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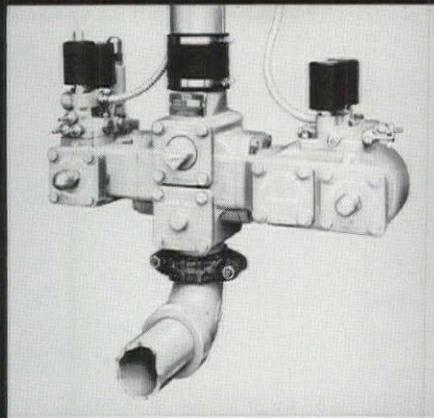
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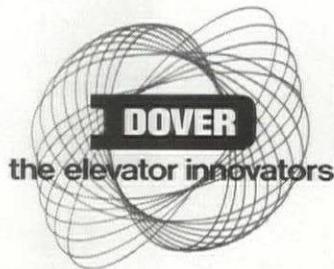
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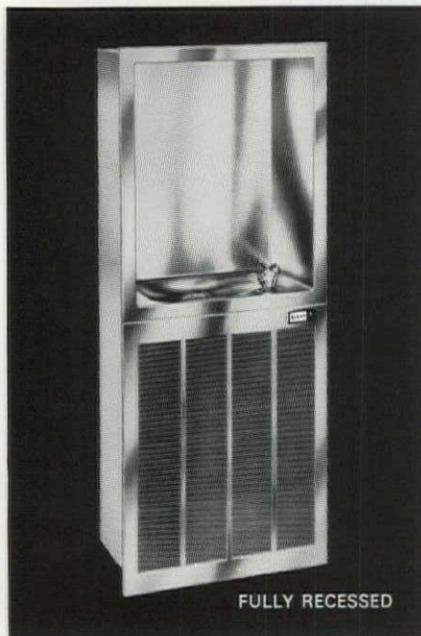




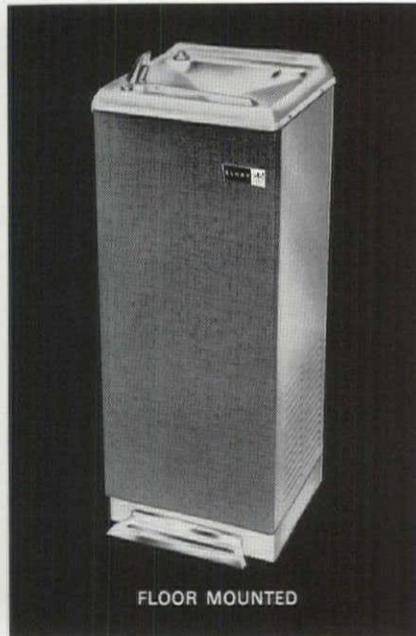
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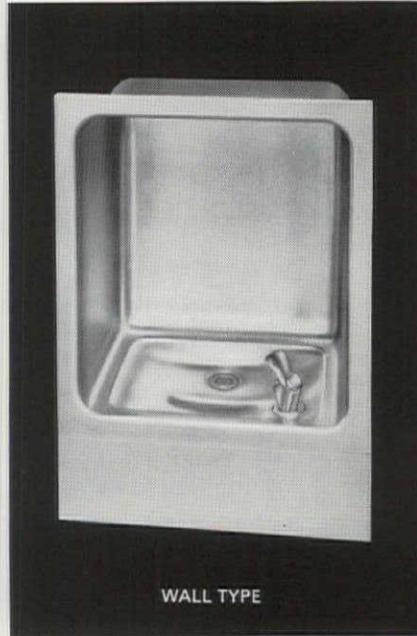
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Cover: The center of Stevenage, an English new town.

Asides

Next Month: How does the building picture shape up for 1970, particularly in terms of the demand for architectural services? What new services will be added and/or expended; and what trends seem to emerge in the size and complexity of building projects? The January issue will attempt to provide some answers, based on the opinions of the practitioners themselves, representing some of the most influential firms in the US.

Other features will take our readers to Boston to see how the profession there handles interiors; to Sioux Falls, South Dakota, for a Practice Profile; to Buenos Aires for a recap of the UIA Congress; to the Octagon House for an account of the restoration, due for completion early next year.

A Timely Topic: Just as the December AIA JOURNAL was going to press with its leadoff presentation on a national urban growth policy, including an account of the British new towns movement, another in the series of the Institute's Vital Questions was being mailed to the membership. Its title: "New Towns: What Architects Should Know About Them" One appears to complement the other, comprising a good package on the subject.

Hurrah for Big D: It was gratifying to see the "Goals for Dallas" program receive the Merit Award for an outstanding citizen participation effort by the American Institute of Planners. The program was reviewed in depth in our last November's issue under the heading "Shaping a City's Future."

The AIP also cited the San Francisco Bay Conservation and Development Commission plan; *Principles and Practice of Urban Planning*, edited by William I. Goodman and Eric C. Freund and published by the International City Management Association; and Hans Blumenfeld of Toronto for his outstanding contribution to planning theory. R.E.K.

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AI-12

Newslines

US Ability to Meet Goals In Housing Questioned; Gains Overseas Are Cited

Can the United States achieve its goal of 26 million new and rehabilitated housing units by 1978?

More and more spokesmen, both on behalf of government and of industry, are expressing doubts as each day goes by.

Said Lester P. Condon, Assistant Secretary for Administration, Department of Housing and Urban Development: "There is no question of need. There is a question of whether the goal is attainable.

"To reach it we must increase our rate of production by better than 60 percent," Condon told a regional housing seminar co-sponsored by HUD and the American Gas Association in San Francisco. "If we are to achieve the goal set for us by Congress, we must learn more heavily than ever before on the resources, the techniques and the expertise of business.

S. Porter Driscoll, AIA, director of the Architectural Division, Federal Housing Administration, said the problem of low cost housing can be solved only with volume construction of mobile and prefabricated living units.

Enter the Mobile Home: Addressing the annual meeting of the

Architectural Aluminum Manufacturers Association in White Sulphur Springs, W. Va., he explained: "We are far behind our estimate of much needed low cost housing — perhaps as much as by 40 percent. The mobile home industry will fill the gap with as many as 388,000 units during next year."

Driscoll, who just completed a tour of Europe where he inspected new factory constructed housing units, reported that product lines developed in France and England were far superior to what is now available in the US.

Negative Voice from Industry: Perhaps the strongest indictment has come from the chairman and chief executive officer of US Plywood-Champion Papers, Inc.

"Frankly, I do not think the goal will be met in the present economic structure of the building industry or with our existing limitations, construction methods and technology," declared Karl R. Bendetsen of New York.

Speaking at the dedication of the American Plywood Association's new \$1 million research center in Tacoma, Wash., he maintained: "One of the major reasons the goal seems beyond reach is the fact that the housing industry has been unable to generate a steady growth pattern. Instead, it has been subjected to mild fluctuations — to a feast-or-famine pattern resulting

from an uneven flow of credit."

Bendetsen said that the housing industry, "to meet its bright promise, needs a stable economic base" and he added on another score:

"The boom in modular construction points to the future and illuminates the challenge facing the forest products industry. If we fail to capitalize on our opportunities, others most surely will."

Lesson from the Russians: Meanwhile, the PCI executive director, returning from a three-week fact-finding tour of the USSR, said he found the Russians far ahead of the US in providing mass housing through the use of systems building techniques.

W. Burr Bennett Jr., a member of the US Government Exchange team studying industrialization of building processes, said the Russians have settled on systems for the factory production of modular coordinated concrete housing units.

"The units we saw," he explained, "are utilitarian and often lack the wide range of architectural surface treatment commonplace in America, but they are sound basic designs well advanced toward fully integrated plumbing, electric and heating facilities."

A Russian delegation which in turn toured the US for three weeks to study construction methods paid a call at the Octagon during its visit to the nation's capital.

Harvard Design School To Get New Building

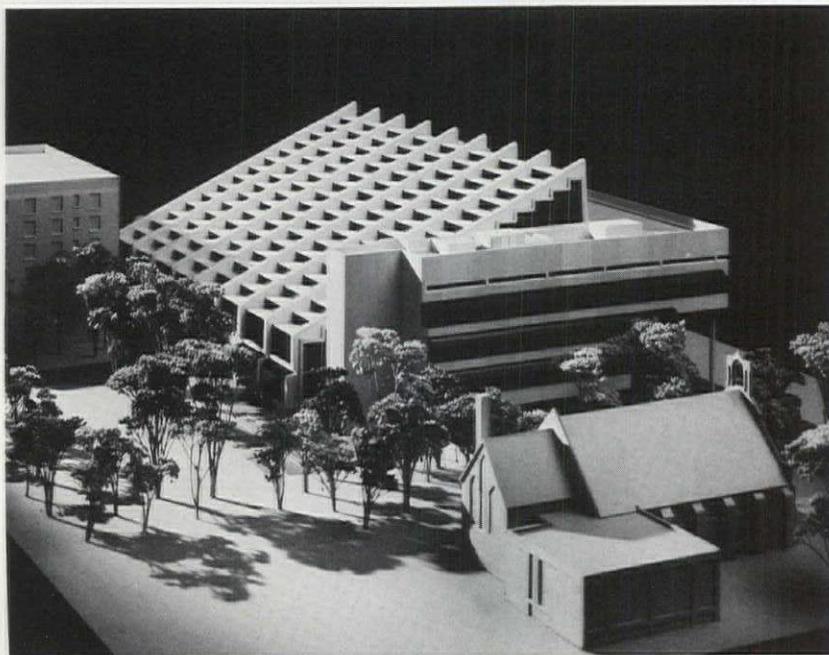
"The building to come is seen not as a monument but as a pledge to these children, to safeguard and improve their heritage of man-made and natural beauty."

So declared Acting Dean Maurice Kilbridge as fifth graders from a Cambridge, Mass., school broke ground for George Gund Hall, a new building for Harvard University's Graduate School of Design.

The structure will house about 400 students, 70 faculty members and a multiplicity of activities, including the Architectural Technology Workshop, the Laboratory for Computer Graphics and Spatial Analysis and the Urban Field Service.

The design by the Toronto firm of John Andrews/Anderson/Bald-

Continued on page 10



Rear view of George Gund Hall, Harvard Graduate School of Design.



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The building is named for the late George Gund, a Cleveland banker and industrialist long active in Harvard affairs. The Gund family and foundation contributed a major part of the construction costs.

Climate-Controlled City Scheduled for Alaska

What its developer bills as "the world's first totally climate-controlled city" will be constructed across from Anchorage on the Knik Arm.

To be known as Seward's Success, the city will be connected to central Anchorage by a high speed aerial tramway, and residents will be transported about on moving sidewalks, escalators and bike paths. Automobiles will be ga-

raged in a heated terminal building on the Anchorage side of Knik Arm.

Los Angeles architects Adrian Wilson Associates are planning Seward's Success, power for which will be generated on-site with natural gas. The central building will be called the Alaskan Petroleum Center and will feature a club on its 20th floor—the maximum height allowable under Alaskan building codes. A commercial mall will include retail stores, restaurants, service facilities and a hotel operated by a major chain.

An enclosed sports arena will be one of the satellite buildings within the first phase of construction. Schools and churches will be integrated into the community master plan. Under the second phase, the aerial tramway will be supplemented by a high speed weatherproof monorail that will circulate through Seward's Success, return to downtown Anchorage and on to the International Airport.

The developer is Tandy Industries, a 50-year-old firm which has been engaged in all forms of construction for the oil industry since the first oil rush days in Oklahoma. More recently it has been active in the field of privately financed dormitories for colleges and universities across the country.

UIA Picks Schwartzman As a Vice President; Vienna Meeting Next

Daniel Schwartzman, FAIA, has been elected one of four vice presidents of the International Union of Architects, a position he will hold until 1972 when the next World Congress of Architects convenes in Bulgaria.

An Honorary Fellow of the Institute, Ramon Corona Martin, Mexico City, is the new UIA president.

The elections came during the 10th congress, which brought 3,000 delegates from 75 nations to Buenos Aires in mid-October (to be reported in detail in the January AIA JOURNAL).

Schwartzman, who is serving as vice president for the Western Hemisphere, was an AIA vice president last year and its treasurer from 1965 to 67. He has been a member of numerous New York and national advisory boards and panels.

Heading the US delegation of seven to the congress was the In-

Continued on page 16

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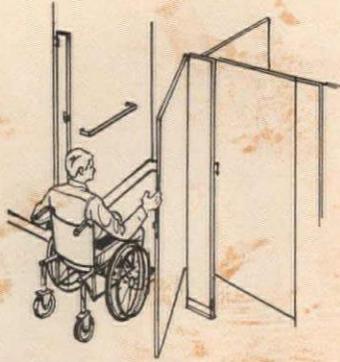
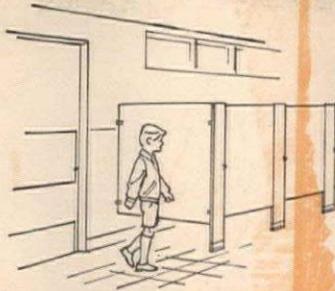
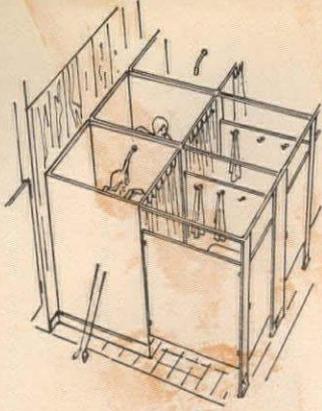
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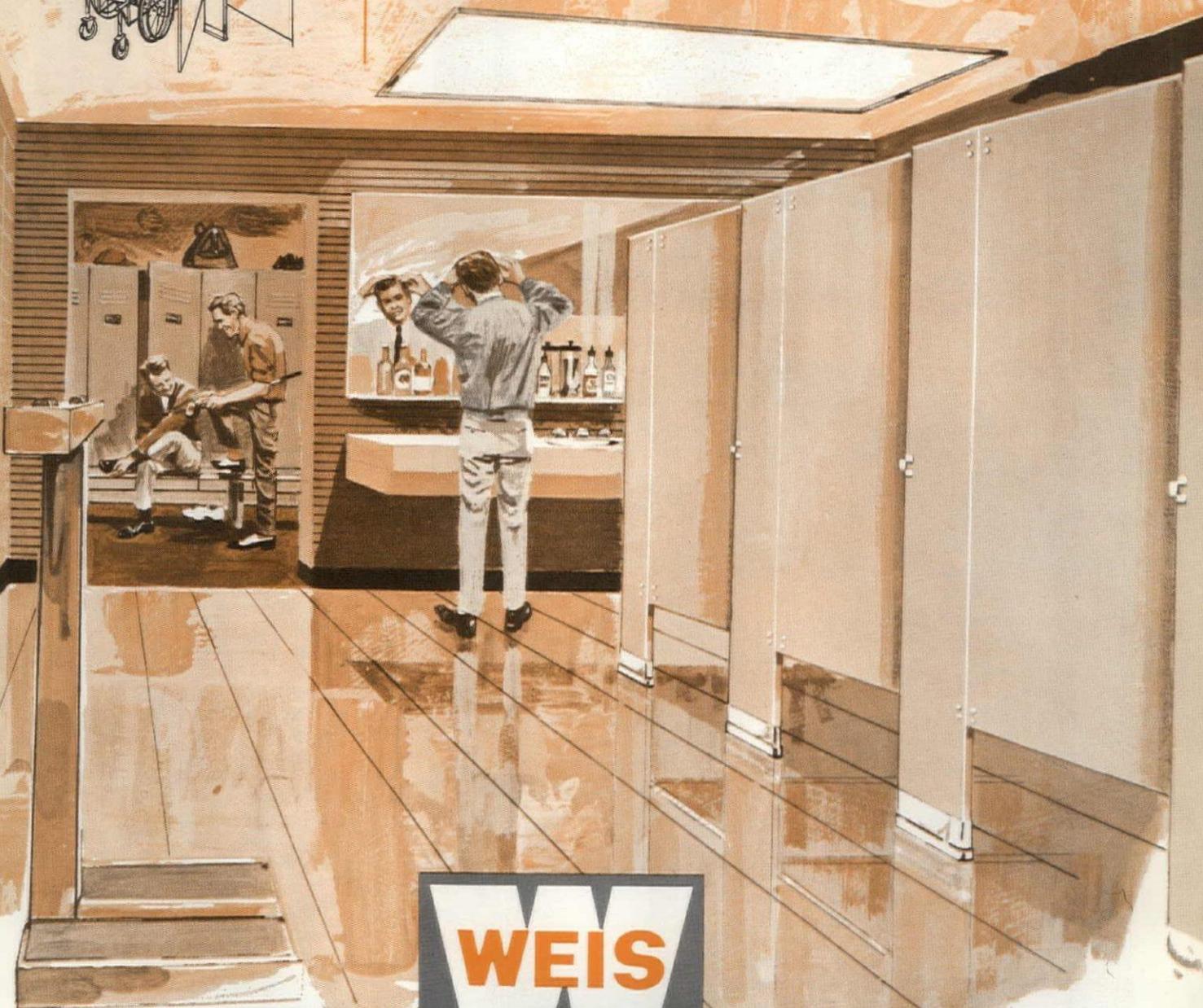
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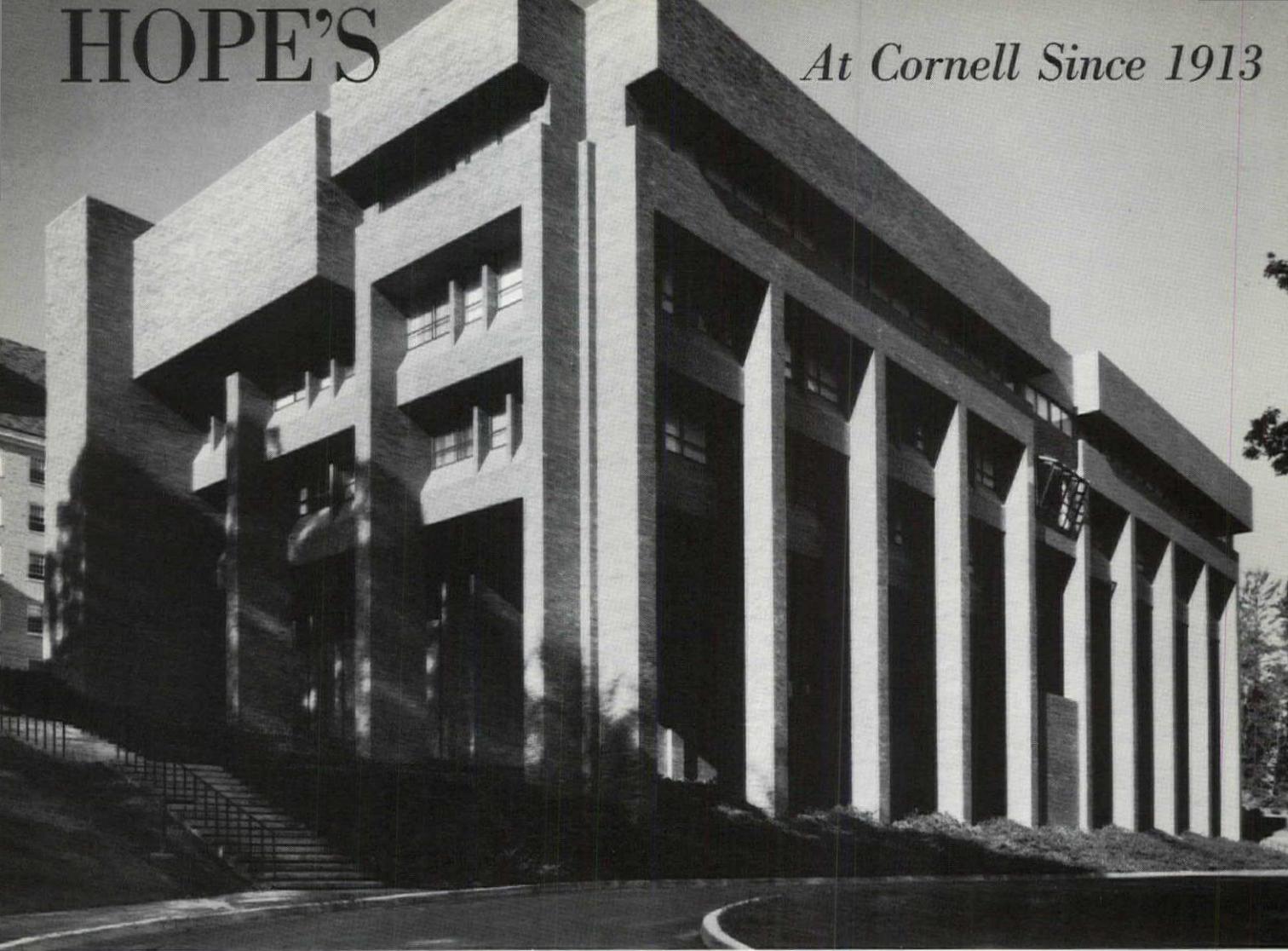


Photo by George Cserna

1966 *Home Economics Building, Cornell University, Ithaca, New York*

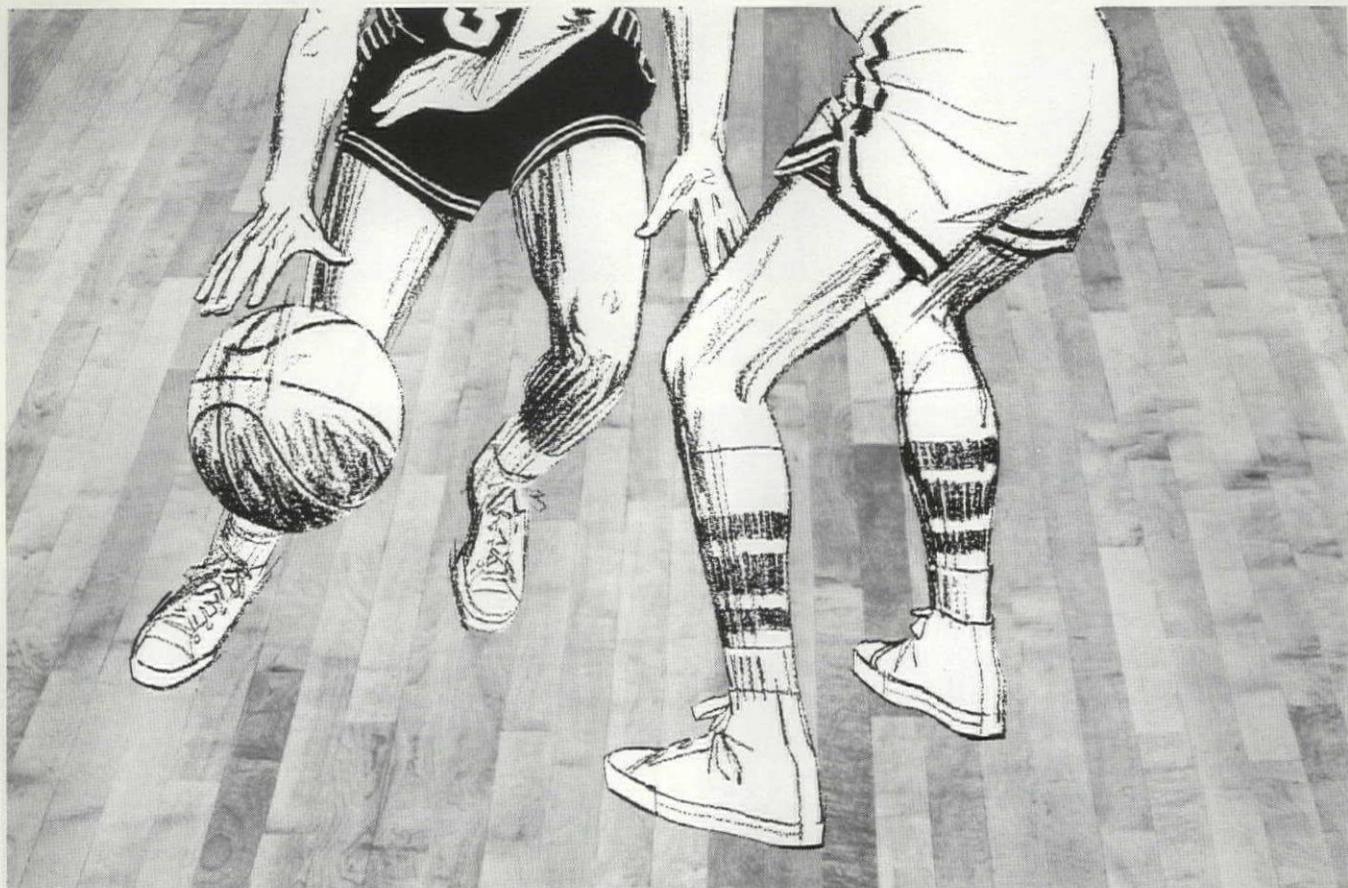
Ulrich Franzen — Architect

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<i>Architects: Day & Klauder</i> | 1954 | Veterinary College
<i>Architect: C. J. White, State Architect</i> |
| 1925 | Willard Straight Hall
<i>Architects: Delano & Aldrich</i> | 1954 | Aeronautical Laboratory (Buffalo, New York)
<i>Architect: Jacob Fruchtbaum</i> |
| 1928 | Boldt Tower (Men's Residence)
<i>Architect: Charles Z. Klauder</i> | 1959 | Poultry Research
<i>Architect: New York State Department of Public Works</i> |
| 1929 | Balch Halls (Women's Residence)
<i>Architect: Frederick L. Ackerman</i> | 1962 | Charles Evans Hughes Hall (Law Student Residence)
<i>Architects: Eggers & Higgins</i> |
| 1946 | Savage Hall (School of Nutrition)
<i>Architects: Skidmore, Owings & Merrill</i> | 1963 | Clark Hall (Physical Sciences)
<i>Architect: Jacob Fruchtbaum</i> |
| 1950 | Anabel Taylor Hall (Interfaith Center)
<i>Architects: Starrett, VanVleck & Eggers & Higgins</i> | 1966 | Martha Van Rensselaer Hall (Home Economics)
<i>Architect: Ulrich Franzen</i> |
| 1953 | Riley • Robb Hall (Agricultural Engineering)
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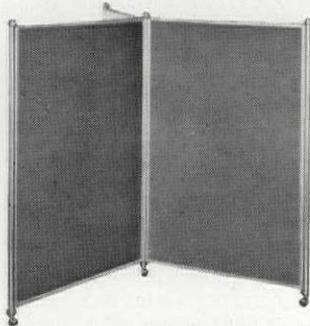
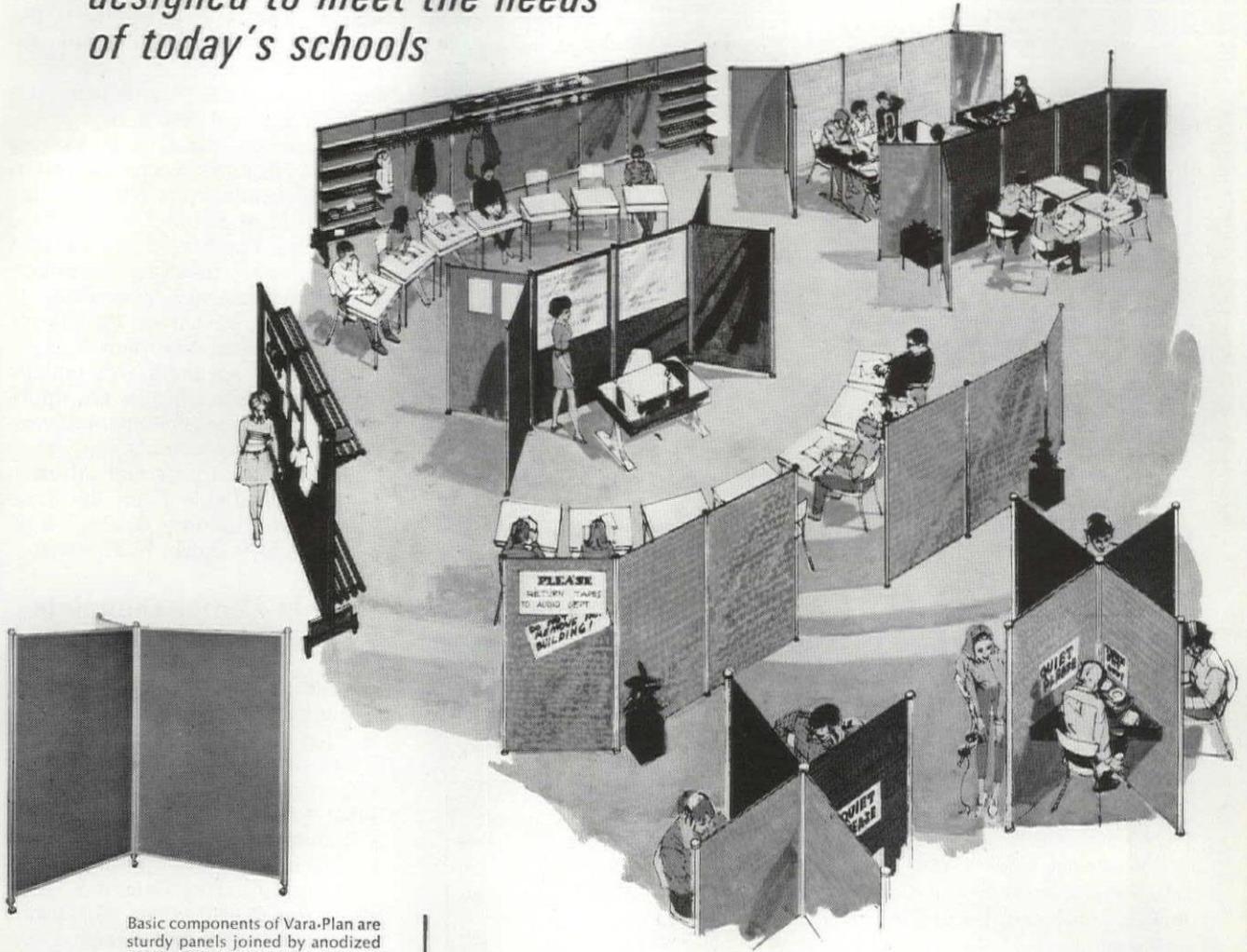
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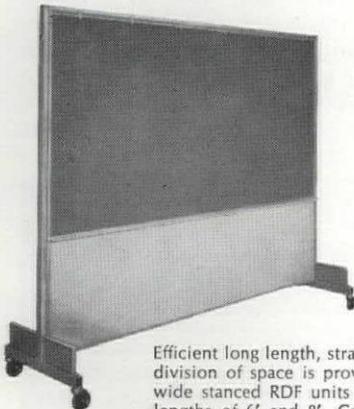
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Efficient long length, straight line division of space is provided by wide stanced RDF units in basic lengths of 6' and 8'. Concealed panel to frame assembly is completely tamper proof.

