

Progressive Architecture

October 1979 A Penton/IPC Publication



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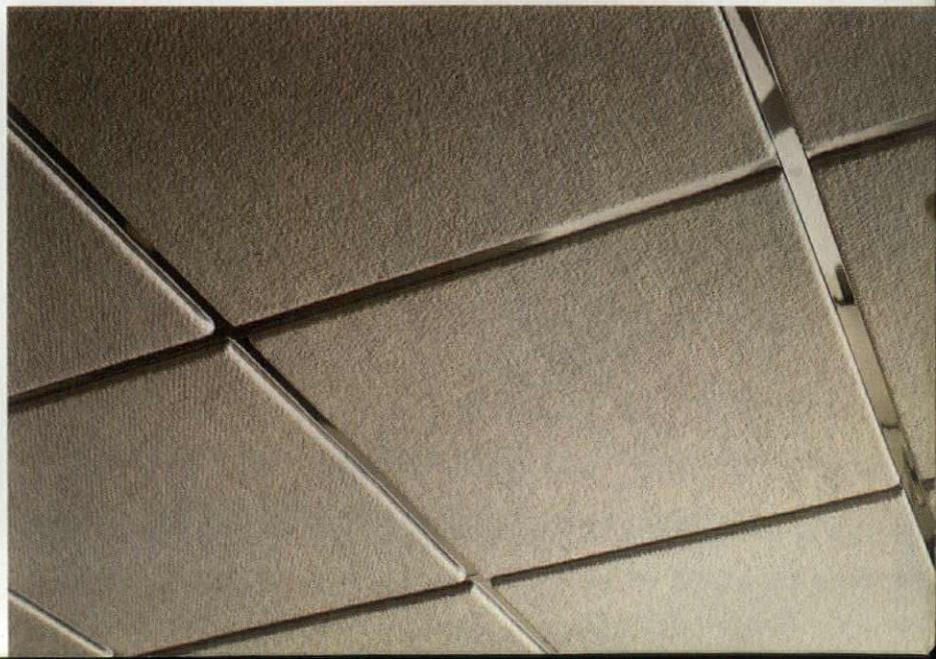
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**Finally. A lighting system that
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Armstrong Luminaire C-60. Considering the soaring costs of energy, it's the ceiling system whose time has come.

The Luminaire C-60 provides lighting comparable to that of a conventional ceiling with 4-lamp troffers, yet it operates on 40% fewer watts per square foot. And it does something else, too. It helps you see better.

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ESI measures precisely how well a viewer can see what he's doing while performing various tasks. In the comparison chart, notice how the C-60 System, with 24% fewer footcandles and 40% fewer watts per square foot, provides an ESI level significantly higher than the recessed troffer system.

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The Luminaire C-60 System evenly distributes light and minimizes glare. Its special quality of light is produced with the help of vaulted modules. Acoustical panels angle outward from each single-lamp fixture. They reflect more than 80% of the incident light and diffuse it so that glare is minimized.

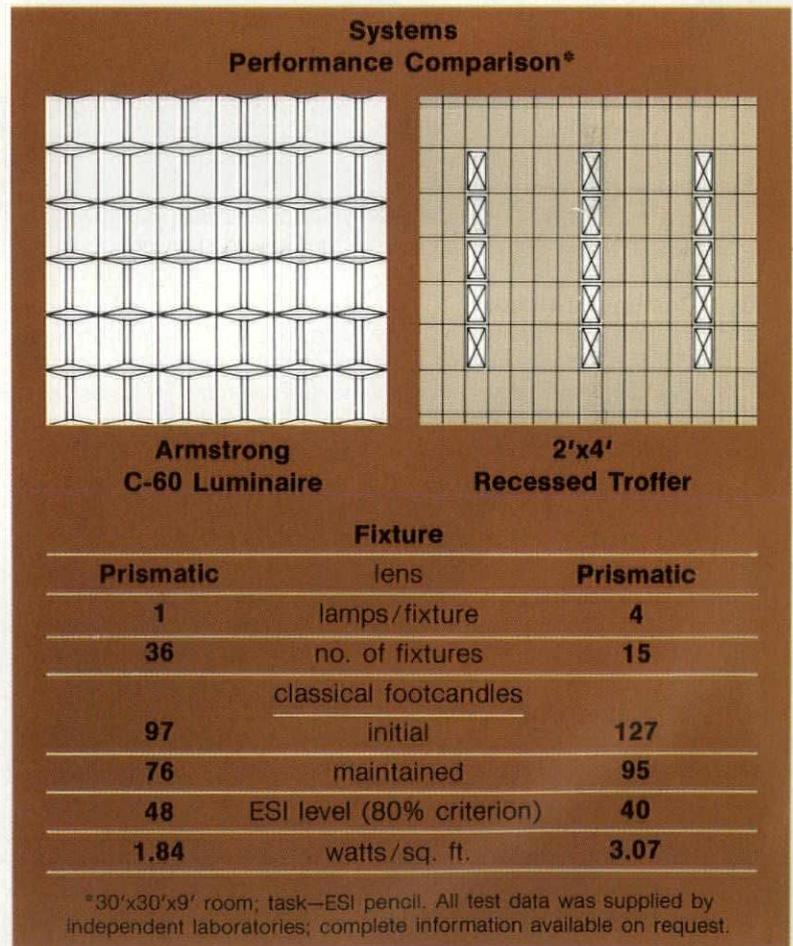
Because of the uniformity of light, there's less need to place fixtures over specified work locations, making it an ideal system for open plan spaces. It's aesthetically more pleasing, too.

An integrated ceiling system.

The Luminaire C-60 does more than put a room in quality light for less energy. It diffuses air evenly for cooling and heating. And its panels are both acoustical and fire-retardant. They'll quiet noise and give you up to

two-hour-rated fire protection. Why not find out more about this completely integrated ceiling system.

The comparison data quoted here is part of our informative show entitled "Light Wars." It's a highly entertaining film that includes an explanation of ESI and a documentation of energy savings.



If you wish to see "Light Wars," or receive a free booklet on ESI and the C-60 Ceiling System, just write to Armstrong, Dept. 92NPA, Lancaster, Pa. 17604.



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FROM THE  INDOOR WORLD® OF
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Ethics IV

Occupied lands

October 1979

We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect. . . . That land is a community is the basic concept of ecology, but that land is to be loved and respected is an extension of ethics.—Aldo Leopold, *A Sand County Almanac*, Oxford University Press, 1949, 1968.

Mankind presumes to divide up the lands it occupies into nations, provinces, municipalities, farms, and building parcels, all said to be "governed" by political entities or "owned" by purchasers. On these domains, man can determine—to some extent—what flora and fauna will live; he can reshape contours, pave, dam and divert streams, drain or irrigate, and try to exterminate uncooperative "pests." But if he oversteps the tolerance of natural systems, he risks flooding, erosion, pollution, and impoverished soils.

Aldo Leopold, in his deceptively simple and prophetic writings of three decades past, defined land as "a fountain of energy flowing through a circuit of soils, plants, and animals." Tamper with these circuits and you may develop a fine-tuned energy system like the Kentucky Bluegrass Country, or you may end up with a Dust Bowl.

Leopold's vision helped to transform the conservation movement of the early 20th Century into a broader "land ethic," and to make way for the great ecological awakening of the 1960s. That movement, which culminated in the Earth Day celebration of 1970, spawned a galaxy of laws—federal, state, and local—that have, over the past decade, deterred us from disastrous mining of our soils and poisoning of our waters. Surely these environmental laws have increased the chance that we are breathing "acceptable" air today.

The rise of ecological consciousness and its transferral into government policy and regulations is documented concisely by Robert Cahn in his recent book *Foot-*

prints on the Planet (1978, Universe Books). As one of the initial members of the federal government's Council on Environmental Quality, Cahn was in a position to observe the distinctions between commitment to policy and mere compliance—as typified in the environmental impact reports that federal agencies would file to justify public works proposals *ex post facto*. He recounts as well the more promising indications of genuine change in the perception of the environment—including well-conceived regulatory programs in some of the states.

While land must ultimately be understood as an ecological community, architects and planners are conditioned to a much narrower view of land as an economic resource—or even more abstractly, as area available for man's structures and activities. They can contribute much to sustaining ecological consciousness, but their particular expertise is in the area of *land use planning*, and they must help society set up reasonable land use policies.

One of the most serious current threats to our environment, our economy, and our social stability is the continuation of sprawl development. The long-standing American dream of the country estate has combined in recent decades with governmental policies on transportation, taxation, and zoning to disperse single-family houses almost randomly across the American landscape. According to Cahn's book, two million acres of farmable land, out of a total of about 400 million, is lost annually to development, highways, airports, and surface mining. Considering the inevitable worldwide scarcity of food, and considering the economic value of America's immense agricultural lands, even this rate of attrition is inexcusable. All the more so, since it does not spring from any real need, but comes about through shortsighted policies and the pursuit of short-term profits. *The Cost of Sprawl*, a report published in 1974 by the Council on Environmental Quality, enumerates the bur-

dens of this development pattern in terms of capital outlays, resource consumption, environmental damage, operation and maintenance, and personal time.

Back in the early 1970s, the American Institute of Architects launched an admirable effort to define and promote a reasonable national development policy. Its objective: "a national mosaic of community architecture designed to be in equilibrium with its natural setting and in sympathetic relationship with its using society." AIA recommendations published in 1972 (*A Plan for Urban Growth: Report of the National Task Force*) called for several major changes in the "ground rules" for development: a loosening of restrictive building and zoning codes to permit diverse patterns of housing and services and discourage segregation; the recapture by government units of the value added to land by public investment; more direct participation of state governments in determining development patterns. Subsequent reports, following meetings with numerous other organizations, took stronger positions in favor of government-owned development land banks and in opposition to land speculation. ("To gamble with other forms of property generally involves no hazard except to the gamblers. To gamble with real estate entails serious ecological and social hazards . . .")

Little has come of AIA's development policy efforts of the early 1970s. With the recession of the mid-1970s, the environmental design professions found it hard to question any kind of development. But concern for the effect of reckless development on the communities of man and of nature must not be abandoned. People in the design professions cannot be oblivious to the ruin of the land, and we have an obligation to speak out again—more loudly.

John Morris Difer



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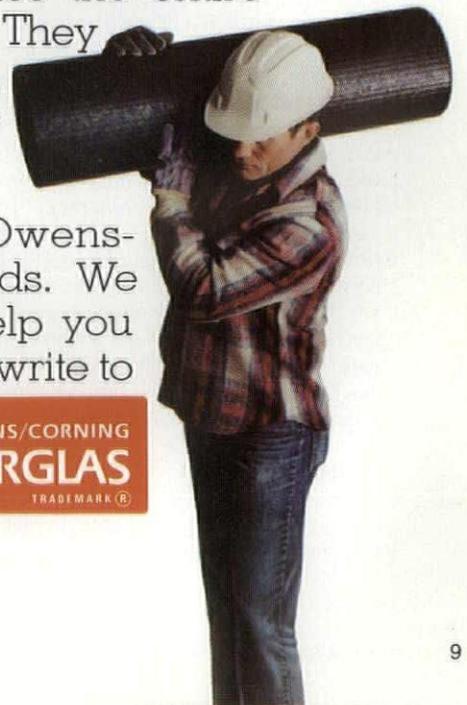


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Views

Erskine's social design

I had the opportunity to visit and study the Byker redevelopment housing project (Aug. 1979, pp. 68-73) by Ralph Erskine this year as part of a year of school spent in Europe. I was very disappointed to read your article on his project since it nearly completely ignored the most significant issues presented by the project.

The methods that Erskine used to preserve the social environment in Byker while he made enormous changes in the physical environment are important lessons to all architects and are worthy of discussion in such an article. The care and attention he and his associates gave to the social elements of the design are rarely attempted by other architects. Unfortunately, we have to read about the images it evokes and the symbolism it may lack. Fortunately, for the people that inhabit Byker, these issues were not at the top of Ralph Erskine's list.

Whether this project is "fully Post Modern," "halfway," or even (gasp!) "Late Modernist" seems to be of little real importance to a project of this nature. "Modern" architects were criticized for ignoring the important issues that concerned the general public, but maybe we have forgotten this criticism already.

*Michael Woods, Student
Cal Poly State University
San Luis Obispo, Ca*

[While it is true the article does not spell out "the methods that Erskine used to preserve the social environment in Byker while he made enormous social changes," one might deduce from the following statements in it that such was in fact the case: "(Erskine) began by developing a pilot scheme that contained in embryo all the basic ideas for the housing (which were then altered through Erskine's intimate contact and collaboration with them (the tenants))." "They (Erskine's team) have also improved the method by which tenants are allocated dwellings by showing them where they will go and giving them 10 days to accept or refuse a house." "Erskine and his team worked, and in some cases lived, on their building site for ten years." "The (Erskine) office (on the site) is open during normal working hours to all callers."—Editors]

Developers defended

Your July, 1979 article on Frank Gehry's Toyota building (p. 62) contains a statement which I feel compelled to rebut: "There is something

about the proportions and the detailing that lets you know that this can't possibly be some developer's building. It's just too good for that."

That kind of elitist snobbery might be good for the author's ego, but it ignores the fact that, with few exceptions, good buildings as well as poor ones are built by developers and contractors, not by architects.

There are many excellent developers around who recognize that one of the important factors in the success of their projects is the quality of design. They demand high standards of the architectural firms and in-house architects that they employ. Many architects have excellent working relationships with developers who recognize that the architect's ability to meld aesthetics, economics, and function is crucial to the success of the building venture.

To be sure, much mediocrity is constantly being built, and some of that can be blamed on short-sighted developers who employ mediocre architects, or try to perform the design functions themselves without the requisite knowledge. But to lump all developers into that category by saying that a building is "too good" to be a "developer's building" is not only insulting to the good ones, but might even be considered "biting the hand that feeds us."

*Cynthia Richardson
The Mithun Associates, Architects
Bellevue, Wa*

[Agreed, the point would have been well made without saying, "It's too good for that." By "developer's building" we meant, of course, one with little or no designer distinction. Developers who give the public more are still noble exceptions. We have to wonder whether the writer considers all quality distinctions to be evidence of "elitist snobbery."—Editors]

Whither Santa Cruz

Regarding "one of its (Santa Cruz's) better pieces of public architecture" (Aug. 1979, pp. 58-61), the World Savings building is, indeed, a fine work. But the architectural heritage of Santa Cruz is Spanish and Victorian. Esherick Homsey Dodge & Davis saw fit to introduce neo-pueblo. I do not understand this. But then, neither do I understand the New England clock tower recently erected across the street from the World Savings building.

Santa Cruz is but one example of a community that has not gotten a grip on its rapid growth and change. Caught in the spin of circumstances and running 20 years late, Santa Cruz has lost its sense of architectural perspective in its transition from historic past to small city.

If architectural review boards, control ordinances, and public howl cannot preserve environmental integrity, then we can only hope that more architects, designers, and developers will strive to bear the responsibility.

*Winston C. Thompson
AENTEC Design
Anacortes, Wa*

Downtown Atlanta lifestyle

The "Problematic return of the prodigal son" article in July's issue (p. 40) is a disappointing and misleading statement about the new Georgia-Pacific building in Atlanta.

Any architectural project with the impact of a 52-story urban building is going to excite both comment and controversy. We appreciate that. What we don't understand is why your writer

feels Margaret Mitchell Square should be preserved as it is now primarily because it is "the closest thing to New York's Times Square in Atlanta"—traffic problems, "messiness" and all.

The Georgia-Pacific building is a carefully designed part of a revitalization plan drawn specifically for Downtown Atlanta. This plan does not propose to position the city as an imitation New York or Chicago or Portland. It addresses itself solely to the unique needs and lifestyles of the Downtown Atlanta community. If Mr. Jon Carlsten feels traffic problems, hole-in-the-wall doughnut shops, and messy urban environments are prerequisites for a city's vitality, I suppose he would feel uncomfortable seeing trees growing downtown. We don't happen to agree with Carlsten's opinion, and chances are good many Atlantans don't either.

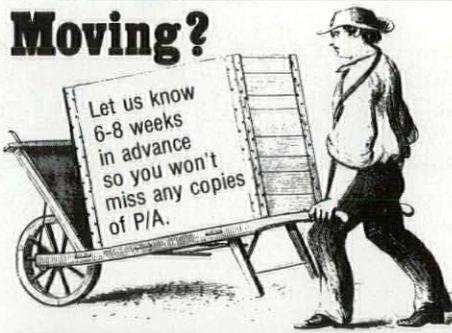
*Christine Y. Arnold
Advertising/Sales Promotion Manager
Building Products, Georgia-Pacific Corp.
Portland, Or*

Credit extended

The credits for photos illustrating the "Report from Atlanta" (Aug. 1979, p. 32) were inadvertently omitted. They should have read as follows: top, Jim Griffo; bottom left, Christine Carlsten.

Design of the electrical system and lighting for World Savings and Loan, Santa Ana, Ca (Aug. 1979, pp. 54-57) was by G & W Consulting Electrical Engineers.

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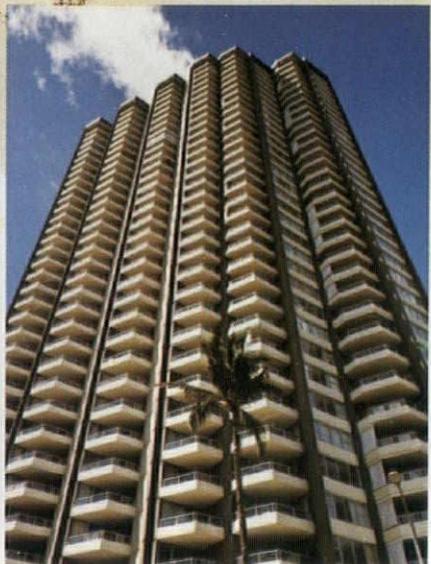
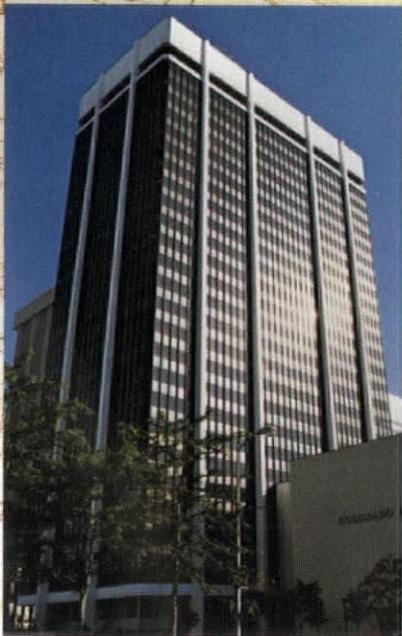
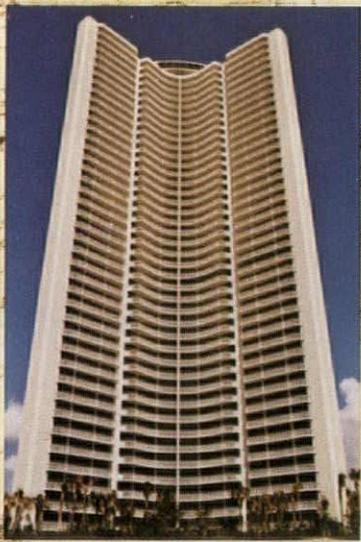
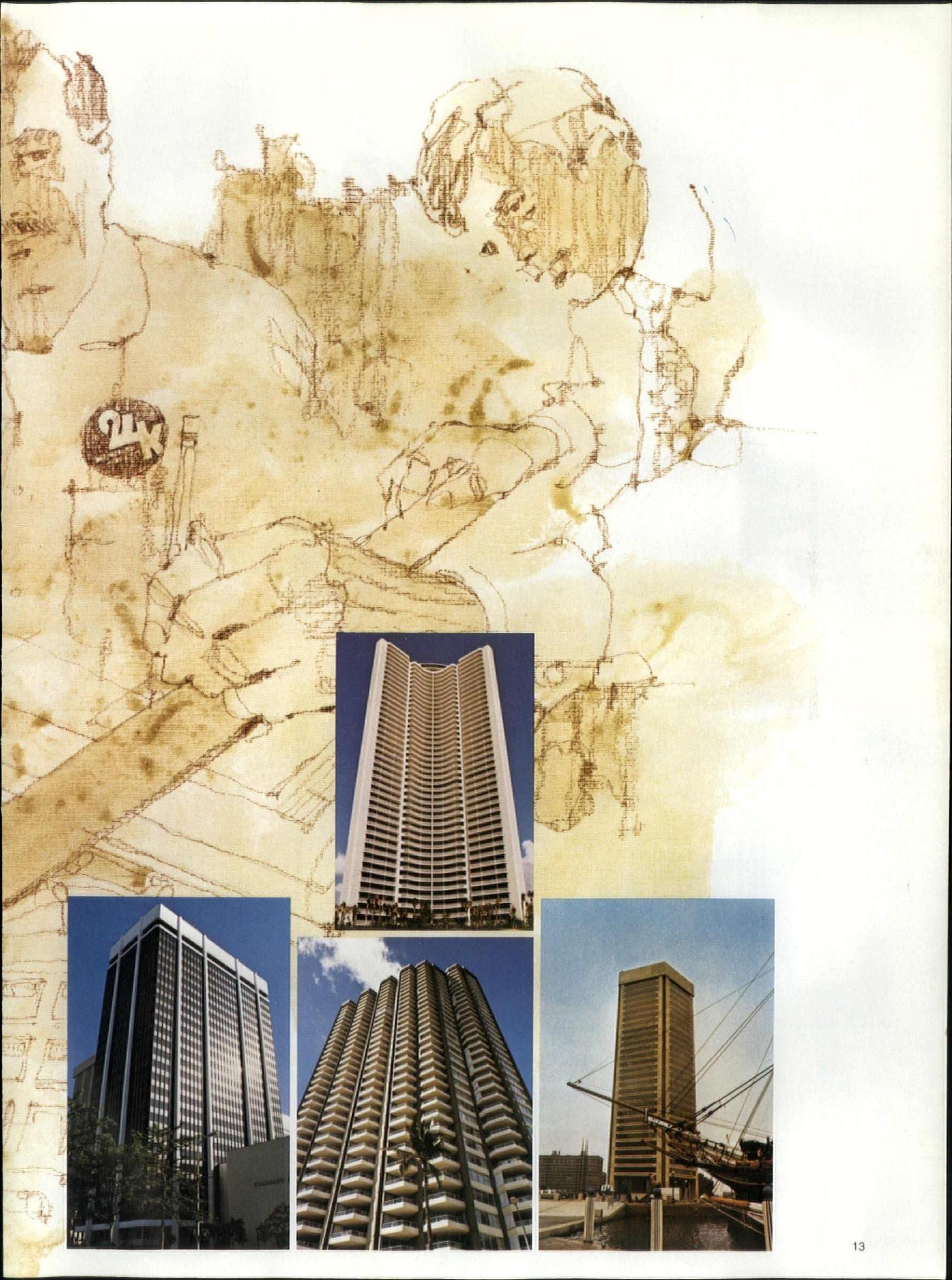
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The new 25-story Fourth & Blanchard Building in the Denny Regrade district is the most ambitious project conceived by Seattle office-space developer Martin Selig—a name synonymous with first-class planning design.

It was decided that steel design would best provide the freedom to incorporate all the proposed architectural features. Several designs were presented, the final choice being a parallelogram floor plan with angled upper stories. The steel design also helped keep the weight of the structure to a minimum. This was important for the design in seismic Zone 3. A glass curtain wall was dictated by the form of the building which demanded a clean, smooth, flush, monolithic surface—in no way competing with the upper lines.

Maximum usable space

The \$33-million building has two interconnected towers with 45-degree angled roofs. The roofs—a striking design feature—offer prime office space with spectacular views. A minimum of interior columns helps maximize use of the 531,000 sq. ft. of floor space, including the 3-level garage.

Conservation of energy was a key consideration, and an electric-hydronic heat pump

system connected to a main circulating water pipe provides heating and cooling which is both energy efficient and economical to install. In addition, the roofs were designed to accommodate solar panels in the future.

Steel speeds construction

The new building was erected on a narrow site—just half-a-block—and over 2,650 tons of A-36 and A-572 grade 50 steels were supplied by U.S. Steel. The fabricated steel was trucked from Portland at night and erected during the day using a single truck crane having a 280 ft. tower topped by a 170 ft. boom. This eliminated traffic congestion in a busy downtown area with a minimum of storage space. And the structural framing was completed one month ahead of schedule!

This handsome structure, incorporating the latest in building systems technology, is one more example of the design flexibility and practical economy of using structural steel.

To find out more about this building, and for information regarding the many applications for structural steel, contact a USS Construction Representative through your nearest U.S. Steel Sales Office. Or write for the USS Building Report (ADUSS 27-7642-01) to P.O. Box 86 (C-1212), Pittsburgh, PA 15230.



United States Steel

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ENERGY MANAGEMENT VIEWS FROM THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION VOL. III NO. 6

THE CENTENNIAL OF LIGHT — FINDING A BETTER WAY OUT OF DARKNESS.

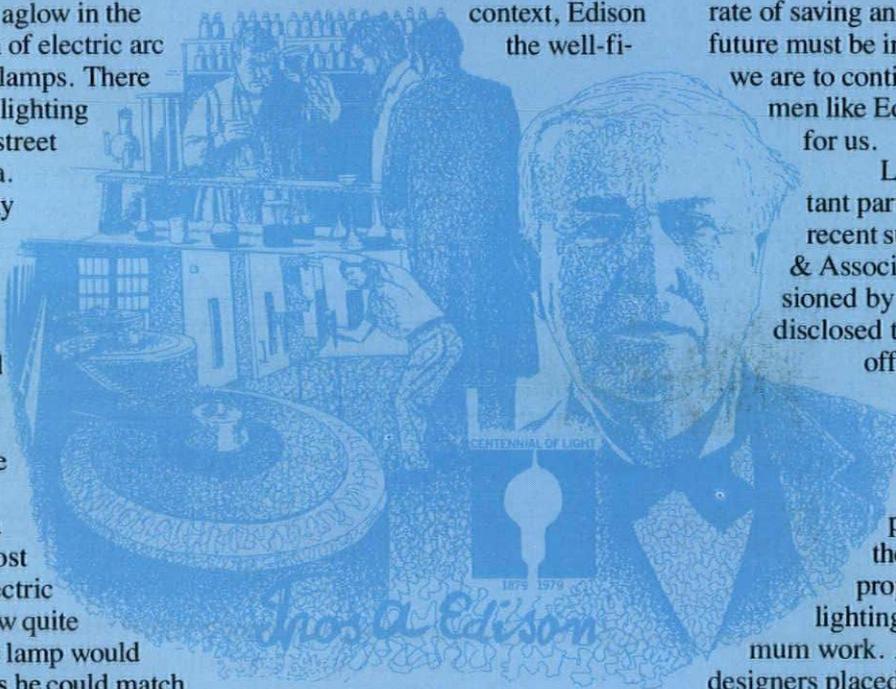
When Thomas Alva Edison threw the switch to light Menlo Park on New Year's Eve, 1879, he became a national hero. When we think of Edison, we may think that he found the world in darkness and brought it into the light. Not so. There was plenty of light in 1879. The gas utility companies had lighted every major city in America. The streets of Paris were aglow in the brilliant illumination of electric arc lamps. Yes, electric lamps. There was even an electric lighting company providing street lighting in California. And there were many others who worked on developing incandescent lamps.

What Edison actually did was find a more economical system. He had figured to the penny the cost of providing a single gas flame in a single home. This cost was his target for electric lighting. For he knew quite well that his electric lamp would never succeed unless he could match or exceed the economy of gas light.

When he went to work on his electric lamp, Edison was not laboring under divine inspiration to roll back the darkness. He was attempting to produce light in a more convenient form and at a lower cost than others were then able to provide.

Another failing in our perspective is the belief that Edison alone was responsible for the lights of Menlo Park. It's true that as a young

man, Edison was strapped for funds and made do with crude instruments and inadequate supplies. But, by the time he was designing his first electric generating utility, he had strong financial backing from some of the wealthiest investors in America. He used that backing to employ the finest scientists and technicians, and to build the best laboratory. In this context, Edison the well-fi-



nanced industrialist is much more significant than Edison the struggling inventor.

While the idealized Edison can give us inspiration, the practical Edison can give some answers to today's problems, too. We can all agree with President Carter that inflation is the greatest danger facing the United States in 1979. The list of reasons to explain its persistence includes high government spending to finance unproductive activity, excessive government regulation, the push and pull of labor-management policies, and the critical increase in energy costs. But inherent in all of them is a serious decline in produc-

tivity of American workers compared to other leading countries and the failure of increasing investments to improve that anemic productivity. What we need are more people like Edison willing to make major investments in new industries, based on new technology and new inventions. And more effective ways to increase the output of existing facilities. Our rate of saving and investment in the future must be increased rapidly if we are to continue enjoying the life men like Edison helped create for us.

Lighting is an important part of that future. A recent survey by Louis Harris & Associates, Inc. commissioned by Steelcase, Inc. disclosed that 94 percent of office workers consider how their workspace looks and functions to be important to their output. A majority of the workers pointed to proper furnishings and lighting for turning out optimum work. Architects and designers placed the importance of lighting for the work to be done right after HVAC and access to tools, equipment and materials.

NECA has recently published a comprehensive designer's guide to current "Office Lighting Practice." If you would like all the details, write and ask for Index No. 302524. And if you are planning a new lighting installation, remember that a qualified electrical contractor does it right the first time.



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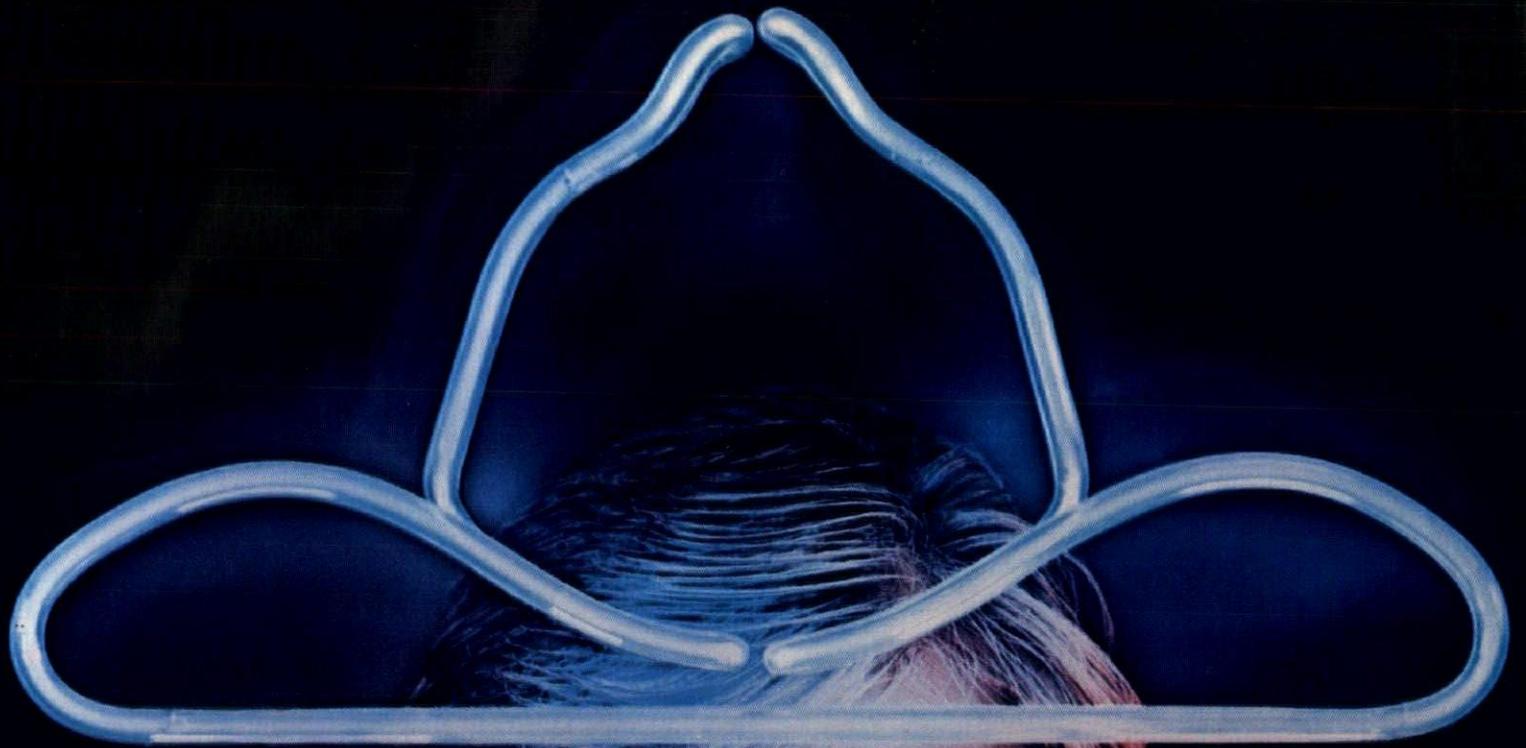
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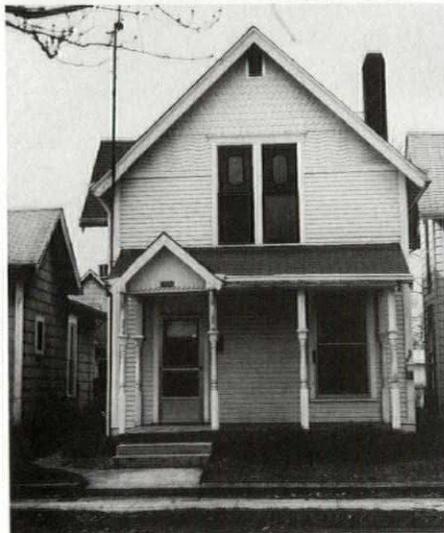
News report

HAUS housing quality criteria for Columbus

Under their Architects Fee program, Columbus, In, has sponsored public buildings of considerable architectural quality. Recently, the program was used in an unprecedented manner to back a public elderly-housing project designed by the firm of Gwathmey Siegel, New York. Pleased with the project, the Columbus Housing Authority was concerned that the standard of architectural quality it set would not be maintained by future housing projects—especially since no more funds were to be allotted for housing from the Architects Fee program. Acting on a suggestion by Siegel, the Authority solved the problem by using funds from the Fee program to commission the architectural and urban design firm of HAUS International of New York to develop a set of design criteria for housing *quality*. HAUS's recently completed report constitutes the first qualitative criteria to be developed by any town in the U.S. HAUS (Housing and Urban Services) has developed and implemented similar criteria in diverse situations, including a recent (cancelled) project for housing prototypes in Iran, and a housing project for UDC in New York (see p. 50).

The criteria developed for Columbus will be used by the city's Housing Authority in evaluating the designs for the first phase of their new program for 150 units of publicly assisted housing, currently being initiated. In addition, those portions of the criteria which are found most appropriate will be incorporated into the city zoning ordinance, thus becoming guidelines for all housing in Columbus.

The criteria were derived from the specific needs and character of Columbus, so that they might better respond to these. The climate of Columbus' Midwest-



Columbus' residential vernacular.

ern location, with the consequent need for street trees, sheltered public areas, and easy transit, was one factor considered. Taking into account Columbus' small-town nature, the criteria focus on the needs of families and the elderly, the dominant user groups in the town. Columbus' urban structure—existing or proposed public transit, commercial areas, schools, etc.—determined site location criteria. And while the criteria do not rule out growth—indeed they include some relating to elevator-dependent buildings—the architects make it clear that they value Columbus' present architectural profile: a town of low-rise buildings, "defined by the few tall spires of historic importance and otherwise disappearing beneath a canopy of trees."

The document describes those aspects of the lives of families and/or the elderly that housing affects, defines those qualities that help make housing more satisfying for these two groups, and last uses the criteria to describe and tentatively quantify these.

The criteria are formulated so as to em-

phasize the ways in which the environment shapes behavior. They are ordered by scale: site location, site development, interior public space, and the dwelling unit. Couched in a positive antidogmatic manner, they stress the objective desired rather than becoming proscriptive ends-in-themselves. Typically, a major principle is stated, then its aspects are defined and some design solutions formulated. For example: under the principle, "Open space should be useful and accommodating," is "Sitting areas and walkways should be arranged to facilitate . . . social contact," and under that: "Seating should be near shade trees, visible from apartments, and separated from parking."

The Authority should soon begin collecting dividends from its long-term investment. Developers are now being sought for a number of turnkey sites (20 to 30 units each) in older sections of town, and the quality criteria will be included in the development package. Soon one will be able to judge whether the HAUS report has indeed succeeded in its stated goal: "to make the Housing Authority in Columbus a better client." One might already say the civic agency is more concerned and far-sighted than most.

Aldo Rossi: Two Exhibits

Architectural Projects
Max Protech Gallery, New York
Sept. 18-Oct. 13
Citta Analoga Drawings
Institute for Architecture
and Urban Studies, New York
Sept. 19-Oct. 20

The radiant simplicity of Aldo Rossi's form confers on his architecture an immutable perfection. His realized projects have that [News report continued on page 23]



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clarity that comes from the exclusion of all that is unnecessary.

This is not to say that Rossi's architecture is reductionist; on the contrary, it is illuminated by Rossi's personal experiences and observations, translated into the arrangement of form. Rossi, in one of his equally lucid and poetic writings, puts it best: "In the project for the Palazzo della Ragione in Trieste, I realized that I had simply recounted through architecture certain mornings when I read the newspaper in the great Lichthof of the University of Zurich. I had assimilated the light of the pyramidal, glassed covering of the Kunsthhaus in the Heimplatz in Zurich."

Rossi's drawings, up for one brief glorious month in these two spectacular shows, are reflections of this architectural process of reduction and rearrangement. He calls this mental process whereby diverse architectural elements, detached from their tangible context of time and place, are reassociated according to a potential, alternative, intensely personal vision, "analogous architecture."

Like an analogue, this process imitates familiar patterns and forms, arranging them according to allogical associations. Thus, in Rossi's favorite (unrealized) project for student housing at Chieti (1976), individual housing units, evocative of the beach cabins on the island of Elba that appear repeatedly in Rossi's sketches, are gathered around a central collective edifice with significant resemblances to both a barn and a cathedral. The pitched roof is projected forward, to cover a courtyard area. The large, light triangular form instantly recalls and contrasts Rossi's triangle par excellence—the massive cement triangular extrusion that dominates the Segrate monument. Chieti's form acquires a particular history through its relation to other Rossi projects, and a universal history, as a representation of prototypes of private and public shelter, the cabin and the cathedral. In Rossi's drawings, the Chieti project appears transplanted to some tropical forest, or starkly illuminated by an intense beach sun. The shadow of the dominant pitched roof acquires the mass, or takes on the color the roof has not. These are the alternative Chietis of Rossi's imagining which, as he recognizes, are too forceful for concrete realization.

The drawings at the Protech Gallery of Rossi's 1977 Florence Project, the Modena Cemetery, and two projects for Trieste, present evolving images which have had a final resolution as a building. In the case of the "Citta Analoga" drawings at the Institute and the Urban Fragment drawings at Protech, the final unification is not a fusion, but a collage. Rossi describes the "Citta



Aldo Rossi, "Urban Scene." Max Protech Gallery.

Analoga" as "an architecture of collage in which the elements are formally fixed, but in which the meaning which emerges at the end of the operation is the true, unforeseen, original meaning of [that creative] endeavor."

To an American audience that lacks the realized buildings as counterpoint, the drawings' fecundity runs the danger of appearing irresolute, their repetition of elements obsessive. But these sketches must be understood as the most personal, intimate expressions of Rossi's art, descriptions of the underlying ambiguities and inherent poetry he senses in his work.

It's visible in the works: the quick outlines appear drawn at lightning speed, in an endeavor to reach the interface between conscious and subconscious. The colors, filled in strong and fast with oil pastels, charge the buildings with emotion. In his realized structures, Rossi almost totally abstains from using color.

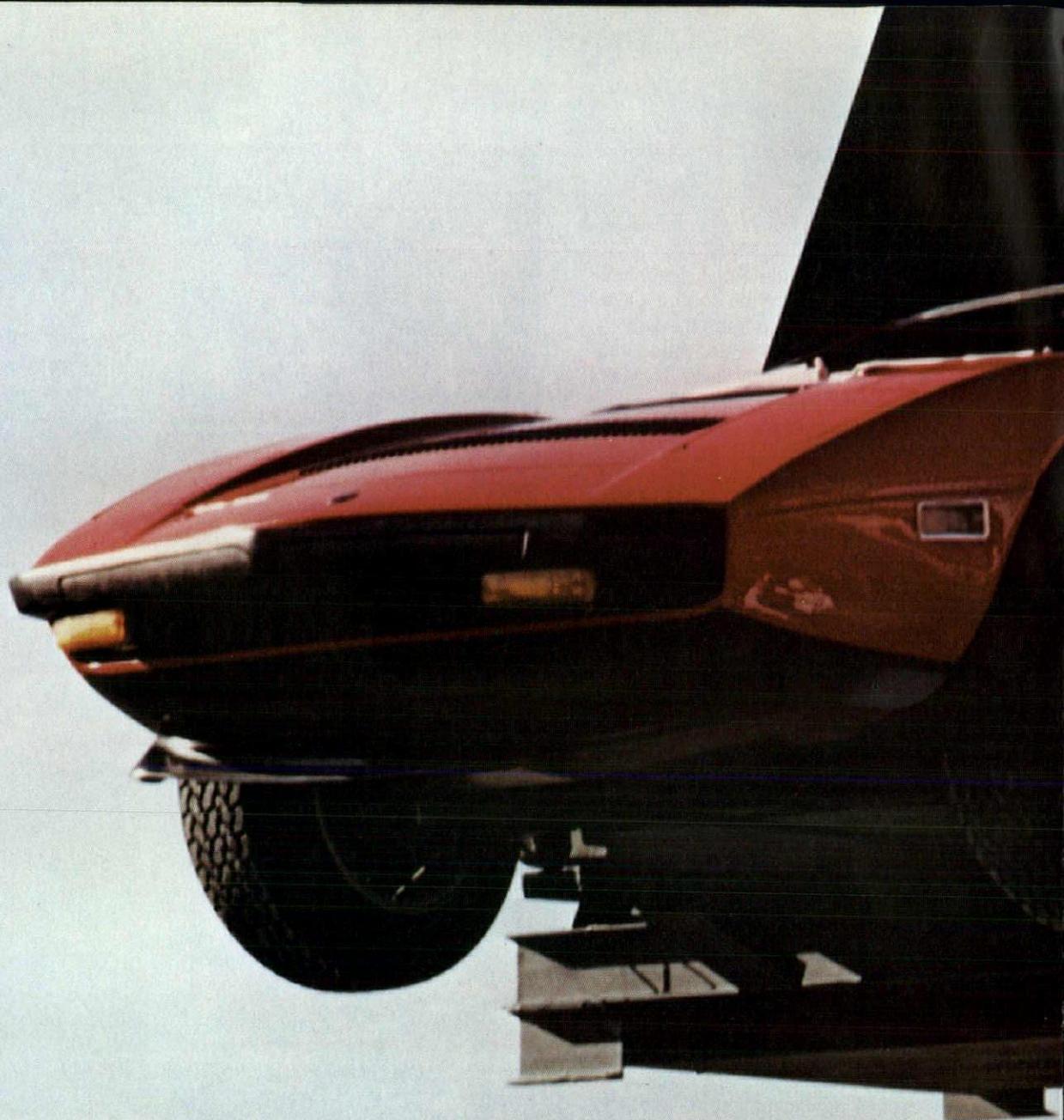
The intimacy of the drawings manifests itself in the selection of repeated elements as well. For example, the "hand of a saint" that frequently appears is the outstretched hand of a huge statue of San Carlone, which overlooks Lago Maggiore where

Rossi grew up. It has become fixed in his mental landscape.

