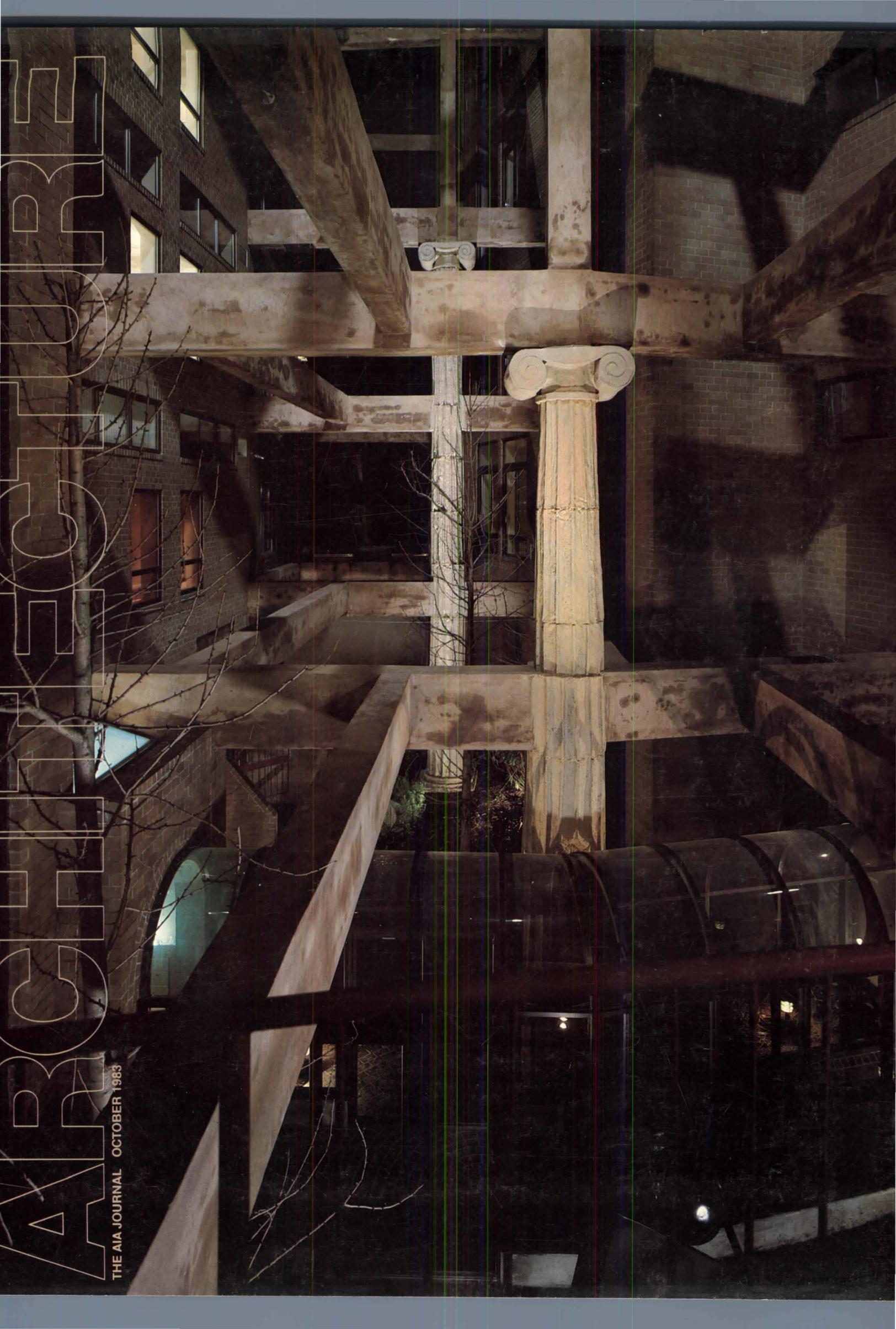


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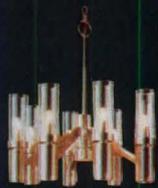
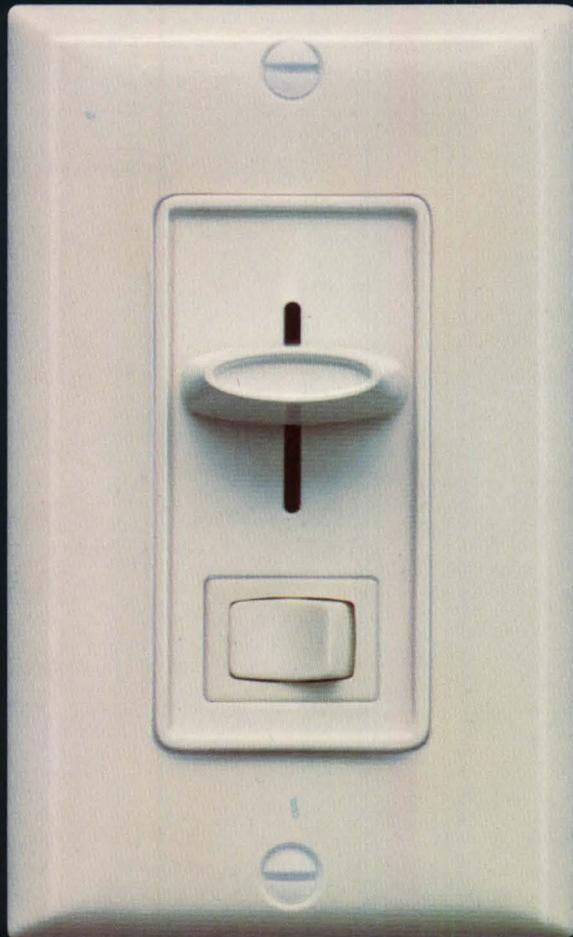
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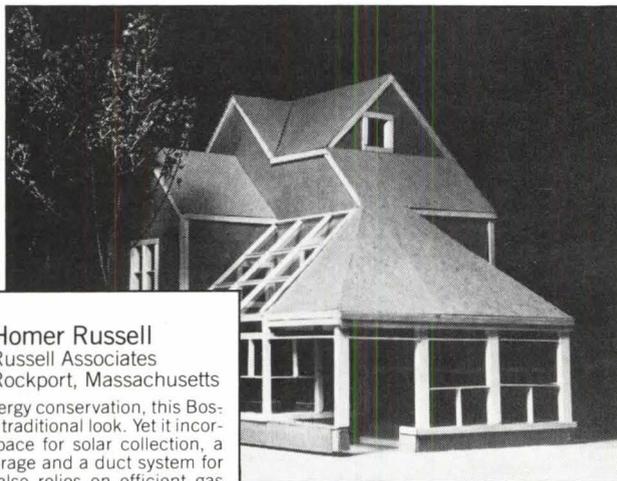
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Albert Sincavage
Natural Architecture
Honesdale, Pennsylvania

Robert Chase,
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Robert Elbogen
Robert L. Chase AIA & Associates
Woodland Hills, California

William Leddy, Architect
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Michael Cox