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Look into these versatile units—they're designed with you in mind. For complete information write for catalog VA- 920

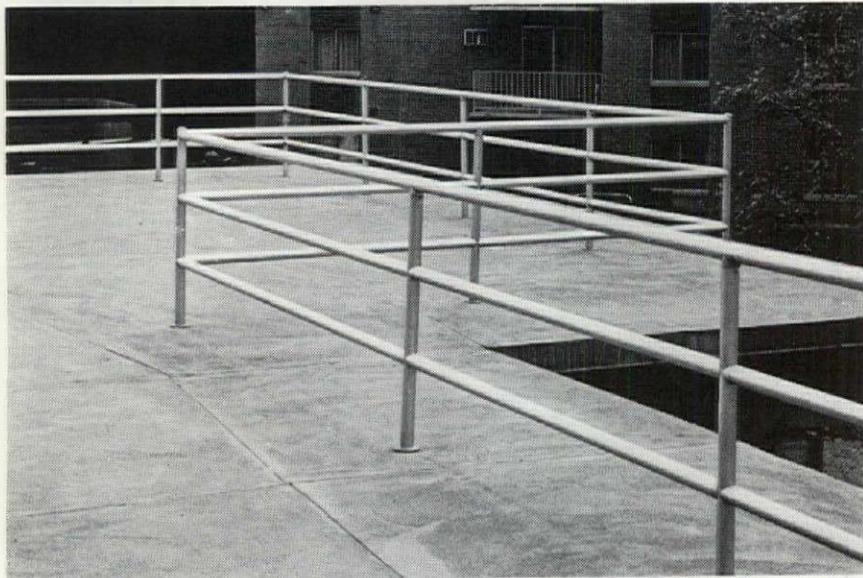


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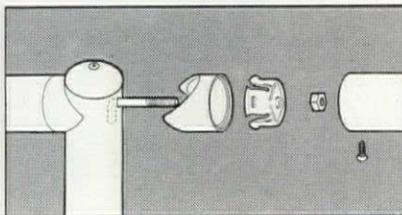
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Priced to compete with welded galvanized and painted steel, ReynoRail has all the low-maintenance and easy-handling features of aluminum.

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Circle 213 on information card

Newslines from page 10

stitute's president, Rex Whitaker Allen, FAIA.

With "Architecture as a Social Fact: Social Housing," as the theme, the participants studied 13 projects from throughout the world. The US entry was the Portland (Ore.) Center urban renewal project, designed by Skidmore, Owings & Merrill (see AIA JOURNAL, Sept. '68, p. 92).

Meanwhile, the UIA is looking ahead to next year when an international seminar on the emerging social role of schools will be held in Vienna. The May 24-31 sessions are expected to draw architects from 30 nations, according to Mario Celli, FAIA, of Pittsburgh, seminar general chairman.

American speakers will include educators pioneering in the application of space systems technology in building schools.

Registration forms and information are available from the Congress Coordination Center, 9 E. 38th St., New York, N.Y. 10016.

Lincoln Center Complete As Juilliard School Opens

With the opening of the Juilliard School, New York's Lincoln Center for the Performing Arts has been completed—10 years after the groundbreaking by President Eisenhower.

Juilliard, designed by Pietro Belluschi, FAIA, with associate architects Eduardo Catalano, AIA, and Helge Westermann, AIA, trains in music, drama and dance.

Lincoln Center, consisting of five major structures, cost about \$184 million, of which \$164 went for land and buildings. The project was financed through a conjunction of private philanthropies and city, state and federal government, the latter giving \$40 million.

In addition to Juilliard, Lincoln Center is made up of:

- Philharmonic Hall (opened Sept.

Continued on page 22



Juilliard and Beaumont Theater, left.



Atlas White and terrazzo get high marks at Lambuth College

Lambuth College Science Building,
Jackson, Tennessee

Budding young scientists at Lambuth can experiment to their heart's delight because nothing can harm this terrazzo floor. Terrazzo is in the lobby, hallways and classrooms of this new 3-story building. Domestic marble chips were used. Atlas White Cement was chosen because it insures uniform color and a lifetime of beauty. Terrazzo contractor: Shelby Marble & Tile Co., Memphis, Tenn. Architects: Godwin & Beckett, Inc., Atlanta, Georgia. General Contractor: John M. O'Brien, Memphis, Tennessee. Write Universal Atlas Cement Division of U. S. Steel, Room 5393, Chatham Center, Pittsburgh, Pa. 15230. Atlas is a registered trademark.



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Newslines from page 16

'62) by Max Abramovitz, FAIA, of Harrison & Abramovitz

- New York State Theater (April '64) by Philip C. Johnson, FAIA
- Vivian Beaumont Theater (Oct. '65) by Eero Saarinen & Associates
- Library and Museum of the Performing Arts (Nov. '65) by Skidmore, Owings & Merrill
- Metropolitan Opera House (Sept. '66) by Wallace K. Harrison, FAIA, of Harrison & Abramovitz

The buildings are grouped around a plaza, the work of Harrison & Abramovitz, with a fountain by Johnson. The Guggenheim Bandshell, designed by Eggers & Higgins, opened in May.

Farm Families to Be Aided By Ford-Funded Programs

Two grants aimed at improving living and working conditions for migrant workers and other poor families in rural areas have been awarded by the Ford Foundation.

Arizona Job College in Casa Grande has received \$887,834 as matching funds for a federal grant to provide for a comprehensive rehabilitation and retraining program for migrant farm labor, the nation's first such undertaking for the entire family in a residential setting.

The Rural Housing Alliance, a nonprofit organization formerly known as the International Self-Help Housing Association, has been awarded \$380,000 to provide technical and financial assistance for rural housing development.

At the same time, the foundation has supplied a \$94,000 grant to the Virginia Polytechnic Institute for a study of the economic factors which influence people in moving from rural areas to large urban centers.

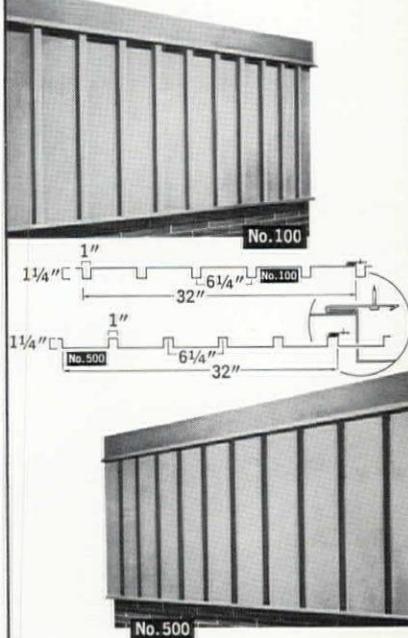
Building Systems Journal Greeted by Researchers

Publication of a new quarterly, *Industrialization Forum (IF)*, which will focus on developments in building systems and construction, made its debut during the Architect-Researchers Conference in Houston in mid-October.

IF is being published jointly for Washington University, St. Louis, and the University of Montreal, with simultaneous editions in English and French. Co-editors are

Continued on page 28

New from Cheney



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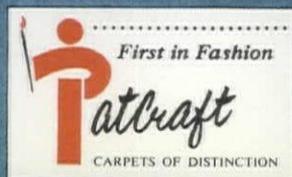
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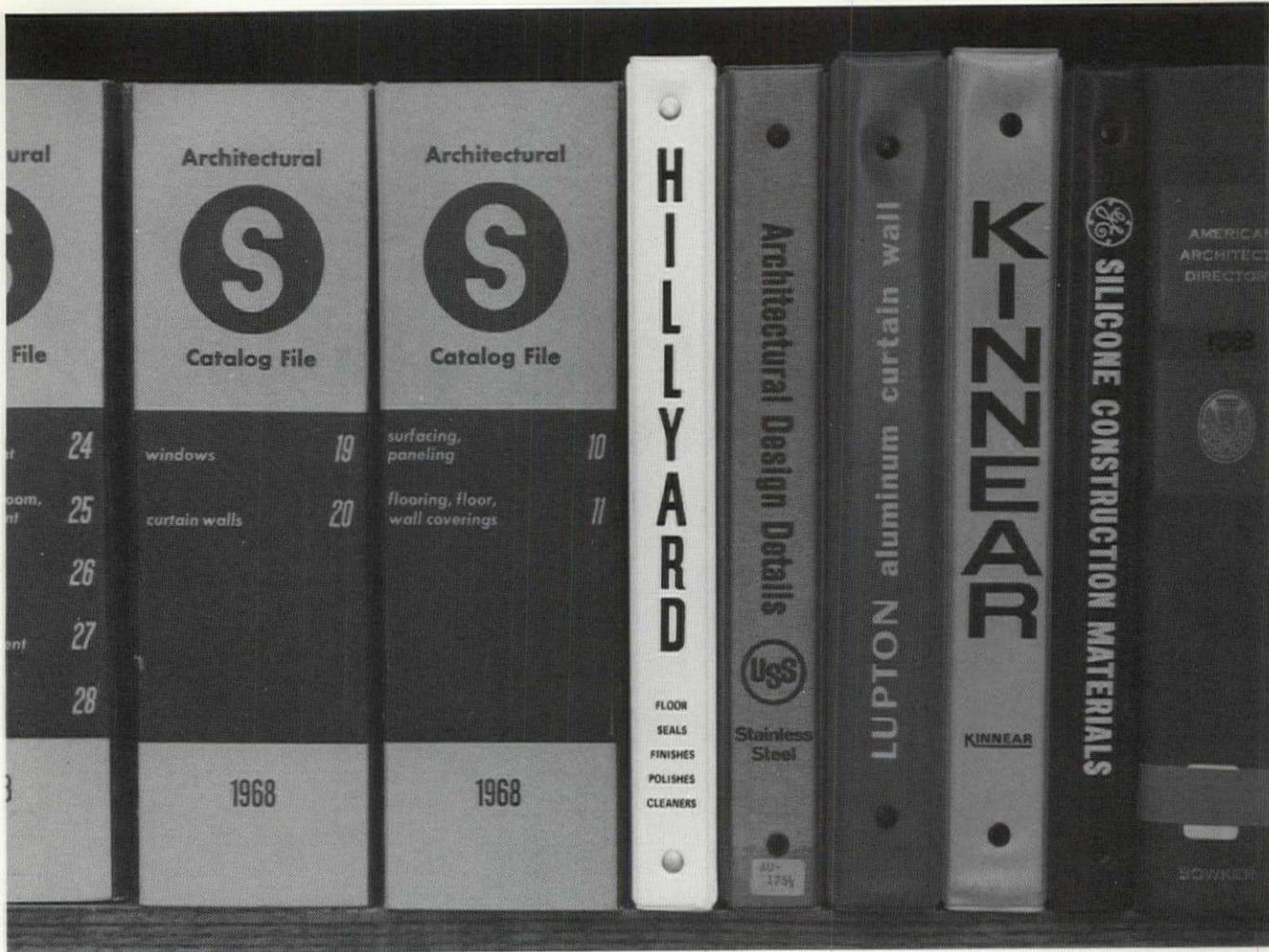
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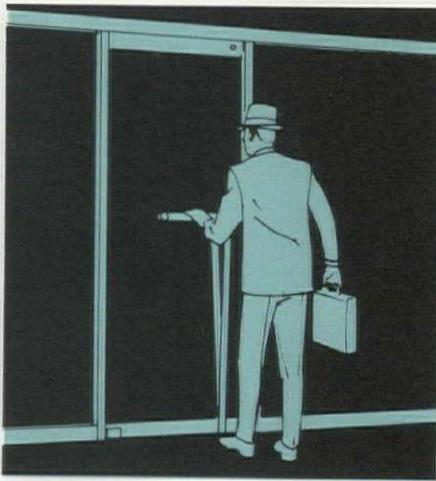
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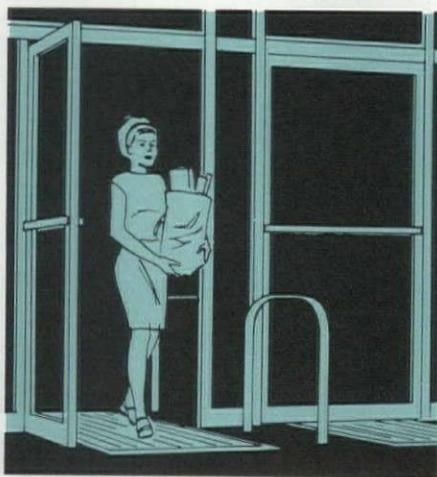
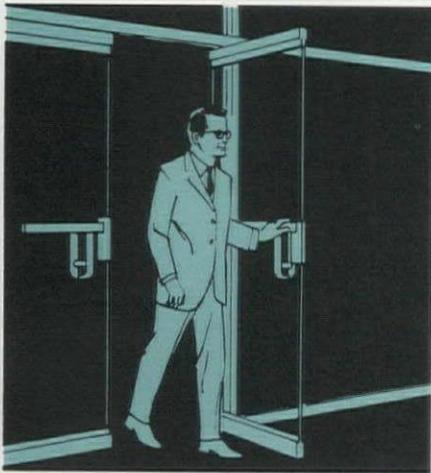
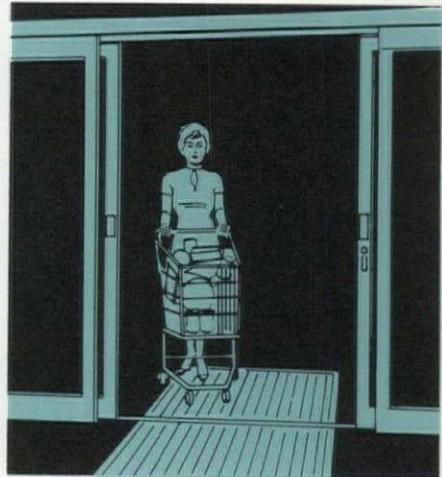
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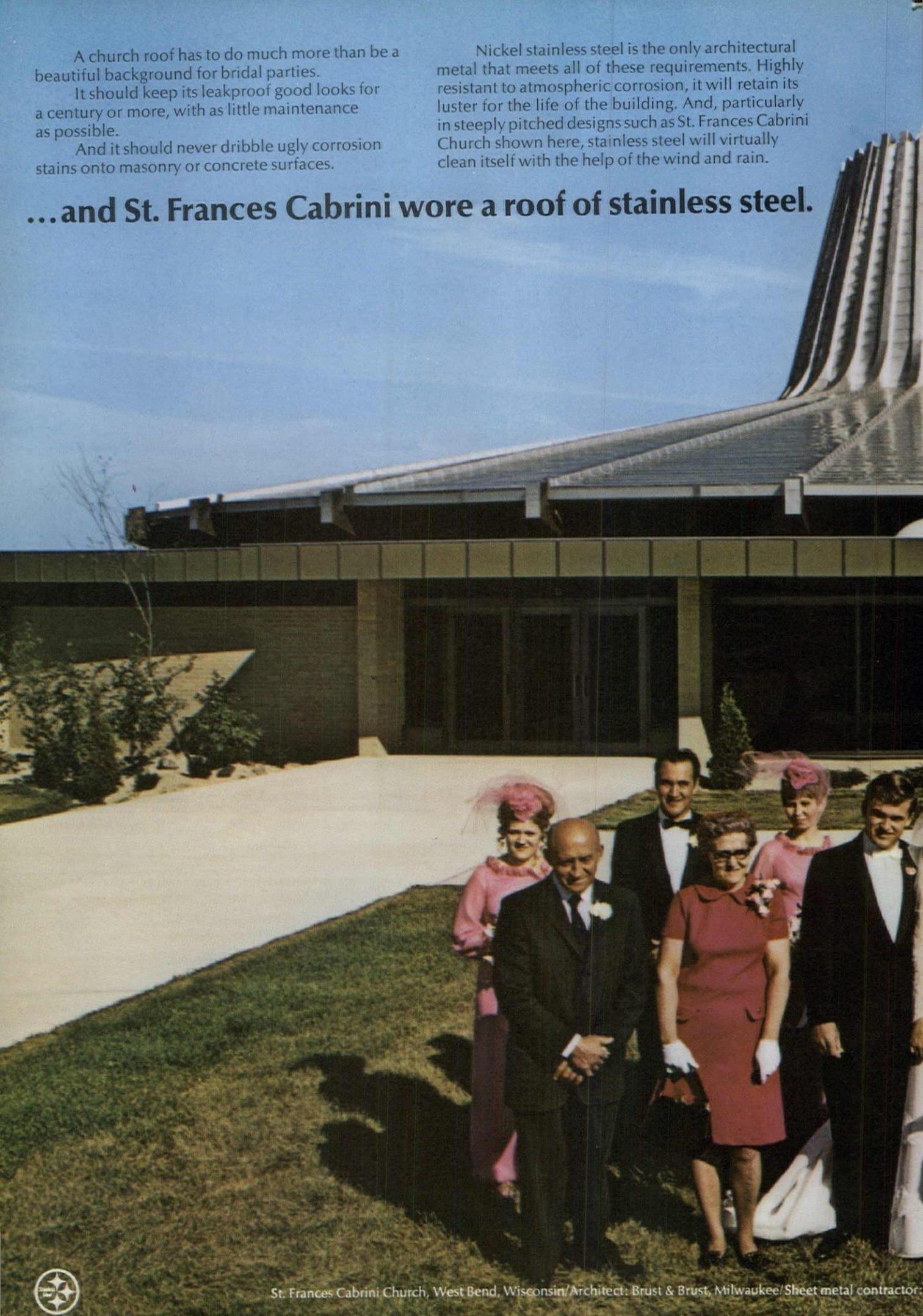
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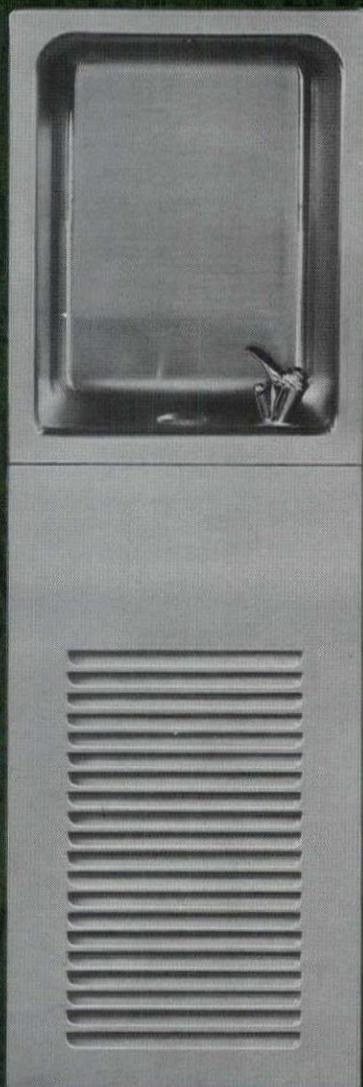
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Newslines from page 22

Colin H. Davidson, professor of architecture at both universities, and Arnold S. Rosner, professor at the University of Washington, Seattle.

The quarterly is organized into four sections: definitive articles in the field of industrialization, systems, construction, analysis and research; interim reports on work in progress, specifically to elicit response and comment; running lists of projects, participants and sources; and a running bibliography.

Back at Houston: The researchers did more than welcome the new publication at the conference, the fifth and biggest ever with 225 registrants. They heard 30 papers covering such subjects as how to reduce noise in urban housing, uses of computers in the design of buildings and application of the systems approach in building clinics and hospitals.

It was the consensus of the two-day meeting that the AIA should assume an active role in research, or it will pass to other organizations, reported the chairman, Robert M. Dillon, AIA, executive director of the Building Research Advisory Committee at the National Academy of Sciences and head of the AIA's Committee on Research for Architecture.

Many attending the conference indicated an interest in a regular Institute publication which would be devoted to ongoing research and print outstanding papers in the field.

Student Winners Named In Florida Competition

Donald J. Lehning of the University of Florida has emerged the winner from 55 fourth-year architectural students from his school and the University of Miami in a design competition for the City of Miami Convention & Cultural Center.

The competition was launched last March by Lehigh Portland Cement Co. in cooperation with the Miami architectural firm of Ferendino/Grafton/Pancoast who were commissioned to develop the actual design for the new facility at Bayfront Park. Construction is scheduled to begin next year.