The Institute has mounted a good deal of large-type explanation with its show, which implies that Rossi's concepts of "La Tendenza" and "neo-Rationalism" disassociate architecture from its social and cultural context. Nothing could be farther from the truth. "La Tendenza," as Rossi defined it, was literally "the tendency and the conscience to enter into the political cultural debate, to attach oneself to the reality of the country, to break from the academic or commercial ideology that held sway in the schools." Rational architecture was similarly defined to "differentiate our school from the International Style and from non-design architecture, to describe something particularly Italian."

Rossi's work, drawn and built, has firm roots in his country: Lombardy. He even sees other places in terms of this land; New York's towers are seen as the factory towers in the Lombard fields, Maine's lighthouses are like Filarete's tower.

Perhaps Rossi's most important comment about these drawings is (typically) his simplest: "I draw, truly, from my heart." [News report continued on page 26]



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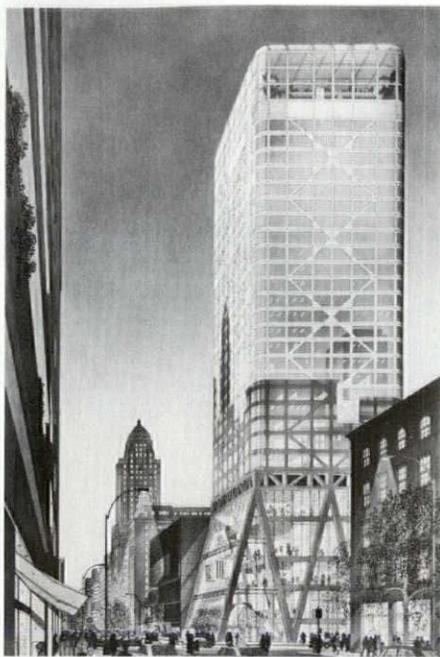
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Foster/Walker design for Whitney tower.

Whitney tower by Foster stalled

When the furor over the condominium tower above the Museum of Modern Art in New York was at its height, the Whitney Museum was considering a scheme to build a mixed-use, 35-story tower, jointly designed by the British architectural firms of Foster Associates and Derek Walker Associates. The plan called for development on land owned by the Whitney adjacent to the famous Breuer-designed museum on Madison Ave. and 75th St.

Plans were presented to the Whitney's board of trustees in late 1978, but no discussions were held after December.

The Museum may well be wary of the pending Upper East Side Historic District legislation which would strictly regulate all new construction north-south from 59th to 79th St., and east-west from Fifth to Lexington Ave. The Whitney's location would thus preclude the tower.

Typical of Foster's high-tech designs, the scheme for the tower called for a steel-framed, glass-skinned building highly expressive of its vertical supports and diagonal bracing. The cantilevered Madison Ave. façade, split into three equal spans by triangular trusses, would cover a five-story-high pyramid-shaped space over the sculpture garden onto which gallery floors would open.

The bulky tower would have taken advantage of incentive zoning legislation. The design would have required height and setback variances, since it places the bulk squarely on the street line on both

Madison Ave. and 74th St. Thea claims that unlike the MOMA tower, the Whitney scheme did not rely on the Trust for Cultural Resources (see P/A, Feb. 1979, p. 21).

Although, when considered in the abstract, the tower seems an attractively designed structure, the design is totally insensitive to the low-rise, townhouse-scale, and predominantly brick architecture of the area. The Upper East Side Historic District was proposed not a moment too soon.

Housing revisited three years later

P/A's last major housing issue (March 1976) featured several large projects in New York whose problems seemed, at the time, proportionate to their size. The saga of one, Taino Towers, appears to be just reaching a fortunate conclusion (see p. 30). Another, Manhattan Plaza, has had repercussions up and down the length of West 42nd St., as it provides a crucial element in the sweeping renewal scheme for that boulevard (see p. 32).

Four of the others—1199 Plaza in East Harlem, West Village Houses in Greenwich Village, Confucius Plaza in Chinatown, and Rutland Rd. project in Brooklyn—seem to be fulfilling the promises, good and bad, of their original designs.

Designed by the Minneapolis firm of Hodne/Stageberg, 1199 Plaza (P/A, March 1976, p. 64) has won seven architectural awards since its completion in 1975, including both national and local AIA awards. Occupancy is high, as it has been from the beginning. Local 1199 of the Drug and Hospital Workers Union has proved a dynamic sponsor, proud of the design which they helped shape and willing to make the continuing effort to maintain the housing as a safe, livable community. The security, sunlight, and identifiable image which were the goals of the design seem to have been achieved. The interior courtyards, the major element in the redesign which turned the project from one integrated with the community to a relatively introverted complex, are pleasant, much-used spaces. Remarkably clean, they are patrolled by assigned community volunteers.

The project's protective features isolate it from the surrounding community, however, and the tenants' pride also entails a defensiveness. On the lower level, the vestiges of the original design, gestures of integration, are the least successful parts of the project. The front plaza is bleak and uninviting, its fountain inoperative; the shops along First Ave. are only partially occupied. "For us, it's disappointing to see that the aspects of the design that were intended to relate it to the community haven't

worked out," says Tom Hodne, who returns to the project frequently. "But the tenants just don't want the neighborhood."

West Village Houses (P/A, March 1976, pp. 54-57), a financial disaster and an unoccupied, vandalized site three years ago, was finally rented by the city under the Mitchell-Lama program after the building went into receivership in 1976. The project was refinanced under a new HUD agreement with the city early this year whereby HUD bought the first mortgage from the city, which holds a second mortgage. This permanent financing plan for Mitchell-Lama projects allows financing calculations to be done on the basis of estimated long-term costs as opposed to yearly mortgage cost rates. The city sold the housing to the Starrett Construction Co., the original construction company, in lieu of what Starrett was owed for the project. Starrett has since resold the property to Oppenheimer Properties of New York.

Now completely rented, the housing constitutes a likely element in the logarithmically-paced revival of the West Village area. And time and the improved financial situation promise to add planting and people to offset the buildings' dreary appearance, due to a rather uninspired design by Perkins & Will whose problems were compounded by corner-cutting under financial pressure.

When Confucius Plaza was built, the key question was: how will this high-rise modern complex relate to the low-scaled, brick walkups of Chinatown across the street? Certainly the housing was badly needed, but was the dominant structure designed by the now-defunct firm of Horowitz & Chan the solution? Indeed, back in February 1977, questions raised by developments like Confucius Plaza in the Chinatown area had New York planning officials concerned enough to plan a detailed Chinatown zoning and development proposal similar to the "special category district" enacted shortly before to preserve the character of the adjacent Little Italy neighborhood. But in Chinatown, civic leaders felt the idea would jeopardize housing and commercial development needed by the community and could create an artificial ghetto.

The upshot of these concerns is the Manhattan Bridge Area Study, just published by the City Planning Commission. Done under a National Endowment for the Arts grant, it represents an outgrowth of an earlier and more limited study, the Chinatown Revitalization Report. While the Manhattan Bridge Study examines solutions to the zoning issue in great detail and suggests that Chinatown could be considered for Special District legislation, it does not constitute or formally propose such legislation.

[News report continued on page 30]

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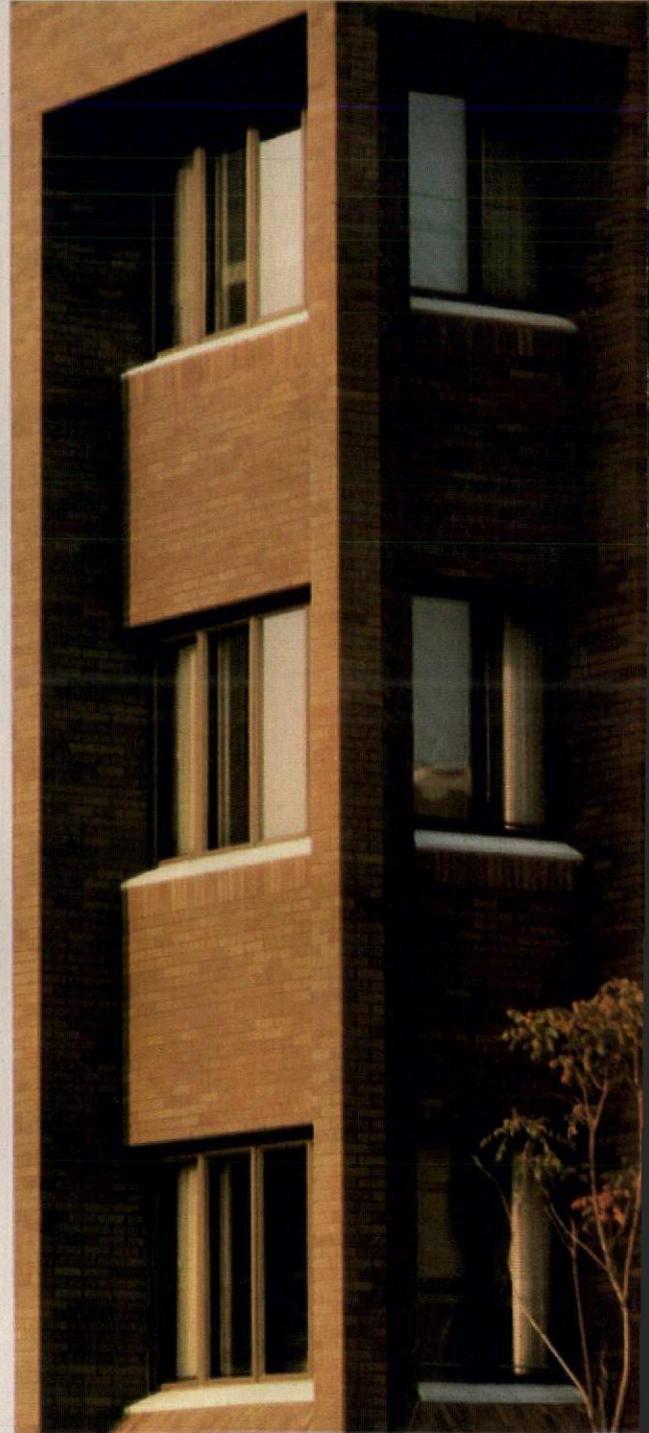
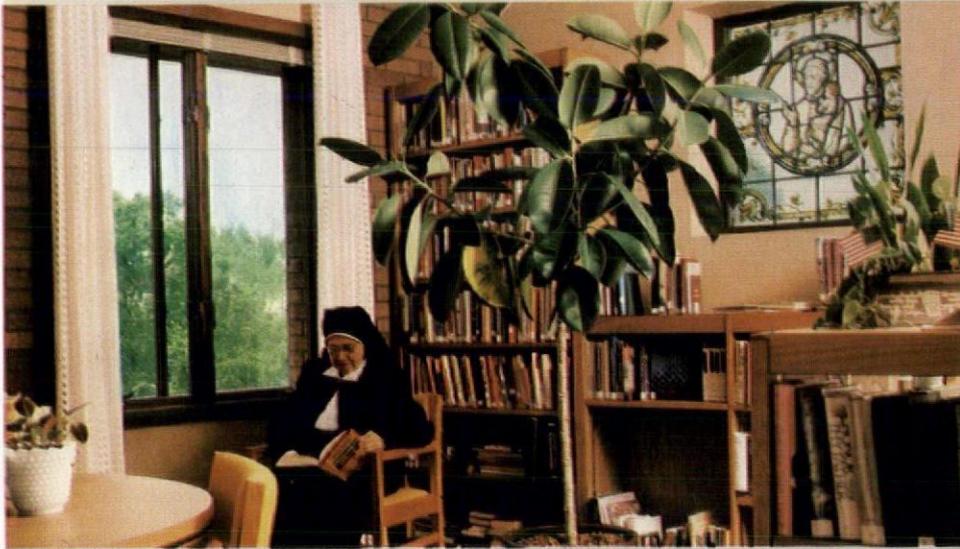
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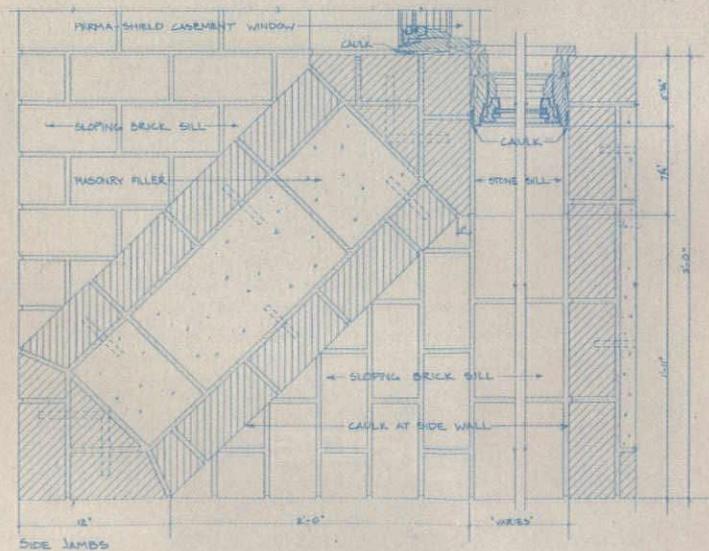
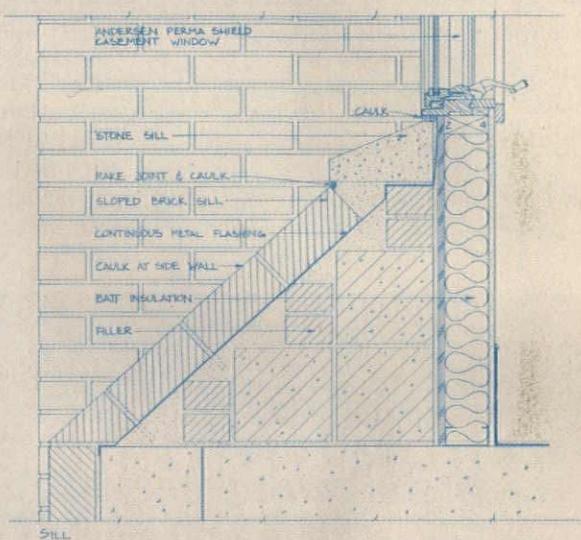
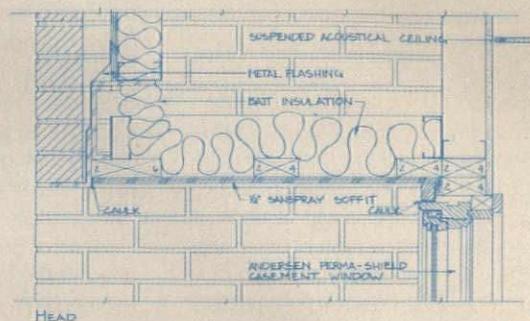
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News report continued from page 26

Confucius Plaza, whose central plaza, once open, is now ringed with a double fence, isn't exactly exemplary in terms of integration. In fact, the most urgent projects cited by the new Study are repairs to the damage the project has indirectly caused the fabric of the community. These "action projects" are: a) The reuse of P.S. 23, a school building abandoned when the school was transferred to new quarters in Confucius Plaza. The building, which is in good shape, would make an excellent community center. b) A four-phase street improvement program, the first phase of which would install a pedestrian crosswalk over the Bowery to Confucius Plaza. Widened during the construction of the housing, the highway now presents a daily hazard to school children and residents.

And finally, opposite Stull Associates' Rutland Rd. project, the planned school by Perkins & Will has been completed.

"Luxury" housing tenanted at last

Finally Taino Towers is occupied. The controversial federally assisted East Harlem

development, which has stood almost complete but vacant for three years while the government and the community wrangled over costs and alleged construction and design defects, received its first residents in August. Some 50 low-income families moved into tower No. 1, the first finished; the remaining three towers should be occupied within the year.

Although the four 35-story towers, containing a total of 656 units, are owned and operated by the East Harlem Redevelopment Corporation, a community group (the project was the first planned community-owned and -run development in New York), federal approval is necessary since the government is to subsidize most of the rents. Tenants pay no more than 25 percent of their incomes for the apartments.

Controversy over the design centered around the cost, currently estimated at \$50 million plus, which detractors contended was too high for publicly assisted housing. In response to a felt community need, the architects, Silverman & Cika of New York, integrated community services and commercial space into the housing, raising the cost, but creating a viable community rather than prisonlike tower blocks.

Included in the towers are a day-care center, health clinic, gym, and pool, all of which were threatened by budget cuts at

various points. Advocates of the design argue that not only do the recreational areas serve and reinforce the entire community, but putting them in the towers is actually cheaper than constructing separate structures.

The real reason for the virulent opposition to the housing may be a bit more subtle. The "Miami Modern" design, far from conjuring up the Coketown image so characteristic of low-income housing, looks like luxury condominiums, which are by definition Expensive Architecture. Indeed, the extensive use of glass and the balconies attached to the apartments make them seem so spacious that they have been condemned as lavish space-wasters, when in fact units are relatively small, with bedrooms averaging 130 sq ft.

Delays due to preconceptions of the towers as a waste of federal funds not only inflated the costs, but created structural problems as the half-completed vacant buildings were left exposed to the elements and vandalism over two winters. Now, despite severe handicaps, the basic hypothesis of the project may be tested: that investment in a developed environment towards which the community feels an aesthetic attachment and a responsibility will reap social dividends.

[News report continued on page 32]

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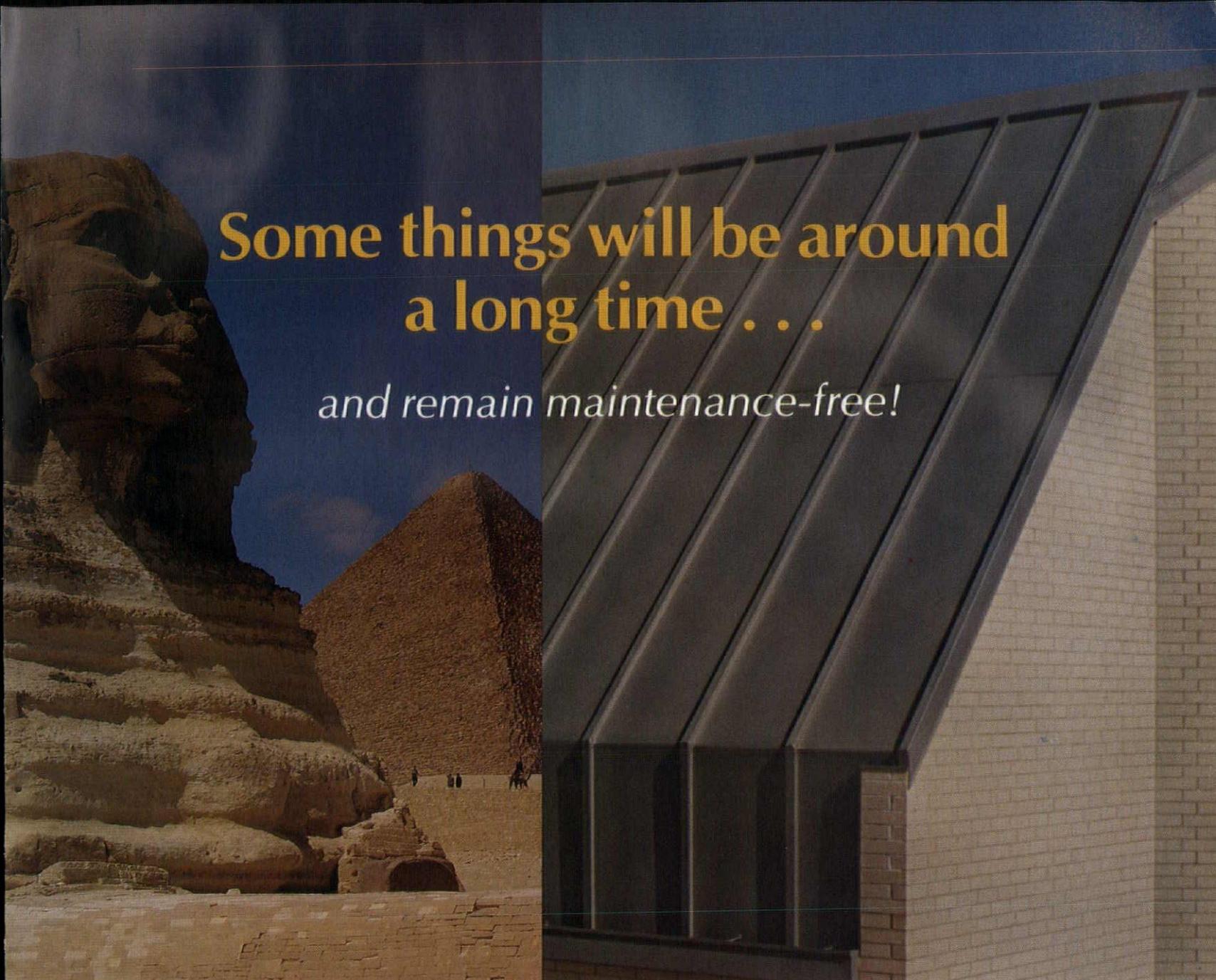
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News report continued from page 30

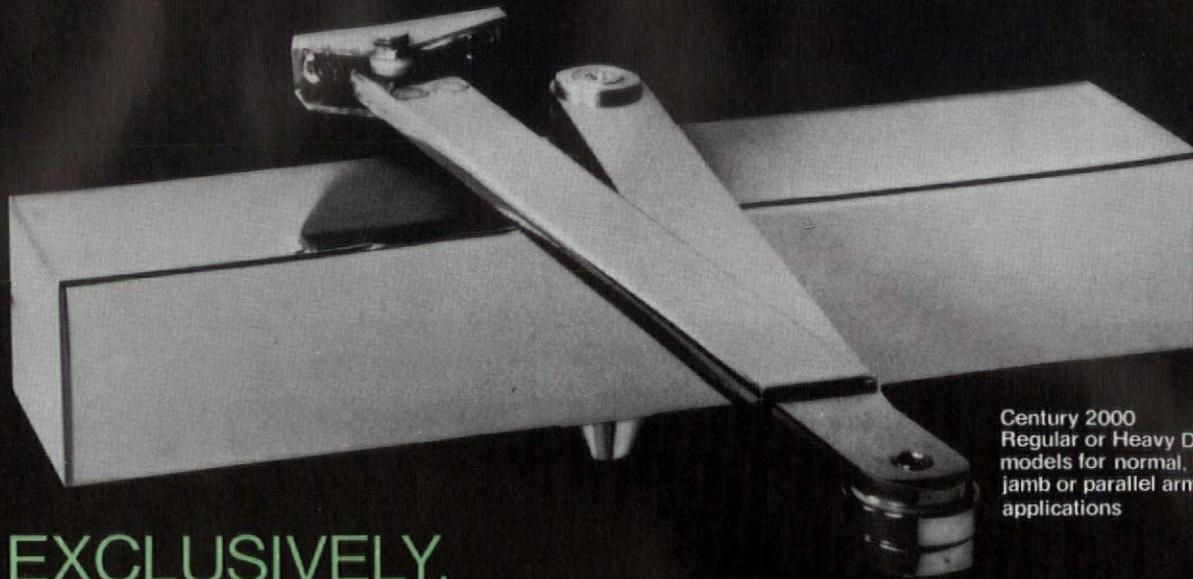
Manhattan Plaza anchors new 42nd St.

The most dramatic story of all P/A's 1976 New York housing projects is unquestionably that of Manhattan Plaza, which, from being a financial disaster and a thorn in the community's side, has become a major anchor for the current redevelopment of West 42nd St.

Conceived as housing for upper-middle-income young execs, the project got caught in a cost spiral that pushed the envisioned rents well above what that market would bear. The city envisioned salvaging its \$90-million investment (a mortgage loan) by converting the project to subsidized "Section 8" housing, but the local community strongly opposed the idea, arguing that a low-income high-density high-rise in that location would destroy the Clinton community along with any prospects of improving West 42nd.

At this crucial point, Fred Papert, president of the then-nascent 42nd St. Redevelopment Corporation, made the brilliant suggestion that the project be turned into "performers housing": that the majority of the units be set aside as subsidized housing for performing artists. While meeting the ethnic and age requirements for "Section 8" federal funding, it was argued, this scheme had the further advantage of encouraging an off-Broadway revival, returning West 42nd St. to its former theatrical self. The plan, in its final form, called for 70 percent of the apartments to be rented to performers, 15 percent to Clinton residents in substandard housing, and 15 percent to elderly residents of the area. In exchange for the federal rent subsidies that make it possible for resident tenants to pay only 25 percent of their income towards the rents (about \$150 per room per month), the developers, Richard Ravitch and Irving Fisher, agreed to give \$200,000 annually to the city for three years, for improvements to the Clinton area. In January 1980, that \$600,000 will begin operating as the Clinton Seed Money Fund, intended to provide loans to Clinton residents for rehab projects or similar ventures which would be unable to get bank loans. Fisher calls the housing "the best thing I've worked on," adding, "It's rare that a project does more than you intended it to."

Since Section 8 is an upwardly mobile program, it was projected that a large percentage of the apartments would eventually be at market rents, as the present residents became better able to afford the housing or as they left and were replaced by market rent tenants, as specified by the [News report continued on page 36]



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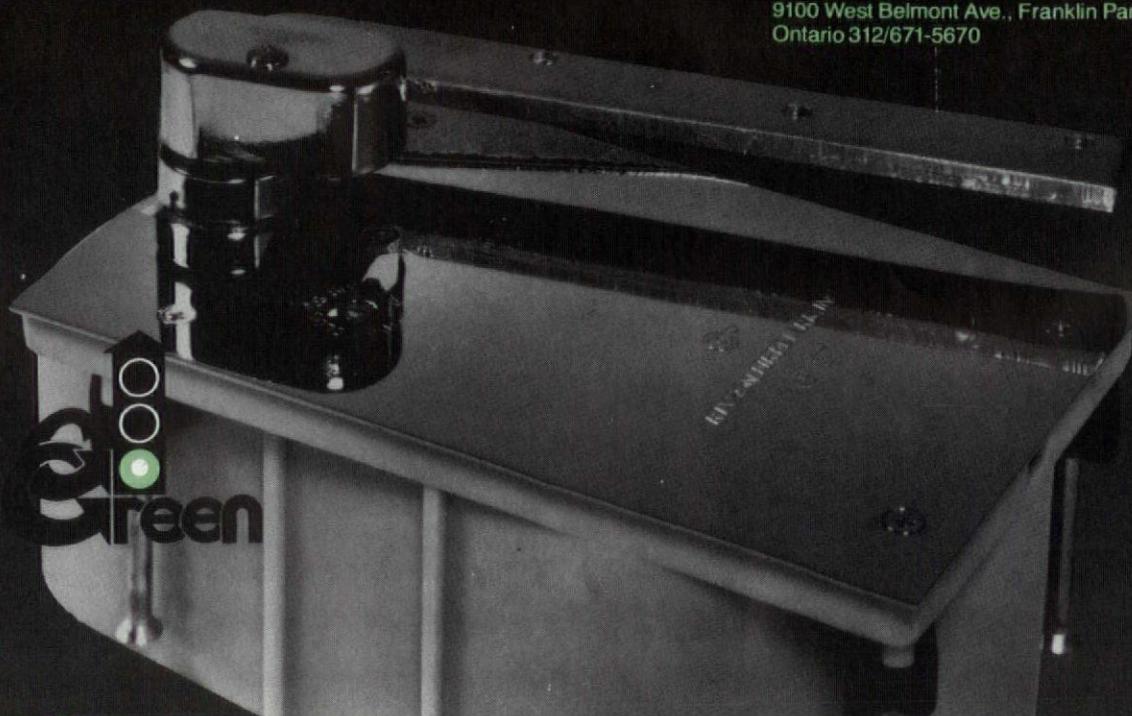
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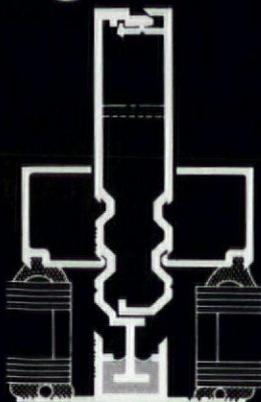
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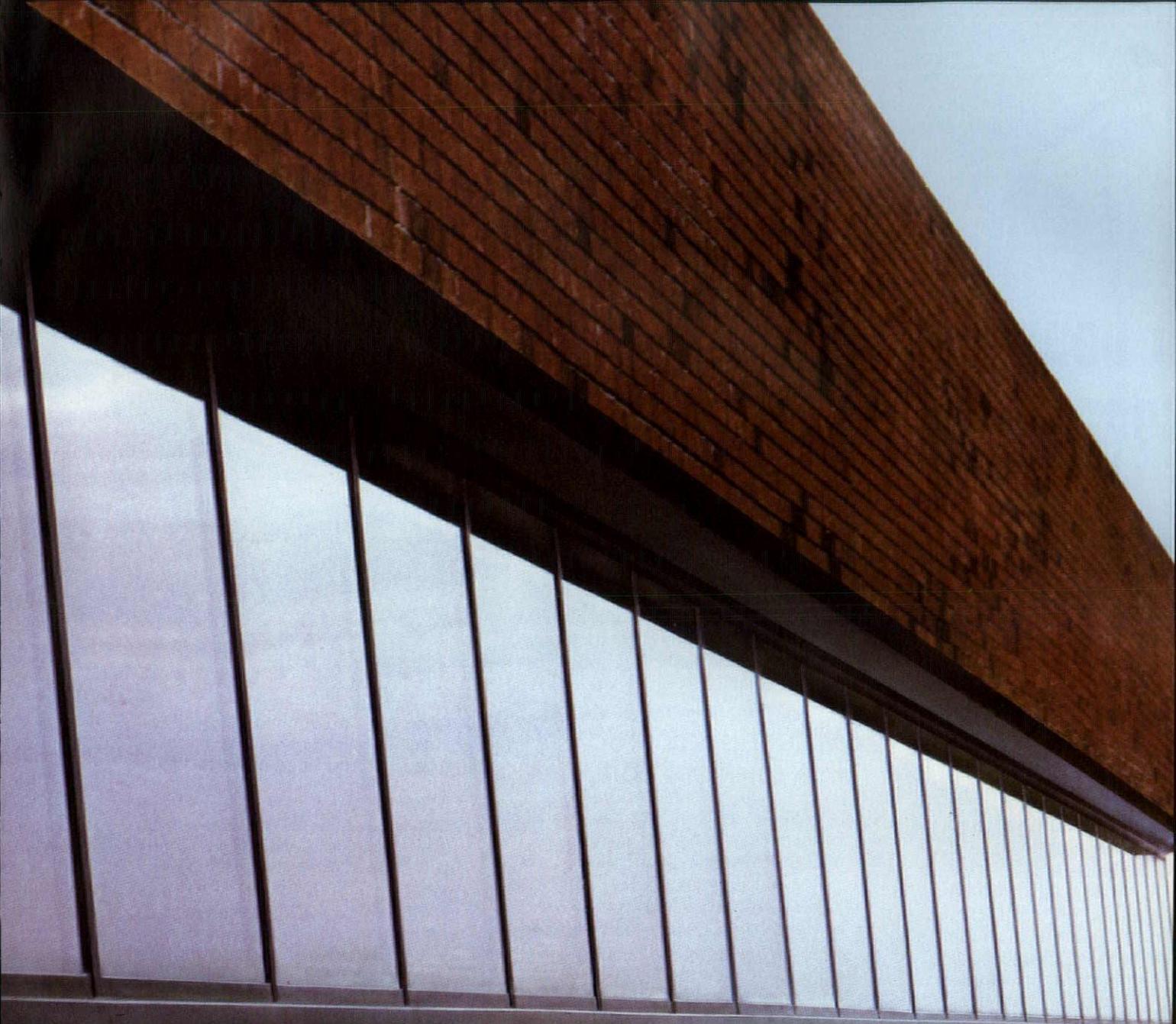
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agreement. So far, residents are enthusiastic, and very few people have left, but about ten percent of the units are at market rents.

As residential pioneers in an ex-porno area, the tenants of Manhattan Plaza have clashed with aspects of the "native culture" on occasion. The block between 9th and 10th Aves., on 42nd St., has traditionally been a hangout for transvestite prostitutes; while there has been little physical violence offered the new tenants, they find the verbal aggression, partial nudity, and occasional violent infighting among the prostitutes hard to take. The 42nd St. Redevelopment Corp. persuaded the City to close one restaurant which was a transvestite hangout, but there's not much that officialdom can do about transvestites congregating on the street corners.

Ironically, the few who have left—for widely varying reasons—have returned to lofts. Once the symbol, homestead, and workplace of the artist-as-social-pioneer, lofts seem now to have become not only more expensive, but more chichi than a high-rise apartment in a housing project, which itself constitutes a social effort similar to that made by the original loft-converters. Housing, like fashion, is apparently a matter of status as well as design.

Miller appointed P/A Interiors editor

Nory Miller has been appointed Associate Editor of *Progressive Architecture* in charge of interior design features.

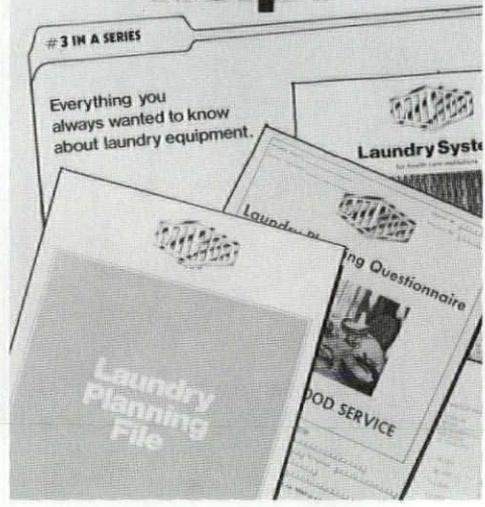
An honors graduate of Swarthmore College where she majored in art history, Miller went on to study art history, focusing on 20th-Century architecture, at the University of Pennsylvania. On a traveling fellowship from the Graham Foundation for Advanced Studies in Art and Architecture, she visited landmarks of Modern Architecture in Europe and Japan. In 1978 she held a Loeb fellowship at the Harvard University Graduate School of Design. She has served as a visiting critic at schools of architecture at Yale, Harvard, University of Illinois, Notre Dame, and elsewhere.

After eight years at *Inland Architect*, where she served as managing editor, Ms. Miller joined the *AIA Journal* in Washington in 1978 as assistant editor. She was a regular columnist on art, architecture, and planning for the *Chicago Daily News*.

Miller will join the P/A staff as of October 1, replacing Martin Filler, who has resigned to become the associate editor of *House & Garden* magazine at the Condé Nast Publications, Inc.

[News report continued on page 38]

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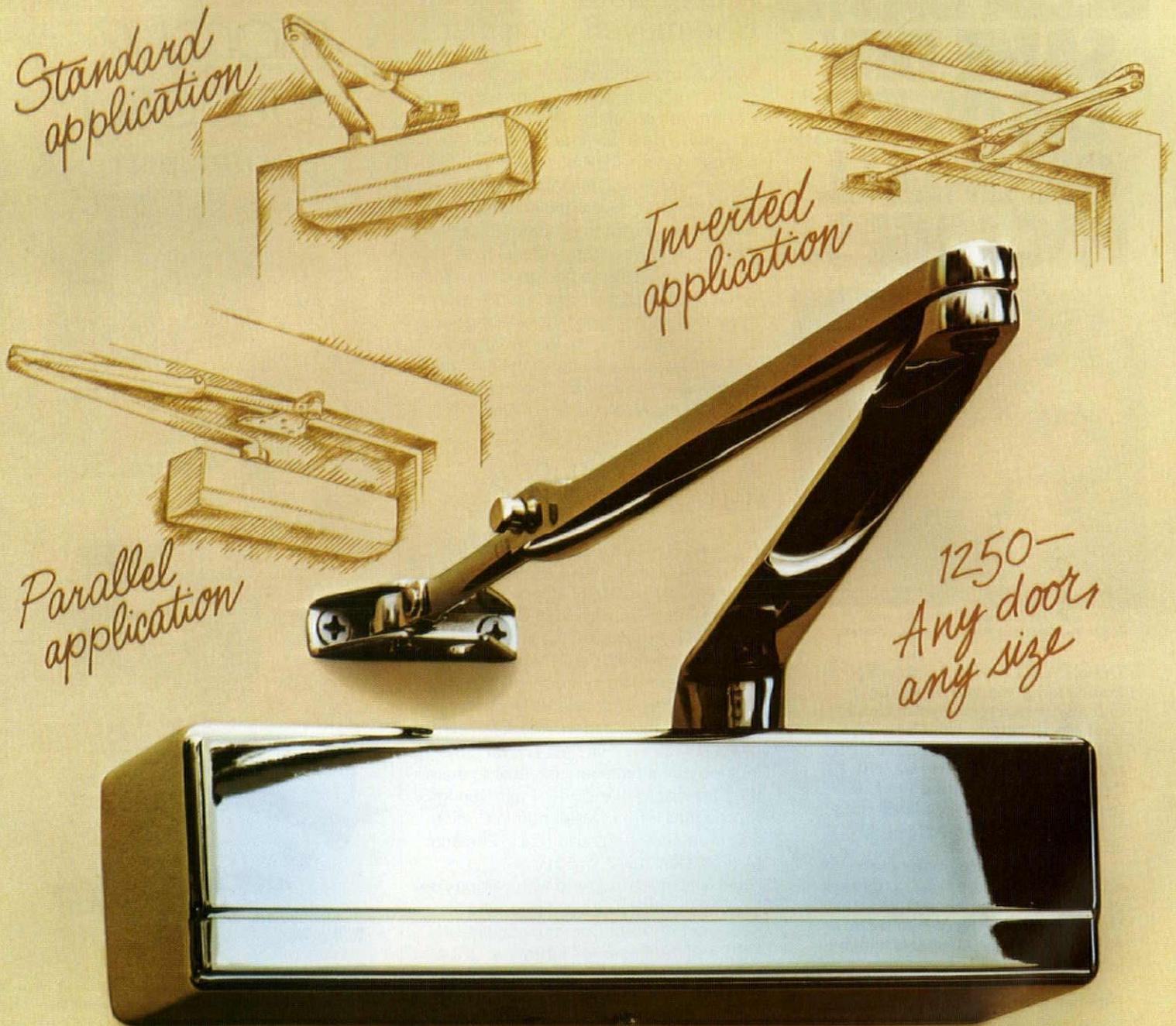
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News report continued from page 36

AIGA award to Chermayeff, Geismar

Ivan Chermayeff and Thomas Geismar, partners in the graphic design firm of Chermayeff & Geismar Associates, New York, have been awarded the 1979 Medal of the American Institute of Graphic Arts.

Among Chermayeff and Geismar's best-known works are their comprehensive graphic programs for Mobil, Xerox, Pan Am, and New York's Museum of Modern Art, as well as the design for the official American Revolution Bicentennial symbol. They also co-designed the buildings and exhibits for the U.S. Pavilion at Expo '70.

A retrospective exhibit of the firm's work will be open to the public from Oct. 17 to Nov. 9 at the AIGA Gallery in New York.

A. Quincy Jones 1913-1979

Architect A. Quincy Jones, dean of the USC School of Architecture and Fine Arts, LA, from 1975 to 1978, and president of the AIA Southern California Chapter in 1960, died August 3 at the age of 66.

At the time of his death, Jones was principal of the firm he founded in 1945: A. Quincy Jones & Associates, winner of the 1969 AIA Firm Award. His work received over 70 citations. His best-known projects include private residences, among them the Annenberg mansion in Palm Springs, Fl, and the Herman Miller administration and manufacturing buildings in Zeeland, Mi (P/A, Dec. 1977, p. 50).

He was much involved with campus design, both individual buildings—the Annenberg School of Communications at USC and the Research Library at UCLA—and master planning—for UC San Diego from 1965 to 1975 and for Cal State Dominguez Hills from 1962 until his death.

His concern with architectural education led him to found the Architectural Guild, a support organization for USC's School of Architecture, where Jones taught from 1952 to 1967.

Calendar

Oct. 5-7. The New York Meeting, Architecture 1979. Cooper-Hewitt Museum. N.Y.

Oct. 27-28. New Congrès International d'Architecture Moderne (CIAM) 1979. Ryerson Polytechnical Institute. Toronto, Canada. Contact: Luigi Butera, 49 Alton Ave., Toronto.

