in terms of labor and equipment, should be considered as part of the total life cycle costing.

PLANNING

Just as your choice of fabric is based on the amount and type of traffic in a particular area, so is carpet maintenance in direct relation to the amount and type of traffic. Therefore, you can plan basic maintenance programs and schedules and purchase correct equipment during the specification period.

EQUIPMENT

Good carpet cleaning equipment is indispensable to an effective maintenance program. The type of equipment necessary will depend on the area to be cleaned and the cleaning frequencies required. The basic types of maintenance can be grouped into the following categories:

- 1) Preventive
- 2) Interim
- 3) Restoration

The following maintenance methods and equipment suggestions will help prolong the life of your carpet:

PREVENTIVE MAINTENANCE

Major carpet wear or abrasion is caused primarily by "dirt" and not foot traffic. Dry soil, i.e. sand, grit and other particles that are transported by foot traffic, have sharp cutting edges that when pressed repeatedly against the fiber can do extensive damage to the pile.

WALK-OFF MATS

As a matter of preventive maintenance, one method of reducing the amount of dry soil is to install walk-off mats at all entrances to collect dirt before it reaches the carpet inside. There are a number of commercially acceptable walk-off mats on the market. It is important that these mats be cleaned or changed frequently to maintain their effectiveness.

VACUUMING

Vacuuming methods and frequencies are fairly standard, but desirable frequencies are more difficult to establish. They depend to a great extent on the general layout of your project, the type of business it houses, the color of carpeting, traffic load and the type of outside soil commonly brought in by traffic.

A commercial upright vacuum machine with a beater action to agitate the soil from within the pile so it can be pulled out is recommended. Various size units are available for congested areas as well as the large open areas.

SPOT AND STAIN REMOVAL

Stains, usually resulting from accidental spillage, represent the greatest cleaning challenge. Identification and immediate action are the keys to effective stain removal procedures. The longer a stain sets, the more difficult it may be to remove. There are many excellent commercial spot removal kits on the market for the custodian to use. Most require no mixing or special skills and are very effective on almost any stain.

The use of walk-off mats, proper vacuuming and spot or stain removal are the essential daily requirements that represent the preventive aspects of the total maintenance program.

INTERIM MAINTENANCE

The interim maintenance procedures are primarily intended to surface clean and improve the appearance of the carpeting during the interim periods between major cleaning. These techniques are very effective in the high traffic areas.

PILE LIFTING

Prior to any carpet cleaning process, the carpet should be thoroughly vacuumed. A pile lifter (heavy duty vacuum with rotating brushes) is recommended to loosen caked solids and restore crushed pile. This will precondition the carpet to allow greater exposure of pile fiber for cleaning.

DRY COMPOUND CLEANING

There are three basic systems that are commonly used for interim maintenance: Absorbent dry cleaning compounds impregnated with solvents are used to absorb surface dirt. Compound is worked into the face fiber with a stiff brush or mechanically agitated. After the compound has dried completely it is vacuumed up.

DRY FOAM CLEANING

Dry foam machines are equipped with a pressure tank into which a detergent solution is poured. A compressor then converts the solution into a relatively dry foam fed through a revolving cylindrical brush. The brush thoroughly combs the foam through the pile to clean each tuft.

ROTARY BRUSH CLEANING

Applying a detergent solution with a rotary brush machine is the most commonly used method of wet cleaning carpet. Detergent is fed through a rotating brush which is about 16 inches in diameter. The brush agitates the solution into the carpet pile. It is important that the detergent "mix" which is applied be lots more foam than water to prevent over wetting. Most professional cleaners recommend following the shampoo immediately with wet pick-up vacuum to reduce drying time and remove suspended dirt. In addition, Monsanto testing has found that the use of dry absorbant pads used beneath the rotating brush after shampooing will greatly reduce the drying time.

RESTORATIVE MAINTENANCE

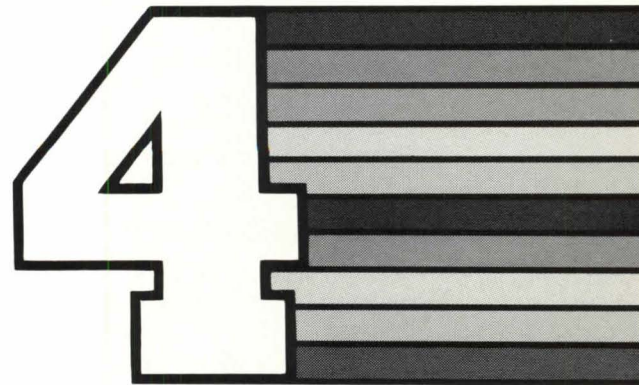
When carpet looks dirty or is no longer restored to near original appearance, a restorative maintenance procedure requires a thorough flushing of soil out of the carpet. Many installations will contract for this type of cleaning rather than invest in too much specialized equipment.

EXTRACTION CLEANING

Extraction cleaning injects the pile with a very hot water/detergent solution under pressure. The machine then immediately extracts the solution along with dirt and grime into a separate holding tank. Manufacturers claim between 70 and 80 percent moisture recovery. Total drying time will vary from 8 to 24 hours.

SET UP YOUR MAINTENANCE PROGRAM WITH HELP FROM MONSANTO

Expert help for setting up a carpet maintenance program for your installation is here waiting for you. Just contact the Contract Carpet Department, Monsanto, 320 Interstate North Parkway, Atlanta, Georgia 30339.



Since the most effective carpet decisions are made when the specifier fully understands the project requirements, the problem for many specifiers would be partly solved if a vehicle existed whereby the relevant details could be assembled in an orderly fashion. One suggested vehicle proposed by Monsanto is completion of a Space Analysis Work Sheet which is available from Monsanto on request. Once the proper information has been assembled, then and only then can a carpet specification be written. Information provided by means of the questionnaire presents the parameters of possible problems and helps define the goals and constraints. With such background, the specifier can write a specification and the manufacturers, based on their respective resources and experience, can submit bids for furnishing and installing the carpet.

For Space Analysis Work Sheets write:
Contract Carpet Department
Monsanto Textiles Company
300 Interstate North Parkway
Atlanta, Georgia 30339 (404) 955-4000

A Monsanto representative will be happy to review your completed work sheet and make fabric recommendations based on your specifications. If you desire such assistance, submit work sheets to the above address.

We believe this information to be the best currently available on the topic. *It is subject* to revision as additional knowledge and experience are gained. This information was obtained in Monsanto controlled conditions of laboratory or test facilities or from other sources. Monsanto cannot, however, under any circumstances make any guarantee of results or assume any obligation or liability in connection with the use of this information. Nothing contained herein shall be construed to imply the non-existence of any relevant patents nor to constitute permission, inducement or recommendation to utilize any invention covered by any patent owned by Monsanto or others without consent from the patent owners.

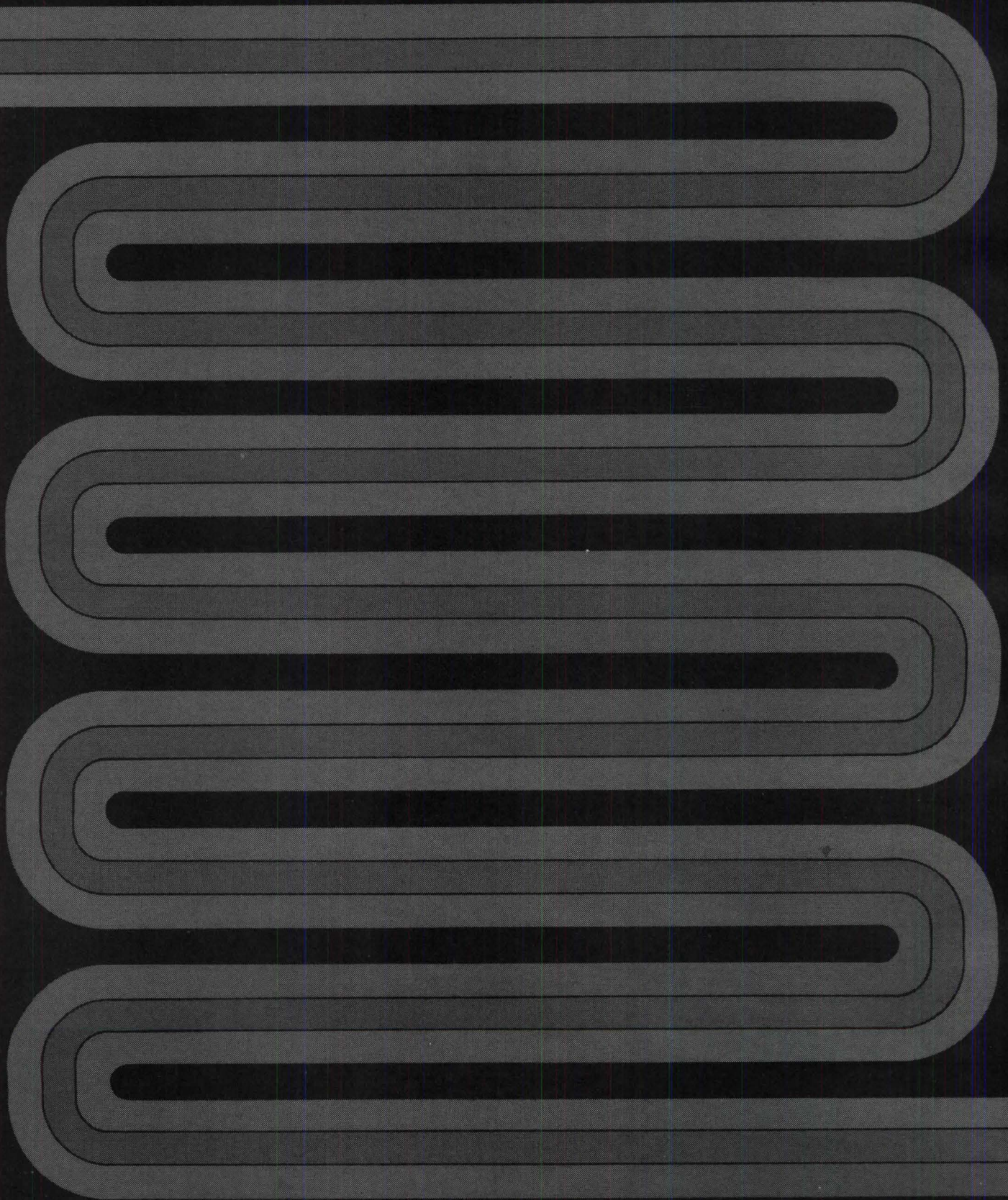


Nylon carpet fiber by

Monsanto

Monsanto

Textiles Company
320 Interstate North Parkway
Atlanta, Georgia 30339
(404) 955-4000



A New Set Of Proposed Ethics Changes

An entirely new draft of a "code of ethics and professional conduct" for AIA members was completed in late October by the ethics task force and is being sent this month to all components. The draft contains three tiers of ethical prescriptions: six broad canons of professional conduct; 13 ethical standards derived from the canons and described as "objectives toward which every member of the Institute should strive," and finally, a set of specific and mandatory rules of conduct. In cases where rules as stated in the draft would represent changes in current standards, appended are an indication of what proportion of the task force favors the change (by no means all are unanimous recommendations) and a statement of arguments for and against the change.

The proposed canons state that AIA members should:

1. "serve the public in improving the human environment";
2. "seek to improve public understanding of architecture, the profession, and the functions and responsibilities of architects";
3. "uphold all human rights";
4. "serve their clients competently and exercise unprejudiced professional judgment on their behalf";
5. "pursue their professional activities with honesty and fairness";
6. "maintain the honor, integrity and high standards of the architectural profession."

The new rules would maintain prohibitions against paid advertising and free sketches (the latter except in the case of competitions). However, they would permit an architect to engage in contracting

on his own designs and to otherwise serve a client where there is a potential conflict of interest, just so long as that potential is fully disclosed.

The rule to this effect would state: "Members shall not undertake any activity or employment, have any significant financial or other interest, or accept any contribution if it would reasonably appear that such activity, employment, interest or contribution could compromise their professional judgment or prevent them from serving the best interest of the public, client or employer. However, if a member makes a timely and full disclosure of a possible conflict of interest in the member's employment or practice, and the client agrees that the member should continue in a professional manner in the project or employment despite the possible conflict of interest, then such possible conflict of interest shall not limit the member in performing the activity."

Another change in the proposed new rules would permit the use of paid representatives in seeking commissions if a series of seven requirements is met. One is that the member for whom a representative is acting be responsible for his acts. The others are that the representative receives reasonable compensation; agrees to represent only one firm in search of a project; accurately represents the member's experience and capabilities; discloses the relationship to the prospective client; acts in overall conformance with the profession's ethics, and is not in a position to influence the client's decision because of employment or any other relationship.

This is only a brief summary of the 12-page task force draft. Components have been urged to hold meetings to discuss it in detail prior to next January's annual grassroots meetings. The task force has suggested that clients and others outside of the profession be invited to participate in these discussions. Meanwhile, the Journal continues its "ethics forum" for debate of ethics issues by the membership (*see p. 85*). D. C.

Unbuilt America: A Collection Of Unrealized Architectural Visions of What Might Have Been

Ed. note: *This article is taken from Unbuilt America: Forgotten Architecture in the United States from Thomas Jefferson to the Space Age, by Alison Sky and Michelle Stone of SITE, Inc., an acronym for Sculpture in the Environment. Published by McGraw-Hill, the book is available for \$14.95. Architectural historian George R. Collins wrote the introduction, which is adapted here. © 1976 by SITE, Inc.*

America, the land of promise, has inspired countless persons to delineate their dreams. Artists, architects, planners, engineers, utopians and a miscellany of inventors have produced a panorama of an America that might have been but, for one reason or another, is not.

In the back offices of architects, in the depths of landscape paintings, in museum storage, in Patent Office files and in the pages of magazines—old and new—linger the projects that have been brought together here. This has been done not only to create a vision of unbuilt America but also to explore in a general way what it means to be unbuilt.

The French author and critic Michel Ragon observed in his "Retrospective de la prospective architecturale": "It can be asked if the real history of architecture is not that of schemes which were never built; . . . and if there are not, in fact, two architectures, one of research and projects, the other of completed buildings—the second being but a weak echo of the first."

Ragon was speaking as a protagonist of the visionary in architecture. Actually, few of the projects assembled here are visionary or utopian. Most simply never came about; they were practical enough and seemed to be so certain to be built that it has been difficult to determine why they were not. Some, on the other hand, were hardly intended to be architecture in the usual sense. Nor would America necessarily have been the better if all of these projects had been carried out.

For what reason have these projects collected here remained unfulfilled? There is seemingly an infinite number of explanations—many of which are so complex to interpret that they can be only hinted at by terms such as "unbuilt,"

"unsuccessful entry" or "prototype."

The various reasons for unbuiltness range from positive to negative, albeit the terms positive and negative become ambiguous when one is speaking of the state of being unbuilt (which is here considered to be a "positive" situation). Something built would have lost its magic, and here would be considered to be "negative."

The major categories of unbuiltness would appear to be (1) not carried out as planned, (2) not really intended by its instigator to be "done" and (3) begun but never completed. The first would be considered to be a negative situation (although the intention was positive), the second to be a positive situation (although the intention would appear quite negative) and the third to be half-and-half. The whole matter is, then, a bit like the mathematics of imaginary numbers, and it may be that our subject is quite appropriate for these times when complexity and contradiction are popular terms in architectural dialogue. . . .

Although it has been noted that some of the projects in *Unbuilt America* were not intended to be part of that high—and formerly elitist—art which is called architecture, and that others are too schematic or too urbanistic to be termed buildings, nearly all of them are physical in intent and structural in form and were to become part of the built environment. With few exceptions, it was the hope of the designers that these projects or something like them be built.

Unbuilt architecture can be as influential as built architecture. An unbuilt design, if published and widely circulated, can be viewed by millions, while relatively few individuals other than the owner and users may ever see a building, and photographs of it, although frequently published, may not do justice to it. So unbuilt architecture, like paper money, circulates widely and can give the impression that it is the real thing.

In fact, certain influential architectural moments in this century, such as Mies van der Rohe's "work" of the years 1919-1923, are characterized by an absence of built structures. And some leaders of the profession today such as the Smithsons in Britain and the Venturis in

the U.S. received few commissions.

Others—artists, planners, utopians, inventors mentioned previously—are not really interested in building. Progress, i.e., pathbreaking, is for some not achieved by experimenting as much as by theorizing; the experiment (the building) is merely to check the adequacy of the theories.

The complete history of architecture is therefore the history of both built and unbuilt, although no one ever seems to have thought of piecing together a thorough chronicle of the latter. The history of architecture is a weaving together of the variously textured strands of both these elements. Our capital city is a case in point: For a long time Washington, D.C., was just an idea—and a mess. It then became a physical reality without an underlying plan (or with frustrated plans like Downing's for the Mall). Then by chance someone found again the idea that lay behind it all (L'Enfant's plan) and succeeded in unbuilding some of the wrongly built. When in the early 1960s they tried once again to straighten things out—this time on a regional scale—they called it the "Year 2000 Plan," which probably means never to be built. □

'Setback Skyscraper City.' Louis H. Sullivan, 1891.

To elaborate in all its details and ramifications, its varied selfish and unselfish interests, its phases of public and individual equity, its bearings present and future, its larger and narrowed values, to attempt indeed but a sketch of its general outline would carry the discussion of the high-building question far beyond the limits of space that a journal such as this could afford. I desire, therefore, to pass by untouched the broad sociological aspects of this very elaborate discussion, and to confine myself to a phase of it which, so far as I am aware, has not yet been touched upon, but which may prove a factor in the final solution. It must seem a hardship to the individual owner of land that he should be debarred from erecting upon it such buildings as he deems fit. It will seem, however, to the remaining stubborn majority of the community—



nonowners of land—a distinct impudence that the individual should build otherwise than as they themselves see fit. It is between these extremes that my suggestion lies, for I believe it is possible to preserve in a building of high altitude the equities both of the individual and of the public.

Briefly, then, the individual owner seeks rentable space, the public wish light and air; it follows, then, that up to a certain limit of height the individual owner manifestly should be free to regulate his rentable space as he chooses, but beyond this limit a sense of public welfare should control either with or without his consent. What more simple solution can there be than this—that the individual be allowed to continue the further erection of his building above the prescribed limit, provided that, in so continuing, the area of his building as it emerges from the limit shall occupy not more than, say, 50 percent of the area of his land? Let him so continue until he has reached, say, twice

the height of the original limit. If the area of his land is sufficient, he may profitably continue; let him be allowed to do so, provided, however, that in so doing he occupy, not to exceed, say, 25 percent of the area of his ground; and so on indefinitely, restricting the area as he progresses upward.

This is, so far, a very pretty theory. But we well know, after a moment's reflection, that with his customary go-ahead proclivities, the average American citizen, desiring, as usual, to be right up in the front row, would translate this to mean a 30-story building on the street line with a great big hole behind. We would, therefore, have to teach him the manners he does not possess, and would gently inform him that after the first limit is passed the 50 percent restriction will apply not only to area but to frontage. He will scowl at this condition, but if there is "money in it," he will accept it just the same. When the second limit is reached, we will push

him back unceremoniously from the street line to the middle of his ground, and if he can see a dollar in it, he will accept this condition also.

It seems to me a subject not at all debatable that here in Chicago the freedom of thought and action of the individual should be not only maintained, but held sacred. By this I surely do not mean the license of the individual to trample on his neighbor and disregard the public welfare, but I so just as surely mean that our city has acquired and maintained its greatness by virtue of its brainy men, who have made it what it is and who guarantee its future. These men may be selfish enough to need regulation, but it is monstrous to suppose that they must be suppressed, for they have in themselves qualities as noble, daring and inspired as ever quickened knights of old to deeds of chivalry.

Abridged from Louis Sullivan in The Graphic, V, December 1891



‘New Versailles’ (Manhasset Cooperative Housing Project). Carrère and Hastings, 1916.

Versailles is the biggest thing I have ever undertaken. When anything like this has been done before, it has been for royalty. This is a home—a combination of individual homes. It is like the prix de Rome, with the added interest that it is going to be executed. If the chateau of this American Versailles is not the biggest building in the world, it will be the biggest architectural feature or mass in America. To answer its splendid purpose, it must be something between a great building and a small town.

Thomas Hastings

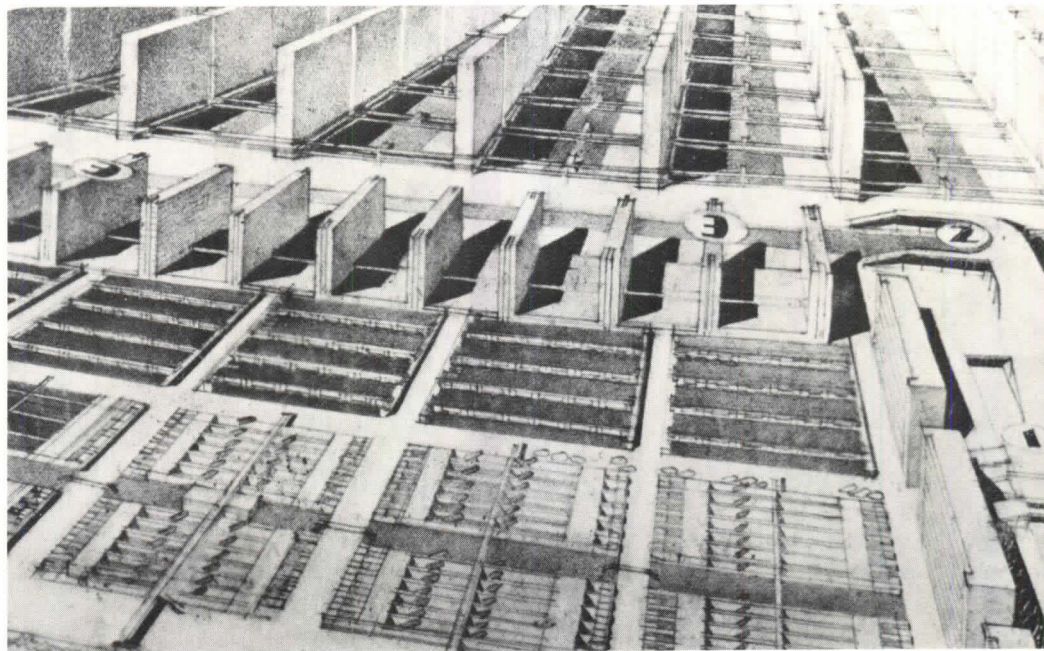
‘Rush City Reformed.’ Richard Neutra, 1923.

In its essential ideas, “Rush City Reformed” by Richard J. Neutra is based on the surveys Neutra made of the most congested metropolises of Europe more than a dozen years ago. The studies of “Rush City Reformed” have since been supplemented further with Neutra’s surveys of such American cities as Philadelphia, New York, Chicago, Cleveland, Detroit, San Francisco and Los Angeles during the last decade together with similar surveys of Japanese centers and others on the Asiatic and African continents.

“Rush City Reformed” then does not base itself on an abstract and theoretically rigid scheme. It is rather a series of efforts to unroll urban problematics in a scientific manner, expressing a belief in the flexibility of city planning, even though our unstable social-economic order has not yet permitted valid methods of construction, financing and usage of land to exfoliate in accordance with existing technological advance.

For the planning of “Rush City Reformed,” Neutra formulated the following rules: “Thinned habitation density, a consequence of motorcar use, calls for increased traffic area in the central district and in a number of auxiliary decentralized business districts. Thinned habitation density on the outskirts means decreases, by necessity, of over-built downtown area, size-reduction of downtown city blocks and multiplication of free spaces in the center of traffic gravitation. . . .”

In dwelling zones the outlying housing blocks will grow in specific size and only



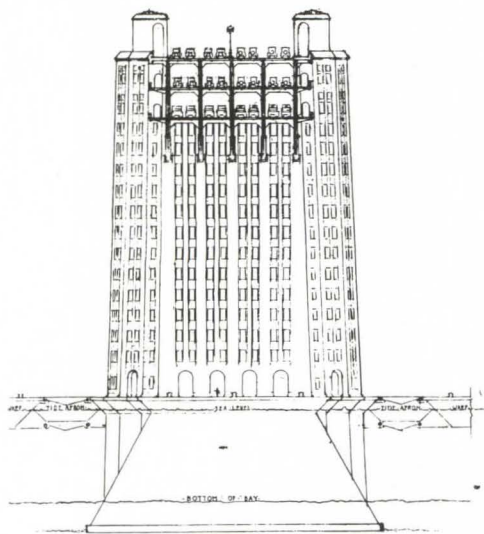
a minimum of through-traffic streets will remain, that is, feeder arteries and radial avenues. The traffic area is diminished in proportion to its distance from the center. Local lanes and parking bays serve local business blocks and accompanying non-intersected sunken speedways form radial avenues and cross through habitation areas.

In order to overcome the handicap of inaccessibility to the center areas by congestion of traffic, Neutra developed the following proposals: recutting of downtown city blocks to a long and narrow shape for optimum sun exposure, with the height of buildings limited to 11 stories; elimination of all interior courts with the full ground-floor area under-skeleton building devoted to parking and rolling

traffic; street width dimensioned in proportion to an amount of traffic carefully computed as to the daily use of this district.

As an alternative, Neutra also suggested exclusion of all tire-traffic from the center district for public carriers on tracks and rolling sidewalks. This would result in reduction of wasteful street occupancy caused by both parked and moving vehicles carrying one passenger. In both cases the pedestrian and store levels are raised to second and third stories and served by public elevators at street intersections. Tempered with an ingredient of elasticity and of extrapolation “Rush City Reformed” will define problems and serve concretely useful data.

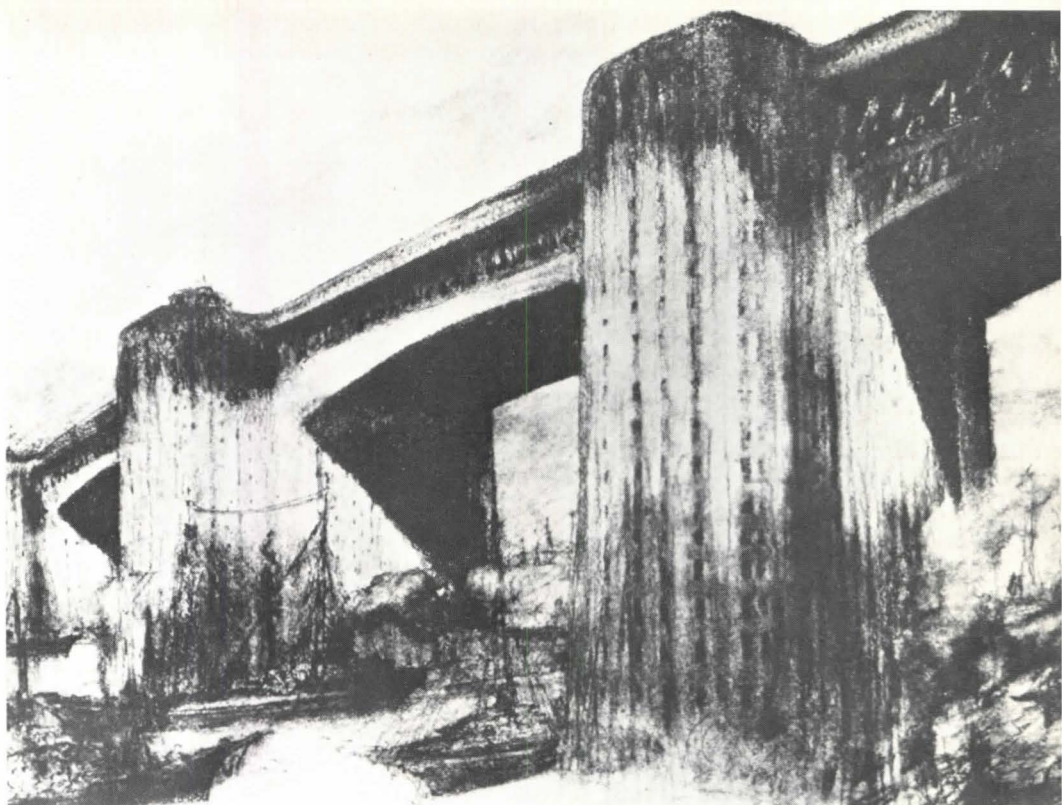
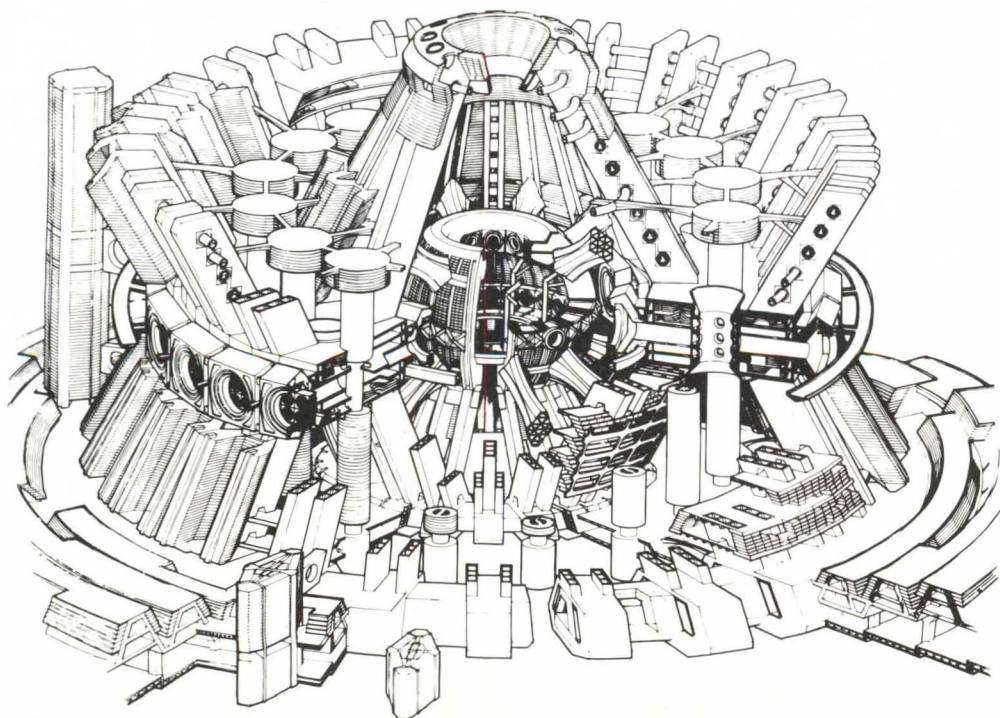
“Rush City Reformed,” Shelter, III, March 1938



‘3-D Jersey.’ Paolo Soleri, 1968-70.