While the concepts developed by the students were not incorporated in the actual plan for the

Continued on page 32

Strength
and beauty
of the
forest



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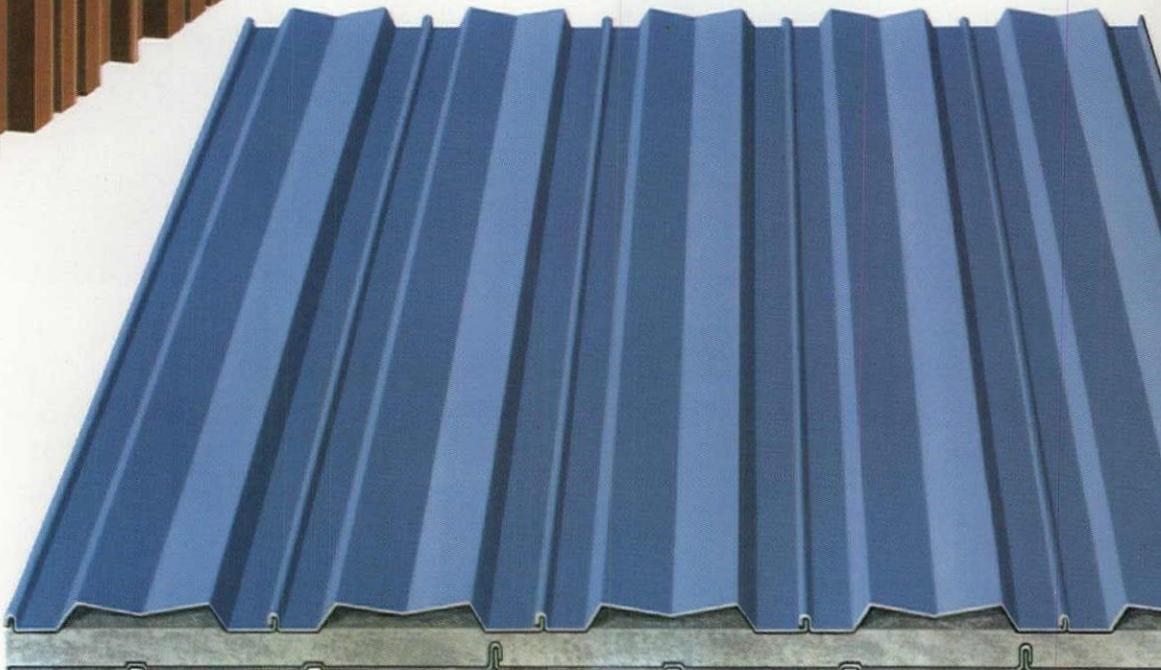
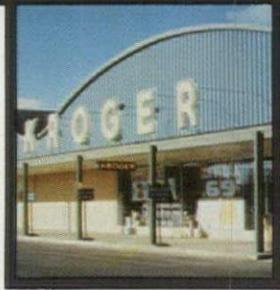
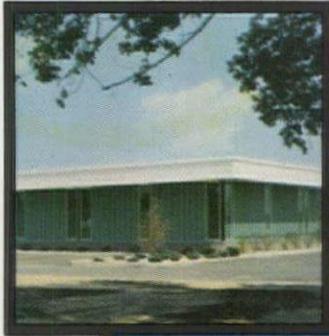
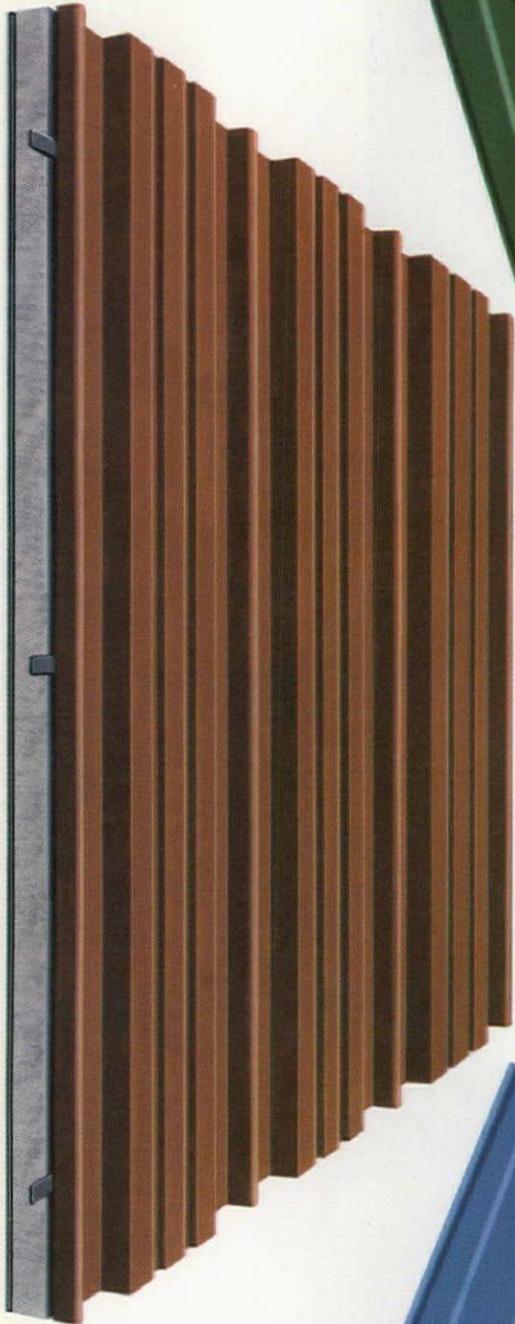


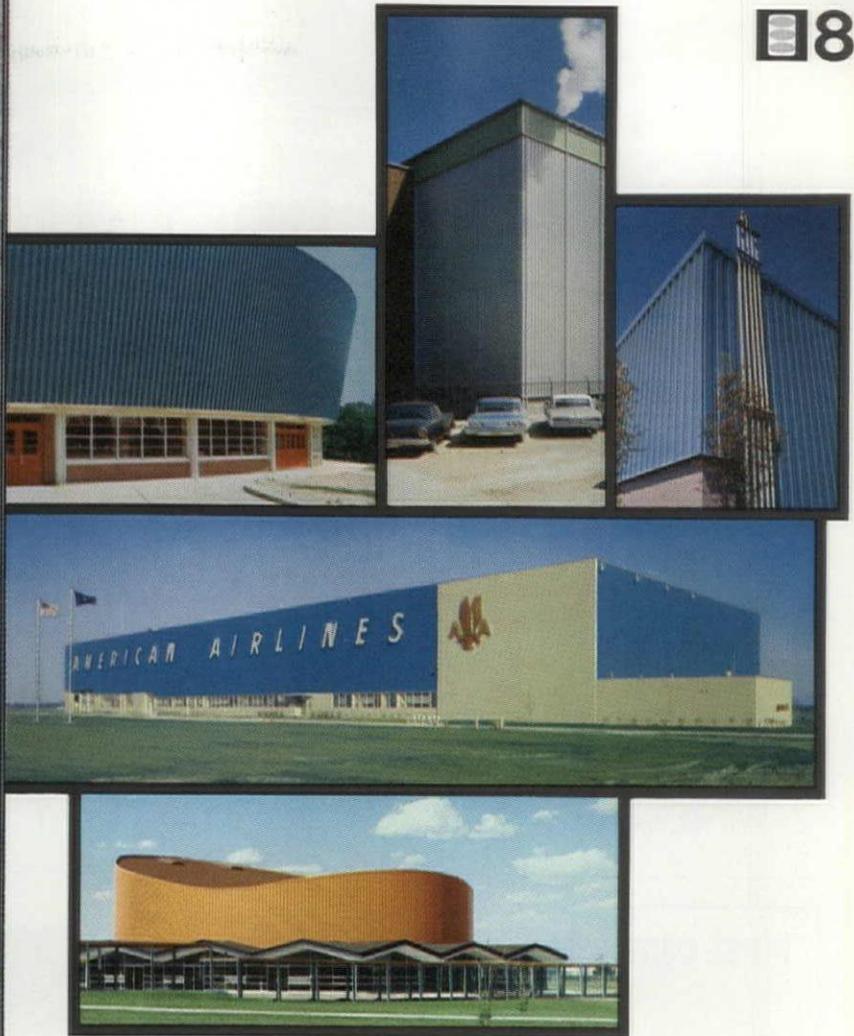
Architects: Hugh J. Leitch, AIA of The Associated Architects for the University of West Florida; R. Daniel Hart, AIA; Look & Morrison, AIA; Bullock & Marshall, AIA, in association with Forrest M. Kelley, Jr., AIA, Architect to the Florida Board of Regents

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Convention & Cultural Center, the same guidelines submitted by the city to the architects were used in the student competition.

Second place went to William F. Brown Jr. of Miami, and third to H. W. Gradick Jr. of Florida. Honorable Mention awards were presented to H. Richard Schuster of Miami and R. Miller of Florida.

Interiors Earn Awards For Four Designers

Four interior designers, including one with an architectural firm, have been named winners in the second Honor Awards program to be sponsored by the American Institute of Interior Designers. They are:

- Lois Baker of Frank L. Hope & Associates, San Diego architects, for the design of a large reception lobby in the plant of the National Cash Register Co., San Diego.
- Henry End of Henry End Associates, Miami, for the interiors of the yacht *Titian*, with anchorage at Fort Lauderdale.
- Adele Faulkner of Adele Faulk-



National Cash Register lobby, top, and the *Titian's* commodious interior.

ner & Associates, Los Angeles, for the design of a boys' home in Banning, Calif.

- Dorian Hunter of Dorian Hunter Interiors, Inc., Fullerton, Calif., for a new concept for dental offices in Fountain Valley, Calif.

Glenn Stanton Is Dead; Former AIA President

Glenn Stanton, FAIA, who served as Institute president in 1951-52, is dead at the age of 74.

Mr. Stanton, senior partner in the Portland, Ore., firm of Stanton, Boles, Maguire & Church, died Oct. 16 of a stroke.

He was one of the first graduates of the University of Oregon's School of Architecture.

His initial professional affiliation was with Morris Whitehouse which later produced the firm of Whitehouse, Stanton & Church. He later practiced under his own name. In 1955 he formed Stanton, Boles, Maguire & Church.

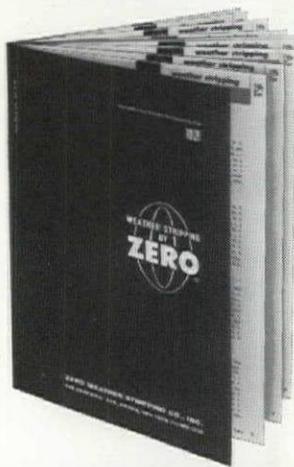
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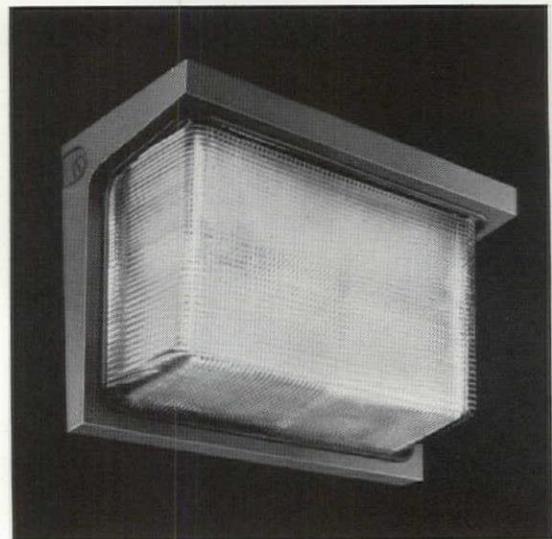


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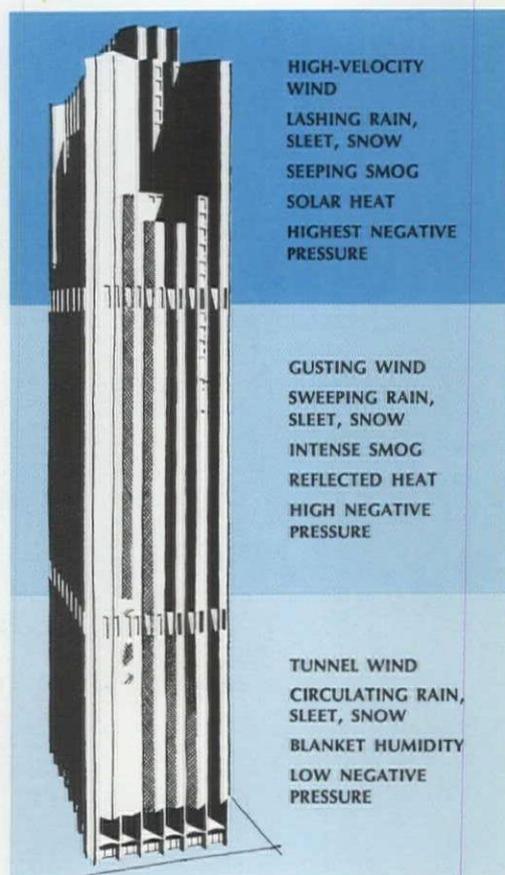
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left and above:

Bank of America, San Francisco, Calif.

Architect: Worster, Bernardi and Emmons
Skidmore, Owings and Merrill
San Francisco, Calif.

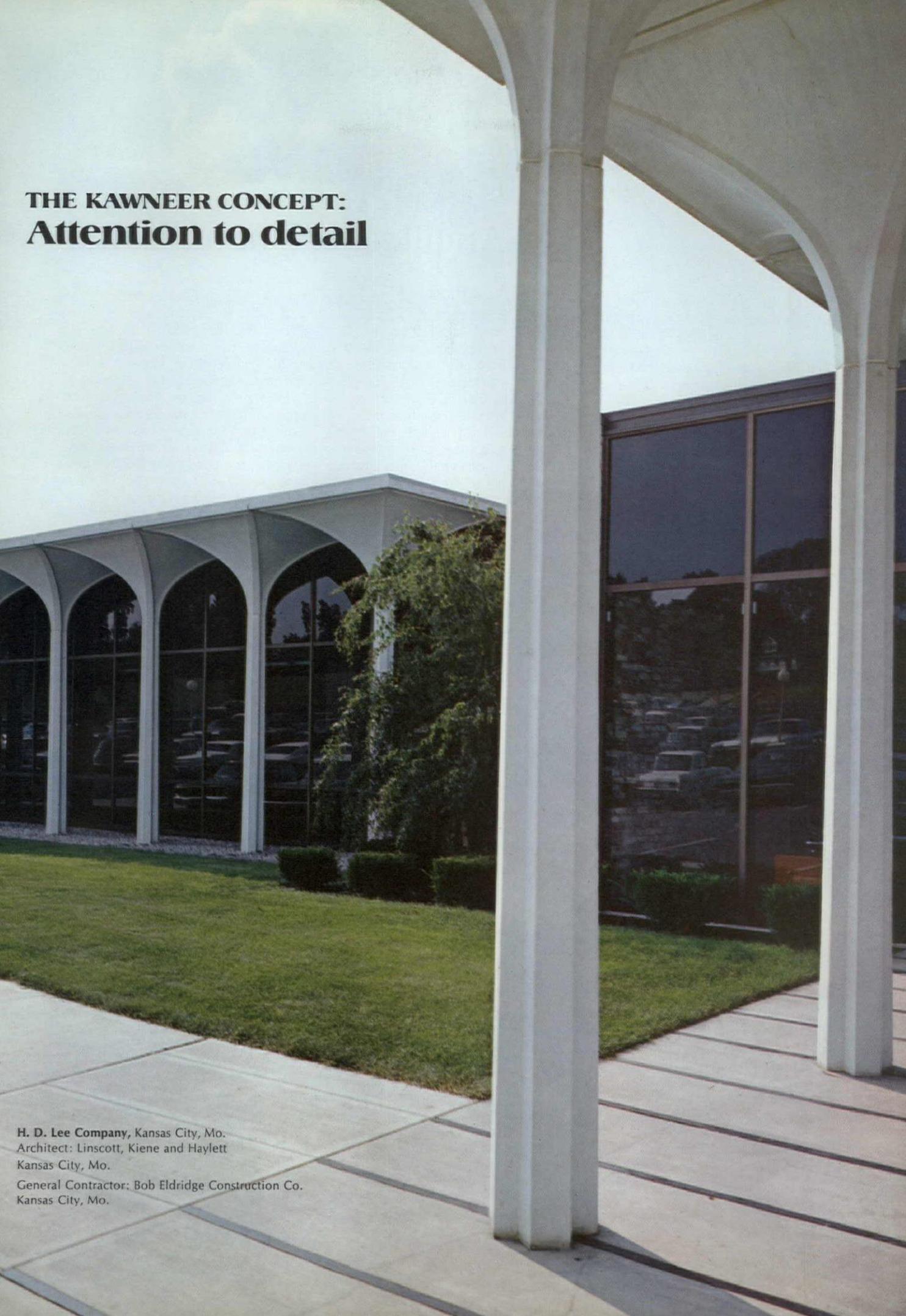
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UNFINISHED BUSINESS

BY WILLIAM H. SCHEICK, FAIA
Executive Director

An Architect Is Not an Island

I have always had the greatest admiration for a person with guts enough to be a practicing architect. He is private enterprise personified. But not exactly. More like private enterprise with a community conscience.

One of my good fortunes was to land in this spot in the AIA where the goal is to do as much as possible for these men and women I admire. The executive director meets, talks and corresponds with many architects and gets to know them very well. He is intimately associated with the leaders of the profession as they serve their tours of duty with the AIA.

He thinks a lot about what the AIA should do.

One day not long ago, Fritz Roth, FAIA, on the Public Relations Committee, summed it up, "The national AIA should do for the architect what he can't do for himself."

Nice and simple.

The architect—23,000 architects. More than half of them principal practitioners. Great ones deserving their fame. Ordinary ones trying their level best. Bad ones, alas, who ought to know better. Big ones who make it look easy. Little ones who must hang in there tough.

The focal image seems to be a man who scrambles for jobs, worries about the payroll while shaving, hopes he can sell the next client on better design, frets about his liability, keeps feeling he is falling behind in know-how, is victimized by inflating costs, looks wistfully at honor awards, finds scant time for community service, burns midnight oil to keep up with the most complicated business (profession) in the world.

Talk about the Renaissance man! Move over, Leonardo.

Those who worry about what to do for him are the leaders of the AIA. None of them are dull. A few have charisma. Some have great empathy for the harried small architect. Others consider him doomed. Many of these leaders are so strong they might do without the

AIA. But virtually all of them give unselfishly of countless hours for the progress of architects.

These, then, are the essential human ingredients of a professional society—the membership and its leadership. The AIA operates as a kind of democratic mechanism to the extent that it selects its leaders by ballot and determines by vote what resources the leadership has to work with.

The Institute's methods for attaining its goals are profoundly affected by its own philosophy of the meaning of architecture, architectural practice, professionalism and the Institute itself. Naturally, this philosophy is profoundly affected by changes in society, if the Institute's leadership is at all cognizant of the changes taking place.

Today, society itself is in the grip of rapid worldwide changes which are shaking the very foundations of long-established human institutions for governmental and social relations. Literally every institution that exists, including the government of the United States, is being tested in the fire of change and is hard pressed to find the capabilities and the resources to deal with problems too great to be dealt with by existing processes.

Urbanization is one of the massive forces challenging the profession of architecture with both problems and opportunities of astounding scope.

The leadership of the AIA has grasped these fundamental truths with full awareness. Accordingly, the Institute's recent course has been full of strong, progressive programs in education, practice, public and government relations aimed at increasing the capabilities and influence of architects collectively beyond their ability to do so individually.

The relationships between membership and leadership are not without problems. (Ask any president of the AIA.) When the leadership presses hard for action programs tangibly in the interest of

the member, he displays confidence and will even vote more dues. When the leadership runs too far ahead of the member's awareness of his problems, he expects explanations, education and persuasion.

Presently, we are venturing into areas of broader concern for public policy and social responsibility. As architects with a community conscience, we take such matters seriously. But this new commitment by the leadership will become viable only as it wins commitment by the membership.

A student leader put a price tag of \$15 million upon architects' social responsibility. The trouble is that the price tag is frightfully high for the profession, absurdly low for the nation. A figure around \$150 billion would be more like it for an attack upon the ills of urban society. We spill that much on war and space.

If we have learned one lesson about the architect, it is that he cannot exist as an island of personal creativity, he must be educated to perform in a team.

Our small professional society has real limitations but unrealized potential. We must avoid spreading our resources so thinly that we can do nothing adequately. But we must exercise to the limit our growing prestige and influence upon legislation and public opinion in favor of public dollars for a better America.

In this endeavor we must learn how to win allies to the cause of a humane environment. Our first efforts with movies and advertising (1969) have drawn highly favorable responses from many quarters, including members of the Congress. Our forthcoming film on inner-city schools promises to be one of the most powerful documents on social responsibility.

We would do well to invest our considerable talents and our limited dollars in opinion-molding works that develop a powerful consortium of allies for public action. The AIA is not an island either. □



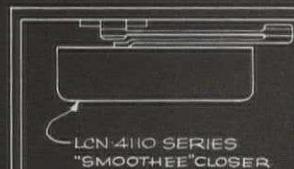
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Comment & Opinion: Janus-like, we have in this issue two outlooks on urban growth: a simultaneous view of the road ahead in the United States, filled with confusing signs, poorly identified obstacles and an uncertain destination, and of the road behind in Great Britain, marked with a firm direction, considerable success and useful experience.

Here, the Great American Machine is straining against its brakes, a million drivers at the wheel looking in all directions, sometimes, but not always, dissatisfied with the trip so far, not knowing whether to take the high, scenic, road or the low, familiar one.

Congressman Ashley puts the dilemma forcefully: massively organized production in a disorganized landscape; the poor moving away from the spacious agricultural landscape to the congested cities while the affluent flee the cities for the suburbs; highly proficient planners working with doubtful premises; superb highways and shameful housing; more knowledge about physical and mental health but continued construction of an unhealthy environment.

He asks for "a coherent, comprehensive policy on urban growth." What will it say? Who will prepare it?

Sir Hugh Wilson, by contrast, can look back with some serenity on the long, progressive history of the British new towns movement: from the first protests against the oppressive company towns of the Midlands, to Ebenezer Howard and Letchworth, Welwyn Garden City, the 1947 Town and Country Planning Act and now to Cumbernauld, the present frontier of the new towns movement. He speaks with authority about financing, social integration, neighborhood identity, growth and flexibility. He raises the issue of whether an architect-planner can be most effective as a private or a public professional.

Congressman Ashley and Sir Hugh are talking about the same problems. Does Sir Hugh have the answers to the congressman's questions? Or is the US so different in history, size and habits that it must find its own special answers?

ROBERT S. STURGIS, AIA
Vice Chairman, AIA Committee on Urban Design

NO GREATER CHALLENGE

The US urban problem isn't a problem; it's an emergency.

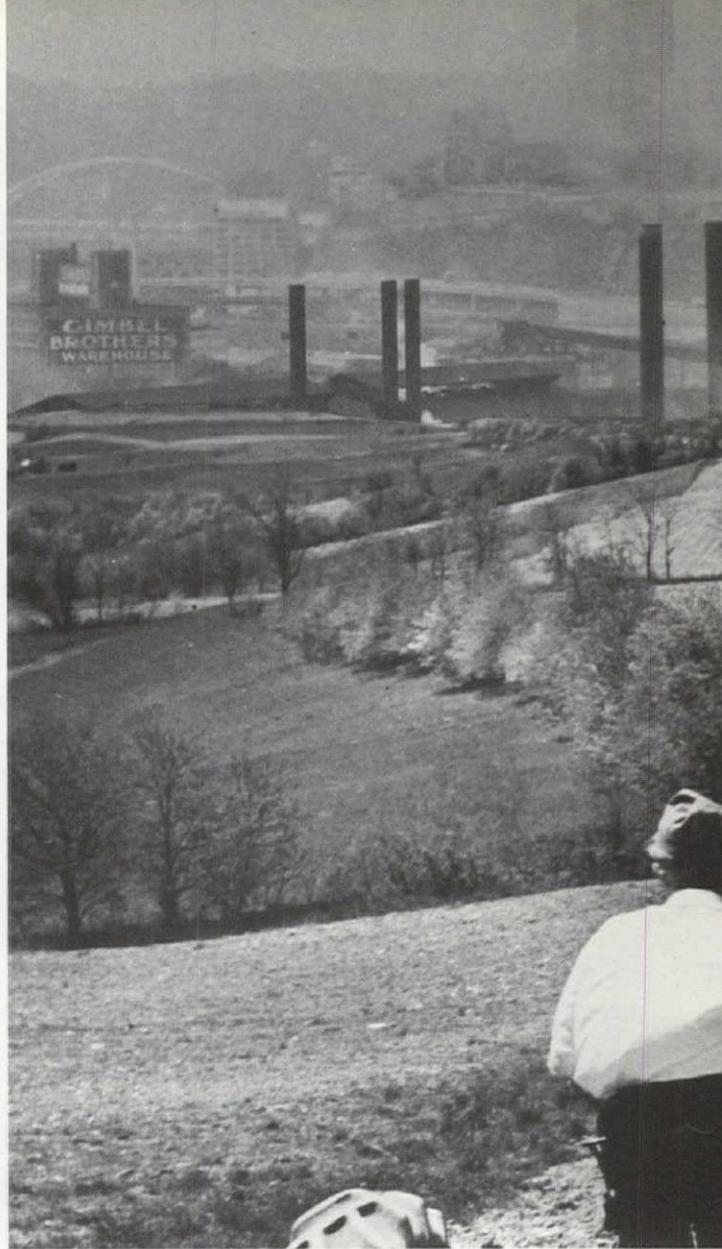
Presented here, this opinion belongs to a congressman. Should it obtain, the US might well take routes toward the reshaping of its urban system similar to those being traveled in the United Kingdom. An article immediately following this one tells of the role of architects in the new town movement of the UK.

BY THOMAS LUDLOW ASHLEY

In January 1968 when President Johnson made his first annual report on National Housing Goals, he outlined a plan for the construction or rehabilitation of 26 million housing units in the decade ahead. He referred to this program as "a firm national commitment." In his report he also identified potential problems of this undertaking, such as the sensitivity of residential building to credit conditions, and the long-run needs for adequate labor, land and materials to maintain an increased level of construction.

While these problems are real, they are not insurmountable. But some shifts in priorities will have to be made first. If urban growth were recognized as the emergency that it is, this country would rapidly reorder its ideas of how to finance and construct housing.

There are more fundamental problems connected with urban growth, problems which cannot be overcome simply through fiat legislation



and the quick application of technology. They are the results of a haphazard urbanization that has accelerated in recent years and now threatens us with future chaos. Indeed, in many urban areas, that chaos has already arrived and is intensifying. We must be able and willing to make drastic improvements in our planning process and in its application if we are to direct urban growth away from the disorderly and heedless consumption of land and human resources which constitutes urban sprawl.

How have these problems developed?

Our largest metropolitan areas have experienced rapid population growth, most of it in suburban and outlying areas. Between 1960 and 1965, 45 metropolitan counties, or one out of five, experienced an increase in population of 25 percent or more. If the pattern of migration from less to more urbanized areas continues, it is likely that by 1975 three-fourths of the population of the United States will be concentrated in spreading urban areas.



This peripheral growth has caused an exodus of business from the central cities. New industries in an area usually seek a suburban location, and when older industries expand they too move away from the urban core.

While metropolitan areas have been expanding rapidly, smaller cities and towns outside these regions have had lower rates of growth, and many have been completely bypassed in the course of economic changes.

Since 1950, the population of rural America has remained nearly static, but the number of persons engaged in farming has dropped significantly over the past two decades. The result has meant unemployment for those who have not migrated to urban environments, and an economic weakening of those small towns dependent upon farming for their incomes.

Since World War II, black rural Americans have been migrating to the cities in steadily increasing numbers, although there seems to be a reduction in the rate during the past few years

of the present decade. However, the Kerner Commission report predicted that "by 1985, the Negro population in central cities is expected to increase by 72 percent to approximately 21 million. Coupled with the continued exodus of white families to the suburbs, this growth will produce majority Negro populations in many of the nation's cities."

We have learned to our sorrow that one result of this process has been an increasing polarization of the races. The white exodus has been accelerated by the lack of sufficient new and middle class housing in the central cities, while the virtual nonexistence of low cost suburban housing has served to confine the Negro population to urban ghettos.

If the urbanization of our country continues, by the year 2000 our population will have increased to over 300 million, with 19 out of every 20 Americans being urban dwellers.

These continuing trends and projections indicate that all levels of government — and especially the Federal government — must find the means of redirecting and reshaping the existing process of urbanization. If the nation continues to ignore the consequences of sprawl and accepts its present formless growth as a prototype

The author: Congressman Ashley, a Democrat from Ohio, is chairman of the House Subcommittee on Urban Growth.

for the future the results will be catastrophic, and the catastrophe will fall equally on the suburbs and the inner cities—and on rural America.

Unfortunately, what was absent from the President's report on National Housing goals was any real recognition that quality is as important as quantity. Quality may be difficult to define, but it is not difficult to recognize. It has to do with giving back to man a way of life which will enable him to preserve his own humanness, and not shortchange him in favor of his own machines and devices just because such things seem to demand space.

The events of recent years have made it clear that the task of providing decent shelter for every American family and for the millions of new family units which are formed each year will require a broad effort in three major areas:

- In the inner cities, where physical, social and economic problems become more acute each year despite the proliferation of federal assistance programs.

- In single-class suburbia where the pressures of expediency have too often been justified as necessity, where promoter development has too often taken place in an unplanned fashion without consideration of either human consequences or regional ecology, and where artificial barriers

have promoted inequalities of housing, education and job opportunities.

In the development of new and expanding communities which will offer a well-planned, comprehensive environment for living and in the process relieve the inner city density sufficiently to allow, without human hardship, major rebuilding and rehabilitation programs which will be responsive to the needs of urban health, in terms of both the inhabitants and the cities themselves as living social organisms.