[News report continued on page 40]

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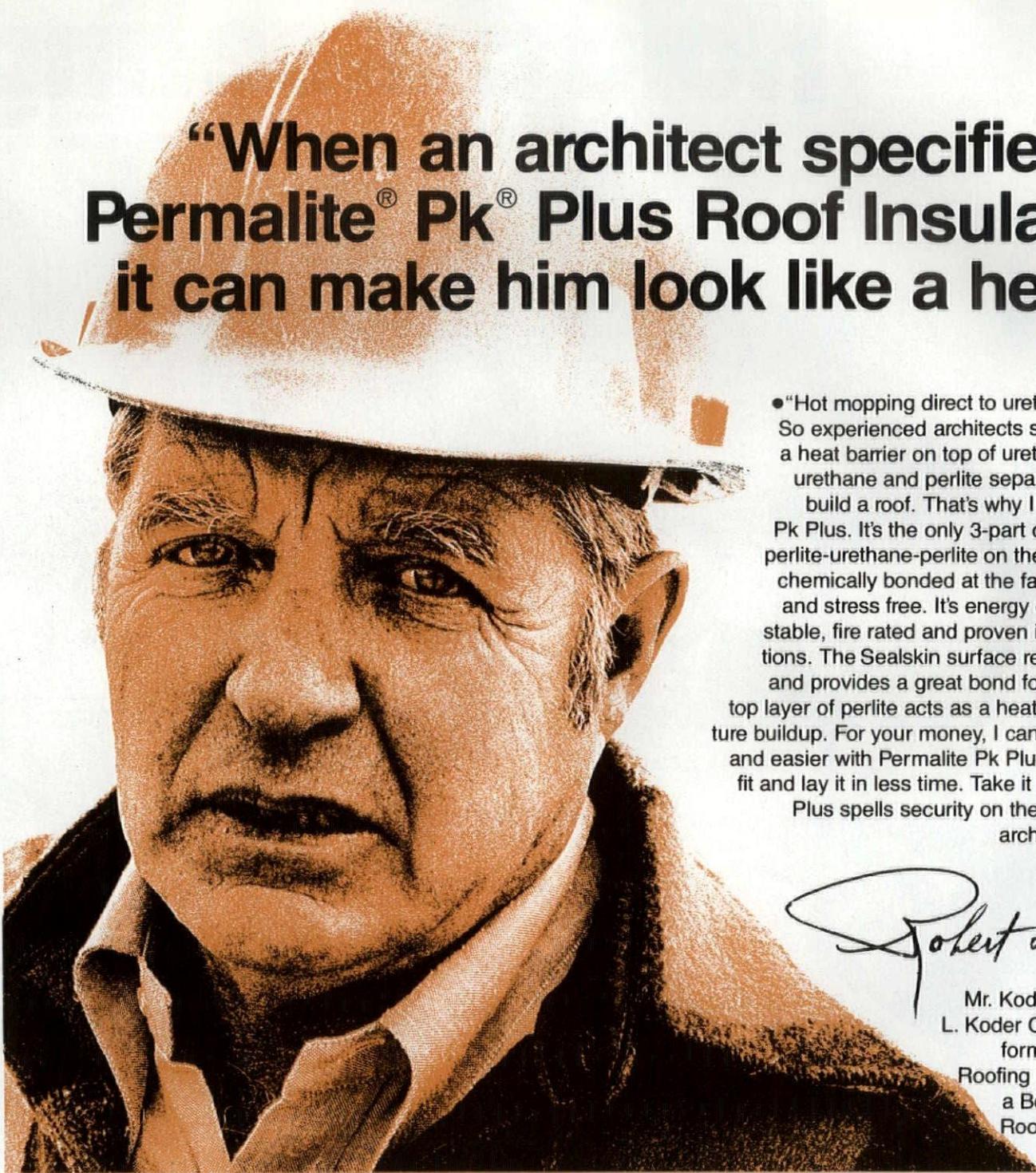
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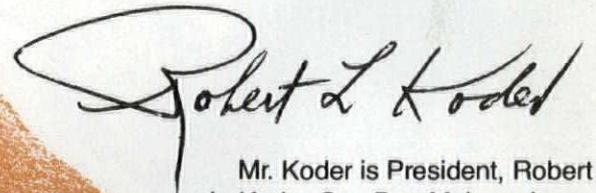
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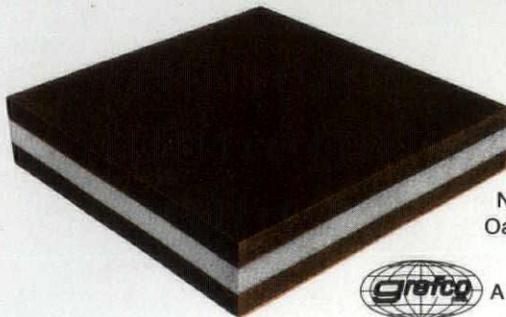
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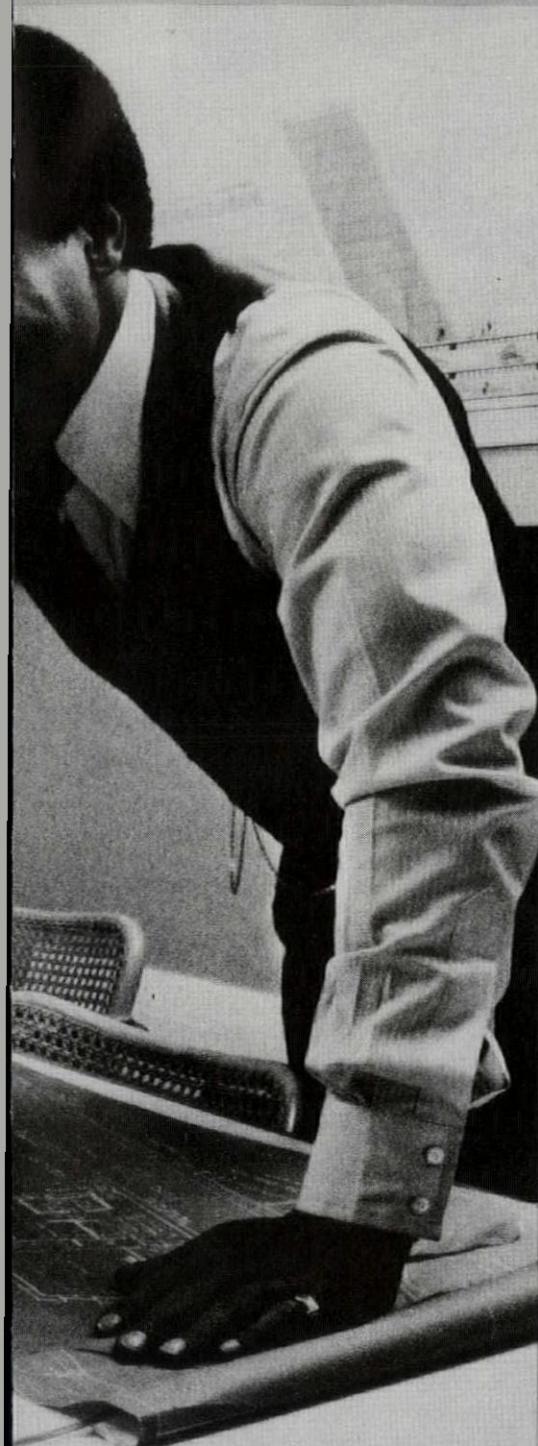


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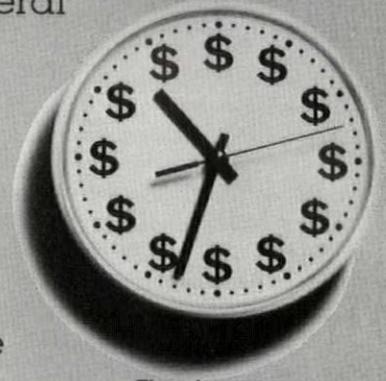
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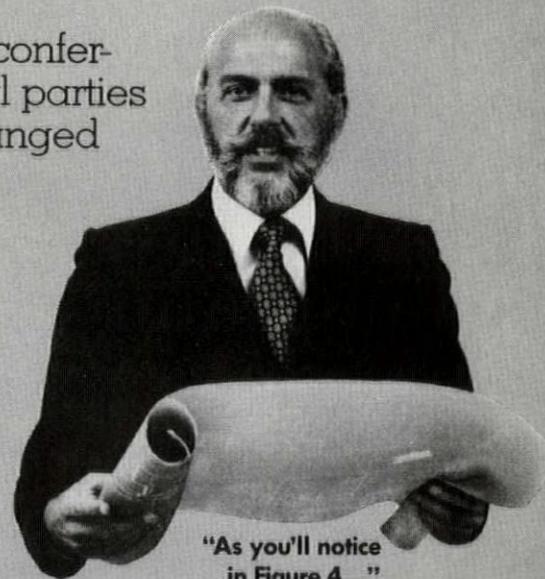
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Report from Marin County

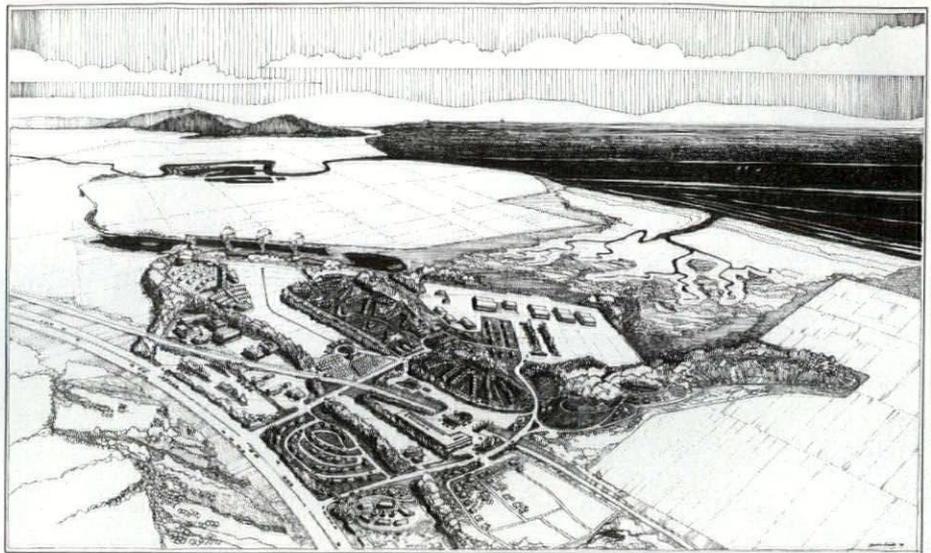
The greatest potential impact of the current energy and resource conservation movement on the architectural profession may be neither in solar houses nor adaptations of commercial buildings, but rather in the larger field of community planning: the energy and environmental implications of patterns of development.

One of the more ambitious energy-responsive community plans to date is a current proposal to transform the 1271-acre site of Hamilton Air Force Base in Marin County, Ca, into a model of energy-conserving strategies and integrated systems on a town scale. The Air Force base, now excess property, has been offered by the GSA to the County of Marin for civilian uses. Among the proposals, which ranged from another shopping center to an airport was a development plan by the Inverness architectural firm of Van der Ryn, Calthorpe & Partners, which attempts to integrate solutions to economic and social issues with responses to environmental concerns of sprawl and energy.

The Hamilton plan is attracting considerable political attention. A large, grass-roots, nonprofit organization, calling itself Friends of Solar Village, has gathered support since its founding by Sim Van der Ryn, and Sen. Alan Cranston and Rep. John Burton—the area's congressional members—have endorsed the scheme. The proposal calls for the Friends of Solar Village to act as master developer, subcontracting with private development firms to execute parts of the plan. The land would be sold at far less than the market rate, to provide the development incentive. Housing would be part market rate, part federally subsidized.

At stake, when the project goes to the voters in a referendum on Nov. 6, is more than the fate of an ex-air base. Used as a model, the Hamilton plan could substitute coherent satellite communities, self-sufficient in terms of resources, for sprawling bedroom suburbs, initiating a growth pattern which places lowered demands on national resources and local infrastructure.

The major strategies employed in the Hamilton plan involve existing technologies and design principles. Foremost are the concepts of a mixed-use plan and low-rise high-density housing. While the 650 new townhouse and apartment units incorporate passive solar heating and natural ventilation, the solar component merely augments the efficiencies of common walls and floors for reducing residential energy demands. By clustering the



Presentation drawings for the Hamilton plan by the Office of Gordon Ashby.

housing around a village center and light-industry park within walking distance, the transit needs are greatly reduced. Up to half of the population is expected to work on the site. The existing airplane hangars will be renovated for 605,000 sq ft of commercial space and a new corporate center. As growth has been limited throughout the Bay area by environmental and transit constraints, the Hamilton plan has become an attractive option for many regional firms for a new office location.

A more unusual proposal is the banning of autos. The plan allows for a large auto storage area, where electric vehicles are available for use around the complex. A presently abandoned railroad spur will be reactivated to link this storage center to the ferry and San Francisco. Though eliminating cars may create inconvenience, it will also make possible a more compact community. There should be an accompanying reduction in pollution levels, energy consumption, capital costs, drainage systems, water table depletion, and the higher microclimate temperatures caused by blacktop "collectors."

On-site electrical power generation, based on a renewable fuel source—solar, wind, and/or biomass—is proposed. Such community-scaled systems allow the waste heat of generation to be used in district heating systems for commercial greenhouses, residential purposes, and some light industry. Once again, the density and compactness of the community are critical.

The plan calls for a biological sewage treatment process which introduces the "waste" back into the nutrient cycle, producing hyacinths for biomass or feed, edible shrimp, fresh potable water, and recreational ponds. Such a system is now being constructed for the city of Hercules, Ca. Biomass and water from the sewage system will be used in on-site farming and

community gardens. Fish farming will be a major industry. Much of the site which is currently diked and pumped will be returned to the Bay or managed for a combination of salt water, brackish, and freshwater food production. An employment base is created, a fuel-efficient food source is supplied and land is returned to its natural state. As the cost of transport rises, the economics of food production may shift in such directions.

What of the social and economic structure of this "environmental Utopia"? Some 130 existing housing units will be renovated to accommodate lower income groups and the elderly. The range of employment and social services planned should nourish a diverse community. The development potential appears strong, with the efficiency of high-density housing and the reduced infrastructure requirements tending to lower costs. Looking ahead, as federal policy shifts away from highway subsidies, utility capital costs soar, power generation is constrained, and more agricultural land is consumed, energy-inefficient growth patterns will become economic burdens to local governments, perhaps leading to zoning regulations and government subsidies conducive to developments like Hamilton.

The idea of Hamilton Village is not new. Howard's Garden City and Wright's Broadacre are both Utopian models of environmentally integrated communities. But Hamilton, however close in appearance to new towns and garden cities, is responding to a different set of pressures: not urban overcrowding and alienation, but the environmental impact of a consumer society's attempt to reurbanize growth in the U.S. As the economic results of the energy crisis crystallize, it may be difficult to tell if the Hamilton plan is visionary or mandatory, Utopian or merely expedient.

[News report continued on page 44]

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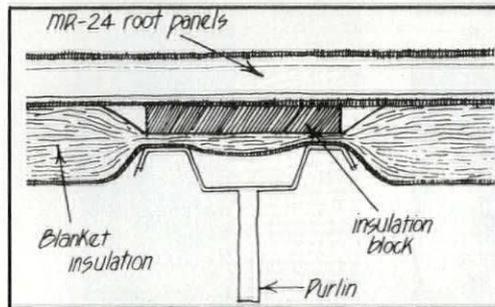
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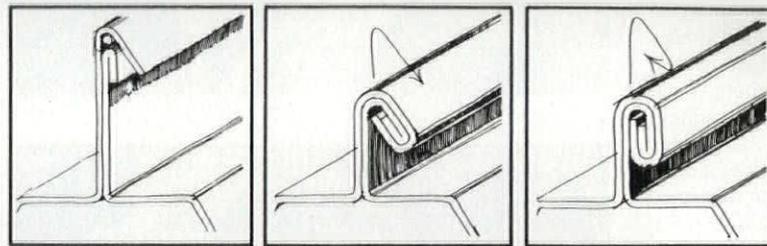


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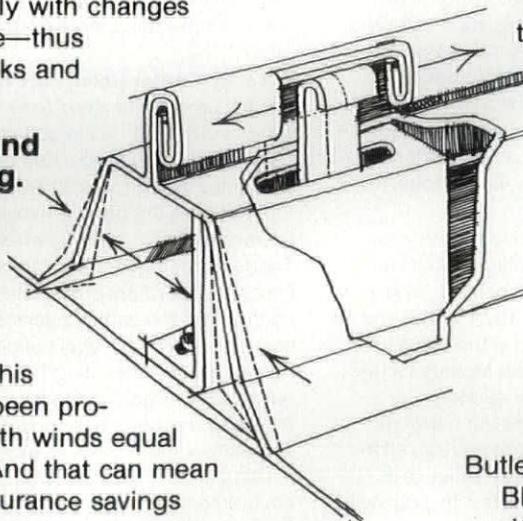
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Comparative U values.

Roof System	Calculated U value	Butler tested Actual U value
1. Built-up roof with metal deck		
2" insulation	.15	*
4" insulation	.07	*
2. Industry standard metal roof		
2" insulation	.12	.19
4" insulation	.06	.12
3. Butler MR-24 Roof System		
2" insulation	.12	.12
4" insulation	.06	.08
6" insulation	.04	.07

*No tested U values available.

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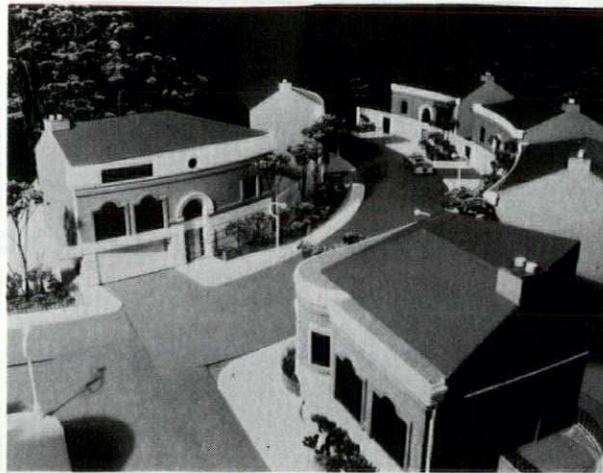
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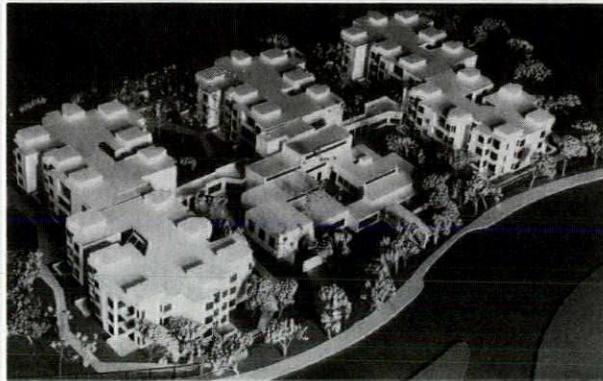
Butler Manufacturing Company
BMA Tower, Dept. B-646,
Kansas City, MO 64141.

In progress

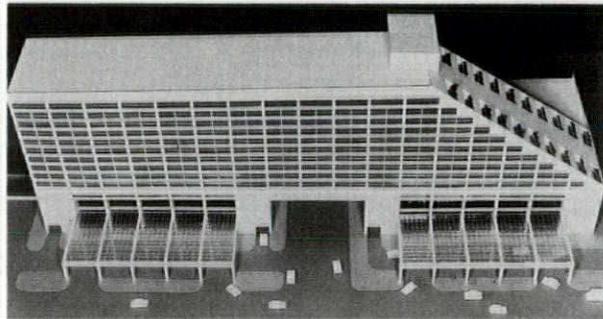
1 Foxhall Crescents, Washington, DC. On the former Rockefeller estate off Foxhall Rd., architect Arthur Cotton Moore solved what he terms "the usual ridiculousness of subdivision development—too much house on too small a lot" with a scheme that clusters neo-classical houses along Bath-style crescents. The project groups the houses around four separate cul-de-sac, preserving buffer zones of greenery that create the "single-family detached"-ness desired by the market of upper-middle-class clients. But rather than being a fragmented assortment of imitations, the houses play variations on a clearly identifiable Serlio-Palladian theme, so that the subdivision becomes a compositional whole. In a classic superimposition of stories, a rusticated limestone base is surmounted by a buff-colored brick *piano nobile*, punctured by windows surmounted by heavy limestone pediments, and topped with a heavy cornice. Adapting to the steeply sloping site, the nine versions of the housing design bend out or in, step up or down. Five of these prototypes are to be built in the first phase of the \$20-million project, which was begun in September and will be implemented in four stages over the next four years. The houses will sell for about \$400,000.



1



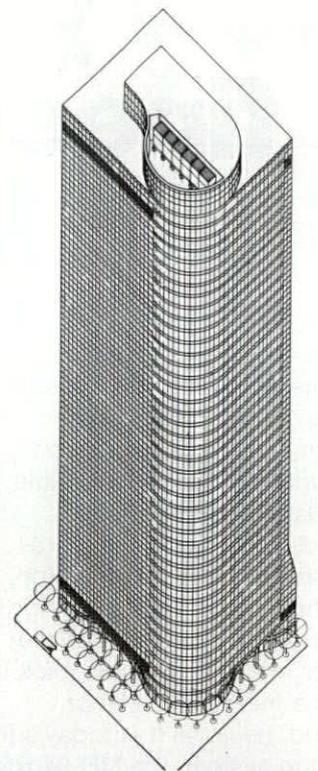
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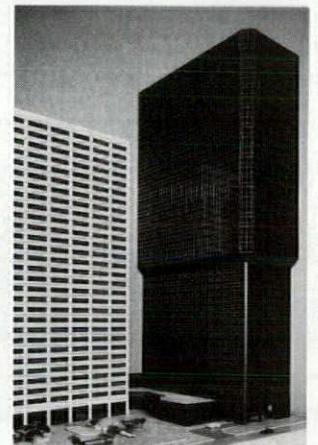
4

façade that reads as a single front while providing recessed entries. The white aluminum and glass façade rises from the street line at Monroe St. but steps back 20 ft on Dearborn, continuing the landscaped promenade of the adjacent First National Bank. Occupancy of the \$50-million tower is scheduled for late 1979.

4 Tandy Center Hotel, Fort Worth, Tx. The newest project designed to further the revitalization of Fort Worth is the 508-room Tandy Center Hotel and associated convention center. Designed by the Houston-based firm of 3D/International, the project involves Bass Brothers Development Company, owners of the hotel and Tandy Corporation, Pick Hotels Corporation of Chicago, operators of the hotel. Located at the north end of the central business district, the hotel facility is a 14-level building set perpendicular to the existing Tandy Center office/retail complex and connecting that development to the historic buildings along Main Street. The narrow linear block of the hotel spans an existing street (Houston Street) with two glass-covered entrances on East-West Second Street



3



5

servicing the hotel lobby, which is separate from the exhibition hall and ballroom lobbies. The two parts are joined by a second-story mall. The building is faced in cast-in-place reinforced concrete and glass. The eastern end slopes down in terraced suites to a façade in scale with the existing Main Street buildings. Completion is scheduled for mid-1981.

5 ARCO Tower, Denver, Co. This 1.1 million-sq-ft office-hotel tower, designed by Hellmuth, Obata & Kassabaum of St. Louis, will be Denver's tallest and—at \$93 million—most costly. The latest addition to the City Center complex, being developed by Urban Investment and Development Co. of Chicago and Miller-Davis Co. of Denver, the building will consist of 19 floors of hotel and 22 floors of office space. The design visually articulates the division. The rectangular base of the bronze glass-clad tower corbels outward 10 ft at the 20th story; above this point the corners are faceted. The hotel will be occupied by the spring of 1981; the office tower a few months later.

[News: Eleni Constantine except as noted.]

3 Xerox Centre, Chicago. Now under construction, the Xerox Centre office tower, designed by C.F. Murphy & Associates, won a 1977 P/A Citation (P/A, Jan. 1978, p. 85) and an AIA Chicago Chapter Award in the same year, when the building (then called Monroe Centre) was in the design stage. The 40-story, 875,000-sq-ft building utilizes the maximum square footage allowed by zoning regulations, yet the tall, bulky structure is sensitive to its corner site, resolving the corner with a curved

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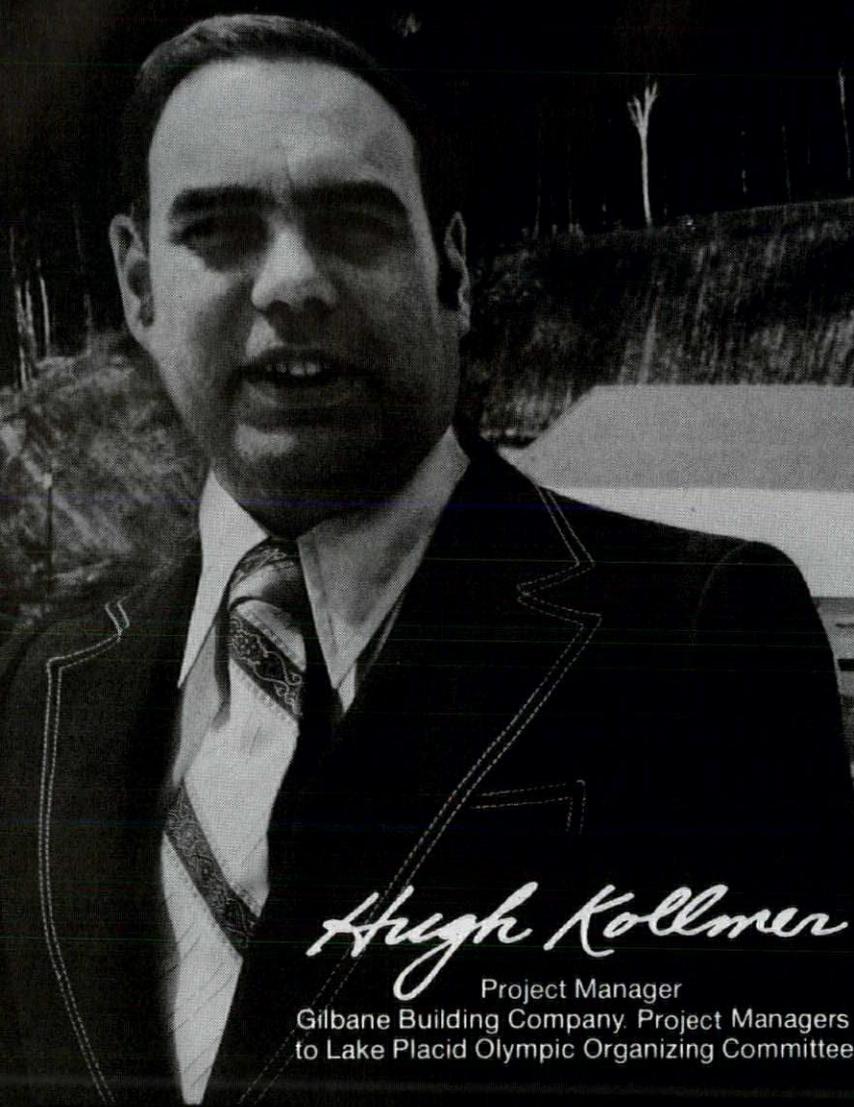
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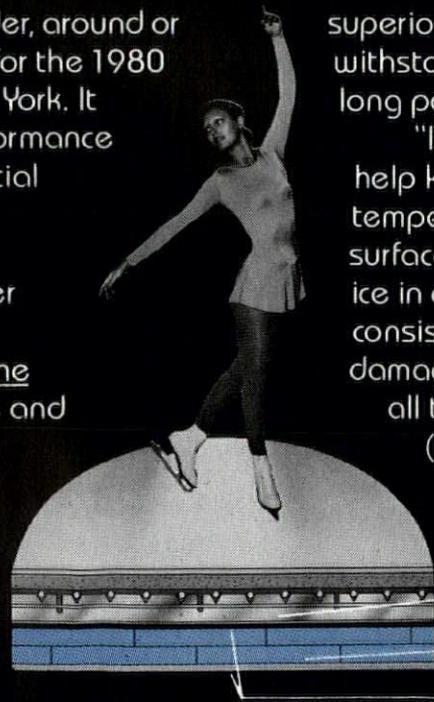
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Low-rise lives

As the following projects demonstrate, low-rise schemes are still being built with refinements in many solutions.

Since P/A last examined low-rise housing ("Housing: high-rise vs. low-rise," March 1976, pp. 40-73) new housing has not exactly been proliferating. Because of the federal Section 8 rent-supplement program, publicly assisted multiple-unit housing in 1979 totaled only 177,362 starts against an overall figure of 1.6 million private starts this year. Multiple-unit housing, that is, any building with two or more dwelling units, will probably reach a 600,000 d.u. figure for both privately and publicly funded housing by the end of the year.

Nevertheless in both the public and private spheres, where land values, settlement patterns and economics encourage multiple-unit housing, interesting experimentation is proceeding for low-rise configurations. Even if the housing is aimed at a luxury market, it still must attract customers from a socio-economic group that can well afford single-family homes. Thus, the low-rise schemes shown on the following pages probe questions of density, apartment layouts, and open space in inventive and instructive ways.

The privately financed Lovett Square Condominiums in Houston (p. 64), the government-sponsored Marcus Garvey housing in Brooklyn (p. 50), and Shushtar New Town in Iran (p. 68) demonstrate important attempts at creating a close weave of built and urban spaces. Manifest in each of the schemes is the development of an urban pattern allowing extensive ground coverage for the housing while still maintaining standards of privacy, territoriality, and identity. Because the density of the low-rise housing stays reasonably high—50 units an acre for Marcus Garvey, 25 for Shushtar and 25 for Lovett Square—this kind of exploration carries



The way things were: low-rise housing in England, early 20th Century.

with significant implications for the development of a low-rise housing typology.

More densely agglomerated than planned unit developments, some of these housing schemes, such as Ghent Square in Norfolk (p. 60), which contains 25 d.u. per acre, borrow formally from the architectural tradition of housing in the region to create a sense of place out of this new construction. An infill scheme, such as the Pacific Heights Townhouses in San Francisco (p. 54), also tries to base its design on existing context of building patterns and styles while achieving a higher density of 43 d.u. an acre.

Thus, low-rise housing continues to be as important as it was when P/A discussed its attractiveness three years ago—or even 27 years ago, when eminent housing expert Catherine Bauer attacked the "skyscrapomania" of high-rise housing projects being built by the Public Housing Administration following the 1949 Housing Act (see "Clients for housing: the low-income tenant," P/A May 1952, p. 61).

On the other hand, Bauer, like Jane Jacobs a decade later, did maintain that high-rise buildings could work well in certain combinations with low-rise housing. Jacobs argues convincingly (*Death and Life of Great American Cities*, New York, Random House, 1961) that such high concentrations of people give the city its unrefuted urban vitality. The trouble with high-rises comes from standardization of construction, not the height: The attempt to get the maximum efficiency out of a given solution leads to uniformity.

Even the solutions on the following pages, as distinctive as they are in formal imagery, in planning, or in configuration, may approach that uniformity too closely. Marcus Garvey has already come under severe criticism for this characteristic. Too much of any one thing creates monotony. Or, as Jacobs puts it: "No one way is a good way to house a city neighborhood, no mere two or three ways are good. The more variations there can be, the better." Even in housing, more is more. [Suzanne Stephens]

Compromised ideal

The much-touted Low-Rise High-Density housing, developed in 1973 to prove multiple housing could be achieved as economically and more satisfactorily than high-rise housing, is now occupied. The final results? P/A investigates.

The development of the low-rise high-density housing prototype in 1973 by the Institute for Architecture and Urban Studies and the New York State Urban Development Corporation was greeted by considerable fanfare and publicity. The housing was even displayed prominently at the Museum of Modern Art.

Only one of the two applications for the prototype, 625 low- and moderate-income dwelling units sited on 12.5 acres of land, in a bombed-out renewal area in Brooklyn, got built. Called Marcus Garvey Park Village, today it is fully occupied. The other scheme, designated for Fox Hills in Staten Island, was never realized.

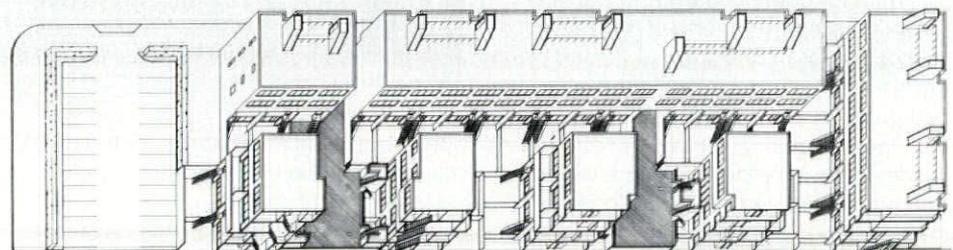
It is curious that very little has been said or published about the Marcus Garvey Housing in the three years since its completion. A good part of the reason of course comes from the fact that the financially troubled UDC has not applied the prototype housing elsewhere. But more to the point, the reticence seems to come from the gap existing between the high degree of anticipation engendered by the publicity about the projects and the actual built result. Since both applications, plus the prototype, were extensively documented in P/A (December 1973, p. 56), this present discussion will not deal in detail with their intentions and programmatic considerations.

Constraints of reality

The prototype was deformed by certain physical and economic constraints that had nothing to do with the actual design. Some of the project's weak points, how-



SITE PLAN



AXONOMETRIC

ever, can't be so neatly excused.

The idea of having two basic configurations—one with the street units arranged to form a perimeter enclosure around the block, the other with mews units on small alleys cutting through the block—could not be strictly followed because the assemblage included half-block sites. Thus, as can be seen in the site plan (above) the mews units, usually kept to the interior of the block, are arranged to form cul-de-sacs on the half-blocks. The placement presents a problem in terms of consistency: the "street" units having a frontal orientation affirm the continuity of the street; the others do not. On the other hand, this break in consistency offers variety and intimately scaled open space.

Subway tracks divide the site. Since the

housing had to be placed 100 ft away from the tracks on each side, the unused strip of land was turned over to parking, and the original intention of incorporating parking in small clusters throughout the site abandoned. A good many units do have views straight toward this swath of asphalt and automobiles.

Because of playgrounds and a health center on the periphery of the site, programmatic pressure for such space was not too severe, and land in the blocks could be devoted to housing and other community facilities. In this respect, the housing form is intended to evoke the closely interwoven tapestry of terrace houses at Siedlung Halen, designed in Bern, Switzerland in 1962 by Atelier 5. The only trouble is that the Marcus Garvey



Looking from the street to the gardens (left), cross walk by mews units (right), rear yards of mews units (below).



Marcus Garvey Park Village

scheme lacks the hilly topographical conditions of Bern.

The filling in of the interior of the blocks, with mews and private yards instead of public open space, upped the density to 240 persons per acre. The fact that many of the apartments house large families (40 percent of the apartments have three to five bedrooms) helped the numbers since the persons per dwelling average 4.5. And these units are much in demand. The turnover rate seems to concentrate in the zero- to two-bedroom range. (The management claims a five percent vacancy rate with these units, but a spot observation suggests it could be higher.) Because of eco-

nomics, these apartments—378 out of the 625—lack gardens, terraces, or access to semiprivate or semipublic open space unless you count the paved crosswalks.

The space allocations in the apartments, ranging from 400 sq ft for a studio to 1825 sq ft (net) for a five-bedroom duplex, exceeded the FHA minimum (which usually functions as the maximum) standards by 15 percent. The decision of the UDC to abide by New York State fire codes, however, meant that the four-story-high buildings not only have access stairs to the units, but also have fire stairs. (The New York City fire code permits fire balconies or fire escapes to be counted as a secondary means of egress on low-rise structures instead of the much more costly and space-consuming internal stairway.) Since

a good many of the apartments lack balconies because of the expense, the decision to include the fire stairs would strike some observers as a "safety luxury."

Other compromises to the prototypical model were also made at Marcus Garvey. For example, the private gardens were originally intended to be located at grade, midway between the bedrooms a half-level below and the living/dining floor at half-level above. The decision by the UDC management to flip half of these duplex layouts so that the living room would occupy the lower level and the bedrooms the upper one, as in traditional homes, led to other changes as well. Because the occupants of the duplexes with living rooms on the lower level might feel that the units were too subterranean, all the duplexes were depressed only a third level below grade. Thus the gardens were also sunk—a maneuver that further visually separates public from private open space. The units with the living room on the second level are located almost a full flight above the garden, making this outdoor play space less accessible to the kitchen/dining facilities.

While the interior finishes come in the usual rock-bottom array of VAT flooring, and baseboards, gypsum board partitions, and acoustical sprayed ceilings, workmanship seems reasonably conscientious. In spite of all the corners cut, the apartments still cost about \$40,000 for straight brick and mortar.

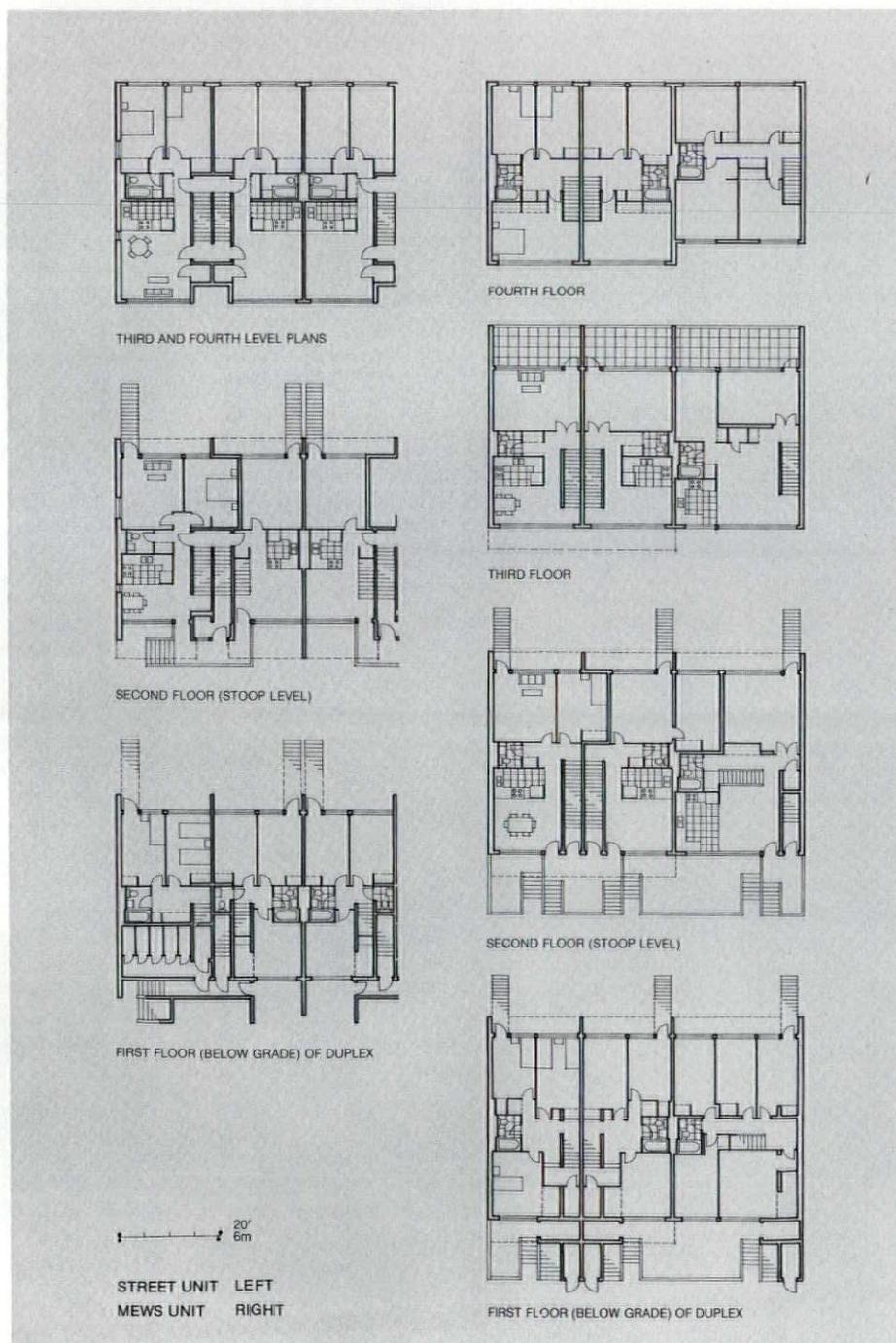
Of special note

The inclusion of certain planning features deserves mention. The floor-through plans with double orientations mean the apartments receive ample light and air. In addition, the duplex units have large kitchen/dining areas separate from the living rooms, affording two different kinds of social spaces in the home. The living room, quite small in size, is generally treated as a "formal" parlor. Though not *necessary* on these terms, the inclusion of a living room does afford privacy to members of a family wanting to retreat there, and it does signify it is a "special place" for occasions demanding it. The decor of the apartments shows this room obviously functions like the living rooms of other upwardly mobile homes—to reflect pride, status, and taste.

Also commendable is the fact that 40 percent of the dwelling units at Marcus Garvey have their own entrances to reinforce the "house"-like identification. No more than four apartments share one entrance in the rest of the complex, a feature that does promote the image of domestic scale, as does the four-story height.

Formal aspects

The formal perception of the housing, in terms of what it projects as a place to live



and as an architectural artifact to emulate, elicits the most severe criticism. The decision to keep a repetitive serial quality to the elevations and configuration certainly maintains a formal affinity to the *Neue Sachlichkeit* housing of Mies, Oud, Ernst May and others in the 1920s. The image promises a world unremittingly ordered, hygienic, and functional. But as one architect puts it about Marcus Garvey: "To everyone a barracks." A good part of the problem lies not with the uniformity of the design or absence of gables and shutters, but with the choice of materials. Obviously the Early Modern crisp white tautly stretched planes formed by smoothly stuccoed masonry or even concrete wouldn't do in terms of upkeep. One supposes the buff-colored brick was selected

for its neutrality. A guaranteed homogenizer, this kind of brick still lacks the purity and pristinity of the stripped-down International Style aesthetic. Not being able to stick completely to one idiom, it probably would have been better for the architects to choose a brick as counterpoint—one with resonance of coloration and texture—although that too would have been more expensive. Similarly, painting the stoops white (which one occupant has done) does a lot to alter the image, as would painting the pipe railings a bright color. But of course nothing works quite so well to soften an environment via these "touch-up" devices as vegetation. Already the trees are growing in, the gardens becoming lush, with vines covering the cyclone fencing (originally to have

been wood). If only the greenery lasted through the winter.

It is reassuring to see the housing, now several years old, well maintained, and the residents protective of it. Should an ownership program ever be introduced, then one might see the architectural modifications begin to take place that occurred at Pessac. Like Pessac, it is to the credit of the scheme that the architecture does invite, even encourage, modification.

Despite a sturdy simplicity, formally this kind of housing doesn't diverge enough from the usual bricks and mortar modified Modern low-rise housing seen elsewhere. And in spite of its density, the fact that half of the apartments (the smallest ones at that) lack access to private open space has to be viewed as an unresolved dilemma. The shift from ideal to real proved bumpy. Thus while Marcus Garvey was a worthwhile experiment, it does not offer the ideal promised model for emulation so desired by those who conceived the scheme, especially Ted Liebman of the UDC and Kenneth Frampton of IAUS, or even those in charge of delivery, such as UDC head at the time, Edward Logue. There is still room for more invention, and more prototypes. [Suzanne Stephens]



Stoops create regular pattern along street (above); treatment differs with mews (below).



Data

Project: Marcus Garvey Park Village, Brooklyn.

Architects: (Prototype) Theodore Liebman (UDC), Kenneth Frampton (IAUS), Anthony Pangaro (UDC), and Michael Kirkland (UDC). Marcus Garvey (Application), Kenneth Frampton, Peter Wolf, Arthur Baker, Lee Taliaferro (IAUS).

Site: approximately 12 acres of ten parcels assembled in a Title 1 Urban Renewal area in Brownsville section of Brooklyn.

Program: provide low- and moderate-income housing for 625 households in four-story housing with 23 studios, 63 1-BR, 291 2-BR, 180 3-BR, 40 4-BR, 28 5-BR units. Additionally provide 8000 sq ft commercial space, 4000 sq ft community space.

Structural system: reinforced concrete plank on masonry bearing walls with brick facing.

Major materials: brick, concrete, VAT, built-up roofing, gypsum board, interlocking paving.

Mechanical system: electrical baseboard heating, individual a/c.

Consultants: Lehr Assoc., mechanical engineer; Lev Zetlin & Assoc., structural; Finley & Madison Assoc., associate structural; Falk Assoc., cost consultant; Nicholas Quennell (of Quennell Rochchild), landscape consultant.

Client: NYS Urban Development Corporation, Department of Housing and Urban Development of NYS Division of Housing & Community Renewal, the Central Brooklyn Model Cities Housing Development Company.

General contractor: Dubor Construction.

Cost: \$25,036,681 for overall construction; \$40,059 per unit costs brick and mortar.

Photographs: Norman McGrath.

A new old language

In the wake of flawed zoning and greed San Francisco's housing quality eroded before economic pressure. New policies aim at quality alternatives like this.

As virtually everyone agrees, San Francisco has its own kind of ambience, one that should be respected when building new housing. But it hasn't always; insensitivity and greed, sometimes aggravated by existing zoning ordinances, have fostered some dull or ugly examples. Pacific Heights Townhouses, by Daniel Solomon & Associates, does defer to the San Francisco context in quite skillful ways. It's more complicated than that, however; this is not just a good job of relating to the appealing vernacular—the project is a prototype.

Known for the charm and character of many of its residential areas, San Francisco in the late 1960s began to see the rise of neighborhood associations. These groups often were formed primarily to stop development they regarded as undesirable. Arguing for "downzoning" or lower allowable densities, they tried to deter the out-of-scale kinds of projects permitted under existing zoning. Many aspects such as development rights, height limits, densities, and preservation became volatile issues when, says Dan Solomon, "many people came to perceive the city's economic health as a threat to its physical charms."