3-D Jersey [below] was a project with a programmatic base designed as an urban transportation nucleus in the state of New Jersey, located in the New York-Philadelphia corridor.

The study was conducted as a joint effort between Paolo Soleri, Rutgers University environmental science department and the Ford Motor Co. The main structure of the transportation center covers about one square mile and is about ½ mile high. The city is circular in plan, and designed to house a million people. Industrial and warehouse spaces includ-



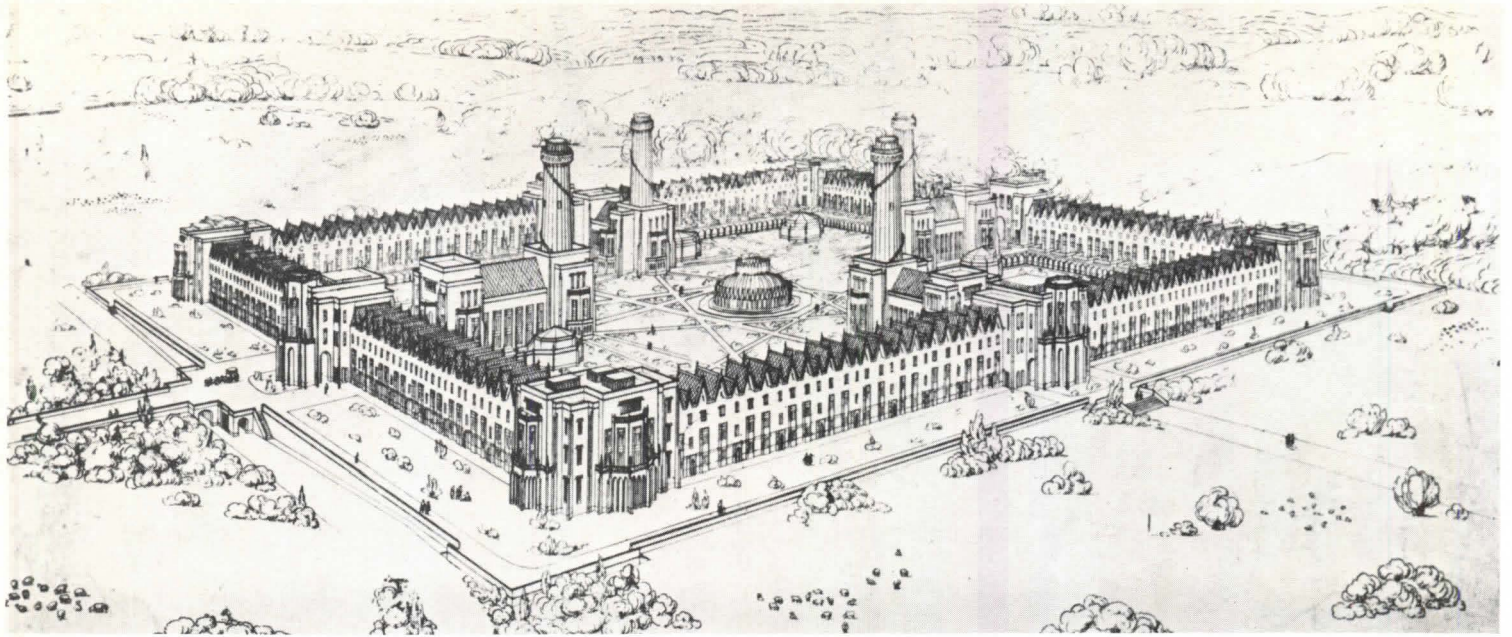
‘San Francisco Bay Bridge.’ Louis C. Mullgardt, 1924-5.

Back in San Francisco by May 1923 [after a world tour begun in 1922], Louis Christian Mullgardt found the city alive with controversy about bridging the bay. It was a thoroughfare to Oakland that caught his imagination, and in December 1924, Mullgardt unveiled this unsolicited proposal for a bay bridge. His drawings featured a sequence of giant piers stretching across the water, joined by steel trusses supporting a three-tiered roadway with 24 lanes of traffic. The pier forms were dotted with vertical patterns of dark rectangles, which Mullgardt explained, were windows for the apartments, offices and factories that would fill the towering supports. At midpoint in the '20s, Mullgardt simply combined two obsessions of that decade—the skyscraper and the bridge—resulting in a phantasm that had all the dynamic equipment of Piranesi or Sant’Elia, yet fit comfortably into no epoch at all.

Robert Judson Clark, “Louis Christian Mullgardt” (exhibition catalogue), The Art Gallery, University of California, Santa Barbara, 1966

ing jet hangars radiate from the main structure and would be covered with parks and gardens. The entire site including park area covers less than 14 square miles. It was an attempt to answer the problem of connecting air travel with a new urban center in a direct manner; integrating the air facilities into the matrix of the system, not merely as an appendage as Kennedy International is to New York City or Dulles is to Washington, D.C. This new arcology solution incorporates a circular jet runway ringing the entire 14-square-mile site with long underground air-taxi corridors leading towards the central city structure.

Paolo Soleri



'New Harmony,' Indiana. Robert Owen, c. 1825.

In the mid-1820s, the town of New Harmony, Ind., was purchased by Robert Owen and his followers from the Harmony Society which had decided to return to Pennsylvania. Owen planned to begin his transformation of modern industrial society in America, in New Harmony, along principles he had evolved for new town development. Owen brought to America not only a six-foot-square model

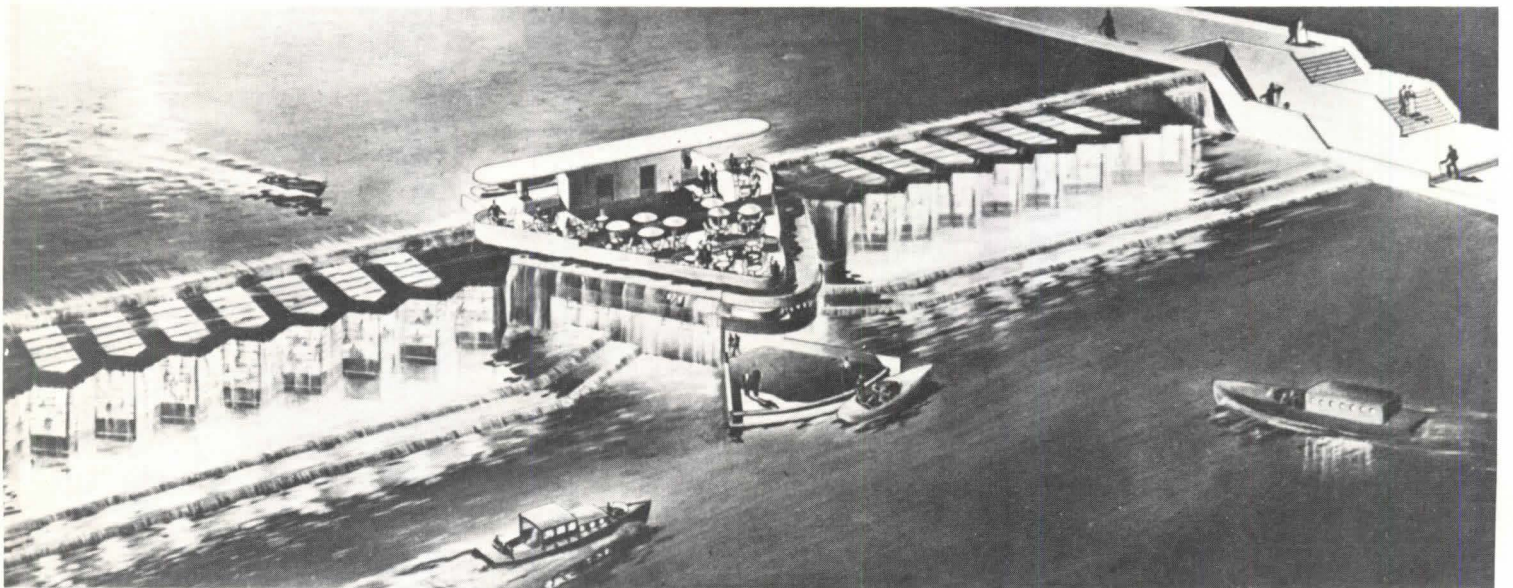
of the ideal community edifice he had been talking about but also a live architect to explain it—Stedman Whitwell by name.

It [the model] was displayed at Owen's public meetings in New York City and Philadelphia in the course of the month, and was exhibited briefly at Rembrandt Peale's museum in the former city. At the end of the month, Whitwell and Captain Macdonald left Owen in Philadelphia, and took the model to Washington, D.C. It was unpacked at the Patent Office and

installed in an anteroom of the White House, where the two deputies of Owen presented it to President John Quincy Adams on Dec. 3, 1825.

After a short trip to Monticello to visit Jefferson, Whitwell and Macdonald returned to the capital for 10 days, during which time they felt free to conduct visitors to the White House for an examination of the model, even when the President was out.

Abridged from Arthur Eugene Bestor Jr., Backwoods Utopias, 1950



'Aquarium Restaurant,' Chicago Century of Progress Exposition. Norman Bel Geddes, 1929.

The Aquarium Restaurant is an underwater eating place suitable only for fair or amusement grounds where expense is no particular object, providing a unique result is obtained. It was designed to be built across a lagoon where it forms a dam for the water to flow over. The building consists of a triangular shaped aquarium in the center with a restaurant to

each side of the aquarium and joining it with the shores.

The entrance to the aquarium is by a dock at the lower water level. This entrance dock is reached by boats from either shore. A trip through the aquarium is planned to give the visitor the feeling of having made a journey to the bottom of the sea. The interior walls, floor and ceiling are glass tanks containing underwater plant and animal life. Thus the tanks are above, below and on all sides. The arrangement creates the illusion that any-one passing through the building, instead

of looking at tanks containing fish, is himself within the tank with the fish on the outside all around him.

The exterior walls of the building, over which falls a curtain of water, are illuminated by invisible lights underneath the water.

On the roof of the aquarium is an open-air terrace with a seating capacity for 120 persons. Water flows underneath its glass floors and in a curtain over the walls of the terrace.

Abridged from Norman Bel Geddes, Horizons, 1932

**'Mikveh Israel,' Philadelphia.
Louis I. Kahn, 1961-70.**

The synagogue is situated in the historic section of Philadelphia. The plan is structured with a series of cylindrical "rooms" surrounding the sanctuary and chapel. Light penetrates through these cylinders and is diffused. Thus, light is given a volumetric form. In the school building these volumes of light are reversed. The primary materials are brick and concrete. *Romaldo Giurgola and Jaimini Mehta, Louis I. Kahn, 1975*



**'Convention Hall,' Chicago.
Mies van der Rohe, 1953-4.**

The project for a convention hall was made at the request of the South Side Planning Board in Chicago. As it had to provide space for 50,000 people, its location was partly determined by mass transportation facilities. The site chosen provides these facilities, being close to the railroad and elevated and connected with the highway system. Ample parking space is provided and it is also close to the Loop, the city's center, with its large hotels.

Since conventions alone could not financially support such a hall, it was planned as a multipurpose hall that could be used for political and cultural meetings, large musical and theatrical performances, as well as for industrial or cultural exhibits. At two sides and at a distance from it are a group of smaller buildings. They contain restaurants, meet-

ing and conference rooms and space for smaller exhibits. Some of the rooms could also be used for smaller conventions.

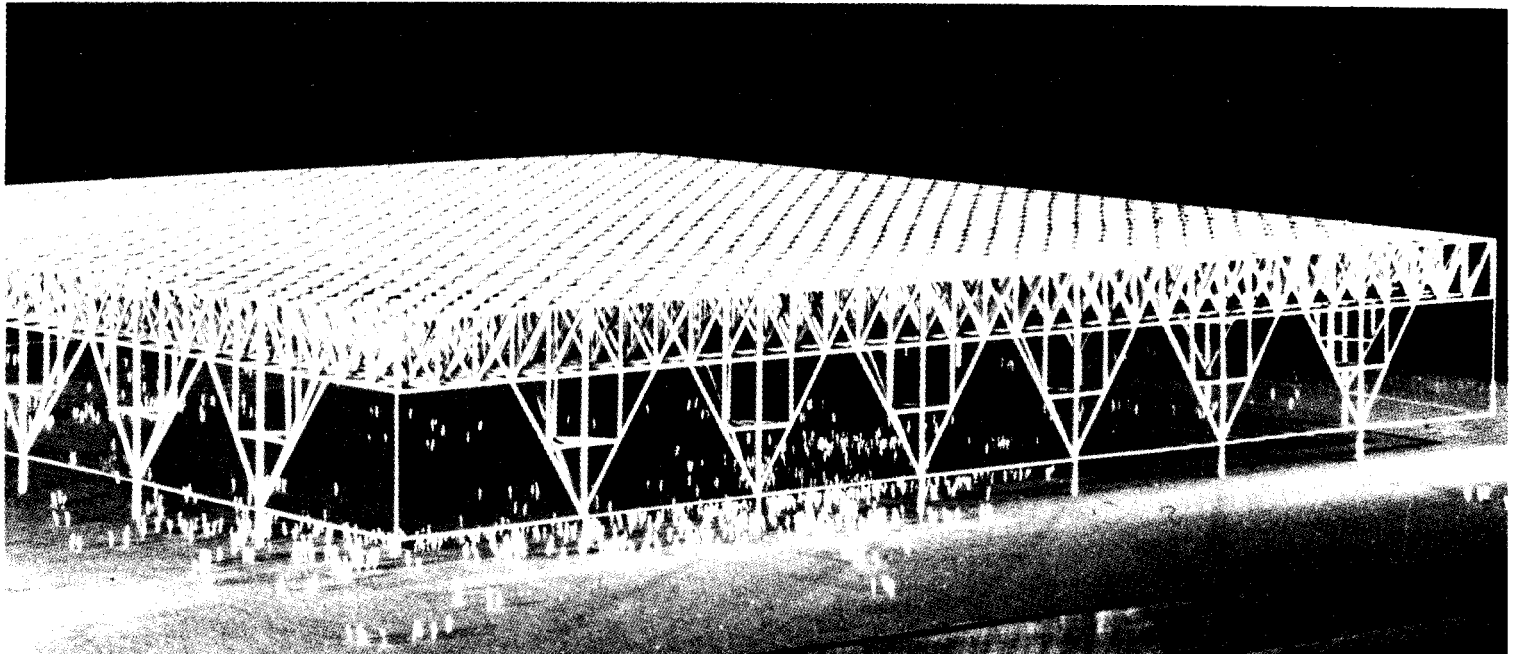
One other very important requirement for the development of the convention hall was that it should provide an area of 500,000 square feet free of interior obstructions. The hall is 720 feet square and 112 feet in height.

A square plan was chosen, because it has great advantages over other shapes and is visually and acoustically better fitted for the purpose. The structural problem was to span this vast space in such a way that the same conditions could be maintained throughout. This excluded arched and domed structures, which required a greater height at the center and cannot, therefore, sustain uniform conditions. A structure was chosen which retains a uniform ceiling height, which could be controlled and could become an object of proportion. The structure is based on a 30-foot module

which determines the disposition of the structural elements, gives the structure unity and provides for an architectural harmony. The roof truss system is two-directional. The spacing of the roof trusses, as well as their height, is in accordance with the basic module. Twenty-four columns at the periphery, six at each side, support the roof. The distance between these columns is four modules. The first columns are two modules from the corners and rest on reinforced concrete piers which transmit the load to the foundation.

The basic idea of the convention hall is that it can be assembled from prefabricated parts, from the structural elements themselves to the enclosing panels and doors. We see here an artistic manifestation of our technological age in an objective architecture, free from the many misconceptions of individualism.

Quoted from L. Hilberseimer, Mies van der Rohe, 1956



'A Bill-Ding-Board for the National Football Hall of Fame.' Venturi & Rauch, 1967.

Our submission for the National Football Hall of Fame competition is a building and a billboard.

Our original idea was to make the building in the shape of a football. But we made a sign instead of a sculpture: an essentially two-dimensional billboard, big in size but economical in cubage, which is also a building: a "bill-ding-board."

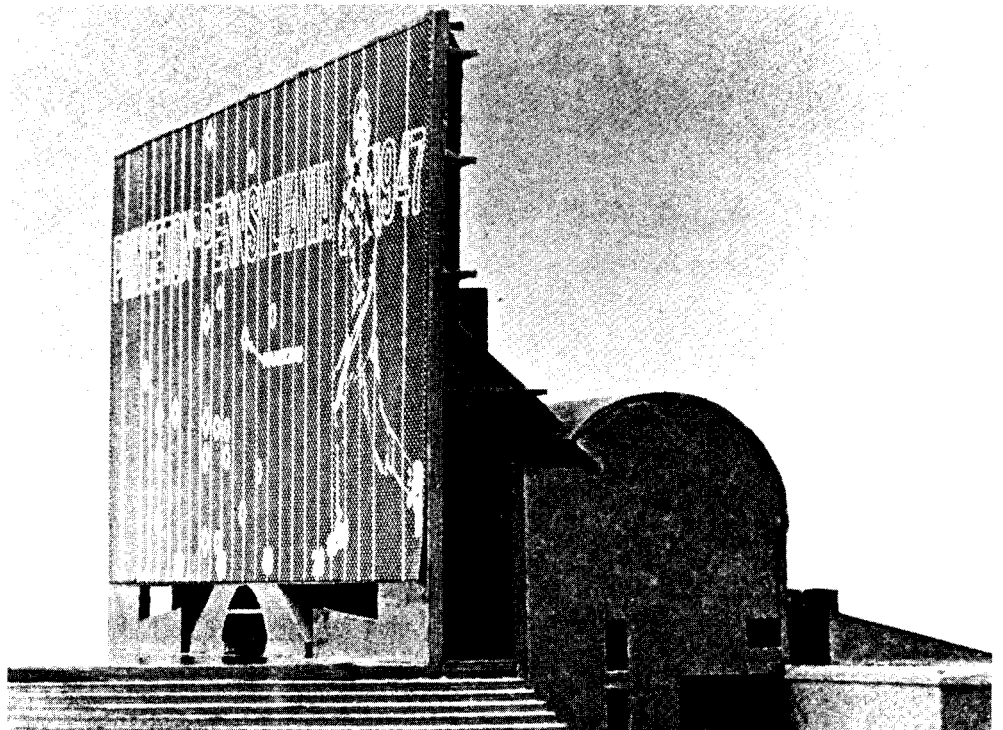
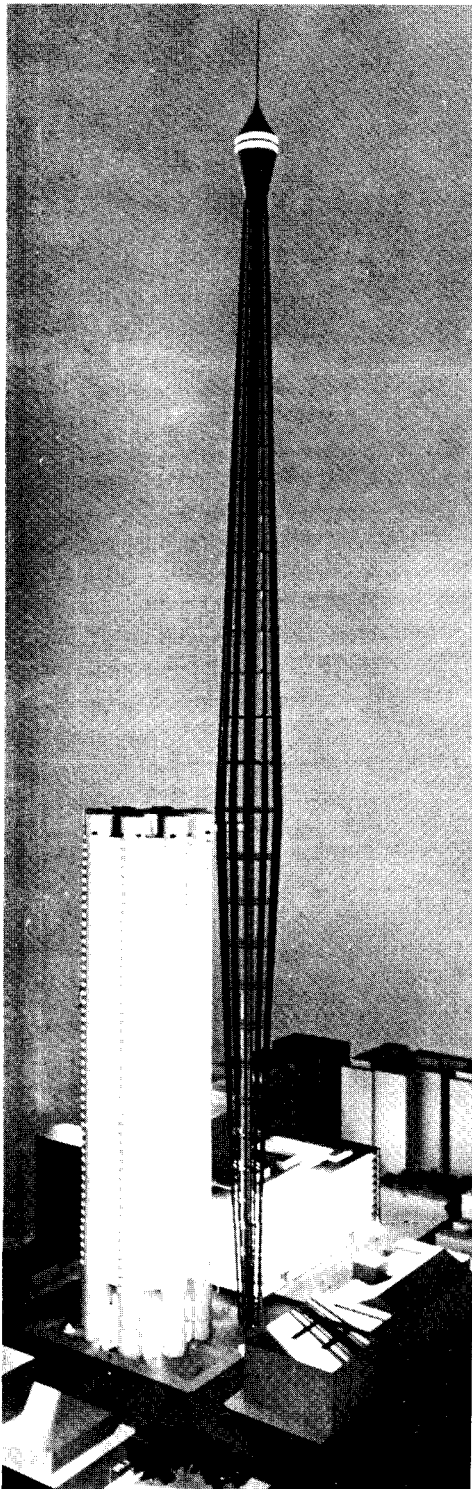
The front of our building, which is a billboard, inflects toward the big parking spaces and the stadium. The back, which is a building, relates to the exhibition field

in the rear and, in fact, turns into a quasi-grandstand. The enormous billboard, 100 feet high and 210 feet long, needs buttressing in the back. These buttresses integrate the building with the sign. The giant screen has the approximate proportions of a football field. On it, 200,000 electronically programmed lights produce moving sequences of naturalistic images, words and phrases, and diagrammatic choreographies of famous football plays. These displays can be viewed from the parking lots, the picnic green in front and the Rutgers stadium, which is beyond.

From nearby, the billboard corresponds to the largely false west facade of a Gothic cathedral, especially an Italian one like Orvieto, teeming with glittering

mosaics and niched statues, whose main function is to communicate information toward the piazza. From a distance the analogy with the billboard on the highway is obvious. Immediately in front of the screen, where the seats are bad at a movie, is a moat. Below the screen are various ways to enter the building. The ceiling of the interior gallery is vaulted to act as a screen for continuous and huge movie projections from the parapet of the balcony. [Movies] spill over the surfaces, essentially independent of the architectural forms they smother. The message dominates the space.

Robert Venturi, Denise Scott Brown, Steven Izenour, Learning from Las Vegas, 1972



American Broadcasting Co. Building, New York City. Bertrand Goldberg, 1963.

The ABC (American Broadcasting Company) building is a structure developed for corporate identity in New York City in the midst of all the Miesian boxes packaging a corporate world.

Its location was to be Columbus (9th) Avenue and 67th Street, and it would have incorporated a broadcasting tower higher than the Empire State Building, as well as an environment which would induce closer working communications between the 80 divisions and 1,200 employees housed there.

The building rises from below street level at Columbus Avenue. The structure has been shifted from the central core to the exterior walls where concrete can do more work, particularly in a highrise situation. Vertical concrete enclosures creating contained administrative spaces are counterpointed against vertical shafts

defining open service support spaces.

The floor areas are divided into two kinds of activity: administrative and supportive. My general observation of administrative people who occupy floor-to-ceiling glass environments in urban centers is that they frequently close themselves off from any view of the exterior so as to partially protect themselves.

Very few decision makers who are active in business dilute their work environment by permitting the external world to intrude; particularly if this "external world" is a neighboring skyscraper as in New York.

People in supportive capacities, on the other hand, seem to like the distraction of an exterior community. Our structure was woven between these two activities, and at the same time maintained close proximity between the different work divisions, facilitating communication. To interrelate these departments, it seemed to me, was a very important achievement for an office building.

Bertrand Goldberg, FAIA

Mile High Skyscraper — 'The Illinois.' Frank Lloyd Wright, 1956.

[The Illinois is an outgrowth of Frank Lloyd Wright's proposal of a half-mile high building for the Century of Progress Exhibition, 1933. Plans for the Mile-High Building were unveiled by Frank Lloyd Wright on Oct. 17 at a testimonial dinner, "Frank Lloyd Wright Day," pictured at right.]

Most stable of all forms of structure is the tripod. For general stability at great height this form is combined with new principles of cantilever-steel in suspension in my proposed mile-high office tower for Chicago, the "Illinois."

The exterior is entirely metal-faced, carried by steel wires suspended from a rigid steel core buried in lightweight concrete. The building is thus designed from inside out instead of the usual construction from outside inward.

Floor slabs are extended across the central core and balanced. This is the same type of construction used in the airplane, the ocean liner, and the Imperial Hotel in Tokyo (built in 1915 and proved earthquake-proof in 1922), and in several of my other buildings. The same system of taproot foundation, extending the main core down into bedrock, also proven in the Imperial Hotel, would be employed here.

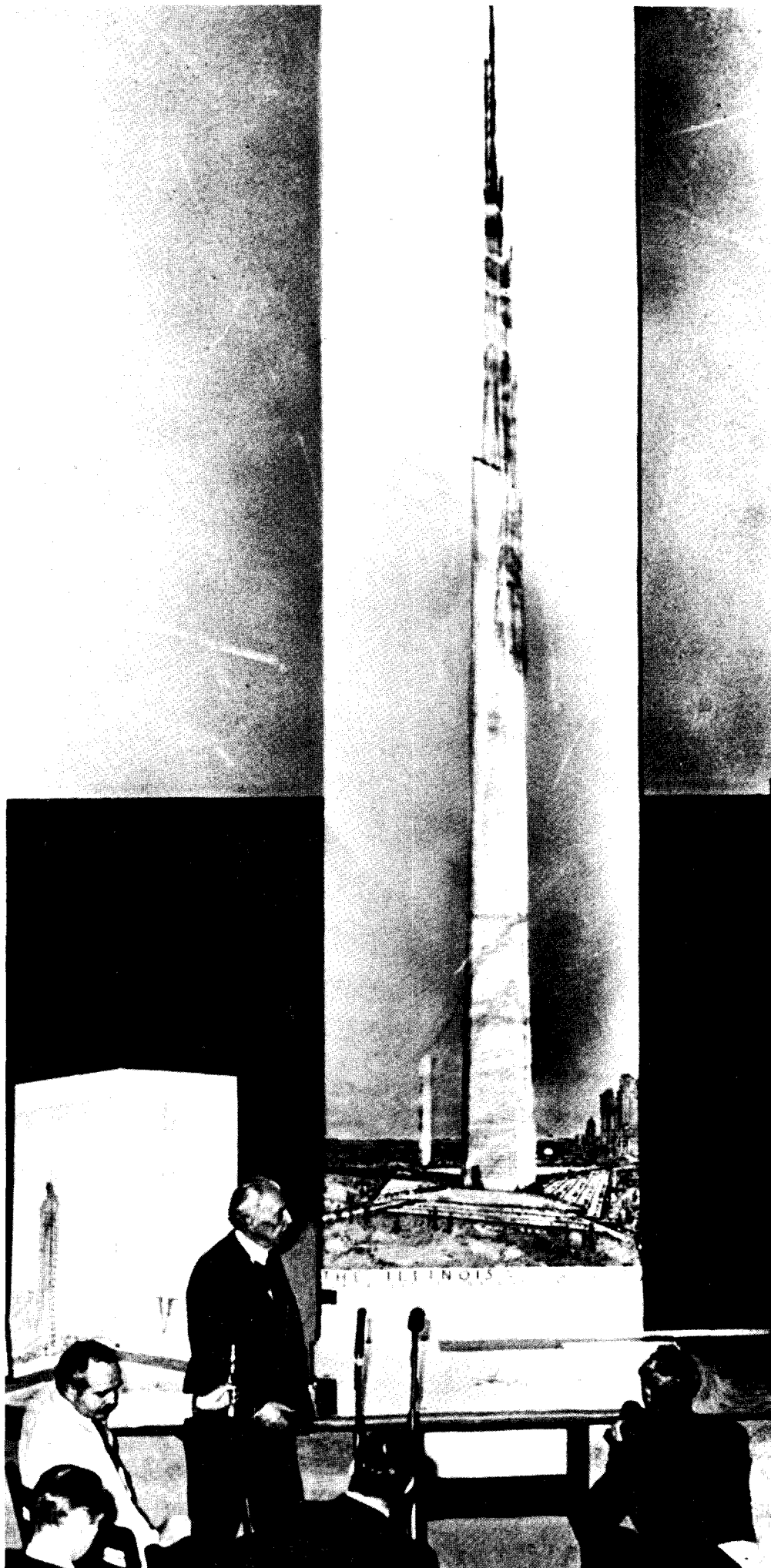
The framework of the Illinois is like a tree; the horizontal floor slabs (branches) are integral with the vertical core (trunk), making the total structure light and rigid. The balance of the structural members would be such that there would be no sway at the peak of the Illinois.