The need for these strategies is perfectly clear, but they cannot be realized in the absence of a coherent, comprehensive policy on urban growth. The alternative is to proceed on the basis of uncertain and usually faulty assumptions, inadequate planning, and a spectrum of overlapping and often conflicting programs which do little more than assure perpetuation of the chaotic growth that has spawned the very problems we are trying to solve. It is an alternative that is *not* a vicious cycle: It is a one-way route to disaster. Now it can be reversed at any given time, but as time passes, the reversal will become more costly, more difficult and less likely until imperceptibly but ruinously, we pass the point of no return.

A frightening glimpse of America the Beautiful 10 years from now is contained in the section of the First Annual Report on National Housing Goals which is concerned with the availability of building sites. It says that "the estimated 20 million unassisted units required over the next 10 years generally will be filled in the suburbs, outside the central cities, where the availability of sites is not an acute problem." The availability of sites may be no problem, but what happens to that land after it has been converted to building sites *will* be a problem of dismaying proportions.

The land will not be taken in a solid thrust of peripheral growth around the existing cities. We know from past experience and the nature of current building that it will be developed in an untidy, discontinuous, leap-frogging way, spawning waste areas and tawdry commercial strips in the process. Areas are bypassed for a variety of reasons including the unavailability of sufficiently large tracts with clear title, spiraling land costs and inaccessibility of transportation.

There is nothing inherently wrong with suburban growth as such. But there are visible and identifiable disadvantages in disorderly sprawl, and in a philosophy of development which combines "let the buyer beware" with "the devil take the hindmost." Indeed, there have been conscientious private developers who have tried to provide for the future only to find an adjacent project bringing about their ruin.

It is frightening to think of 20 million unassisted units being programmed for the suburbs in the absence of the coherent planned approach which is within our capabilities.

We must consider land as a resource, and as a perishable one. The time is past when we could imagine ourselves as possessors of an indefinite supply of land, an infinite supply of water and air.

The Kaiser Committee estimated that the land requirements for our national 10-year housing goals could be more than 8 million acres, almost three times the area of Connecticut. At a total annual rate of 800,000 acres, that would be 60 percent higher than the current rate of land consumption. This land would not be taken from deserts and barren spaces; it would be land close to our cities, arable land still under cultivation in many areas today.

In its report, the Douglas Commission pointed out that more than a generation after the federal government began to undertake its various programs to influence housing production, there has been no satisfactory analysis of present housing needs, and no suitable estimate of probable future needs as guides for housing policy and programs. It commented that "in some respects, this is the most damning indictment against the public concern, including but by no means limited to governmental concern, with housing in this country."

It should be clear that unless we are to proliferate the same sprawl which has resulted from unplanned urban growth, new and expanding communities must be the product of a planning process which relates the new community development to areawide, regional and national urban development plans and objectives.

Unhappily, this is not the direction in which we are going. Not only is there no planning process, but until recently we have lacked reliable information on which to base that process. Even today, no inventory exists of new communities built in the US in the past 20 years.

We do, however, have data for the years 1960-67. During this period, reports show that about 400 large developments were started or planned. About 50 percent of these were subdivisions and planned residential communities, about 25 percent were recreation or "second home" communities, 6 percent were for retirement housing facilities and only 11 percent were described as "new towns."

We know that all but a very few of these American new towns and communities offer only a narrow scope of housing and jobs and that they lack basic community services and facilities. Some have been promoted to county and regional planning authorities as "planned

communities," yet the only planning involved has been maximum utilization of the land for maximum profit to the developers. Most "new communities" are not communities in any but the most limited sense, since they do not offer their residents any real variety or choice of a complete living environment. Nor do they provide a sound economic base.

Every day we pay an increasing price for this indifference to the problems of the central city and the chaotic uncontrolled growth around it. When you read that 25 percent of the residents of midtown Manhattan are severely impaired or incapacitated by mental illness, that 58 percent exhibit varying degrees of pathology, and that less than one in five is mentally well, you may feel that the figures are purposely exaggerated. Unfortunately, they are not. They are the results of a thorough analysis of mental health in New York City, published after eight years of research by psychiatrists at the Cornell University Medical School.

That we have created an environment so hostile to our human needs that it makes us ill, mentally and physically, ought to horrify us.

As we have done to ourselves, so have we done to nature. We have obliterated hills and mountains. We have cut down 89 percent of America's redwood acreage, and there are those who would cut down the rest. Since the turn of the century, Lake Erie has been converted into the world's largest sewage lagoon, yet only 30 years ago it still had public beaches which were safe for swimming. There is not a single river system in the US today that has not been deploiled by pollution. On still days, the air hangs thick and deadly over our cities, for we have turned the very air we breathe into a lethal substance.

These are only some of our problems. But they are not insoluble. The solutions exist, if we are willing to begin planning on a massive scale and strike a balance between human and natural resources. We can afford the cost. From fiscal 1962 through 1967 we spent \$356 billion on national defense, \$33 billion for stabilizing farm prices and incomes, \$24 billion for space exploration, and \$22 billion for federal highway construction. During this same period, we budgeted only \$8 billion for all programs under housing and urban renewal.

Obviously, we face a matter of priorities as well as planning. But there is no greater issue and challenge to our lifetimes than the development of a coherent, rational and moral national policy on urban growth which will provide a living environment with human qualities not only for ourselves but for the generations that are to follow. □

THE ARCHITECTS' CONTRIBUTION



BY SIR HUGH WILSON

The British new towns program is one of the most important developments in community building in the world; indeed, it represents a planning enterprise without parallel in history. Some 30 projects have been undertaken, ranging from new towns of 50,000 population to new cities of 250,000. In addition, many smaller towns are being expanded under the Town Development Act.

In all this work architects have been able to make a unique contribution. As consultants or as chief architects in salaried positions, they have led the teams responsible for the preparation of master plans. The reports on these plans by their chronicling of the progress that has been made in planning technology constitute research and development studies of great value to architects and planners.

The implementation of these plans in terms of buildings, roads and spaces has resulted in

considerable advances in the creation of human habitats. They are plans which have drawn on the experiences of many countries, including the United States and the work of Clarence Stein and Henry Wright at Radburn, and which have incorporated the lessons learned for application under ideal conditions. Again, architects have had the major role in this work.

Pressures and Legacy of the Past

There have been new towns and communities in the past, of course, but the British program today is related to the complex pressures arising from population growth and from the need to deal with the legacy of the past — overcrowded and outworn housing areas, industrial dereliction and traffic congestion.

To fully appreciate the climate in which the New Towns Act of 1946 was passed, it is necessary to realize the long history of planning legislation and practice in Britain. We were the first country to experience the full impact of the industrial revolution; it was the appalling conditions under which the workers were forced to live in the late 18th and 19th centuries that led to the legislative concern culminating in the great Public Health Act of 1875. While this legislation dealt mainly with the evils affecting the health of the people, visionaries were at work producing plans for ideal towns.

More importantly, there were men prepared to build for the workers such communities as Saltaire, Port Sunlight and Bourneville. Octavia Hill and George Peabody and other great city reformers strove to create better housing.

But it was Ebenezer Howard who had the greatest impact of all with his book, *Tomorrow*, published in 1898, and his sponsoring of the building of Letchworth, the new town outside London that he began in 1903 to prove

The author: Sir Hugh Wilson, Hon. FAIA, is immediate past president of the Royal Institute of British Architects. He was chief architect and planning officer for Cumbernauld from 1956 to 1962.

his thesis that the movement of population to the overcrowded areas could be halted by distributing the urban growth in new centers, each with its main town areas and satellite neighborhoods. Letchworth was followed by Welwyn Garden City, later to be included in the program born from the 1946 act. And, of course, in America, Radburn was followed by the Greenbelt towns, although they never succeeded in attracting the industry that was intended.

At the time of World War II, three major planning studies were undertaken in Britain. One dealt with the problem of the distribution of the industrial population and recommended



Old houses, now razed, in an English industrial area.

a policy of decentralization both through new towns and the further development of existing towns. Another was concerned with the impact of such development on the countryside. The third attempted to deal with the baffling problems of landowner compensation and increases in land values caused by planning policy, problems that are still with us today.

In the Aftermath of War

The wartime destruction aroused interest in planning and redevelopment. New plans for the blitzed cities gave rise to a great surge of work and to a period of bold planning which included the Abercrombie reports.

The 1947 Town and Country Planning Act put many of the emerging concepts into policy form and called for the preparation of development plans for the whole country. Efforts were begun to encourage industry to locate in certain areas. But perhaps the most important control was that exercised over the use of all land. This is the starting point of planning.

Experience gained from the operation of this measure has resulted in the passage of the Town and Country Planning Act of 1968 which introduced a new planning system that is undoubtedly the most sophisticated in the world. The act incorporates the concept of a hierarchy of plans which, from top down, is this: The regional plan covers the overall strategy for a wide area; the urban structure plan deals with the broad, long-term strategy of the town with policies leading to the framework of land use and communications; and the local plan covers the detailed land use allocations and environmental planning policies and provides the basis for implementation.

New design briefs* can be prepared to define the planning context for the developers and de-

* A design brief sets out all the relevant information required by a designer to relate his work on an individual building project to the wider context of the town planning objectives, standards and detailed proposals for the area in which the building is located. This information includes details of public development and services and the pattern of vehicular and pedestrian movement affecting the project.



Greenery, sunshine in residential area of Stevenage.

signers of each individual part of the community. Without stifling the aspiration of the designer, such briefs should provide a clear basis for design and enable him to relate his individual work to a larger context.

Architects, many of them also trained as planners, have pioneered numerous advances in planning practice. They will have an important part to play in the development of urban structure policies under the new system as well as in the preparation of the local plans. The architect can make a vital contribution in all this work since he is trained to view the totality of the environment.

In Britain, planning and development is seen as a comprehensive activity involving many skills and interests; it is important that the design team in its composition reflect the disciplines pertinent to this complex process.

Not Mere Population Diverters

Under the New Towns Act the government designates sites and sets up development corporations which are empowered to appoint staff and consultants, acquire land, plan and coordinate the development of the town, erect houses and other buildings and advance mortgages to developers.

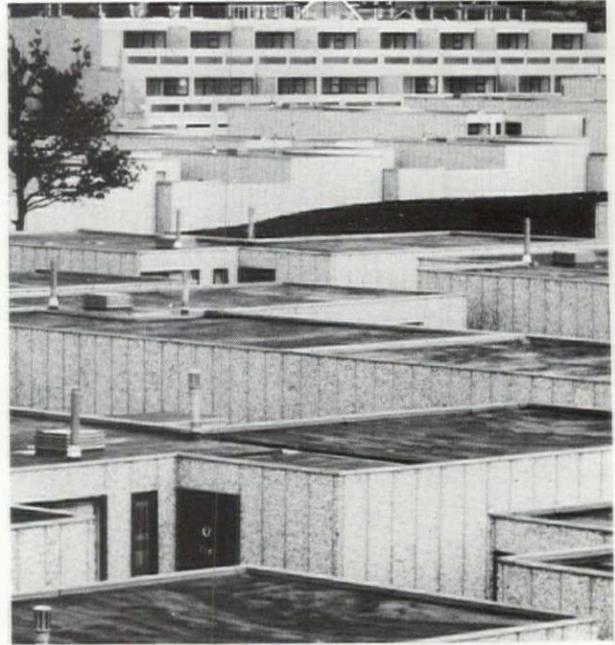
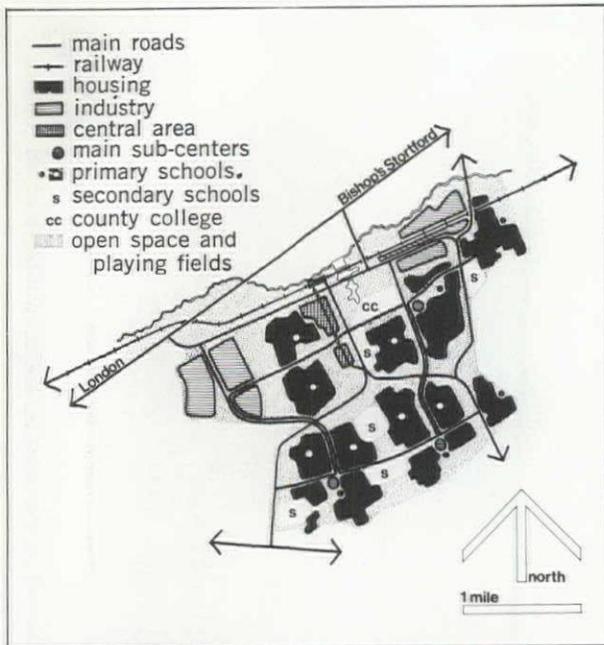
The corporations are financed through government loans. They work with the local authorities who are responsible for their local statutory functions and with the government departments concerned with both building programs and the movement of population and employment.

New towns are not just slum clearance schemes or housing projects; they are communities with all the facilities for a rich life whose residents are attracted mainly by employment opportunities. One of the major objectives is that new towns be reasonably self-contained in relation to a balance between jobs and houses. The result of this process of immigration is that the population has generally tended to consist of the younger, more virile



The tower at Stevenage Town Center, above, and a retail area of Corby, below, designated a new town in 1950 and planned for an ultimate population of 80,000 to meet the demands of indigenous, incoming industry.





Plan for Harlow — green strips divide residential areas, hold main roads; right, some Harlow housing.

and often highly skilled members of society, thus producing a temporary imbalance of population structure as compared with the average in the country. A new policy is intended to encourage a greater proportion of houses for owner-occupation and an eventual equilibrium between owned and rented houses.

Some attempts were made in the early new towns to achieve a good balance of socio-economic groups and to avoid some of the limitations of one-class communities. However, enforced social mixing at the local level is not very successful; in some cases the better-off have moved to villages near the new towns. Moreover, there is a need to avoid the discomfort felt by people of markedly different social outlook when forced to live close to one another, a situation that is averted by creating areas containing houses of similar character.

An important function of the master plan is to include forecasts of employment and population structure since these factors will affect the amount of land required for various purposes. If the architect is to have a firm brief for his individual project, he must be clear about the needs of those who are to occupy the houses, schools and other communal facilities. Design for the community is most effective when it can be evolved in a logical process from consideration of user needs; it cannot be effective socially if it is based merely on a preconceived architectural solution.

Those architects who have been involved in designing housing areas in the new towns have realized that the quality of the individual buildings is often less important than the overall spatial concept—it has been said that low

cost housing is a series of roofed and unroofed spaces. The architect who builds in a town has a great responsibility to ensure that he is designing for people and not for his own glory.

Green Strips, a Pause, Then Cumbernauld

The towns that were started immediately after the war were related in their planning concept to the garden city movement begun by Ebenezer Howard. They are divided into self-contained neighborhoods, each with its own shopping center and community buildings. Housing is at a fairly low density, in British terms, of about 30 to 40 persons per acre.

A plan typifying this concept is that of Harlow which has carried the neighborhood principle to its logical conclusion with its well-defined residential areas divided by green strips through which the main roads run.

Fourteen new towns were started by the early 1950s; then there was a pause in government action until 1956 when Cumbernauld was begun.

Cumbernauld was planned as new ideas were emerging and at a time when it was possible to learn from the experience of the earlier new towns. The site was restricted in size and the town had to be more compact than earlier new towns. The neighborhood unit concept was abandoned; most of the population was to live within a half-mile walking distance of the main center which contains all the principal shops and public buildings.

Cumbernauld was planned as the first new town to make full provision for the automobile—but with maximum separation of pedestrians from vehicles, particularly in the housing areas

and the town center. The central area was designed as a multideck structure with roads and parking underneath and all the floors above reserved for the exclusive use of the pedestrian, with direct access from the town footpaths on either side of the center. In addition to shopping, provision is made for hotels, restaurants, cinema, dance hall, offices, civic buildings and terraces of apartments.

New Forms for Population Growth

Cumbernauld was conceived as a finite town, an element in a regional plan. But so many of the problems today arise from continuing population growth and a program of finite new towns and town expansions is seen as limiting the population which can be accommodated in any area. To allow for growth, the extent of which may well be unknown, it is important that the structure of a town relate the traffic facilities to growth so this capacity is adequate at all stages of development.

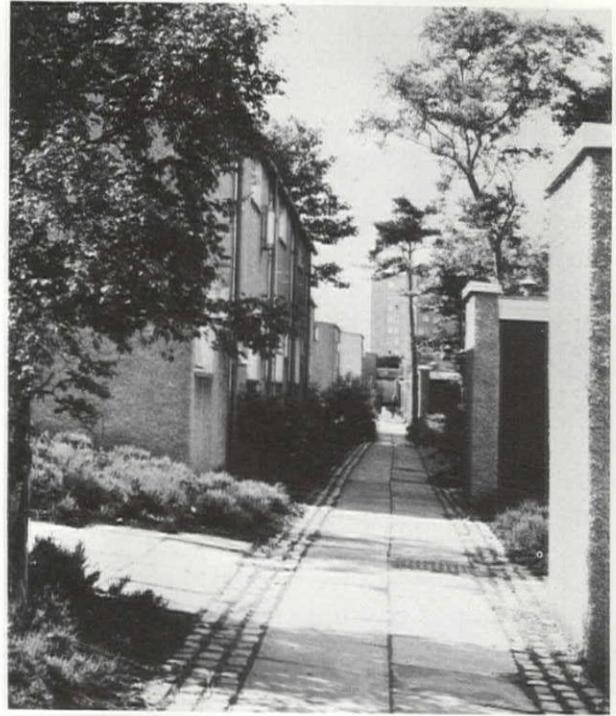
For Britain, at least, this may result in the greater use of public transport, possibly using separate guideways to avoid congestion on the roads and highways.

A number of studies has been addressed to this concept of growth and flexibility and some recent town plans have involved open-ended linear structures in which housing and other uses are related to communications spines rather like beads to the string of a necklace. These ideas are based in part on walking distances from the houses to public transport stops and to local facilities.

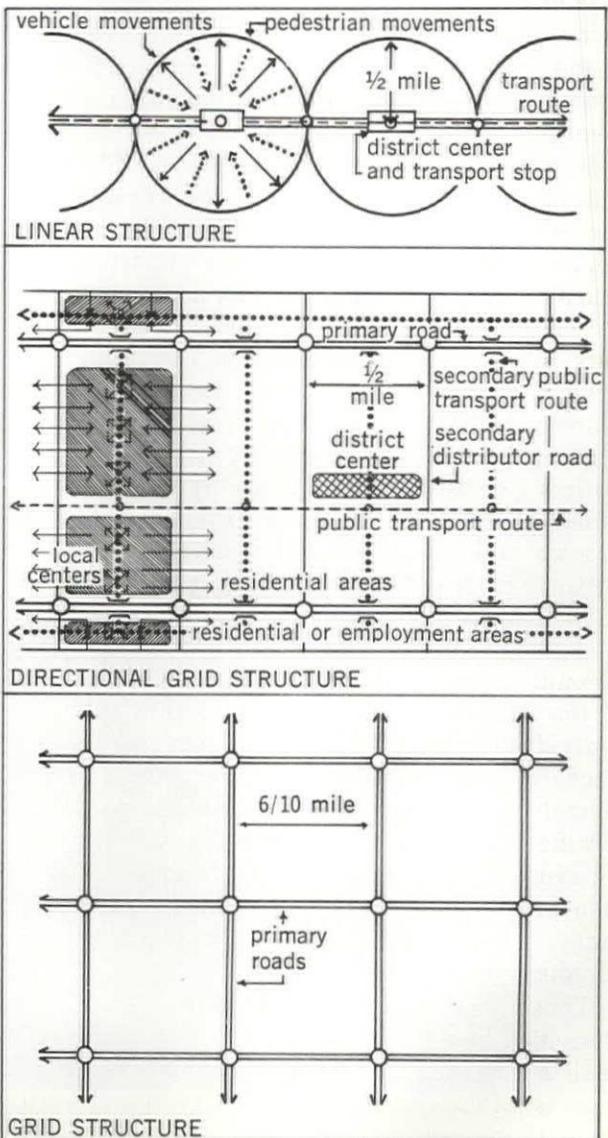
Other approaches to this concept include several strands forming a directional grid of development with linear and transverse movement patterns. Here the principle lies in the creation of what has been described as "spines of activity, based on movement routes, which provide the location for facilities of all kinds from small shopping centers to the main industrial areas." In these urban structure plans, the main roads form a hierarchy related to function, with primary roads, secondary distributor roads and local access roads.

Other plans have been related to the concept of a simple grid of main roads enclosing areas of development up to about 250 acres in extent. In this form of structure, traffic is dispersed over a series of routes thus avoiding concentration of flows on selected primary roads.

It is important that each residential area have its own character and identity, for wide variations in personal tastes lead to demands for environments of different types and sizes. Patterns such as those mentioned above could accommodate a range of residential and other units re-



A quiet pedestrian way in Scotland's Cumbernauld.



lated to site conditions, to levels, water, woodland and other characteristics.

There is considerable scope for further development of all these ideas on urban structure, and the debate continues on this fascinating and vital aspect of new town design. The essential point is that architects must play a leading role in the development of these urban structure plans since in the end it is these plans that will determine the quality of environment to be achieved in the town. And the plan must rest on sound social, economic and transportation policies.

Requirements from the British Experience

Lessons to be learned from the British experience can be summarized by listing a set of requirements for new towns, and they are these:

- An integrated physical planning framework at various levels to organize and control the use of land and to provide adequate guidelines for development in public and private sectors.
- Economic studies, particularly in relation to employment location and commercial potential.
- Careful and firmly based social planning to ensure that the needs of people are fulfilled.
- People participation in the formulation of policies and proposals for the planning of the areas that provide their homes, work places and leisure facilities. As well as giving the resident the chance of saying how his town should develop, participation also offers him the opportunity of being involved in the life of the community.



Pedestrian underpass to Cumbernauld's Center; along top, center's penthouses for where-the-action-is Scots.

- Acquisition and assembly of adequate parcels of land as an essential aid to proper planning.
- Public and private finance to be harnessed to ensure the maximum impact on urban problems.
- A high standard of environmental design.
- Research studies to ensure adequate feedback for future work.

The Role of the Architect

In Britain, architectural practice is divided about equally between those who are employed in salaried jobs in government, central and local, and those who are engaged in private practice as principals or assistants. The latter sector deals with most of the work of private or commercial clients and a proportion of the projects carried out by government, local authorities and official bodies. New towns provide opportunities for both sectors.

Master plans for most of the new towns have been produced by consultants, firms of architects and town planners with associated consultants dealing with traffic engineering, economic and social studies, valuation cost advice, etc. These consultants then pass their work over to be interpreted and implemented by the salaried staff appointed by the development corporation. Obviously there are drawbacks with this procedure; when it can be done, consultants and staff should produce the plan together.

The difficulties arise from the fact that the consultants are often commissioned by the government before the corporation staff is assembled and sometimes even before the corporation is appointed. An exception to this method is Harlow where the consultant has continued to exercise control over implementation.

Cumbernauld, however, is an even greater exception. Here the chief architect and planning officer to the corporation was responsible for both the master plan and its implementation. He was in the unique position of controlling the whole of the corporation's technical services, including planning, architecture, landscape architecture, engineering and surveying.

This made possible a system of integrated working between all the professions concerned with town design in all its aspects. Every project was carried out by a team composed of all the skills involved and there is no doubt that this resulted in the design of Cumbernauld.

But however design is carried out, the opportunities are immense; new towns provide but one element in the total attack which must be made against the urban crisis, a crisis in population growth, obsolescence and social unrest. Architects must be ready to play their part in taking up this challenge. If they do not, humanity will be the poorer. □

A Wider Horizon, a Fairer Landscape

The American credo of beauty-only-with-utility results in new blisters upon our landscape every day. Can architects help prevent it?

BY CHARLES ABRAMS

Until now, the indigenous beauty of the American landscape has exercised little restraint on the population that urbanized it. Trees have been viewed as lumber; greenbacks rather than greenways have ruled the mood. Fragmented subdivisions have leveled hills and converted undulating plains into semislums.

But it was the automobile that delivered the real blow to beauty. What should have remained open space has been covered over with unsightly parking lots. A gas station that enhances the scene is still to be built; the only available remedy for our abandoned car Golgothas is to conceal them; our roadbuilders have seized whatever was beautiful and converted it into concrete monotony.

One reason for American ugliness is that the American credo of beauty, as de Tocqueville described it, is that it has to have utility. Pure beauty for beauty's sake is a rare quality here. This might be termed *beautility* and it is demonstrated in every product from the Coca-Cola bottle to the billboard beauty guzzling a beer. If beauty is useful or shows a profit, "beauty"

The author: Mr. Abrams is professor, Division of Urban Planning, Columbia University.

there will be. Kant's insistence that esthetic enjoyment must be disinterested and not be the least concerned with its practical significance over value has no place in the American scene.

Within the compass of *beautility*, the architect continuously struggles to produce his object. But most architecture is conditioned by the limitations of finance, codes, imitation and profit.

The main client of the architect in our civilization is no longer a prince or a prelate but an entrepreneur, less concerned with frozen music than with liquid assets. Buildings erected for permanence have given way to a passion for quick turnover.

Cities seeing the surge of speculative building have imposed codes and regulations but often this inhibits originality so that the most ingenious architect often finds his talents frustrated by official requirements under which he can only produce more of the same.

Architecture as a profession is also becoming architecture as a business with the advent of

the industrial designer (who might or might not hire architects); with the conglomerate corporation (one of which has actually bought a large architectural firm); with the industrial corporation (some of which are producing houses en masse with or without architects); the mobile house manufacturer (who in 1968 produced mobile and immobile units by the tens of thousands); and the speculative builder (who builds housing almost exclusively from stock plans).

The role of the architect is being increasingly whittled down to designing specialized structures such as office buildings, churches, public buildings and some price-no-object buildings for philanthropists, museums or commercial establishments looking for a prestige structure.

In other types of design, the architect has too often been powerless because he had to accept the general pressure of waste and disorganization in the construction industry and the demand by his client-entrepreneur that every usable inch be eked out of the property.

The docility of the home buyer; the indifference of the renter who is concerned primarily with location, space and rent rather than beauty; the absence of a market keenly competitive for quality; the indifference of public housing officials to design; a tax structure that demands the utilization of every inch — all this gives little opportunity for using the architect's endowments and for creating an urban landscape of structural beauty.

Until the 20th century the architect, landscape architect and engineer performed the city planning; and until the middle of the present century, city planning was viewed in Europe as a branch of architecture. The movement to make city planning a profession in its own right here in the United States received its main impetus from housing. But architecture soon began to be viewed as only one branch of the planning process (though still an important branch).

The complex problems of the city called for a more inclusive education. At the same time the planner's lack of competence in the design of three-dimensional forms gave rise to the new discipline of urban design, encompassing three-dimensional projects in which the architect or design-oriented city planner participated only as one of the numerous specialists.