A 1973 interim zoning package, intended as a de facto housing moratorium, included a zoning envelope which would allow development of only the front 55 percent of all lots in the city. Many downzoning requests were also approved, yet results were anything but satisfactory. New housing starts dwindled, and prices soared. Developers who did build felt compelled to fill every inch of the smaller, more rigidly defined box prescribed by the



Within the well-known San Francisco context, Pacific Heights Townhouses make obvious gestures to adjoining Victorian buildings along Lyon Street, following new city planning guidelines.

interim zoning.

Recognizing the need for a comprehensive reevaluation in 1974, the City Planning Department and Planning Commission were very aware of the size of the task. Solomon, also a professor of architecture at Berkeley, together with Zoning Administrator Robert Passmore and Zoning Study Director Mark Winogrand, saw an opportunity to involve graduate design classes at Berkeley. Richard Bender, then chairman of Berkeley's Department of Architecture, enthusiastically supported the idea, and the school and the City Planning Department jointly applied for, and got, National Endowment for the Arts funding.

Two and one-half years of work pro-

duced final recommendations presented in a document entitled "Change Without Loss." The study received a P/A Award (P/A, Jan 1979, p. 106) and an AIP National Urban Design Award, and it subsequently became the basis for revisions of the San Francisco Planning Code, now instituted. Since the city's traditional rowhouses were built on 25-ft (some were 35-ft) lots, that dimension was generally accepted as standard for the proposals. Within each 25-ft lot, for instance, no more than one 10-ft curb cut may be made. This reduces sidewalk interruptions, allows for trees, landscaping, and entries, and increases on-street parking over previously allowed conditions.



The existing fabric.

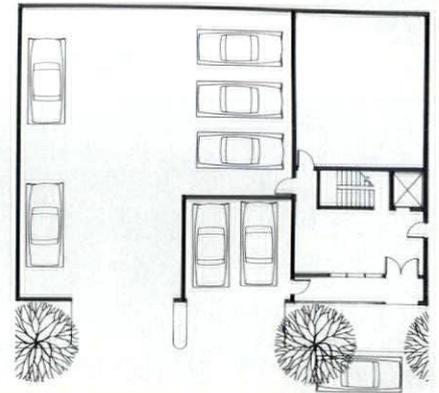


Pacific Heights Townhouses

CASE STUDY:
RM-1 SLOPING SITE

May 20th 1976 Provisions

Combined lots, continuous curb cuts and centralized lobby circulation creates building which is out of scale with mixed neighborhood and which usurps pedestrian and landscape space for automobiles.

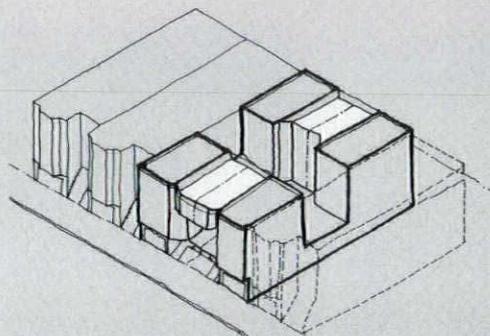


Examples of proposals from "Change Without Loss," compared with existing or interim zoning.

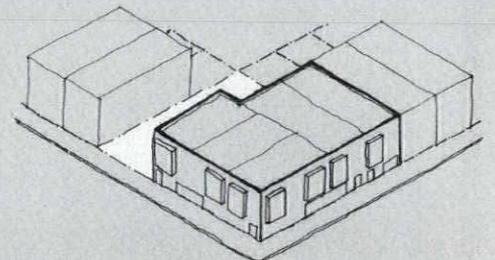
Other rules proposed included: a required pattern of setbacks every 35 ft; on a sloped site, buildings must step with the slope every 25–35 ft of building width; in some cases, upper stories must have a setback of prescribed dimensions every 50 ft of width; limits are placed on the number of units entered from a common lobby in certain circumstances; landscaping at ground level is prescribed, with variations; building bulk and height guidelines are given; and certain dimensions and clearances for bay windows are spelled out or amended.

Since Solomon, the planning officials, and the board of the Pacific Heights Association were all actively involved in the Zoning Study, the new townhouses seemed a perfect opportunity to test the proposed rules. An application for zoning variances was filed, reviewed at a community hearing, and granted, with community backing. The resulting 14 tandem units adhere to the rules, providing more and larger units, with more bulk and height than previously allowed. Two-story bays on the stepped façades help the housing to retain the vertical Victorian feeling of the neighbors. The complex is built around a corner, with an inner court containing two of the units. Cornice and setback lines match adjacent buildings, with entrances at the same interval as the setbacks. Parking for the required 14 cars was achieved with six curb cuts, leaving ample space for sidewalk trees and street parking.

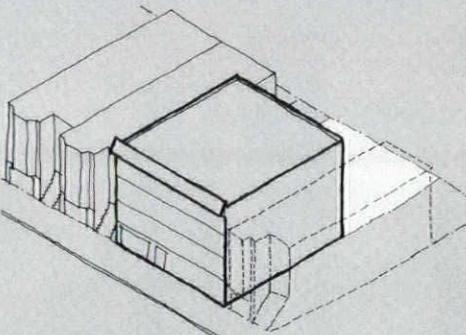
Overall, units are bright and varied, including two one-bedroom flats with a study (1000 sq ft), four two-bedroom townhouses with study (1250–1400 sq ft), and eight two-bedroom townhouses with study (1350–1650 sq ft). If there is one aspect Solomon might wish to change, it would be the admittedly small dimensions of some bedrooms. Approaching the problem again, he feels he would try for fewer but larger bedrooms.



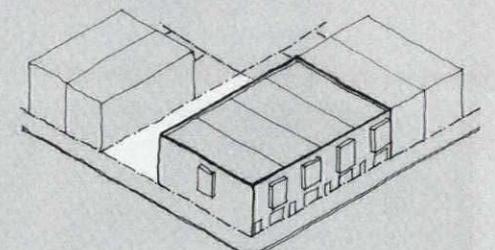
TANDEM TOWNHOUSES TRANSFERABLE OPEN SPACE



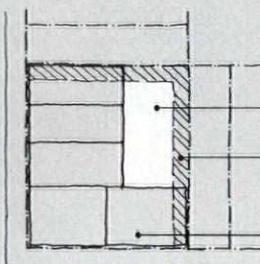
CORNER LOT INTERIM ZONING



BUILDER APARTMENTS INTERIM ZONING



CORNER LOT INTERIM ZONING

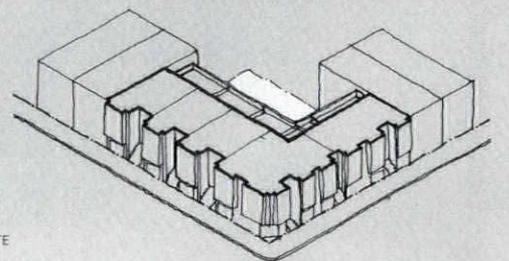


OPEN REAR YARD AREA, 25% OF SITE

REAR YARD AVERAGING AREA, NEW CONSTRUCTION CANNOT EXCEED DEPTH OF ADJACENT BUILDING

BUILDING AREA WITH 20% OF SITE TRANSFERABLE OPEN SPACE

CORNER LOT PROPOSED ZONING



RM-1 Proposed Rules

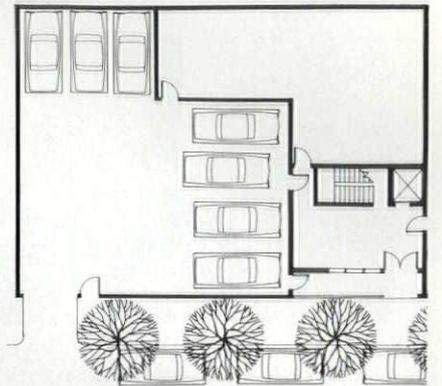
Case study rectifies problems
of May 20th 1976 zoning
through application of

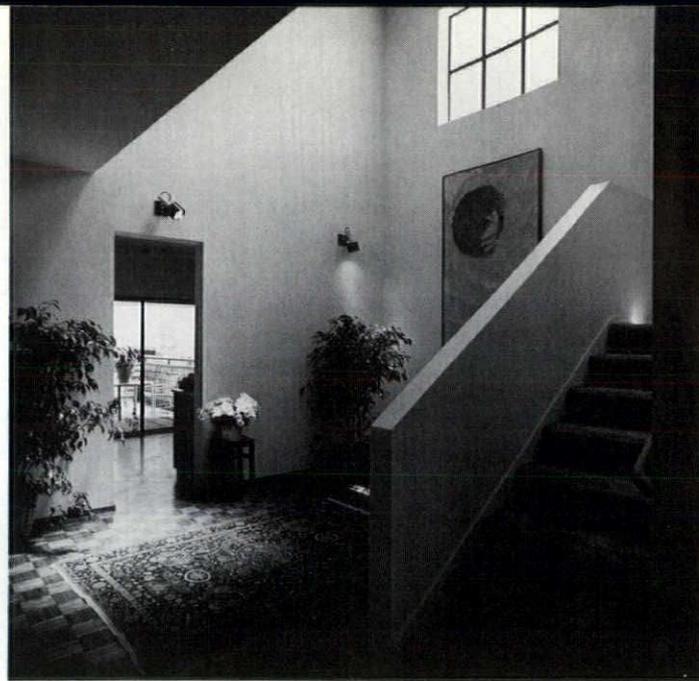
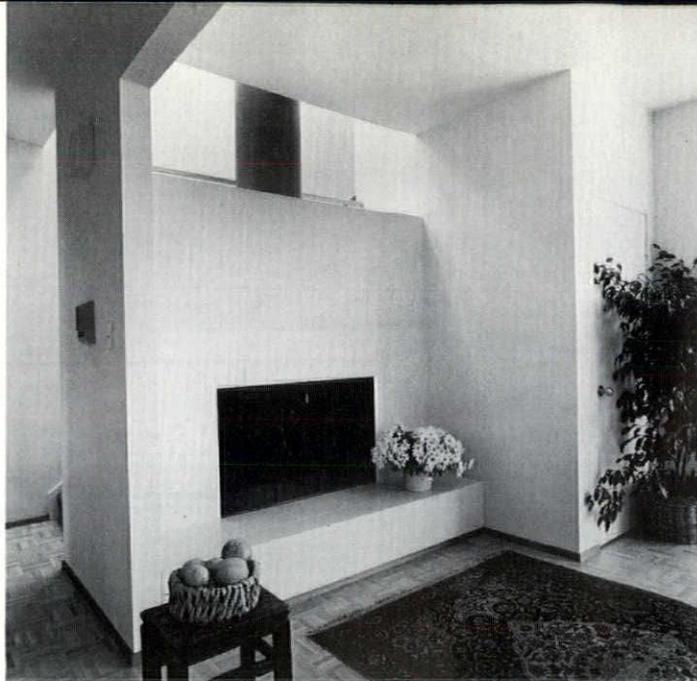
Rule I Limited Curb Cut

Rule II Step With Slope

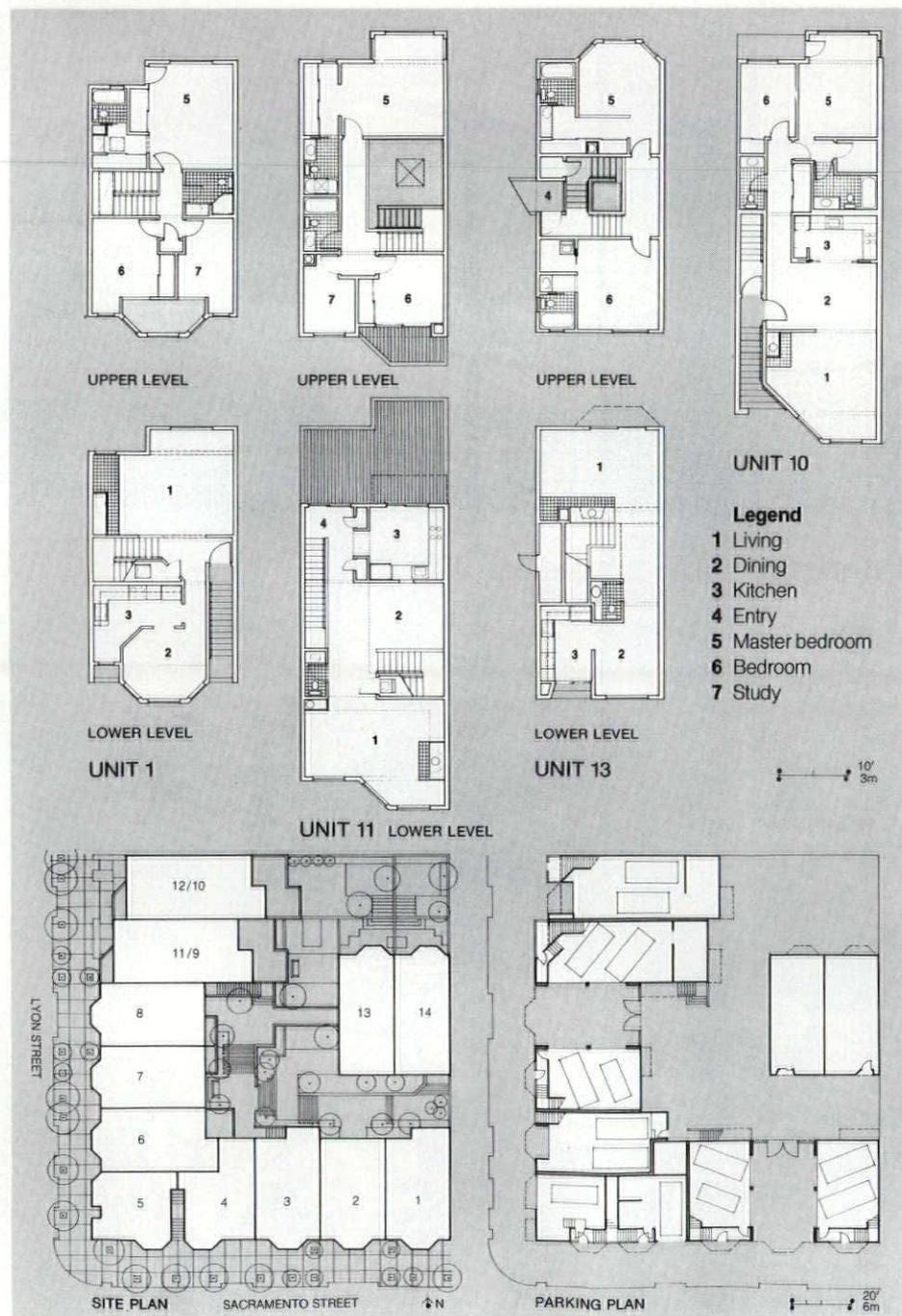
Rule IV Separate Entries

Rule XI Upper Story Set Backs.





Interiors of the units are bright, in many instances offering open spaces to upper level. Courtyard (opposite page) also contains two of the units.



Still, Pacific Heights Townhouses is a triumphal project. It is the nearly perfect culmination of years of arduous and perceptive effort. Applying the lessons of "Change Without Loss" in an experiment was a challenge—a rewarding challenge as seen in the final result. It is a credit to the team that did the study, to the architects, and to the City of San Francisco. In enacting legislation to adopt "Change Without Loss," although in a slightly moderated form, San Francisco, as Dan Solomon says, "has taken a large and innovative step toward resolution of conflict between development and preservation—a conflict which is inherent in the rediscovery and resettlement of older cities." It is a positive and delightful step, worthy of emulation. [Jim Murphy]

Data

- Project:** Pacific Heights Townhouses, San Francisco.
- Architects:** Daniel Solomon & Associates, San Francisco; Paulett Taggart, project associate.
- Client:** NAPELSO & Associates.
- Site:** a 14,200-sq-ft corner of a residential block, sloping approximately 1 ft in 10 ft.
- Program:** using proposed new zoning parameters, provide 14 housing units with one garage space per unit, 4700 sq ft of common open space.
- Structural system:** reinforced concrete foundations, wood framing with glued laminated beams over parking entries.
- Mechanical system:** electric resistance heating.
- Major materials:** cedar shingles, 1" x 8" clapboard siding painted gloss white, gypsum board, tile and hardwood floors, carpet (see Building materials, p. 120).
- Consultants:** structural, Ralph G. Gray; landscape planner, Max A. Schardt; acoustical, Charles Salter.
- General contractor:** C.M. Peletz Co.
- Costs:** \$1.3 million; \$58 per sq ft.
- Photography:** Joshua Friewald.



Tidewater traditions

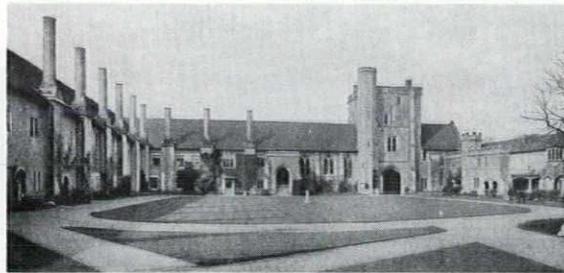
Townhouses in Virginia by Barton Myers prove that historic traditions can be combined with today's newest ideas.

During the "urban renewal" of the 1950s, Norfolk, Va, was one of the towns bulldozed with a particular vengeance. Although some new building—most of it of little distinction—has now occurred downtown, the urban core still shows many scars of its recent past. In contrast, the residential Ghent Square redevelopment area nearby is rebuilding at a fast pace. That 65-acre tract was once one of the worst slums on the Eastern seaboard, but since the new building began in 1978, 145 townhouses have been sold; 500 are expected to be completed by 1983.

Unlike most urban redevelopments, here the city was able to offer private developers land with many of the attractions usually associated only with new suburban development. The Norfolk Redevelopment and Housing Authority had already replanned the entire area and laid out new streets, alleys, sewers, and utilities. The NRHA saw Ghent Square as following the same planning principles as its 19th-Century neighboring namesake, Ghent, which was itself heavily influenced by Oglethorpe's scheme for Savannah, Ga. Single-family row housing, and some detached houses, are organized around a series of intimate squares. A major boulevard divides the site longitudinally, but is interrupted at midpoint by a main square, in the center of which is a Victorian ferry terminal from Norfolk's waterfront, reconstructed as a community center. Around this focal square, Barton Myers Associates has designed 46 connected townhouses.

The Myers townhouses

The scheme was given a P/A Awards program citation in 1978 (P/A, Jan. 1978, p.



D. Morrison

86), when juror Charles Moore commented that it was "altogether a simple set of housing on an existing, commonly understood, familiar plan of squares [that] I also like because it has something at once individual, memorable, and identifiable." At the same time, juror William Bain thought "there are some details in it that are odd, but I don't think they affect the overall façade." Of the 46 units planned, four have now been constructed.

The housing styles in Ghent Square range from replications of 19th-Century red brick row houses and 1920s attached and detached Virginia Georgian models to the suburban type of wood-clad clustered units. In this conservative housing market aimed at middle and upper-middle income families, the Myers houses are the only ones that recognize that at least in some circles attitudes towards architecture have changed in the last ten years. With Myers' awareness of Post-Modernist ideas, he does not simply copy older styles or apply architectural elements from the past to achieve the "compatibility" Ghent Square

Antecedents for the distinguishing form of the Myers townhouse chimneys can be found (clockwise) in 12th-Century England (St. Cross Hospital, Winchester), in Colonial Virginia (Adam Thoroughgood House, Virginia Beach, 1633), and in 20th-Century Virginia (1930s vernacular residential). Other new Ghent Square housing includes those (bottom right) for builder Henry Clay Hofheimer, designed by Wylie Cooke with assistance from The Athenaeum and The Victorian Society of America.

is intended to have with its surroundings. While there is nothing necessarily wrong with copying (in fact, some of the historically straight examples are quite nice), the Myers housing is distinguished through its reinterpretation of the past, and the integration of the product of that effort with the most current attitudes of design. Here you don't just get historical allusion, you get it combined with high tech.

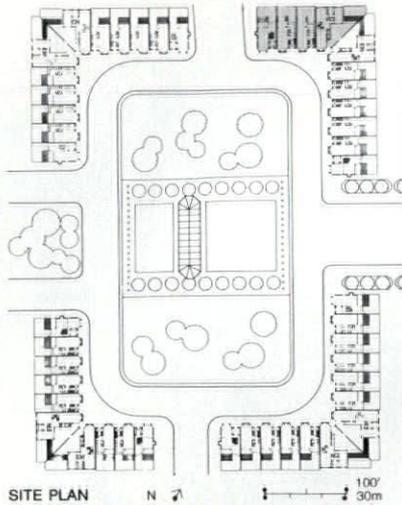
Because of their position surrounding the main square, the houses are designed as three different types that recognize the end, turning, and connecting conditions of the site. The corner, court, and townhouses are all of around 3200 sq ft, with three bedrooms. Inside the units there is usually a clear separation of uses, with the service elements of stairs, baths, and kitchens on one side and living areas on the other. The spaces are big, open, and light, and are designed for natural cross ventilation. In each 24-ft-wide unit at least one very large interior space is provided (which can attain 54 ft), and this, coupled with exposed steel stair structure, glass



Each townhouse has private deck at rear (above) over two-car garage; the front (below) faces main square that will be enclosed by similar units.



Ghent Square Townhouses



end walls, and attached greenhouses, can produce an interior of bright high-tech ambience that would not be expected from the outside.

The big chimneys

It is evident from the exterior of these houses that Barton Myers knows his Tidewater Virginia well (the family has lived in Norfolk for 200 years, and the grandfather planned much of the existing city). The houses are clad in a reddish-brown brick laid up in Flemish bond, which is traditional to the area. But certainly the most conspicuous feature of the houses is the combination chimney/bay window/balcony at the front of each unit. While the huge form might appear unusual to an outsider, in itself it would not seem strange to a Virginian, although its combination of functions might. This particular oversized chimney form can be found throughout Colonial Virginia, and traces its origins at least back to English Gothic architecture. In using the form, however, Myers did not simply take it as given, but turned it into a new combination of uses. Its blank lower front portion provides privacy from the public square; the angled side windows give oblique views from the living room, which is otherwise oriented toward the rear, enclosed courtyard (above the double-car garage). On the next level, the form gives the master bedroom a protected porch facing the square, and above that the top bedroom has either an open or protected porch, depending upon the unit type.

One of the complaints some prospective buyers have about the houses is that there is no way to get to the kitchen without going up stairs. However, the stairwell of each unit is designed to incorporate a small lift, and it is not impossible to believe that those who could afford these houses could also afford the extra cost of a lift. But even if the buyers don't get the lift, they still get something that is hard to come by

elsewhere in Ghent Square or in Norfolk, and that is a house that reflects more than just the conventional aspects of architecture. [David Morton]

Data

Project: Ghent Square Townhouses, Norfolk, Va.

Architect: Barton Myers Associates, Toronto. Barton Myers, principal; J.M. Kirkland, Kristine Martin, Robert Hill, Rosalba Galati, David Oleson, and Barton Myers, project team.

Site: urban renewal district surrounded by residential housing.

Program: 46 three-bedroom luxury houses with private exterior space and garage parking for two cars; required to recreate traditional ambience of surrounding neighborhood; single-family attached units built at 24.5 per acre.

Structural system: concrete footings, concrete

block foundation walls, block and stud wall load-bearing partitions, wood joist floors and roof, basement floor concrete slab on grade.

Major materials: brick veneer front façade, horizontal clapboard siding rear façade, lattice cedar rear garden walls, two-coat plaster or gypsum board interior walls, plywood floors (see Building materials, p. 120).

Mechanical system: two-zone forced-air system fed by gas-fired heat pumps on roof of unit.

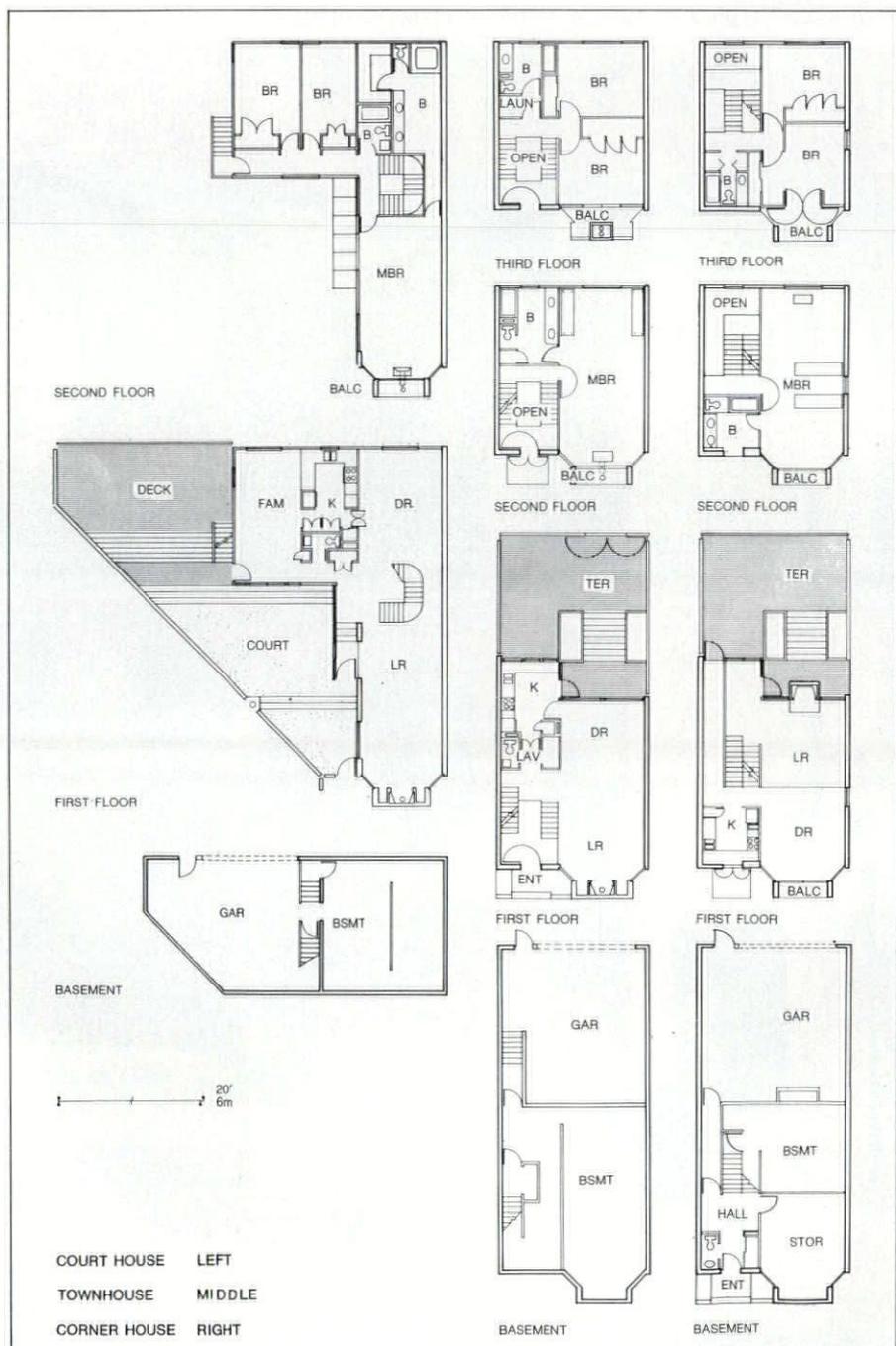
Consultants: Barton Myers Associates, landscape; Read Jones Christoffersen Ltd., structural; Nicholas Ruzs Associates, mechanical; A.J. Vermulen, chartered quantity surveyor.

General contractor: J.G. Horton & Son Construction Corporation.

Costs: not available.

Client: Ferebee & Cullifer, Inc.

Photography: Robert Lautman.





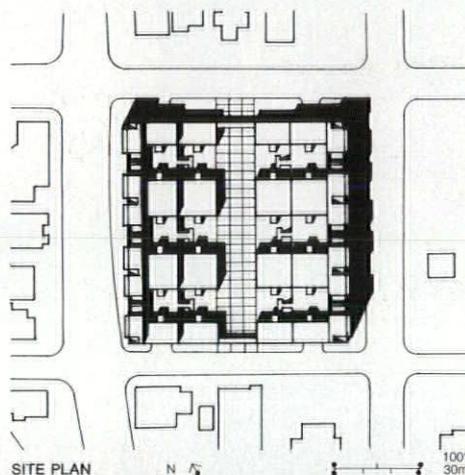
Compound interest

Changing realities in the housing market are beginning to produce new responses in architectural form. This transitional project suggests the shape of some things to come.

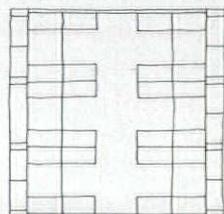
Housing in Houston, Tx, has generally taken the form of the single-family residence, and any historical survey of housing types there produces a distinctly anti-urban impression. Apartment housing, even condominiums which physically resemble the image of high-rise, high-density housing, has never caught on. A favorite has been the duplex, and its contemporary version has emerged, even in condominium form, as the "garden apartment," a somewhat higher density development where group form defines a series of related courtyard spaces.

Within the last half-decade, changing realities of urban living have begun to create the need for new responses in housing. Houston has begun to have its share of transportation problems. But, as a city where 40 percent of the incorporated area is undeveloped land, the potential for infill development or housing more closely related to centers within a dispersed network has given rise to new forms to fit a changing context.

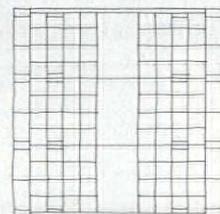
As was reported in *Harper's* (December 1978), "The price of land has consistently risen faster than the consumer price index. Land values are outpacing population growth by a ratio of ten to one. At the end of last year, the average price of residential land was rising two to four times faster than the price of the house that would sit atop it." In addition, financing costs—interest rates—have nearly doubled since the late 1960s, and sales prices have gone up correspondingly. Sociological patterns have also indicated an enlarging market of people who are willing both to live closer to work and to have less outdoor space di-



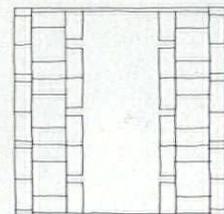
SITE PLAN



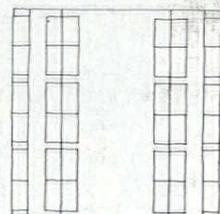
LOVETT SQUARE



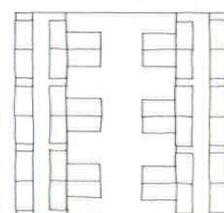
BASIC TARTAN



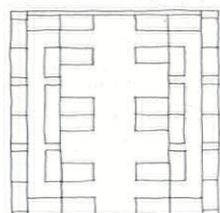
BALDWIN SQUARE



FANNIN SQUARE



BAKER SQUARE



SMITH SQUARE

rectly associated with the dwelling unit. All of these pressures have contributed to a need for higher-density housing forms, making greater use of available land in desirable locations and better efficiencies in development and construction.

Transitional prototypes

Because of a variety of historical circumstances, Houston contains fairly large tracts of land in proximity to the Central Business District and with easy access to multidirectional freeways. These tracts now contain a hodgepodge of uses (since Houston has no zoning), yet readily could lend themselves to more intensive redevelopment. As extensions of the original city tracts, the majority of these blocks are 250 ft square.

Bill Cannady, principal of William T. Cannady Associates, has had a personal interest in this issue for some time. As a professor at the Rice University School of Architecture, he has offered numerous design studios investigating the potential patterns for housing within the central city square block, hoping to discover some basic principles which reconcile intentions for good housing standards with the constraints of the actual marketplace and city requirements. In this way, the distance between theory (in the academic world) and practice (in the world of a small office seeking commissions) has been kept close, so that one aspect informs the other.

One bias which Cannady brought to the problem is toward a redefinition of streets by pushing building fabric to the edges of the blocks. However, Houston has no sliding scale ratio of the number of automobiles to the number of bedrooms, and the need to fully provide for parking as well as to create a direct parking-to-unit relationship was clear. The garden apartment model simply was not applicable in an inner-city context, since it generally separates units from parking and consumes

more land in the process. Wood-frame construction was dictated by the scale of the potential projects, limited to three stories in height (although actual height can be increased through a complex formula interpretation of "mezzanines") with two means of vertical egress.

An examination of the typical room program for the target market gave rise to some magic numbers which began to work well with the city block dimension. A subdivision of 62.5 ft worked well with parking, and a unit dimension of 20 ft worked well with internal spaces as well as exterior space design. In terms of group form configuration, other contextual forces were responded to, primary among these being a recognition that north-south streets are generally one-way feeder streets to or from the CBD, while east-west streets have less traffic on them. This seemed to warrant a more uniform, tightly configured perimeter along the high-volume streets. Additionally, in terms of group form, the concept of a central open space as focus with modulating sub-spaces would define the vocabulary of exterior space configuration.

The sum of these principles led to the evaluation of a prototype "tartan grid" (see diagram) which contained within it a number system synthesizing aspects of program, vertical staircases, parking, a geometry of open space, and variations in building massing. This tartan grid became the tool with which a gradual evolution of specific solutions to the new urban housing problem could be developed.

Lovett Square (see P/A Awards, Jan. 1978, p. 79) was the first of a series to be designed from this grid; therefore, certain specific concessions had to be made to overcome market resistance as well as to respond to the particular transitional context within which the project would be developed. Its basic principles were the same as those which Bill Cannady and his design teams have used in subsequent projects within Houston's central area (see diagrams).

First steps

One of the first impressions of Lovett Square is its image, approaching that of an enclosed compound. By placing the parking along the perimeter north-south streets and constructing this portion of the project in concrete (with a three-hour rating), it was possible to develop three-story elements over this in wood frame (with a one-hour rating), resulting in a total height of four stories at the outer edges. It is these edges which read nearly continuously and contribute to the overall sense of enclosure. Parking at the lower level, which is organized as one-way in/out from the side streets, is enclosed behind metal grilles, which in turn will be landscaped and



Image of contained compound (above) is emphasized by nearly continuous wall on periphery.



Visitors' entrance (above) leads into central spine connecting six clusters (below).



Lovett Square

vine-covered. However, the essential reading at this scale is that of a wall.

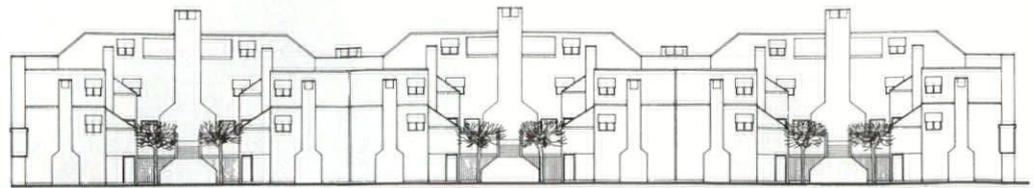
Contrasting with this is the step section which becomes apparent on the east-west, more quiet, tree-lined streets. Here one becomes aware of the principal interior court, the articulation of the six clusters containing six units each, and the circumstantial events of fireplace enclosures, stairs, and entry/balconies.

It was Bill Cannady's intention to develop exterior spaces without providing particular courts or patios for each unit. The developers responded positively, and the insertion of the perimeter parking level created secondary raised courts flanking the central spine. It is the footprint of the building over this arrangement which suggests an association of exterior space with individual units. It will be interesting to observe to what degree and in what fashion owners attempt to associate any of the court spaces with specific units. The central spine running north-south connects the two public entry points and ties the clusters together. In an elaboration of an earlier diagram, the crossing of the spine with the opposing courts of east-west clusters has become articulated as a kind of miniplaza. This is also the point where variations in planting will create separate identity for each cluster (redbud, sycamore, sweet gum, etc.). All of these slight elaborations would seem to provide sufficiently articulated spaces so that each unit can have a sense of associated space; this is furthered by the opposing step-terraces which create a false perspective and make the distance between clusters appear greater, or give the illusion that each individual unit might lay claim to a piece of the exterior without its actually being physically defined.

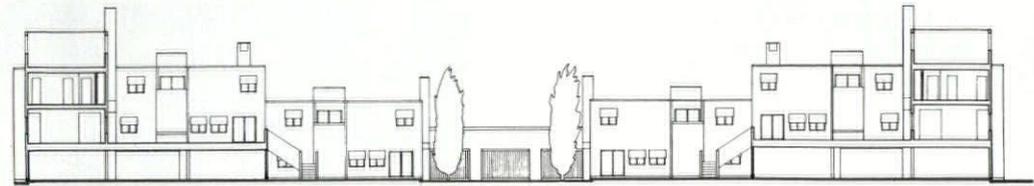
Defining your type

There are actually only two unit types, although the position within the section and relation to an end condition effectively provides six unit variations. Two-story "A" and "B" units differ in that the former have direct kitchen access from parking and the fireplace is rotated in plan. Otherwise, the end conditions also provide for minor differences between all three unit types. Unit "C" is a three-story variation and has among its features the largest exterior terrace, a true roof garden overlooking the entire complex, providing a diagonal view above trees to the CBD skyline.

The architect's role in the development process was an evolutionary one. As may be seen in the published plans for the "C" unit, the original concept for space planning called for the kitchen core to act as a divider. However, the developer insisted

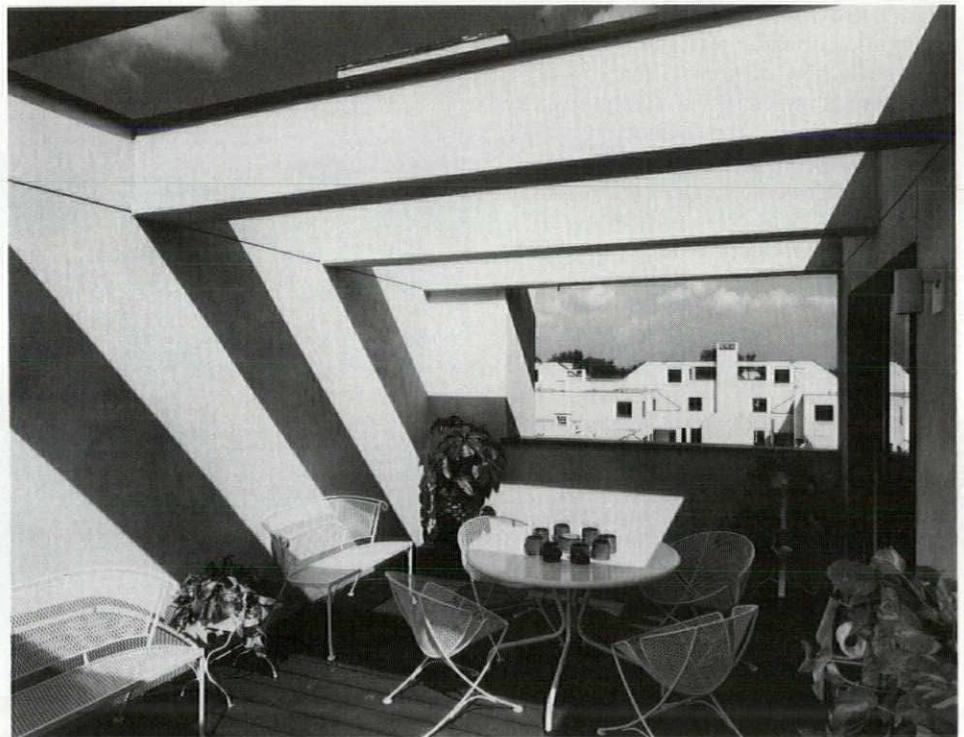


SECTION — NORTH/SOUTH



SECTION — EAST/WEST

20'
6m



Upper-level roof terrace (above) evokes truly urban character of high-density housing (below).



on one large room, correctly so as Bill Cannady freely admits, since many of the owners are moving from large homes and the single space allows them to keep more of their furnishings. The "A" and "B" plans reflect the changes made as the project advanced; because of the single 20-ft truss-joist span, this change could be accomplished late into the project. This shift to be defined as an interior threshold against the vertical staircase, but the gains for the "C" unit, because its vertical stair is located against a sidewall, have to be measured against an entry which unfortunately now opens directly into the living area.

While the Cannady team was asked to provide complete plans and layouts for kitchens and baths, no interior elevations were made. Decorators developed interiors for owners so that, while most cabinetry was prebuilt, for example, there are some ten finishes. This does not include the selections of carpeting and wall covering which abound. Fortunately, the architects were able to continue the Saltillo Mexican tiles used for the exterior courts throughout the ground floor, and many decorators took the cue to trim the fireplace enclosures in the same finish.

Exterior treatment was developed initially by creating a "spec" for each room (e.g., center on fireplace) as well as special considerations (e.g., cross-ventilation). Variations were then introduced for particular circumstances, and the exterior pattern was developed by setting certain continuous lines by the expansion joints of the stucco finish and allowing certain interior elements on a regular system to read through (e.g., stairs, 20-ft bay an interactive resolution between hard-nosed pragmatic standards and visual or compositional issues.

Such is also the case in returning to one of Lovett Square's fundamental criteria: the relation to parking. All units are intended to be entered through the public courts, and while the "A" units have the direct access already mentioned, the secondary fire stairs have also been located so as to be equally convenient within the parking garage and to serve in turn as a "back door" which, at the second landing, enters directly into the kitchens for "B" and "C" units. Therefore, there is both a diagrammatic clarity of the relationships to the intentions for group form, and a recognition of some of the more basic criteria for individual units.