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St. Paul, Minnesota

MULTI-FAMILY HOMES

2ND PRIZE

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The Manchester Citizens Corporation
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Volker Hartkopf
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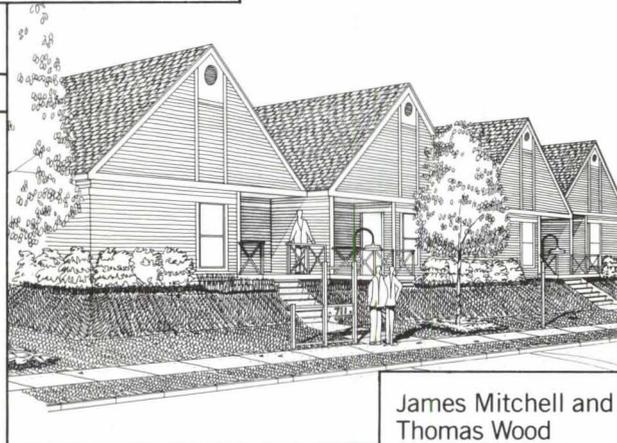
HONORABLE MENTIONS

Linda Brock and
Russ Heliker
Linda Brock, Architect
Bozeman, Montana

John Skujins, Architect
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Drexel Yaeger
Atelier Associates
Waterbury, Connecticut