The advent of urban renewal, roads and other federal programs have sparked new frontiers for architecture but few architects have enlarged their horizons to embrace the social aspects of design and neighborhoods. Engineering

firms, however, have been stepping into the breaches and have been taking on larger public contracts, hiring architects where needed. The big industrial corporations have simultaneously pre-empted contracts for urban research in building and in other aspects of the urban problem. Finally, some foreign architectural firms are entering the American market and have made contracts involving not only architectural work but planning, research, etc.

In this recasting of functions, the issues that remain unsettled and with which the architect should be concerned are:

whether a democratic capitalist society can help create the beautiful

whether America, the naturally beautiful, can retain the waning residuum of its natural beauty

whether that which is being contributed to the scene in man-made structures can be beautiful.

As to the first question, there has been a tendency to equate esthetics with the autocratic state. The beauty of Versailles could never have been created, it is said, but for the dictatorial improvidence of Louis XIV and the same is said of the contributions of Constantine. The contention is wrong.

That works of beauty are not confined to the autocrat is exemplified by the magnificent works of ancient democratic Greece. Modern tyrannies have produced nothing but monumental ugliness both in Hitler's Germany and in the Soviet Union. The latter's prefabricated housing is particularly sad looking. It seems in these cases that power and monumentality have gone hand in hand. In short, no system, whatever its political complexion, has an exclusive patent on beauty or an enthrallment to ugliness. If the quest for profit limits beauty in a democratically capitalist society, the power complex may limit it in another. In both cases there may be beauty or ugliness, or both.

As to whether America, the naturally beautiful, can remain so and whether man-made structures can contribute beauty to its cities, the answer is yes, if there is a will to do it and someone is willing to foot the bill. There is, for example, no reason for our less than beautiful public housing projects except for federal cost limitations. I believe that anything which is publicly built, whether it be a school or a public housing project, should be built as beautifully as possible and cost should be a secondary consideration.

Moreover, the nature of the end product gets down to site planning as well as architecture. And both are implicated in the destiny of 3 percent of America's land area, i.e., the nation's land area on which 90 percent of its people will be living by the year 2000. It is this tiny piece

of land surface that is witnessing the growingly intense competition of uses by subdivisions, speculation, open space enthusiasts, multiple dwelling operators, factories, roads, offices, billboards, roadside inns, public buildings, airports and cemeteries. About 80 percent of the homes now being built are on the central cities' peripheries within this small area. The older central cities remain the core of the spreading metropolitan formations, but most of the competition for land as well as the destiny of the nation's landscape will depend on how this land is planned and used.

The sound planning of this land hinges, however, on land acquisition. Unless the land is acquired by some central agency and planned as a unit, the nation's future landscape will be threatened, irrespective of the best intentions. There are two ways in which the future landscape can be salvaged: One is to set up an Urban Renewal Space Agency — an URSA patterned after NASA — to acquire and plan the use of the land. A second and more practical way is to authorize the Bureau of Public Roads to acquire the land.

It is the highway program that is the main influence in the urbanization process, and it is federal money — about \$1 billion annually — that has been instrumental in acquiring most of the land within the urban orbits. The promising future lies not in more potshot efforts by conservationists to buy up land nor in the zoning out of speculators, but in a "model regions program" that would authorize acquisition of all the land needed not only for highways but for parks, subdivisions and other uses.

Regional planning — which every recent federal administration has preached — would then at last be accomplished through a concerted multipurpose land acquisition program. The 90 percent federal grants now reserved for highways exclusively could be used to acquire land for these other purposes as well. The land use could then be planned by the Department of Housing and Urban Development or by regional agencies, reserving the space needed for highways as well as for public services, low cost housing and other essential uses; the rest could be sold to private developers.

This would not be socialism but temporary acquisition of land and its quick "desocialization." It would salvage the land increment for the taxpayer. It would be more practical and less costly in the long run than the vast grants now being parceled out for roads and road easements, open space and beauty, subsidized suburban development, tenant relocation, urban renewal, housing and the brave but futile efforts to salvage the American landscape. □

1969 Rome Prize

With the philosophic program outlined at right, based on their study of Las Vegas' commercial strip, Daniel V. Scully and Ronald Filson applied as a team for the Rome Prize Fellowship in architecture. It was instrumental in winning for them a year in Rome with a studio, which they now share; \$4,500 carried by the fellowship which they split; and housing.

Gregory S. Baldwin was another winner of an architectural fellowship, which is offered annually by the American Academy in Rome to promising young American artists and scholars.

For the first time, the academy offered fellowships in environmental design. The two winners: J. Michael Kirkland and Alan Melting.

Scully, of New Haven, Connecticut, and Filson, of Chardon, Ohio, entered Yale University in 1966 and 1968 respectively. Baldwin, of Portland, Oregon, received his Master of Architecture from Harvard in 1967. He was most recently senior designer with Wolff, Zimmer, Gunsul, Frasca in Portland.

Kirkland, with a Master of Architecture from Harvard in 1968, is now working for a Master of Urban Design. His most recent position was as associate and project director of the Environmental Design Group, Cambridge, Massachusetts. Melting, of Breckenridge, Minnesota, received his Master of City Planning from Massachusetts Institute of Technology last spring. His last position was as head, Urban Design Division of Detroit City Plan Commission.

Judges of the architectural entries were Edward L. Barnes, FAIA, chairman; Paul Rudolph, AIA; Thomas R. Vreeland Jr., AIA, Evans Woollen, AIA; and for the environmental design entries, Nathaniel A. Owings, FAIA, chairman; Edmund N. Bacon, AIA; R. Buckminster Fuller; William Platt, FAIA; Michael Rapuano; Landon S. Simons Jr.; Stewart L. Udall.

LAS VEGAS TO ROME

Las Vegas is 20th century America. Not for gambling, not for topless, but rather as the archetypal development of the commercial strip. It is the vehicle for the relationship of 20th century America's values (without saying good or bad) to its environment.

It is this connection, i.e., the communication of values to the user, that is our area of study. Architecture has recently been tied up in communicating the methodology of process. That's too little!

We're concerned with the meaning or contents of what's being communicated and, moreover, with the means of communication itself. Early cultures, because of their smaller scale of personal involvement, were able to layer meaning on architectural process. The values and patterns of our lives are drastically different — how are they communicated? As an architecture of communication we're talking about the hut of Romulus versus the Stardust Hotel versus ? ?

We chose Las Vegas because it is the most intense example of the commercial strip and, therefore, the easiest to study. Rome is equally intense, giving us the chance to derive parallels and contrasts between the two cultures.

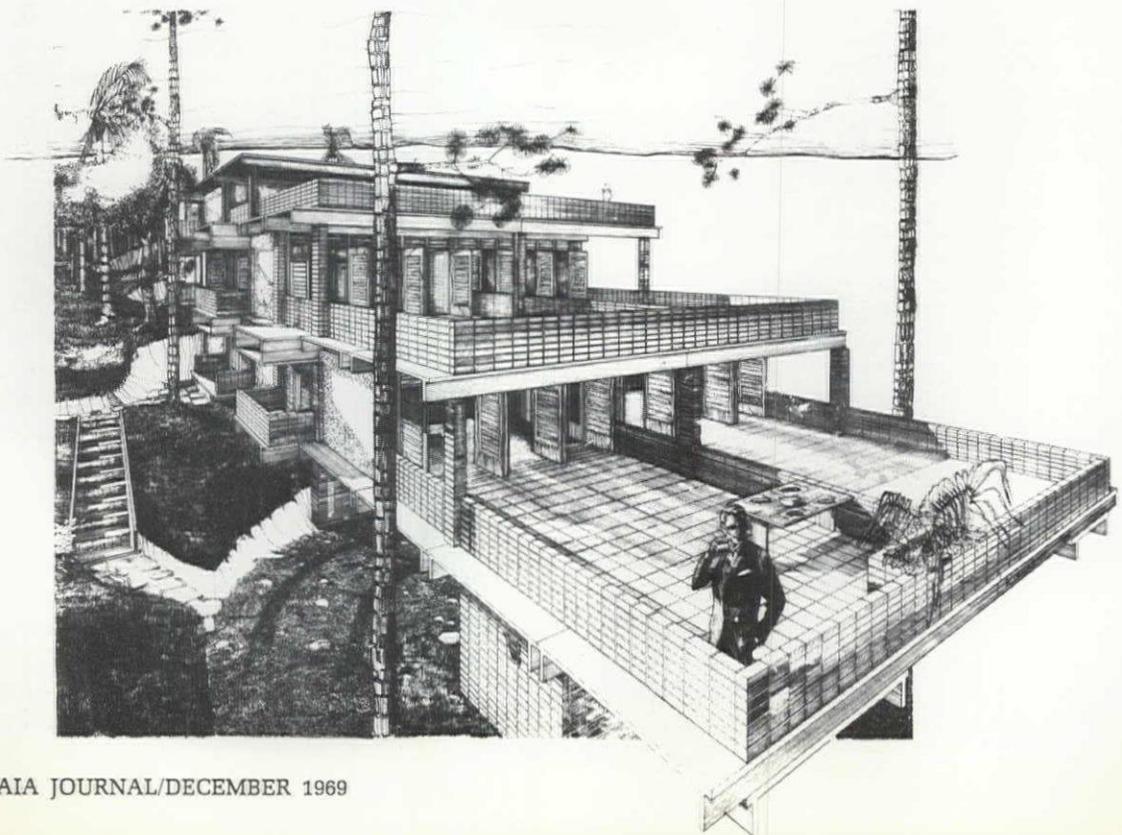
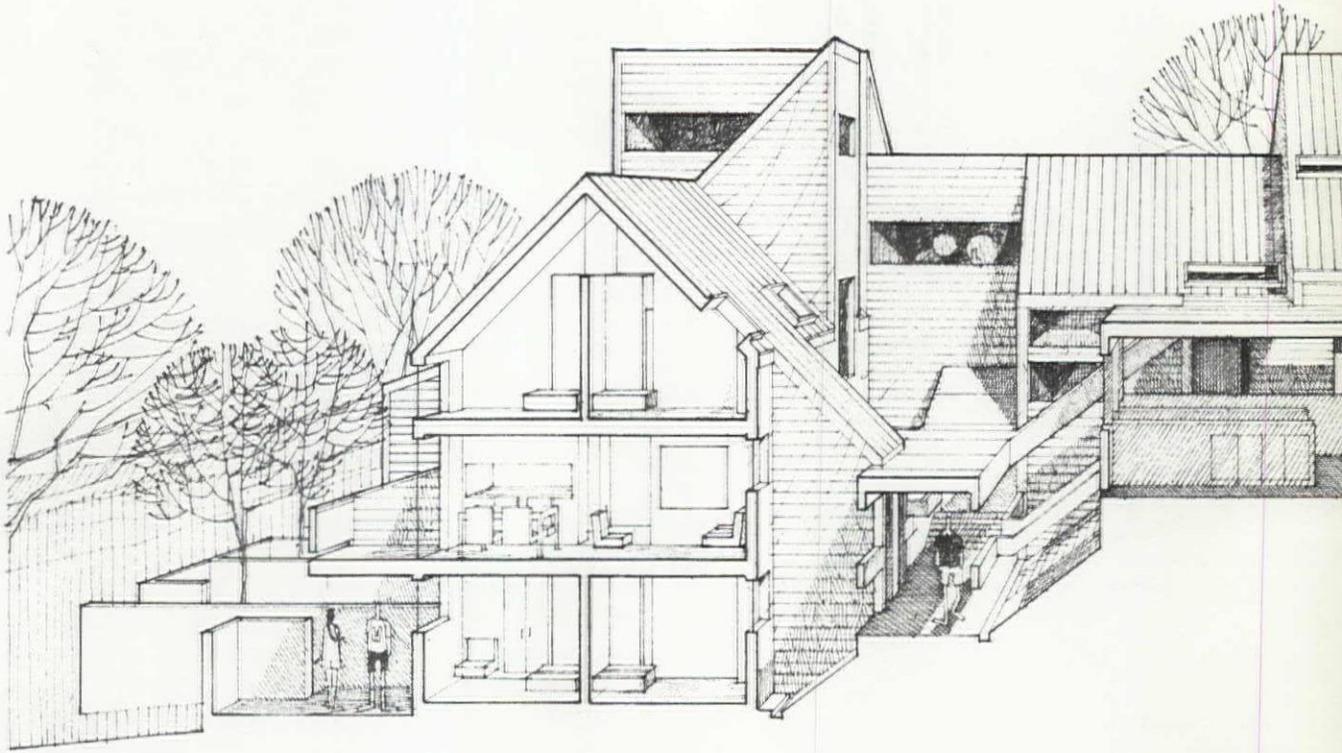
Rome is the opposite of Las Vegas in that it is culturally layered and has undergone many adaptations to changing uses. The superimpositions of one generation's values upon another's is one aspect that makes Rome a vital, modern city. Specifically, we might look at the changing relationship between the functional and symbolic parts of buildings. Our study of Las Vegas was a visual and analytical documentation of the strip rather than a statement of worth or beauty. From it, we have received the analytical tools and methods: mapping techniques, filming methods, slides.

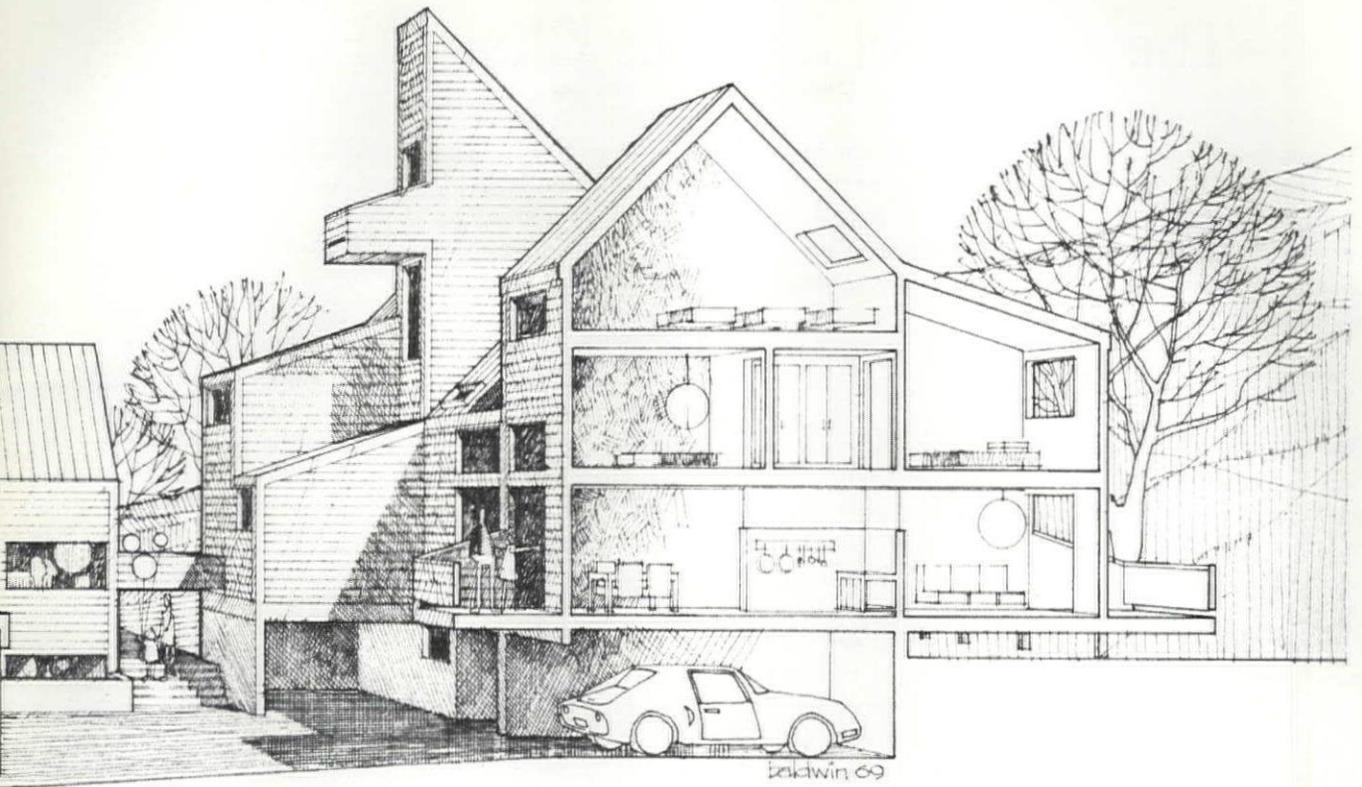
Because of the duration of the project, we could draw information from European cities. The intent would be to use Rome as a base of operations and study, possibly with short segments of time in other pertinent cities, and the home base of an informational network of facts, criticism and suggestions from interested architects in this country and Europe. The academy itself is already set up for exchange between the social, historical and cultural contexts necessary for such a communications study.

In Las Vegas we were specifically involved in the message communication aspects of the strip: the signs, imagery and symbolism applied to purely functional structures. When is a building a sign and when is it a symbol? Previous studies of Rome have been concerned with structure, form, light and spatial progression. That's too little. We want to go beyond the wall. Imagery and symbolism are as important as bricks and mortar.

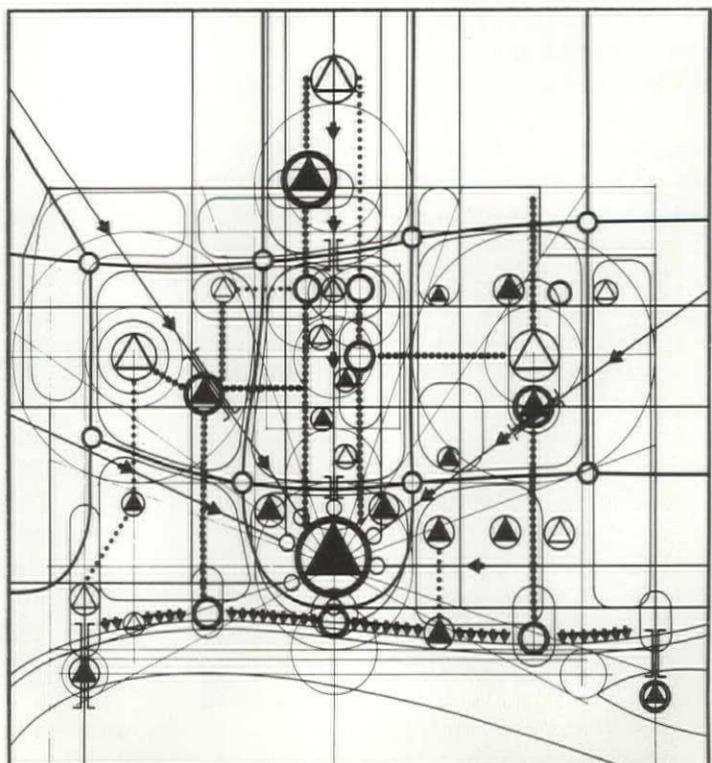
We would feel a hesitation about going to Rome. Our present involvement and concern in the social issues of America — especially in low cost housing — would make it very hard to leave. We feel an obligation to the drastic and forgotten needs of people: adequate and favorable housing conditions and the chance to relate successfully to their environment. But at the same time we recognize our lack of experience and effective power in our present situations. A further and contrasting study of some of our present ideas will increase our understanding and future power in these and other issues.

We're very concerned with studying communications in housing. What we want to do is to look at Rome as an architecture of communication. Communications is the connection between Rome and Las Vegas. DANIEL V. SCULLY and RONALD FILSON





Gregory S. Baldwin's design for the Dead River Housing System (above) for Edward Diehl Associates, Inc. J. Michael Kirkland's low cost hill dwelling for Puerto Rico (left), an undergraduate work. Alan Melting's study for a cover (right) for an urban design brochure, showing the concept of the inner city of Detroit.



The Architect and His Clients' Ears

An acoustical consultant should be called in at the schematic design stage of any large or acoustically complex project, but it is still necessary for the architect himself to have a sound grasp of acoustical principles and to apply these to all of his structures.

BY ANITA LAWRENCE

Acoustical design considerations should play a part in every building, and this will become even more important in the future. More numerous and more powerful machines and appliances are used in every building type, and this usually implies that more noise is created.

Some of the most "modern" machines are products of the Dark Ages with regard to their noise-generating capacity, and a data-processing room today often has noise levels typical of a factory. At the same time, each new lightweight material or construction system that comes onto the market reduces the chances that a building might have "in-built" acoustical protection in the form of masonry walls and massive concrete floors.

Fortunately, there are many ways in which an architect can control the acoustical environment of his buildings, providing that he considers this aspect as part of his initial brief. Some of the more important factors of noise control are outlined here.

In "free space," i.e., in the absence of reflecting surfaces, sound pressure levels are reduced by 6 dB (decibels) for each doubling of distance from a single sound source. (A reduction of 10 dB corresponds to an approximate halving of the loudness of a sound.) Thus the first defense against noise is to locate a building as far as possible from major noise sources.

In practice, of course, reflecting surfaces such as the ground and other buildings are present, and the reductions obtained are less.

When traffic noise is the main problem, as is often the case, it is found that the average level is reduced by only 3 dB for each doubling of distance from the road, although the peak levels, which are due to individual vehicles passing, follow the 6-dB rule.

The next step is to consider the acoustical requirements of each space; some areas will be quiet and some noise producers. To a certain extent the degree of sensitivity to noise depends on the noise levels produced inside a space due to the operation of normal activities. For example, a bedroom is noise-sensitive whereas a

workshop is noise-tolerant. On the other hand, an auditorium is sensitive to outside noise but may also be a noise producer.

Since walls and floors designed to provide good sound insulation tend to be expensive, it makes sense to group the quiet rooms and to separate them as much as possible from noise producers. Noise-tolerant spaces may be placed between a noise source and a noise-sensitive area to act as a shield, thus reducing the sound-insulating requirements of dividing construction elements.

Two types of sound propagation in buildings must be considered: through air and through the building fabric. Sounds such as speech, music and radiated noise from machines travel through air, and through intervening solids, to the listener. Other sounds such as footsteps and machine vibrations originate in solid materials and travel through the fabric of the building, finally radiating airborne sound to the listener.

In general, the more changes in the medium of propagation of the sound, the greater will be the reduction in transmitted energy. The most relevant physical properties of the media are their density and elasticity. Thus when airborne sound is to be reduced, the insulating medium should be massive so that the sound energy is transferred with difficulty into the solid and again into the air on the other side.

If the sound is solid-borne, the insulating medium should be lightweight and compressible so that the energy has difficulty in transforming from a rigid solid into the insulating material and back into the solid on the far side. Wherever

The author: Mrs. Lawrence is in charge of the Graduate Diploma in Architectural Acoustics at the University of New South Wales, Australia.

the sound-propagating medium provides an uninterrupted path between source and observer, little reduction of energy will occur.

This reasoning can be translated into practical terms by considering two adjoining rooms, one containing noise source and the other being noise-sensitive. The airborne sound from the noise source will create a sound field in the source room—the average sound level depending on the acoustical power of the source and on the total absorption in the room (a doubling of the total sound absorption reduces the average level by 3 dB).

Sound waves impinge upon the wall and floor between the rooms, and if they are massive and airtight, most of the energy will be reflected

back into the source room. On the other hand, if the dividing wall or floor is of lightweight construction — or worse, contains openings — most of the incident energy will be transmitted into the "quiet" room.

It is most important for an architect to understand the extent of sound leakage through small openings in otherwise good insulated construction. For example, if more than 10 percent of a wall consists of unglazed openings, the overall sound insulation will not exceed 10 dB, however good the performance of the remainder. Small cracks around doors, skirting ducts at the base of partitions, dry joints, etc., have a disastrous effect on sound insulation.

A common source of sound leakage in commercial buildings is through suspended "acoustical" ceilings, if the partitions are only taken to the suspended ceiling level. Sound waves pass through the suspended ceiling, bounce off the structural slab and pass back through the ceiling to adjoining rooms. It is now possible to obtain sound-attenuating suspended systems so that the room-to-room attenuation by the ceiling path is as good as the direct attenuation through the partition.

The wall or floor between the two rooms is not the only possible path for sound energy. Flanking walls, floors, etc., will also be set into vibration and will transmit energy into the quiet room. The rated sound insulation value of a dividing element will not be obtained in practice unless the surface of the flanking construction is at least half that of the dividing element.

When the solid-borne sound is the result of impacts, the most efficient method of reduction is to provide isolation at the source. This may take the form of resilient machine mountings, or resilient floor surfaces if footsteps are the problem. Where it is necessary to use a hard-finished floor, the resilient layer should be placed between the wearing surface and the structural slab. The design of machine mountings should be in expert hands, as an incorrect choice can lead to amplification of the machine's vibration.

If the required sound attenuation between two rooms, or between the outside and a room, is very high (as in the case for broadcast studios), it may be necessary to resort to box-within-a-box construction. A completely separate structure is used for the quiet room, isolated all around from the remainder of the building; if it is not possible to provide separate foundations, the floor of the quiet room must be supported on vibration mounts. All service lines, ductwork, etc., must have resilient connections from the noisy to the quiet area.

Airconditioning systems are a prevalent noise source in buildings. The machine room should

be located as far as possible from quiet areas, i.e., not placed directly above conference rooms, and the plant should be resiliently mounted to reduce solid-borne sound. The supply and return ducting should also be separated from the machines with resilient sections, and sound-absorbent linings or packaged attenuators are usually necessary.

It must always be remembered that sound travels just as readily against the air stream as with it and that the silencing of return air systems and exhaust ducts is just as important as in the supply system. Many otherwise satisfactory partitions are made virtually transparent acoustically by the insertion of return air grills.

Plumbing noises may also be reduced considerably by attention to design and detailing. When a fluid flows viscously (all the particles flowing smoothly in the direction of the stream), little noise is created. However, turbulent flow due to excessive velocities or abrupt changes of direction as well as cavitation (bubble formation) can be effective noise sources. In itself a pipe is an inefficient radiator of airborne sound, but if it is rigidly fixed to a large radiating surface such as a wall or floor, noise from it may become a problem. Solutions include careful design of pipes and valves and resilient pipe supports.

Architects frequently become confused by the unfortunately large number of units that are used in acoustical specifications; some of the more common rating systems, particularly those used in the United States, follow.

Noise Criterion (NC number) — This is a method of specifying an acceptable background noise level in a room. It was derived by L. L. Beranek* from experience in offices; and it is closely related to the ability of people to converse at different distances.

The ear is most sensitive to sound having frequencies from about 1,000 to 4,000 Hz (cycles per second); the most important speech components with regard to intelligibility also occur within this range. Thus the ability to understand speech depends very much on the level of the background noise in this frequency region, and this is often the most important criterion with regard to acceptable noise in an office environment. The lower frequencies do not effect intelligibility greatly, but if they are too loud, the noise level will be unpleasant.

A noise criterion is in the form of a curve specifying the maximum allowable noise level in each octave band from 63 to 8,000 Hz, e.g., NC 30 permits 57 dB at 63 Hz, 35 dB at 500 Hz, 28 dB at 4,000 Hz, etc. The lower the NC num-

* "Revised Criteria for Noise in Buildings, *Noise Control*, Vol. III, January 1957, pp. 19-27.

ber, the lower the acceptable noise level. All of the curves allow higher levels in the low frequencies and lower levels in the speech intelligibility frequencies.