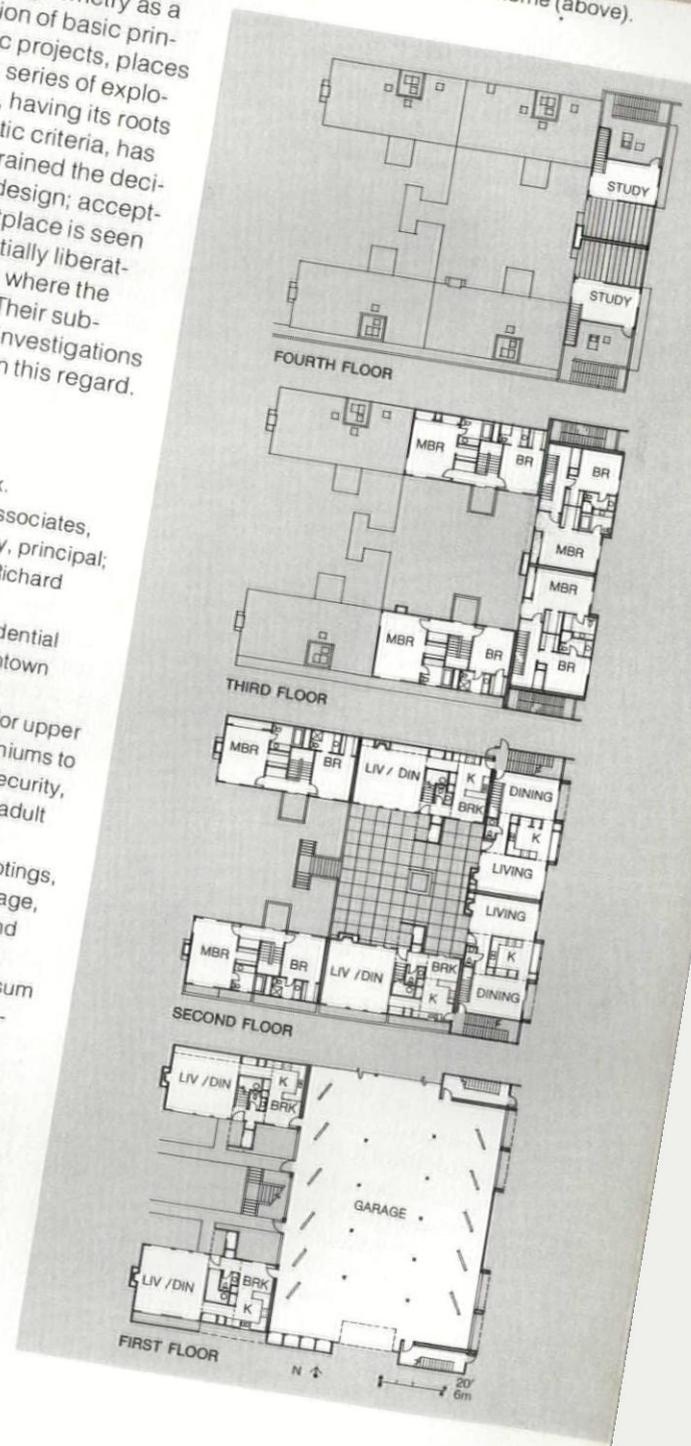
It is through treading the fine line between realities of the development market and true innovation that the Cannady office has begun, in Lovett Square, to provide for a new form of Housing in the Houston con-



Organization as a series of clusters along a common linear spine is basis of scheme (above).

text. The analysis of urban geometry as a potential for the elaboration of basic principles, in terms of specific projects, places Lovett Square as one of a series of explorations. The methodology, having its roots in a specific list of pragmatic criteria, has informed rather than constrained the decisions during the course of design; accepting the criteria of the marketplace is seen by Cannady as being essentially liberating, challenging those areas where the designer can be innovative. Their subsequent projects and further investigations will continue to be of interest in this regard. [Peter C. Papademetriou]

- Data**
- Project:** Lovett Square, Houston, Tx.
- Architects:** William T. Cannady & Associates, Inc. Design team: William T. Cannady, principal; Robert Anderson, Nonya Schwartz, Richard Beard.
- Site:** 250' x 250' block in low-rise residential neighborhood located at edge of downtown Houston commercial district.
- Program:** speculative housing project for upper middle class market. Thirty-six condominiums to provide a variety of unit types, privacy, security, and a sense of community for a primarily adult market.
- Structural system:** under-reamed bell footings, post-tensioned slab, precast concrete garage, columns, beams and slab, wood trusses and joist.
- Major materials:** stucco exterior walls, gypsum board interior walls, bronze-aluminum single-hung windows, ceramic tile floors, built-up roofing (see Building materials, p. 120).
- Mechanical system:** electrical heat and air-conditioning system with split coil condensers.
- Consultants:** Nat Krahl & Associates, structural.
- Client:** Beard, Joubert, Rathjen Development, Doyle Beard.
- General contractor:** Beard Construction Co.
- Costs:** approx. \$1,800,000; \$30 per sq ft.
- Photography:** Rick Gardner.



Traditional weave

A satellite rising alongside an ancient Persian city adopts existing scale and texture for its residential quarters, deriving a strong circulation network from Eastern and Western sources.

Iran before the recent revolution seemed as hellbent on Westernization as it now seems determined to revert to earlier ways. Only a few of the administrators and professionals presiding over that phase of rampant progress respected the country's traditional construction patterns; fewer yet were able to demonstrate their application in today's world. Architect Kamran Diba, one of the most accomplished of Iran's U.S.-educated architects, succeeded in applying vernacular building patterns in an extension of the old city of Shushtar—a new town planned for 25,000 to 30,000, almost as large as the city it adjoins.

In order to match the schedule of a new industrial complex nearby, the new town had to proceed on an accelerated schedule. Master planning and first-phase design had to be accomplished simultaneously. Diba's firm, D.A.Z., laid out a linear city on plateaus across the river from the existing one, placing the first-phase development near the end of the existing highway bridge. Although the program called for worker housing only, D.A.Z. included provisions for expansion of Shushtar on both sides of the river. And although factory management was to be housed in a suburban development miles from town, the architects allocated parts of the new town to market housing that could appeal to executives. Other tracts were set aside, with utility installations planned, for low-income squatters.

The real breakthrough was the layout of the entire new town in a vernacular pattern, with 85 percent of units in one- and two-story structures, the remainder in four-story walk-ups. Diba refers to the whole

project as "high-density horizontal apartment houses." Vehicular traffic penetrates the first-phase neighborhood only in cul-de-sac parking areas. Individual units are reached via narrow pedestrian streets punctuated by small plazas. A main pedestrian spine is designed to connect five projected phases of development.

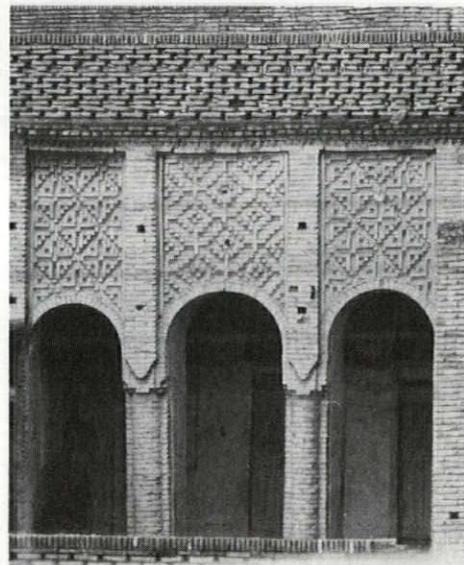
The whole concept is an appropriate response to the hot, humid climate of low-lying Shushtar, which has little water to divert from agriculture. The pedestrian streets offer continuous shade. Greenery is limited to a few highly visible and manageable public areas along the spine and to private courtyards in virtually all units.

Even though old Shushtar is largely brick-walled, the scale of the new construction required establishment of a new brick factory and importation of workers from as far away as Afghanistan. Impressed with the characteristic local brickwork patterns, the architects worked out typical details using corbeling, relief and pierced screen walls, and inserts of flat tiles. On the spandrel panels over private entrance arches, bricklayers were encouraged to work out their own relief designs. Areas of white stucco are used mainly around private courtyards, where they will be exposed to less wear.

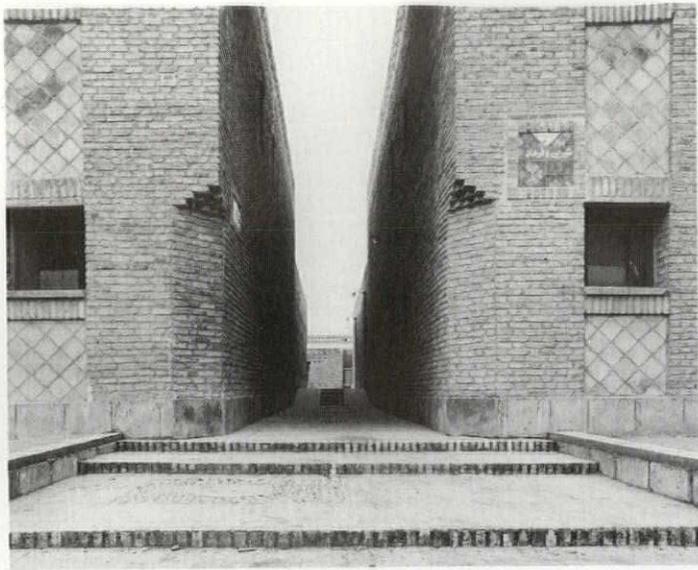
Housing in the first-phase neighborhood is limited to one- and two-story units with courts. The Western pattern of assigned rooms (dining room, bedroom, etc.) was rejected in favor of the tradition of fewer, larger multipurpose rooms, ranging in size from 3m x 4m (about 10' x 15') up to 5m square (16 ft square). Occupants can subdivide some of these rooms if they wish. The courtyard is definitely considered as another multipurpose room, usable most of the year in Shushtar's climate. Roofs, with appropriate stairs and parapets, are the evening quarters for the warmer seasons. Any housing units could be adapted as neighborhood shops or of-

fices, in the traditional manner, but the first-floor units of the four-story structures along the main spine are planned as the logical ones for such conversions.

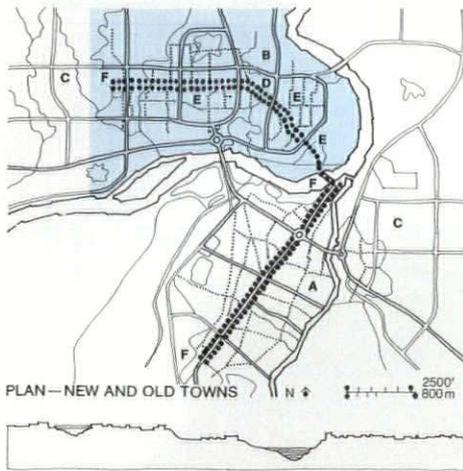
Neighborhood facilities such as the mosque and the baths are located at nodes in the small-scaled walkway system. Townwide facilities are planned to punctuate the main pedestrian spine. In the first-phase neighborhood, a central plaza astride the spine will be enclosed by a hostel, with shops and restaurants at ground level. West of the neighborhood, a covered bazaar, flanked by shop/housing units, is planned. Extending east, the spine will pass through a civic-cultural center, traverse a natural ravine, then thread through the easternmost neighborhood. It will end at a 100-m-sq plaza (a traditional



Indigenous brickwork such as that in nearby Dezful (above) inspired wall treatment of structures in the new Shushtar (facing page). Variety of brick corbeling, unglazed tile, and stucco panels, with glazed tile street signs, is echoed in paving treatment. Spandrel panels over house entrances (top right) display individual patterns composed by bricklayers.



Housing, Shushtar New Town, Iran



SCHEMATIC SITE PROFILE ALONG SPINE

Maidan), enclosed on three sides by a hotel-over-shops, facing the river, across which a footbridge is planned to connect to the main thoroughfare of the old city.

The overriding objective of the new Shushtar's planning and housing design is to provide an urban environment related to traditional patterns of social interaction. The architects' hope has been that the appeal of this formal structure would encourage mixing of economic groups and attract the natural growth of Shushtar, mitigating the "company town" stigma the project would otherwise have had.

To date, about 70 percent of the new town is under construction. The first phase, with 650 units of housing for about 4000 residents, is substantially completed, but remains unoccupied because of unsettled conditions. If and when the new Shushtar is completed and occupied, thousands of Iranians will have an urban environment appropriate for their traditions and Shushtar's climate. And they will owe it to a cosmopolitan architect's willingness to learn from the local past.

[John Morris Dixon]

Data

Project: housing, Shushtar new town, Iran.

Architects: D.A.Z., Tehran, architects and planners; Kamran Diba, principal in charge.

Program: new community for 25,000–30,000, adjoining old city of Shushtar (population, about 40,000); initiated to house workers for new agro-industrial plant, but designed to encourage mix of incomes and occupations.

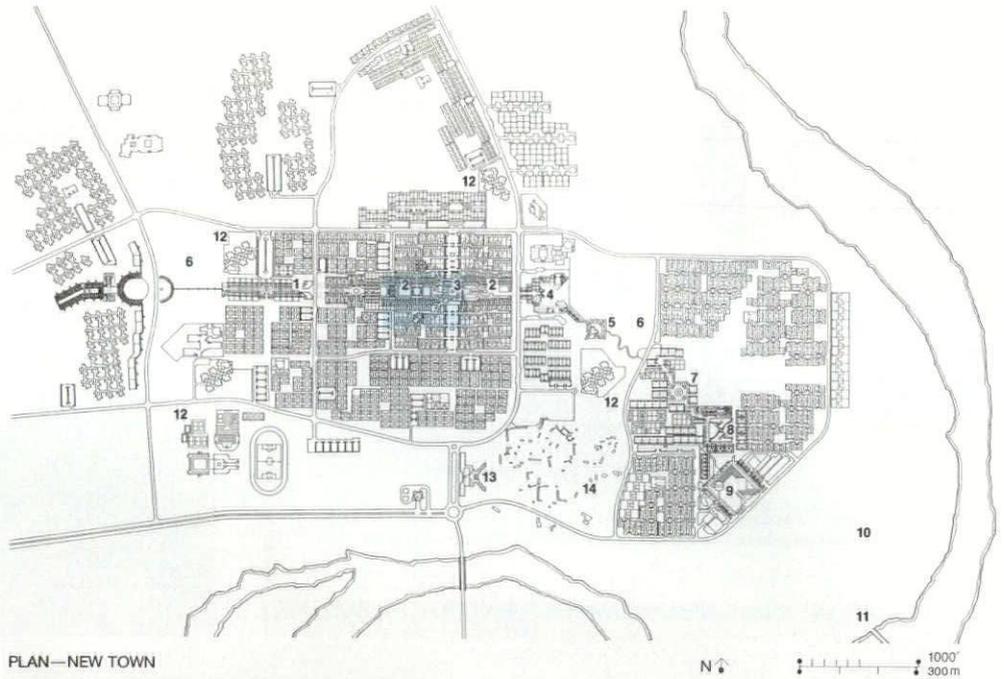
Site: two plateaus, separated by a ravine, across river from existing city.

Client: Iranian Ministry of Housing and Urban Development.

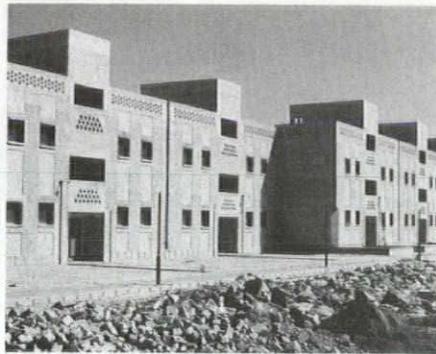
Structural system: brick bearing wall.

Major materials: exposed brick, white stucco, inserts of tile in walls and paving.

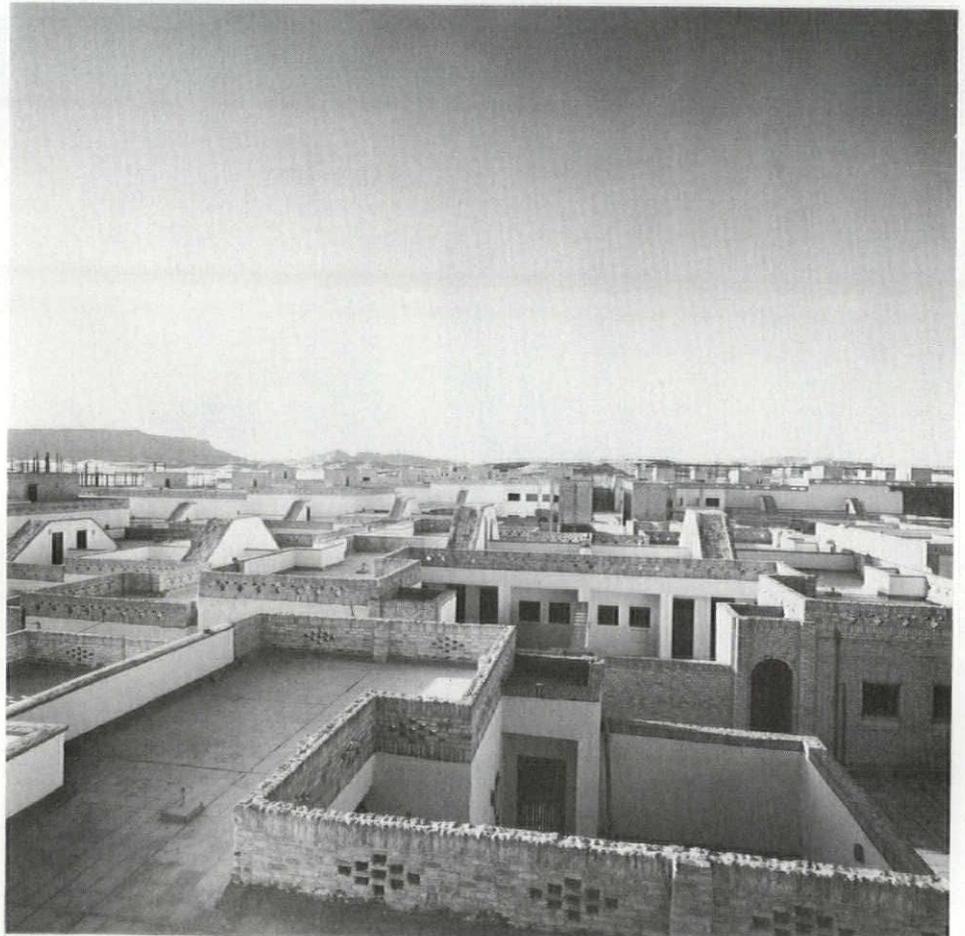
Photography: Bijan Zohdi.



PLAN—NEW TOWN



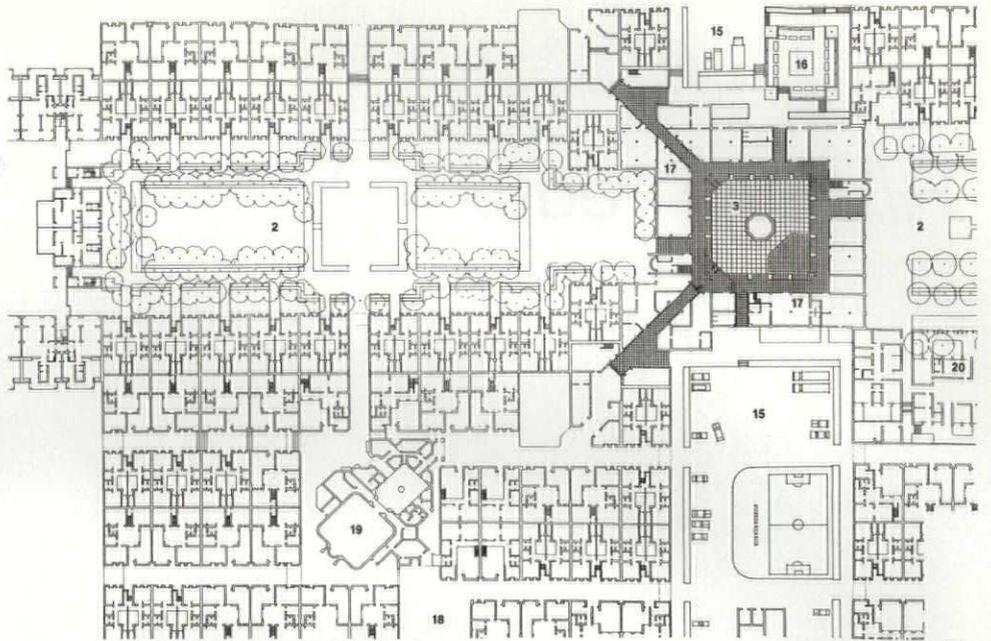
Along spine of first neighborhood (photos above) regular housefronts define greenway, screen wall at nursery maintains enclosure; private spaces include rooftops and stuccoed courts (below).



Legend for plans

- A Shushtar old town
- B Shushtar new town
- C Future extension
- D Civic Center
- E Neighborhood centers
- F Pedestrian spine

- 7 Pedestrian shopping plaza
- 8 Planted square
- 9 Main square (Maidan)
- 10 Wooded lowland
- 11 Footbridge site
- 12 School sites
- 13 Bus terminal
- 14 Existing village
- 15 Parking and delivery
- 16 Open market
- 17 Shops, hostel above
- 18 Neighborhood square
- 19 Neighborhood mosque
- 20 Nursery/Social services



PARTIAL PLAN—FIRST PHASE NEIGHBORHOOD



R/UDAT redux

An innovative AIA program sends teams of professionals to cities seeking urban design assistance. As the program matures, it must assess the nature of its success. P/A explores these issues.

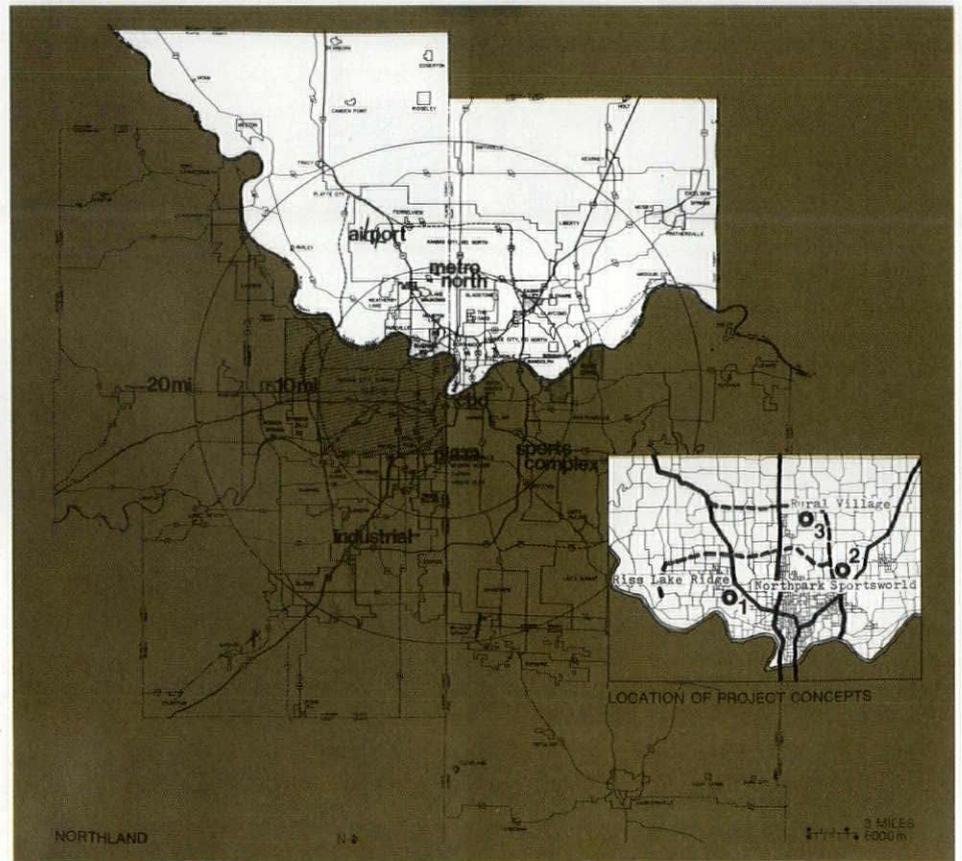
Of all the design disciplines, the urban design profession probably has been surrounded the most by mystery. Not a mystique, mind you, just mystery. What do they really do, these professionals who occupy a position between planning and architecture? In an ideal sense the R/UDAT process demonstrates that answer. Called the Regional/Urban Design Assistance Team (of which its acronym R/UDAT always raises the inevitable response, "Who-dat?"), the program has now conducted 58 charrettes in cities, towns, and rural areas across the U.S. It plans six to eight more over the coming year.

In 1967 the AIA established this voluntary program in which architects and other specialists form six- to eight-member urban design teams that visit a town or city at its invitation. There they survey the scene, hear all the citizens involved, interview local officials, conduct a charrette over a four-day weekend, then present to the town a report that includes recommendations on general and specific levels, with methods of implementation proposed.

As shown by the recommendations presented in the reports, the responsibilities and the interest of the urban design professionals involve the scale of problem-solving where the two disciplines of planning and architecture converge. Thus this kind of service is meant to help towns burdened with complex urban design and planning problems. Local professionals and governmental people may be impelled to draw on outside advice because of any number of factors, such as murky political situations or a lack of experience in a given area. The R/UDAT set-up be-

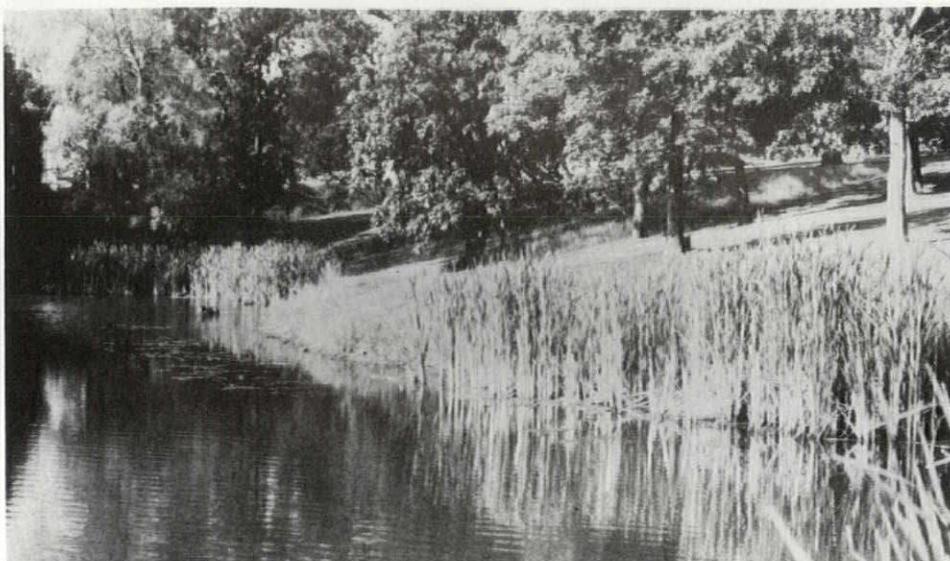


Discussion, hearings, and reconnaissance on Kansas City's Northland (below), photos (opposite).



Kansas City R/UDAT

Last June a R/UDAT team met in Kansas City to make recommendations on Northland, 150 sq miles of land immediately north of the Missouri River. An area noted for its natural assets, it is quickly being eroded by undirected residential and commercial growth, including the presence of an international airport, a regional shopping center, and an amusement park. In analyzing both the existing infrastructure and the farmland, the team searched for ways of promoting growth where it should occur, and restraining it where it shouldn't. They developed three "prototype" projects—a planned development of 2000 residential units, a sports complex, and a low-density planned rural village—to show how characteristics of the region could be reinforced and/or preserved through design. The report so far has only triggered discussion and meetings between citizens and local officials, in many ways the most that can be expected in this kind of situation. However, this discussion at least promises to raise a level of awareness of issues that must be confronted soon. Team members, led by Ben Cunningham, included William G. Conway, Herman Field, Lester Gross, Bryan Grunwald, Ernest Hutton, Sarah LaBelle, and Richard Westmacott.



comes even more attractive when the financial wherewithal does not exist to import private urban design expertise, or when the town suspects that hired guns from the outside may dream up those grandiose redevelopment schemes just to secure future design commissions.

R/UDAT team members cannot accept work resulting from their recommendations, either singly or as a group. To keep the image very pure, the urban design team members cannot even include local professionals who might gain some work if certain recommendations are adopted. The *pro bono* act of the R/UDAT team brings them only spiritual reward, a worthwhile experience, and the knowledge that they are helping to promote recognition of urban design services.

The inevitable question is, do R/UDATs bring results? Are the proposals of the eight members, aided by students of nearby architecture schools, of use to the community when all have come and gone? The full answer requires a post-evaluation analysis of all the R/UDATs held so far, an investigation that is finally being undertaken this year under the auspices of a \$20,000 grant from the National Endowment for the Arts.

It should be said, however, that the aura of accomplishment surrounding a "successful" venture, does exist in this program. Clearly it is not a loser. The program tends

to attract committed, intelligent, conceptual thinkers as well as pragmatists—problem-solvers in the best sense of the word. Because the planning of this program and its intensive guidance are so critical, much of the credit should go to the Urban Design Committee of the AIA, a maverick group with a reputation for having a mind of its own and a commitment to rendering professional services with a fervor that can only be described as "moral." In the last five years or so, under the leadership of Ron Straka, Jules Gregory, and Charles Redmon (and the strong involvement of David Lewis), the R/UDAT program has gained reputation and stature.

Assessing success

Naturally, any innovative endeavor such as this will have limitations and pitfalls—some developing over the years as a result of the successes. In the interest of a general discussion about the future development of this project, P/A has talked to a number of former participants of the R/UDATs to get their ideas on how the program might be improved and on the various situations participants and organizers may confront.

One of the basic questions about the process concerns the missionary aspect: The outside brigade of urban designers, planners, economists, real estate specialists, lawyers, and traffic engineers carries an image of the "miracle workers" riding into town—an image that should be

promoted in the local media if their actions are to be at all effective. With expectations so high, disappointment comes easily.

Should the process come off well, there are still questions about expectations and image. For example, while the R/UDATs promote the recognition of the urban design profession as a helpful agent of change, at the same time, one team member contends, the format further mystifies architecture: it gives the design process a zappy image—as if any complicated urban issue can be solved in four days by a bunch of honchos riding herd on recalcitrant problems. The fact that the report is still based on limited knowledge of a unique situation or locality is not often fully acknowledged.

The leave-taking

Another question facing R/UDAT teams, another designer facing out, concerns what is left behind. You can't just go away and leave a roll of drawings to collect dust, so the pressure is on to create graphic work, something tangible, something juicy-looking. This means a considerable chunk of time must be spent whipping it into shape. Pretty graphics and persuasive prose obviously rob the team of valuable additional hours that could be spent discussing the issues, scrutinizing their proposals.

The Knoxville R/UDAT (see details p. 75) diverged from the norm by *not* presenting



Photos: F. Harlan Hambricht

much in the way of drawings. The Knoxville team felt it better to avoid "glossy" images because of the ambiguities inherent in the task put before them. They were also aware, however, that the lack of images would be frustrating to the community that wanted to see some solutions.

It is understandable that architects feel constrained to leave more than numbers or maps to generate the momentum of change. But because of the time, several team members feel the charrette itself ought to concentrate only on formulating recommendations. They suggest that visual and textual backup be fleshed out soon afterward by a few team members and students.

Something of value

Another issue involves the nature of the recommendations. Because of the presentation reports, one planner feels strongly that the proposals often look more serious than they legitimately could be for the period of time in which they were developed. They seem comparable to a report that requires six to eight months to turn out. The tendency, he fears, is to turn in stock solutions. For example, the Kansas City R/UDAT report (see details p. 73) risked saying in effect, "Here are 67 tried and true ways of dealing with regional planning on this scale." R/UDATs can be most effective, this planner contends, at the very specific level. Trying to do both would of course be the desirable route, but it doesn't take much to figure out that getting to the gut issues and making solid recommendations on all things equally well cannot be done within the time frame of the process. On the other hand, participants in this "fast track" method maintain, four days of uninterrupted interaction among several experts occurs very rarely in everyday life: A typical report taking six months to prepare may never involve this degree of intense discussion among various disciplines simply because of the logistics. It helps, of course, for R/UDAT team members to know that four days of their valuable time is all that is required.

Specific advice

Trying to make helpful recommendations on specific issues may be fraught with as many drawbacks as applying the four

days' time to formulating general proposals. The specific situation can seem impossible to solve on the local level simply because an impasse between different factions has already been reached before R/UDAT arrives. In politically grounded situations there may be little R/UDAT can do besides lend support to a set of proposals that have already been submitted. Nevertheless, there is always the chance the local decision-makers will then take the recommendations more seriously.

If the R/UDAT does not suggest a politically palatable solution, observes one member, an atmosphere of intrigue may eventually suffocate any effectiveness the recommendations could have had. Just how often and to what extent proposals are doomed to dusty exile on library shelves remains for the post-evaluation report to disclose. The political situation in Knoxville regarding the future of the Energy Expo 1982, plus the government officials trying to promote it and the citizenry claiming lack of participation in its planning, left some of the R/UDAT team with a feeling that they could contribute only by addressing issues from a very general philosophical level. Taking the energy theme of the Expo and creating energy-conserving demonstration housing, to remain on the site, was one way they saw of focusing philosophically on the problem.

Because of politics, R/UDAT team members feel they should not offer their services to towns where they haven't been invited. Since the Urban Design Committee wanted to coordinate a R/UDAT with this year's AIA convention in Kansas City, in order to expose the large body of the AIA membership to the process, they did drum up the assignment to the city's Northlands. Some on the team wonder, however, if the city will do more with the recommendations than "study" them. In any event, they realize the publicity about the R/UDAT has encouraged local residents to be more vocal about some of the policies proposed.

Players who know how to play

Affecting the outcome of a report is the quality of interaction between local professionals, the city government, and the R/UDAT team, as well as the participation of concerned citizens. Also affecting the



Knoxville site for Expo '82 with tracks (above) to be removed; L&N Station (below) to be recycled.

results is the composition of the team itself. Many of the R/UDAT members will maintain that the role of the team chairman is especially critical. This team leader must supervise the mechanics of the report's production, while still being able to look at the general issues and assess the team members' proposals critically.

Group dynamics naturally plays an important part, and the experienced team members obviously set the pace. But problems can occur if some participants have tunnel vision. Ironically, representatives of certain disciplines are asked to join just because of their areas of expertise. If they insist on making a contribution based *only* on that expertise, however, then the process can fail to reach a higher level of creative problem-solving. The report can end up presenting detailed solutions to particular problems, ignoring or glossing over others.

To maintain a balance, some of the R/UDATs have taken advantage of state grants to fund the inclusion of "humanists," that is, sociologists, historians, philosophers, anthropologists, even theologians, to complement the battery of design professionals, economists, engineers, developers, and lawyers.

The participation of this second group provides a strong philosophical component to the team, and means that a locally based dimension of information can illuminate the design thinking—without fear of conflict of interest.

Regional Urban Design Assistance

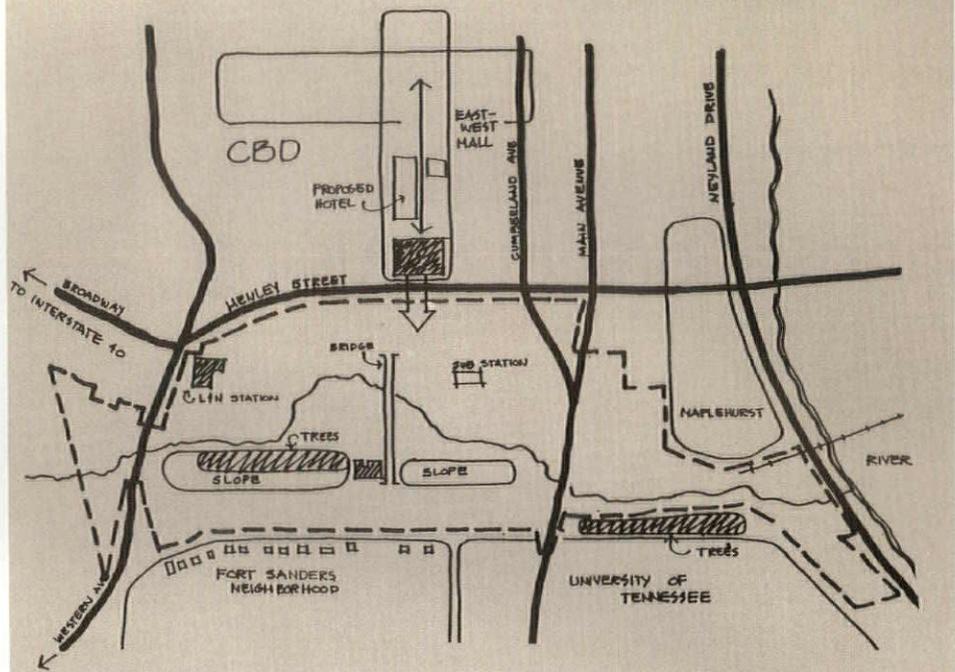
On the other hand, the sheer numbers of participants on the team from all the disciplines can affect productivity. Their input—in addition to that derived from public meetings—requires the team to spend more time absorbing information. With the Knoxville R/UDAT, one team member commented that the process would have moved more quickly if all the people speaking at the hearing, for example, could have been limited more severely in the length of their presentations. The team could then have gone back to interview some speakers more intensively.

In terms of the charrette method itself, most architects, urban designers, and planners are quite comfortable with its process and the results. But it can drive other experts such as lawyers and economists up the wall. Some members do not like the idea of putting in an "all nighter" before the report goes to the printer. Others may not be physically up to it, but some seem to thrive.

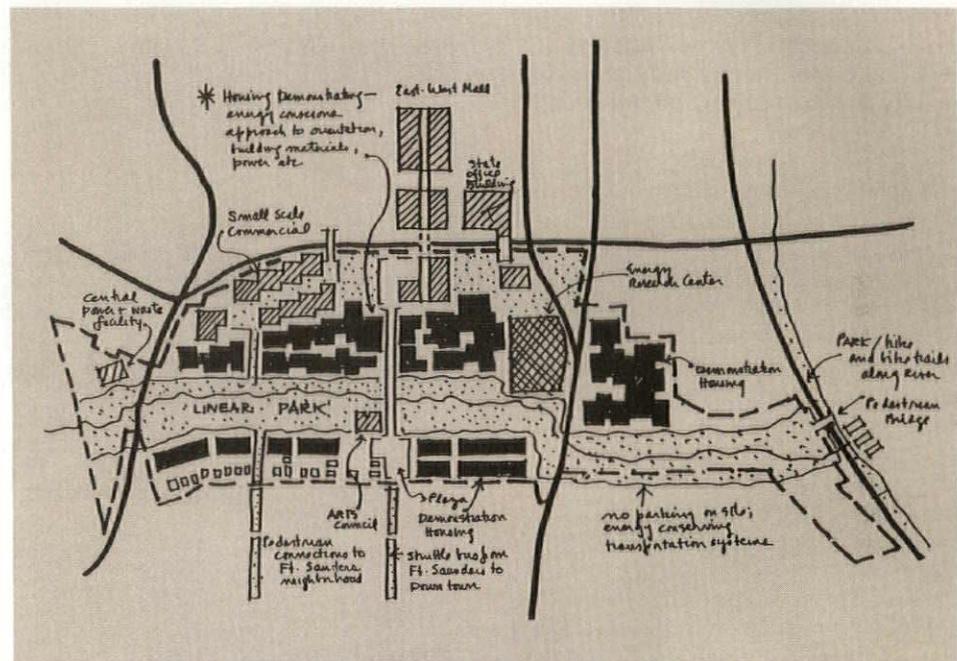
Still the intensity of interaction in these charrettes is seen as quite valuable by all: Even if there were more time, many members insist, that time would be spent discussing questions that might be superfluous. For example the Knoxville team could have spent the whole time discussing whether or not there should be an exposition in 1982, rather than addressing the serious question at hand: since an Expo is planned, what can the city do to enhance its residual effects?

All in all, looking at the number of applications for its services and surveying the reports, one can see that the program is a success—at least through the report stage. Despite weaknesses or drawbacks mentioned above, one has to marvel at the depth, breadth, scope, and invention found in most of the reports. They appear generally on a par with, if not superior to, ones submitted by professionals who get paid for their efforts. The follow-up study should illuminate the next critical area: What happens to those recommendations, and do they prove helpful in the end?

To maintain those strengths and make the process more effective, R/UDAT organizers may have to revise the format. When the process was formulated a decade ago, few professional services of this kind existed for towns and cities to tap into. Now that the urban design profession is better known, local urban design professionals are present who could be enlisted. One urban designer suggests that these local firms should be involved more routinely in the follow-up stages. But for that to happen, a new relationship needs to be worked out. Perhaps a R/UDAT on R/UDATs is next. [Suzanne Stephens]



EXISTING INFLUENCES



SKETCH PLAN

Knoxville R/UDAT

The R/UDAT team comprising urban design and planning professionals plus eight humanists—including historians, theologians—met last March to determine their recommendations for the 78-acre site. Now occupied by an old railroad yard and some run-down buildings, the parcel of the Second Lower Creek Valley land separates the CBD from the University of Tennessee campus. It is slated to be the grounds for Expo '82, the international energy exposition which the city of Knoxville sees as a means to infuse vitality into downtown as well as redeveloping the existing site. The U.S. Pavilion is being designed by Finch, Alexander, Barnes, Rothschild & Paschal, Inc. of Atlanta, but so far lacks final congressional approval for funding. McCarty Bullock Holsaple are master planners.

The major thrust of the R/UDAT report was to determine what should happen to the site after Expo, including future uses for the U.S. pavilion. The team members proposed transforming it into the nucleus of the energy capital of the world, a "town-in-town" that would include 500

units of demonstration energy-conserving housing, with ultimately 2000 more units built downtown. The U.S. pavilion is recommended as an energy research lab for the university; the L&N Railroad Station to be recycled.

One of the meatiest sections of the report is a sophisticated analysis of the sort of public and private organization structure needed to implement these proposals.

If there were any serious weaknesses to the report, it was the development of certain aspects at the expense of others: information about the exact nature of the energy-conserving dwellings, as well as projected costs and marketability, was sorely lacking.

Members of the team included Joe Champagneaux, Dan Gatens, Frank Kelly, Percival Goodman, John Gallery, Pete McCall, Alan Mallach, Peter Rothschild, representing the planning professionals, and Marian Moffett, Riggins Earl, Ferdinand Hilsenki, Michael McDonald, Reynell Parkins, Charles Reynolds, Bruce Wheeler, and William MacArthur representing the "humanists."

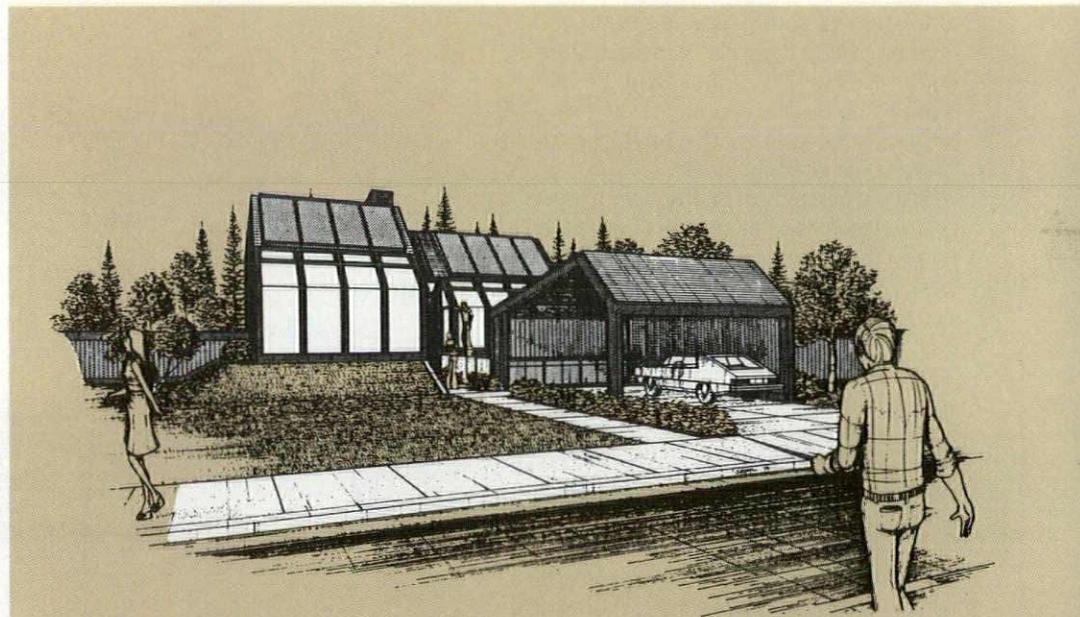
Innovations in Housing

Again, American Plywood Association, P/A, and Better Homes and Gardens see quality and quantity in housing designs.