The light floor slabs are tapered hollow from the core to carry airconditioning and lighting systems. All outer glass surfaces are set 4 feet back under the metal parapets to give the building emphasis as an all metal structure, avoid glare and to afford a human sense of protection at such enormous heights as characterize the Illinois Sky-city.

The Illinois is entered at four points and is reached by four, four-laned approaches. Covered parking for about 15,000 cars is reached by ramps and there are also two decks for 50 helicopters each. A combination of escalators and 56 elevators run by atomic power engines should fill or empty the entire building within the hour. Population in spacious comfort: 130,000.

All this done well, the building will be centuries more permanent than the Pyramids.

Abridged from Frank Lloyd Wright in "Frank Lloyd Wright's Mile High Office Tower," The Architectural Record, November 1956 □



Task Force Report Examines The Issues of Recertification And Professional Development

Mary E. Osman

In this era of information, enormous amounts of knowledge constantly generated demand recognition in both theory and practice. It is no longer reasonable to assume that a person once licensed to practice a profession is forever competent, nor can it be assumed that he or she will automatically and independently keep up with new developments.

Consequently, some states have already required doctors and lawyers to demonstrate a continued competence in order to maintain a license to practice. And recently, certain states have considered legislation that would require architects, as well, to demonstrate continued competence.

In this regard, the term recertification is widely used, although strictly speaking it is inaccurate. Recertification, as used, means the imposition of mandatory conditions on or applied to license renewal, accomplished either by reexamination or by mandatory professional development. In the architectural profession, registration or licensure is state authority to practice; certification refers to the process of gaining a National Council of Architectural Registration Boards "certificate," which is a passport to reciprocal registration in other states.

Recently, the Minnesota legislature passed a law enabling the architectural registration board in that state to establish a "recertification" program. An Iowa bill that mandates professional development of architects has passed one house and is under consideration, at this writing, in the other. California, Wisconsin and Florida are all considering mandatory professional development programs.

AIA has long had a concern about the professional development of its members, assuming that changing conditions demand new approaches to architecture. Consequently, the Institute is responding to the movement which would require evidence of continued development on the part of architects.

An AIA task force on recertification has been studying the matter, with the aim of developing a system for the quantitative measurement of professional development activity which would be suitable for

and respond to the needs of the profession, and not simply cater to consumer or legislative pressures. One of the greatest values of the measurement system, says James E. Ellison, AIA, administrator of education and research at the Institute and a staff executive for the task force, "is that it provides the individual architect with a means of self-evaluation. Architects can make their own assessments of their development, which as professionals is their responsibility anyway."

The task force, which has completed its final report entitled "Recertification and Professional Development," is chaired by Willard C. Pistler, AIA; its other members are Jerome M. Cooper, FAIA, Whitson W. Cox, FAIA, and Fred L. Foote, AIA. John H. Bryant, AIA, serves as adviser, and Ellison and Thomas P. Ben-

'It is no longer reasonable to assume that a person once licensed . . . is forever competent.'

nett are staff executives for the task force. The report was presented to and approved unanimously by the AIA board at its September meeting.

The task force proposes a professional development measuring system that would enable architects to quantify their professional development. "It is a voluntary system of reporting professional development," Ellison says. "The task force has not recommended or suggested anything that would necessarily be mandatory." And the report of the task force states, "It is our recommendation that a comprehensive system of documentation be developed by AIA and that the Institute make a major effort to promote its use on a voluntary basis as a guide to the self-improvement of every architect." Then, if various jurisdictions insist upon formal means of showing that architects have continued their professional development, "the groundwork will have been accomplished to provide a uniform national basis for granting such recertification as a result of worthwhile professional development effort. . . ."

The task force asks: What evidence is there of consistent and organized effort by architects to maintain and develop professional skills over the career years? Despite the fact that AIA and its components offer many programs in continuing education, the task force was unable to find any system for the measurement or recording of such experiences.

In the context of the task force's deliberations, professional development is defined in much broader terms than continuing education alone. It also embraces credit courses, independent study, teaching, service to the profession and to the public and on-the-job professional development.

Despite the fact that the profession of architecture is highly competitive, demanding the maintenance of standards of excellence, the task force says that the architect does not make full use of those professional development techniques available. There is "no assurance that the architectural profession is realizing potential benefits in any comprehensive way."

The task force has considered a number of problems. What can be considered appropriate professional development? What should be its content? How should such activity be measured? By whom?

In its presentation of a complete measuring system which will describe a professional development standard for every architect, the task force has focused on four major elements: content, proficiency levels, settings and measurement units.

Content areas: There are six areas in which every registered architect should demonstrate proficiency, says the task force. They are: environmental analysis (impact statements, site evaluations, legal/political factors, etc.); architectural programming (space programming, feasibility studies, time constraints, etc.); design (problem-solving, esthetic considerations, schematic designs, etc.); technology (structural systems, materials, economics, etc.); construction administration (contractual relations, construction management, quality control, etc.), and architectural management (personnel policy, compensation management, project management, etc.).

Proficiency levels: The task force adopted a proficiency scale developed by the AIA continuing education committee: the intern level (threshold); the maintenance level (minimum professional competence); the operative level (normal professional competence), and the specialty level (highest, in-depth proficiency).

Proficiency is related to content. "Every registered architect," says the task force, "should demonstrate a minimum maintenance level of proficiency in all six content areas. In addition, all should demonstrate a higher level of proficiency in one or more of the six content areas."

A system for measuring progress in professional development in seven different settings.

Settings: The task force outlines seven settings for professional development experience. Two of them can be assessed and substantiated readily in the measurement system. They are:

- Continuing education, defined as "organized activity under responsible sponsorship, capable direction and qualified instruction." Continuing education embraces seminars, training laboratories, conferences and other such formal but noncredit activities.
- Credit courses, defined as structured educational and degree programs.
- The five additional settings, each making a contribution but more difficult to assess, are:
 - Practice, defined as the principal professional activity of an architect whether in private practice, government, industry, education, research, etc. It is recognized that practice does contribute to professional development, although it should never be the sole source of an architect's continued development.
 - Teaching, taking place in other than a principal professional role.
 - Independent study, defined as including travel, research, writing, reading, use of cassettes and similar learning packages.
 - Volunteer service to the profession, defined as service which provides learning opportunities.
 - Volunteer service to the public, defined as service performed for the benefit of a community or of society as an architect rather than as a citizen.

Measurement units: In its final report, the task force says that it has "deliberately incorporated the already existing and nationally recognized system of continuing education units (CEUs) and the concepts developed by several previous study groups to avoid needless and counter-productive duplication of effort."

The task force recommends the use of the CEU as an appropriate means of evaluating professional development activity. The CEU is defined as "ten contact hours of participation in an organized continuing education activity *under responsible sponsorship, capable direction and qualified instruction.*" Inappropriate for the measurement of other settings, the CEU is supplemented by an additional unit of measure, the "professional development unit" (PDU). One PDU is the equivalent of 10 contact hours in continuing education; 0.625 semester hours or 1.0 quarter hours in credit courses; 1,500 hours in practice (including teaching as a principal role); 100 hours in independent study; 100 hours in voluntary service to

the profession; 100 hours in voluntary service to the public.

The task force says that every three years the architect should achieve at least the following professional development experience:

- Maintenance level continuing education activity (five contact hours of continuing education in each of the six content areas to achieve three CEUs).
- Other maintenance level professional development activity (the equivalent of five contact hours of activity in each of the six content areas to achieve three PDUs or CEUs).
- Additional activity (the equivalent of 60 contact hours of activity in any one or more of the six content areas to achieve six PDUs or CEUs).

The total activity suggested by the task force would amount to 12 PDUs/CEUs, which is the equivalent of 120 contact hours or 40 contact hours per year.

Charts 1 and 2, profiles of hypothetical architects and the measurement of their professional development, show that the system is in no way a straightjacket. Chart 1 is for an architect who wishes to further develop a specialty, focusing activity toward that end; chart 2 is for an architect

in a diversified role, such as a one-man office, who continues to develop a broad range of skills. Chart 3 is for individual architects to note their own professional development over the past three years and to make an assessment of how well they have kept up.

The task force suggests that every architect voluntarily complete on a yearly basis a report on professional development activity and that NCARB and state registration boards be invited to receive such reports on a form that would be developed jointly with AIA. Then if jurisdictions require evidence of continued competency from the registered architect, the annual reports could be submitted as evidence of continued professional development.

Authority was given by the AIA board for the task force to present the substance of its report to such organizations as NCARB and its component state boards, the National Architectural Accrediting Board, the Association of Collegiate Schools of Architecture, the Association of Student Chapters/AIA and other related organizations. The task force also was granted the authority to conduct a three-year test in several states in order to perfect the reporting system and to make evaluations.

The task force points to AIA's bylaws which include as objectives the intention "to evaluate the standards of architectural education, training and practice; to advance in the science and art of planning and building; to promote the esthetics and scientific and practical capabilities of the profession. . . ." The task force says, "With such expressions as our guideline, there can be no concern for our collective intentions regarding the upholding of professional standards of competence. What remains is the question of our success in achieving these objectives."

As Ellison puts it, "The fundamental purpose is simply to make better architects." □

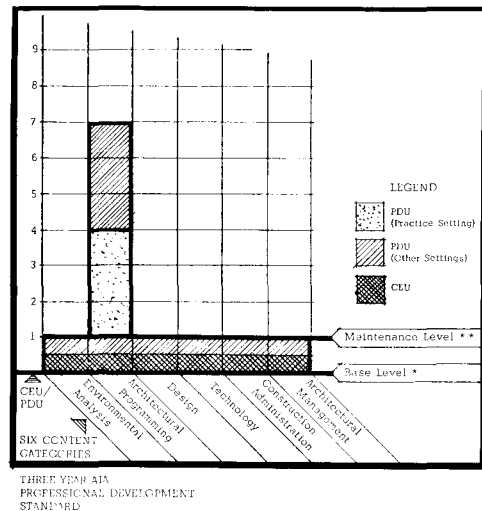


Chart 1

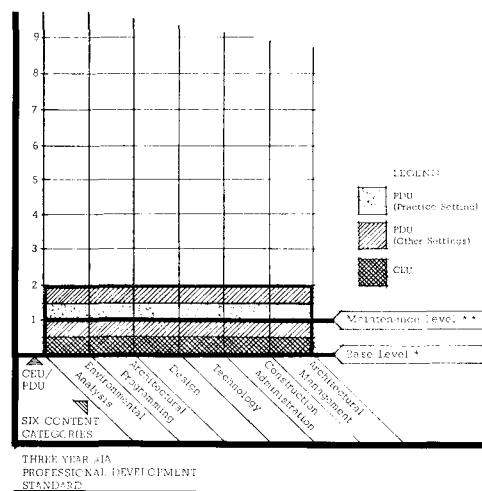


Chart 2

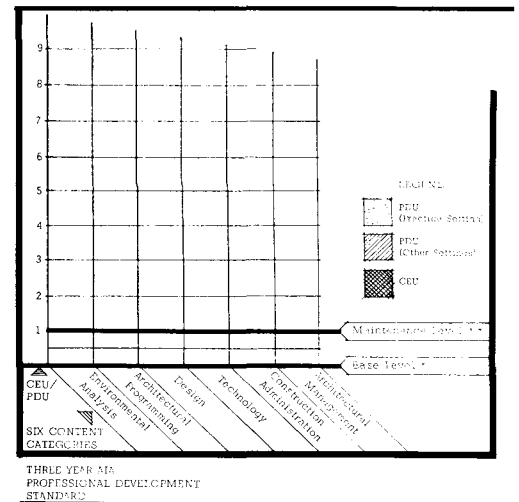


Chart 3

Evaluation: A Suburban Junior High Designed for Double Duty As a 'Community Living Room'

Andrea O. Dean

The Thomas Jefferson Junior High School and Community Center in Arlington County, Va., is in use from 6 A.M. until midnight almost every day of the year. During the first three hours of the day, the recreation department is in charge, mainly of people who come to exercise. From 8 A.M. to 3 P.M. most of the facility is used by junior high school students, with the recreation department continuing to operate programs in its own area of the building. After school the emphasis again shifts: Recreation programs expand, and some school areas remain in use. Between 3 and 5 there is considerable mixing of age groups throughout the facility, and in the evenings adult education classes predominate.

With land and building funds becoming increasingly scarce, and schools no longer able to afford specialized facilities that stand vacant much of the time, simple economics would seem to dictate the shar-

ing by agencies of land, buildings—especially school buildings—equipment and other resources. But joint use of facilities has seldom worked out well, mainly because of inadequate planning and bureaucratic bickering. The Thomas Jefferson school/community center is unusual because a county's school system and recreation department planned it together, use it together and operate it together.

The idea began in early 1968 when both the recreation department and the school—newly integrated and looking for larger quarters—began considering the same 26-acre lot, the last major open space available in the county. After a school bond issue to purchase the site was defeated in June, the two parties decided to mount a joint campaign to obtain it. The recreation department scheduled a vote on \$2.5 million bond issue, while the school asked approval on a \$4.5 million

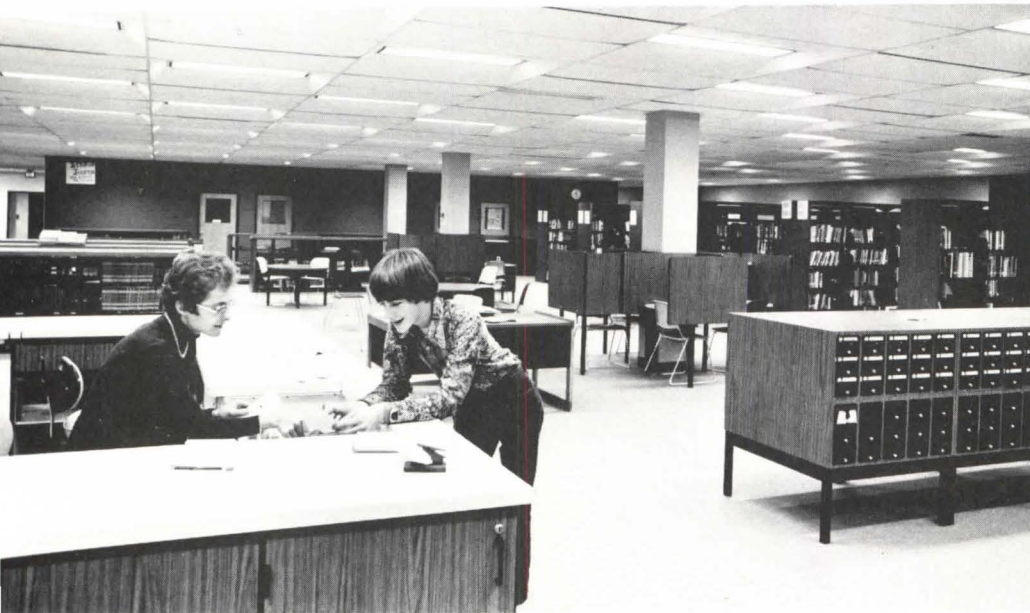
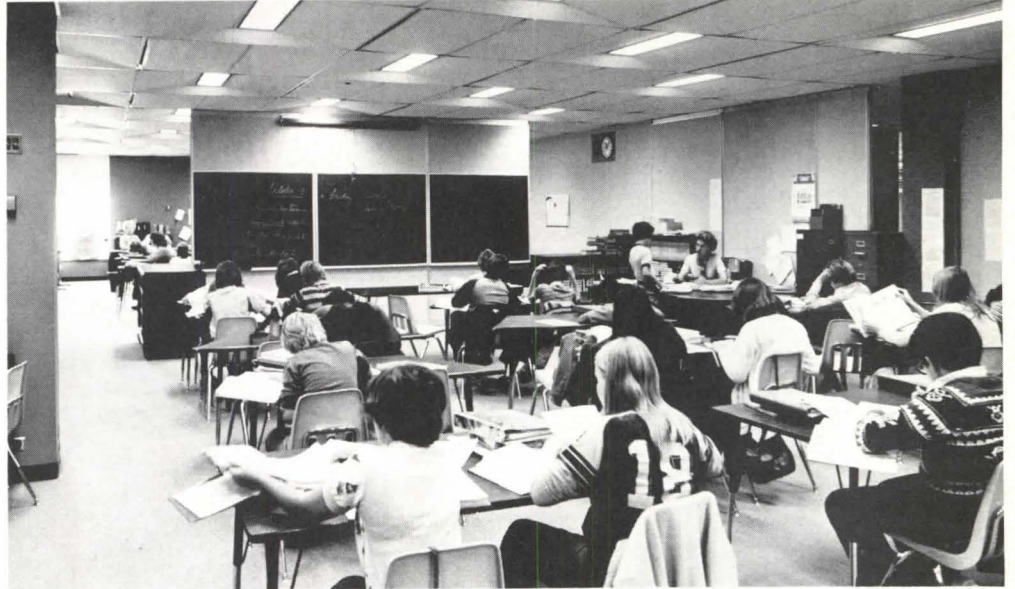
issue. This time both bond issues passed by large majorities.

Initially the two agencies wanted to place two buildings on the site, one at either end. The idea of putting both under one roof seems to have come from the architects, Vosbeck Vosbeck Kendrick Redinger, who served as the link between the two agencies, still slightly suspicious of each other during the early stages of planning. Ultimately all cooperated so closely that today neither agency representatives nor architects remember clearly who originated which features of Thomas Jefferson, and no one claims separate credit.

Since the school's program requirements were more complex than those of the recreation department, the assistant superintendent of schools, Joseph Ringers Jr., was designated to act as "owner's representative" for both parties to mediate bureaucratic disputes and report to the appropriate county agencies. The county made sure that the recreation department was not given short shrift in the planning stage, and as William Hughes, director of environmental affairs, and Ringer's counterpart on the recreation side, now says, "We got almost everything we wanted."

The community also was included in the planning process, mainly through a charrette made possible by a \$15,000 study grant from the Educational Facilities Laboratories. "The people wanted to check us out before giving the go-ahead," says one public official.





Acoustically dead surfaces allow adjoining simultaneous classes (top photos); the library is a 'media center' (above).

In his request to EFL for the grant, Ringers wrote: "The project must be a solution of the paradox which requires heavily concentrated use of the site and yet demands a dispersion of the traffic and patrons; that brings the young and elderly together for mutual advantages yet requires the protection of one from the other for safety purposes; that requires the very best of construction and maintenance and yet must be reasonable in cost. . . . Therefore, you can see, we are truly interested in not only a school for junior high school students but a 'school for people' or a 'community growth center.'"

With over 50 percent of neighborhood children living in apartments and many having working mothers, one of the goals was to provide what Ringers calls "a community living room," what Hughes refers to as a "way to keep kids on campus after school."

The EFL grant enabled representatives

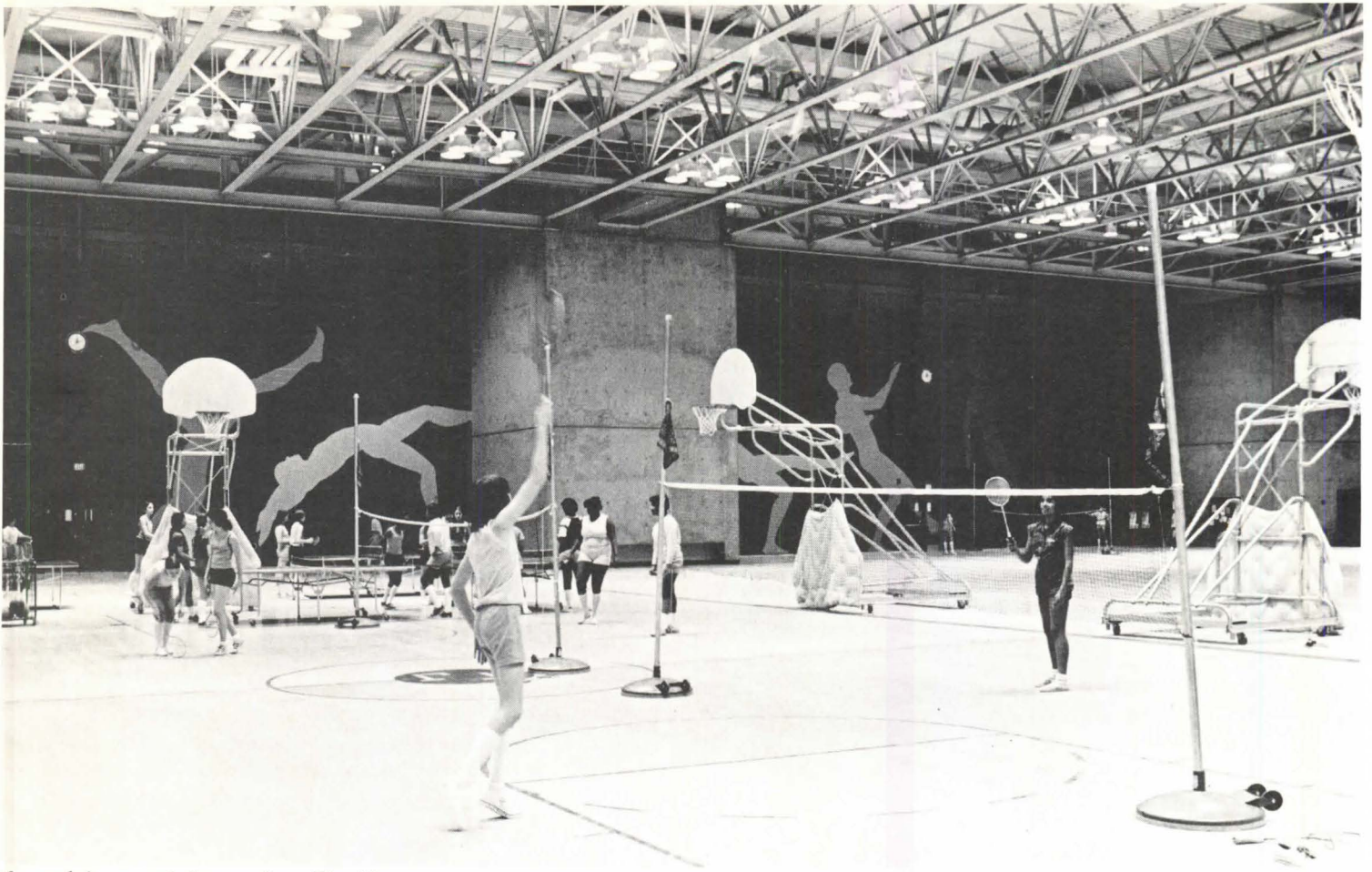
from each agency to visit schools that had experimented with shared facilities. In addition to financing the two-day charrette, it also paid for the advice of consultants on such questions as: How can a building be planned to accommodate dropouts and adults and prevent their interfering with the regular junior high school program? How can security be assured in a heavily used facility? What is the best way to manage a jointly occupied structure?

The main results of the charrette were to dispel misgivings and "convince people that you really can adapt a school facility to community use," according to R. Randall Vosbeck, AIA. Says Joseph LaValle, AIA, who was associate in charge of design and shared the job of project manager with Marlin Lord, AIA, "The charrette increased the amount of interaction people decided they could tolerate and even wanted; it resulted in more flexibility." VVCR managing partner William F. Vosbeck Jr., FAIA, adds that "bringing in the community to participate in the planning forced the politicians to work together."

Out of the planning process there also emerged the idea of a "facility manager" to be in charge of scheduling activities according to established priorities, supervising maintenance of the building, budgeting supplies and the like. Says Randall Vosbeck, this agreement "resulted in liberating the principals and teachers." To provide operating costs for the building, a separate community facility budget was created, which is not part of the school budget and not affected by cuts in the school budget. Also invented was the position of "community facility coordinator," an on-site recreation department administrator.

In the design solution, most of the areas used solely for academic subjects by the school occupy the second floor of the two-story building, with applied arts, home economics, business courses and the dining commons on the lower level. The school is divided into "three schools within a school," according to grade. But for instructional purposes it is divided into a space for English, another for math and a third for social studies. Ringers explains: "The idea was to retain the advantage of a personalized school and at the same time assure efficient administration. We staffed each little school with an assistant principal and a guidance counselor who are the disciplinarians and administrators. When the seventh graders move to the eighth grade those people move with them, and the ninth grade people move to the new seventh grade, so that there is continuity of supervision of the kids. We have physically separated the building, not with walls, but with colors. There are shared facilities, which have no color definition. In the dining area the kids eat with their 'school.'"

Another unusual feature of the school is the "media center," or library. A large, open space with 24,000 volumes, films and tapes, it forms a corridor on the upper level, which means most children pass

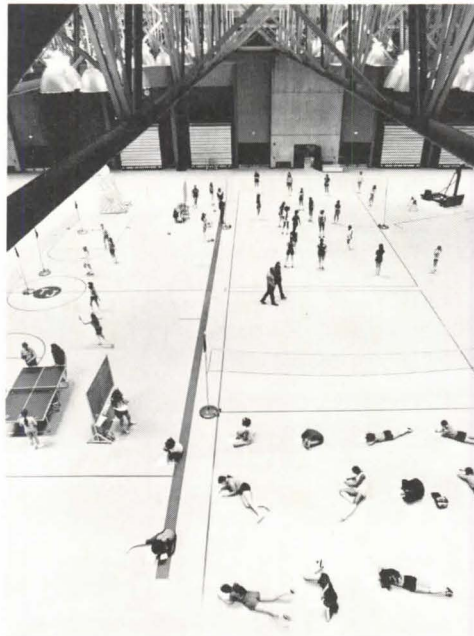


through it several times a day. The idea was that such exposure would induce students to use it more; whether it has done so remains a moot point.

The library is divided into quiet areas and areas for conversation, and because the space is large and wide open with kids constantly passing through, it "is impossible to control except through mind control," according to librarian Martha Powell. She involves as many children as possible in the operation of the library to give them a stake in it, uses the honor system and intensive indoctrination to impress upon kids that "it's their library and they should treat it with respect."

Openness is the most striking characteristic of the second floor of the school. The lower level has traditional classrooms. Most of the upper level is a series of big spaces which are partially, and almost randomly, divided from one another. The educational program called not for open classroom teaching, but rather for flexible spaces that could be easily changed by movable partitions and adapted to individualized methods of teaching. The idea was to be able to create spaces where small and large groups working at different tasks could be taught simultaneously without disturbing each other. Partitions are easily movable on two days' notice by custodial workers, and teachers do make use of the flexibility.

The openness of the spaces requires that both teachers and students be highly organized and disciplined. Says one assist-



ant principal, "If you don't get to a student here, you know he's going to be disruptive." Teachers observe that some students simply can't muster the self-control to function well in this wide open arrangement, with all its distractions.

But, says the social studies department chairman, "The person who can't function in open spaces can't function in society. It's easy to get behind a closed door and be able to do almost anything." He feels that this arrangement gives the student a more accurate view of the real world "where you're observed by your peers and your supervisors."



The gymnasium or 'controlled environment facility' (top and left) contains 68,000 square feet of space; the community room for pool and Ping-Pong (above) is run by the recreation department.

Principal Joseph Macekura remarks, "Everything here is apparent to everyone; privacy is limited." Children are much more closely supervised than in closed classrooms, where a door must be opened and a classroom disrupted each time someone enters. "Here, the principal, assistant principals, teachers and counselors need only walk down the hall to know

what kids—and other teachers—are doing,” says Macekura.

According to the principal and his staff, teachers must, above all, be self-confident to function well in this atmosphere. “They love it or leave it,” says one assistant principal. Macekura adds, “In a building like this, you don’t have as many alibis, excuses. The walls don’t limit you.”

The problems that could arise, says the principal, “are fantastic; those that have arisen are minimal.” And this is not, he points out, a country club school. One-third of the students come from lower socioeconomic backgrounds, the same proportion are members of ethnic minority groups and for one in seven, English is not the native tongue.

Does the absence of windows for most interior spaces give an oppressive aspect to the building and obscure a sense of place and time? Some teachers and students think so, but many would agree with a teacher who says, “The scenery here isn’t so great, you know; it’s not like we were in the Shenandoahs.” And teachers comment that it’s actually pleasant to go out and be surprised by the weather. In the words of one, “Here the weather—rainy days, gray days—doesn’t affect the kids, and thank goodness.”

The successful functioning of the school, says the principal—and this opinion is shared by many of his colleagues—depends on the dedication and ability of the teachers. “The building does not make the essential difference, but it facilitates learning.”

The reactions of children to the open spaces seem to depend to a significant extent on what they are used to and what they are preparing for—in the case of ninth graders, going on to new high schools. They say: “I would like to be closed in. It was better in elementary school. There’s too much noise. Seeing

my friends walking by distracts me so it’s hard to work.” “I’ve never been in closed classrooms, and I like open space. I like it because there are different sized places.” “I like open spaces. I feel stuffy in closed rooms.” “Next year I’m going to a traditional school. Closed classrooms are quieter; it’s easier to study, which is why I come to the library to study. Kids like open classrooms because they can do things and not get caught.”