The noise criterion specified depends on circumstances: NC 30 is suitable for private offices; auditoriums should have a lower criterion; and large offices or other areas where the ability to converse is not so important (or where the activity noise levels are unavoidably high) may have higher criteria specified.

Decibels — familiar units in acoustics — are used to measure sound pressure levels. However, one must be careful to note the type of sound measuring system used. A simple measuring system with a linear response to sound at all frequencies does not correlate well with subjective impressions of loudness because of the nonlinear sensitivity of the ear as mentioned above. If most of the sound energy is concentrated in the lower frequencies, an observer will judge it quieter than another sound of the same total energy concentrated in the higher frequencies.

Therefore, when making measurements related to acceptability by people, it is usual to incorporate a "weighting network" in the system which changes the response to a nonlinear one similar to that of the ear. The most commonly employed weighting is called the "A" scale, and the measurements obtained are designed as decibels A-scale (dBA).

The actual readings obtained are normally about 10 units above the corresponding NC number so that NC 30 is about the same as 40 dBA. However, if a dBA measurement is used to check compliance with an NC specification, it is normal to allow an excess of only 5 units, e.g., 35 dBA would comply with NC 30). The advantage of dBA is that a simple measurement may be made of a single number — and it may be made continuously in a monitoring system. NC numbers require eight separate octave bands to be measured, although this is often necessary for design and calculation work.

Sound Transmission Class (STC) — The airborne sound insulation of a wall, floor or other element varies considerably with the frequency of the sound. Generally, the insulation obtained increases with frequency. In the mid-frequency range the sound transmission loss rises about 6 dB per octave, i.e., per doubling of frequency.

However, at high frequencies the so-called "coincidence effect" occurs. At certain frequencies and angles of incidence, the projected wave length of the airborne sound corresponds exactly with the bending wave length of sound of that frequency in the solid. Thus the solid vibrates in phase with the incident wave and

becomes virtually transparent at that frequency. This effect is most important in lightweight forms of construction: Glass, plywood, gypsum board, etc., all exhibit coincidence transmission in the ear's most sensitive frequency region. The sound insulation of these materials shows a marked "dip" in this range.

The Sound Transmission Class is a reference curve designed to allow fair comparison between the airborne sound insulation provided by different forms of construction. The shape of the curve was determined considering the spectra of typical domestic and commercial noises and also the need to provide adequate protection in the higher frequencies.

The curve slopes upward at 3 dB per one-third octave between 125 and 400 Hz, at 1 dB per one-third octave between 400 and 1,250 Hz and is flat from 1,250 to 4,000 Hz.

A standardized test of the sound transmission loss of the construction in question is carried out and the results plotted on a graph. The STC curve is then fitted so that the average deficiency of the construction does not exceed 2 dB and so that the maximum deficiency at any band does not exceed 8 dB. The rating given corresponds to the value of the STC curve at 500 Hz when correctly fitted — the higher the rating the greater the insulation provided. Thus by specifying one number, the performance of an element over the whole frequency range is determined: the 8-dB maximum dip takes care of coincidence effect deficiencies as described earlier.

It must be remembered that the STC curve was derived mainly for commercial and domestic situations and may not necessarily give the most economical answers for other applications. In particular, a wall rated by this method gives insufficient low-frequency protection when the sound source is traffic.

Impact Noise Reduction — The insulation provided against impact sound is more difficult to measure since the airborne sound resulting from an impact on the floor above depends on the interaction between the impacting force and the floor itself. A standardized source of impact — the tapping machine — is used to excite the floor and the sound pressure levels in the room below are measured at different frequencies.

These results are again compared with a standardized curve, but in this case they should not exceed the reference curve since these are *transmitted* levels. The amount of shift up or down required for compliance with the reference curve may be expressed as $-X$ dB INR or $+X$ dB INR, as the case may be.

One final warning: Most acousticians seem to work on "limit" design principles; it is up to the architect to ask for a "factor of safety." □

An Ideal Animal Resource Facility

A comprehensive animal program is essential for a college of medicine. The cost of a properly designed facility to house such a program is higher per net square foot than any other area of the school. It is also more complex in its layout. Consequently, it should be given very special attention.

BY C. MAX LANG, DVM, AND
GEORGE T. HARRELL, MD

Efficiency, flexibility and expansion possibilities are the main criteria for animal facilities at a college of medicine. One medical school with such facilities to meet all these criteria is the Pennsylvania State University College of Medicine. Its Animal Resource Facility of the Milton S. Hershey Medical Center has proved to be ideal in design and function and has therefore attracted students and faculty to the college. The National Academy of Sciences and the National Institutes of Health have listed it as a model facility both from the standpoint of design and program of operation.

The Animal Resource Facility is the service division of the Department of Comparative Medicine which operates as one of the basic-science departments of the college, working with all other departments in an active program of teaching, research and service. Animals are kept in quarters designed to reduce environmental variables. In this setting, students and staff study the normal range of variation in structure and function which is encountered in various species of animals used in teaching and research, as well as abnormal findings induced by disease or experiment.

The facility has accepted the responsibility for total animal care, as well as for the diagnosis of illness and determination of the cause of unexpected deaths.

Located on a 216-acre site, the Animal Resource Facility is composed of three complementary units: central animal quarters; an

animal research farm; and a large dairy barn with acreage for pastures and corrals.

The central animal quarters is contained within the medical sciences building, one floor underground and adjacent to a loading dock. It is connected to the animal research farm by a heated, 1,400-foot long tunnel. This tunnel makes it possible to keep the animals in a controlled environment in any weather even during transfer from the farm to the medical sciences building.

The central quarters has animal rooms for short-term projects requiring frequent observation or handling; an infectious disease unit; radioisotope rooms; a large operating room for experimental surgery; facilities for diagnostic radiology; and supporting laboratories for histopathology, clinical chemistry and microbiology.

An animal room designed to hold animals during the day is provided on each floor of the basic science and clinical science wings. An investigator who requires animals in his own laboratory can have them prepared in the central facilities and delivered there.

The animal research farm receives all incoming animals for quarantine and stabilization, houses breeding colonies of multiple species including primates, maintains animals used in long-

The authors: Professor Lang is chairman, Department of Comparative Medicine and director of the Animal Resource Facility and Dr. Harrell is dean of the College of Medicine at the Milton S. Hershey Medical Center, Pennsylvania State University.

term experiments and stores supplies. A facility of this type is less expensive to construct and operate than one of similar size contained in a medical sciences building since it does not have to be adapted to the architectural framework of a structure designed primarily for other purposes.

A modern dairy barn located 1,200 feet from the animal research farm was converted into a unit for housing several species of domestic animals.

A large hayloft with a reinforced concrete floor provides adequate space for storage of food and supplies. The animal area underneath has a concrete floor, metal stanchions and pens, tile brick walls, electricity and plumbing. An adjacent milk house was converted into a laboratory for the collection of specimens, weighing of animals and other simple procedures. It has hot water and electric heat.

Thirty acres adjacent to the barn and extending to the animal research farm have been seeded and fenced and are used for pastures and corrals. In the future, aviaries can be constructed here.

A wooded area of several hundred acres behind the medical center and adjacent to the pastures have been established as a game preserve and is available for ecologic studies of wildlife. A spring and small gully on the site at the edge of this will allow the construction of a fishpond at least one acre in size for study of small, fresh-water marine forms.

Central Animal Quarters

The central animal quarters is divided into five main areas: administration; diagnostic and research laboratories; special purpose areas; animal holding rooms; and service areas. The animal rooms can be extended to the west to double initial capacity by removing knock-out panels in the exterior walls opposite the clean and dirty corridors.

There are offices for four faculty members, two secretaries and a chief animal husbandman. A conference room houses the departmental library and provides space for seminars and formal classes. Three study cubicles in each of two rooms are for the use of graduate students.

In addition to these laboratories

there are research, necropsy, histopathology, clinical chemistry and microbiology laboratories. Each has built-in laboratory furniture and basic movable scientific equipment.

The experimental surgery suite has a large operating room containing eight tables and ceiling-mounted surgical lights. Three smaller operating rooms open off the large one. These can be assigned to investigators using special equipment in conjunction with procedures such as open-heart surgery, making it possible for them to keep the equipment in a single area for the duration of the project instead of moving it back and forth between the surgery suite and the laboratory floors.

On the perimeter of the surgery area are recovery rooms, rooms for shaving and surgical preparation and an area for cleaning and sterilizing instruments. All flooring is conductive.

Since the surgery area is used for teaching as well as for research, the equipment and techniques are equivalent to those found in the operating suite of any university hospital.

A room adjacent to the surgery area holds a diagnostic X-ray machine with image amplifier suspended on overhead tracks. It is

possible to take films of animals on carts without placing them on the X-ray table. Floors, walls and ceiling are lined with sufficient lead to permit the addition of a therapy unit at a later date. Adjoining are a film viewing and storage room and a darkroom.

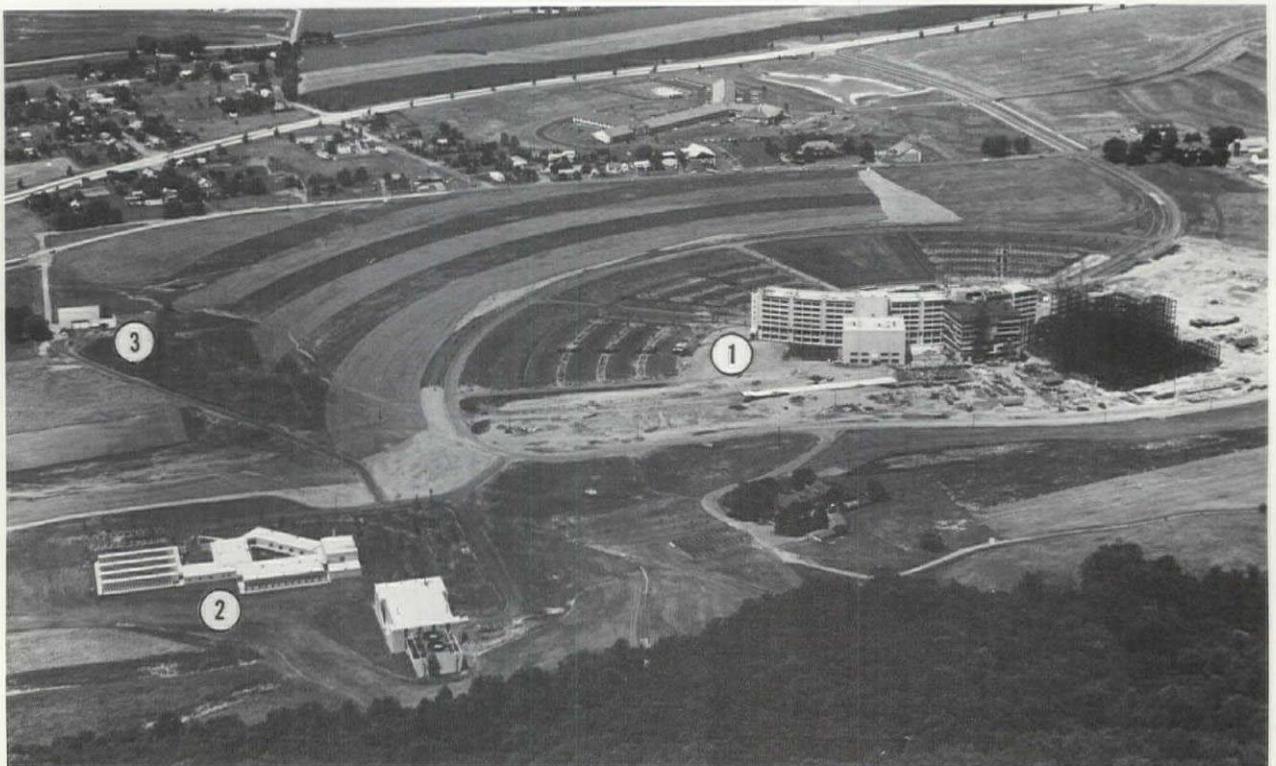
Infectious disease and radioisotope rooms have cubicle arrangements, each of which has a three-panel, vertically sliding plexiglass door and is under negative air pressure. Transmission of airborne isotopes or infectious agents is prevented from one cubicle to another. The exhaust air passes through an absolute filter inserted in a stainless steel duct that opens on the roof of the building. By putting the required type of movable cage in the cubicle, each can be used for any species of animal.

The infectious disease area has a room containing three cubicles, a fume hood for making injections of cultures and collection of specimens, a pass-through double-door autoclave which opens out into the dirty corridor; a locker room; and a shower room. The radioisotope area has seven cubicles in two rooms, both with a fume hood for making dilutions of material for injection and a freezer for storage during the period of isotope decay.

The animal rooms open off a central clean corridor into two outside dirty corridors, which in turn connect at the west end of the building. Three of the rooms are built with floor gutters for movable dog cages that can be flushed in place with hot water. The remaining 11 animal rooms, interchangeable for multiple species, have no floor drains but are cleaned by wet vacuuming. For maximum flexibility the rooms have no permanent equipment except a sink and a wall-mounted automatic watering system.

All cages and racks in the Animal Resource Facility are modular units which can be used in all animal areas. The cages are made of stainless steel for durability and are mounted on casters for ease of movement. This design allows complete flexibility in the use of the animal rooms and in the cleaning schedules for rooms and cages. No fixed, built-in cages are provided anywhere.

All cages are washed at least once a week on a regularly scheduled basis. A tunnel washer with a revolving belt is used for small cages and bottles, a walk-in washer for the larger cages and racks. Cages are placed in the washers on the dirty side and are removed from the machines in the clean cage room. The machines



The Animal Resource Facility, Pennsylvania State University. Central Animal Quarters (1) with 16,598 net square feet of floor space; animal research farm (2) with 22,548 square feet; and dairy barn (3). Architects: Harbeson, Hough, Livingston & Larson; project architect, Harry M. Kurki, AIA.

are fully automatic with wash, rinse and steam-sterilizing cycles.

Clean cages leave the central quarters past a control point and can be taken by a service elevator to any floor of the building. Used cages can enter a dirty corridor and be taken to the cage washing area without crossing any clean portion of the central quarters.

Besides dirty and clean cage rooms, the service area contains a trash storage room, incinerator, a diet kitchen with a walk-in refrigerator, feed storage room and a room for bedding and supplies.

Animal Research Farm

The animal research farm is made up of seven interconnected units for 1) quarantine and holding of small animals; 2) cage-washing, necropsy and incineration; 3) primate breeding, holding and research; 4) dog quarantine, holding and long-term research; 5) administration, research, research training; 6) primate support; 7) lockers and dog processing.

The farm may be expanded in five directions without altering the flow pattern through the service facilities. The dog runs can be extended to the west, doubling or tripling their initial capacity. Limited expansion of the small-animal wing to the northwest can provide additional quarantine

rooms. A mirror image of the small-animal wing can be added on the northeast, off the service facility.

The primate rooms and primate research laboratories can be duplicated in a mirror image to the east of the service facility; primate operating rooms can be extended to the south. This expansion will allow the present animal areas to be at least doubled in size. If necessary in the future, the entire facility could be duplicated on the existing site.

Central point for circulation between most units of the farm is the fenced, paved delivery court with a loading dock at floor level on three sides. The court connects with a parking area and with roads leading to the dairy barn and to the delivery entrance of the medical sciences building.

In the small-animal wing the corridor closest to the patio is clean, and the corridor on the outside toward the roads is dirty. The latter opens into the dirty-cage storage area, where cages are stripped and placed in pass-through tunnel washers which open into the clean-cage area.

The primate unit has two parallel clean corridors. The one adjacent to the primate rooms is used for the movement of animals or cleaning equipment, the second

for scientific equipment and personnel. The animal corridor connects with both the clean- and the dirty-cage storage areas in the service facility.

The building is constructed on spread footings supporting masonry bearing walls. The floor is reinforced concrete slab on grade. The roof is cast-in-place concrete covered by five-ply built-up roofing with a gravel surface. The exterior walls are concrete masonry units faced with bricks. The windows are double-glazed insulating units in aluminum frames. All doors, both exterior and interior, are hollow metal.

Interior partitions in animal and wet areas are concrete masonry units finished with glazed, ceramic epoxy paint. In animal rooms and other wet areas subject to abuse, the concrete floor is covered with a chemical-resistant coating. In other areas vinyl asbestos tile is used.

Dividing walls in outdoor primate and dog runs are unpainted, precast concrete. The runs are protected by a perimeter fence 9 feet high, 15 feet from the animal pens, to keep out people and stray animals.

The small-animal wing has quarantine and animal holding rooms arranged on a clean-dirty system. The purpose is to prevent

Animal Research Farm

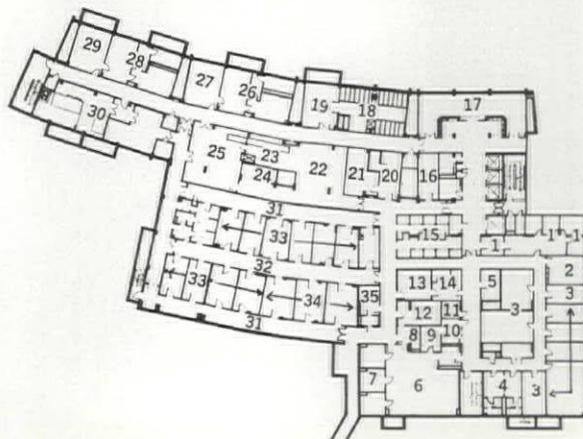
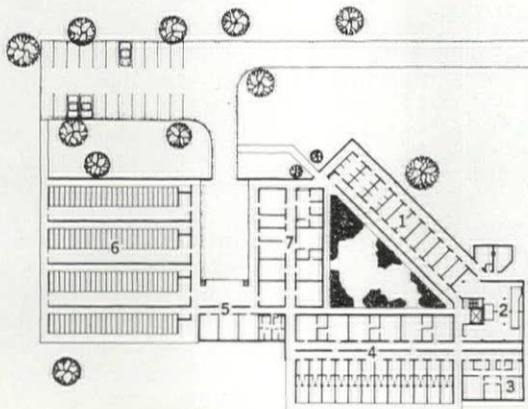
- 1 Small-animal quarantine and holding
- 2 Service facility
- 3 Primate support area
- 4 Primate breeding, holding, research
- 5 Locker and dog processing laboratories
- 6 Dog quarantine, long-term research
- 7 Administration, research, research training

Central Animal Quarters

- 1 Administration area
- 2 Conference room
- 3 Laboratories
- 4 Ladies' and men's dressing rooms
- 5 Examination and treatment

- 6 Animal surgery
- 7 Operating rooms
- 8 Preparation room
- 9 Supplies
- 10 Storage
- 11 Sterilization
- 12 Recovery
- 13 X-ray
- 14 Control and workroom
- 15 Radio-isotope room with hoods
- 16 Bedding
- 17 Post office
- 18 Cadaver storage
- 19 Embalming
- 20 Kitchen

- 21 Animal food storage
- 22 Clean cages
- 23 Cage washing
- 24 Cage repair
- 25 Dirty cages
- 26 Men's lockers and dressing
- 27 Men's lunchroom
- 28 Ladies' lockers and dressing
- 29 Ladies' lunchroom
- 30 Utilities area
- 31 Dirty corridors
- 32 Clean corridor
- 33 Animal holding rooms
- 34 Animal rooms with floor gutters
- 35 Autopsy



personnel from carrying infectious agents from one room or project to another. The clean corridor has gray, chemical-resistant floor which continues into each animal room. The dirty corridor, which extends into the dirty cage wash area, has the same flooring in maroon.

All personnel, clean cages, feed and bedding enter animal rooms by way of the clean corridor; the doors are arranged so that the only exit from the animal rooms is by way of the dirty corridor. When going from the dirty to the clean section at the cage-washing

area, all personnel must walk through footpans and also wash their hands.

The small-animal wing is built on a 5-foot module. Each of the first three rooms is divided into six quarantine cubicles; the eight remaining rooms are used primarily to house rodents being employed in long-term experiments. The rooms are equipped only with a sink and an automatic watering system. Temperature and lighting in each room can be controlled in order to meet research requirements.

The dirty corridor from the

small animal wing leads directly past the necropsy and incinerator rooms into the dirty cage-washing room, which is used for cleaning cage pans before washing them. The cage and rack washers, incinerator and necropsy room are duplicated in the central animal quarters.

The primate holding area has 12 cage rooms, each equipped with a sink and an automatic watering system. Adjoining each cage room is a large indoor-outdoor pen to house monkeys in groups for studies of reproduction and social behavior. Wire fencing is placed in the indoor pen to facilitate personnel traffic and cleaning procedures. The vestibule between the cage room and the indoor pen is large enough to accommodate a chair for an observer.

Two-way plexiglass doors which can be easily pushed open by the animals are set in the doors leading to the outdoor pens. During inclement weather, these doors are locked. Both indoor pens and outdoor runs contain perches and automatic watering units.

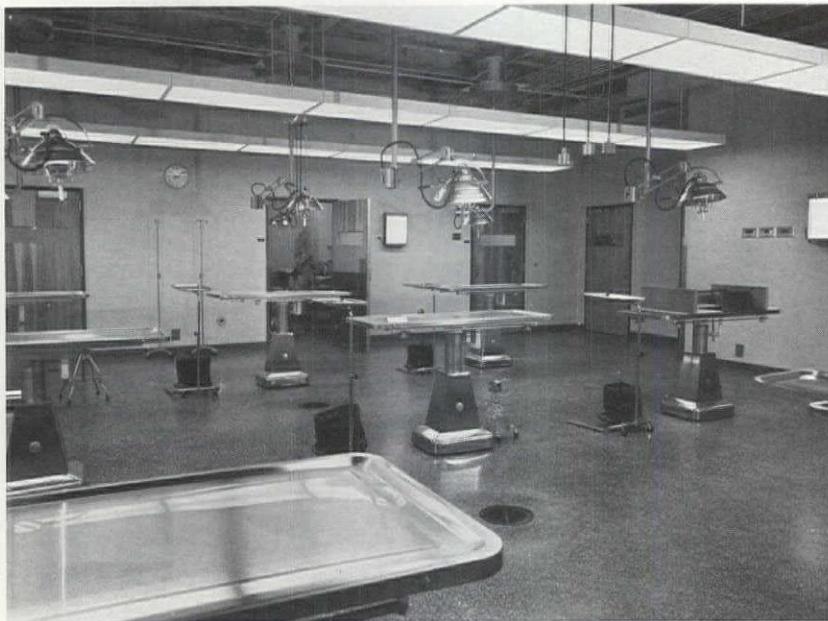
All outdoor runs face south for maximum exposure to the sun during the winter and have electrically heated concrete slabs for quick snow melting and drying. To prevent physical contact between groups of primates, the runs are separated by a precast concrete panel 5 feet high, topped by a small-mesh wire fence. The front and top of the pens are fenced with wire of a larger mesh to facilitate climbing and swinging.

Six research laboratories are located across the two corridors from the primate holding rooms. Because of the difficulties involved in moving the primates and because movement can affect their behavior, there are no research laboratories designed specifically for them in the central animal quarters.

The research labs have built-in benches along one wall only. A maximum amount of floor space is available for free-standing, self-contained instruments. A windowless room connected to each lab can be used for instrumentation or preparation of the animals.

The primate support area includes two operating rooms, a locker room, a sterile supply room with an autoclave, a preparation area, recovery room and a nursery.

A food-storage room and two processing labs for examination, immunization or treatment sup-



Experimental surgery suite, top, with three small operating rooms on the far side and preparation and recovery rooms behind the wall at right. Quarantine room, below, divided into isolation cubicles. The same type of cubicle is used in infectious disease and radioisotope rooms.

port the dog area. Four parallel kennels, each containing 25 individual dog pens, have a capacity for 100 dogs. They could be extended to triple this capacity.

Dog pens are preferred to cages since they provide the animals with greater freedom of movement and because cleaning pens involves less labor than cages. The service corridor and inside pens are heated by forced air.

Each dog has his own inside pen and outside run; the two are connected by a two-way plexiglass door similar to those in the primate area. The outside runs are separated by a precast concrete partition 4½ feet high, topped by a coarse mesh wire fence which is open at the top.

To facilitate cleaning, the concrete floor of the pens is sloped to an outside gutter which drains into the city sewer system. Both the indoor and outdoor concrete slabs are electrically heated. Each pen is equipped with an automatic watering system and self feeder.

The administration, research and training wing includes a large diet kitchen, a combination conference room/library, a diagnostic laboratory, two laboratories for research in comparative medicine, three rooms for supplies, bedding and feed, an animal receiving room, office facilities for three faculty members and two secretaries, and a records room. The comparative medicine research laboratories are used for graduate work and for medical student projects and elective courses.

Utilities

The major utility distribution for all buildings originates at the steam plant, approximately 100 feet south of the animal research farm. Dual systems to guarantee a continuous supply of steam, domestic water, chilled water and electricity are brought through the tunnel to a mechanical room in the basement of each building. Pumps and heat exchangers for generating hot water are located in both buildings.

Animal rooms in both the central quarters and the farm can be adjusted over a wide range of temperature and humidity. Atomizing humidifiers can be installed in each animal room should higher humidity be required for a particular project. The operating rooms are maintained at 70 degrees and 55 percent relative humidity throughout the year.

Air handling in all animal areas operates on a 100 percent outdoor air exchange with a minimum of 15 air changes per hour in the animal rooms and 10 changes in the corridors and laboratories. No air is recirculated. All exhaust registers in the animal area have filters to catch hair and large particles. High-efficiency filters are used on all systems, both intake and exhaust.

Light control is on a separate timer so that the light in each animal room can be varied as required.

The central animal quarters

was constructed at an approximate cost of \$1,250,000; or about \$45 per gross square foot, \$75 per net square foot. Construction of the animal research farm came to \$1,538,000; or \$42.06 per gross square foot, \$71.55 per net square foot. Fixed equipment was included in the contract.

Stainless steel cages for the facility cost approximately \$250,000, while additional movable equipment for all units was about \$115,000, including scientific instruments and furniture.

The Animal Resource Facility was completed in 1968. □



Dirty cage-washing room at the animal farm, top. Tunnel washer for small cages is at back of room, walk-in washer for racks and large cages at right. Primate cage room, below, with adjoining indoor group pen opening to outside run. Note two-way plexiglass animal doors in outside doors.