Neil Carter and
David Marienthal
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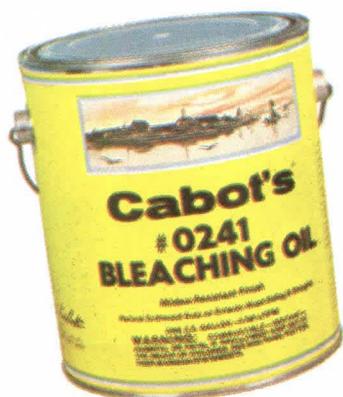
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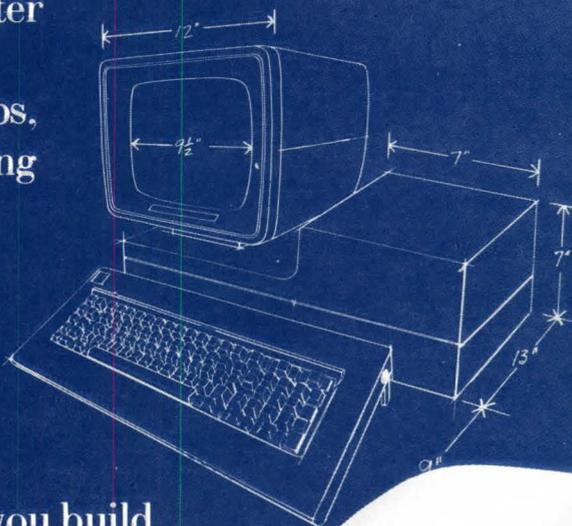
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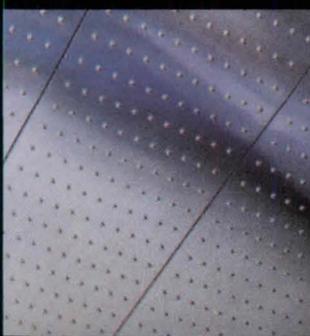
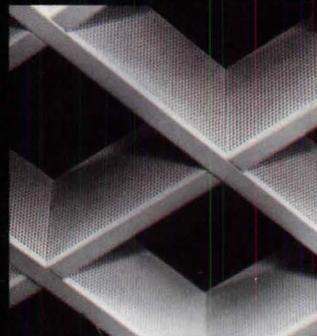
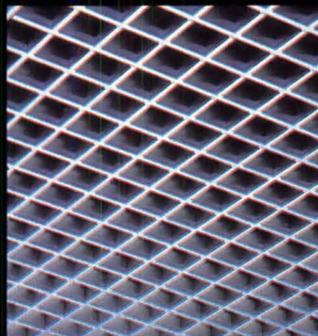
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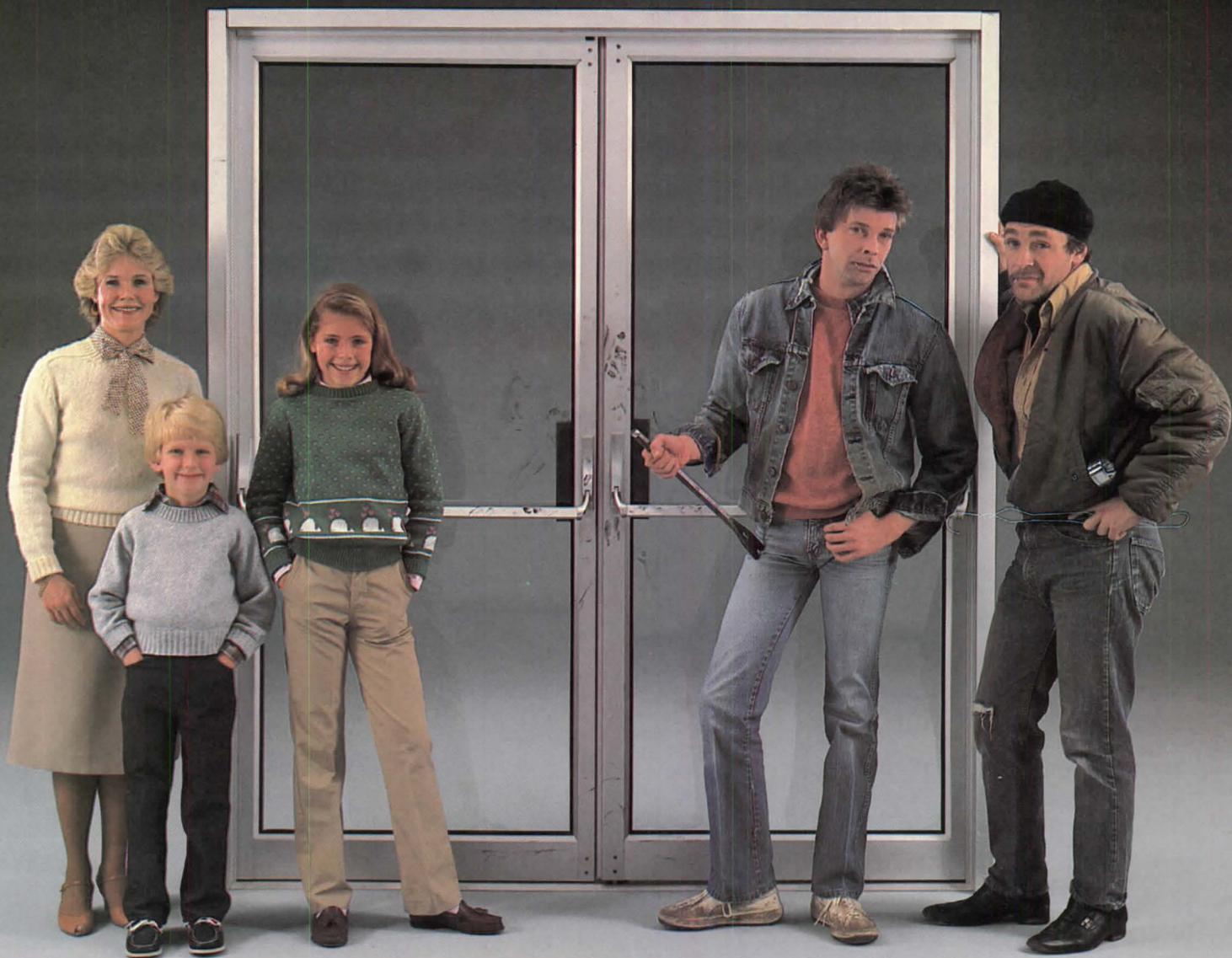
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Cover: Photograph by Todd Henkels of the courtyard of 130 Barrow Street renovation, by Stephen B. Jacobs and Associates. (For additional views of the courtyard see page 71.)