A major consideration in planning the spaces used exclusively for recreation was to place them so that dropouts and other out-of-school youths could be kept separate from children in regular school programs. Separate parking areas and entrances were therefore provided. The

Intensive use of the school’s recreation facilities has offset an enrollment decline.

recreation area includes a community room with pool tables and other game tables, craft and industrial arts rooms (adjacent to similar school facilities making space-sharing possible), a kitchen, a room for group meetings and other activities, and a control station for supervisory personnel.

The main criticism by staff and community people is that because of insufficient funds the center cannot be kept open as much as they would like. Second, during the planning stages, “The school’s appetite for space kept shrinking our space,” says William Hughes, director of environmental affairs. He claims, as do on-site recreation staff members, that the recreation department could use double the space it now has, and they seem to be right. The school was built to accommodate 1,400 pupils and is now occupied by just under 800. And according to Ringers, the after hours use of Thomas Jefferson

has increased by almost as much as school enrollment has dropped.

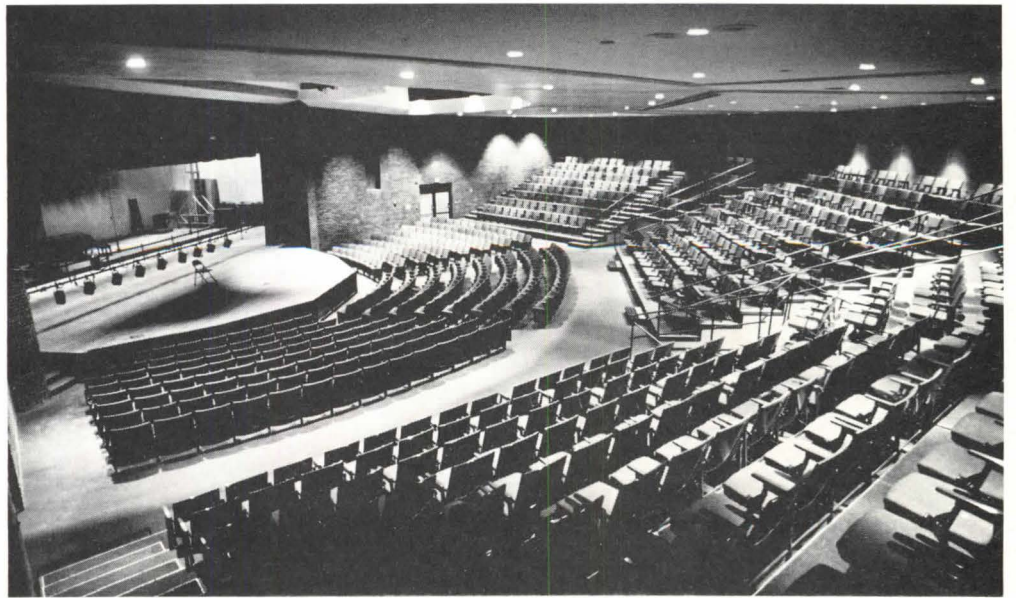
Some 30,000 people use the recreation area each month. About 3,000 use the facility each week for adult education courses. Daily attendance at Thomas Jefferson can be as high as 4,500, and, although Arlington County has severely cut most budgets, community pressure has kept the Thomas Jefferson budget pretty much intact.

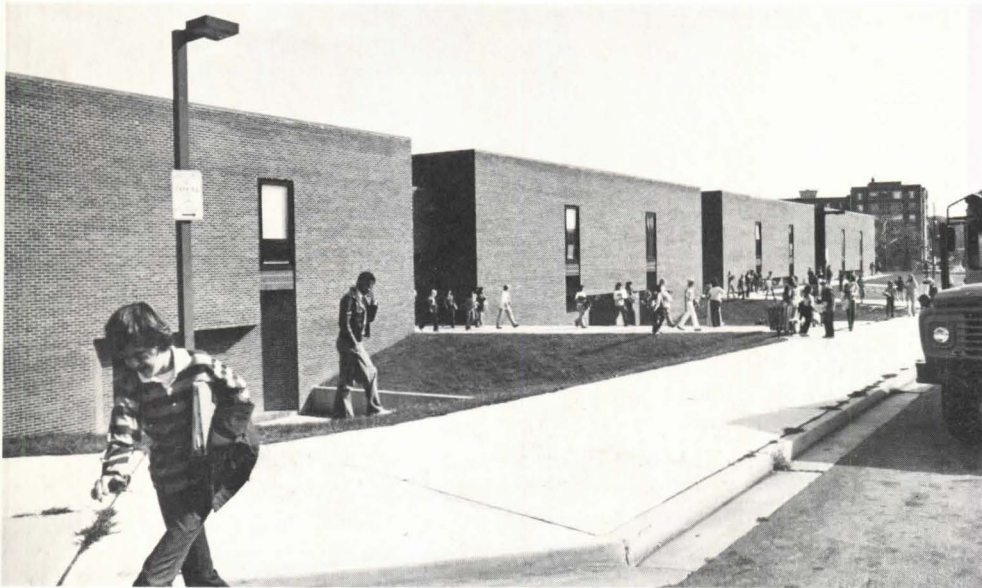
Hughes says that mistakes in planning also have resulted in problems in supervising the locker rooms (because of long corridors with poor visibility) and in controlling outdoor spaces (because they are not visible from supervisors’ stations). “But the \$2.5 million we put into this building would never have bought us what we have here had we gone it alone,” he says. Hughes adds that since the completion of Thomas Jefferson, a number of other joint use facilities have been planned in the county. The most recent, still on the drawing boards, combines a library, fire station and recreation center.

The most dramatic single element in the building is a 68,000-square-foot gymnasium. With seating for 6,000 people and a durable, synthetic floor, it is used by both school and community for all manner of activities, from sporting events to festivals. The bleachers can easily be moved and folded away; walls used as dividers are also readily movable.

Assistant superintendent Ringers says that the gymnasium has worked extremely well. Dropping in unexpectedly during lunch hour recently, he found “a good third of it was occupied with pick-up basketball players, uniformed people, taxi-cab drivers, women away from their noontime assignments—people randomly using it. Five groups of kids also appeared and ran their laps and then joined their groups and instructors. There were boys’ classes, girls’ classes. Nobody bothered anybody.”

An art class (below), and the auditorium.





An auditorium with a fly-loft construction stage is located at the opposite end of the building from the community center entrance, and also serves both school and recreation department functions. With seating for over 700, the space was intended to be subdivided by movable partitions into three separate lecture areas, leaving one section as an "intimate theater" for just over 200, according to the architects. Music classrooms, dressing and storage are underneath the auditorium.

Unlike the gym, the auditorium has problems. The acoustics are poor for instrumental music, the bleachers are noisy and the partitions are too unwieldy to move, which means the space is never divided into individual lecture areas as was planned. Esthetically, though, it is quite successful, and both recreation and school people agree that neither department working alone would have got anything nearly as sophisticated as this structure, even with its faults.

To fit in all of the facilities included at Thomas Jefferson required a very large building. In fact it contains 235,000

square feet of space. The architects say they tried to integrate the structure with the neighboring community, which is made up mainly of single family residences and an occasional apartment building, by breaking up large architectural elements, keeping a low profile—at least on the school side—and using brick. The exterior on the side of the gymnasium site, however, is marked by four, large cantilevered, concrete mechanical and storage towers, which make the building look formidable and perhaps overpowering for its neighborhood. In large part, the fortress-like appearance of the building is due to the fact that windows were kept to the barest minimum to help maintain security, lower operating costs and increase the flexibility of interior spaces.

William Vosbeck is the first to agree that the exterior appearance is one of its weakest points. "It is an overwhelming kind of structure," he says. "Very heavy and institutional. Whether that affects the users and community I'm not sure."

Most of the teachers, administrators, students and other users seem little af-

ected by the appearance of the exterior. "I never gave it much thought," says one teacher, and many others seem to share this lack of concern. Others, though mildly bothered, feel that shortcomings in the exterior appearance are more than made up for by the building's many assets.

All in all, both school and recreation department administrators are satisfied that they obtained more for less by sharing a building, and have been able to work together fruitfully. With a 26 percent drop in school enrollment since the opening of the building, it would have turned into a wasteful white elephant almost immediately after completion had it not been a multiuse and flexible structure.

The architects' main criticism is that there is too much separation of activities and people, too many barriers. "I'd like to see more intermingling, much more open use of things," says Randolph Vosbeck. Ken Hurt, the on-site recreation coordinator, explains: "We purposely built in barriers, because we were afraid of the school moving in, and the school was afraid of a lack of control." He adds that the existence of the school requires a tremendous amount of coordination and communication. Like Vosbeck, he had initially hoped for more crossover of people and resources than has actually occurred.

The security of the building is assured to a large extent by the very activity within the building. As principal Macekura puts it, "A vacant building is an endangered building."

Thomas Jefferson's facility manager Ron Summers touches upon the strengths and perhaps the future of this building and similar facilities when he says, "I've been pushing for more mixing of staff. Especially with resources being cut we have to help each other out. You get to the point where you can't pinch pennies and have to consolidate." □

Evaluation: Lessons of Modesty and Malleability In a 25-Year-Old Suburban Housing Development

In post-World War II years, when tract housing—monotonous rows of market-designed dwellings later labeled “ticky-tacky”—was spreading inexorably across suburbia, a few builders and their architects were showing that it didn’t have to be that way. Among them were Gerald and Eli Luria, developers, and Francis D. Lethbridge, FAIA, and Nicholas Satterlee, FAIA, architects, of Holmes Run Acres in Fairfax County, Va.

Today, 25 years after its completion—when the “ticky-tacky” house is growing even larger, more elaborate and more prohibitively expensive—Holmes Run still has lessons to teach. Mainly they have to do with modesty, capacity to change over time and the durability of such design virtues as simplicity and respect for the land.

Ranging from 902 to 1,804 square feet without owner-built additions, the modular houses are small even by the standards that prevailed a quarter of a century ago. The basic one-story house sold for \$13,500 in 1951 and the two-level for around \$17,000. Today, all have appreciated at least four-fold, but are still considered a bargain by real estate values prevalent in northern Virginia.

Open interiors with high, sloped beam and plank ceilings give these small houses an illusion of spaciousness. Each living room-dining room-study is essentially one open space that can be subdivided. Windows in the open spaces are large and abundant, bringing the outdoors in and again opening up space. Brick fireplaces cover entire walls, furnishing visual anchors and counterpoints to the light panel construction.

The character of the houses, says Lethbridge, “depends on the balance of discipline and relaxation. We didn’t want to overcomplicate and mess things up. I think many people considered the houses too rustic and informal.”

He regarded the houses as “background spaces to be finished by the people who live in them,” and one of his principal

concerns was that they be easily adapted to different peoples’ needs.

Because of the post and panel, precast construction, the houses can be easily added to or altered; all the structural members are exposed, which provided savings in construction costs for the builder.

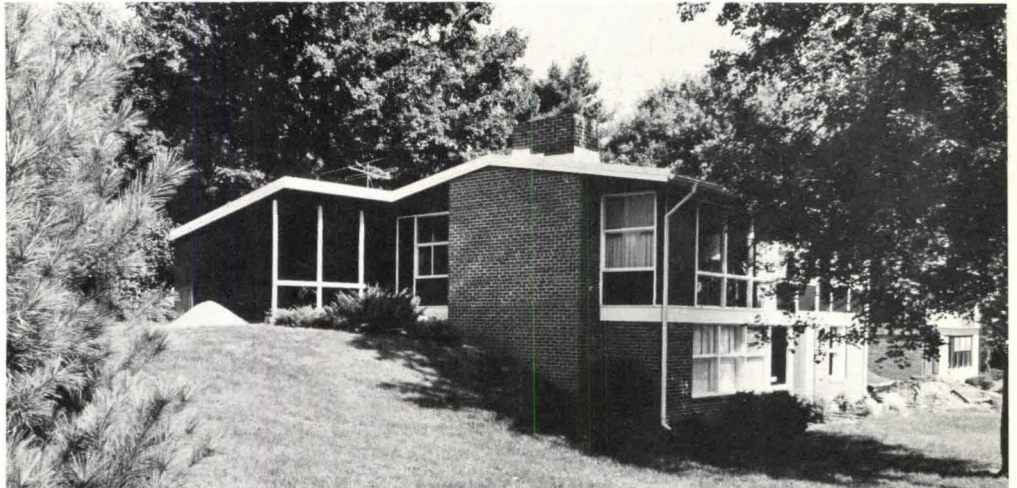
Some people have chosen to accentuate the openness of the spaces, others have enclosed them to make small rooms and almost every owner has enlarged interior space, if only to enclose the carport. Furnishings range from colonial to ultra modern.

When talking about the interiors of their homes, residents respond to and value highly the architectural concept. Typical

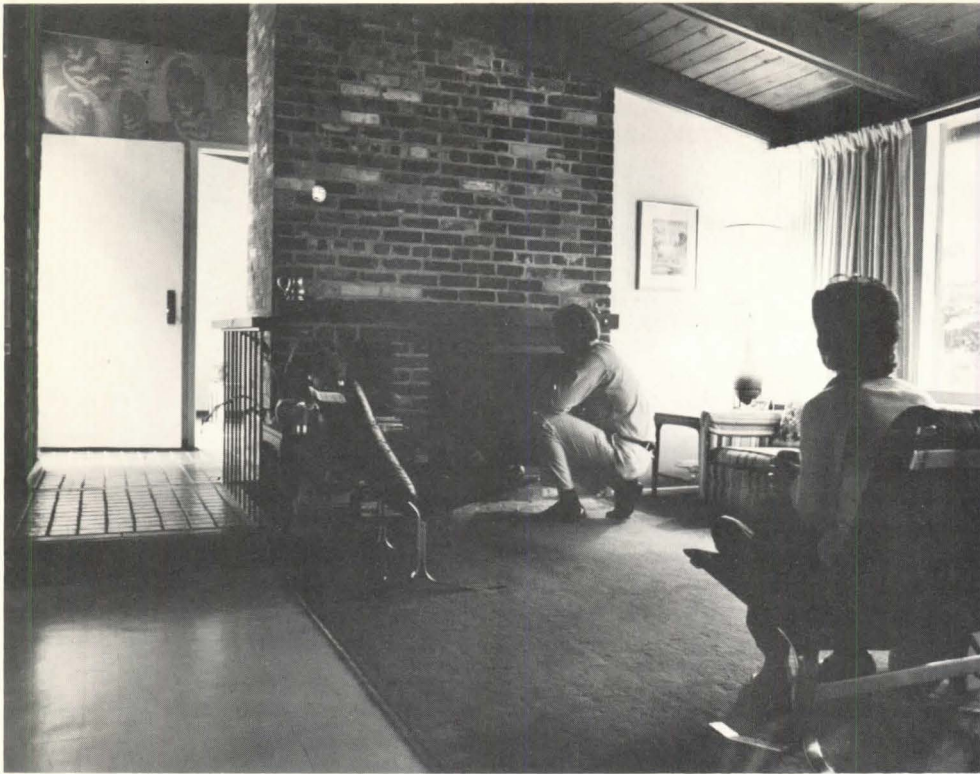
comments: “It’s the flexibility and openness of the plan we like best.” “We like the indoor-outdoor feeling, the feeling of open space.”

On the exterior the architects consciously manipulated scale, lowering the roof springline to make the houses look larger, more settled in the landscape. “We found a dozen ways of connecting carports and otherwise varying basic elements, and could thus provide more individuality,” says Lethbridge.

The houses were designed and built to be economical, meaning “energy efficient” in today’s terms. All the windows are weathertight sliding glass, and there is venting sash at floor and ceiling levels to provide a chimney effect. For insulation



Variations on a theme: a basically unchanged two-story (above) and neighbor (right) with enclosed carport and a porch.



'A lot of architects bought the houses, recognizing that they could be easily manipulated.'

there is a 4-inch blanket of rock wool in the walls; the roof has two inches of fir planking, and 1½ -inch fiberboard insulation. The high ceilings help air to circulate and there is cross ventilation all through the houses.

There is also what we now call passive solar airconditioning. The big glass areas are mainly restricted to southerly exposures. In bedrooms, small clerestory windows give more privacy and help conserve fuel. Wide overhangs all around the houses also cut off the sun's rays in summer. These features, combined with the cooling effect of enormous trees, result in the need for little or no airconditioning, even with Virginia's long, hot summers.

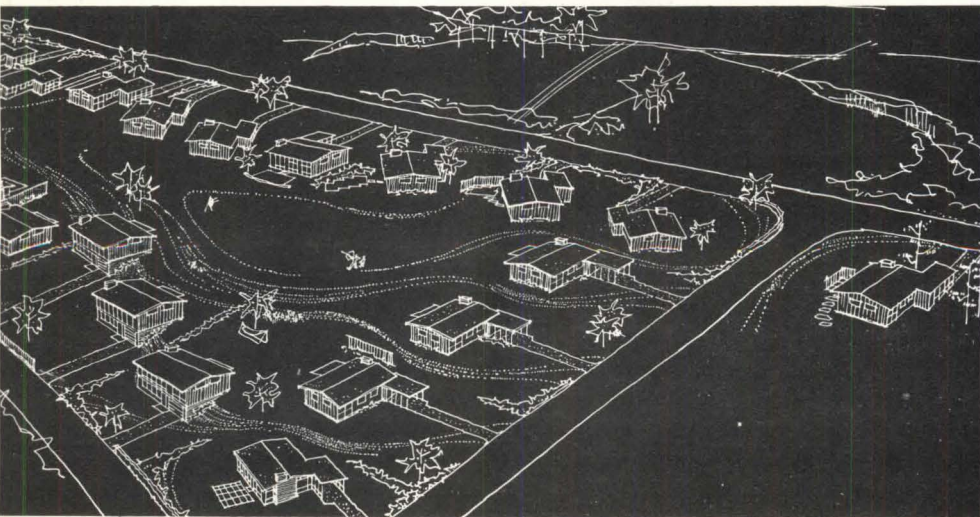
Residents mention liking the fact that many houses are twisted and turned on their lots to give the best possible views, the most privacy and individuality. Says Lethbridge, "These houses were *added* to the site. The dominance of the landscape and fitting the houses to the terrain were very important to us." The architects' careful planning saved the builder considerable money, since it meant less grading. It also meant that more houses could be fitted on less land overall, and the extra houses paid the architects' fee.

Lethbridge explains that the builder gave him a contract that "made progressive site planning possible. The Lurias agreed to pay a significant sum for each prototype house—about 25 percent—and then a sum for each house that was built." In return the builder was able to save money, because he was left with no loose ends, poor engineering or other mistakes.

Most of the 340 families who live at Holmes Run Acres view their neighborhood with unusual pride and feel a strong sense of community. To celebrate the 25th anniversary of their neighborhood, they recently published a book, *Holmes Run Acres: The Story of a Community*, which begins by saying, "Many of us have, through choice, bypassed upward mobility to remain here for enough years to have grown a well-developed root system."

Most of the residents of Holmes Run are professional people, and over 10 percent are architects. Says Lethbridge, "A lot of architects bought the houses, recognizing that they can be easily manipulated."

Mostly the residents have been attracted by the site planning and architecture and the style of living these seem to foster.



A living room (top); a converted carport, now a family room (above left); an innovative kitchen, and site drawing.

"We came because of the contemporary architecture and excellent site planning . . . with no streets *through* to anyplace else," says one. "We wanted some place as informal as we are," explains another. "We liked the openness and flexibility of the houses," says an architect's wife.

There is a minimum of "keeping up with the Joneses" and other forms of status expression at Holmes Run Acres. Lethbridge ventures that because the design concept is nontraditional, the people who buy the houses tend not to need the reassurance given by traditional architecture, and to have relatively high levels of education. "The houses are usually bought," he says, "by people who value individualism." He adds that these are much like houses people now build for vacation homes, "which leads one to believe that those who like them will tend to adopt an informal way of living."

Lethbridge seems to be correct in believing that people who choose to live in this community value greatly the chance to shape and fashion their own spaces—and lives. Says one homeowner: "Our friends thought we were crazy—these houses are all glass and no traditional ceiling. But we liked the freedom they gave and bought it."

The intention of Holmes Run Acres' architect and builder was to create a contemporary, efficient, attractive house that could easily be varied throughout a development and adapted without difficulty to the owner's needs. They succeeded. True, some residents detect a certain shagginess, referred to as a "slightly blowy, natural look" by one, but this is in part a natural result of the community's tendency toward informality. In the main, the development has stood well the test of time.

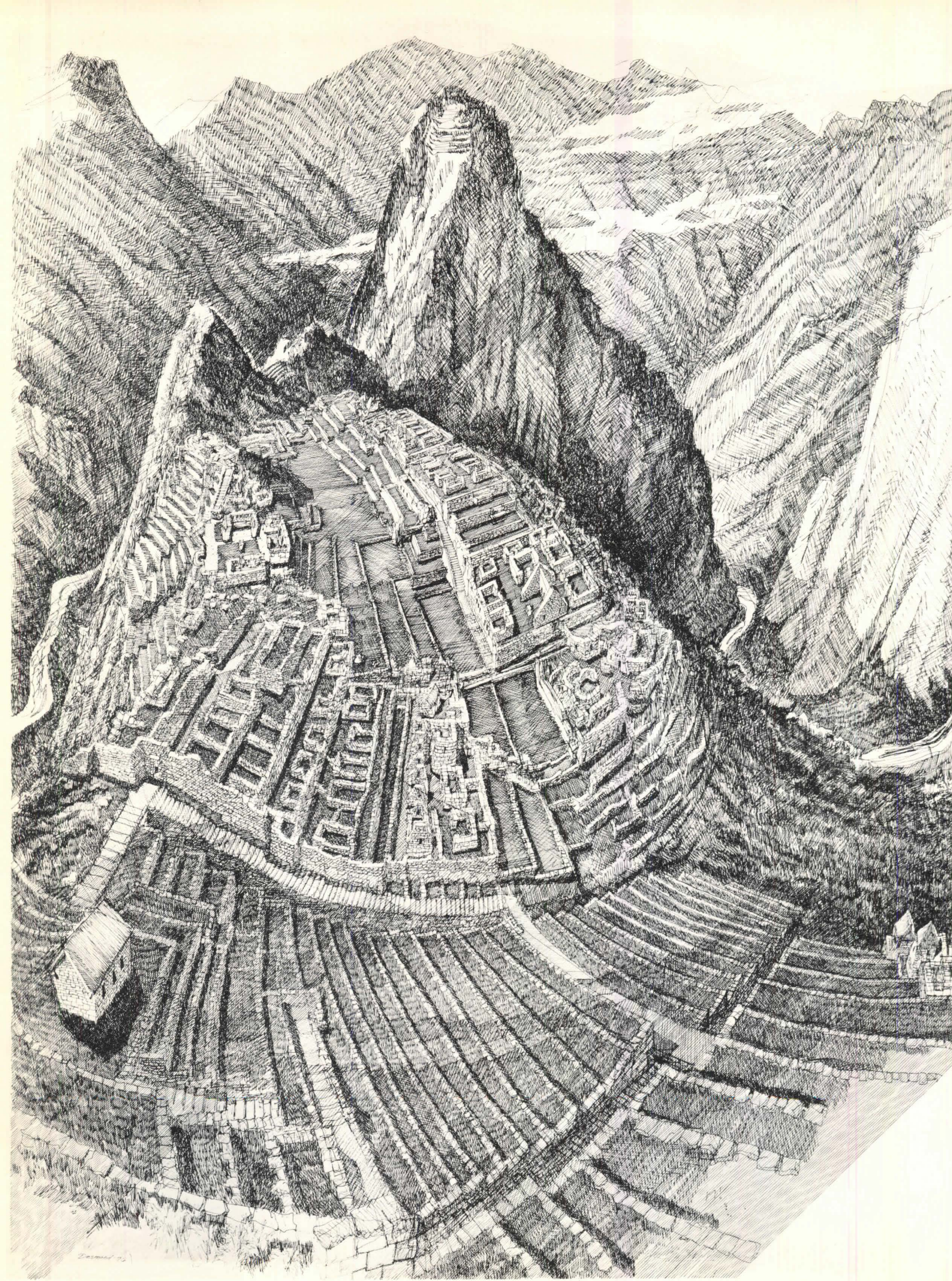
As architect Lethbridge told Sarah Booth Conroy of the *Washington Post*: "The Luria brothers were good builders, and willing to listen to their architects. I think we could still build a house like these—for about three times the cost—but anything under \$36,000 is a bargain today.

"But you have to realize that somewhere along the way, most developers decided that people didn't want a basic three-bedroom, one-bath house (or a Model T Ford). So they added garages, second levels, two or more baths, elaborate 'colonial detail woodwork,' piling it all on until people just couldn't afford a house anymore.

"I think it's about time we scaled houses down a bit, and tried to build something people can buy. The additions and luxuries can come when, and if, they can afford them." *A.O.D.*

Careful site planning and retention of trees have provided cool, irregular backyards (top) and shaded front lawns.





A Lost City Whose Design Bespeaks a Worship of Nature

John J. Desmond, FAIA

The dramatic impact of Machu Picchu, the lost city of the Incas, is universal. Brought to light as late as 1911 by a Yale University professor, Dr. Hiram Bingham, its real history is still shrouded in mystery. The physical setting in elemental geography is unmatched in the siting of cities.

The Inca civilization was at its peak in the 15th and early 16th centuries when it was discovered and virtually destroyed by the Spanish conquistadores, who never found Machu Picchu.

The Incas worshiped all of the forces of nature—the sun, wind, waters, earth, lightning, moon and stars. In choosing the site of Machu Picchu, they chose an incomparable natural amphitheater from which to view all of the manifestations of those forces of nature. The site is a high plateau with a view directly down into the Urubambu River, which has cut a deep channel through the granite peaks and which makes an almost 200-degree encirclement of the site. This plateau is dramatically encircled by a series of granite peaks, some almost vertical. These are backed by the wild, towering ranges of the Andes Cordilleras.

In this spectacular arena, the city is structured as a series of viewing platforms arranged in a sort of hierarchical order. Generally the shape of the city follows the living rock, and the man-made terraces and steps are intermingled with living rock, either natural or carved in place.

An ideal place for pedestrians, Machu Picchu is a sensitive counterplay of complex groupings separated by graduated, open terraces which enhance the movements and viewing of people. Within, the individual complexes, varying levels and functionally shaped forms give a continuing change and excitement to one's passage, yet somehow one remains continually aware of the organic and visual integrity of the whole as a unified composition.

The highest and one of the most enigm-

Mr. Desmond of Desmond-Miremont & Associates Architects-Engineers of Baton Rouge, La., last wrote for the JOURNAL about ancient monasteries as cells of planned growth (see May, p. 58).

matic places in the city is the Intihuatana, a beautifully carved sundial whose angles point exactly to the four cardinal compass points. Immediately below this (to the left in the drawing) is the sacred precinct, containing the principal temple, and the place of the three windows. The most highly developed masonry is found in the wall of the three windows, which frames the view from this sacred precinct eastward toward the rising sun.

There is a consistent relationship between this eastern view and the general siting of each section of the complex. The highest elements of society were housed on the higher levels from which the eastern view is uninterrupted. Lower elements of society were housed on the descending eastern slopes, their dwellings oriented east. The section known as the city sat in the upper left in this picture with terraces stepped down toward the east and the house windows oriented toward the rising sun.

It is said that the main Inca celebrations began when the rising sun struck their assembled pagentry. At Machu Picchu the first rays of sun illuminate the

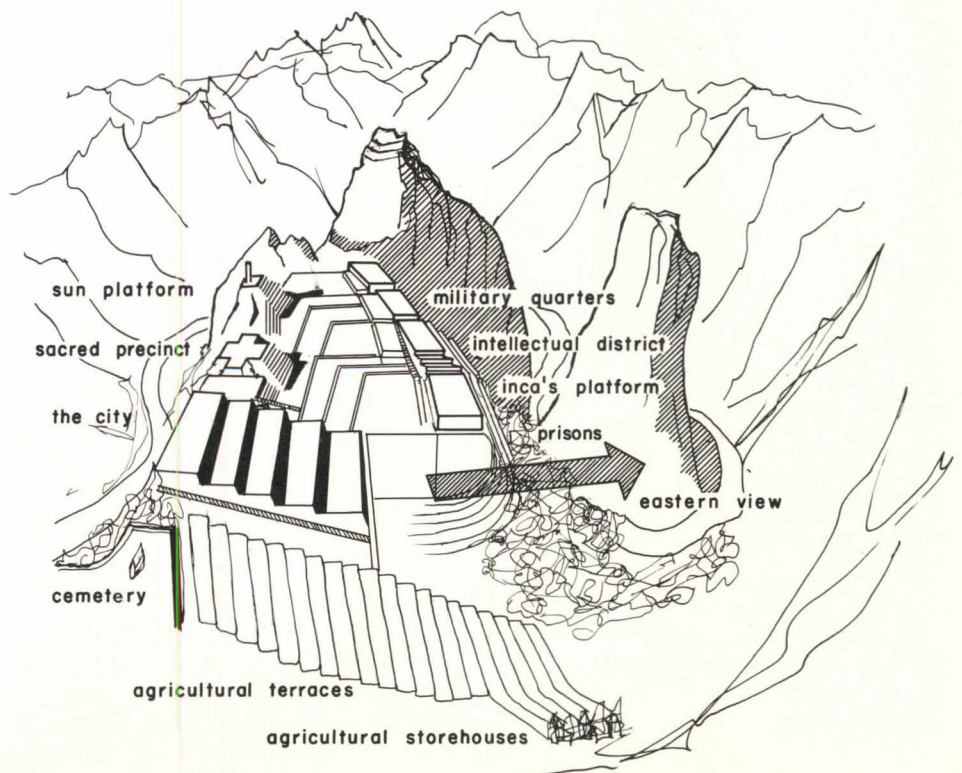
granite forms with a warm golden light, and it is a real event.