Medical Clinics: Awards of Merit



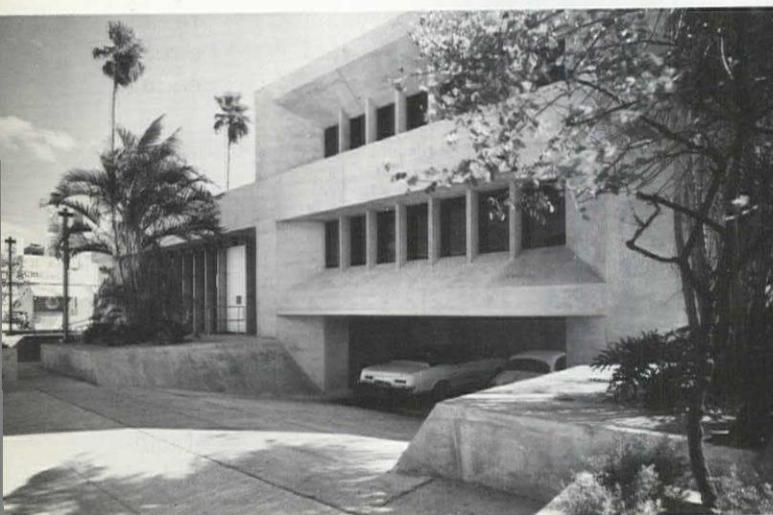
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The photographs of the six Award of Merit winners in the second program co-sponsored by The American Institute of Architects and the American Association of Medical Clinics on page 62 of the October issue were transposed due to a mechanical error. A reprint of the corrected original three-page article, including the First Honor Award — Minneapolis Clinic of Psychiatry and Neurology, for 16 or more physicians, by Hammel Green & Abrahamson, Inc. — is available by circling No. 1 on the information service card.

1. Rockford Clinic, Rockford, Illinois, enlargement of facilities: Larson & Darby, Inc.
2. Sutter Diagnostic and Treatment Center, Sacramento, for 7-15 physicians: Starks, Jozens, Nacht & Lewis.
3. Glenwood Medical Associates, Glenwood Springs, Colorado, for 7-15 physicians: Ellerbe Architects; Chambliss Associates, Associated Architects.
4. M. S. Fox Medical Center, Miami, for 7-15 physicians: Lemuel Ramos & Associates.
5. Marysville Medical Clinic, Marysville, California, for 16 or more physicians: Rochlin & Baran.
6. Casper Clinic Building, Casper, Wyoming, for 16 or more physicians: Henry Therkildsen.



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Editor: Philip Dole, School of Architecture and Allied Arts, University of Oregon, Eugene. **Contents:** Some Thoughts About the Future of ACSA by George Anselevicius; An Opportunity to Look at ACSA by Charles Burchard; How Do You Make "Built Homecoming"? by William Kleinsasser.

Some Thoughts About the Future of ACSA

BY GEORGE ANSELEVICIUS

Every institution must profess and confess annually. In the Association of Collegiate Schools of Architecture this is done by its annual report. The 1968/69 version is a good looking booklet, an elegant production featuring many full-page pictures of the Chicago Circle Campus School of Architecture without comment. The content makes it appear that the ACSA is active, successful and well supported. It includes many such phrases as "marked improvement," "a new spirit of cooperation," "increased membership."

This may all be true somewhere. Yet strangely there is no hint of seriously questioning the purposes and activities of the ACSA, now clearly

The author: Mr. Anselevicius is dean, School of Architecture, Washington University, St. Louis.

essential, except for a vague mention of "frustrations." In good political rhetoric the annual report ends with hopes for the future, among them the hope that the association "will give leadership to the whole process of education for a profession." Wow! My head reels.

All this is to be achieved by a few meetings and a nine-monthly income into the ACSA fund of \$24,848.35. I cannot help but observe a credibility gap.

I am sure the organization does some good. It certainly permits its officers to meet each other periodically; it has run some student exchange programs; publishes the *Journal of Architectural Education*; and has held some teacher seminars. Not having previously contributed my efforts to

the ACSA, I am perhaps not the person to write about it critically. On the other hand, not having to defend it and wishing it well, I may be more objective in suggesting what such an organization can or should do. I have had glimpses of the functioning of the ACSA and have heard murmurings of dissatisfaction, yet as far as I know, few have spoken out and challenged the ACSA.

Beyond the president's report the publication makes it clear that the major activity of the ACSA seems to be the work of its committees. The saviors or the downfall of our society — take your pick, committees are often an excuse for inaction or a result of paucity of ideas. The committee reports in the booklet are all well meaning and filled with generalities, containing very little that serious educators do not already know. One is not quite sure what these reports hope to achieve, and to whom they are addressed. Most likely they are doomed to be read, approved by a few stalwarts at some meeting, filed and forgotten.

It is extremely important to realize that the ACSA has no direct power to affect anything in any of the schools. The president's report states rather idealistically that the ACSA's "sole purpose is the betterment of architectural education." This seems as useful as stating that we should all love mother, surely it cannot be an operative goal of the ACSA which has not (nor should it have) any control over the educational process. This process is controlled by the faculties, administrators and students of individual schools. If the ACSA seriously wants to im-

prove education even slightly, it must help the schools directly.

May I suggest that the main purpose of the ACSA should be: "to support the development of schools and disseminate information about their work." In other words the ACSA should become a clearinghouse, a center of communication which will make available to all schools the curricula, courses and new ideas now existing or being developed at individual schools. It should be a center which will support or help find support for the development of much needed courses and workbooks at specific schools or a consortium of schools (probably with money, but there may be other ways). The results must be distributed in detail, inclusive of reading lists, etc., and hopefully could include a critical review of the program or course.

Secondly, the ACSA should continue its efforts as a clearinghouse for ideas and people through exchange programs for students and teachers and sponsor opportunities for well-organized discussion at regional or national meetings. These are not to be addressed by formal speakers, often a bore. One does not want to be spoken "at." One wants to speak "with."

This means the abolishment of existing committees and the reorganization of the ACSA into the clearinghouse I have described above, to be used by the schools. This must be attempted with some sense of modesty. It may stop endless discussion of generalities and help us get on with some serious work.

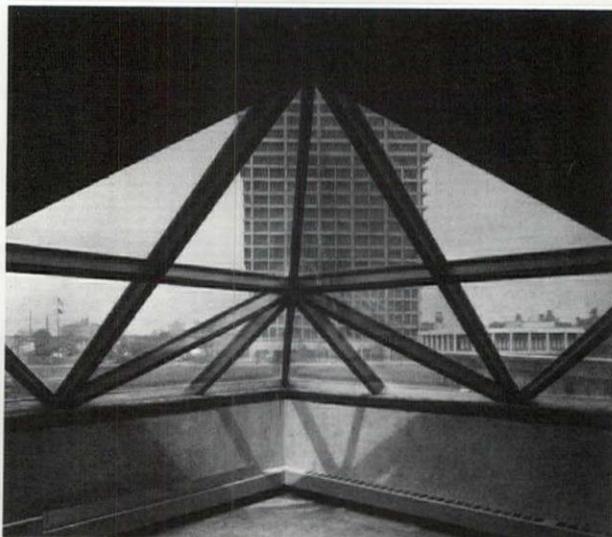
The need for a sense of modesty becomes quite evident when one looks at the budget of the ACSA. Clearly, the size of the budget is also the measure of potential effectiveness of any national organization. If the ACSA is to do good, it will need more money. I am confident

that schools will contribute if they feel that they are getting a good deal by being part of the organization. New sources of income will also have to be sought. Looking at the budget in the annual report, I note that most of the money is spent for administration, travel for the ACSA board and for the convention. It seems all wrong. Money should be spent for substantive efforts in supporting of schools. Officers' travel should be paid for directly by the schools who must surely benefit from having one of their faculty members on the ACSA board. A small budget must be weighed carefully and money used selectively. This means no more meetings like the Chicago convention which, except for enjoyable and rewarding private conversations, was a fiasco and may cost \$4,000, if last year's convention is a guide.

The meeting in Chicago missed real opportunities for discussion while it encouraged camera carrying members to tour local ghettos in large buses. There was a general feeling of frustration among many; however, this found little expression in the business meeting.

This particular meeting could also be discussed, but it is not worthwhile kicking a dead horse. I should only like to mention a strange argument about who could vote and who could not. Surely in 1969 the association should have as broad a base as possible and be more than a private club for some deans or chairmen. Everyone joining it should be permitted to vote, because joining and attendance implies interest. In any case, important decisions should probably be voted on by mail, so that everyone has this opportunity.

The organization should also start a vigorous recruiting drive to make it vital and comprehensive, but that means some changes and achievements first, please! □



Architecture and Art Building, University of Illinois at Chicago Circle. Architects: Skidmore, Owings & Merrill.

An Opportunity to Look at ACSA

These observations were sent as a letter to the directors and officers of the ACSA to assist discussion at the board's meeting in October.

BY CHARLES BURCHARD

The purpose of the following observations is to initiate and share opportunities for looking at the Association of Collegiate Schools of Architecture, for a good many among the ACSA membership have some reservation whether the association is sufficiently responsive to the issues of the day or to the needs of its constituency.

One sticky point that needs attention is the lack of an effective voice on the part of the faculty membership. They only exercise a semblance of governance through the election of a regional director every three years, or as it might be exercised for them through the dean or chairman of the member's school. A broadening of the base of the association governance,

The author: Mr. Burchard is ACSA president and dean, College of Architecture, Virginia Polytechnic Institute.

however, appears somewhat questionable in the context of the way business is now conducted at annual meetings: It will require revision of the constitution, and many individual members cannot, because of the expense, attend annual meetings.

This, coupled with the fact that many ACSA matters could well be handled on a regional level, raises the potential of a broadly based governance system, with the faculty membership, et al, voting through a regional mechanism. This suggests an alignment of responsibilities defined regionally and linked to a concept of association governance based in a strengthening of regional associations of schools of architecture, together with affiliate schools, faculty, and students and so on.

It is not hard to visualize the emergence of a significant model for such a concept — one that holds promise of a new vitality suggested by the regional strengths, already demonstrated in the new vigor of activities and programs developed in the majority of ACSA regions in this past year alone. No doubt an association governance more broadly based than at present could be achieved in other ways. This one idea sug-

gests a whole host of other considerations.

It could bring with it new concepts of the responsibilities to be vested in each region and in its directorship and more financial support to each regional association. Particularly, I think, of the sort that would demonstrate interest in the individual member through (small) grants to encourage curricula experiments, faculty-student interactions, publications, etc.

It could bring a revised concept of the responsibilities which should be assumed at the national level, lead to the identification of significant national issues to be dealt with and to a revision of the format of national annual meetings. At the Oregon meeting a pressing issue was dealt with. While the Princeton Report came off rather badly, the meeting itself was lively and informative. The follow-up on the part of ACSA, after all of the discussion, came to very little, since the ACSA machinery is not at present structured to generate the pursuit needed. I would say that the state of this machinery, or the lack of it, is the cause of the matters needing attention.

There is an almost endless array of additional things that have some relationship to the relevance, vitality and direction of ACSA: technical and junior college representation, the issue of support of minority group schools, effective participation of student groups, identification of significant international or global concerns of environmental design as they affect us (is there an international organization of schools that looks at the issues which break the boundaries of national concern?), the structuring of channels of communication and interactive and feedback loops to the many scholarly disciplines that also have a stake in the design and arrangement of human settlements.

I don't know that you should think that any of this should end up managing to be worth anything, but I do hope we can collectively pump into the organization a little of the stimulating thought and structure that most of you have managed in your schools and encouraged in your regions. □

Note: Meeting October 11 and 12, the ACSA board took action to authorize a study of the mission, goals and governance of the ACSA; remove the committees; strengthen the regions; encourage financially the experimental interests of younger faculty; and find ways, including necessary constitutional changes, to open the organization to a wider membership of disciplines concerned with environmental design.

How Do You Make "Built Homecoming"?

BY WILLIAM KLEINSASSER

A report of a special-studies project involving the design and construction of a workplace for 15 architectural students, done in response to a psychologist's study of human needs.

"I have spoken of place; of house and city as bunches of places—both; of the inbetween realm as man's home-realm.

I have identified the built artifact with those it shelters (the building with that same building entered)—and, having done so, defined space simply as the appreciation of it, thus excluding all frozen properties attributed to it academically whilst including what should never be excluded: man appreciating it: . . . I have even called architecture 'built homecoming.'"

Aldo van Eyck.

Like many of us, I want to learn more about how architects can help to make a really better physical environment; not just clever buildings and ingenious plans, but richly appropriate physical surroundings that measure up to the best we can imagine and hope for.

It is clear that operational or measurable considerations alone will not bring us this, but that we must also have a very great understanding of how man experiences and is affected by his physical surroundings.

There has been much written on the subject. Architect Aldo van Eyck has identified ideas like "labyrinthian clarity," "multiple meaning in equipoise," "twin phenomena," "significant ambiguity," "place and occasion," as well as "built homecoming." Architects Robert Venturi and Amos Rapaport have spoken of spatial complexity, contradiction, ambiguity and con-

The author: Mr. Kleinsasser is architect and associate professor of architecture, University of Oregon.

sequent involvement, tension, poetic impact, and increased learning and creativity levels. Psychologists D. E. Berlyne and John Anderson have spoken of novelty, uncertainty, complexity, and conflict as spatial characteristics which contribute to the dynamics of human response. Architects Donlyn Lyndon and Charles Moore have written about "mind-boggling juxtapositions," opportunities to go "up-down-and-around" (choices), the "graduate inside," and combination of specific forms ("narrative specifics"). Others have written about edification, "regulating lines," order, open-endedness and

incompleteness. And of course, there are many works on the basis of these ideas: human needs.

But there are difficulties with ideas and works like these. Their substantiation is usually incomplete, therefore their validity unclear. And, as right and promising as they seem, when we come down to specific design situations it is still very hard to know what to do, how to do it, and in what proportion. For instance, if you are about to design a workplace for 15 architectural students, do you make it complex, ambiguous and labyrinthian? If so, how much and how do you do it? Do you stress them all equally? If not, which ones do you stress? If you agree that man has a need for affiliation, or autonomy, or a frame of orientation, how do you satisfy these needs within your specific design situation? And should you try? And how might these needs vary from situation to situation, from man to man?

To find answers to questions like these, I organized a special-studies design project at the University of Oregon during the spring of 1969. As a focus for the project, I used a particularly clear paper, "The Id and the Image—Human Needs and Design Implications," by Mrs. Peggy Peterson, a Ph.D. candidate in psychology at the University of California at Berkeley.

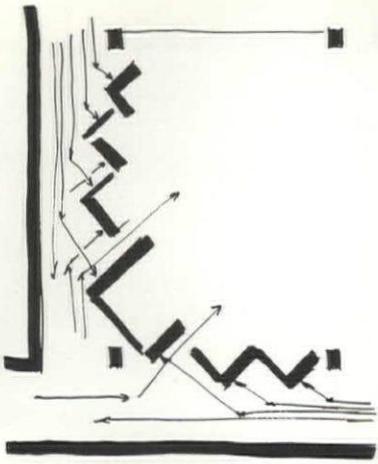
The project included 12 architectural students from four different year groups (3d, 4th, 5th and graduate) and lasted 11 weeks. It involved the use of many kinds of analytic techniques and study media, culminating in the actual construction of a place.

Example of Mrs. Peterson's Method of Explaining Each Need. Need: Affiliation, belongingness, brotherliness and relatedness, cooperation and social instinct, affection and approval.

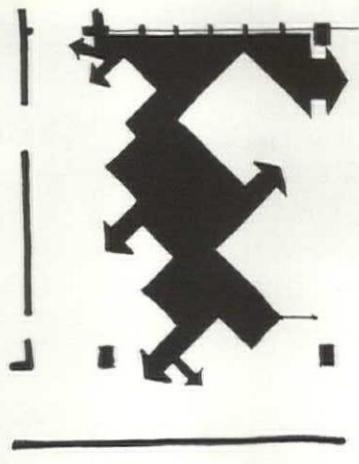
Treated by: Henry A. Murray, Raymond Cattell, David Reisman, Erich Fromm, Alfred Adler, Karen Horney.

Description: This category includes the need for being with others—a desire to please and win affection, to remain loyal to a friend, to enjoyably cooperate or reciprocate with another who resembles or likes the subject. Affiliation has been related to many things, even anxiety seems to diminish as affiliation increases.

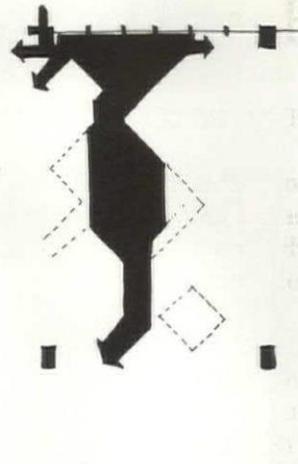
Design implications: convenient indoor and outdoor gathering places. Loitering must be encouraged. Spots where one can watch things happen without having to participate personally. Human and nonhuman activity—an active space. The French cafe is an example: Loitering is encouraged by the sale of food and drink, by the availability of games. The street scene pro-



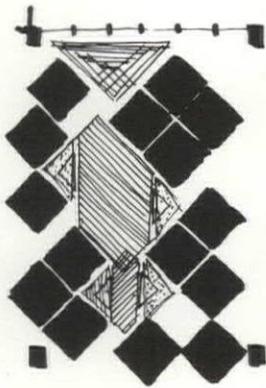
Passers-by relate to place by experiencing rhythmic sequence.



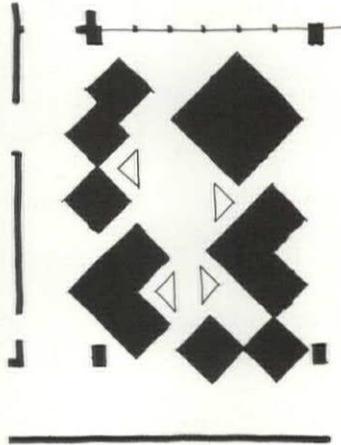
Each group space is connected to the outside.



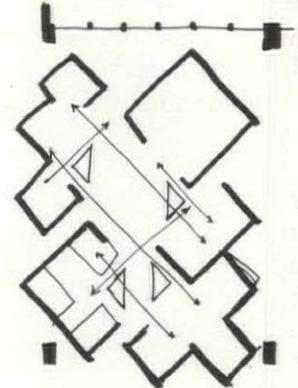
This axis is of differentiated but connected spaces.



The individual space is really unique in the existing grid context and differentiated from (and makes) the group space (identity).

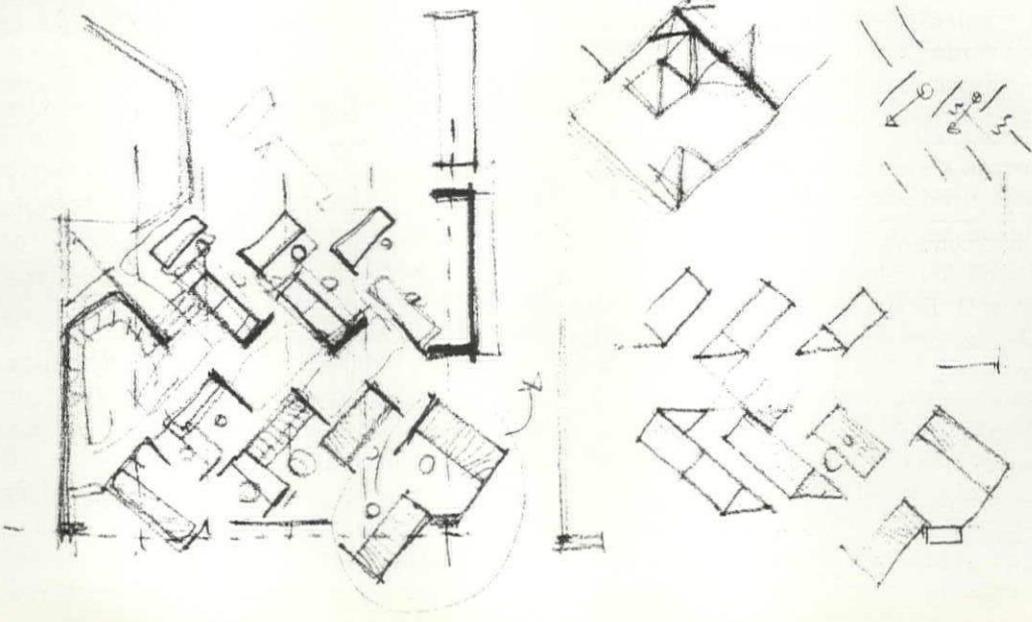


Student grouping has choices of singles, pairs, trios, quartets.



Subgroups affiliate with subgroups while maintaining autonomy and identity.

The corner generates a totally diagonal system.



vides ample human and nonhuman activity, yet not so much that conversation is impossible.

Needs and Need-Groupings Considered. Semi-physiological: harm-avoidance and sex; social: affiliation, nurturance, succorance; stabilizing: security, order, frame of orientation; individual: solitude, autonomy, identity; self-expression: exhibition, dominance, inavoidance, defenceance, counteraction, achievement, prestige, aggression, rejection, deference, abasement, play, variety; enrichment: understanding, meaningfulness in life, self-actualization/self-realization, esthetic.

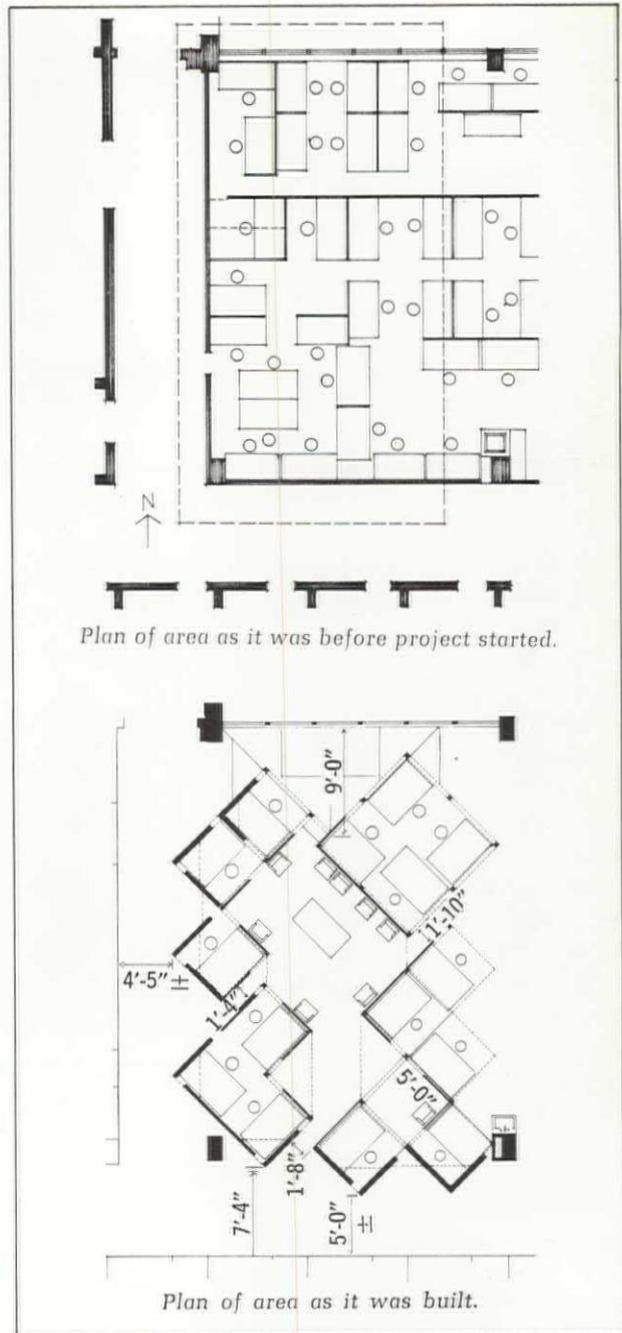
Summary of Project's Most Interesting Aspects. Usefulness of Mrs. Peterson's listing and discussion of human needs:

Looking back, it seems clear that Mrs. Peterson's paper was most useful as an expanded frame for discussion which allowed an unusually broad and intensive design effort. As a source of new thoughts, questions, insights and points of view, it both permitted and compelled us to go beyond ordinary design considerations to think in terms of the experiential aspects of what we were making. Thus, by allowing us to focus on the experience impact or experience effect of specific spatial configurations, it enabled us to study (and see that we needed to study) spatial effects within several frames of reference. Some of those frames were:

1. Range of activities and activity support (families of use, equipment, "fixedness" and "flexibility").
2. Range of need for differentiation and ways of differentiating (shape, position, level, size, adjacency, color, texture, detail).
3. Range of users and change (specificity, ambiguity, open-endedness, personalization).
4. Range of connection (affiliation) possibilities (inter- and intra-).
5. Range of choice and variety (constraints and incentives).
6. Range of simultaneous meaning (abstract and contextual-situational).
7. Range of organizational clarity (boredom to chaos — "optimal perceptual rate").

This broadened range of considerations and intensified effort allowed the making of a place which is a great improvement over what had existed previously; for us it is a "built homecoming." But, there seems to be a paradox in this, for we are only certain that our place is valid within the frame of its own circumstances.

Answers to the questions asked at the beginning of the project were slowly pieced together by means of an intensity of effort which finally gave us enough confidence in our own understanding to permit us to act. Therefore, as nice as it seems to us, our place seems to be particu-



lar and momentary; and when we build something else, it will be the breadth and intensity of this project that will be worth remembering rather than the specific answers and configurations that resulted. In the next project all the specifics will be different and the way those specifics are brought together will be what matters.

Need to Establish the "Design Situation." It soon became clear to us, as Mrs. Peterson had implied in her discussion of "need structures," that relevant physical response to a list of human needs depends upon the establishment of the specific design situation. We were unable to make the precise and subtle interpretations and reorganizations of the listed needs required by our design project until we established

clearly and thoroughly just what our specific design situation was. We had to develop more complete lists of desirable space types and facilities, operational requirements such as relationships and circulation, and the discipline and opportunities of the existing place. We found also that this establishment of situation was dynamic.

As our ideas developed, so did the meaning and make-up of our project. We were developing ideas based on developing ideas. Design, for us, was a process used to search for the order of several systems while some of those systems were still being discovered. For these reasons, the choice of a familiar design project, limited in scope, proved to be very sensible.

Intensification of Work. To continue developing response to the list of needs, we had to intensify our study of it. In retrospect, it is clear that we accomplished this by several means (roughly in the following order):

1. By dividing the class into four study groups so that we could magnify each need and do more research. Each of the four groups reported to the whole class.
2. By deliberately inputting as many questions and additional points of view about the needs as we could think of.
3. By almost continuous discussion of and speculation about the needs and also of their design implications.
4. By freely experimenting with what we thought the needs implied by making many design probes and recording them.
5. By making careful analyses of the design probes and recycling by means of new design probes in response.
6. By the slow determination of which needs were most important within our special design situation.
7. By interpreting how, within our design situation, the needs overlapped, conflicted, contradicted or reinforced one another, or did not matter.

Recycling. Throughout the project, emphasis was placed on making interpretive designs, observing and discussing them, and working in a deliberately cyclical or repetitive trial-and-error fashion. This "commitment-response" process was indispensable to our project. As we worked, we often did not know which need our physical configurations were responding to, or whether they were responding out of proportion, or whether the context of the project was more or less important than we were making it. Without a recycling, probing process, we would not have been able to make a place which could simultaneously manifest many appropriate contextual relationships.

Importance of Completeness of Design Probes. (Especially the final mock-up and the built place.)

We had to act as positively and as thoroughly as possible (including using our imaginations) to find out the impact of the combined elements of our place as they worked together (details, materials, sizes, shapes, rhythms, proportions, colors, textures). We needed to evaluate them in the light of our design situation and to determine how they might be adjusted or changed.