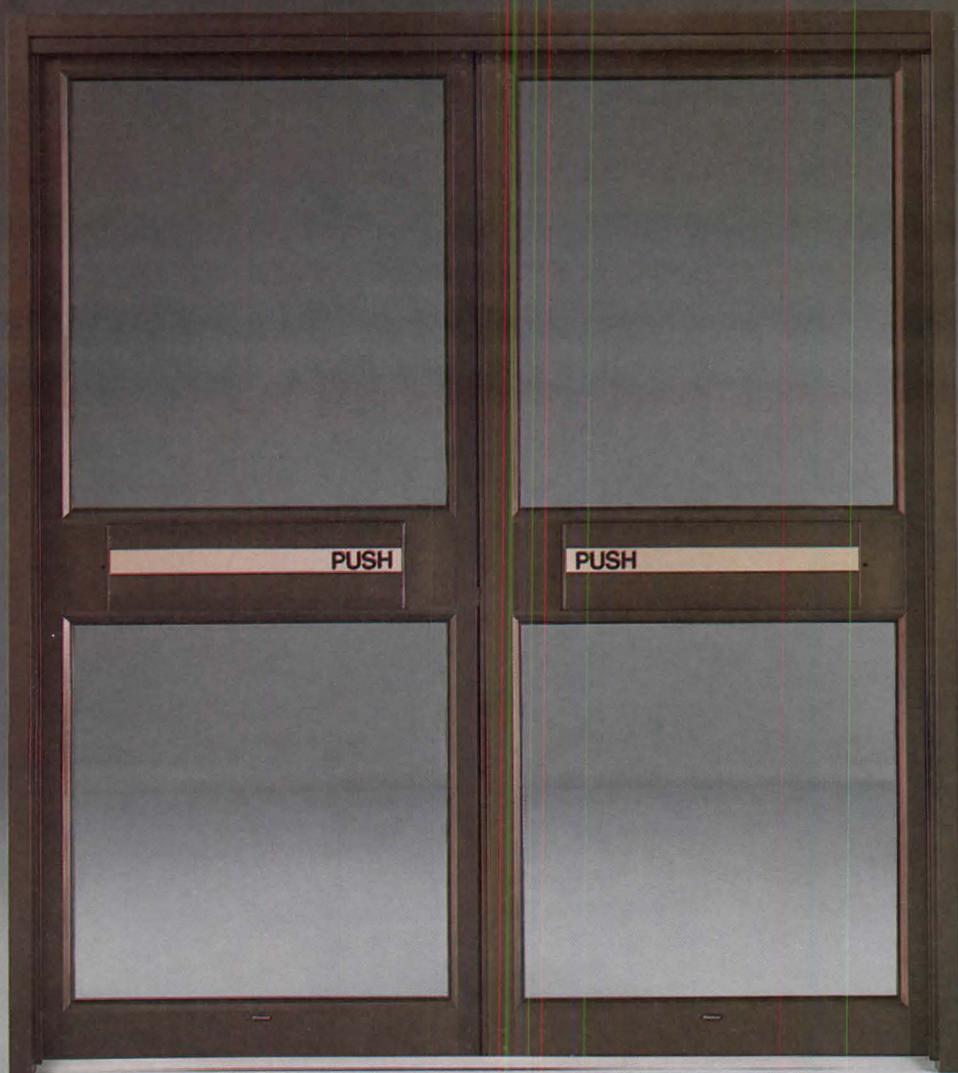
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EVENTS

Oct. 26-30: National Trust for Historic Preservation 37th Annual Conference, San Antonio. Contact: Preservation Conference Coordinator, National Trust for Historic Preservation, 1785 Massachusetts Ave. N.W., Washington, D.C. 20036.

Oct. 30-Nov. 2: Industrial Designers Society of America National Conference, Chicago. Contact: IDSA, 6802 Polar Place, Suite 303, McLean, Va. 22101

Nov. 3: Photovoltaic Applications Workshop, Exeter, N.H. Contact: Larry Sherwood, New England Solar Energy Association, P.O. Box 541, Brattleboro, Vt. 05301.

Nov. 3-4: AIA Energy in Design: Process Workshop, Boca Raton, Fla. Contact: Brenda Henderson at Institute headquarters, (202) 626-7353.

Nov. 4-5: Conference on the Metropolis, Centre for Urban and Community Studies, University of Toronto.

Nov. 5: Conference on People, Houses, and Values, Woodrow Wilson School, Princeton, N.J. Contact: Middlesex-Somerset-Mercer Regional Study Council, Inc., 621 Alexander Road, Princeton, N.J. 08540.

Nov. 5: Solar Domestic Hot Water Workshop, Jordan College Energy Institute, Comstock Park, Mich.

Nov. 6-9: International Symposium on Architectural Fabric Structures, Orlando, Fla. Contact: The International Symposium on Architectural Fabric Structures, 345 Cedar Building, Suite 450, St. Paul, Minn. 55101.

Nov. 6-11: Conference on Building Structural Failures—Their Cause and Prevention, Santa Barbara, Calif. Contact: Engineering Foundation, 345 East 47th St., New York, N.Y. 10017.

Nov. 7-12: International Conference on Quality, Low-Cost Housing, Miami. Contact: Conference Secretary, Construction Department, DM 238-B, Florida International University, Tamiami Campus, Miami, Fla. 33199.

Nov. 9-10: Conference on Computer-aided Space Design and Management, New York City. Contact: Gralla Conferences, 1515 Broadway, New York, N.Y. 10036.

Nov. 9-10: Workshop on Preventing Building Design and Construction Failures, University of Wisconsin, Madison.

Nov. 10-12: AIA Committee on Architecture for Justice Conference—"Reuse, Recycle, and Renovate," Arlington, Va. Contact Michael Cohn at Institute headquarters, (202) 626-7366.

Nov. 10-12: Stained Glass International/1983, New York City. Contact: Interglass-metal Corp., 310 Madison Ave., New York, N.Y. 10017.

Nov. 11-12: Workshop on Effective Techniques and Devices for Building Diagnostics, University of Wisconsin, Madison.

Nov. 17-18: Value Engineering Orienta-

tion for Design and Construction, Department of Engineering & Applied Science, University of Wisconsin, Madison.