One of the most interesting land use and planning aspects of Machu Picchu is the physical manifestation of the relationship between the city and its agricultural base. The Incas had developed the agricultural terrace and their attendant irrigation systems to a highly refined degree. The Urubambu River is lined with these productive terraces. After forming these on the steep slopes using the stone retaining walls, the Incas brought in topsoil, presumably by manpower since their draft animals, the llamas, were limited to 100 pounds carrying capacity. On these carefully made and fertilized terraces they developed an intensive agriculture.

Here, at the head of their beautiful and beloved Urubambu Valley, they developed



these terraces directly outside the city walls. They too are placed on east-facing slopes and are in full view of the entire city. Thus, this entire spectacular agricultural production, from sowing to harvest, was one continuously changing display as part of the panoramic view from the terraced city. □



The Process of Life Cycle Cost Analysis: Projecting Economic Consequences of Design Decisions

A rapidly increasing concern on the part of architects and owners about long-term building operating costs prompted AIA in 1975 to establish a life cycle cost analysis task force (Herbert K. Enzmann, AIA, chairman; Donald J. Stephens, FAIA, commissioner; Robert Allan Class, AIA, staff adviser).

As a result of its deliberations, the task force, with the editorial services of Professor David S. Haviland, director of Rensselaer Polytechnic Institute's center for architectural research, has prepared a book tentatively entitled Life Cycle Cost Analysis: A Guide for Architects, to be published later this year. The publication lays the groundwork for a better understanding of the techniques of life cycle cost analysis. This condensation of the manuscript draft has been prepared by Mary E. Osman, with the assistance of David Haviland. Ed.

Life cycle cost analysis is a technique which allows, and encourages, the architect to consider all the relevant economic consequences of design decisions, both in terms of dollars to be spent today and dollars required tomorrow over the life of a structure.

Life cycle cost analysis deals with both present and future costs and, most importantly, it attempts to relate the two as a basis for making decisions. The initial investment in the design and construction of a facility is held up against the cost of maintaining and servicing it during a given period of years.

For example, the initial specification of a low-cost finish may result in higher maintenance costs over the life of a building, costing more money in the long run than if a better grade of finish had been specified to start with. Likewise, extra initial investment in careful lobby design could minimize the need for security personnel.

At the intuitive level, architects are aware that it is possible to trade off "today" and "tomorrow" dollars in making design decisions. But how can this be quantified and made visible to all? Will, for example, an annual fuel saving of \$1,600 justify an extra \$10,000 ex-

penditure for a more efficient HVAC system? Under what circumstances? Life cycle cost analysis can provide the answers.

The technique itself is not complicated, requiring only an elementary knowledge of mathematics. What is more important than the technique itself is establishing the key parameters for a life cycle cost analysis: What is to be analyzed? Over what time span? What assumptions about the "time value" of money will be made? Some of these decisions will require input from the owner and should be pinned down at the start—or life cycle cost analysis becomes meaningless number-crunching.

What is meant by the "time value" of money? Central to any life cycle cost analysis is the comparison of "today" and "tomorrow" dollars; and a central precept is that "today" and "tomorrow" dollars are not of equal value. Because money for building is either borrowed (thus incurring interest costs) or com-

The first step is to focus on those decisions which have the greatest impact on costs.

mitted in lieu of some other use (thus foregoing interest income), it has a *cost* to the owner. This cost may be the prevailing interest for construction lending; it may be a minimum attractive rate of interest, or it may be the "opportunity cost" of not using it elsewhere. Whatever it is, the cost must be established by the owner, and it must be factored into the analysis.

What is to be analyzed? The initial step in any life cycle cost analysis is to establish and properly delineate the subject matter. While the technique may be used to assess the economic consequences of a decision already made, it is most effective when used to help the decision maker in choosing among alternatives.

The architect should concentrate on those planning and design decisions which potentially have the greatest economic consequences, both initially and over the facility's use period. Some examples:

- The decision to build or not to build is a clear candidate. Perhaps there are other solutions to the owner's perceived problem which can be solved through better organization and management of people, materials, space and time. While the costs of construction are significant, the costs of operating a program or running a business, or whatever occurs inside the facility, are even more significant.

- Determination of building configuration and orientation, with the resulting cost impacts on heating, cooling, window cleaning, vertical circulation and other continuing cost items, certainly provides reasons for life cycle cost analysis. Some cost impacts of these factors are felt only in construction; many have continuing influence as well.

- Another candidate for life cycle cost analysis is the choice of mechanical systems, given the importance of fuels, utilities and operating, maintenance and replacement costs of these systems. And along the same lines, the design of natural and artificial illumination systems provides another opportunity for life cycle cost analysis.

- If considerable interior reconfiguration is anticipated, then the selection of interior construction systems may be a candidate for life cycle cost analysis.

It makes sense to focus on the decisions which have a heavy impact on what are expected to be expensive continuing items. In recent years, fuel and utility costs have risen so dramatically that they have earned their way into this category. People—for operating and maintaining a facility, and less directly as occupants—are an expensive cost item and, with skyrocketing salaries, it makes good sense to look for situations where the expenditure of some extra "today" building dollars will save some "tomorrow" salary dollars.

A time vocabulary: The next task is to consider the time dimensions of the life cycle cost analysis. It is necessary to determine just when "today" is and how long "tomorrow" lasts. A basic time vocabulary for a life cycle cost analysis includes a base line (starting point), a time horizon (cutoff point) and a life cycle (elapsed time between the base line and the time horizon).

Functionally, the owner may see the building, or its various elements, against a limited time horizon. For example, an assembly plant may be seen against a 20-year time horizon because the owner does not want to project functional changes in the assembly process beyond this point. Economically, the owner may have a wide variety of goals, and often these goals are associated with definite time horizons. For example, the owner may tie his economic goal to the payback of borrowed money.

Owner objectives tend to limit time

horizons to 10, 15, 20 or 25 years. Uncertainty about costs far into the future suggests that analyses beyond 20 or 30 years begin to lose their validity.

Costs: There are a number of factors to be taken into account in selecting the specific cost factors to be used in a particular life cycle cost analysis.

Depending upon the objective of the analysis, it is possible to include the full range of initial and continuing costs of a

Once the parameters have been established, the mechanics of analysis are straightforward.

project, including the following:

- Initial capital investment costs (costs associated with the initial planning, design and construction of the facility).
- Financing costs (costs associated with financing capital investment).
- Facility operation and maintenance costs (costs associated with the ongoing operation and maintenance of the facility).
- Facility alteration and improvement costs (costs associated with planned additions, alterations, major reconfigurations and other improvements to the facility).
- Functional use costs (costs associated with performing intended functions within the facility).
- Salvage costs (costs, or values, of building elements or facilities salvaged during the life cycle analysis).

If the objective of the analysis is the assessment of a given decision, then all of these relevant costs must be included. If the objective is choice among alternatives, then only cost differentials among these alternatives need be considered. The owner's needs and objectives also must be taken into account. A public entity, for example, need not consider real property taxes.

A single format or set of categories should be used for both initial and continuing costs. A good one is the "Uniformat," established by the General Services Administration and based on early explorations by AIA. Uniformat is designed to systematize estimating procedures and cost data collection by breaking costs into 12 major categories, each of which is subdivided into greater and greater levels of detail. (See "New Data for Cost Estimating at the Conceptual Stage," by James Y. Robinson Jr., AIA, AIA JOURNAL, Nov. 1974.)

The advantage of the multiple levels of detail is clear, for it is possible to select that level at which decisions on the project are currently being made. The Uniformat categories can also be used for information about facility operation and maintenance costs and about facility repair, replacement, alteration, improvement or salvage.

Doing the analysis: After the parameters of a life cycle cost analysis are established, the mechanics of doing it are rather straightforward. All costs being considered are converted to a "total" cost, using one of these two measures:

- Total present cost: All costs, both present and future, are calculated to arrive at one sum at the present time. The analyst seeking to relate both "today" and "tomorrow" dollars brings all costs in the analysis to a single present-day base line to reflect at the time the value of money. All future costs are reduced to their present worth, and the total present worth costs for each alternative are summed.
- Equivalent uniform annual cost: "Today" and "tomorrow" dollars are converted to a uniform annual cost to render an equal annual cost for the life span of the facility or system being analyzed. In simple terms, this converts a stream of expenditures over a number of years to a constant amount for each year in the life cycle.

The technique in practice: Some more sophisticated owners have established their own methodologies, cost factors, etc. A larger group of owners, however, will look to the architect to set the ground rules for the analysis and to interpret the results.

The process of establishing the parameters and of reviewing and planning the design decisions which result from them should involve the active participation of owner personnel, consultants and advisers in the areas of property and financial management.

There are some caveats, too:

- As is the case in any costing approach used in planning and design, life cycle cost analysis involves the use of estimated sums—and produces estimated results.
 - One of the thorniest problems is the cost data required to accomplish the analysis. There are generally few available sources of operating and maintenance costs for buildings. Nor is information on the useful lives of specific building products available in any coordinated way. Although there is a good deal of information on initial project development costs, only some of it is organized in a way which relates to building elements or subsystems. Any technique which deals with both "today" and "tomorrow" will always, to some extent, be fueled by estimate and judgment.
 - Life cycle cost analysis of any complexity requires time and money, and the owner should understand the implications for the initial project budget.
- Life cycle cost analysis is growing in use. A number of states and some federal agencies are mandating its use. Both the Congress and the Executive branch of the federal government are considering measures that would extend the use of the technique to the bulk of federal design projects. Owner consciousness of life cycle cost analysis is growing—and so must the architect's. □

DEVELOPMENT AND CONTINUING COSTS FOR A HYPOTHETICAL OFFICE BUILDING OVER A 40 YEAR PERIOD

INITIAL PROJECT DEVELOPMENT COSTS:

INITIAL CONSTRUCTION COST
100,000 sq. ft. @ \$50/sq. ft. totals: \$5,000,000

DESIGN AND OTHER OWNER COSTS
Roughly 10% of construction, totals: \$500,000

INTERIM FINANCING COST
Roughly 10% of construction, totals: \$500,000

Total Initial Cost: \$6,000,000

CONTINUING PROJECT COSTS:

OPERATING & MAINTENANCE COST
\$2 per sq. ft. for 40 years
totals: \$8,000,000

CYCLICAL RENEWAL COST
\$250,000 every 8 years totals: \$1,000,000

FINANCING COST
Interest costs for \$6,000,000 borrowed at 8%
for 40 years totals: \$14,000,000

Total Continuing Project Costs: \$23,000,000

All figures are rounded. Land, owner's functional use and disposal costs have been excluded.

A Local AIA Urban Design Team Helps the Nation's Former Glamour Capital Attempt a Comeback

Allen Freeman



Hollywood, home of the myth of perpetual youth, is looking like a burnt-out case. In the core area, remnants of former glory such as Grauman's Chinese Theater, where movie stars' footprints and signatures still draw tourists, are surrounded by garish porno theaters and adult bookstores. Streetwalkers of both sexes are in abundance. Walkup office space on Hollywood Boulevard goes begging for tenants at prices as low as 10 cents a square foot.

Typical middle Americans are in the minority in Hollywood. One estimate puts almost half of the community's 200,000 people at age 65 or over. A larger than usual percentage is unmarried. And an estimate that 20,000 residents are homosexual is considered conservative.

Hollywood, incorporated as a town in 1903 and absorbed by Los Angeles in 1910, is undefined by boundaries. It was at its ripest from the late 1920s through World War II. Three major studios, employing thousands, were grinding out hundreds of movies yearly. The radio and recording industries were gravitating there too, and it was the center in Los Angeles for restaurants, plays, movies and nightclubs. The community's decline over the last 30 years has been a case of dissipation brought on by a combination of factors. The suburbanization of the San Fernando

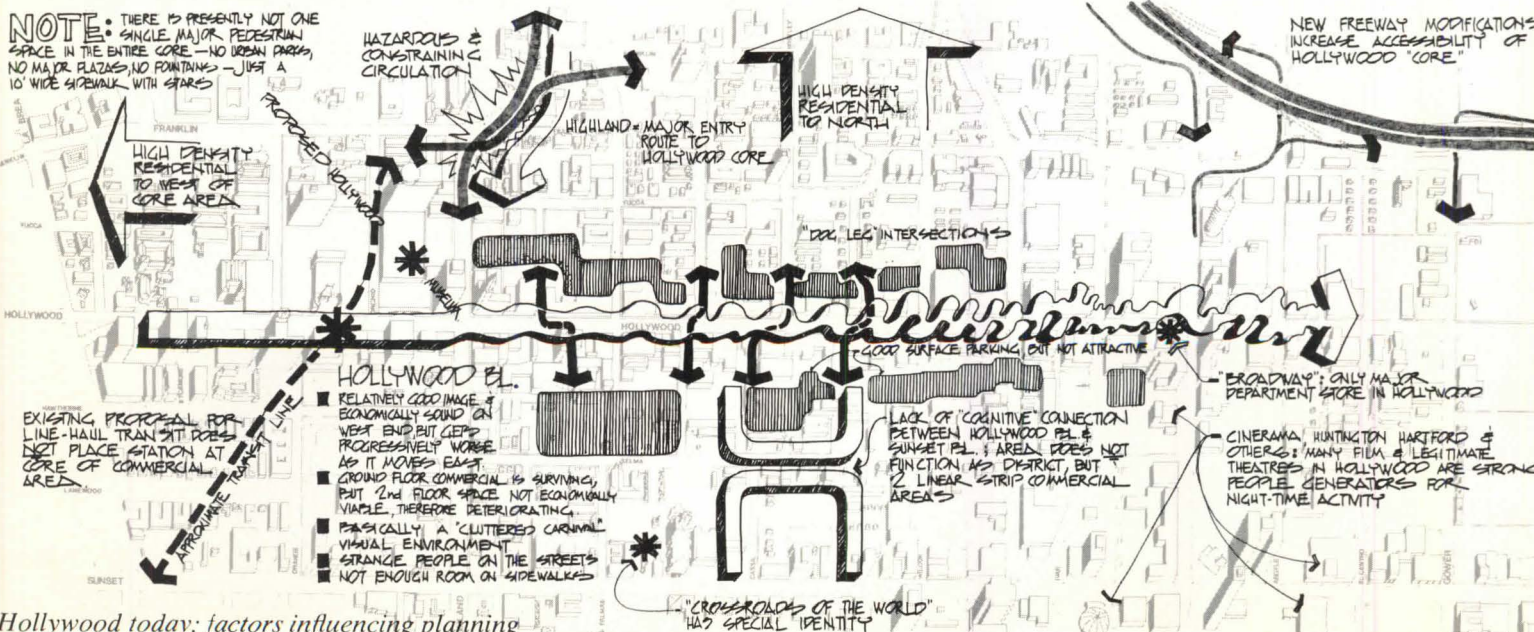
Valley and West Los Angeles produced the competition of new shopping, residential and business centers. Burgeoning freeways facilitated sprawl, and, combined with the shifting fortunes of the entertainment industry which played havoc with employment and investments, Hollywood as a center was unable to hold.

A list of Los Angeles entertainment facilities *not* built in Hollywood since World War II is long: Disneyland, the Los Angeles Music Center, Universal City, CBS Television City, NBC Burbank, the Shubert Theater, the county art museum, Busch Gardens and the Academy Awards headquarters.

Hollywood is a disappointment to tourists. A 1974 survey by the Southern California Visitors Council found that 43 percent enjoyed Hollywood least of the area's attractions.

In December of that year, the Los Angeles planning department asked the Southern California chapter/AIA to study the community and specify a course of action for revitalization. In response, a Hollywood urban design task force was formed with Mark Hall, AIA, of a local firm, Archiplan, its chairman. Jerry Pollock, chairman of the chapter's environmental planning committee, also played a leading role in the task force.

NOTE: THERE IS PRESENTLY NOT ONE SINGLE MAJOR PEDESTRIAN SPACE IN THE ENTIRE CORE—NO URBAN PARKS, NO MAJOR PLAZAS, NO FOUNTAINS—JUST A 10' WIDE SIDEWALK WITH STAIRS

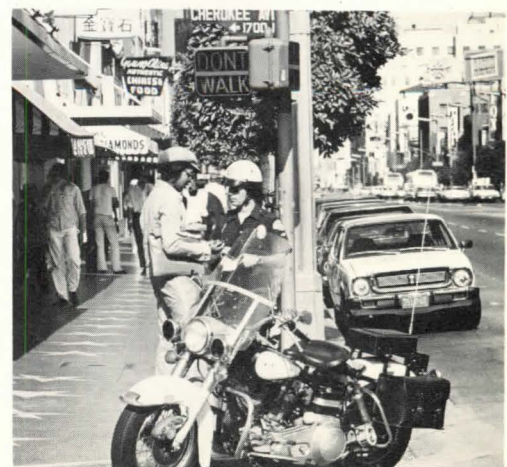


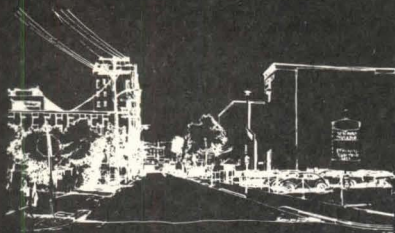
Hollywood today: factors influencing planning



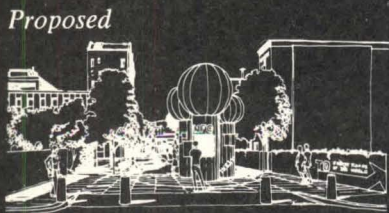
An early attempt by the task force to employ senior design students at local architectural schools never got off the ground, and it became apparent that a variant of the AIA R/UDAT approach, using local volunteer professionals, was the way to get the job done. In addition to architects, the group included a traffic consultant, a lawyer, an economist, a sociologist and representatives of city agencies. Those involved foresaw some of the pitfalls of local people doing the study—possible charges of vested interests, dissatisfaction by local people who would not participate, etc.—tried to minimize them, and forged ahead. The results of the study were published this spring, illustrated with drawings, photographs and maps.

The task force limited consideration to Hollywood's core, 60 or so blocks of a modified grid bounded by Gower Street on the east, La Brea Avenue on the west, Sunset Boulevard on the south and Franklin Avenue on the north. It is mostly commercial, containing about 50 restaurants, 40 coffee shops, 30 fast food shops, 30 bars and 20 hotels/motels; 20 or so bookstores/magazine stands; 15 movie theaters and 10 places of live entertainment; about 20 "sexually oriented establishments" (theaters/arcades, bookstores and massage parlors); a handful of other tourist attractions such as Tussaud's Hollywood Wax Museum, a Motorama Museum and sightseeing tour headquarters; Hollywood High School; the cylindrical Capitol Records building, plus clusters of shops and specialized boutiques.

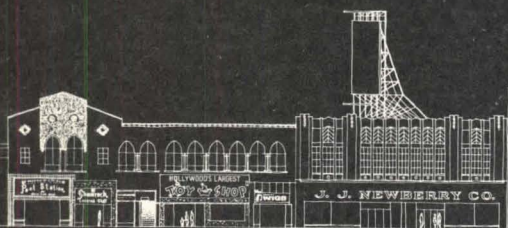




Existing



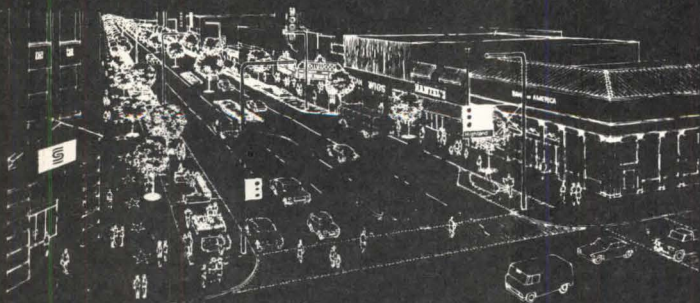
A 'window' park



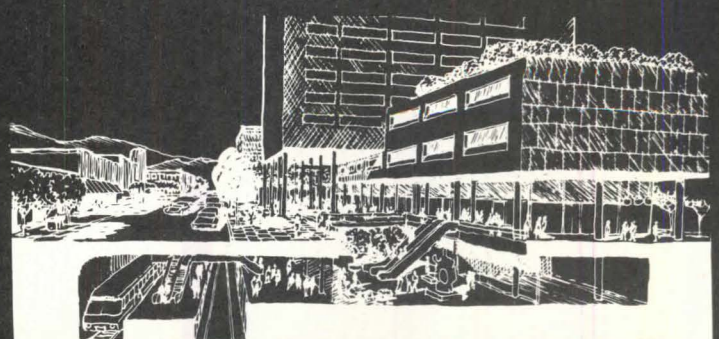
Typical building rehabilitation



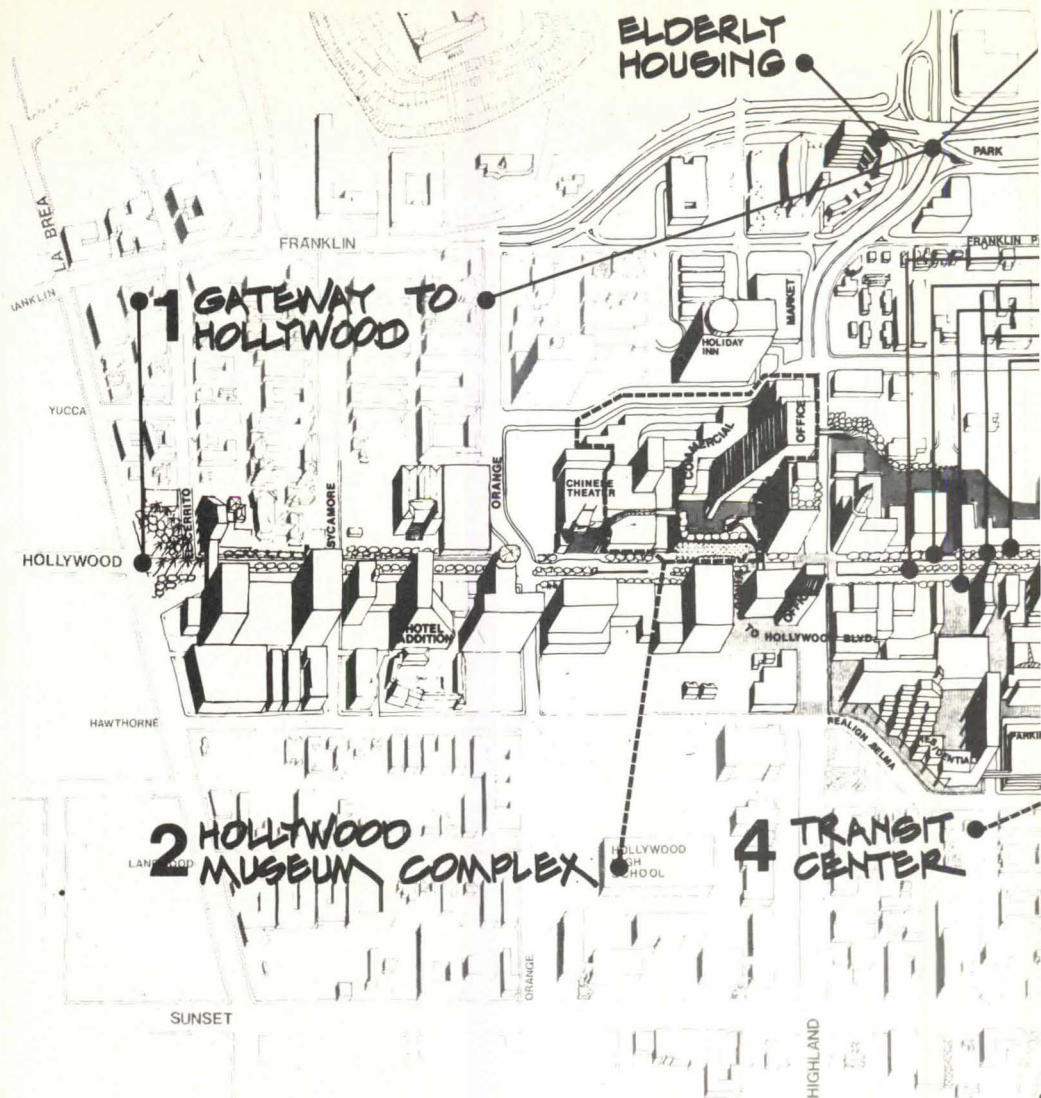
Paseo-historic walk



Hollywood Boulevard revitalization



Transit center



The study sought to give Hollywood a sense of place by deemphasizing the existing fragmented, strip development and playing up the local history and diversity. Following are some of the main ideas for revitalization:

New urban centers: A Vine Street center between Sunset and Hollywood would contain new department stores and the existing Broadway Store. Near the Chinese Theater, a second center would be focused on a Hollywood museum complex and include a highrise office structure. A third center, one block east of the museum complex, would incorporate a major rapid transit station. The link between these elements is Hollywood Boulevard, the backbone of revitalization,

which would be redesigned along 15 blocks.

New urban spaces: The study notes the lack of a major urban space within the core and recommends the creation of two urban parks modeled after Boston's Copley Square or San Francisco's Embarcadero. A "paseo" system would link parking facilities, parks and the transit system in a concept similar to the Freedom Trail in Boston but based on Hollywood lore. It would run behind existing structures on both sides of Hollywood Boulevard.

Places to live: Noting the almost complete lack of places to live within the core, the study suggests sites for residential and hotel developments.

Streetscapes: Sitting areas, greenery,

LAND / FRANKLIN
INTERSECTION

BOULEVARD STRIP
STREET FURNITURE
WIDEN SIDEWALKS
PLANT TREES
SPEED CONTROL

REVITALIZED HOLLYWOOD BOULEVARD

6 PASSEO SYSTEM AND HISTORIC WALK

5 STREET CLOSINGS AND WINDOWS

7 MULTIFUNCTIONAL VINE STREET CENTER

URBAN PARK

fountains, information facilities, lighting and sign standards, phone booths, etc., would embellish redesigned, widened sidewalks. Signs and graphics would be clarified and simplified.

Movement: Hollywood Boulevard would become four lanes of through traffic with landscaped median and left-turn pockets. Street parking on the boulevard would be eliminated, sidewalks doubled in width and intersections reduced in number. A dual-loop tram or people mover would circulate through the core. A split-level interchange would ease a major traffic bottleneck at Franklin and Highland Avenues.

Parking: An efficient free parking system would give Hollywood a big competitive

advantage in the Los Angeles commercial and office market, the study says, and recommends a business-subsidized system.

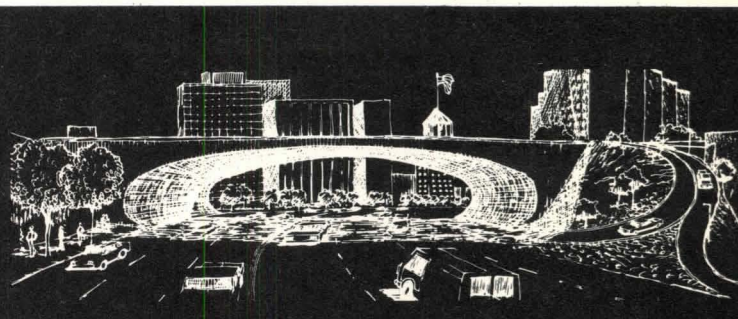
The study puts a heavy emphasis on implementation, concluding with the recommendation that a nonprofit economic development corporation or commission be formed to carry out the plan. This new entity would generate private and public investment, stimulate business development and have power of eminent domain. "Our objective was to start a process of urban design and development," says Hall, "not just to produce a one-shot study as a R/UDAT does."

To help this happen, the design team still meets regularly as a technical committee working with the chamber of com-

merce and other local groups which have endorsed the plan. Tangible evidence of the city's support for Hollywood's revitalization came when \$100,000 was appropriated for a community development agency economic and demographic study. Councilwoman Peggy Stevenson, whose district includes Hollywood, this summer released a broad report that incorporates the SCC/AIA study and proposes ways to fight crime and control sex-related establishments. The report indicates an understanding that the community needs more than redesigned streetscapes and coordinated development. But SCC/AIA's urban design study may turn out to be the rallying point for turning Hollywood around. □



Multifunctional Vine Street center



Gateway at Highland Avenue

A Critique of the Registration Examination as a Measurement Of Beliefs Rather than Ability

Ron Shattil

How well does the multiple-guess format of the most recent professional architectural registration examination indicate the test-taker's competence to practice architecture? Since the authors of the test have not done any follow-up studies of those who passed (or those who failed), no definitive correlation can be made between one's test performance and professional ability. This is unfortunate, because serious doubts can be raised concerning the use of machine-graded tests to discriminate among the thousands of candidates for registration.

The officials of the National Council of Architectural Registration Boards, writers of the newest series of professional registration exams, maintain that the exams are not merely a test of academic and internship knowledge, but also a measure of the candidate's judgment skills.