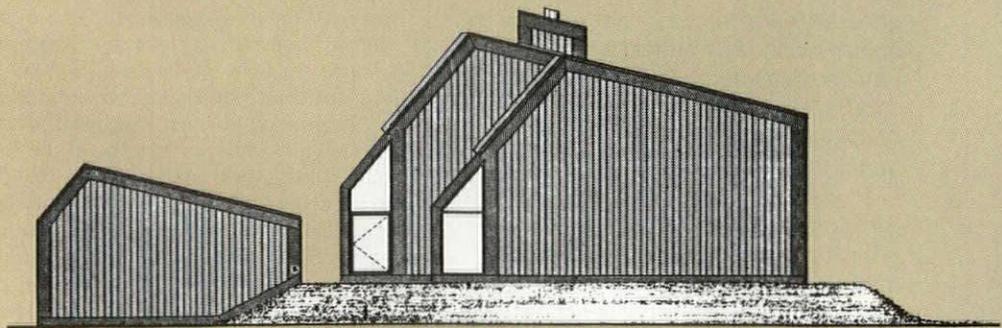
For the second consecutive year the entries poured in, and Innovations in Housing presented the jury with a real challenge. Entries this year rose to 390, 120 more than last year. Again, the jury looked for design innovations, marketability, energy consciousness, and quality, this time with added emphasis on expandability and tighter area requirements. Jurors for the program were Stockton, Ca, builder Charles "Pat" Patmon, architect Robert Burley of Waitsfield, Vt, Noel "Red" Seney, Building and Remodeling Editor for *Better Homes and Gardens*, and this writer.

As always, the question of whether design quality and marketability can coexist was a prominent one, arising many times during jury deliberations. Some of the winners show a more positive answer to that question than others, of course, but one of the purposes of this competition is to encourage efforts to couple the two aspects. There is no doubt that some very good design was passed by because the jury felt it to be too sophisticated for the "average" homebuyer. Still, the winners selected do represent a high level of quality and thoughtful response to a variety of housing needs. Some addressed the problem of attached housing, while others chose to stick to a single, expandable house. As with last year's winners, some of the Merit Awards went to submissions with high design quality, but posing some questions.

Although the documentation of energy efficiency is too lengthy to publish with these schemes, each included data to confirm the designers' efforts to that end. We sincerely appreciate the extremely thorough work that went into most of the entries, and we look forward to a successful 1980 program. [Jim Murphy]

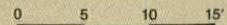


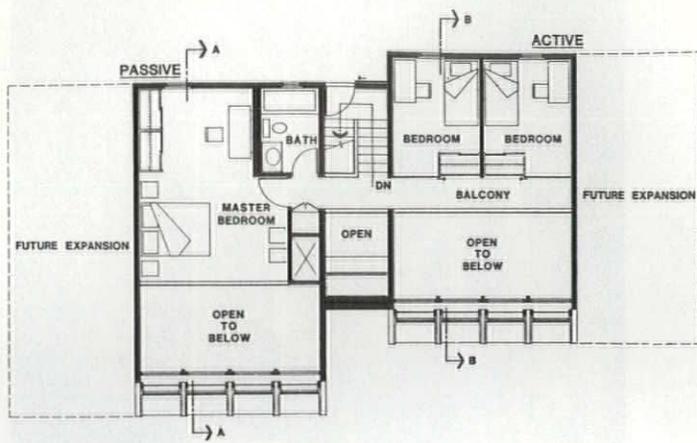
PERSPECTIVE



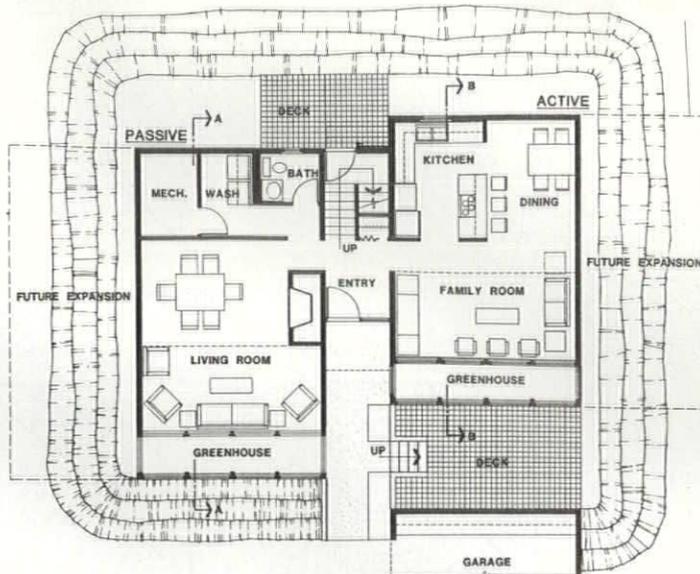
EAST

ELEVATION





UPPER FLOOR PLAN



MAIN FLOOR PLAN

0 5 10 15'

First Award

Dale R. Leyse
Daniel L. Griffith

Along with the \$5000 First Award prize, the architects will receive royalty payment from *Better Homes and Gardens* for the sale of completed plans. The house will be built under the guidance of The American Plywood Association, with input from BH&G and P/A. This scheme shows a dramatic number of optional expansion possibilities not fully shown here. It can begin as a "single" unit with the entry/stair core either as indicated or flipped. It can also be added to or built as a "family" unit, with further expansion in either east or west direction, or both. Energy considerations include earth berming, passive solar features—such as a greenhouse, floor slab for heat storage, and insulating shades—and active collectors for supplementary heat and hot water.

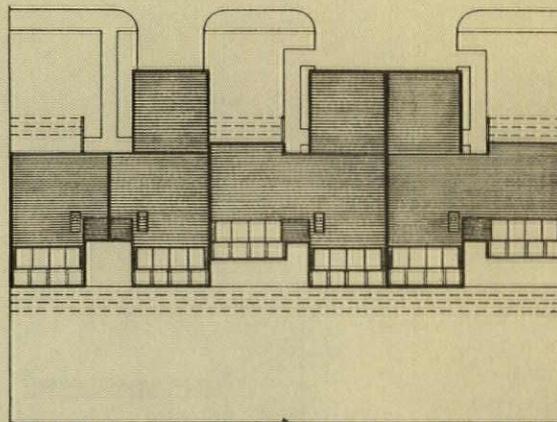
July comment

Patmon: I felt that, of all the entries, it is the most practical from a construction standpoint and as a highly marketable package. The character is contemporary, yet it gives a warm feeling with sloping roofs and exterior plywood.

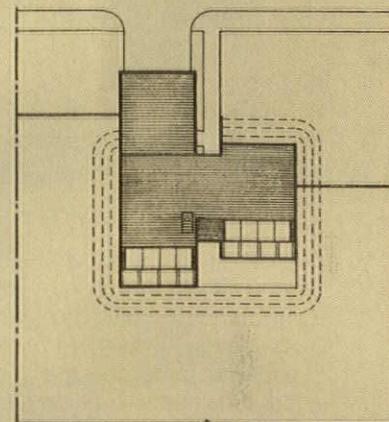
Burley: Because this house is three elements, it lends itself to a variety of architectural treatments, with the basic design repeated within a development area. The buildability plus its attractiveness makes it a project that should be constructed to demonstrate what can be done.

Seney: The styling strikes me as something very palatable to many people. It's fresh without being extreme; it's probably describable as middle of the road in taste.

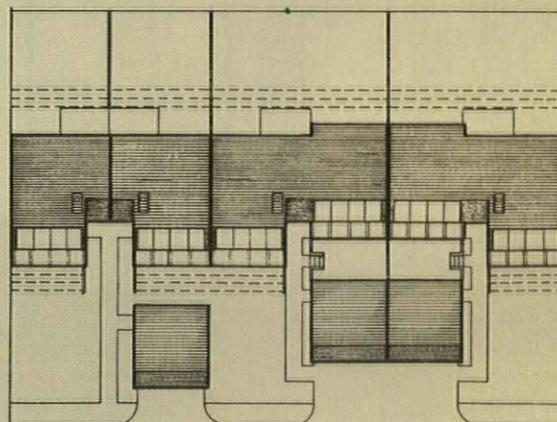
Murphy: I don't think it's the most dynamite piece of architecture we've seen, but it seems like a very marketable, very flexible, and usable plan.



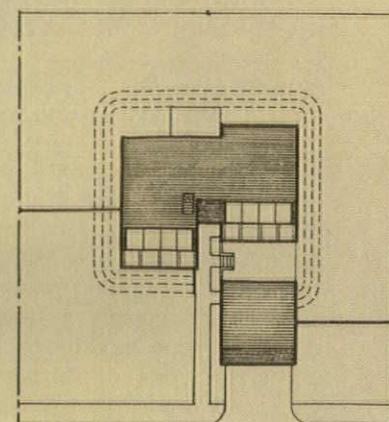
- ATTACHED SINGLE & FAMILY UNITS
- ACCESS AT NORTH
- ATTACHED GARAGE



- DETACHED FAMILY UNIT
- ACCESS AT NORTH
- ATTACHED GARAGE



- ATTACHED SINGLE & FAMILY UNITS
- ACCESS AT SOUTH
- DETACHED GARAGE



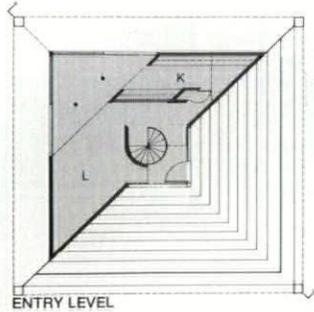
- DETACHED FAMILY UNIT
- ACCESS AT SOUTH
- DETACHED GARAGE

SITE PLAN

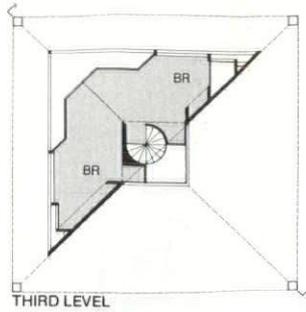


0 10 20 30 40'

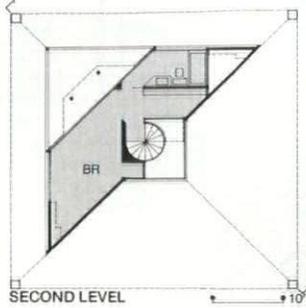
Innovations in Housing



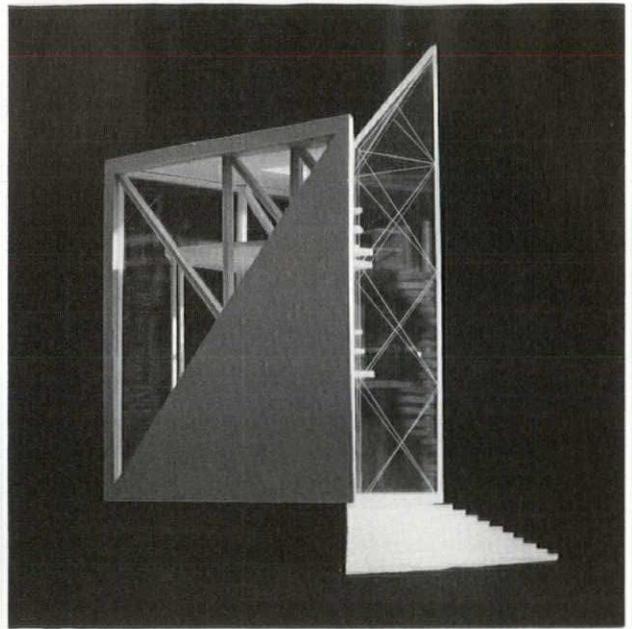
ENTRY LEVEL



THIRD LEVEL



SECOND LEVEL



Special Citation

Peter J. Zweig
James E. Deininger

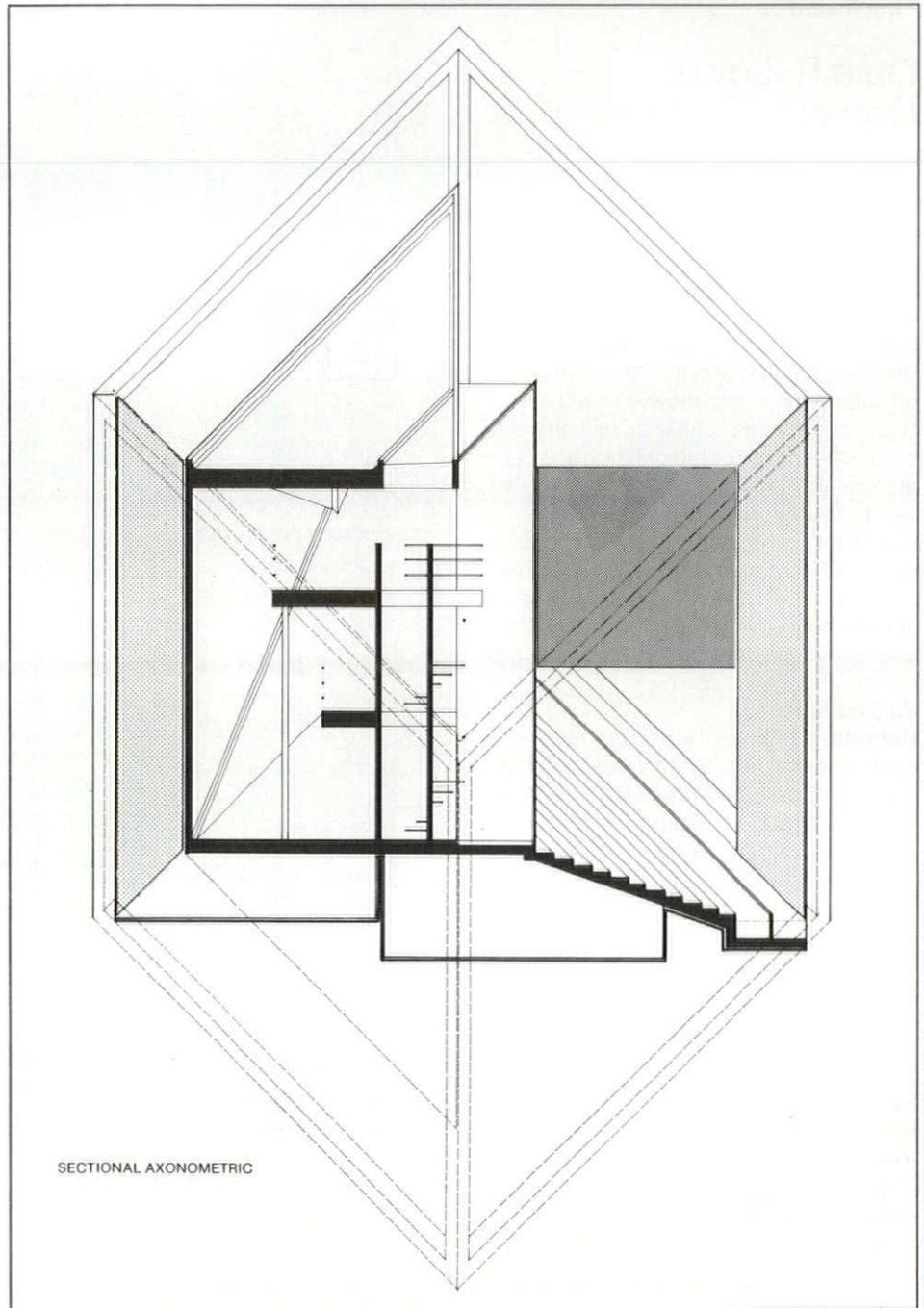
Recognizing the need to acknowledge that design excellence is a quality of the highest priority in the jury's search, a special citation was voted for this skillful abstract house.

Jury comment

Burley: I think it's one of the most forward-looking entries in the entire group. I believe it anticipates technologies that may not be available now—but this sort of opportunity to see what forms housing might take can encourage those technologies to develop. The form and space arrangement of a cube within a cube and the entry element is, I think, a very exciting piece of architectural design. I think people should see it so that it will encourage designers to look into other alternatives that may become possible in the future.

Murphy: I think that that's definitely the case. It goes into the technology of what could be done. I think that it could be buildable now. I think that it is very exciting on the philosophical level and on the technical level.

Seney: This house is an example of the kind of forward thinking that we probably should be doing more of. The jury was glad to have the opportunity to review it and to create this special category for it, although it was not targeted directly on the criteria of the competition. The more the American public is exposed to this kind of far-reaching architectural thinking, the better educated they will be and the more able to live with changes in the future.



SECTIONAL AXONOMETRIC

Merit Awards

Bobbie Crump, Jr.

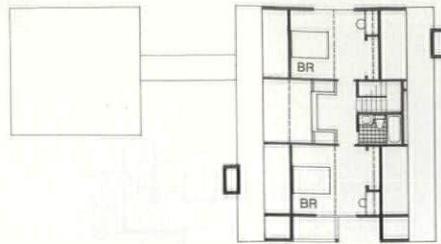
Jury comment

Murphy: Some of us like the directness of its plan and the very simple nature of its façades. It does suffer a little from lack of variety in its elevations. The straight-through shot to the kitchen was somewhat questionable. From the entryway, however, the kitchen and family room seem right. It's a very simple house, but I think its simplicity is one of its strengths.

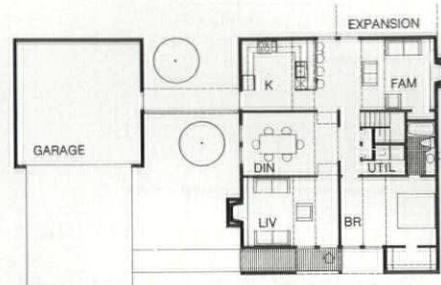
Burley: My feeling about this is very similar. It's an almost alarmingly simple house and I think it has real elegance in that simplicity. I think the recessed curved entrance is probably with us these days. We've seen people use this form in recent years. This puts that form together with a simple, compact house shape which answers the program requirements here. It's a buildable house, economical.

Patmon: I think the floor plan is in the category of an award winner with the exception of the lack of drama at the entrance. I disagree, however, with the other jurors concerning the exterior elevations—not enough drama for my taste.

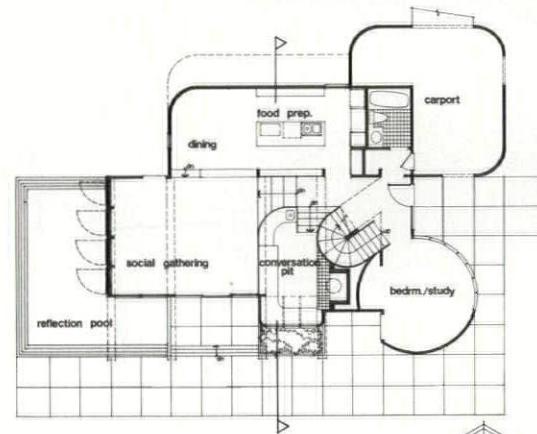
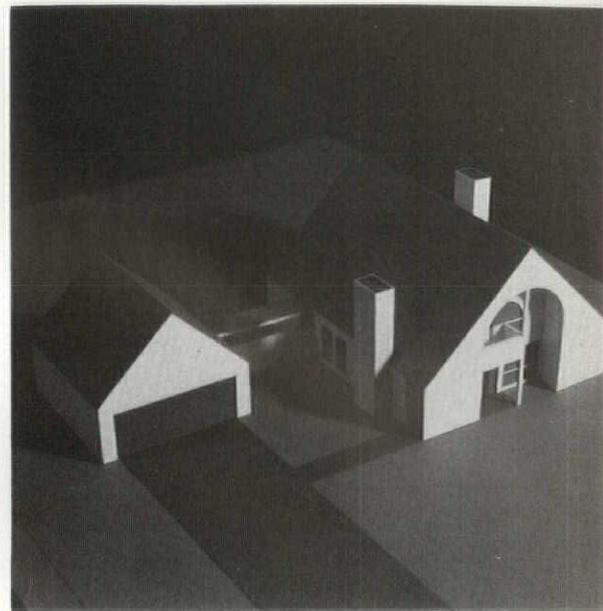
Seney: This design has used form and shape in an almost classic way. We do wish that the entry had shown some energy-saving devices in addition to the energy-conserving compact shape.



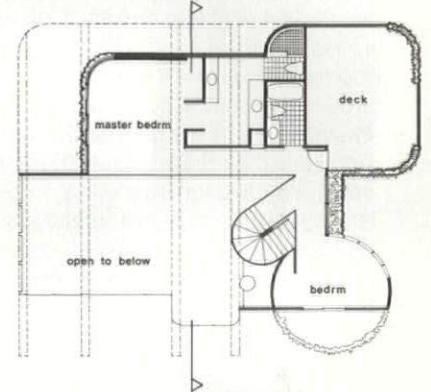
SECOND FLOOR



FIRST FLOOR



LOWER PLAN



UPPER PLAN



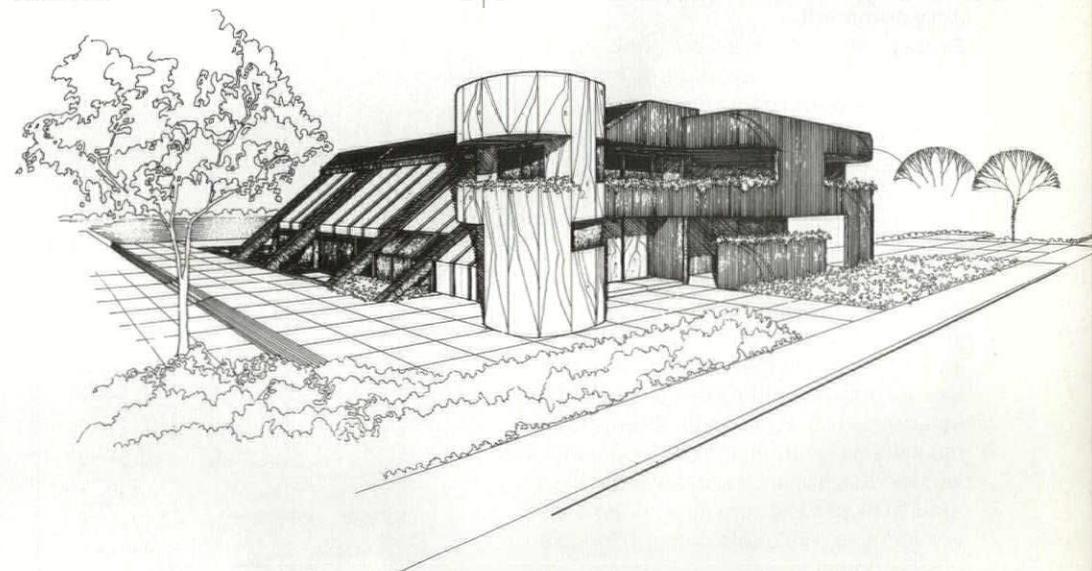
**Michael J. Rockhold
Jim Pandolphi**

Jury comment

Patmon: I would like to state very emphatically that in my opinion this was perhaps the most striking piece of architecture entered in the contest. I felt that the only reason it could not receive a first award was that the cost factors dictated by the architectural concept would be greater than the average American homebuyer could afford. I feel the floor plan is outstanding. And although the architectural concept may conceivably be a little too extreme for Middle America at the present time, as a custom residence for a specific client, the design is superb.

Burley: While I think the plan is interesting with the curvilinear forms, my feeling is that the exterior is probably more complex and complicated than it should be.

Murphy: I was a little concerned about overarticulation too. While it has the possibility of being quite a nice house, I'm just not sure of the relationship of some of the parts to each other, particularly the sloping façade to the rounded end part. I think the plan is interesting; generally I think it's a



good solution, but probably as was said, an expensive one.

Seney: I think the design certainly deserves the award. The house seems to be targeted to an architecturally aware client with a luxury home budget, though, so it has suffered somewhat in comparison with other entrants in this competition.

Merit Awards

John Gary Gardner

Jury comment

Burley: I think one of the most innovative and interesting features of this house is the fact that it includes a zone of refuge in the plan—an area into which the family can retreat when either the weather becomes severe in the winter, or when fuel prices go up and they have to survive on woodburning devices. The expansion portion is really a greenhouse form which would give quite a good feeling of space, including some passive solar energy gains. One of its disadvantages perhaps is a somewhat regional character.

Seney: It's an excellent solution for a family who is faced with some extreme fuel shortage or a dedication to use wood to supply heat to their house. It does almost the very utmost that can be done for a family in such small square footage. The rooms are compacted and huddled around the central core.

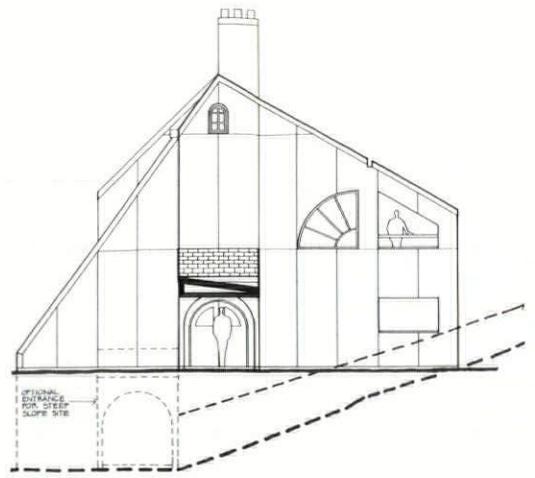
Murphy: I think the plan works fairly well. And I think the greenhouse effect would be very nice; I like the space that it creates. But I find some of the intersections of the house a bit jarring. The effect of having the thermal mass where it has to be in relation to the plan has the effect of cutting the kitchen off from the living space.



Second Floor Plan



First Floor Plan



East Elevation



ZERO LOT LINE. STREETSCAPE

Showing Application of various decal facades in a dense residential area decal facade provides opportunity for individuality of each house on a continuous streetscape.

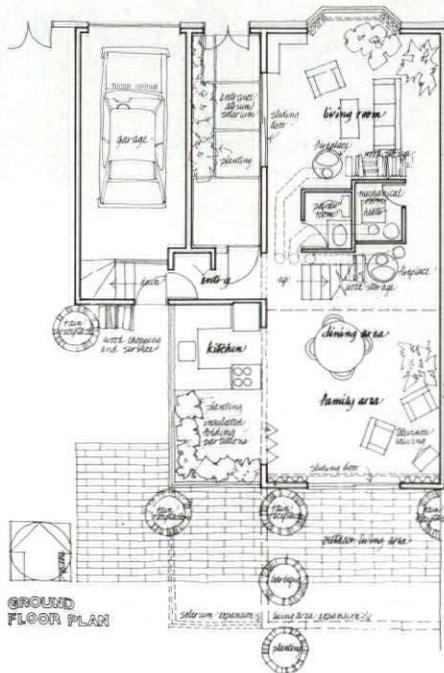
Roger Kemble

Jury comment

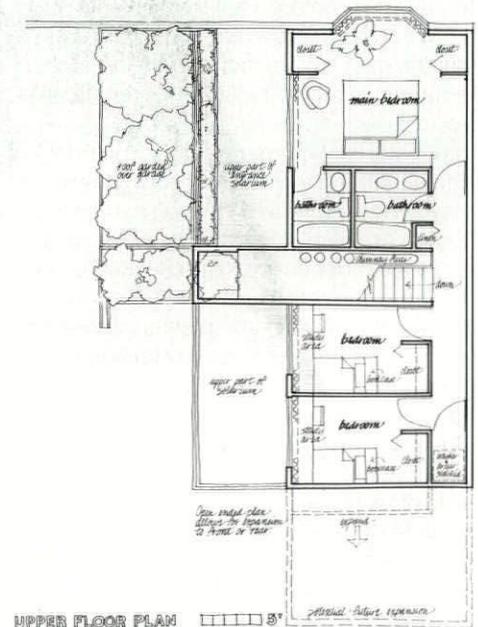
Burley: I think this is a very interesting entry in relation to the program. First of all because it would be a very economical house, one of simple construction. There's form repetition between houses in the zero lot line configuration, and yet each unit gains individual identity by use of what the entrant describes as decal façades.

Murphy: The decal façade allows for a bay window in the living room if you like or just floor-to-ceiling windows. You could do lots of things with the fronts of these buildings so that individual identities would be established. The plan really seems to do most things pretty well. We thought that the kitchen was a little unworkable, but in general I think this is a very nice scheme and would make a valuable contribution to an urban context.

Seney: Urban and citified are certainly two descriptive words for this house. I'm glad that we can make this award for that kind of thinking. Most architectural thinking and planning goes on for planned unit developments or what we term normal subdivision, for custom single-lot houses. Those of us who want to live in cities do not often get the benefit of this kind of study.



GROUND FLOOR PLAN



UPPER FLOOR PLAN

Merit Award

Daniel Faoro

Jury comment

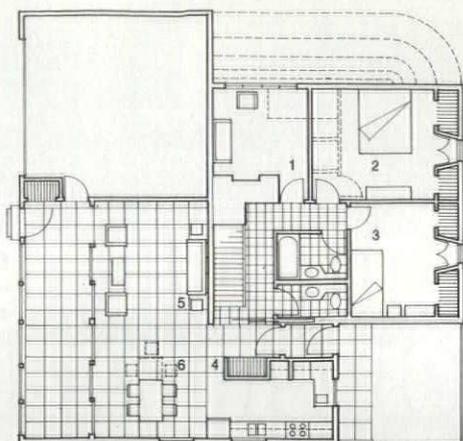
Murphy: It shows that the solar shadow has been considered in all aspects of the plan, so that the buildings will in no way adversely affect the buildings in a development. It adapts extremely well to all kinds of situations from middle of the block sites to corner sites to duplex situations. Also shown are a number of different façades, which seem to work quite well, allowing individual expression when used in a development setting. It's a fine scheme.

Patmon: It's a fine presentation, very unique. It reflects well on his future work.

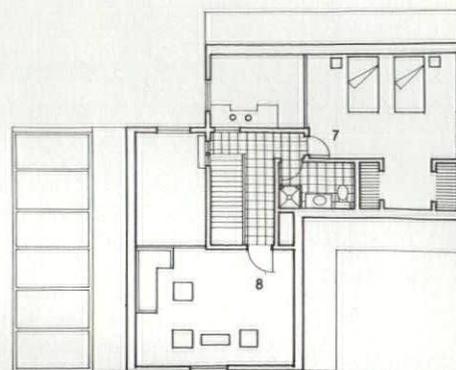
Burley: I think it's an extremely competent entry and its greatest interest from my standpoint is the scale of residence that's established here. I think he's manipulated the elements on the house successfully within a real neighborhood community situation.

Seney: Certainly, this entrant is to be commended for such a professional presentation and solution. It strikes me that he has not only given us a good housing solution, but he has also been very conscious of the way it's using the land, giving attention to fairly high density planning.

[Editor's note: After the decision was made to award this entry, jurors were delighted to find the designer was a student.]



FIRST FLOOR

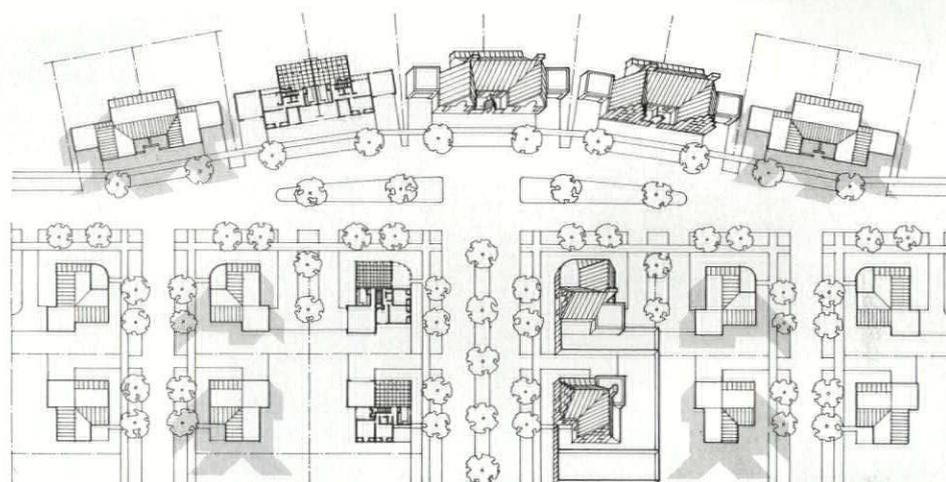
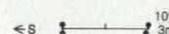


SECOND FLOOR

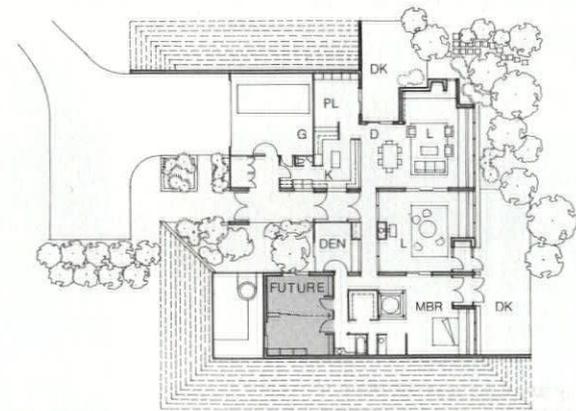
KEY

- | | |
|--------------|---------------|
| NIGHT ZONE | DAY ZONE |
| 1 DEN/BED | 4 KIT/LAUNDRY |
| 2 MASTER BED | 5 LIVING |
| 3 BEDROOM | 6 DINING |

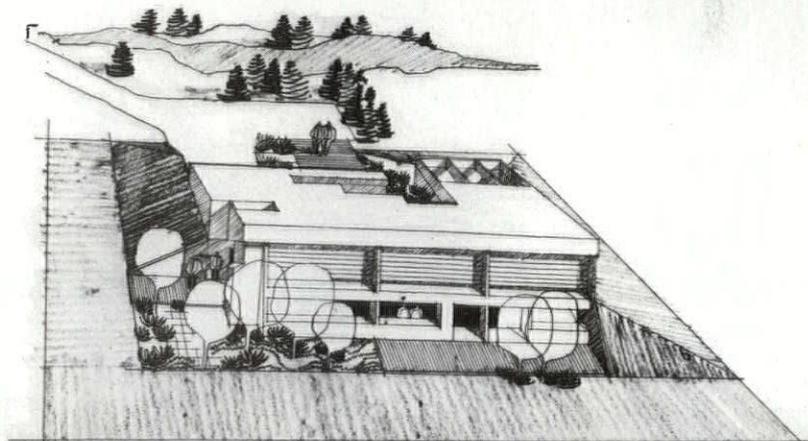
- EXPANSION PHASE**
- 7 BEDROOM
 - 8 SITTING ROOM



SITE PLAN



FLOOR PLAN



Jerry Payto

Jury comment

Patmon: This was one of the few unique entries from my point of view. There's at least one problem with the design, however, in that it exceeds the program living space limits, and with only a single bedroom. The second two bedrooms are specified as future additions. I have to question the marketability of a single-bedroom home this size. Otherwise, though, the plan is quite nice. I feel the entrant did an

outstanding job in projecting the proposed cluster developments.

Murphy: I'd like to second that last part. The designer really has done a great deal of work on how the design could be used in both single- and multi-family developments. It's a very thorough study of how communities could develop that way.

Burley: I think the plan is just excellent. The relationship of all rooms is good. It might be relatively expensive to build when you consider the berming and landscaping, but I think once you look at this cluster plan it appears that it could be a

very efficient type of house. As a single-family house, the exterior leaves something to be desired. But I think the planning, including how it fits into a community, is really very good.

Seney: The house certainly offers a full measure of comfort and convenience. It has almost every feature that one can think of, features that are wanted by a large number of families. The designer's concept of passive living versus active living and the separation given them is quite unique—and, I should add, probably workable for most families.

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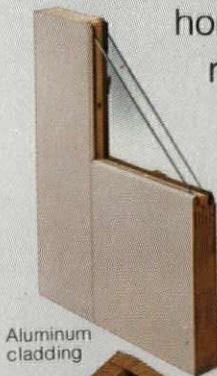
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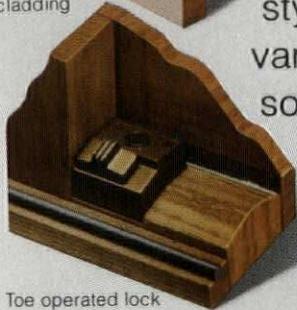
White clad exterior with Slimshade



Dark brown clad exterior



Aluminum cladding



Toe operated lock



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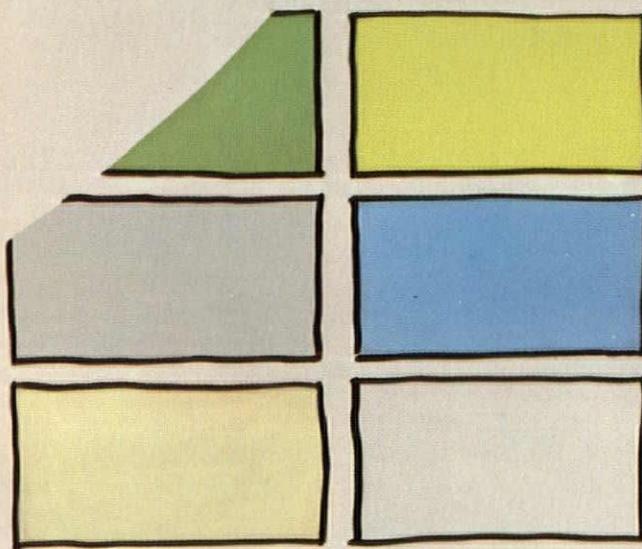
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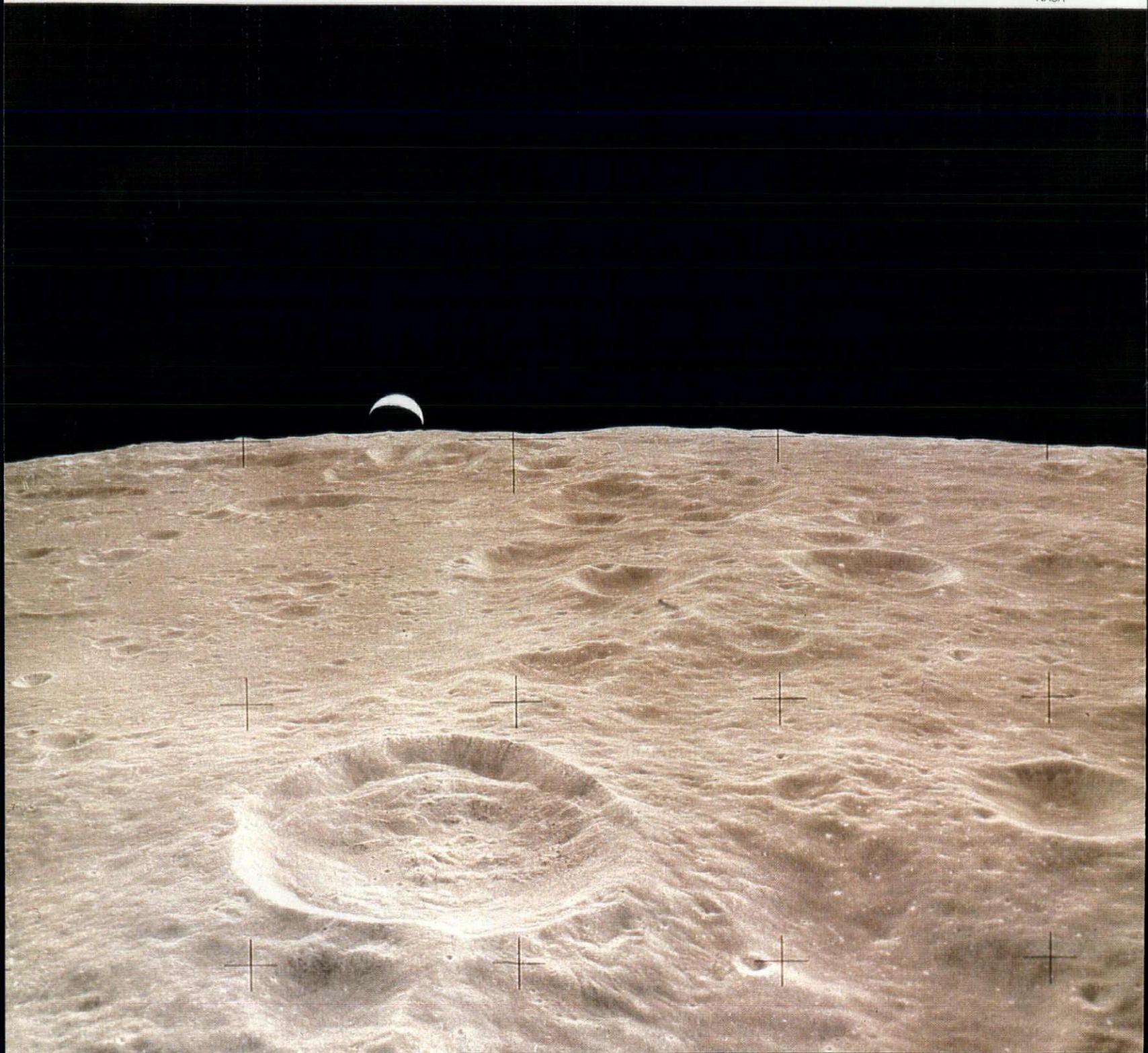
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Aerospace technology transfer

25 million solutions looking for a problem

NASA



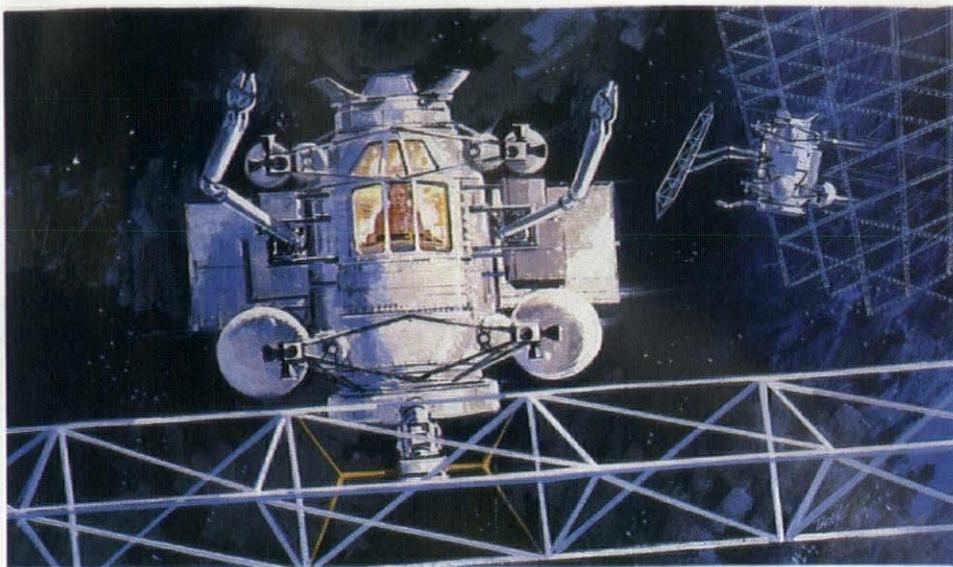
NASA technology put us on the moon; technology transfer lands ideas on earth. Strong, lightweight, efficient products are useful to architects and astronauts.

A culture makes no pieces it cannot use. Each succeeding day of experience tries to swallow the previous one. While the use of buildings seems clear, the use of aerospace exploration is sometimes less so. Whether we call it technology transfer or assimilation, we have the need to integrate space travel into our lives and therefore our architecture.

In the most literal sense, the products of lunar exploration did end up in a building. Ten years after the moon landing to the day, July 20, 1979, the new \$2.4-million addition to the Planetary and Earth Sciences Laboratory at the Lyndon B. Johnson Space Center was dedicated. The new building is being used to store the 844-pound load of moon rocks, about 690 pounds of which have never been analyzed. It is NASA's intention to maintain a large proportion of samples in their original state in the event that new analysis techniques emerge with time. The rocks are considered to be the primary material available for studying the evolution of our solar system. The building, designed by CRS of Houston, is constructed with the utmost cleanliness, safety, and security.