Nov. 18-19: Conference on New Technology and the Architecture of the Future, San Francisco. Contact: Guidelines, Box 456, Orinda, Calif. 94563.

Nov. 18-19: Conference on Super Insulation for the Mid-Atlantic Region, Valley Forge, Pa. Contact: The Mid-Atlantic Solar Energy Association, 2233 Gray's Ferry Ave., Philadelphia, Pa. 19146.

Nov. 30-Dec. 2: Conference on the Infrastructure Crisis, Orlando. Contact: Metropolitan Association of Urban Designers and Environmental Planners, Inc., P.O. Box 722, Church Street Station, New York, N.Y. 10008.

May 6-10, 1984: AIA Annual Convention, Phoenix, Ariz.

LETTERS

Long Wharf Hotel—Other Perspectives:

May I correct a mistake that crept into Bob Campbell's interesting piece on the Long Wharf Hotel in Boston? (See July, page 42.)

After the eight submissions for the hotel project had been reviewed, rather inconclusively, by the Boston Redevelopment Authority, Mayor Kevin White asked me to help him make a final selection. (I was living in Boston at the time.) He explained to me that he wanted to see the best possible building on that site, and that he wanted to meet with the architects (not the developers) of the most promising submissions and discuss with them the pros and cons of their projects.

I arranged meetings with the four architects whose submissions I considered most promising, and the mayor and I spent considerable time, over a period of several weeks, talking to each of the architects and discussing their submissions in detail. At no time during those discussions did he or I bring up the names of developers. Our discussions were limited to issues of architecture and urban design, and I thought that Kevin White showed some remarkably sophisticated insights. In fact, I rather doubt that he was particularly aware of who was backing which proposal.

After these exhaustive discussions, I recommended that he pick either Graham Gund's or Araldo Cossutta's scheme and suggested that there might be minor problems with each.

He selected Cossutta's scheme, for reasons that had to do primarily with details of the design. Having been present throughout the discussions, and having had several private talks with the mayor over a period of weeks, I am convinced that the question of his relationship with the developer, Mort Zuckerman, played no significant part in the final decision.

Bob Campbell's comment that "many people—a majority, I suspect— . . . as-

sume it is not a new work of architecture at all but is just another recycled old Boston mercantile wharf like many nearby"—explains precisely why the mayor and I liked the design.

It is also the reason that, by and large, the completed building is a success.

*Peter Blake, FAIA
Chairman, Department of
Architecture and Planning
Catholic University,
Washington, D.C.*

Robert Campbell responds: In hindsight I agree that, in fairness to the architect of the Boston Long Wharf Hotel, Araldo Cossutta, I should have mentioned in my article the review that Peter Blake performed of the eight submittals in the development competition for the site.

It seems right to add, however, that when Mayor Kevin White asked Peter for this review (in which Jaquelin Robertson also participated briefly), the mayor was intervening radically in the normal and expected selection process. The Boston Society of Architects was among those who protested at the time, writing to the mayor: "Seeking the opinion of other independent professionals, after the fact, only confuses the issue and is inappropriate to the procedure which had been established." (This is a criticism of the mayor and not of Peter.)

I don't know why Mayor White aborted the Long Wharf Hotel selection process. The reason may have been his friendship with Mr. Cossutta's developer, Mortimer Zuckerman, or it may have been a sincere preference for the Cossutta design. Probably it was a mixture of both. Whatever the reason, certainly nothing in the events nor in my article reflect in the slightest on the integrity of Mr. Cossutta, whose behavior in difficult circumstances was exemplary.

I would like to respond to Bob Campbell's article, "A Strong Contextual Gesture Gone Awry," in the July issue.

Our office, Sasaki Associates, prepared one of the eight architectural schemes for a new hotel on Long Wharf. Needless to say, we were upset with the way the final choice was made. When I reviewed the other seven schemes I was relieved

continued on page 108

Corrections: Architects for MacKenzie Hospital in Edmonton, Alberta, (see Aug., page 124) were the UHSC Architects Group, a joint venture between Groves Hodgson Palenstein/Architects, Woods & Gardener Architects, and Zeidler Roberts Partnership/Architects.

For the Soundstage in Dallas (see May, page 217), designed by Martin Growald, Imero Fiorentino Associates designed the three studios, and Donald "Pete" Howard of IFA designed the grid lighting system.

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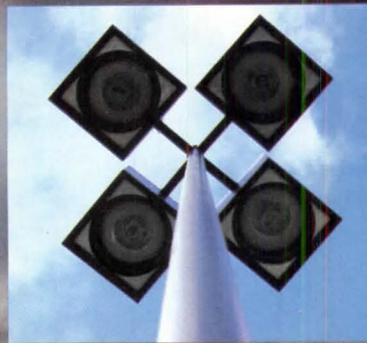
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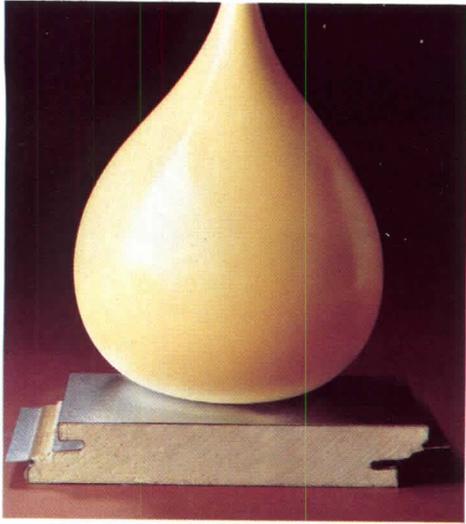
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Elwin G. Smith asks: Who needs fat paint?