We were aware that the significance of our place would not depend on the effects of many separate elements, but on the effects (to different people, at different times, under different circumstances) of a single place. So, we made all design probes, especially the final place, as complete as possible.

Study Media. As our project progressed, many different ideas and spatial configurations had to be analyzed and discussed. We did not want to get hung up on just some of these, nor did we want to study them in a limited way. As our focus shifted, we had to deliberately jar ourselves free from inappropriate study media and select media that would permit precise study of what we wanted to study. As a result, we found ourselves working with many media at once, each contributing bits of information, as they were able, to the whole.

By the end of the project, we had included in this array a full-scale paper and cardboard mock-up, working drawings, shop drawings and the built space. Altogether, these study media probably constitute the full range needed to reach a full enough understanding of the experience-effect of our place as it is now. This use of multimedia also effectively demonstrated the truth of McLuhan's definition of media as "active metaphors in their power to translate experience into new form." We often found that our study media had an unanticipated force of their own. In other words, we were often stimulated and even redirected by aspects of our work, seen as we developed them, which had little to do with our original analysis and reason for making them. These might be called "media discoveries."

Amount and Variety of Work Required. Since the project was taken seriously and carried through to construction, it clearly demonstrated the amount and variety of work required to design and make even a simple spatial system which is structurally, dimensionally and conceptually sound. Some of the things with which we were involved were: the degree and kinds of precision required, the amount of detail, the amount of study and restudy, analysis of cost and assembly feasibility, analysis of materials

availability and capability of construction crew, and the dynamics of teamwork. We also gained a great deal of respect for the work potential of a small group of inexperienced, but hardworking and open-minded people.

Power and Danger of Geometry. We found that while geometry was useful and necessary to help establish and reinforce the visual order of our place, there was a tendency for geometric ordering to have a life of its own; i.e., to take over the spatial configuration at the expense of a more diversified and more appropriate order.

Differentiation. As we worked to integrate the many parts of our project, we realized the possibility and usefulness of differentiation as a means to clarify unusual and complex organization. We found that we could differentiate in all sorts of ways: by the use of color, texture, size, shape, geometry, subtle repetition, significant contrast, degree of enclosure, etc. It is important to note here that to differentiate in this manner did not mean to separate, but to unify through clarification of parts which, in turn, explained and reinforced the order of the system.

"Fixedness," Variety and Choice. Development and construction of the final place effectively demonstrated the degree of "fixedness" required for the preservation of real spatial variety and its reason for being: choice. It was clear that spatial variety depends upon the establishment of a frame of desirable facilities, space types, and relationships. If the place had been so flexible as to allow the destruction of this frame, then variety and choice, within their situational meanings, would have been lost. One of the most important achievements of our project seems to have been the achievement of such a frame without denying personalization and even major change (within the scope of the design situation). The desired places, variety and choice are there, but, because of the relatively loose organization and wood construction, the place still seems and is open.

Multiple Meaning of the Place. The project provided an opportunity to observe the development of and significance of a place which both can be used and contemplated on several levels and in several ways. In other words, answers to the questions, "what is it?" "what is it like?" and "what does it mean?" are multiple answers which seem to be best expressed as paired phenomena:

1. It is an integrated system, yet part of other systems: a functioning design-section area, but it is also made to be part of the corridor, school, department, courtyard and world.
2. It is a set of useful spaces and also an abstract game.
3. It is one place and also six or seven places.

4. It is a clear spatial system, but it is also ambiguous: there is order, but it does not reveal itself all at once. Both certainty and uncertainty unfold slowly. At first, it seems ordered: You see the angular system. Then it seems disordered: You see the complexity of the inside. Then it seems ordered: You see the different established place-types. Then it seems disordered. You see more differences among the places than you expected. Then it seems ordered: You manage to get it all in your head at once. This process takes varying amounts of time depending on the observer and also on the circumstances.

5. It is both finished and unfinished, complete and incomplete. It can be changed several ways, perceived several ways, occupied and used several ways.

6. It is both open to the public and filled with private places; but the private places are not only for individuals, but also pairs, trios and a quartet.

7. One can be alone in it while being with others; observe others without disturbing them or being disturbed by them.

8. One can be in it and yet not feel detached from the outside. And one can be outside without feeling excluded from the inside.

9. One is invited to withdraw, but also reminded of several scales of context.

10. It is novel and unique, but also made entirely of familiar materials, panels, sizes, proportions and techniques.

11. It is stark, but also filled with noticeable details and intricacies (it recognizes a continuum of scales).

12. It is a thought-out system, but it is not without circumstantial and accident elements.

13. It is student made and inexpensive, but useful and impressive.

New Projects and Relation to Other Projects.

The intensity and breadth of the project, together with its multimedia externalization, have apparently caused it to be a rich source for demonstrative reference as well as involvement. Several new projects are now underway to continue the study of some of the many subjects considered. □

Sample Bibliography

- Anderson, J. E., "Environment and Meaningful Activity" in "Processes of Aging," Tibbitts and Donahue Atherton, 1963.
- Kleinsasser, W., "Commitment and Response" (unpublished paper), 1967; "Making Beautiful Places — That Invite People to Be Beautiful" (unpublished paper), 1968; "Families of Use and Activity Families" (unpublished paper), 1967; "Definition of Design — An Outline of Objectives" (unpublished paper), 1967.
- Peterson, P., "The Id and the Image," *Landmark*, a University of California-Berkeley student publication, about 1967.
- Rapaport, A., and Kantor, R. E., "Complexity and Ambiguity in Environmental Design," *American Institute of Planners Journal*, July 1967.
- Smithson, A., "Team 10 Primer," MIT, 1968.
- Sommer, R., "Personal Space — The Behavioral Basis for Design," Prentice Hall, 1969.

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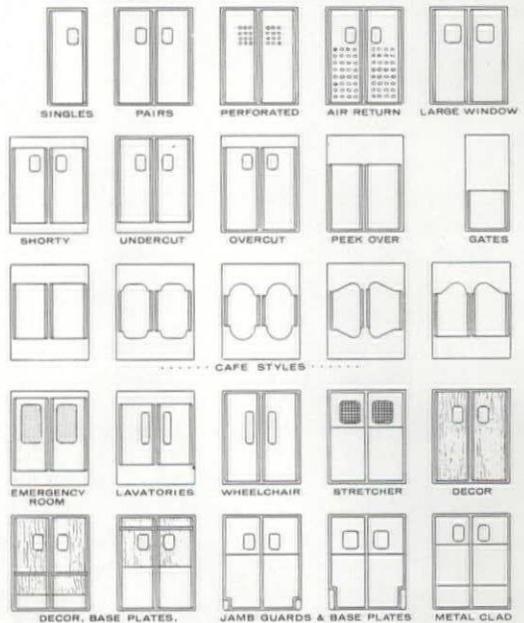


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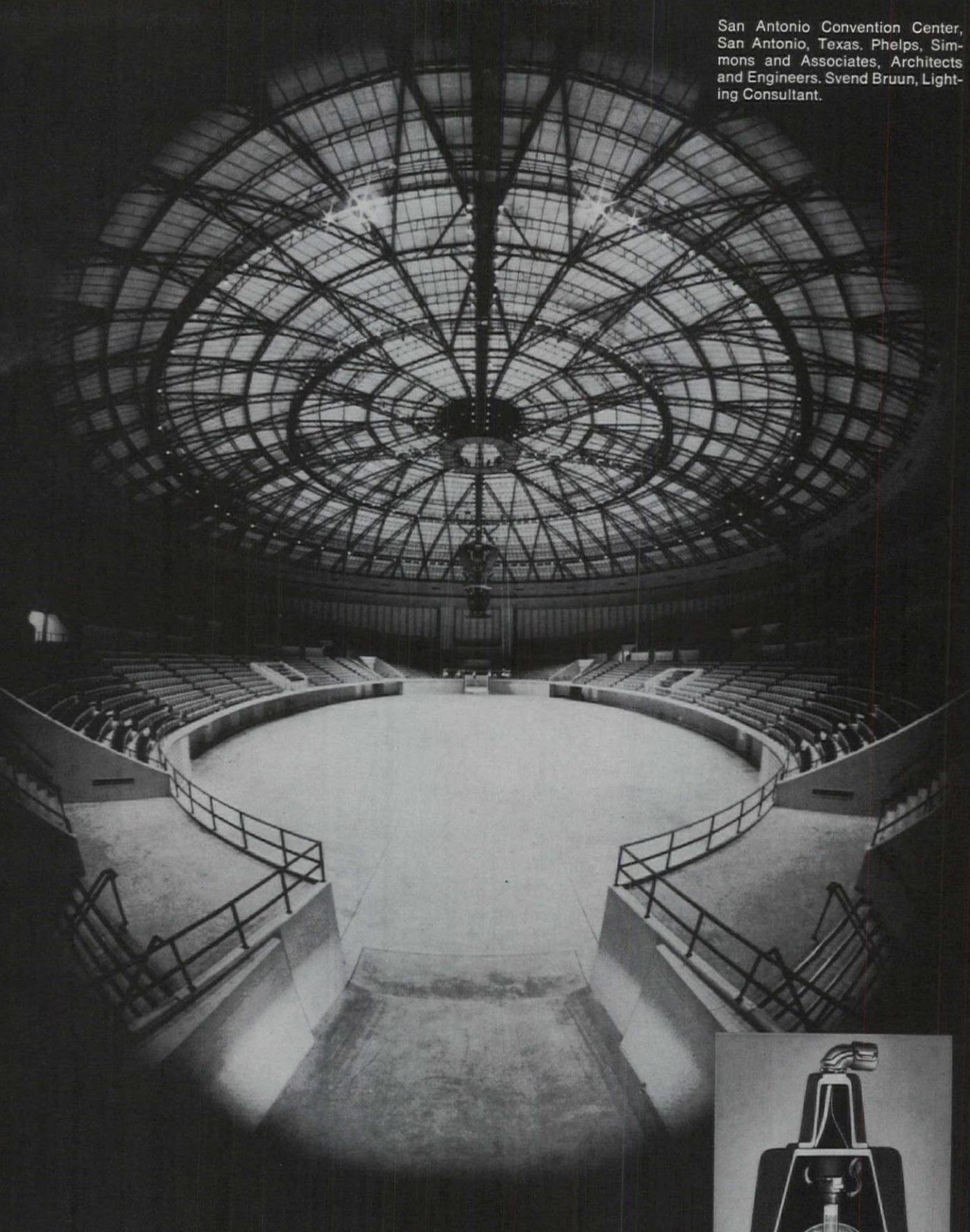
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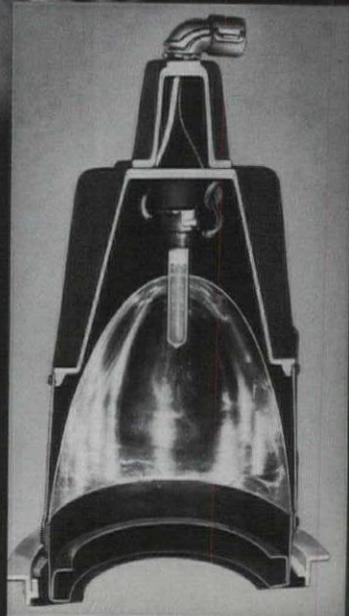
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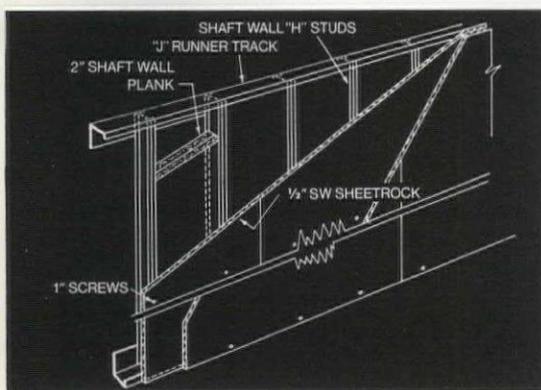
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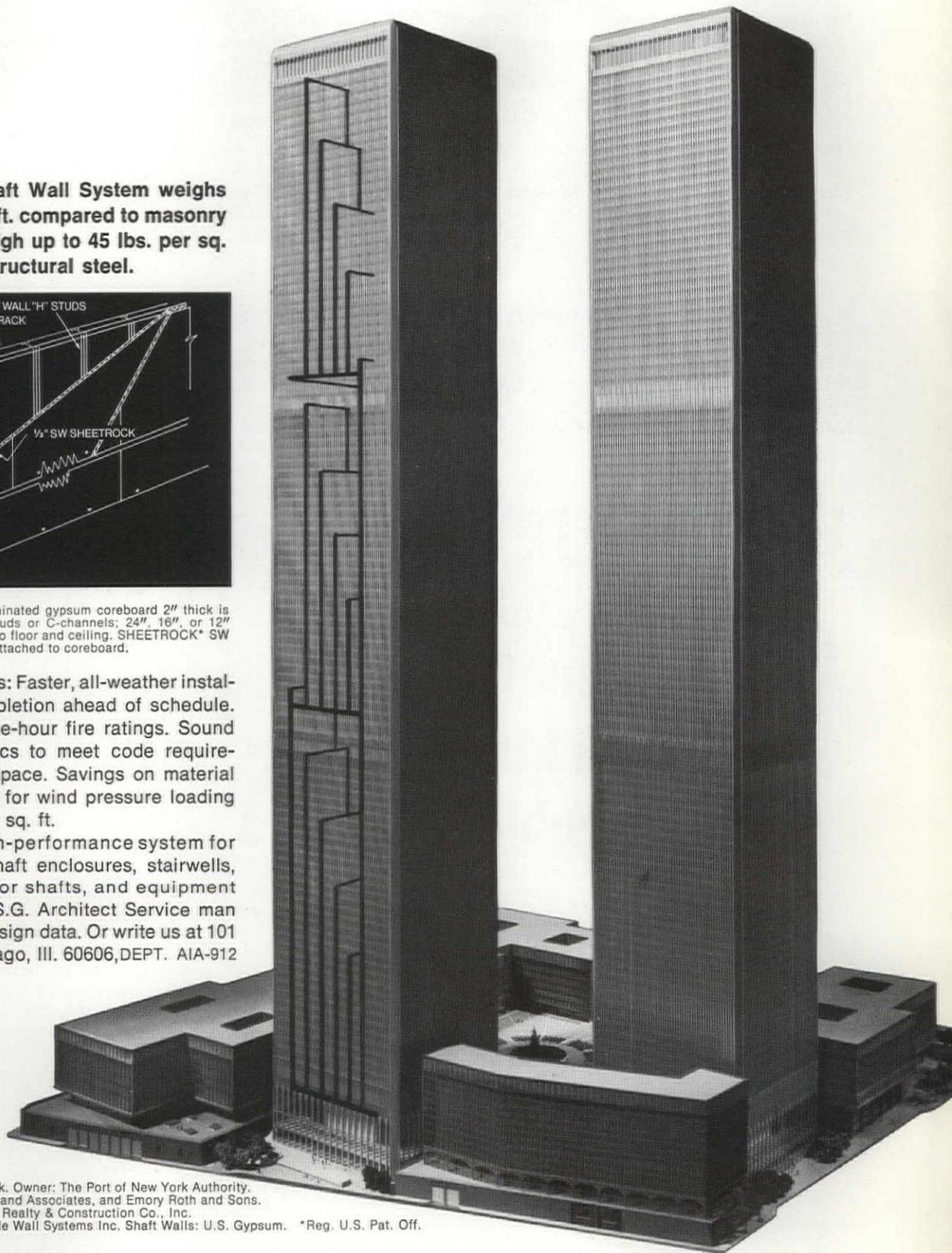
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Calendar

National

- Jan. 6-10:** National Society of Professional Engineers Winter Meeting, Regency Hyatt House, Atlanta
- Jan. 18-22:** National Association of Home Builders Annual Convention-Exposition, Astrodome, Houston
- Jan. 29-Feb. 1:** Society of Architectural Historians, Annual Meeting, Sheraton-Park Hotel, Washington, D. C.
- March 3-5:** Aluminum in Architecture Exposition and Seminar, Palmer House, Chicago
- March 10-11:** Second Ash Utilization Symposium, Hilton Hotel, Pittsburgh
- March 16-18:** Performance of Masonry Structures Conference, National Bureau of Standards, Gaithersburg, Md.

AIA Regional and State Conventions

- Feb. 5-6:** Virginia Chapter, Hotel John Marshall, Richmond, Va.
- Feb. 12-14:** North Carolina Chapter, Carolina Hotel, Pinehurst, N.C.
- March 4-6:** Michigan Society of Architects, Pantlind Hotel, Grand Rapids, Mich.

Continuing Education

- Dec. 11-12:** Seminar on Designing with Glued Laminated Wood Members, Atlanta Airport Hilton Inn, Atlanta

Scholarships and Fellowships

- Jan. 15:** Applications due, Arnold W. Brunner Scholarship. Contact: New York Chapter AIA, 20 W. 40th Street, New York, N.Y. 10018.
- Feb. 1:** Portfolios due, fellowships ranging from \$4,000 to \$7,500. Contact: Institute for Architecture and Urban Studies, 5 E. 47th St., New York, N. Y. 10017.
- March 11:** Submissions due (a simple modular shell with utilities), Le Brun Traveling Fellowship. Contact: New York Chapter AIA, 20 W. 40th St., New York, N.Y. 10018.

Call for Papers

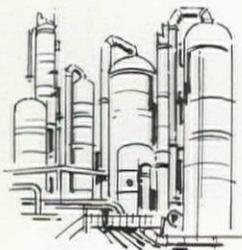
- Jan. 31:** Abstracts due, First Symposium on Computer Analysis for Environmental Engineering Related to Buildings. Contact: P. R. Achenbach, Symposium Chairman, National Bureau of Standards, Washington, D. C. 20234.

Competitions

- Jan. 9:** Submissions due, Vienna International Garden Show 1974 (buildings included). Contact: Stadtgartenamt, A-1010 Vienna, Austria.
- Feb. 2:** Nominations due, R. S. Reynolds Memorial Award. Contact: Reynolds Award, AIA Headquarters.

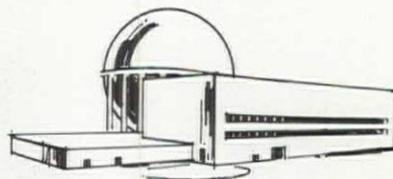
Tours

- April 3:** Architecture and Garden Tour of Japan, departing from Vancouver, B. C., for 23 days with optional extension to Hong Kong and Bangkok. Contact: Kenneth M. Nishimoto, AIA, 263 S. Los Robles Ave., Pasadena, Calif. 91106. □

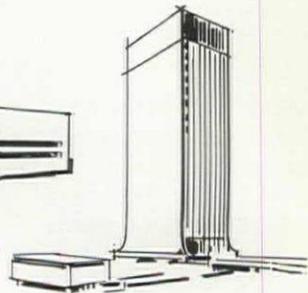


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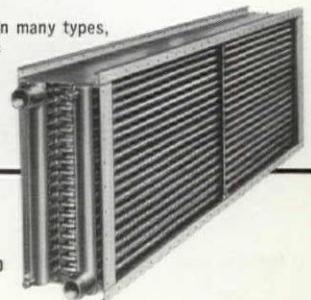


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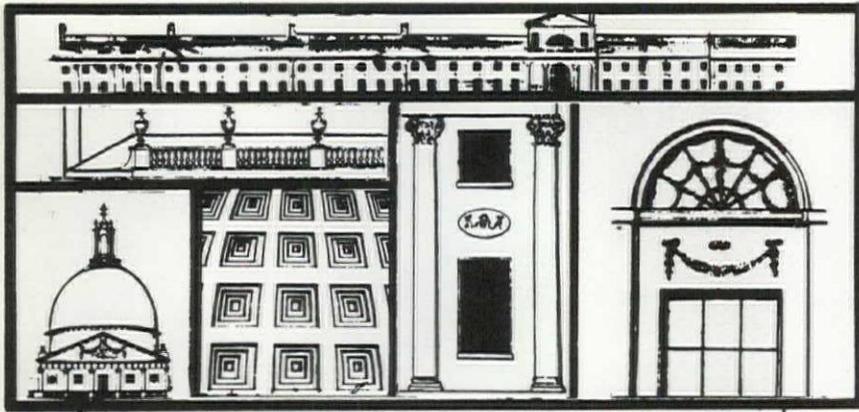
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Letters

'Victory in New Orleans'

EDITOR:

At long last — victory in New Orleans!

I wish to thank the JOURNAL and all the members of the Octagon staff who helped in presenting the Vieux Carré Expressway controversy to the nation!

We hope that the cancellation of this expressway by Secretary of Transportation John A. Volpe, with the approval of President Nixon, will give other cities new hope that their similar controversies will be solved with the same insight and determination.

MARK P. LOWREY, AIA
New Orleans, La.

From Issei to Kibei

EDITOR:

I enjoyed Gervais Reed's article, "The Fountains of George Tsutakawa," in July very much — well written and brief.

However, Mr. Tsutakawa is referred to as a nisei, which is erroneous, as he is a kibei. The definitions are going from first to journeying generation:

- Issei — Japanese born, the immigrant generation. Refers to place of birth; place of education has no bearing on this.
- Nisei — American born and educated, US citizens.
- Sansei — American born and educated, children of nisei, US citizens.
- Yonsei — American born and educated, children of sansei, US citizens.
- Kibei — American born, Japanese educated; could be children of nisei, sansei or yonsei but usually of issei, US citizens.

I am, by the above definitions, a nisei, my children are sansei, my sister is a kibei and my parents are issei. GEORGE KUROSAKA JR.

Professional Engineer
Glens Falls, N.Y.

Correction

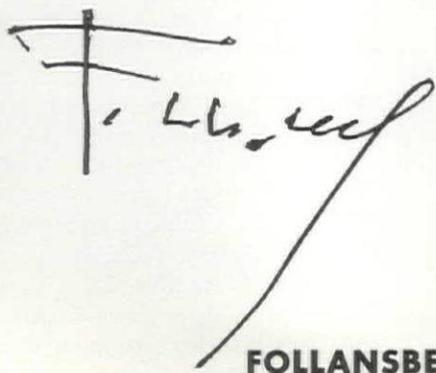
The firm of Claude Oakland & Associates, San Francisco, should have been credited as the architects for the merchant-built house for J. L. Eichler Associates, Inc., shown on page 32 in the October issue. It was one of five top winners in the AIA/Sunset Magazine Western Home Awards program.

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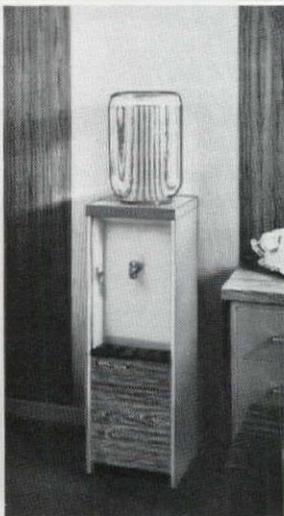
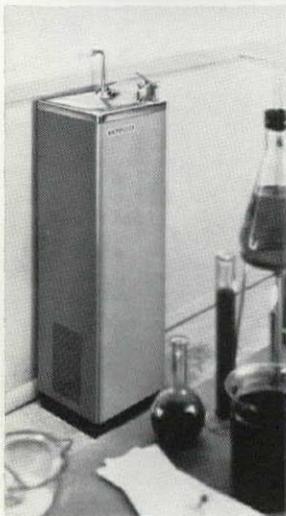
A handwritten signature in black ink, appearing to read "Follansbee". The signature is stylized and slanted, with a long, sweeping underline that extends downwards and to the right.

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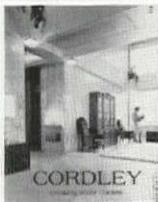
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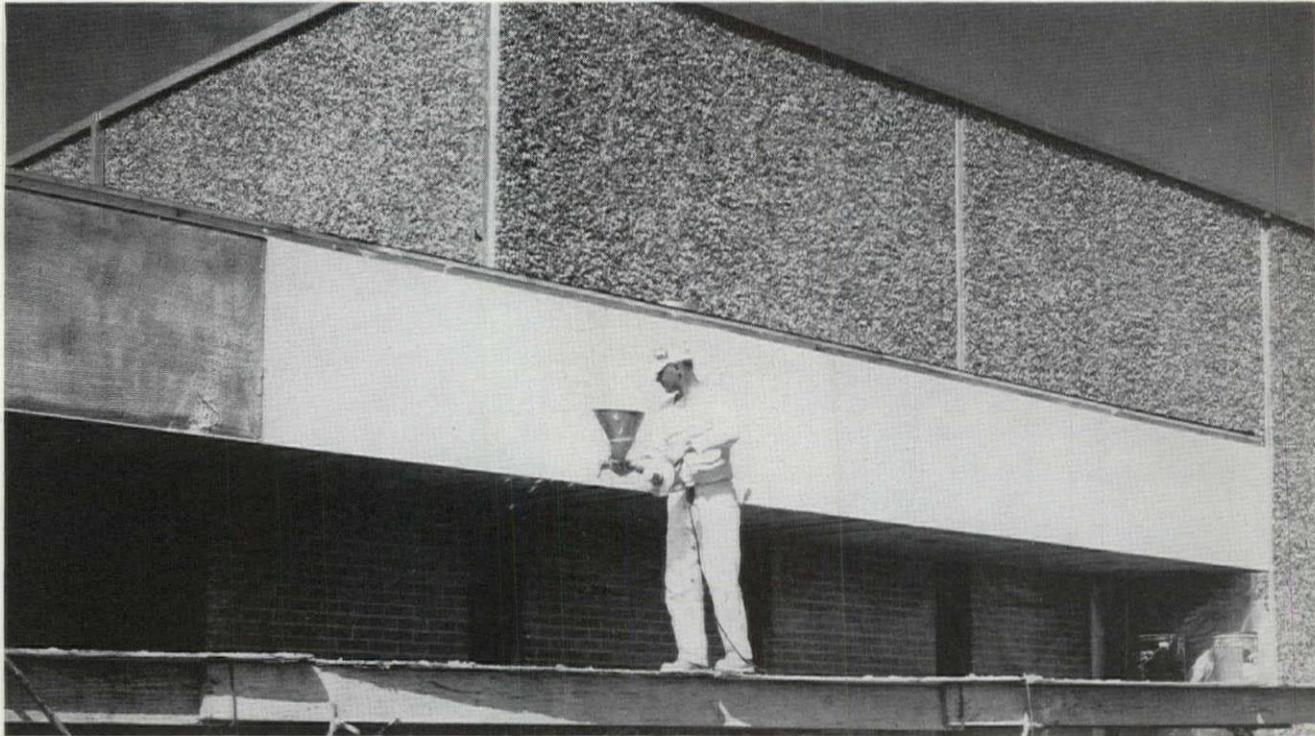
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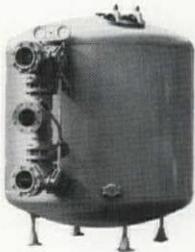
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