On this tenth anniversary of the moon landing we are not asking how to build with moon rocks. Although we are curious, we are not even asking what we have found of value. What we really want to know is how ideas from the space program get into our buildings, or what to do with Dr. Daniel Wilde calls: "25 million solutions looking for a problem."

What is the technology? A good current example of aerospace technology is the automated beam-builder that was unveiled this summer by Grumman Aerospace Corporation for NASA Marshall Space Flight Center. It is apparently simpler and less expensive to ship lightweight materials into space in flat rolls than to construct a large space structure on earth that must comply with our gravitational pull as well as the forces of takeoff and flight. The answer might be the Grumman machine that can be operated by remote control and that transforms the coiled strip material into beams by tack welding cross bracing to three shaped chords which feed out of it. The space shuttle is scheduled for operation in the early 1980s and could transport the machine or one like it in its cargo bay. The construction projects possible with such a beam builder are of truly cosmic proportions. One possibility is that of constructing a 5 km x 10 km space frame to support a photovoltaic array that can use microwave electronics to beam power



Grumman Aerospace

As early as the next decade, the space program may provide us with cosmic scale construction. The opposite page is a breathtaking view of crescent earth as seen from Apollo 14.

thousands of miles back to earth.

The forces on a structure in outer space are of course different from those on earth. The beam in space is weightless, and therefore its length is not governed by deflection or buckling but limited to the amount of material contained in its coils of material. The major forces are thermal variation, and structural dynamics due to construction and transportation in space. The construction procedure has to be "debris-less" to avoid polluting the atmosphere. The sun shines constantly in space, and solar heat gain might require careful surface treatment of structural materials. The two materials presently under consideration for the Grumman beam builder are aluminum and graphite-reinforced thermoplastics.

In addition to the different conditions under which a structure will be built in space, the specifications used are more rigorous. As Dr. Daniel Wilde points out: "You couldn't afford a house built to aerospace specifications." An airplane, for example, takes about ten years to create from design inception to the assembly line. Apollo took nine years in preparation to land on the moon. Although the technology evolves from knowledge gained in each progressive exploratory step, safety is critical on each voyage. Each flight in the sequence permits little room for error. Says Graham Gross: "The space program is a technology program, not a science program." Dr. Wilde adds: "It is not what NASA has done but how they have gone about it."

The "systems approach" used in aerospace holds some lessons for buildings on earth. Parts and sections of vehicles are accurate to the minutest detail. Each element is designed for possible secondary or tertiary functions, and time is taken to "design out the flaws."

What is technology transfer?

Technology transfer is a fancy aerospace name for gathering, translating, and disseminating information. What the uses of the beam building machine can be on earth have not yet been studied. The flow of such thoughts and ideas has a formalized structure within NASA.

Publications: Built into the NASA charter is a "new technology" clause that requires that any NASA contractor report the discovery of new technology to NASA. Inventions and procedures which are originated in a government contract become government property. Unless they involve national security, those discoveries and the patents on them become public property. Such technology can have many disadvantages but as Graham Gross explains: "One of the biggest values in using NASA technology is NASA's reputation."

Gross is editor-in-chief of NASA Tech Briefs prepared for NASA by Logical Technical Services four times per year. The magazine has a subscription of around 50,000 and caters primarily to manufacturers. It contains ideas and report summaries which might be of use to industry but which have not as yet been commercialized. About 600 separate articles appear in NASA Tech Briefs per year. Individuals who are interested in a particular item can circle the correct number on the "bingo card" at the end of each edition and receive a supplementary package from NASA.

Graham Gross explains that the subjects covered fall generally into three categories: 1) products, 2) techniques and processes, and 3) data or documentation. New techniques that are relevant to earth-bound problems are often almost immediately implemented. Data that are recorded by NASA in its work may have immediate or long-range advantages.

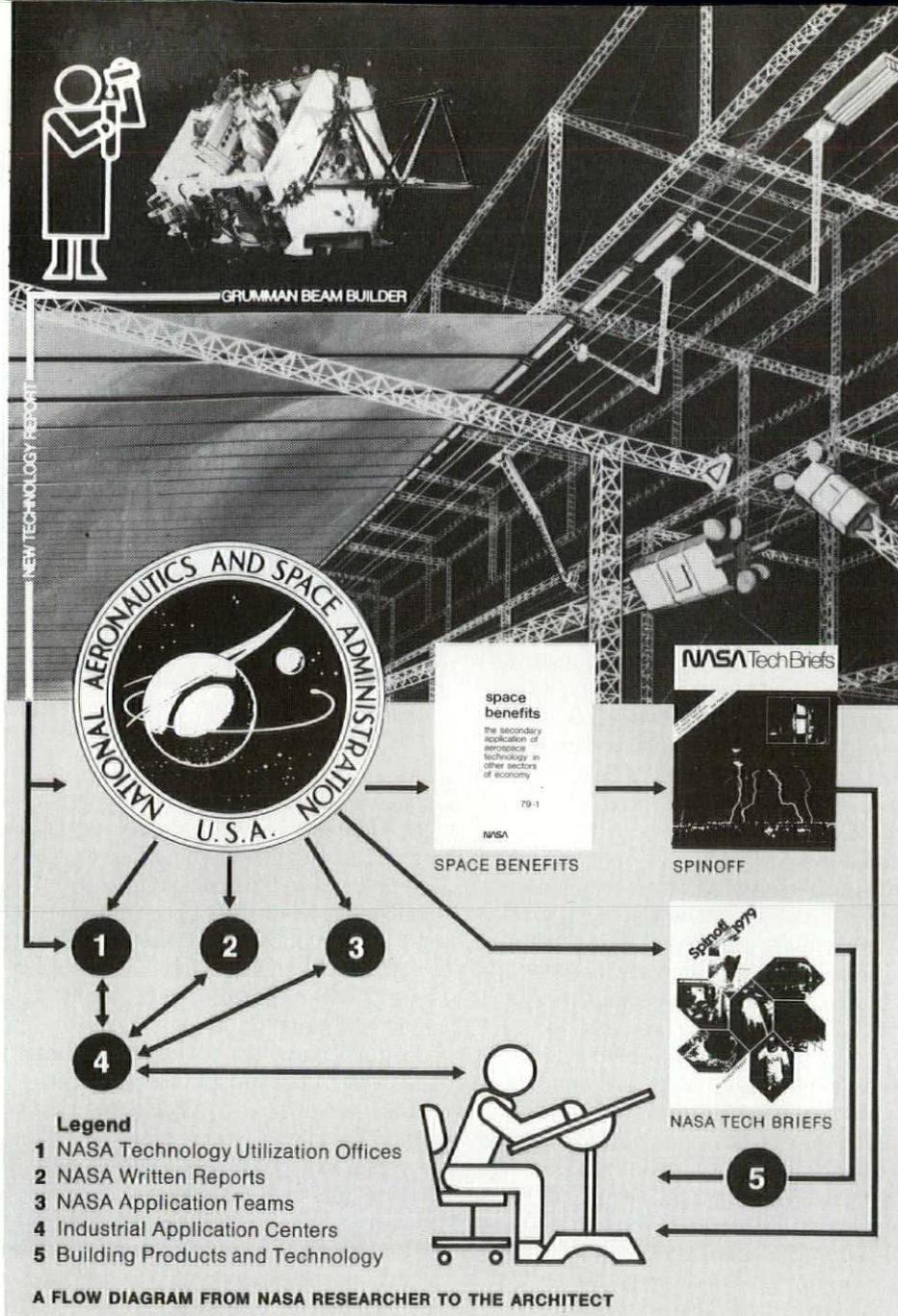
Aerospace technology transfer

Product ideas are frequently the most difficult to transfer. There are a number of reasons. First, the product in NASA may have been taken only to the prototype stage. Two-thirds of the production cost may yet be needed. If the product has actually been manufactured, it is close to being a real possibility on earth, but it is almost certain to have a different application. A product might also meet the inertia that resists all change: "Why use something new when something old works?" In addition, in the construction industry the product may run into labor problems which did not exist in space.

NASA keeps a close watch for products which have actually succeeded in making the transition to earth. A NASA periodical called "Space Benefits" lists many of the successful applications of such technology. An annual publication called "Spinoff" serves to recap the most outstanding examples of technology transfer from NASA. In addition to these publications, NASA reports and patent records are available.

IAC's: Key elements in the formal structure of technology transfer are the Industrial Application Centers which are located across the country. The largest such computerized center in the world is NERAC, New England Research Application Center at the Storrs campus of the University of Connecticut. Dr. Daniel U. Wilde is the center's director. For Wilde, an MIT computer scientist, the hard part is getting people to ask the right question. Answering questions is NERAC's business. Unlike the other types of NASA-related information sources, IACs such as NERAC must support themselves. For \$2600 per year a company can subscribe to NERAC. The company can ask one question at a time. The question is then researched by trained professionals using both computer and human resources. The response could be in the form of publications or simply contacts for the client. Says Wilde: "Every problem we get we try to solve with NASA first." NASA is just one information source, however, for NERAC. All of the government agencies, as well as some foreign sources, supply input for its computer. NERAC answers about 75,000 questions per year. A single nonsubscription question costs \$300. The answer takes one to two weeks (if one exists). NERAC is able to answer about 75 percent of the questions asked.

The examples: Despite the elaborate formal structure within NASA to encourage technology transfer, says NASA's Dick Orrick: "There is no hard and fast way of predicting how technology will transfer. Outside aerospace there is no natural link."



Sometimes ideas from the space program walk into buildings. At Grumman, for example, the Energy Division is peopled by former aerospace personnel. Some of the inspiration and expertise for the creation of the computerized building specification system Masterspec came from an author's direct influence on a similar computerized specification system for NASA.

We have chosen to emphasize concrete physical building products which get transferred to architecture rather than computer programs, data collection, circuitry, human engineering, weather forecasting, thermography or laser technology—NASA has contributed in all of these important fields related to the design process. They demonstrate the incredible complexity which NASA controls in solving a problem and that everything that is logical is manageable. Product markets on earth are not always logical.

James M. Utterbach is Associate Professor of the Graduate School of Business at Indiana University. In a study commis-

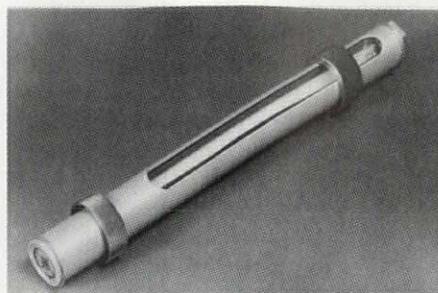
sioned by the National Bureau of Standards (NSF grant GQ-5) in the early 1970s. Utterbach calls attention to a major influence in technology transfer called the "technology gatekeeper," a term coined by Thomas J. Allen, an MIT professor of management. This is a person who by virtue of his position in life or his personality has either a diverse set of technically oriented friends and acquaintances or a broad scope of knowledge and access to technical literature (or both). Says Utterbach: "Information tends to be communicated quickly within the gatekeeper network and from the gatekeepers to others in the firm."

Emergency plus night lighting

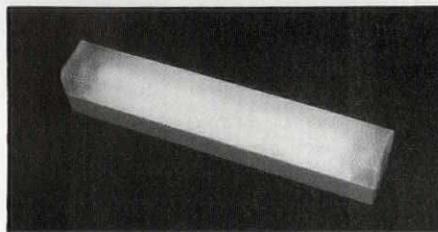
John Morten was a technology gatekeeper when he discovered a lighting technology which had been used successfully on Skylab. As a new-product consultant to large manufacturing concerns he had a specialty and expertise in electronics and business administration. By virtue of his



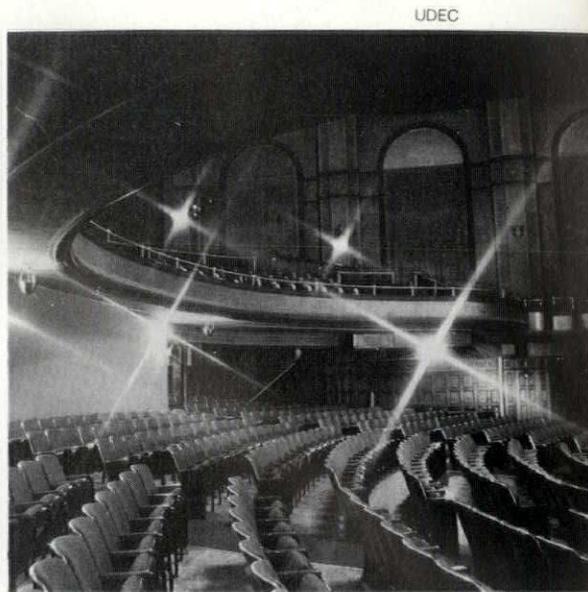
Commander Gerald P. Carr is shown in the orbital workshop on Skylab 4. The original Skylab light and the earth version are shown in tandem. (Far right) UDEC lights in use.



NASA



UDEC



UDEC

roving eye for good products he found a light that consisted of a small, high frequency (30,000 cycles/second) fluorescent light fixture which had been powered on Skylab by solar cells. The light had been originally developed by Sylvania for the NASA application. With a knowledge of OSHA code changes about to occur in the early 1970s, Morten realized that such a light could be, Morten as an emergency light and night light as well. He is now president of his own company in Waltham, Ma. The UDEC Multi-Mode electronic lighting system was perfected by Morten. He calls it: "The first breakthrough in emergency lighting in 50 years."

Instead of solar power, the light uses batteries that are sealed, gelatinized electrolytes invented in Germany for use in toys. A small, eight-watt fluorescent lamp casts a uniform light rather than the conventional directed beacon. Five emergency lights and an exit light can work as a system from the central battery source. The starter kit can be expanded later to include other lights and switching devices. Using an eight-watt fluorescent lamp to replace both night lighting and emergency lighting saves energy. The light is in keeping with its NASA multiuse heritage; on Skylab it was also a hand grip. The UDEC light can run continuously on a.c. for one month for about 15¢ (New England prices). Morten explains that the lamp can last for nearly two years of continuous burning and the battery as long as eight years.

Initially, UDEC sought a market in industrial applications. Morten could offer cost advantages by supplying the lights directly to a user who perhaps might have in-house electricians to install them. The system was later used in the NASA Tech House (P/A, April 1979, p. 102), a showcase of energy-conserving products, as well as theaters, banks, churches, apartments, and department stores.

Vacuum metallizing

Unlike the UDEC light, metallizing the surface of films did not begin with NASA. Over the last ten years, however, largely due to its contribution to the space program and the knowledge accumulated manufacturing materials for space, the industry has come of age. It was an earth-bound technology, applied handsomely to space exploration, and it is now a space-age technology used handsomely on earth. In an unbroken chain of development, there is a whole family of earth-bound products. During the recent development of metallized products, Robert W. Steeves of King-Seeley Thermos Co. used his chemical engineering knowledge and "hands-on" technology transfer to become plant manager. For Steeves: "It took an awful long time to convince people that it was a viable product."

The manufacturing process commonly used is simple in concept. In a vacuum of about one-millionth of an atmosphere, the vaporization temperature of certain metals is lowered (about 2000 to 2200 F for aluminum). As the metal vapor rises, it is deposited evenly on a substrate moving rapidly above it. The result is a fine layer of metal particles deposited on almost any flat material (wood is difficult). The metal is not hot enough to melt and actually reforms as metal foil. The substrate moves so quickly, it does not burn. As a result, however, some of the same characteristics of foil can be achieved with much less metal used. It is also possible to deposit the metal in a fine enough layer (about a millionth of an inch) to maintain the transparency in clear sheet materials.

Fortunately for the industry, the development of metallized products has been what Robert Steeves describes as "slow and sure." Making a material look like metal by controlling the condensation of metal on its surface can be traced back to the 19th Century. The use of vacuum in

the deposition process is traced to the early 1930s in Europe. Metallizing a continuously moving polyester film occurred first in the mid-1950s. Aluminum, silver, gold, copper, and zinc are some of the metals which can be used to metallize.

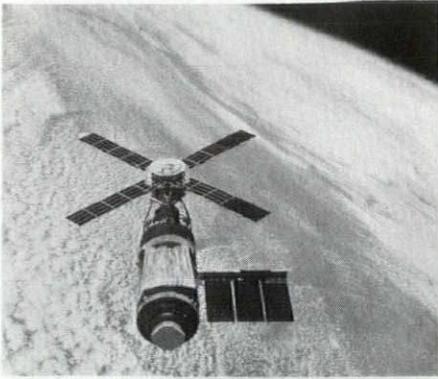
Prior to the space use, however, the metallization of rolled sheet materials had been restricted to decorative, small-scale use. In the late 1950s, metallized polyester was used for weather balloons. The weather balloons suggested the use of the material for a passive communications satellite, Echo I. On Aug. 12, 1960, Echo I reflected a radio message from then-President Eisenhower across the nation. The 100-ft-diameter sphere was made by vacuum metallizing aluminum onto thin polyester sheets (Du Pont's Mylar) which were then taped together.

Save Skylab I: The process of metallizing materials has been used extensively in space from the insulation of the spacecraft to the space suits themselves and the lunar landing module. None of these uses was so dramatically portrayed as were the emergency preparations which were needed to control unexpected solar heat-up of Skylab I launched May 14, 1973.

Twelve minutes after takeoff, signals alerted the three-man crew that a freak storm had torn away a meteoroid shield which meant excessive sun exposure for the spacecraft and one sun solar panel. During a feverish 11-day vigil, a metallizing plant in New Jersey, National Metallizing (the same folks who metallized Echo I) came to the rescue. The solution for the heat-up problem proved to be 25-gauge metallized polyester laminated to orange-colored nylon parachute cloth. The new "parasol" was fabricated and shot out to Skylab I and installed. Temperature in the craft was reduced from 125 F to 75 F.

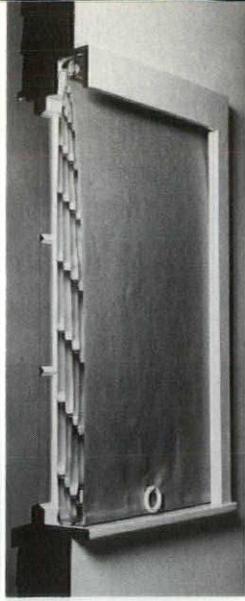
1973 was also the year of the oil embargo. We can only speculate that Skylab made a believer out of at least a few

Aerospace technology transfer



National Metallizing, NASA

1



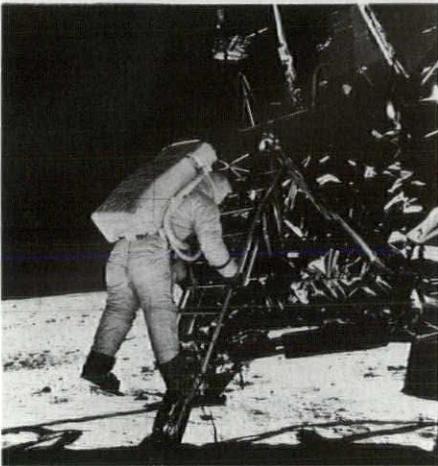
Insulating Shade

2



National Metallizing

3



King-Seeley Thermos, NASA

4



National Metallizing

5



Watt Count, Nashville, Tn.

6

1. Skylab 1 flies emergency metallized parasol.
2. A unique layered shade reflects sun and insulates as well.
- 3 and 5 Metallized film can be permanently affixed to window glass to control solar heat gain.
- 4 Gold metallized polyimide film on the landing module reduced heat gain.
- 6 Aluminized polyester on earth keeps heat in.

people because the uses of vacuum metallization have multiplied in recent years. Part of the popularity is due to the economy of applying a thin layer of energy-expensive aluminum on paper and plastics to replace foils. The primary metal used has been aluminum. Metallized paper has been used for wall coverings. Metallized cloth and plastics have been used for draperies, window shades, and window films. The recent retrofit of the AIA offices in Washington incorporated application of metallized polyester to broad expanses of window exposed to the sun.

Flat conductor cable

One of the many uses for vacuum metallizing in the space program has been to metallize a material called Kapton manufactured by Du Pont. Kapton is generically an aromatic polyimide, a petrochemical-base film which was developed in the late 1950s and commercialized in the mid-1960s. It does not burn, smoke, melt, or propagate flame. It behaves like a thermoset material and withstands temperatures to 250 C. Gold-metallized Kapton was used as a reflective skirt for the lunar landing vehicle.

One astronaut tripped on a cable on the moon and ruined a million dollar experiment. That astronaut tripped on a section of flat conductor cable which was also made of Kapton. Metallized Kapton sheets

and Kapton cables on earth are too expensive for common use. Polyimide has found application in flexible printed circuitry and other premium high technology uses. Flat conductor cable has followed another course.

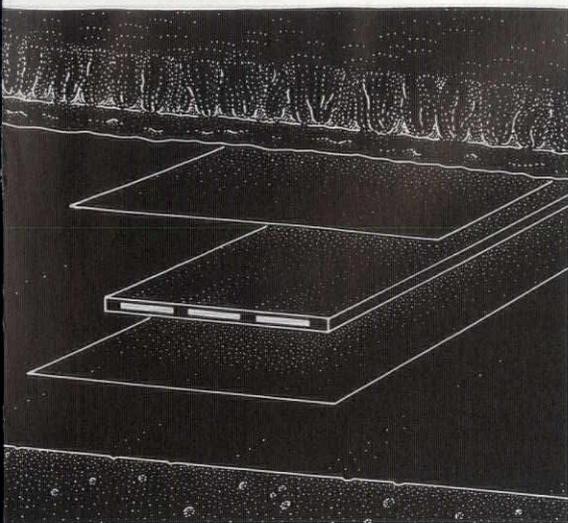
In space: The need for a lightweight electrical cable that takes up little volume is a necessity in space. It is also commonly used in aircraft for similar reasons. The use and invention of flat conductor cable predates the NASA program. Its use in space is generally credited to Wilhelm Angele, one of the original group of scientists who accompanied Wernher von Braun to this country. Angele needed a torqueless cable to power his gyroscope in the rockets of the late 1950s. Flat cables developed through NASA's Marshall Space Center solved his problem.

A flat cable consists literally of flat copper wires used as conductors instead of round ones. The wires are separated and insulated by sheet plastic. Such configurations can be used for communication wiring, as well as electrical wiring. For the space program, Kapton film is used to insulate the conductors because of its temperature properties.

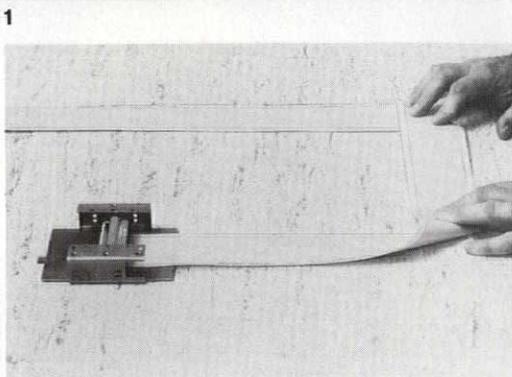
On earth: NASA has played a major role in the development of flat conductor cable for commercial use on earth. In the early 1970s, ABT Associates of Cambridge, Ma, was awarded a NASA contract to examine

the whole spectrum of products available at that time which might lead to eventual use in the construction industry. One result of that study was a publication called "The NASA House." Another result was an article in the October 1971 Progressive Architecture co-authored by Michael Batter and David MacFadyen of ABT. The title of the article was "There's a NASA device in your future." Both the report and the article were meant to be an overview of high probability technical products. One of the products mentioned in the ABT report was flat conductor cable. The NASA Tech House is also generally considered a product of that study. Another result was a program initiated at the Marshall Space Center to develop flat conductor cable for commercial and residential wiring.

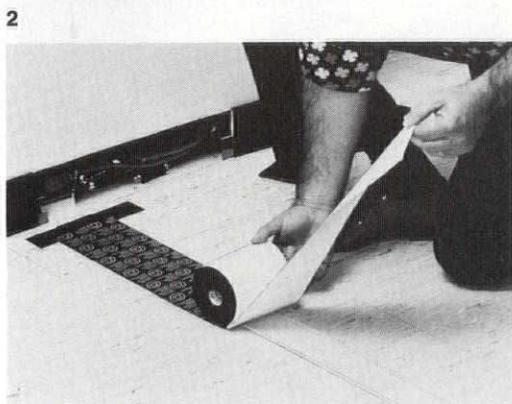
The NASA program involved a consortium of manufacturers. Beginning in early 1971 and ending in late 1976, it consisted of cable design and manufacture as well as the coordination that would be necessary to apply the system to commercial use. The product potential was demonstrated and exhibited at trade shows throughout the country, with the ultimate goal of obtaining Underwriters Laboratories approval and eventual use of flat cable in buildings. The project was successful in interesting major industrial sponsors. People in telephone communications realized the convenience of flat cable in relocating



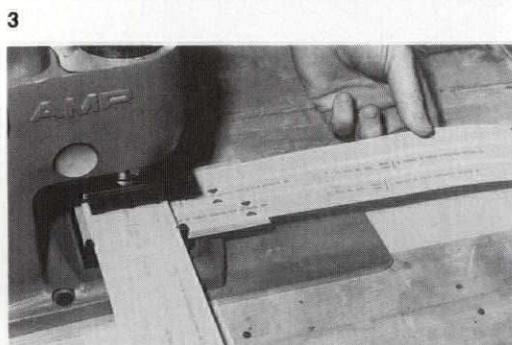
Technology + Economics



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1 Flat conductor cable has been heavily researched by NASA. While it has been common in aircraft for 20 years, its use in buildings is just beginning. **2** and **3** Telephone flat cable is already on the market for undercarpet use. Direction change and installation are both fast and simple. **4** A special machine is needed to make the junction of separate runs of flat cable. New systems will include telephone, electrical wiring, and coaxial cable capability.

telephones in a building. They also realized that the development of flat cable for telephone cable alone would have little economic advantage without the complete system of cable and service facilities to make an office work station complete. The potential vendors of the material split the bill with NASA to get UL approval of the system. One final stumbling block was the National Electrical Code.

Another technology gatekeeper, David MacFadyen, had followed the development of flat conductor cable from the early ABT report. Although no longer connected with ABT, MacFadyen had served to lead the development process past one apparent dead end to another. MacFadyen recognized the value of the flat cable including its use in the open-plan office. Flat conductor cable in combination with carpet squares might eventually prove to be a very economical method of rapidly altering office layout.

When the National Electric Code failed to accept the use of flat conductor cable in the spring of 1976, MacFadyen threw down the gauntlet. MacFadyen and his company, Technology + Economics (T+E) of Cambridge, Ma, decided to push for the NEC adoption at its own expense. By October 1977, he had won restricted approval from the National Electrical Code as a Tentative Interim Amendment TIA 1-70-1978 with the full force of the code. Flat conductor cable, or FCC as it is called in the code, is not to be used "(1) outdoors or in wet locations; (2) where subject to corrosive vapors; (3) in any hazardous location; or (4) in residential, school, and hospital buildings."

The acceptance of FCC by the Code body meant that the construction industry could, with confidence, develop a full set of cables for use in commercial buildings, and that is what has been happening. By January of 1980 (it took about as long to commercialize the cable as it did to put a man on the moon), a full line of flat conductor cable should be available. At the moment, the only flat cable on the market is telephone cable.

The manufacturers have adopted the "total systems approach." They will manufacture the cable, devices to accommodate transition from round wire to flat cable, and the cable terminals. The flat conductor cable in office use may by code be used only with carpet squares. The system will require no ducting within the floor surface; therefore, the service fittings will most likely resemble the traditional "tombstone" service fittings. Eventually manufacturers expect to provide power, telephone, and coaxial cable. David Beers of Thomas & Betz, one new cable manufacturer, explains: "All three have to be available to an architect if the system is to make any sense." At least one major office

furniture manufacturer has recognized this market potential, and there most certainly will be others. Carpet manufacturers have begun to market their carpet squares as a good match for FCC.

No one knows precisely what the various cable systems will entail. It is all a secret until next year. It is safe to say that they all will use copper conductor, but whether they use flattened round wire or sliced copper sheets is unknown. They will all use polyester adhesive-bonded film for insulation and incorporate a metal shield which protects the cable from accidental penetration when taped to the use surface. They will be thin enough to be invisible even when they cross beneath the carpet. When a new desk location requires a change of cable the old cable will be cut and capped, moved bodily to the new location, or removed, depending on the complication and duplication of effort necessary.

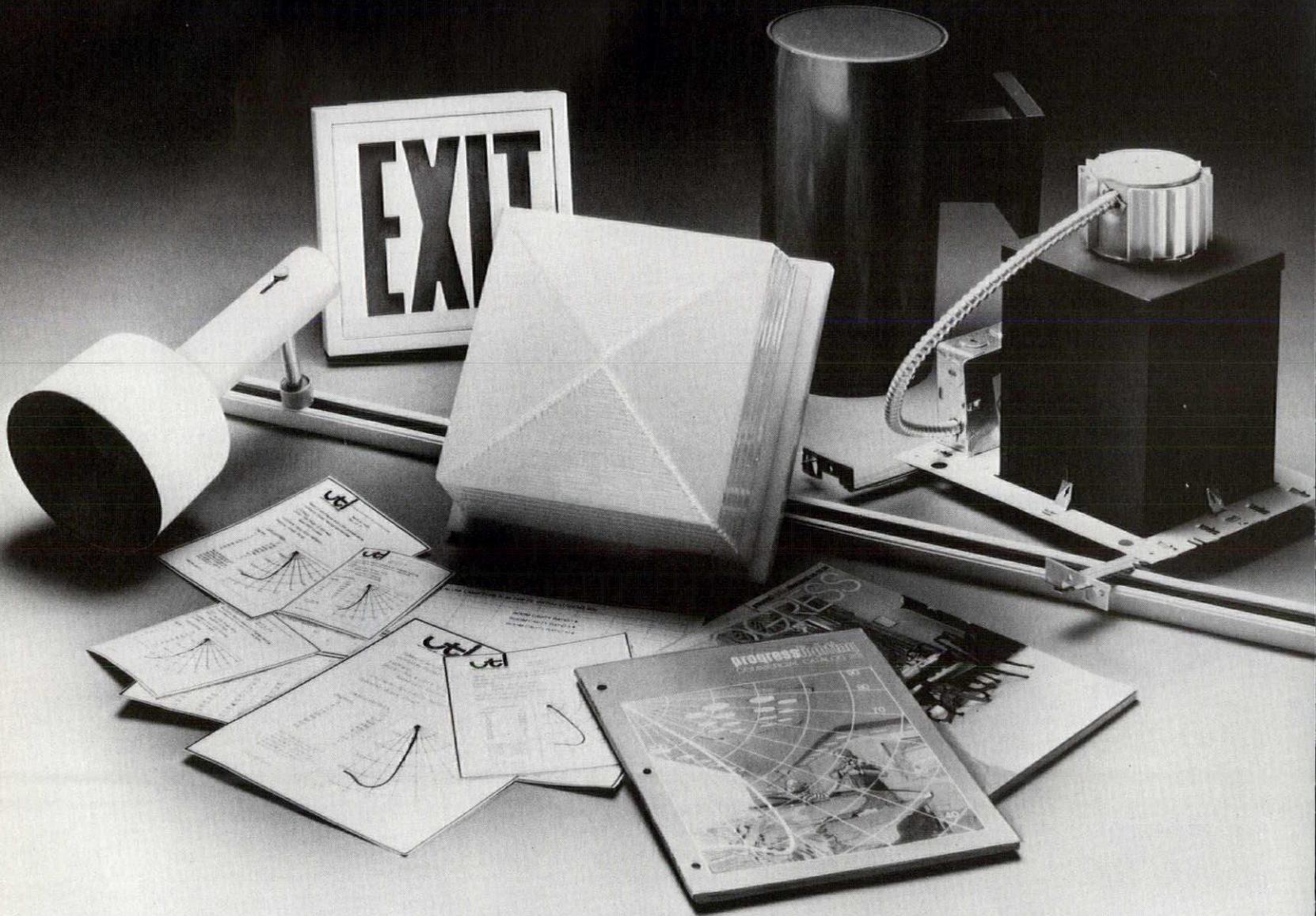
Conclusion

Spacecraft and landing vehicles aren't very big. As the projects of the space shuttle grow in size, the kinds of physical contributions to the field of architecture may also increase in size. They will no doubt be strong, lightweight, multiuse, fire-resistant, and energy-conserving. In tracing for this article some of the typical areas where NASA technology has played an important role, vacuum metallizing has represented an unbroken chain of earth technology. Foster parents have brought the other ideas to fruition. In the few products and technologies we have chosen to feature, it is clear that such people play a critical role in the transfer of ideas. Like astronauts they must both be curious and love a good gamble. Are you looking for a NASA brainchild? [Richard Rush]

Acknowledgements

We wish to thank the following architects, manufacturers, and aerospace industry representatives for their help in preparing this article: BIA; Calmac Manufacturing Corp.; The Celotex Corp.; CRS; Du Pont; Jack Golz; Grumman Aerospace Corp.; James J. Haggerty; Honeywell Inc.; Insulating Shade Co.; John F. Kennedy Space Center; Johns-Manville Corp.; King-Seeley Thermos; Logical Technical Services, Graham Gross; Lyndon B. Johnson Space Center; National Aeronautics & Space Administration; NASA Jet Propulsion Laboratory; National Metallizing; Technology + Economics, David J. MacFadyen; Thomas & Betz; UDEC Corp.; The University of Connecticut, Daniel U. Wilde; Western Electric; Watt Count of Tennessee, Inc.; Wind-N-Sun Shield. For Aerospace technology transfer products and literature information see p. 110.

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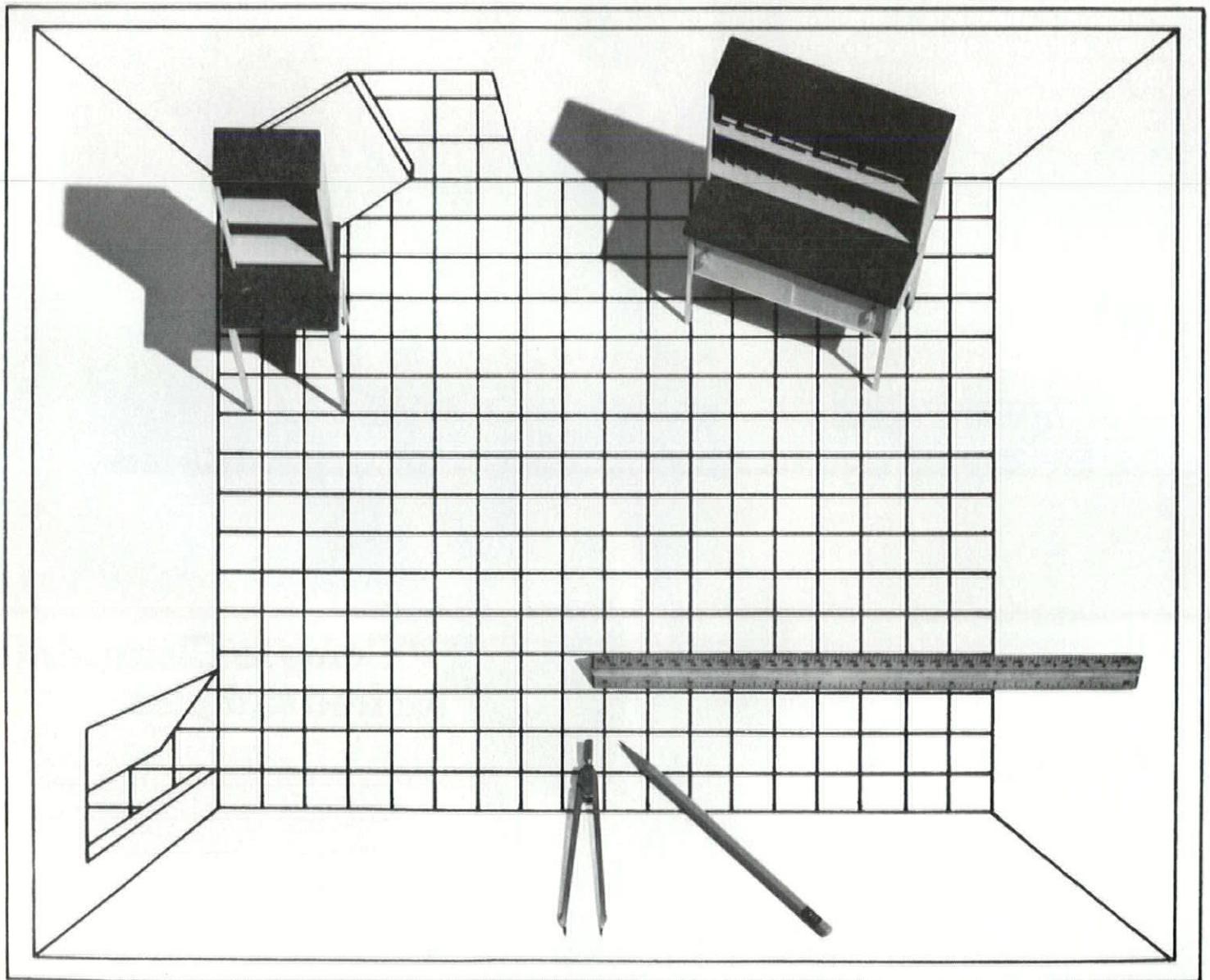
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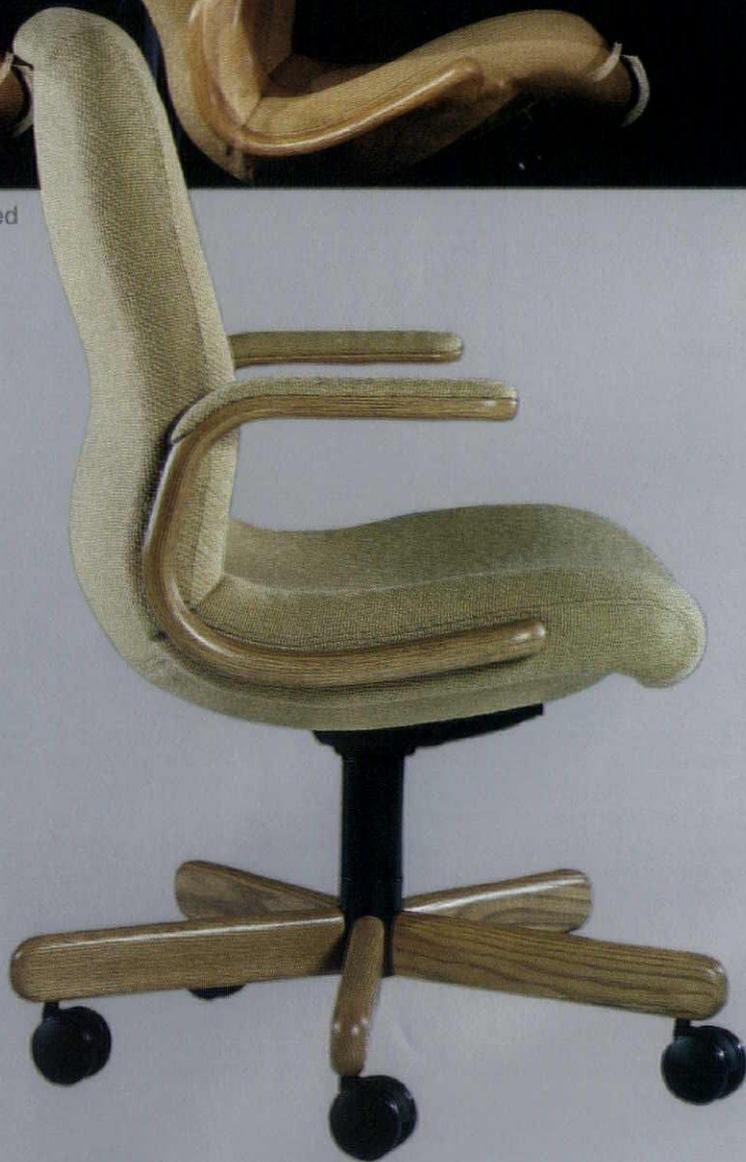
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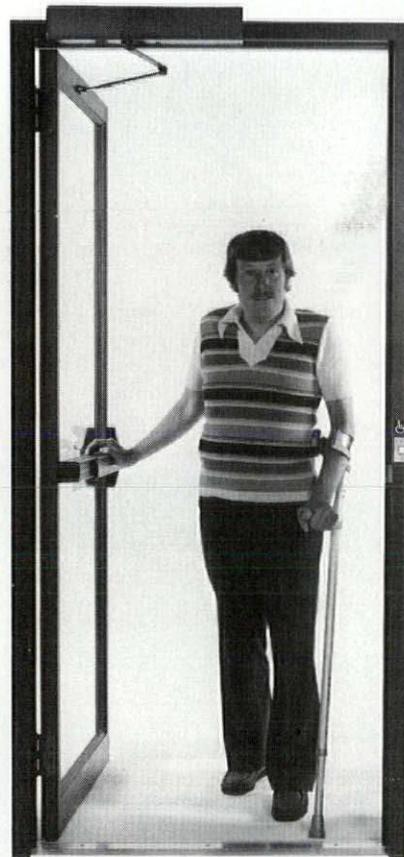
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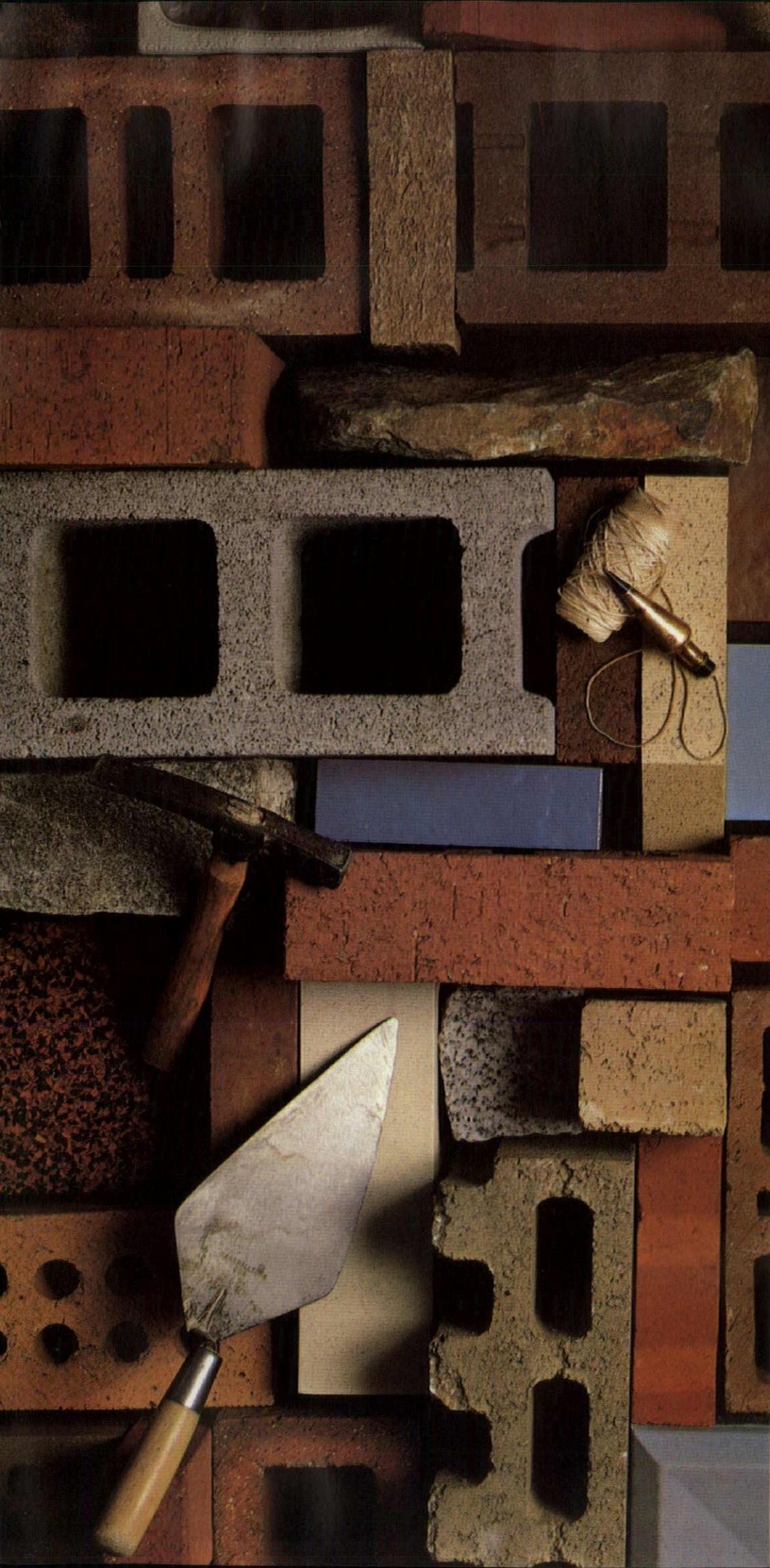
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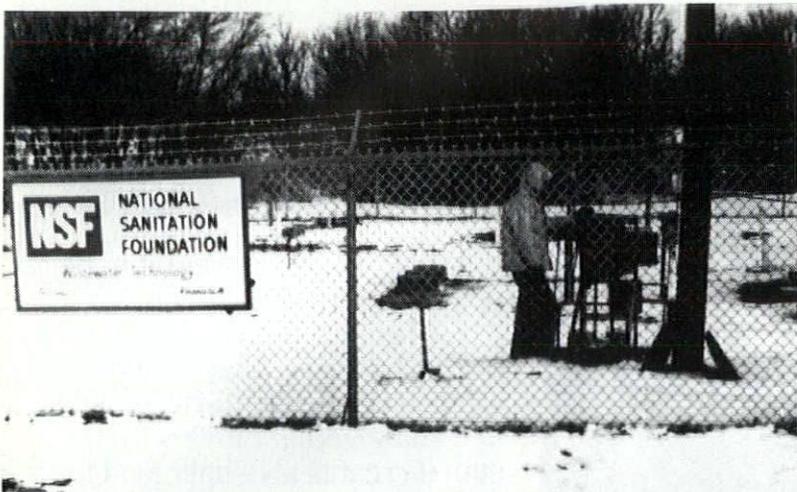
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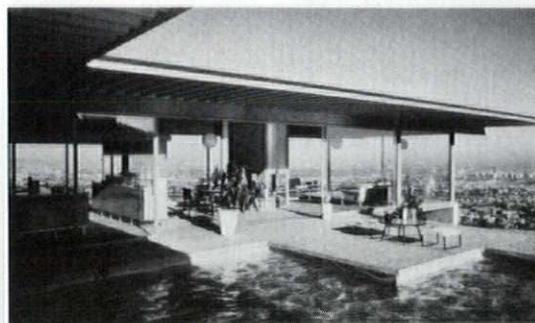


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Books

After Mies



Julius Shulman

Pierre Koenig, Case Study House #22, 1959.