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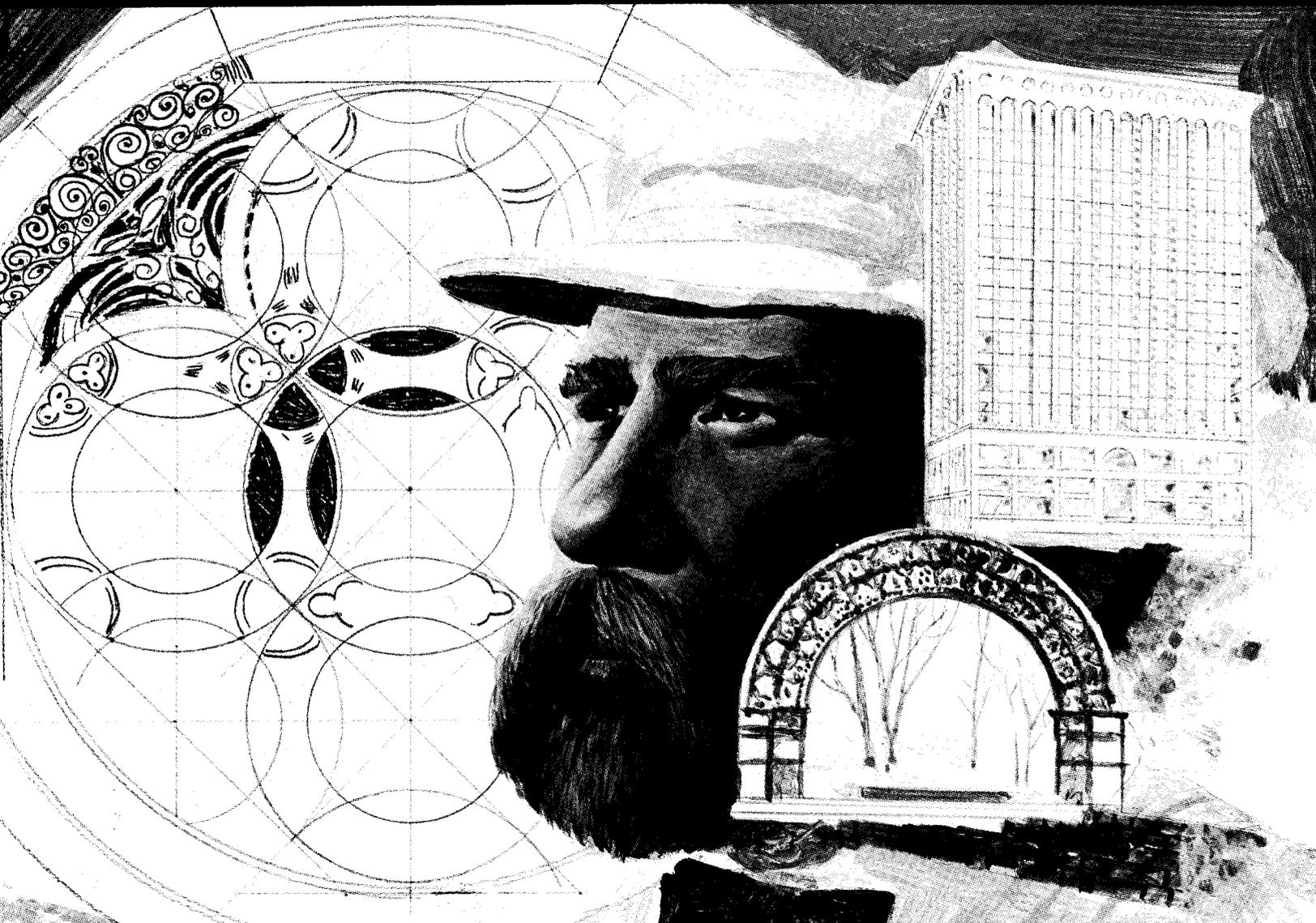