Indeed, a review of the past three professional exams indicates that only about 20 percent of the questions required any familiarity with technical aspects of the profession. It is conceivable that a person without any architectural background could have correctly answered the remaining questions and thereby scored a passing grade. About half of the questions on these exams were based on information readily found in the reading materials supplied. This is not to say that the tests were easy. Verbal skills are often an area of weakness for many architects, who by training and temperament may respond more strongly to graphic stimuli.

The remaining 30 percent of the questions were based solely on what has been called the exercise of the candidate's judgment.

Jacques Barzun, the noted educator, points out the basic flaw in trying to grade judgment skills from machine-graded scores. In the foreword to Banesh Hoffmann's book *The Tyranny of Testing*

Mr. Shattil is an architect who resides in San Francisco. He is the author of the book *Bonus Pointers: The Consumers' Guide to the Registration Exam* (Keene, N.H.: Keene Mind Publishing Co., 1976), a chapter of which has been adapted for publication here.

(Macmillan, 1962), Barzun says that the mind "is not an object to be weighed or sampled by volume like a peck of potatoes or a cord of wood. Variations in performance and estimate will always subsist. Hence, an objective test of mind is a contradiction in terms, though a fair test, a searching examination, a just estimate, are not. Among the tests that are unfair certainly are those which penalize the finer mind . . . and those which, through forceful presence of wrong answers, may direct that mind from accurate knowledge it possessed a moment before. . . ." All the pitfalls Barzun mentions, and more, are evident in the new professional exam.

Like apple pie, the flag and the modular, good judgment is indisputably a worthy and noble quality. But judgment is not so absolute that it can be measured reliably. A dictionary may define judgment as the ability to formulate decisions by consideration of the relative values of alternatives. But values are subjective, and the merit of decisions is open to many levels of interpretation.

Even the justices of the U.S. Supreme Court, conscientious and learned people of the highest acumen, seldom reach

To do well, 'follow majority opinion; be cautious, conservative and unspectacular.'

unanimous conclusions. These esteemed arbiters devote their lives to the practice of passing judgment. Their decisions cannot be graded "right" or "wrong." One can only note whether they make "majority" or "minority" decisions. Even these judgments are sometimes reversed, making what was once a majority decision a minority decision. In the final analysis, any judgment involves much more than the facts at hand. Brought to bear in such matters are the judges' personal beliefs, experiences, expectations, lifestyles, etc.

Clearly, any multiple-guess test which purports to measure an individual's judgment faculties is really measuring something quite different. What is being tested ultimately is the test-taker's ability to

arrive at the same conclusion that the test-writer reached, no matter how arbitrary or subjective that conclusion may be. This is a value correspondence test, not a judgment test.

A test of judgment is not so much a measure of analytic mental processes as of the beliefs and attitudes the candidates and test-writers hold in common. For example, a politically liberal test-taker, given an exam on governmental policy that was written by a conservative, would score low if the responses were honest representations of the test-taker's beliefs.

It is all a matter of whose values are being used as the standard. In the registration exam, it is obvious that the norm is established by the general population of practicing architects as represented by the members of state registration boards and NCARB committees. Despite the fact that many of them demonstrate outstanding professional responsibility and competence, these value-setters are apt to be at least a generation older than the candidates they review. Invariably, the effects of experiencing such radically different eras will generate different values within each group.

Further, there is a consensus effect which occurs when constructing a national exam, and serves to reinforce mainstream values at the expense of regional and personal values. Some individuals within the profession are quite progressive and outspoken, but when a code of values is established for a national exam, progressive views are dropped out along with views held by reactionary and off-beat individuals. The resulting norm represents a median of current architectural thought.

The registration exam serves as a gateway into the ranks of the establishment. Programmed by practicing architects after their own composite image, the test sorts candidates according to how well they accommodate that established median profile. The test provides a convenient means of making an institutional decision about selection or rejection of an individual without itself risking being badly hurt by any single bad decision. The individual, however, can be devastated.

The narrow spectrum of ideology allowed in the exam's judgment questions helps to assure that the middle percentile's values are perpetuated. Applicants of both lower and superior abilities may be screened out. It is unlikely that outspoken, visionary and creative individuals, such as Frank Lloyd Wright or Le Corbusier, could have successfully passed the judgment portion of the registration exam as currently constituted. Their genius would have been incompatible with the mainstream value orientation of the test-writers.

In his book *The Organization Man*

(Simon & Schuster, 1956), William H. Whyte discusses professional advancement on the basis of achievement exams. He observes that those who are admitted to the higher echelons are the ones who best fit the personality matrices on which the tests are based. Following Whyte's advice, if one wishes to score well on the registration exam, consider the majority opinions; be cautious, conservative and unspectacular. Judgment is rendered synonymous with common sense; nothing more profound or searching is required. Indeed, any deeper, more perceptive thought may be damaging to a person's grade.

It has long been known that standardized exams will discriminate against ethnic and cultural minorities whose

A sample question on which 'a good argument can be made on behalf of all four answers.'

verbal and conceptual patterns are at variance with national norms. In a similar way, superior intellect can be penalized in a multiple-guess exam, especially one constructed to measure judgment.

A fair multiple-guess exam is extremely difficult to write, because of the many grammatical and logical pitfalls that can occur. Scholars like Banesh Hoffmann imply that all multiple-guess questions are inherently defective. One problem is that in order to make an exam that will distribute scores across a sufficiently broad range, the questions must encompass a full spectrum of difficulty. It certainly wouldn't do to have all the candidates score the same, or to have the scores be clustered in a very narrow range. How would one decide who would pass or fail?

Difficulty is obtained in an otherwise straightforward question by the introduction of ambiguity. Arrays of answers to a question are designed so that only a very fine difference of meaning may exist between them. Professional test-writers refer to "wrong" answer choices as "decoys," "distractors" and "misleads." Such responses are intentionally devised to lead the test-taker away from the right answer.

The problem is that in making each answer so plausible and ambiguous, the response can be interpreted on many levels of meaning, one of which may accurately and logically point to one answer, while a different choice within the array may be more suitable on another level of meaning.

The test-writers are seldom aware of this added challenge, because they approach the question with preconceptions of the chosen answer.

Let's take an example paraphrased from the 1975 *NCARB Test Guide* as a sample of what the test candidates should be prepared for.

Question: Consideration is being given to using a campanile as a vertical accent to the campus. Where would be the most appropriate location (see Figure 1) for such an element? (A) Location A; (B) location B; (C) location C; (D) location D.

At first, it would appear that the candidate is asked to make a purely esthetic decision. What could be more subjective? What judgment process could the candidate use to reach a decision? More information is needed. It happens that the reading material provided with the exam emphasized the need for a strong pedestrian mall in the campus plan shown in the example. But no reference is made to this aspect of the problem objectives in the question. Apparently, we need to read this much into the question to render it

soluble. Location B would seem to provide a powerful element in defining such a circulation spine.

Another reiterated design objective of the campus master plan, however, was that the most academically important buildings have the greatest psychological and visual impact. Perhaps this question is a test of vocabulary, and the test-taker is expected to recognize that a campanile is only a bell tower and not a sophisticated educational facility. Lacking profound academic import, the bell tower should be relegated to an inconspicuous corner of the campus, such as location A.

On the other hand, location C seems to be a nice balance between the two inferred objectives. The pedestrian way is defined and the bell tower is kept out of the center of attention.

What about location D? More sensitive minds will observe that this location embodies the same relationship as campanile and piazza, as is found in the classic Piazza di San Marco in Venice. Off center, but still visible, the campanile promotes the dynamic flow of space along the main pedestrian axis and down the approach axis, while creating a positive sense of place, a piazza, at their intersection.

Plopping the campanile down, dead center in the intersection, as in answer B, seems heavy-handed and crude by comparison. Such a placement interrupts the important visual and physical flow along the axis, making the campanile a focal point of the campus. It would seem that an "accent" should be a counterpoint to a greater theme and not the primary focal point itself.

A good argument, then, can be made to demonstrate the validity of all four answers, each supported by different levels of meaning. Once again, we are reduced to the "best" among these choices, based on personal preference, or subjective values. To find the selection, look again at location D. It satisfies all the design objectives mentioned in the reading and it draws upon an example from architectural history. D seems a good choice.

According to the answer key, however, the "best" answer is B. By what justification this selection is made is not explained. It must be surmised that the test-graders felt vindicated when B was also chosen by a statistically significant percentage of the higher ranking test-takers. If it had not been, the whole question would have been discarded and it would not have been counted in the scoring.

Counted or not, this question had a definite impact on the test-takers. It took up time, raised doubts in the candidates' minds about the objectivity and fairness of the test, made them wary of all subsequent questions and penalized those with searching, analytical minds.

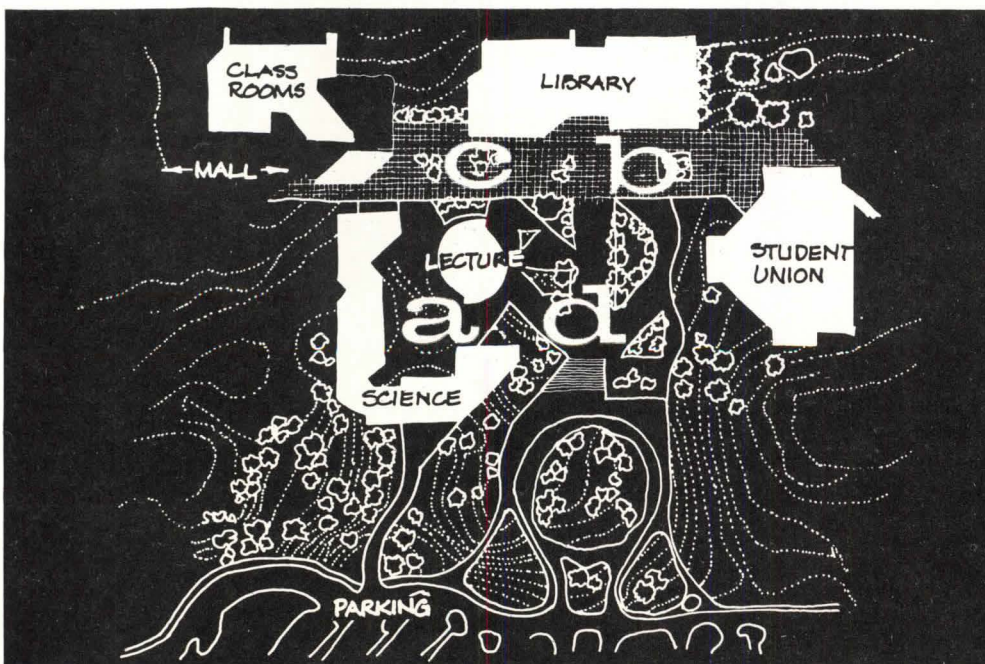


Figure 1

Continued on page 100

Seeing the City Whole: Washington

Charles A. Blessing, FAIA

The beauty and grandeur of Washington is owed to the genius of a single inspired man, Major Pierre Charles L'Enfant. At the heart of his genius was the vision to see the city whole.

Washington today is a prodigious evocation of the power of a great idea expressed so vividly by L'Enfant in 1791 that its natural force has guaranteed virtually complete adherence to it for nearly 200 years.

L'Enfant, by intensive field study, became so familiar with the topographic form of the 100-square-mile District of Columbia that he was able to use its features of elevation and land form as the true basis of his plan.

Washington lies in a shallow bowl, its level base surrounded by hills defining all four sides of the visual city, enhanced by the quiet, reflective waters of the Potomac and Anacostia Rivers. This shallow valley floor made feasible the dramatic geometric lines of a great central mall oriented directly to the axis of the capitol, for which L'Enfant chose the highest point of the lower escarpment, Jenkins Hill, 80 feet above the mall.

A second axis, intersecting the main axis at right angles, fixed both the most important monument in the city, the Washington Monument, the pivotal accent of the plan as a whole, and the location of the White House on a second prominent elevation.

These two axes formed the sides of a right triangle. Pennsylvania Avenue, the hypotenuse, provided a ceremonial route from capitol to White House. This triangle was the great formal control idea for the heart of the governmental city.

L'Enfant selected dramatic high points as centers of great radiating or diagonal avenues, which themselves visually followed high saddles above the surrounding areas. They represent a frame around which is organized the total city plan, extending from the two rivers to the major escarpment and line of hills terminating the L'Enfant plan on the north. □



Mr. Blessing has been Detroit director of city planning since 1953. He received a 1976 AIA medal for his documentation of world cities.



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Tips on How to Get the Most Out of an Office Brochure

Marilyn E. Ludwig

Ideally, architectural firms should revise their brochures every two or three years. In actual practice, it's more likely to be five or six.

Your office brochure is your calling card; it's one of your most important marketing tools. Its job is to represent you, often in situations where you can't be along to represent yourself. And it should represent your present capabilities, your present market and your aspirations for at least the near-term future.

Firms change and grow: They broaden or shift their markets and they acquire new people with new talents and different experience. So the place to begin is not with the brochure as it was, but with the firm as it is, and as you would like it to be.

For example, perhaps the old brochure put heavy emphasis on your reputation as *the* school planning experts in your market area—but now nobody is planning any schools there. Or you have made a serious effort to expand your market geographically—but the brochure doesn't show any projects that are more than 100 miles from your office. Or you didn't include any remodeling projects—but now that's where the bulk of the work is.

So the first thing to do is to identify your strengths, in terms of a realistic assessment of your markets, and your aspirations for the firm. That profile is the basis for the image your new brochure should project.

Another thing to keep in mind is the nature of your audience. First of all, it's not made up of other architects. It consists of clients, or potential clients, and clients have different information needs, about you and your work, from the needs of an AIA design-award jury, say, or the editors of an architectural magazine.

Finally, this audience of clients isn't a captive one. They don't spend any more

Ms. Ludwig, who was formerly AIA's director of public relations publications, is now a partner in the Washington public relations firm Words/Pictures, Inc. She is conducting a series of workshops this fall and winter on brochures for design professionals. See related articles by David A. Johnson (May '75, p. 50) and by David Travers (Aug., p. 48).

time with your brochure than they want to (experts say the average scanning time is under five minutes).

So how do you get maximum impact from such minimal exposure? First, organize your material; discard anything that isn't relevant to that image you developed from your firm profile.

Second, make your copy brief, and use photographs and drawings that help tell your story effectively with fewer words.

Third, make the reading easier by writing your copy simply, clearly and from the client's point of view.

Identify a potential client—a real person, for whom you would like to do some work. Spend a little fantasy time getting inside that person's head, imagining what his or her information needs are, and what anxieties he or she may have about dealing with an architect, or about the process of getting a project designed and built.

What would you tell that person about yourself in a five-minute conversation? Probably, the size of your firm, the scope of your services, a little about your key people; your track record on schedules and budgets (if it's good); what jobs you've done, with emphasis on the ones he'd be most interested in. And finally, some sense of the "personality" of the firm—your image.

There are a lot of common elements in most brochures, but there isn't a cut-and-dried list of essentials. Elements can be combined in different ways. Some may not serve your purpose; if not, eliminate them.

You may want to include some kind of statement of philosophy—an unhappy term, because it sounds loftier than such a statement should be. It should tell your prospect something about the way you work, relative to his or her needs.

Specifically, what services are you prepared to provide? Tell your prospect. For inspiration, consult the AIA Compensation Management Guidelines document. It lists over 100 separate items of service. Among them you may find some you've been providing free, when you should have been getting paid for them. Listing the items separately will remind clients that these are services that will have to be provided, and that you can provide them.

You'll probably want to introduce your

principals and key personnel, with biographies (keep them brief) and photographs. Informal office shots work well (although the shirtsleeves-at-the-drafting-table photo is getting to be a cliché). If you designed the office interiors and want to show them off, this is a good chance.

Remember that the way your people and their working environment look says a lot about your image. So if the normal office costume is bluejeans and bare feet, decide whether that squares with the image you want, or whether something a little more formal would be in order.

Almost certainly you'll list your projects and their locations. Some firms add construction cost figures, but it doesn't actually mean much, unless supplemented with information about the scope of the project, when it was completed and other variables that influence costs.

Project descriptions, in words and pictures, are the heart of most brochures. Choose your best, but also choose projects to show the type of work you want to do, or feel you should be going after (back to the firm profile).

There are other things you can include: reprints of articles by your people or about your work.

Reprints can be impressive. On the other hand, the fact that they're in the differing graphic styles of the various magazines or newspapers where they originally appeared can create a messy look that won't help the overall graphic quality of the brochure. Consider submitting them separately, or putting them in a pocket on the brochure's inside back cover. (This will add to the brochure cost,

Common pitfalls: Information unrelated to reader interests and use of professional jargon.

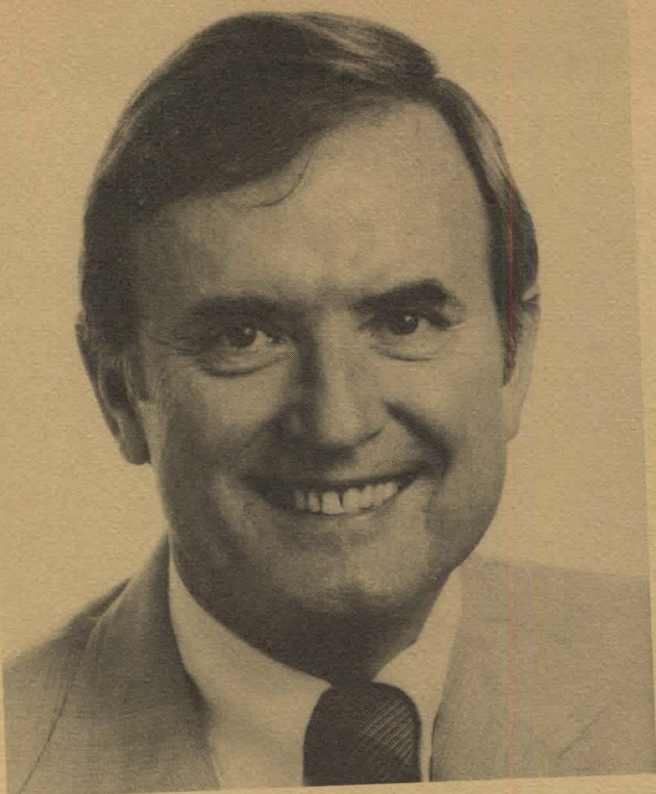
but will give you some flexibility about what you send to whom.)

The organizational process is one of arranging, discarding and rearranging the various elements. The next chore, and one of the toughest, is writing.

Chances are that the easier the reading, the more herculean the effort that went into the writing. Very few writers, including professionals, can turn out a first draft that's a gem. It takes patience and discipline to rewrite and cut and polish, but it is worth the effort.

Bad brochure copy is often bad because the writer wasn't thinking of the reader when he or she sat down at the typewriter. The information may not relate to the reader's interests, or the writing may be so heavily laden with professional jargon that nobody but an architect can read it.

Continued on page 100



**Monsanto Introduces
Donald M. McBride
Manager,
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push the marginal professional into an undeserved leadership role. The role is earned, not decreed.

I find it quite disturbing for AIA to recognize the facts of professional life too late to be an effective voice. The Institute generally takes the posture of following the trends rather than leading them. AIA has led, in a most stimulating way, in many commission reports and studies; it has provided some really aggressive, honest, contemporary leadership. The organization's basic "truths" remain stalemated, however.

Perhaps a new look, an honest appraisal and re-evaluation of our ethical standards

Mr. Meyer heads his own firm in Moline, Ill. **Mr. Pearce** is the principal of his Arlington, Va., firm.

000 student architects, as noncommitted currently —AIA architects, the inherent being an architect—the technical capability and design serving common human welfare goals with the architect's style.

social prohibitions have contempt and indifference they mistakenly protect. cing architects, AIA and gn and domestic, embrace uths of the architectural rminate against AIA mem- ness of architecture.

**...e that we can
...habitat, let us
...the marketplace.'**

...ce, AIA

mental objective of archi- to provide a pleasant, and enriching physical t not true that our envi- efully short of that objec- ot this situation discredit ion? Until architects gain ecisions that daily cheapen nvironment, until we n that emphasizes the s of building and devel- we develop the clout to d innovations put into cannot hope to improve and the profession can- or.

he second-class citizens lustry. Penniless and cumb to the demands of s, impossible budgets d counterproductive codes. The cry of the

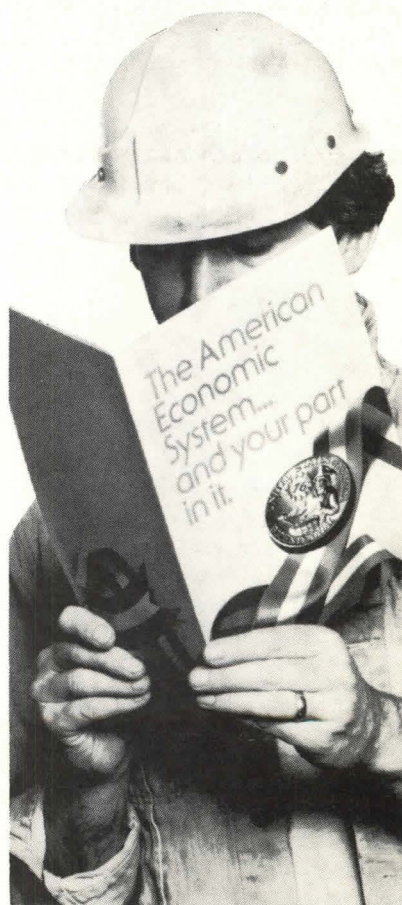
typical architectural office is "don't lose the commission!" And compromise is an everyday expectation. This is a sorry state for a profession that should be equipped to make things happen.

If we believe that we can improve the habitat, let us prove it in the marketplace by designing, building and delivering to the public superior environmental products. Let us restore the tradition of designer/builder, and let us take advantage of the honor (and profit) of seeing the entire project through. There is no aspect of the building industry that architects cannot master. We have the skills. We lack only the nerve to accomplish what we now lament.

AIA will foster this and other productive attitudes if it does not help perpetuate the growing impotence of this profession. □

**Our
American
Economic
System is
 good bad.
(check one)**

Most Americans (about 80%) believe that our economic system—with its individual freedom—is the best in the world, yet some changes are needed. To help give you a clearer picture of our system on which to base decisions, a special booklet has been prepared. For a free copy, write: "Booklets," P.O. Box 1887, New York, N.Y. 10001.



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change which makes past experience dubious as a guideline.

These rules of thumb relative to common major departments, such as radiology, surgery and laboratory, are generally substantiated by the detailed studies of this book.

But enough of this caviling and carping and philosophizing. Learn we must, and this is a reasonable book for doing so. I recommend it. *Herbert McLaughlin, AIA*

Construction Delays: Responsibilities, Risks and Litigation. James J. O'Brien. Boston: Cahners Books International, 1976. 367 pp. No price given.

"If a faulty engine on an occasional Mustang must be replaced, hardly a ripple is felt in the financial condition of Ford Motor Co. By contrast, if something goes wrong on a construction project—delays, litigation, etc.—it can result in financial disaster for the architect or the contractor." So says Louis de Moll, FAIA, in the foreword to this recommended book which addresses some critical problems of construction.

Delay, as O'Brien says, is costly. Generally, there is no winner nor loser, "but rather two (or more) losing situations," with litigation being "an attempt by one party to shift more of the cost to the other party."

The first part of the book discusses such matters as the causes of delay, construction law, plans and specifications and the viewpoints of A/E, owner, contractor and subcontractor in construction delays and litigation.

Part 2 concerns the litigation process itself, both in pretrial and in trial or arbitration. There is information as well on the preparation of the case and on damages. A section on reference cases follows, and here are extracts from actual court cases. The book concludes with a study of the delays and litigation involved in the John Hancock Tower in Boston, written by Rita Tatum, former associate editor of *Building Design & Construction*.

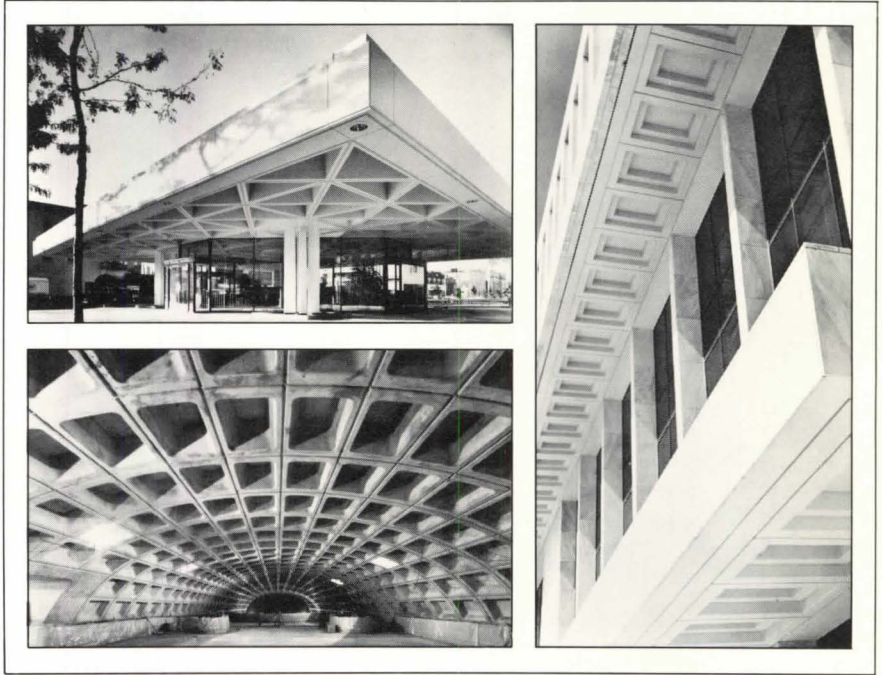
The book is timely and a valuable reference for all persons concerned with construction.

Measuring Impacts of Land Development: An Initial Approach. Philip S. Schaenman and Thomas Muller. Washington, D.C.: Urban Institute, 1974. 93 pp. \$2.95.

Rationality has been the *leitmotif* of the planning profession for the past 50 years. Before rationality became an idea whose time had come, planning objectives grew out of cultural philosophies, contemporary tastes and political ego trips. This, of course, makes today's technocrats exceedingly nervous and, in my opinion, justifiably so. The Urban Institute, through its land use center, has produced

continued on page 90

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The steel-framed, long-span system: a natural choice for five new Florida parking garages.

Five new open-deck parking garages, accommodating up to 3,402 cars, are serving Florida's state employees in Capitol Center—a complex of government offices in Tallahassee.

The steel-framed, long-span concept was chosen over competitive systems for reasons combining economy, construction speed and aesthetics.

From the start, sites were selected and the respective structures designed with every intention of preserving visual harmony with the existing buildings and landscaping of Capitol Center. The happy result of this careful planning is that most of the trees are still there!

THE GREATEST ECONOMY

As many as eight different structural systems were used as models for evaluation. This in-depth study, which examined construction speed as well as material costs, showed that structural steel framing with composite cast-in-place concrete decks had the potential for the greatest economy.

The decision proved wise. Construction cost per car is figured at approximately \$2,400—a unit cost substantially lower than comparable facilities in Florida.

NO FIRE PROTECTIVE MATERIALS NEEDED!

One of the decisive elements in establishing the low-cost estimate for the steel-framing system was the fact that the steel structures could be left exposed and unprotected—except for painting.

Changes in the regulations of a number of building codes (and fire insurance rates) have been effected through a research project

carried out at Scranton, Pa., under the auspices of the American Iron and Steel Institute. The dramatic and fully documented Scranton Fire Test was an actual auto burnout in a normally occupied open-deck public parking garage. It confirmed the results of previous tests: *an automobile fire in these structures is a low-hazard fire.*

STANDARD MODULE

For all the five facilities (named Alpha, Beta, Gamma, Delta and Epsilon) the designers selected a standard bay module, which proved to be a major factor in cost-cutting.

Each bay measures 55-ft. wide with a 20-ft. distance between columns and a floor-to-floor height of 10-ft. These dimensions allow angle (58 degrees) parking for standard-size cars and perpendicular parking for compact cars.

Self-parking is, of course, made easier by this amount of long-span, column-free space.

3,446 tons of ASTM A36 steel went into the five facilities which, together, have a floor area of 1,074,909 sq. ft. Only two column sizes were used throughout: W10 x 49 and W10 x 72. All beams are W24's with the majority weighing 68 lbs. per linear foot. Design loads are 50 psf for roofs and floors.

United States Steel is ready to help you with your design of a long-span, open-deck garage. For a Structural Report on the Capitol Center Parking Garages, and for further information, write to U.S. Steel, P.O. Box 86 (C624), Pittsburgh, Pa. 15230. Or contact a USS Construction Representative through your nearest USS Sales office.



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Steel Fabricators: Joint venture organization:
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Aesco Steel, Montgomery, Alabama.
Florida Steel Corp., Jacksonville, Fla.
Steel Erector: North Florida Erection Co., Inc., Jacksonville, Fla.

Circle 18 on information card

Books from page 87

a book which should substantially reduce the anxieties of suburban technocrats in the planning profession, increase the anxieties of central city technocrats in planning and provide those of us who are planning technocrats emeriti the luxury of debating yet another schema for rationality in our profession.

The authors have hedged their bets and guaranteed their redemption (prema-
turely) by pointing out that their work needs tempering in the arena in which it is applied, must be based on local community objectives and can only be superior to the irrationality of current planning techniques.

The book focuses on five areas: economy; natural environment; esthetics and cultural values; public and private services; housing, and social conditions. The analysis is most suitable for the evaluation of fairly large projects in urban settings.