Case Study Houses, 1945–1962, second edition, by Esther McCoy. Hennessey and Ingalls, Los Angeles, 1977, 218 pp., \$28.50, \$14.95 paperback.

Reviewed by Thomas S. Hines, who teaches in the history department and the school of architecture at UCLA.

In the superb Italian film "Smog" by Rossi and Pasinetti (1962), a jet-set Italian lawyer misses an international connection and, with time on his hands before the next flight, decides to explore Los Angeles. The intended short visit turns into a stay of several days wherein the hero, with the help of native Californians and Italian compatriots, traverses the city's physical and cultural landscape. One of the key sites and stops in the unfolding odyssey is an elegantly simple steel and glass house with its inevitable nearby swimming pool. Perched high in the Hollywood Hills, it offers spectacular night views of seemingly endless lights and less exhilarating daytime panoramas of the same great city bathed in brown haze. Angeleno architecture buffs immediately recognized the house as Pierre Koenig's 1959 Case Study #22—a potent image and favorite symbol of mid-century Los Angeles, showing up regularly, among other places, in the paintings of David Hockney and the mystery novels of Ross MacDonal.

The Koenig house was one of 22 built projects in the Case Study Program sponsored by John Entenza's Los Angeles-based magazine *Arts and Architecture*. Twelve of those houses won AIA awards. Ten other designs were never executed. After Entenza sold his monthly journal to David Travers in 1962, one house, one apartment complex, and two unrealized projects were sponsored by *Arts and Architecture* before the magazine's demise in 1967.

Most participants in Entenza's program were Californians, including such established offices as J. R. Davidson, Richard Neutra, Raphael Soriano, Thornton Abell, Rodney Walker, Whitney Smith, Wurster & Bernardi, Spaulding & Rex, Nomland & Nomland, Jones & Emmons, and Killingsworth, Brady & Smith. Other local participants, virtually unknown when the program began, included Charles Eames, Pierre Koenig, Don Knorr, Craig Ellwood, and Buff, Straub & Hensman. From outside the state, only Ralph Rapson and Eero Saarinen received Case Study patronage.

In the early 1960s, as Entenza was leaving *A & A* to head the Graham Foundation in Chicago, architecture critic Esther McCoy, a member of the magazine's editorial advisory board, realized that an era was ending and decided to record the history of the Case Study program. Originally titled *Modern California Houses*, the book furnished biographical sketches of the archi- [Books continued on page 100]

Architect: Burman, Bouchard

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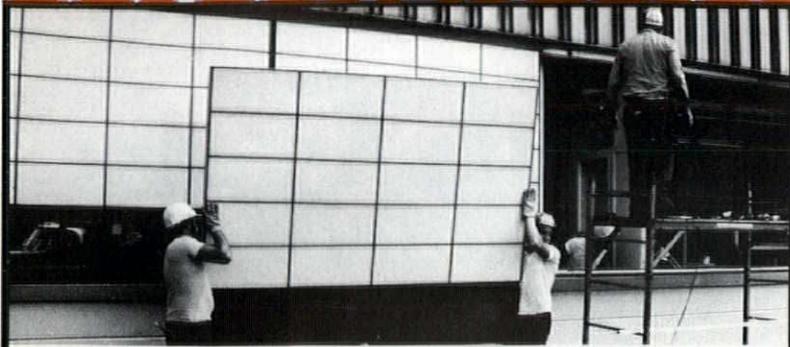
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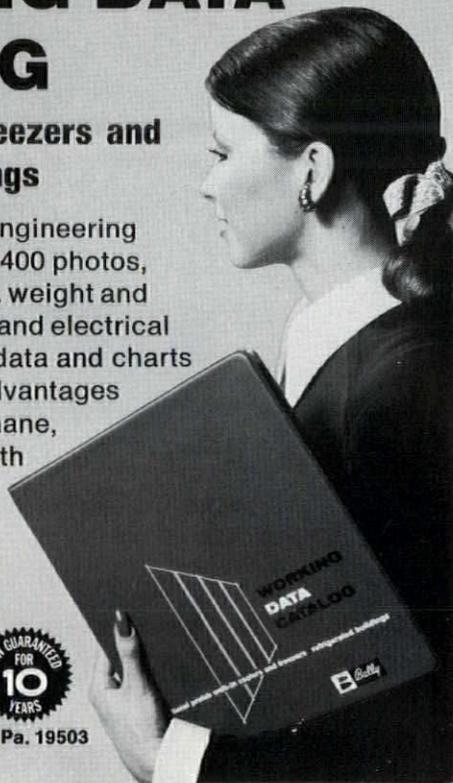
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Books continued from page 98

pects and analytical descriptions of each CS project. With its 200 illustrations and its wealth of technical detail, it amounted almost to a "how to do it" pattern book.

McCoy emphasized the role of John Entenza, who had taken over the magazine in 1938, and who by 1944 "was giving serious thought to the course that architecture should take at the end of the war. The time was ripe for experimentation; potential clients had never been more numerous, due to the halt in building during the depression years. . . . Contemporary design had never been in quarantine in California—the West Coast was one of the great proving grounds—but for want of a body of work which carried forward the pioneering spirit, Entenza saw the possibility that architecture would regress when building was resumed at the end of the war." He feared that uncreative builders would seize the house-hungry market with conventional, unprogressive plans and that too few clients would be willing to wait while the better architects got unconventional plans approved by building commissions and loan agencies. As a result, "many of the creative ideas on the drawing boards and in the minds of architects would be lost." So, in 1945, Entenza announced that the magazine itself would become a client, commissioning and building houses in Southern California that would then be opened to the public and sold. While other journals had sponsored "model homes," A & A's commitment to such an ambitious series of prototype houses was unprecedented.

Though the Case Study architects contended—as most designers always have—that they followed no "style," it was apparent even by 1962 that the Case Study houses had generally followed the lines established in the previous decades by Mies van der Rohe, Richard Neutra, and the older generation of the Modern movement. Historically, the program rode that arm of the dialectic that opted for rationalism, minimalism, austerity, order, and discipline. It came along at a time of continuing reaction to what the Modernists deemed the "excesses" of Historicism and Pop Vernacular Fantastic and even of such recent styles as Art Deco and Streamlined Moderne. Entenza's associate, Thomas Creighton, saw disciplined experiment as the common thread of the program. "In a period when everything became possible in architecture," he asserted, "when particularly in California a wacky, goofy approach developed; when innovation and individualism displaced the older rules of design," the Case Study houses were "direct and simple in plan, modulated in structure, classically ordered in esthetic. . . . There has almost developed—but fortunately not quite—a CSH style."

In the years immediately following the first edition of McCoy's book, the disciplined simplicity and elegant austerity of the Case Study house type came increasingly under attack. In 1966, the year before A & A folded, the Museum of Modern Art published Robert Venturi's *Complexity and Contradiction in Architecture*. In its call for "messy vitality over obvious unity," the ensuing critique of the 1960s and 1970s challenged the Modern movement—and the CSH program—in its most vulnerable areas. Yet, in castigating the Modern movement's obsession with "clarity of meaning," it sometimes failed to acknowledge the "richness of meaning" that it also contained.

In her new introduction to the second edition, now simply called *Case Study Houses*, McCoy does not fall into trendy late 1970s "Post-Modern" critical rhetoric. She admits that in viewing it from "the cool of the seventies," the Case Study program and her earlier words about it have a "brave-new-world tone" of another, earlier era. She appreciates the importance of new images and ideas and sources of inspiration in molding new forms. But in crediting the new, she does not feel the need to discredit the "old." She still likes "good old Modern," and as a historian [Books continued on page 102]



The Answer

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Books continued from page 100

she knows that such an experiment as the Case Study program was, despite its limitations, a sturdy achievement in a certain type of architecture for a certain time and place.

One only wishes that her new introduction had been longer and more detailed in its retrospective evaluation and had dealt more explicitly with the history of the program and with the critique of its weaknesses. It would, for example, have been good to know specifically why the unexecuted projects were not built. What were the costs of the Case Study houses? How were they financed? What were Entenza's criteria in selecting and excluding architects? Were they solely *his* choices? Why did such prominent Los Angeles architects as Rudolph Schindler and Gregory Ain not take part in the program? And why, since Rapson and Saarinen were brought from afar, were other outside architects of comparable stature not included? How did the buildings fare after the photographers, with their elegant records of immaculate order, had left the scene? Did the compositions and the composure tumble when "messy vitality" entered? How have the houses aged?

A recent tour of the Case Study houses by the members of the Southern California chapter of the Society of Architectural Historians yielded predictably mixed and telling answers to the last question. Craig Ellwood's CSH #16 was in pristine condition, cared for through the years with obvious love and elbow grease. Charles Eames's own house (CSH #8) seemed to have flourished with age, growing richer all the time—again due largely to imaginative care and constant attention. Rodney Walker's CSH #17 had been badly remodeled and carelessly furnished and had lost all sense of its former significance. And Pierre Koenig's famous CSH #22 had been altered and astro-turfed and flossed up unmercifully. Even Neutra's Bailey House (CSH #20), formerly a model of sensitive treatment by loving owners, had been stridently "compromised" by new stained-glass windows across the front of the once-serene composition. Stained-glass production is a new hobby of the owner, but her use of it in her Case Study house doesn't do justice to the glass or to the building.

But despite the possibilities for greater elaboration, McCoy's new edition is a valuable record of a significant episode in recent architectural history. In bringing it back for minimal commercial profit, Hennessey & Ingalls once again proves itself a true friend of the arts. With its burgeoning press and its unsurpassed fine arts book store, H & I is becoming a Los Angeles institution—like John Entenza, *Arts and Architecture*, and the Case Study program they sponsored.

After Mies: Mies van der Rohe—Teaching and Principles, by Werner Blaser. Van Nostrand Reinhold Co., New York, 1977, illus., 291 pp., paper, \$19.95.

Reviewed by Richard Guy Wilson, Associate Professor of Architecture, University of Virginia, Charlottesville.

The position of Mies van der Rohe in 20th-Century architecture is a puzzling one. Mies's stature and impact came through the clarity and universalness of his work, and yet behind the example there remains the inscrutable Buddha, uttering aphorisms and polishing details to transcendent truth. He has certainly not lacked for followers and supporters, as the book under review amply illustrates, and yet there has been a virtual dearth of significant comment about his work. (William Jordy's chapter in *American Buildings and Their Architects* and Ludwig Glasser's introduction to The Museum of Modern Art's *Ludwig Mies van der Rohe, Furniture and Furniture Drawings* are major exceptions.) Where the other major form givers, Wright and Le Corbusier, [Books continued on page 104]

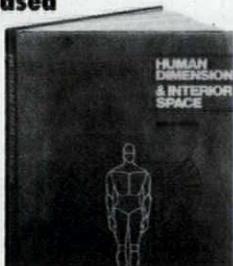
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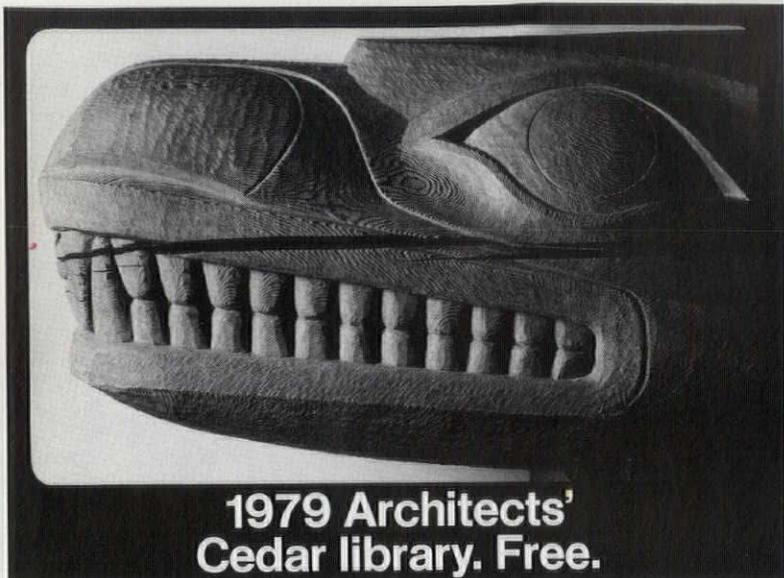
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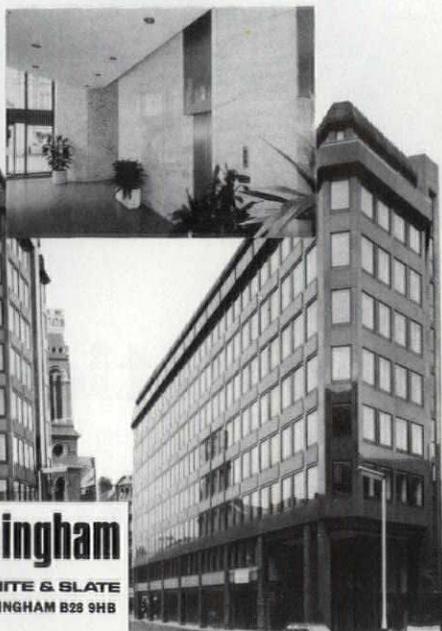
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Books continued from page 102

have become virtual cottage industries with an avalanche of books and articles pouring forth, some profound, many trivial, Mies remains an enigma.

Mies himself threw up a wall of impenetrability: he lived a private life without the publicity-seeking façade of several of his contemporaries. He also succeeded too well in creating a highly decent and teachable system of architecture that in its time appeared to answer many problems. He tried to indicate in his Armour Institute inaugural address that his architecture was loaded with higher significance: "Architecture . . . can reach up through all degrees of value to the highest sphere of spiritual existence, into the realm of pure art." Yet he prefaced this observation with the notation: "Architecture is rooted entirely in functional considerations." Mies the technician, with the craftsman background and a pride in the art of construction, would frequently dominate the artist who aspired to significant statement. He arrived in the U.S. with a career as an expensive and rather impractical designer behind him. The output of the previous 20 years encompassed six houses, a few temporary exhibition structures, two small apartment houses, some furniture designs, and some unbuildable projects. In the U.S. he gained a world-wide practice based on the reputation for functional, economical, and elegant buildings. How this architecture evolved and its ultimate meaning needs to be addressed.

The answer to the dilemma of Mies van der Rohe will not be found in Werner Blaser's *After Mies*, which is an example of the strictures of the Miesian school. Subtitled, *Teaching and Principles*, the book is a hodgepodge of miscellaneous information. Included are excerpts from the IIT catalog for various years, descriptions of IIT courses, student work apparently selected at random, a few addresses by Mies, some buildings by Mies and his followers, "some books" from his personal library, a bibliography of writings by and on Mies, and finally, an IIT and office employment record. These selected items of "raw data" are presented without any overall commentary except for idolatrous phrases: "As an institution the school of Mies does not stand still," and "It is now the task of the students to develop solutions of their own out of this unity while making due allowance for present conditions." The doctrine and the work, whether of the master or the students, is accepted uncritically; and while it may be a relief in these days of unsettled Post-Modernism to find a continuing belief in the virtue of the "Old Master," still such fawning devotion seems excessive.

Photographs and drawings of Mies's works are widely available in many places, including Blaser's *Mies van der Rohe—The Art of Structure* (1965; republished in paperback, 1972) and Peter Carter's *Mies van der Rohe at Work* (1974). Hence Blaser's insertion of many of the same works is repetitious, with one major exception—the little known Robert McCormick house, Elmhurst, Ill., 1951–1952, a prefabricated structure of steel frame elements from 860–880 Lakeshore Drive. As for former students, they are well known: Jacques Bronson, Gene Summers, James Ingo Freed, Myron Goldsmith, Schipporeit and Heinrich, and others. Their buildings are in the Miesian idiom and give little sense of the expandability of basic principles. The IIT student work is predictable though certain inclusions bring up problems. The architectural history course illustrated was not instituted until 1973 and raises the inevitable question, what happened before then? Most of the student projects date from the last ten years and give the picture that IIT is standing still. Perhaps IIT personnel would have a different view.

In summary, Blaser's *After Mies* is basically a propaganda piece for the School of Mies and IIT. It does offer some tantalizing glimpses of the vehicle and influence of Mies that one hopes will be investigated in the near future. □

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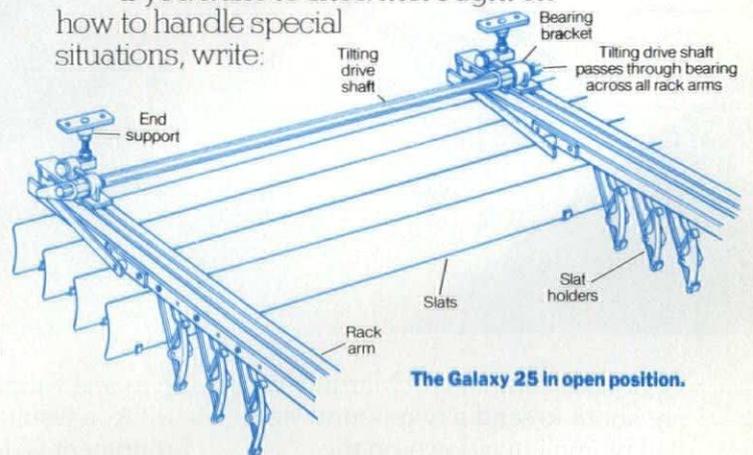
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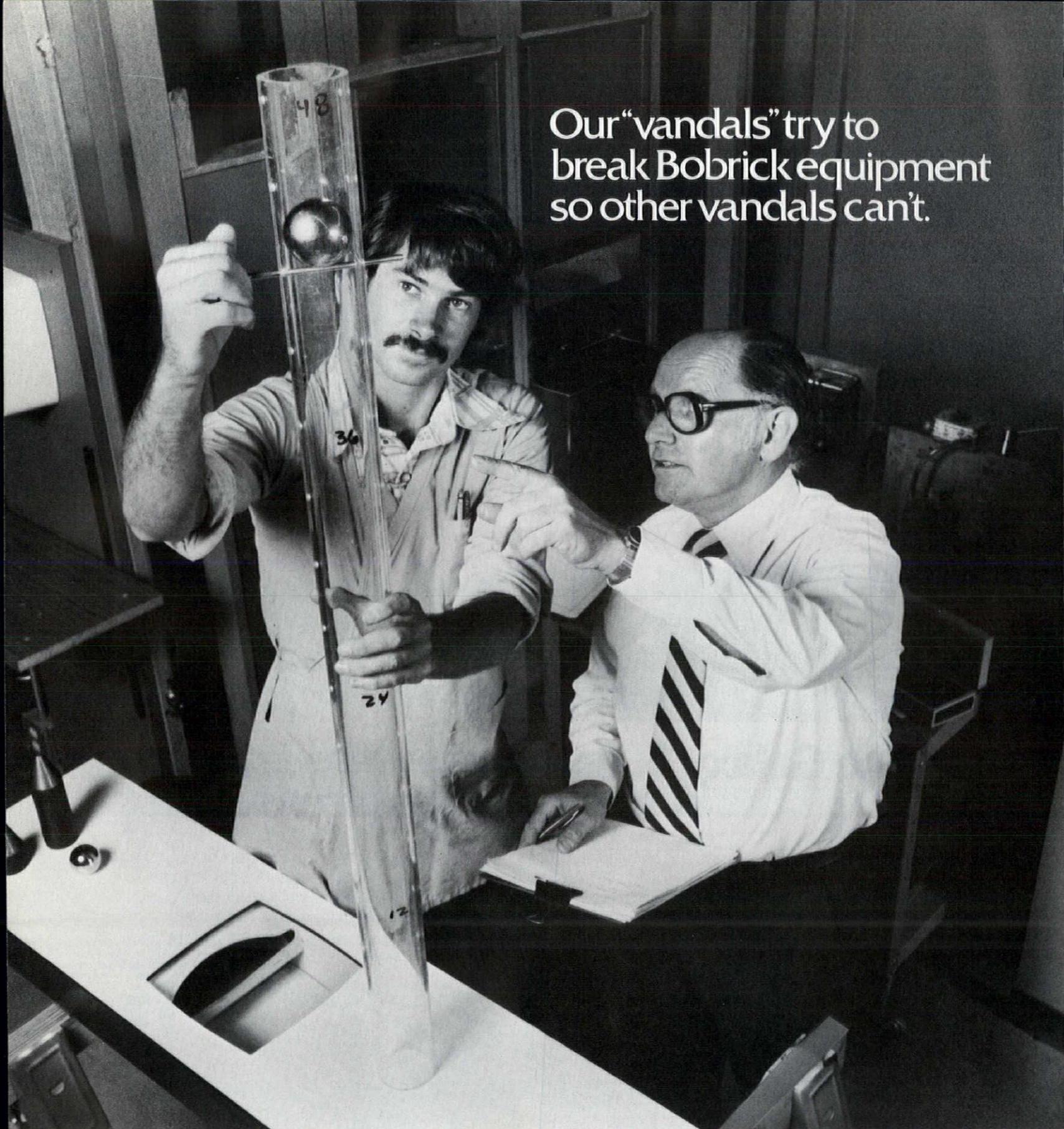
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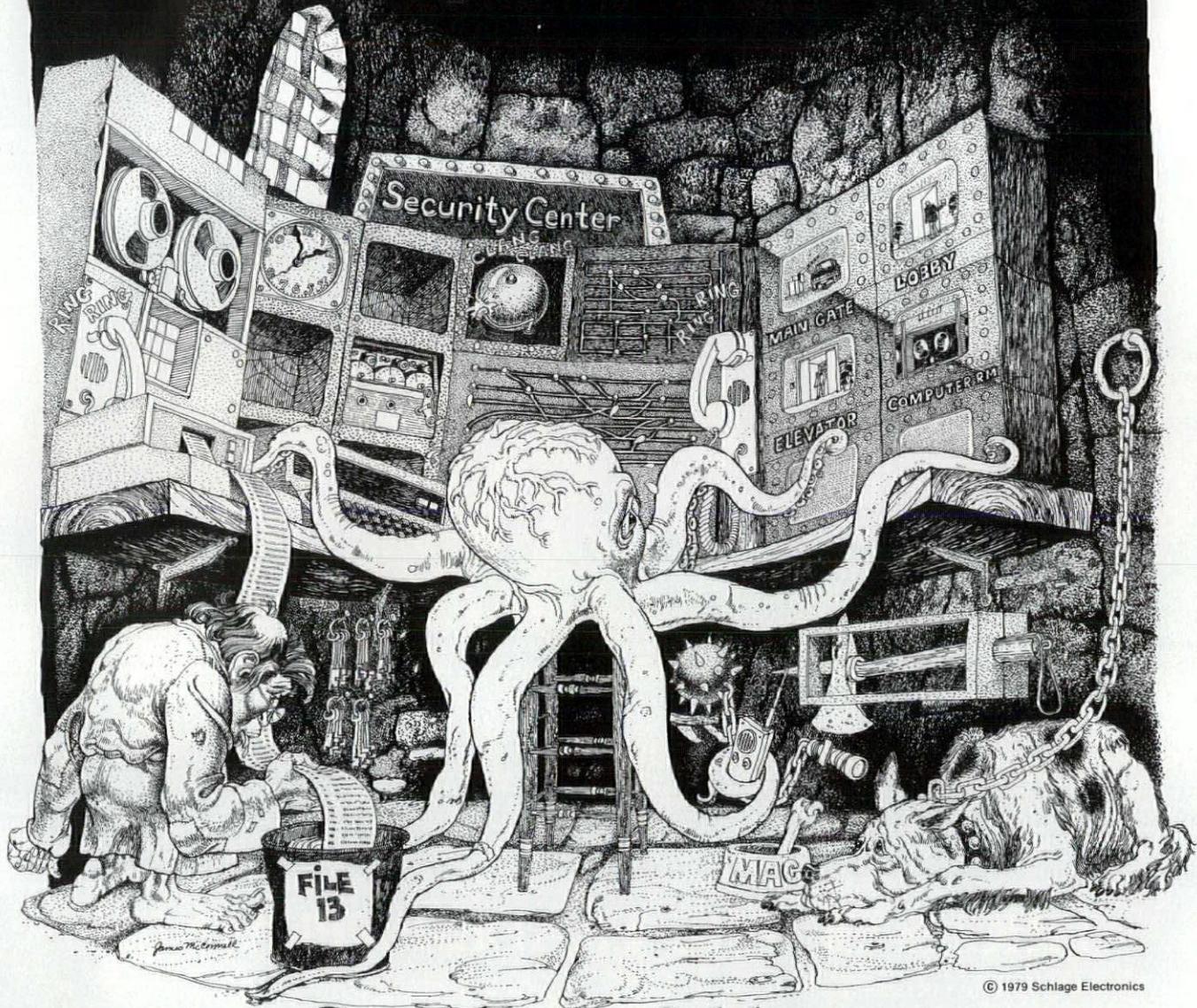
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Products and literature

The following items are related to the technics article on technology transfer from the space program. They are grouped here for the convenience of the reader.

Space technology Products

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Literature

Vacuum metallizing capabilities are discussed in a four-page brochure. Included are plastic films and laminates, with descriptions of each, and photographs of typical applications. King-Seeley Thermos Co., Metallized Products Division. *Circle 200 on reader service card*

Nun-Sun is produced as glass-adhering films or as window shades. It consists of polyester film on which has been deposited a thin layer of aluminum. The film filters out 75 percent of the sun's infrared heat rays, according to the manufacturer, and reduces glare, yet is sufficiently transparent to afford good natural lighting to come through. An eight-page brochure provides development, product, manufacturing, and application information. National Metallizing Div., Standard Packaging Corp. *Circle 201 on reader service card*

NASA computer programs. Catalog lists a sample of the more than 1500 programs available of those developed in the space program. Selected software from the Department of Defense and other government agencies is included as well. Copies of *COSMIC—A Catalog of Selected Computer Programs* are available free from: NASA, Technical Information Facility, P.O. Box 8756, Baltimore/Washington International Airport, Md 21240.

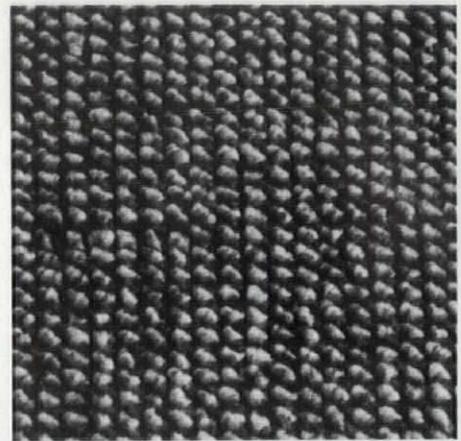
Space Benefits 79-1, Benefits Briefing Notebook, provides information on the transfer of aerospace technology to other industries. It is divided into three sections: 1—Transfer overview; 2—Benefit cases, in 20 subject areas including energy and construction; and 3—Indexes. Copies are available free from Technical Information Facility, P.O. Box 8756, Baltimore/Washington International Airport, Md 21240.

Vacuum metallizing. For brochures about metallized window film insulation and tests for film metallization density, write to: William H. Troph, Exec. Dir., The Association of Industrial Metallizers, Coaters & Laminators, 61 Blue Ridge Rd., Wilton, Ct 06897.

Flat cable for power and telecommunications. A brochure about flat cable and literature from manufacturers of telecommunications and power cable are available by writing to: R.N. Liesemer, Industrial Films Div., Plastic Products & Resins Dept., Du Pont Co., Wilmington, De 19898.

Spinoff 1979 is an annual report on technology available as a result of NASA developments. Section 1 is a résumé of current programs producing public benefits by direct application of technology. Section 2 contains a representative sampling of spinoff products and processes, with a brief description of the NASA development from which the technology is transferred. Section 3 covers the technology transfer process. Copies can be ordered, prepaid (\$4.25), Stock No. 033-000-00757-4, from: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

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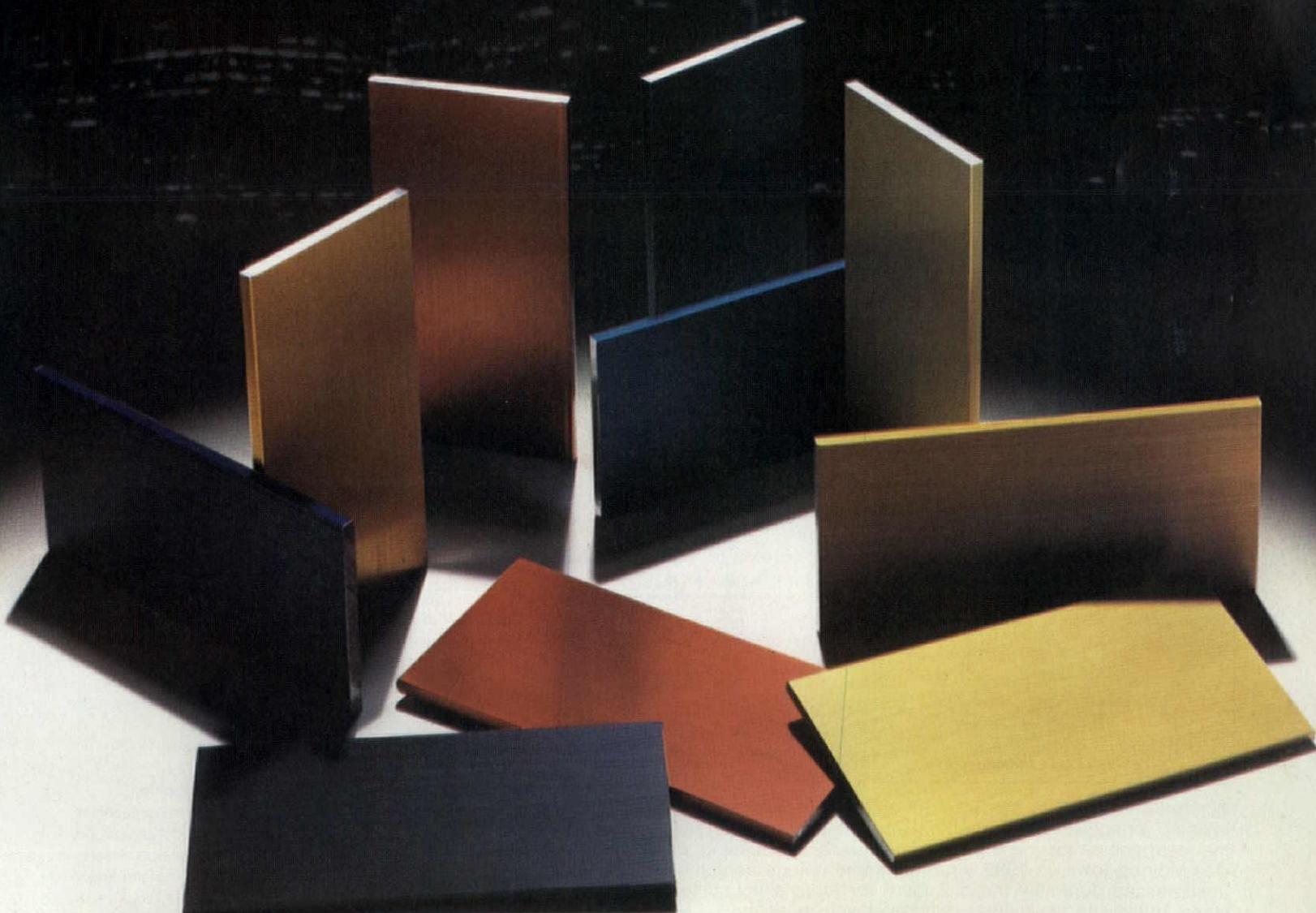
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[Products continued on page 112]

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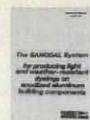


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Products continued from page 110

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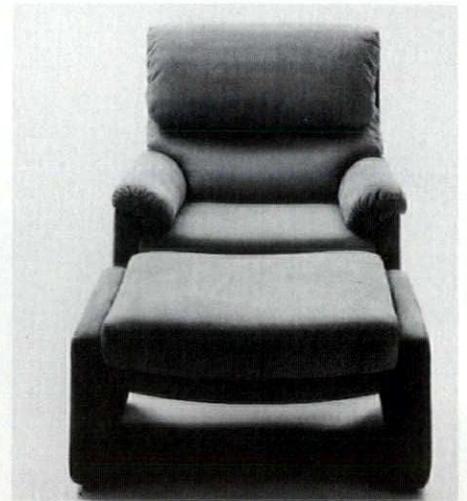
Universal thermostat can replace existing heating thermostats for millivolt, 12/24 volt forced-air, and hydronic systems except those with 120 line voltage. Adjustable thermometer allows setting to true room temperature. Two models are available: white housing with gold front panel, and dark brown housing with

woodgrain panel. Jade Controls, Inc.
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Push-bar exit devices, series 8300, for hollow metal or wood doors, available for 30-, 36-, 42-, and 48-in. openings, can be cut down for intermediate sizes. The aluminum bars have finishes in anodized satin, dark bronze anodic, and black anodic. Devices are mounted with four binder posts through the door. Adams Rite Manufacturing Co.
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Seating in a choice of leathers and colors includes modular units in rust suede with biscuit tufting; lounge/recliner chair and ottoman in elephant-grain leather; and polished stainless steel-framed chair with navy suede upholstered seat and back, designed by Elyse Lacher. Modular units are ottoman, armless loveseat, and armless chair. Cy Mann Designs, Ltd.
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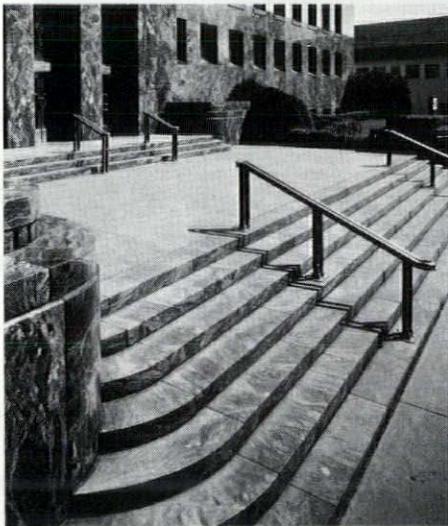
Work station includes drafting table, reference table, and plan desk. Drafting table has height and angle adjustment and smooth drawing surface, with optional plan and tool drawers, pencil trough, and bookcase. Reference table has optional plan and tool drawers, and bookcase. Plan desk has full-width tool drawer, and document and manual file. Accessories include privacy panel and desk reference arm that rotates 360 degrees. Plan Hold Corp.
Circle 115 on reader service card

E-Z Energizer is a zero-clearance heat-circulating fireplace, which can be installed directly on a floor against walls, without masonry. It has glass door panels, uses outside air for combustion, and has ducting to transfer fireplace heat. The air closure system blocks outside air flow when the fireplace is not in use. Superior Fireplace Co.
Circle 116 on reader service card

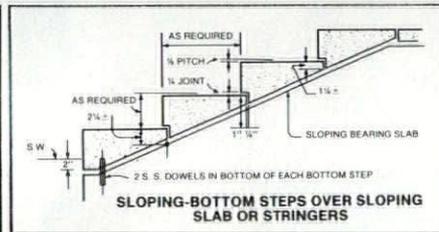
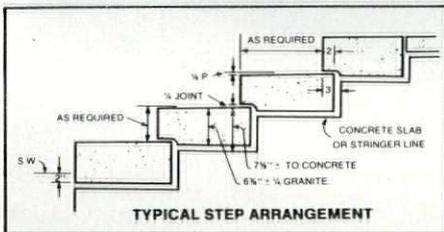
Fiber glass screening to reduce solar heat gain is the subject of an eight-page pamphlet. [Products continued on page 116]

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Architect: Tinsley Higgins Lighter & Lyon, Des Moines, IA



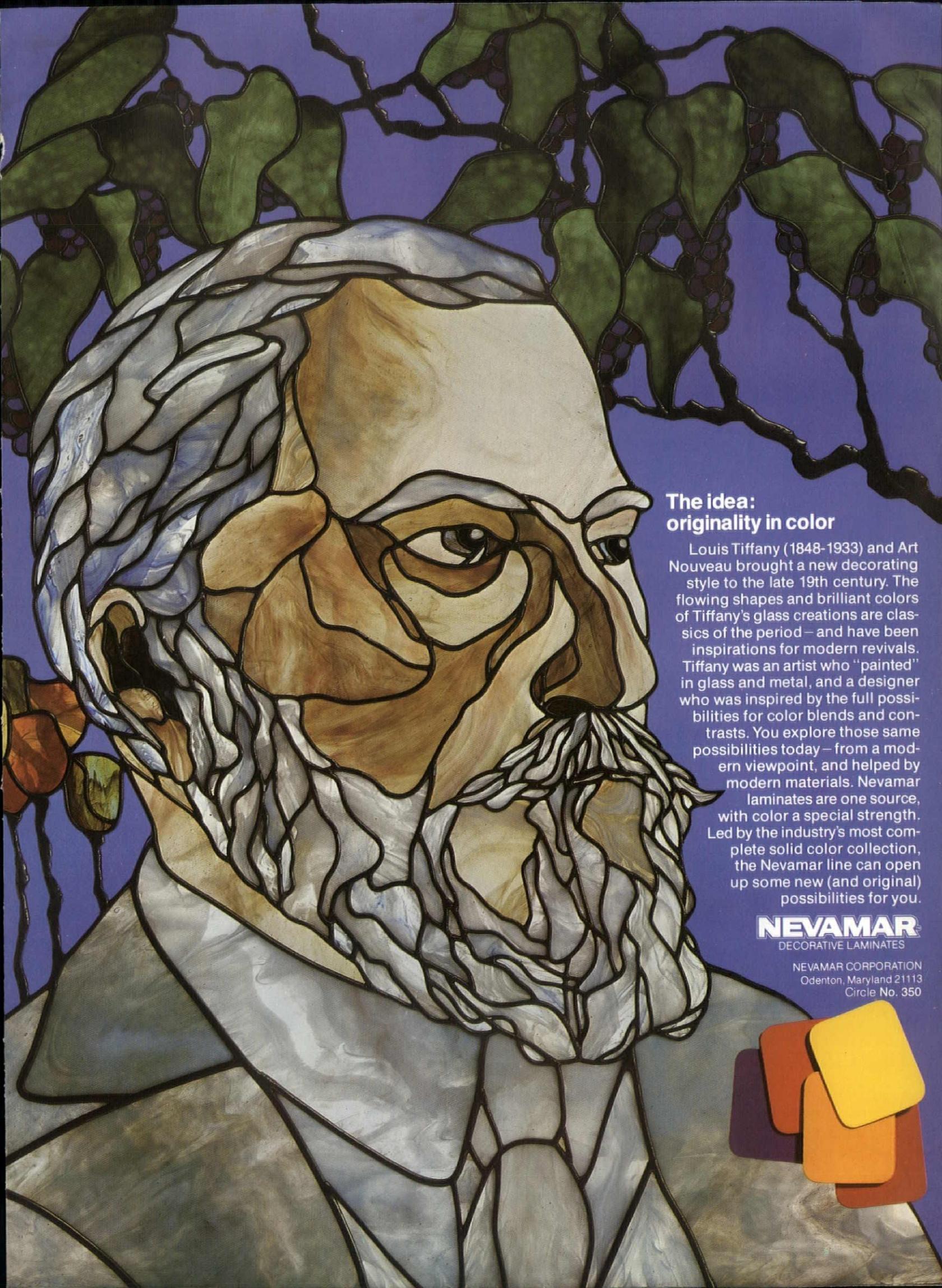
What else but granite can take 38 years of wear and weather without fading, staining, or showing measurable wear? That's what made Cold Spring granite the ideal choice for the Banker's Life Insurance Building when it was built in Des Moines, Iowa, in 1939. And that same unique combination of beauty and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

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

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originality in color**

Louis Tiffany (1848-1933) and Art Nouveau brought a new decorating style to the late 19th century. The flowing shapes and brilliant colors of Tiffany's glass creations are classics of the period – and have been inspirations for modern revivals. Tiffany was an artist who "painted" in glass and metal, and a designer who was inspired by the full possibilities for color blends and contrasts. You explore those same possibilities today – from a modern viewpoint, and helped by modern materials. Nevamar laminates are one source, with color a special strength. Led by the industry's most complete solid color collection, the Nevamar line can open up some new (and original) possibilities for you.

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