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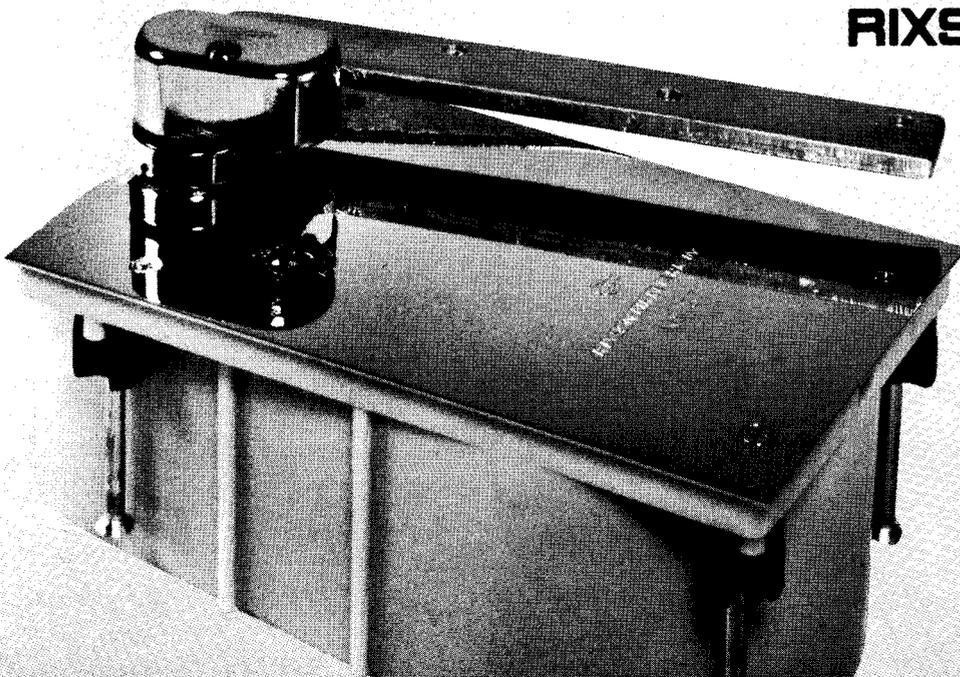
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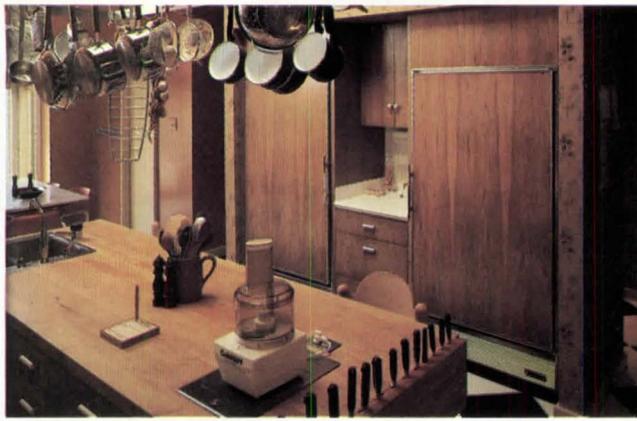
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Awards and Competitions

First of Berlin's Inner City Exhibition Projects Completed

First projects have been completed for Berlin's ambitious Internationale Bauausstellung (IBA), but deadline for completion of the rest has been advanced from 1984 to 1987. The citywide exhibition, focused on social housing and urban development, has as its theme "Living in the Inner City."

Although Germany has a long tradition of architectural exhibitions, Josef Kleihues, original director of IBA, describes the emphasis of this particular exhibition as "a protest against the destruction of Berlin by postwar planning, town planning criteria, and architectural models."

In Berlin this destruction, distinctly defined and following on from the devastation caused by the war, is considerable. As in a number of other cities, both in Europe and North America, postwar development has tended to ignore established patterns of development. Instead it has been based on land uses that have been systematically separated out, zoned, and serviced by large and intrusive new roads. Consequently traditional forms of building, which organized housing around the perimeter of city blocks so as to define clearly the public and private zones of the city, have to a large extent been overlooked.

IBA abandoned an early idea for a focal development project on a clearly defined and discrete site in the Tiergarten and instead adopted a policy where numerous development schemes were scattered strategically throughout the existing city fabric.

This reflected a change in philosophy from overall master plan to sensitive intervention, which was considered a more appropriate response to the varied architectural problems associated with building in the inner city.

IBA is overseeing a total of 106 projects spread through the city in six different districts. In order to avoid uniformity and to reinforce its own view of the city as a diverse and richly varied collection of different buildings, IBA has sought to involve as many different architects as possible in the current program of work. "We feel that it is better to have many, many



First IBA project finished is a city block of housing designed by six groups of young German architects under Rob Krier (top). Nearing completion for IBA is an angular housing block by O. M. Ungers (above).

architects working here," one IBA executive commented. Even individual sites have been subdivided into several plots, each with its own designer.

Most of the architects have been selected through national and international competitions. The most recent—for a school on Südliche Friedrichstadt—was won by the Italian architect Gino Valle. He now joins an impressive roll call of international architects that includes James Stirling, Herman Hertzberger, Richard Meier, John Hejduk, Aldo Rossi, Rob Krier, Alvaro Siza, Gustav Peichl, and Arata Isozaki, who are working alongside German architects such as Gottfried Böhm, Manfred Schiedhelm, Heinrich Baller, and O. M. Ungers.

Many of these architects are designing social housing. In West Germany this is based on inflexible standards of space provision, funding, and construction that IBA-sponsored projects must respect. IBA has acted as a go-between, linking architects with the appropriate city agencies, local government, and statutory offices, but the development of designs from competition-winning schemes to built projects has proved to be difficult in practice. Not only has progress been slow but in some cases the development of a project to ensure compliance with cost yardsticks, planning requirements, and local conditions has resulted in significant changes of the organization and appearance of schemes.

Extension of the deadline would seem to indicate that the bureaucracy of building has blocked progress. IBA has no executive authority and receives three-quarters of its funding from the Berlin Senate and the remainder from the Federal Republic of Germany. Consequently the exhibition is very vulnerable to shifts in political sentiment, and three changes of city government in the last four years appear to have significantly affected implementation of IBA's plans.