In the first part of the book in a section called "Developing and Using a Set of Impact Measures," there is a valuable list of possible impacts of development. This list is similar to the work AIA accomplished in the late '60s and published as *A Checklist for Cities*, with the exception that the Urban Institute categories are clearly normative whereas AIA's *Checklist* is taxonomical. This book does

make a contribution to improving rationality in the planning process.

Rationality may not always be beneficial. For example, housing of almost any type (but particularly for moderate- and low-income people) virtually never pays its way. The income generated from taxes and other revenues from the inhabitants seldom covers the costs of the services extended to the occupants of these housing units. In a local government, where the municipality is run like a business, housing can only be conceived as a very irrational land use. However, if the role of local government is perceived as service oriented, that is, its purpose is to provide services, then the rationale can mitigate the exclusionary problem.

The notion here is that there are many forms of rationality. The system of rationality in measuring impacts of land development tends to focus on the first definition of the general objective of local government and, as a result, could cloak exclusionary social policies in the legitimacy of planning rationality. So what else is new?

A quote from the book illustrates the point: "A point which would not have had to be made until recent years is that a good deal of the discussion in this report about the complexity of growth should not necessarily be interpreted as arguments against community changes. Many

citizens and interest groups, frustrated with the shortcomings and disappointments of current land use practices, are indeed taking this position. The point of this report is not so extreme or absolute. Rather, it holds that the options for change should be examined more carefully and systematically, and selected with more discrimination than often has been the case."

A little less discrimination may be beneficial. Again, for better or worse, this is a useful publication. *Michael B. Barker, AIP, Administrator, AIA Department of Environment and Design*

A Dictionary of Architecture. Nikolaus Pevsner, John Fleming and Hugh Honour. New York: Overlook Press, 1976. 554 pp. \$17.95.

The compilers of this dictionary are distinguished architectural historians. This expanded edition of a volume first published in 1966 contains 2,400 entries and more than 1,000 illustrations. Placing an emphasis upon the history and development of architecture, the dictionary covers architects, architectural terms, styles and specific buildings. It is interesting to read under "United States architecture" this comment: "The American freeways, parkways, trunk roads, turnpikes have no competitors. Their boldness

continued on page 92

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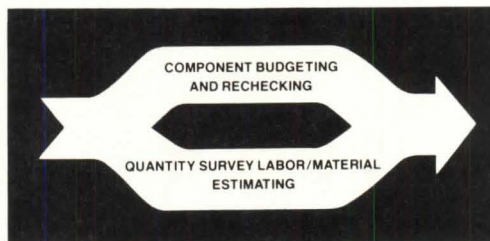
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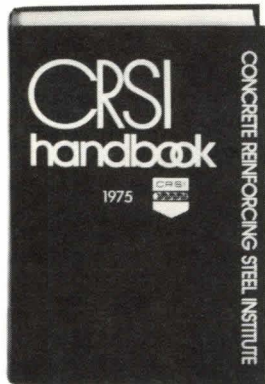
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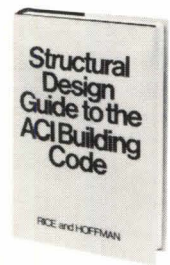
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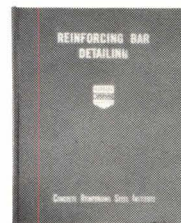
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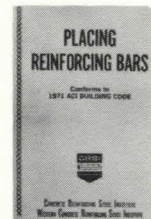
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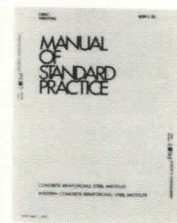
C *New edition simplifies splicing.* Revised for changes in the ACI Building Code. **Reinforcing Bar Splices**, 3rd Edition, 1975. 30 pages. Soft cover, illustrated. **\$1.50** postage paid.



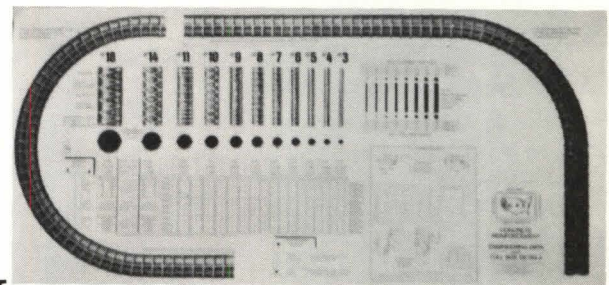
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Books from page 90

and their intricacies of junction are stupendous. But they place the motor vehicle above man. Man, unless he is engaged in driving, suffers in both the country and the city—in the country by neglected landscape, in the city by ruined townscape.”

Quest for the Rainbow: Basic Steps in Building Churches. Jules Donald Jernigan, AIA. Grand Rapids, Mich.: Baker Book House, 1975. 48 pp. No price given.

Committees responsible for building churches will welcome this guide to the basic factors which have to be taken into consideration in carrying out a building program. There is information on the site, the design, the building, the plans, the furnishings and the financing. The booklet is illustrated with plans and diagrams.

Building Services. Peter R. Smith and Warren G. Julian. London: Applied Science Publishers, 1976. 313 pp. 12 pounds.

Nearly half the cost of structures with sophisticated equipment can be allocated to building services. Therefore, say the authors of this book, it behooves the architect to make himself familiar with service systems and to consult a specialist early in the design process. They view building services as an essential part of the total design. They discuss the space requirements of both people and of machinery as well as the relationship of the structure to its environment, which is all-important in the proper functioning of equipment. Emphasis is placed upon energy conservation. There are chapters as well on specific services, such as water supply and sanitation, lighting and electrical distribution and communications.

Peoria One: Downtown Pre-1920. Peoria, Ill.: Architectural/Historical Survey Committee, Peoria, Section/AIA, 1976. 22 pp. \$2.75.

This publication by Peoria, Ill., architects surveys the “architectural assets which remain of a once energetic, healthy business district.” The structures described and depicted include such building types as churches, schools, union halls, stores and the Rock Island Depot. All the buildings, still in existence, are “distant reminders of a proud past.” It is explained that no attempt was made to “dwell on those aspects of the architectural landmarks which have been spoiled by inappropriate use, by splashy commercial signage, inappropriate neighbors, overhead wires, or which have been lost forever to the wrecking ball.” Rather, the purpose is to create public interest in structures which can be readily recycled and adapted to contemporary use.

The book may be ordered from Leslie H. Kenyon, AIA, who chaired the com-

mittee responsible for the project. His address is 735 N. Knoxville Ave., Peoria, Ill. 61602. The price per copy is \$2.75, which includes postage.

The Pantheon. William L. MacDonald. Cambridge, Mass.: Harvard University Press, 1976. 160 pp. \$12.50.

Most critics doubtless would agree with MacDonald in his view that Hadrian's Pantheon in Rome “is one of the grand architectural creations of all time” and that the structure has been highly influential in the architecture of the Western world. Despite this fact, MacDonald believes that the “ultimate meaning of the Pantheon remains, in its complexity, enigmatic.” His book searches for the meaning and makes an assessment of the structure's significance.

He turns his attention first to the facts, discussing the structure's history and describing the building. He then considers its historical background and the principles of its design. Finally, he discusses the meaning of the Pantheon's symbolism and assesses its role in the history of architecture.

The theme of the Pantheon, MacDonald writes, was unity. It was the “unity of gods and states, and the unity of perpetual existence and function of the state with the never-ending revolutions of the planetary clockwork. . . . To unify unities is to produce the universal, and this is perhaps the Pantheon's ultimate meaning.”

Although the book is based upon scholarly research, its author has the gift of being able to write entertainingly. The book will interest the average reader, as well as the architectural historian. There are many diagrams and photographs, and footnotes are in the back of the book to not interfere with the reader's pleasure.

A Language and a Theme: The Architecture of Denys Lasdun & Partners. London: RIBA Publications, 1976. 119 pp. 3.50 pounds.

Earlier this year, the Heinz Gallery in London (a public gallery forming part of the Royal Institute of British Architects' collection of architectural drawings) mounted a major exhibit of the work of Denys Lasdun & Partners, architects of the new National Theatre on London's South Bank. The exhibit, held in connection with the opening of the first productions at the theater, spanned the work of the British firm from the '30s to the present time.

This book, with the same title as the exhibit, is not a catalog, however. Rather, it is a detailed survey of the firm's work. The buildings and projects in the copiously illustrated book include flats in St. James' Place, the University of East Anglia and other structures, including the National Theatre itself.

The Works in Architecture of Robert and James Adam. Edited with an introduction by Robert Oresko. New York: St. Martin's Press, 1975. 184 pp. No price given.

First published in three volumes over a period of nearly 50 years (from 1773 to 1822), this new edition brings text and illustrations together into a single volume. The editor also provides a new introductory essay on the brothers Adam and an updated bibliography.

The first edition was in both French and English, and the present one eliminates the French text. It also differs in that plates have been rearranged in order to group together all of the designs of specific buildings. The book will please historians and biographers who are interested in the way in which Robert and James Adam evolved their style of architecture and decoration.

Memo to Ambulatory Health Care Planners. New York: Educational Facilities Laboratories, 1976. 35 pp. \$2.

EFL predicts that major investments in ambulatory health care facilities will be made in the next decade. It recommends “creative and sensitive planning” in order to prevent unnecessary expenditures and “unresponsive” design. The trend toward ambulatory facilities, says EFL, is the result of increased public demand, greater acceptance by the public of some form of national health insurance, rapidly rising health costs and changes in medical services, clientele and personnel.

The memo discusses a variety of ambulatory care settings, suggesting several options to the planner, such as building new facilities, modernizing existing facilities, converting “found” spaces. It also discusses the establishment of human services centers, or “one-stop shopping” for all social services. The emphasis always is upon greater humanization of facilities and flexibility.

Drawing File for Architects, Illustrators and Designers. Marc Szabo. New York: Van Nostrand Reinhold, 1976. Unpaged. \$12.50.

Human figures help set a mood for renderings and strengthen the composition, says Szabo in this book which provides over 200 pages of drawings of people—people engaged in all kinds of activities, in various kinds of wearing apparel, in groups, alone. There are also drawings of boats and cars. “Drawn as large as possible, the figures can be reduced by photocopying machine or flopped, increasing their usefulness many-fold,” Szabo says. And he points out that the pages can be torn out easily to make a “fingertip scrap file.” Szabo also has printed complete packages of 250 sheets in five sizes, available on acetate. Smaller

continued on page 95



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competitions and general public relations. There are many handsome photographs in black and white and in color.

Architectural Presentation Techniques. William Wilson Atkin. New York: Van Nostrand Reinhold, 1976. 196 pp. \$15.95.
There are more than 300 illustrated examples of renderings by an array of architectural firms in this book, the aim of which is to help the architect show a client what a building will look like before it is constructed. It includes presentation techniques which range from pencil sketches to computer graphics, surveying the materials and equipment required. The book is a useful tool for any architect's office.

City in Print: A Bibliography. R. Charles Bryfogle. Agincourt, Ontario, Canada:

other stars in the San Francisco firmament. All the contributions are admirable, well written and delightful reading, making the book singularly rewarding.

Architecture in the United States: A Survey of Architectural Styles Since 1776. Ralph W. Hammett. New York: Wiley, 1976. 409 pp. \$20.

This book surveys American architecture and notes for each structure included its date, architect, history and general characteristics. The sections of the book are divided historically, going from "architecture and freedom" (1776-1860) to "the jet age" and beyond. Each section is introduced with a general statement of the historical, social, economic and technological influences of the period. It's a useful handbook for ready reference.

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Geodesic Math and How to Use It. Hugh Kenner. Berkeley, Calif.: University of California Press, 1976. 172 pp. \$5.95.

The technique of exploiting a three-way grid of tensile forces to make shell-like structures without supporting columns is called geodesics. Geodesic structures have many advantages, but they haven't been used very much since Buckminster Fuller, FAIA, introduced them a quarter of a century ago, says Kenner, because "they are mathematically derived structures, and the mathematics hasn't been easily available." Fabrication is no trouble, with today's technology, he comments, but the problem is "learning what the specifications should be." This book, then, tells how to calculate the required details of a geodesic structure's geometry, and only a pocket calculator with trig and power functions is necessary. The book is not the average person's bedside reading, of course, but its step-by-step guidance will intrigue those who will enjoy the mental exercises.

Land Use Planning Abstracts. New York: Environment Information Center, 1976. 527 pp. \$50.

The first volume of this reference work was a guide to land use literature published from 1970 to 1974. This second volume covers 1974 and 1975, "turbulent years," the publisher describes them, in land-use legislation, judicial actions and publishing effort.

The work contains an overview of land use planning by Russell Train, administrator of the Environmental Protection Agency, and of land use legislation by Edward Murray and Warren Burkett of the magazine *Urban Growth*. The volume lists 110 land use related bills (33 of which became law), reviews 15 major court cases, lists 385 new books and several thousand abstracts from journals and reports.

Designed to give the researcher "a single source reference guide," the book is useful also to those who want to get at ephemeral publications that are hard to find—copies of abstracted materials can be ordered through EIC retrieval services in hard copy or microfiche.

The volume is available on 10-day approval from Environment Information Center, Inc., 124 E. 39th St., New York, N.Y. 10016.

Fundamental Structure: Nature's Architecture. David L. Drabkin. Philadelphia: University of Pennsylvania Press, 1975. 30 pp., 50 plates. \$25.

Through photo-microscopy, Drabkin reveals that crystalline hemoglobin structures are hauntingly beautiful in form. Norman N. Rice, FAIA, says in the foreword to this handsome book: "David Drabkin, renowned biochemist, as scien-

tist, discovered the crystals of the hemoglobin of man and studied the different and marvelous forms of hemoglobin crystals in other species. His mastery of photography enabled him to present that beauty for everyone to enjoy."

Rice says that when he saw the photographs in an exhibition several years ago that he was deeply moved. "I was struck especially by his inspired pairing of the positive and negative images of a single subject that emphasizes the three dimensional structure, the architecture, of the crystals."

Rice tells of how the photographs were shown to his students at the Philadelphia College of Art as "prime examples of nature's peerless beauty in design." Then it was easy, he says, to compare hexagonal structures with the hexagon geometry of some of Frank Lloyd Wright's buildings. And he gives some good advice to those who are fortunate enough to see the photographs in this book: "Enjoy the beauty they reveal, not through mathematics, nor through explanations of natural causes, nor through beliefs in some mode of art. Enjoy them through your innate sense of proportion, of order, of beauty."

Drabkin supplies an introductory text in which he tells about the 1958 exhibition of his photographs at the Philadelphia Art Alliance. He also tells about his good friend Louis I. Kahn and their mutual respect for each other because each had the "inner will to understand." Kahn said of Drabkin's photographs: "Wonderful!" As indeed they are.

Economic Growth and Neighborhood Discontent: System Bias in the Urban Renewal Program of Atlanta. Clarence N. Stone. Chapel Hill: The University of North Carolina Press, 1976. 256 pp. \$13.95.

Stone's premise, as laid down in his concluding chapter, is that "... power relationships are stably (but not inalterably) structured into positional advantages and disadvantages, and that 'slack' resources are relatively ineffective as a means for changing a system bias."

He sees this as a revisionist theory as opposed to a pluralist concept, arguing that pluralists make faulty assumptions about the visibility of public decision making and exaggerate the ease with which an electoral challenge can be mounted.

In the case of Atlanta, which forms the admittedly limited basis for his conclusions, Stone examined the social, political and economic forces of the city during the 1950s and '60s as they related to the promises and performances of the William Hartsfield and Ivan Allen Jr. administrations.

The so-called slack resources of Stone's

premise are the community groups which sought prohousing policies. Meanwhile, the business and political coalition in control opted for development near the central business district under the banner of urban renewal and usually at the expense of existing low-cost housing.

The book is tightly written and edited and well documented.

Energy Information Abstracts. New York: Environment Information Center, 1976 (published six times a year). \$175 per volume, including annual cumulative index; \$150 for current subscribers to *Environment Abstracts* and *The Energy Index*.

This new service provides across-the-board coverage of the field of energy, specializing in policy and planning issues, new energy sources, energy alternatives, energy economics and conservation. Each issue contains more than 500 abstracts of state and federal publications, task force reports, research documents, conference papers, etc., as well as coverage of some 1,000 energy-related international periodicals. Copies of abstracted documents are available through EIC's retrieval service. For more complete information, write: Environment Information Center, Inc., 124 E. 39th St., New York, N.Y. 10016.

The Architectural Index for 1975. Ervin J. Bell, AIA, editor. Boulder, Colo.: Ervin J. Bell, 1976. 68 pp. \$9.

Invaluable for any office library, this annual index is a comprehensive record of what has been published in 1975 in nine publications, including the AIA JOURNAL. Entries are cross-indexed under location, general building type and architect or designer. Such headings as "Energy," "Handicapped Design" and "Waterfront Development" lead the user quickly to articles on these subjects.

Back issues to 1951 are available, as well as hard-board binders to hold five issues. For additional information, write: *The Architectural Index*, P.O. Box 1168, Boulder, Colo., 80302.

Interior Lighting for Environmental Designers. James L. Nuckolls. New York: Wiley, 1976. 371 pp. \$22.

There is no sight without light, as Nuckolls reminds us, "so the way in which structures and objects in our world are illuminated makes a tremendous difference in the way they look to us and how we respond to them. It stands to reason, then, that lighting is an essential design and building element." The purpose of the book, he says, is to define the "many new challenges" of lighting design and to "describe the creative fundamentals of designed lighting in a way that will bring a more complete understanding of its potentials to those who can utilize its strengths."

The book is arranged in three major parts, the first of which gives the reader an introduction to lighting, with attention given to such matters as color and light, light sources and the control of light. The second part reviews lighting techniques, outlining calculations, luminaries, electrical control and lighting layouts. The third part is a survey of lighting design, and there is a discussion of theatrical and photographic lighting design, architectural lighting design, lighting's effect in terms of the "human condition" and architectural lighting and associated phenomena.

The Behavioral Basis of Design. Book 1: Selected Papers. Peter Suedfeld and James A. Russell, general editors. Stroudsburg, Pa.: Dowden, Hutchinson & Ross, 1976. 381 pp. \$22.

This is a compilation of papers prepared especially for the seventh annual conference of the Environmental Design Research Associates. The book contains, however, less than a third of the number of papers submitted for review. The quantity received, says the editors, illustrates the "vigor of the environmental research field. An even better sign, of course, is the excellence of the papers included here."

The essays, all related to the conference's theme of the behavioral basis of design, are arranged in four sections. The first section's papers concentrate on how the gap can be bridged between research and design. The second section, on "Environmental Perception and Cognition," deals with the processes in the interaction of man/environment. The next section on "Environment and Behavior" has a wide range. There is, for example, a paper on attitudes regarding land use in southeastern Montana; another discusses subjective response to noise; another is a comparative study of two prisons for women. The fourth section considers the evaluation of design research. Part 2 of the volume contains contributions by the invited speakers and other conference proceedings.

Underground. David Macaulay. Boston: Houghton Mifflin, 1976. Unpaged. \$8.95.

The architect who is looking for an appropriate book to donate to a school library or to give to a young inquisitive reader can stop his search with this book. It will fascinate the young person and teach him about the network of walls, columns, cables, pipes and tunnels under the modern city. Macaulay has invented a site at the intersection of two streets, exposing a typical section of network. The book's many drawings and clear descriptions of building foundations, subways and sewer, electrical, telephone and gas distribution systems make a complex subject understandable. "By better understanding the things we can't see in a familiar environment such as the city,"



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Macauley says, "we can learn to appreciate the array of unseen structures and systems, both manmade and natural, which surround us wherever we go." Macauley's other widely acclaimed books for young readers are *Cathedral, City* and *Pyramid*.

Richard Meier, Architect: Buildings and Projects 1966-1976. Introduction by Kenneth Frampton, postscript by John Hejduk. New York: Oxford University Press, 1976. 239 pp. \$35 hardbound, \$15 paperbound.

This handsome and copiously illustrated book documents the work of Richard Meier, FAIA, over the past decade. As John Hejduk, AIA, remarks in the postscript, Meier's "dense, solid, obsessive and unremitting work is overwhelming." Meier's architecture has a message, Hejduk says: "It's an old message, clear and useful. Most of all it's transferable, it's simple and it's devoid of convoluted intellectual musings. The message is that architecture can lift up the spirit and make life a little better." Meier himself observes that in the works illustrated he has "simply attempted to realize the clarity of form that is at the heart of my ongoing investigation."

In the introduction Kenneth Frampton provides a critique of Meier's architecture in which he sets Meier's contributions in the context of modern architectural thought. "What works by the more prominent members of this so-called third generation," asks Frampton, "can really equal this work for the measure of its scale and articulation, and for the brilliance of its technique?"

The works depicted and commented upon include Meier's buildings that have won AIA honor awards: the Smith house in Darien, Conn. (1969), the Wesbeth Artists Housing in New York City (1971), the Twin Parks Northeast Housing in the Bronx, N.Y. (1974) and the Douglas house in Harbor Springs, Mich. (1976). There are many other buildings and projects as well, such as the Olivetti headquarters building in Fairfax, Va., and the Bronx Development Center, which Frampton calls "without question a seminal achievement and the culmination of the collective efforts of the Meier office over the past decade."

Designing Houses: An Illustrated Guide. Les Walker and Jeff Milstein. Woodstock, N.Y.: Overlook Press, 1976. 153 pp. \$10.

This book by two architects is for the layman "who wants to create a more personal plan than an architect might design." The book, say the authors, is also for "those people who want to learn what an architect does." Each step in planning is illustrated with many diagrams and a few photographs. □

Odessa City Hall, Odessa, Texas.
Architects: Peter and Fields

DOORWAY NOTES . . .

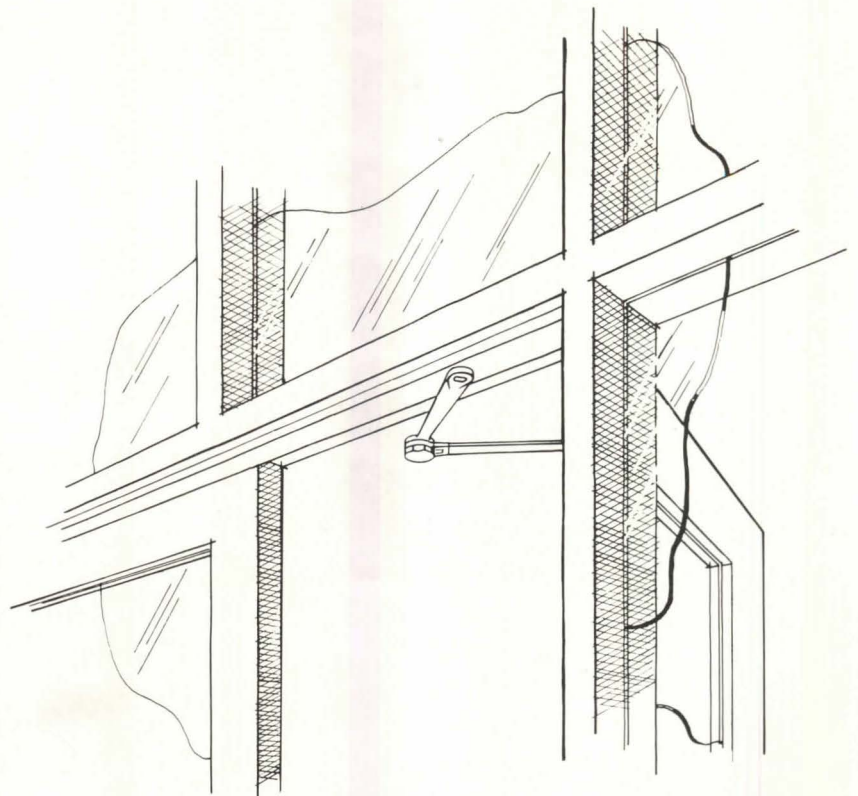
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'A multiple-guess exam cannot gauge creativity, traditional hallmark of the profession.'

continued from page 79

To be sure, ambiguity, if not arbitrariness, has been consciously used to artificially create difficulty in the question cited, but unintended complexities appear to the keener mind. Alas, hard questions are hard, not because they demand depth and quality of reasoning, but because they present fine distinctions about which there is a basis for legitimate differences of interpretation.

Unquestionably far superior in its relevance and fairness to the previous four-day-long exams, the new machine-graded tests can be further improved. At its worst, the exam is no more than an inherently subjective and arbitrary means of generating a statistical distribution for filtering out candidates unacceptable to the establishment. The registration exam must be objectively criticized to enable the candidates to become aware of the means of overcoming its defects and also to refine and improve future exams.

A correct answer, arrived at by guessing, or by wrong methods, receives full credit, while a wrong answer, achieved by insight, creativity, sensitivity or depth of understanding, is worthless. Realizing that multiple-guess exams do not measure the quality of reasoning, the test-wise candidate will develop a healthy cynicism for the registration exam as a matter of survival strategy. It would be unfortunate if this cynicism were transferred to a person's regard for the profession as a whole based on the experience of the exam.

For his own success, the candidate *must* take the pragmatic course by shaping his own values to match those of the test-writers, at least during the exam. He must strive for averageness to fit within the bell-curve distribution of current architectural thought. There is no need to pick the best answer, or even to "psych out" the values to which the test-writer subscribes. All that is required is to pick the answer most of the other candidates will choose.

To score well, one's personality and values must resonate to the median frequency. Those who mold themselves in the image of the composite stereotype architect will make "right" selections nearly every time.

This means that the questions must be approached on their most superficial level of meaning, minimizing inferences and expecting little in the way of profundity. The successful exam-taker will play hunches; stopping to think will only cause confusion. First impressions are usually right. More contemplative consideration may well be penalized. Answer choices that demonstrate strong-minded, visionary

or creative solutions must be avoided at all costs. Finally, the test-taker cannot quibble about defective questions, special cases, implied or contingent conditions but must consider only broad, general statements taken at face value.

The most disappointing aspect of the registration exam, however, is not its occasional (though not infrequent) defective or ambiguous questions; rather, it is the fact that the standards by which the exam measures the candidate are so inconsistent with the ideals of the profession. A multiple-guess exam cannot gauge creativity, a traditional hallmark of architecture. The inherent bias of any multiple-guess format favors the quick-reading, nimble-witted candidate who forms fast, superficial judgments; conversely, the test penalizes strongminded, original and sensitive test-takers. This admissions policy would seem to militate against the strengthening of the profession's collective creativity and analytic acumen.

But what else can be done? To some extent, there will always be inaccuracy in evaluating applicants for registration, for, as in the physical sciences, a kind of Heisenberg uncertainty principle is in effect here. The very act of observing or measuring a phenomenon alters the behavior of the subject. Although it can never be perfected, the testing procedure can be improved. If judgment is to remain a quality deemed worthy of measurement, then some modifications must be made to the structure of the exam scoring.

One refinement in judgment questions where there can be no absolute "right" or "wrong" response is to give partial credit for second or third choice answers. The scoring might establish: full credit for selecting the predetermined best choice, half credit for selecting the next best choice and quarter credit for the third best choice. This method would tend to reduce the arbitrariness of the single-reference value system.

To entirely eliminate the arbitrariness of the judgment questions requires that no value be assigned as a standard against which to measure responses. Instead, the tests could be scored for consistency of policy throughout all judgment questions. Currently, computers are used for the statistical tabulation of individual responses. It would be a relatively simple matter to compare judgment question responses on each candidate's exam for evidence of their internal consistency of policy rather than their conformity to an external, arbitrary norm.

Finally, individual boards of registration should claim enough autonomy to be able to override a failing score on the exam if, in their opinion, the candidate demonstrates proficiency in those areas which the exam cannot measure accurately. □

'A brochure should always be designed by a graphic arts professional, if at all feasible.'

continued from page 82

Keep your hypothetical client in mind as you write. Does the client know what you mean by "programming?" Is "comprehensive architectural services" understood? Or should you substitute phrases that mean more to somebody who isn't in your business?

When it comes to choosing illustrations, keep in mind that not all architectural photography is good brochure photography. The architectural photograph has traditionally been geared to showing the qualities of a building that win design awards or get it published in the architectural press. This often means unpeopled exterior shots to show the overall form, and super-closeups to show the texture of the aggregate.

A good brochure photograph, on the other hand, should get across the idea that the project was designed for people to use. And—unless it happens to be a mausoleum—that they enjoy using it.

Often the best brochure photography shows very little of the building. But it may convey something much more important: the idea that this is an exciting space where exciting things happen.

If a look through the photo library is discouraging, consider spending the money for some really good professional shots of your best projects. They probably look even better now that all those spindly little trees have had time to grow.

Never put a rendering of a completed project in a brochure if you can help it. For one thing, it fosters the idea that what architects do is draw pretty pictures. For another, it may make the reader wonder whether the finished building really looked that good, or whether, in fact, it ever really got built.

Charts and graphs can sometimes communicate complicated information quickly. For example a bar-chart, with calendar months arranged along one axis, can show how fast track scheduling shortens the design and construction process.

Charts should be simple, neat and professional. Legends should be set in type rather than hand-lettered. This is a job for a professional graphic designer.

In fact, a brochure should always be designed by a graphic art professional if it's at all feasible. Architects sometimes decide to save money here, perhaps on the theory that anyone who can design an \$8-million building should be able to lay out an eight-page brochure. Design is design, isn't it?

Well, yes. And medicine is medicine. But would you rather have a surgeon take out your appendix, or a dermatologist? □

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LETTERS

Information Requested: John Cresson Trautwine (1810-1883) was a distinguished Philadelphia architect and civil engineer who studied under William Strickland (1787-1854). In 1883, Trautwine made two drawings of a new building for the Second Presbyterian Church in Carlisle, Pa. For his efforts, he was awarded in the spring of 1835 an inscribed silver goblet.

I am very interested in obtaining information on the present location of the drinking cup. A reward is being offered for information leading to the cup, as well as the drawings of the church.

Also I would like to have a photograph of Samuel Sloan (1815-1884), another Philadelphia architect.

Richard L. Arnold
110 Meeting House Springs Road
Carlisle, Pa. 17013

With Apologies: Martin Bloom's article on theater architecture in the June issue was of great interest to us. Unfortunately, our pleasure in it was somewhat diminished by the omission of any credit to Hugh Stubbins & Associates as architects for the Loeb Drama Center, Cambridge, Mass. The omission was all the more un-

fortunate since the design of this theater was a team effort.
Susan Braybrooke
Public Relations Consultant
Hugh Stubbins & Associates, Inc.
Cambridge, Mass.

Evaluation; Education: The August issue deserves praise for the articles on post-occupancy evaluation. The application of this process to low-cost housing projects is of special significance to the profession, as well as to housing authorities responsible for setting standards and formulating programs. It deserves a high priority if we are to improve our urban environment. Cooperation from diverse professionals and governmental agencies is needed to develop simple methods, carry out the evaluation process and then use the findings for subsequent projects.

I also read the article "Mobilizing Architectural Students as Environmental Educators" with great interest. We must educate the general public to understand the built environment in order to gain its appreciation of our profession.

Architectural schools, unfortunately, are not evenly distributed throughout the country. Certain metropolitan areas would be saturated with architectural students while other areas, which would greatly benefit, would have no students.

I have struggled for a year to start a program at the local elementary schools

and would certainly welcome the help of architectural students. Michael Kraus, AIA
Brookline, Mass.

Information Desired: We are producing pilot articles for a new magazine, *The Hidden Architect*, a national monthly dedicated to exposing the talents and accomplishments of the individual practitioner and the small architectural office. We would like to receive brief autobiographies, project data, color slides and 8x10 black and white photographs of any work considered unique, progressive, innovative or intriguing, designed and built in the last five years. If a submittal is used, the architect will be contacted for interviews and editorial permission for publication. Zachary W. Henderson, AIA
P.O. Box 76297
Atlanta, Ga. 30328

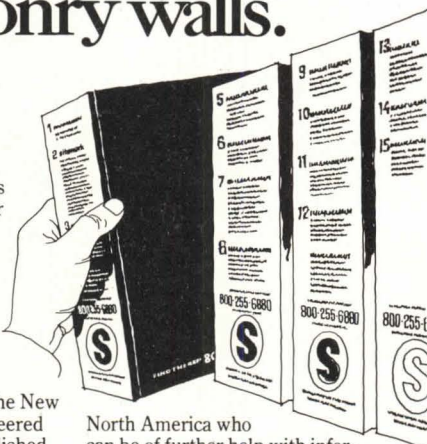
Adaptive Use: The National Trust for Historic Preservation welcomes and thanks the AIA JOURNAL for the excellent articles in the June issue concerning adaptive use and for mentioning our conference and publication, *Economic Benefits of Preserving Old Buildings*. The articles were interesting and authoritative and should have wide and beneficial influence.

There is one aspect of adaptive use which, although beyond the scope of the articles, may be of interest to your read-

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North America who can be of further help with information or technical counsel on this economical and revolutionary building system.



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ers. It is that adaptive use is a socially responsible undertaking.

It is less costly, in terms of resources consumed, to rehabilitate and adapt sound old buildings to new uses than to demolish them and build anew. The energy crisis and the astronauts' photographs from space have dramatized the fact that we are carrying with us our entire finite supply of resources. Consequently, we all lose a bit of our patrimony—in resources as well as in architecture—with each unnecessary demolition.

It seems to me that our country has come to the end of the age of profligacy, and that adaptive use must be practiced more and more broadly as we enter the age of resource conservancy. *James Biddle*

President

*National Trust for Historic Preservation
Washington, D.C.*

Addenda to the July Issue: I imagine that all readers of the *AIA JOURNAL* are dashing off their own lists of architectural favorites, inspired by the bicentennial issue. Of those buildings and building complexes mentioned, at least 10 are on my list. But there is a truly unacceptable omission. Baldwin Hills, Radburn, Chatham Village, the Larkin Building, Ghirardelli Square, the Atlanta and San Francisco Hyatt Regency Hotels and Rockefeller Center were merely the har-

bingers for arcologies. Paolo Soleri's Arcosanti is the most important building complex of this century and the next.

*Charles W. Quinlan, AIA
San Luis Obispo, Calif.*

The July issue's collection of the "proudest achievements of American architecture" included parks and town plans, a fountain and even entire cities. Having an equally broad opinion of what constitutes architecture, I was nevertheless dismayed at the omission of one truly remarkable building: the Commonwealth (Equitable) Building in Portland, Ore., by Pietro Belluschi.

Built in 1948, it was the first structure of its kind erected after World War II and it is still considered to be one of the most sophisticated glass-faced skyscrapers in the country. It received immediate praise in architectural magazines and proved to be highly influential in the design of a number of similar buildings throughout the country, but with none surpassing it in refined excellence.

Its many technical innovations, its use of aluminum and glass and its early date make it a building without precedent but with many imitators.

John A. Nelson

*Department of Landscape Architecture
University of Illinois
Urbana, Ill.*

Jefferson and the Constitution: The absolutely delightful July issue, including comments on the "Eye of Jefferson" exhibition, completed my history-buff joys for the summer. The deep thought and understanding that brought forth the issue is surpassed only by the splendor of the magazine itself and the printing of both text and illustrations.

I was particularly intrigued by the manner in which the respondents who were asked to name America's proudest architectural achievements approached the subject, and it made me wonder what different projects they might suggest if they were asked to do it again.

Many of the respondents are long-time acquaintances, and I was delighted with their depth of understanding and the variety of their knowledge of history. Yet, I was surprised to read that Jefferson, a resident of Paris at the time, had written the Constitution and wondered why Eero Saarinen was not given credit as well as his father for Cranbrook. (Eero designed the part depicted on p. 105.)

Nevertheless, this is such a valuable project that I shall have it hardbound and shelved with my other treasures. Should the magazine find a scholar willing to provide errata, this addition would be properly installed in other bound copies.

*Robert Ingle Hoyt, AIA
Santa Barbara, Calif.*

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EVENTS

Nov. 22-26: Association of Student Chapters/AIA annual forum, Columbus, Ind. Contact: Dennis Dimoff, Lawrence Institute of Technology, 21000 W. Ten Mile Road, Southfield, Mich. 48075.

Dec. 2-4: Metric employee/educational training seminar, Dunfey's Royal Coach Inn, Houston. Contact: George Buchanan, American National Metric Council, 1625 Massachusetts Ave. N.W., Washington, D.C. 20036.

Dec. 5-7: Airport Design and Construction Conference, Las Vegas. Contact: Bruce Schafer, AIA Headquarters.

Dec. 6-10: National Plastics Exposition, McCormick Place, Chicago. Contact: Society of the Plastics Industry, 355 Lexington Ave., New York, N.Y. 10017.

Dec. 7: Workshop on the design and construction of energy-efficient buildings, Iowa State University, Ames, Iowa.

Dec. 13-14: Professional examination. Contact: National Council of Architectural Registration Boards, 1735 New York Ave. N.W., Washington, D.C. 20006.

Dec. 13-15: Seminar on Solar Energy for Domestic Heating and Airconditioning, Miami. (Repeat seminars: Feb. 14-16, San Francisco; Mar. 28-30, New York City; May 2-4, Chicago; June 20-22, Washington, D.C.). Contact: Heidi E. Kaplan, Dept. 14NR, New York Management Center, 360 Lexington Ave., New York, N.Y. 10017.

Dec. 31: Entries deadline, art contest on Visions of the Future (graphic arts and audio-visual media). Contact: World Future Society, 4916 St. Elmo Ave., Washington, D.C. 20014.

Jan. 10-14: Short course on Airconditioning Design: Equipment and Components, University of Wisconsin, Madison, Wis.

Jan. 12-28: Third annual Building Construction Institute, University of Wisconsin, Madison, Wis.

Jan. 27-29: Annual convention and exhibition, Iowa chapter/AIA, Drake University, Des Moines, Iowa.

Feb. 2-6: Society of Architectural Historians annual meeting, Biltmore Hotel, Los Angeles. Contact: SAH, 1700 Walnut St., Philadelphia, Pa. 19103.

Feb. 14-17: Short course on summer/winter airconditioning, Oklahoma State University, Stillwater, Okla.

Feb. 16-17: Construction Management Workshop, Iowa State University, Ames, Iowa.

Feb. 24-25: Federal Programs Conference, Hotel Hyatt Regency, New Orleans. Contact: Pat Parker, AIA Headquarters.

June 5-9: AIA annual convention, San Diego.

GOING ON

Continued from page 26

housing units now under contract to turn-key contractors and will retrofit 15 already occupied units. The architects and engineers have made on-site reviews to verify the appropriateness of the selected units for use in the demonstration. They have defined a mix of demonstration objectives for each site. The variables to be demonstrated and compared include solar collector types, building types, solar heating system types, solar collector mounting location variables and solar heat storage variations.

Solar Energy at School Saves \$12,500 per Year

After a year-long evaluation of a solar energy system installed in the North View Junior High School in Minneapolis, it has been determined that the school saves about 6 percent in total energy costs, amounting to 4,000 gallons of oil, or about \$12,500 during the year. The installation was designed, installed and evaluated by Honeywell's energy resources center under a contract with the Energy Research and Development Administration.

The solar system, now in use for two years, consists of 5,000 square feet of solar flat-plate collectors mounted near the school building. A water/antifreeze solution, passing through the collectors, is heated by the sun to 130 to 150 degrees F, and on sunny days the temperature often goes higher. The mixture is then pumped to the school's air and hot water heating systems to supplement conventional fuels.

School officials say that the system is capable of producing over 4 million BTUs per day, or 1 billion BTUs per year. Normal output during the year's testing period, which took into account all the months of the year, was 500,000 BTUs per hour. On one sunny day in winter, the system operated at a maximum output of 900,000 BTUs per hour.

Except for minor adjustments early in the project, there have been no maintenance problems, school officials say, and plans are "to continue using the solar system indefinitely."

Prairie School Archives

The Milwaukee Art Center, subsequent to a year's pilot project, has established the Prairie Archives to provide a resource for the study of American architecture, with emphasis upon the prairie school. The multifaceted program is funded by the National Endowment for the Arts, the

Wisconsin Arts Board and private sources.

The program will include:

- The development of architectural archives, including highly specialized materials on the work of such architects as Louis Sullivan, Dankmar Adler, Frank Lloyd Wright and their disciples, and general materials which reflect the development of American architecture.
- The establishment of a center for the study of archival systems. The format of documentation already devised has been adopted by a number of libraries and institutions across the country. Preparation for computerization is under way, as well as a cross-referencing of institutional holdings on a national basis.
- The encouragement of the general public's understanding of the built environment. The archives will act as a catalyst in the development of a wide range of exhibitions and educational programs directed at the integration of architecture and related building arts with the fine arts. It will also act as a resource for various university work and study programs.

I. Michael Danoff, acting director of the art center, says that the Midwest, "the birthplace of contemporary American architecture," is the "appropriate and logical" location for the archival facility.

Midwest Towns Compete For Revitalization Aid

Midwestern towns in the 5,000 to 65,000 population range which have "architectural character" are invited to participate in a competition sponsored by the National Trust for Historic Preservation. The aim is to help the towns revitalize their older central business districts. The competition is limited to towns in Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, North Dakota, Ohio, South Dakota and Wisconsin.

The National Trust will select three towns from among the entries, and a project team will work intensively for a year with the towns to help them develop "practical, achievable programs of economic and architectural revitalization." The towns will be monitored for several years afterward, and will become national demonstration models.

Communities which apply must demonstrate "strong commitment" for the implementation of recommended strategies and will be required to assume one-third, estimated to be about \$10,000, of the total costs of the project team's involvement. The project team will produce a handbook and a film and will conduct a series of workshops under the cosponsorship of the U.S. Chamber of Commerce.

"Local chambers of commerce or business groups are invited to apply. Com-

continued on page 106

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Going On from page 104

pleted applications must be received by Jan. 3, 1977. For further information and application forms, write: Robert B. Carter, Main Street Project, National Trust for Historic Preservation, Midwest Office, 407 S. Dearborn St., Suite 710, Chicago, Ill. 60605.

AIA Golf Team Sought

The golfing members of the Royal Institute of British Architects have called for a meeting of the RIBA team with a team representing AIA. D. Y. Davies is captain of the RIBA team and F. Carter Williams, FAIA, is AIA captain. It is proposed that two teams of eight members each (handicap scratch to five and handicap five to 15) meet in Pinehurst, N.C., in April 1977 and later in 1978 in England.

Tentative costs for four days and three nights at Pinehurst, including breakfast, dinner, lodging, various activities and many golf courses, is \$250 to \$300 per competitor, plus \$225 for an accompanying (and welcome) spouse.

AIA members who are interested, and able to attend both tournaments, may request further information from J. W. Rankin, Hon. AIA, at Institute headquarters. Please indicate your handicap in responding.

BART Station Bas-relief Honors Architect Maule

San Francisco's Bay Area Rapid Transit District recently opened the last major transit station in the system. Located on Market St., between Spear and Beale, the Embarcadero Station is a major engineering project, although it was the first station in the BART system where the architect was the prime design contractor and engineers were subcontractors. (Architects: Tallie Maule and Hertzka & Knowles; principal architect, Tallie B. Maule, AIA; project architect, William E. Cullen, AIA; engineers, Parsons Brinkerhoff-Tudor-Bechtel.)

Maule was the architectural consultant for all BART stations. After leaving the employ of the joint venture engineering team in 1970, he became architect of the Embarcadero Station. The station, says a BART spokesman, "was the culmination of all the experience Maule had garnered through his professional career and long association with the BART project. Embarcadero was to be his shining architectural achievement." Unfortunately, however, he died on June 14, 1974, never seeing the completed station.

The 700-foot long and 86-foot deep Embarcadero Station "is no larger than the other major subway stations," says Cullen, who served as project architect



with Maule and later with the joint venture, "but the design priorities were different and the result is unique among comparable projects. High priority was given to design considerations, such as openness, traffic flow, quality detail and design symmetry, and the engineers were encouraged to reconsider some standard criteria which conflicted with these priorities."

To create as much space as possible, the station was built without visible supporting pillars, unlike BART's other three downtown stations. The clear-span concept envisioned by Maule lets the visitor see the station's full length and breadth and a three-level expanse of white marble floors, illuminated ceilings, tempered glass railings and carnelian granite walls. There are open areas from base to ceiling at each end of the station, extending through all areas, and it is anticipated that eventually monumental sculptures by Bay Area artists will be placed there.

Many architectural and engineering

problems were encountered, such as the high-water table, which rises to within 13 feet of the Market St. surface, soft earth and tremendous hydrostatic pressures. "There was some question in the early days about whether clear span could even be done, considering the enormous stresses involved," Cullen says.

It is fitting that Maule is memorialized in the granite walls of the new \$30-million station, and Cullen designed, executed and donated a bas-relief sculpture of Maule which was incorporated into the work during the course of construction.

Architects Urged to Use Politics to Shape Cities

Architects will have to use political clout if they want to influence the future of American cities, said newspaper columnist and TV commentator Carl Rowan at a recent conference on the problems of urban and rural growth. Sponsored by AIA's commission on community services and moderated by Leon Bridges, AIA, commission chairman, the conference was held at Institute headquarters.

Architects, said Rowan, will have to "weigh in on social and political issues." Cities cannot be changed, he said, unless city dwellers make use of their political power, especially in such areas as housing. Rowan called for comprehensive federal effort to demonstrate the possibilities of large-scale rehabilitation in two or three selected urban areas in order not to spread resources too thin.

Alvin Poussaint, professor of psychiatry at Harvard University's medical school, told conference participants that a community is "more than well-designed buildings and public spaces. It is the people who occupy those buildings who help provide one another with a sense of well-being and neighborhood." Because of the complex psychological needs of the people whom the built environment serves, he urged architects to collaborate with sociologists, psychologists and city planners.

Economist Alvin Puryear said that because of effective communication and rapid transportation the real differences between urban and rural areas have been erased. He called the economic differences between urban and rural areas "preceptions which are more apparent than real," noting that the same economic problems that plague cities are also experienced in suburban and rural communities. Those concerned with economic growth "must recognize the dependency relationship existing between the urban and suburban/rural sectors," he said.

Rural areas are now experiencing the impact of a new population shift away from cities, said Cushing Dolbeare, execu-

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The Department of Architectural Engineering, University of Petroleum and Minerals, Dhahran, Saudi Arabia, will have faculty positions open for the Academic Year 1977-78 starting 1 September 1977.

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tive secretary of the National Rural Housing coalition. No one appears to be considering the policy implications of such a trend, she said. There are difficulties in the formulation of a growth policy, she pointed out, when suburban interests, which tend to exclude minorities and the poor, are dominant.

Also on the program was Collier Gladin, director of planning for Atlanta, who discussed the role of transportation systems in establishing patterns of urban and rural growth.

Sweet's Tests New Data For Future Catalog Use

AIA's commission on professional practice and Sweet's Division of McGraw-Hill Information Systems Co. are sponsors of a test project aimed at the eventual incorporation of different types of information in the annual Sweet's Catalog Files. More than 30 associations of building product manufacturers are providing non-proprietary product information for the test to evaluate its usefulness for product designers and producers.

Sweet's will soon distribute a trial volume containing literature from concrete, cement, stone, masonry and wood products associations to 500 architectural, engineering and contractor offices to use and evaluate as they select materials and products for new construction projects. If the test indicates acceptance, the program will be extended to associations which represent other basic building products.

The test volume will include three types of information: (1) a profile of each association; (2) generic product information, including charts to compare product uses and limitations and check lists of criteria for selecting different products, and (3) association catalogs, with information common to the products of all manufacturers represented by each association.

At a conference at AIA headquarters when the test was described to potential participants, AIA commission members observed that architects need such information, particularly during the early stages of design when a comparison must be made of products, such as concrete versus steel, brick versus glass, etc.

NAAB Elects Geddis

The National Architectural Accrediting Board has elected new officers to resume their responsibilities in January. William J. Geddis, FAIA, of Cambridge, Mass., former president of the National Council of Architectural Registration Boards and principal in The Architects Collaborative, will become president of NAAB. Jack D. Train, FAIA, of Chicago, former AIA

director and president of Metz, Train, Olson & Youngren, will become vice president-president designate. Robert S. Harris, AIA, will serve as secretary and Thomas J. Sedgewick, FAIA, as treasurer.

New members of the 13-person NAAB board include: Don Schlegel, AIA, former president of the Association of Collegiate Schools of Architecture; John F. Hartray Jr., AIA, former AIA director, and Constance Perin, author, anthropologist and planner.

Airport Architects Sought

Architects with at least 10 years' experience at a responsible level with design teams, a substantial portion of which has been in airport terminal and buildings design, are being sought by the International Civil Aviation Organization in Montreal. At present, ICAO is specifically looking for several architects for its largest current project: the development of three major international airports and the upgrading of 20 small airfields in Saudi Arabia.

Applicants must be "proficient in the latest standards of aerodrome terminal design."

The initial appointment is for a period of one year, with prospects for renewal thereafter.

For complete information, contact: John F. Bowyer, Technical Assistance Bureau, International Civil Aviation Organization, 1000 Sherbrooke St. W., Montreal, Quebec, Canada H3A 2R2, (514) 285-8334.

Deaths

Duane Chambers, Spencer, Iowa
Walter Church, FAIA, Arch Cape, Ore.
Lenard Gabert, Houston
Henry Greybrook, Vancouver, Wash.
Rudolph J. Grosel, Cleveland
C. A. Harmon, Seattle
F. J. Hoffman, Racine, Wis.
David L. Hoffmann, Clayton, Mo.
Irving E. Horsey, Miami
A. Leicester Hyde, Lincoln, Neb.
Charles H. Kiefner, Houston
F. A. Kleinschmidt, Lubbock, Tex.
William Cobb Matthews, Macon, Ga.
Stanley Queen, Oxford, Conn.
R. A. Rosene, Northbrook, Ill.
William A. Stone, Kalamazoo, Mich.
Vernon F. Tinsley, Clearwater, Fla.
Stephen C. Wheelock, New York City
Edward F. Wirtz, Avon, Minn.

Paul Auguste Goettelmann, FAIA: President of the Washington Metropolitan chapter/AIA in 1950-51, Mr. Goettelmann formerly headed Catholic University's department of architecture. He retired in 1974 but continued to teach the history of architecture there. In addition to his many years as a teacher, he was

also a practicing architect who won many awards for his work. He was a partner in the Washington, D.C., firm of Goettelmann & Xepapas until about six years ago and was the architect of such structures as Catholic University's drama facilities and dormitories; the chapel, cloisters and library at St. Anselm's Monastery; St. Anthony and St. Luke's churches (for which he received the Washington Board of Trade's awards for excellence in design); religious facilities at the Marine Corps School at Quantico, Va., and the school of linguistics at Georgetown University.

Mr. Goettelmann, who died on Sept. 16 at the age of 69, earned a doctoral degree from Catholic University and a diploma from the Beaux-Arts Institute of Design. Active in professional and community affairs, he was a former member of the National Council of Architectural Registration Boards, former chairman of the urban renewal panel for Alexandria, Va., a member of the architectural panel for the D.C. highway department and of the D.C. building code advisory committee and past chairman of the committee on continuing education of the Association of Collegiate Schools of Architecture.

Newslines

Two Seattle architects are winners of 1976 Naramore Foundation awards given annually to design professionals for creative or research activity. Thomas M. Kubota of the Bumgardner Partnership will develop a design primer for Seattle's international district. John P. Pangrazio of Naramore Bain Brady & Johanson will experiment in super 8 filmmaking and will produce a sound film to document the design process in a large architectural office environment. The awards program is named in honor of the late Floyd A. Naramore, a Seattle architect and founder of NBB&J.

"Comparison of Doctoral Programs in Architecture, USA" is the title of a chart which reveals program structure, interdisciplinary features and academic programs of the nine university doctoral programs in architecture in this country. It is available for \$30 from Kaiman Lee, AIA, director of the Environmental Design & Research Center, 940 Park Square Building, Boston, Mass. 02116.

"Furniture Designed by Architects: A California View" is the title of an exhibition on view at the Los Angeles County Museum of Art from Nov. 16 to Feb. 20. The exhibit consists of about 20 pieces of furniture designed by California architects from 1900 to the present. Designs by Frank Lloyd Wright, R. M. Schindler and the Greene brothers are included.

Architectural jigsaw puzzles, appropriate for Christmas giving, have been prepared by John Holton of Holton Design Development. Titled "Architectural Heritage of Chicago," the first two puzzles, in a projected series to present landmark buildings and urban areas of Chicago, are done in sepia from photographs by Hedrich-Blessing and depict D. H. Burnham's Reliance Building on one and Frank Lloyd Wright's Robie House on the other. A blurb on the back of each puzzle's box gives a succinct history of each structure, written by AIA's librarian Susan Cosgrove. The puzzles are available for \$7, plus 75 cents postage, each from: Mostly Handmade, Inc., 845 Chicago Ave., Evanston, Ill. 60202.

The Flint area chapter/AIA in Michigan has awarded its 1976 scholarship to Anthony R. Duce who will continue his formal education in architecture at the Lawrence Institute of Technology. The \$1,000 scholarship is offered yearly to Flint students who "are judged to have the greatest potential to achieve excellence as an architect." Since 1963, the chapter has disbursed about \$12,000 to 11 students.

The New Orleans chapter/AIA has published a new *Guide to New Orleans Architecture*. Copiously illustrated, the guidebook is a must for visitors to the Louisiana city. Proceeds from sales will be given by the chapter to the John William Lawrence memorial fund at Tulane University. The book may be ordered for \$5.95 plus handling and postage from the chapter, P.O. Box 52557, New Orleans, La. 70152.

"Barrier-Free Design: The Law" is a publication of the Eastern Paralyzed Veterans Association which explains and illustrates building law and construction code provisions for the physically handicapped under PL90-480 within New York City and the states of New York, New Jersey, Connecticut and Pennsylvania. An aid to architects, engineers, municipal planners and building inspectors even beyond those locations, the publication will be sent without charge to those requesting it. Write: EPVA, 432 Park Ave. S., New York, N.Y. 10016.

The Armour-Stiner Octagon House in Irvington, N.Y., a major landmark of the Hudson River Valley built in 1859-60 and believed to be the only fully domed octagon house in the U.S., has been bought by the National Trust for Historic Preservation. This action is the first use of the National Trust's limited endangered building fund to make an outright purchase. The house will be resold, but with a perpetual protective covenant to ensure its preservation.

Employment opportunities: An executive secretary is wanted by the **Ohio State Board of Examiners of Architects**. Duties include administration of examinations and registration; legislative/administrative relations; office and fiscal management. The proposed salary is \$17,056-\$21,757, plus substantial fringe benefits. Contact: Ohio State Board of Architects, 180 E. Broad St., Suite 1118, Columbus, Ohio 43215. The **University of Washington's college of architecture and urban planning** is seeking a person to chair its department of architecture, with duties to be assumed on July 1, 1977. Nominations and inquiries may be directed to: Grant Hildebrand, College of Architecture and Planning, 224 Gould Hall JO-26, University of Washington, Seattle, Wash. 98105. The **University of Texas at Arlington** invites persons to submit applications for the position of dean of its school of architecture and environmental design. Deadline for completed applications is Dec. 31. Contact: Chairman, Search Committee, School of Architecture and Environmental Design, University of Texas, Arlington, Tex. 76013.

Institute gold medalist Buckminster Fuller, FAIA, has completed 40 hours of color TV tapes, expressing his philosophy. The school of architecture and arts at the University of Illinois' Chicago Circle campus and Lexicon Publications propose to work the tapes into a university extension class that would be followed by a seminar conducted by Fuller. In order to proceed with plans, a guarantee of \$4,000 to \$6,000 is required, which would be returned if the anticipated number of students register for the noncredit course. Interested persons willing to act as guarantors may write William D. Cannon, Lexicon Publications, 201 N. Wells St., Chicago, Ill. 60606.

Charles E. Schaffner, senior vice president of the New York City-based firm of Syska & Hennessy, Inc., is the newly appointed chairman of the Building Research Advisory Board in Washington, D.C. Seven new members have been appointed to BRAB's board, including Frank J. Matzke, FAIA, executive director of the State of Illinois Capital Development Board.

"Women in Engineering" is the title of an article by Leslie A. Westoff in the spring 1976 issue of *University: A Princeton Quarterly*. According to Westoff, women are in great demand as engineers, and their starting salaries have averaged higher than men's.

John M. Rowlett, FAIA, a founder of the Houston-based firm of Caudill Rowlett Scott, was recently presented a gold cub-

istic sculpture in recognition of his 30 years of service to the leadership of the firm. The presentation was made by Thomas A. Bullock, FAIA, chairman of the board of CRS Design Associates, Inc., the parent company of CRS.

The first Sweet's Catalog File, published in 1906, is available in reproduction for \$28.70 per copy. Now a social and historical document, it contains 435 manufacturers' catalogs of building products, ranging from bells to window guards. Orders may be placed with Sweet's Division, McGraw-Hill Information Systems Co., Room 2051, 1221 Avenue of the Americas, New York, N.Y. 10020.

The American Association of Community and Junior Colleges invites persons who would like to be considered as staff members at its more than 900 member colleges to send pertinent information to: AACJC Career Staffing Center, P.O. Box 298-A, Alexandria, Va. 22314.

James J. O'Brien of Cherry Hill, N.J., has received the 1976 construction management award from the American Society of Civil Engineers for his "contributions to the management arts for use in construction management, through his translation of management theories into practical procedures." O'Brien wrote the chapter on network scheduling in AIA's *Current Techniques in Architectural Practice* and led a seminar on the subject at AIA's 1976 convention.

A memorial plaque to Louis Henri Sullivan was recently rededicated at the site of the architect's birth in Boston. The plaque, originally dedicated in 1946, had been removed when the site was razed the following year and was given to the Boston Architectural Center for safekeeping. In the ensuing years, the plaque was forgotten, but two students at the center found it and proposed that it be rededicated on the 120th anniversary of Sullivan's birth. The Boston Society of Architects sponsored the installation, and the plaque was unveiled by George M. Notter Jr., AIA, president of the society.

Paul A. Thiry, FAIA, of Seattle, architectural consultant for Libby Dam's International Treaty Tower on the Kootenai River in Montana, has been awarded the National Sculpture Society's Henry Hering memorial medal for "outstanding collaboration among architect, owner and sculptor in the distinguished use of sculpture." Thiry shares honors with Albert W. Wein, winner of an international competition for the 30-foot high bas-relief, and the Army Corps of Engineers, designers and builders of Libby Dam. □

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