In addition, split responsibilities for building and city planning introduced within city government, together with the separation within IBA's own management between new buildings that are under the direction of Kleihues and a large urban rehabilitation program for which Hardt-Walther Hamer is responsible, clearly have not helped the realization of IBA's original schedule. BRIAN CARTER

Mr. Carter is an architect working with Arup Associates in London.

News continued on page 22
ARCHITECTURE/OCTOBER 1983 15



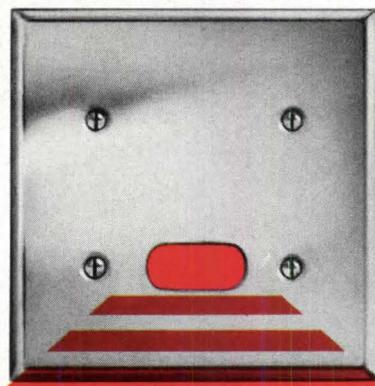
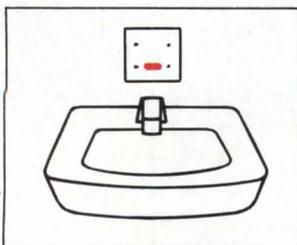
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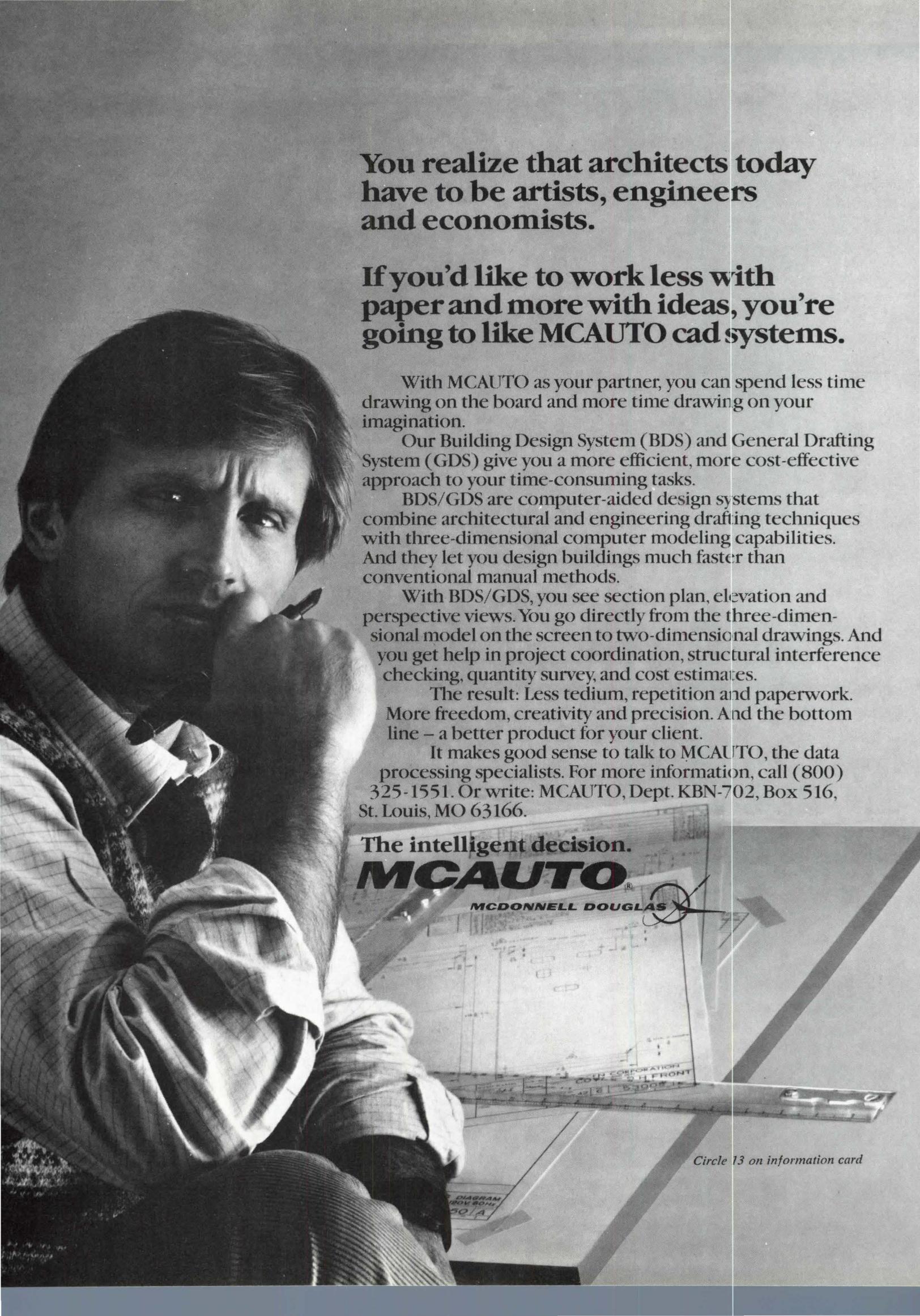
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Aga Khan Awards Presented to 11 Projects in Nine Countries

The 1983 Aga Khan awards for excellence in architecture have been presented for 11 projects in nine countries. Prize money—up to \$500,000 distributed every three years—is being divided among the architects, design and construction professionals, craftsmen, clients, and institutions judged most responsible for the success of the winning projects. This year's winners include a resort hotel, a vacation house, an airport terminal, and a mosque. The projects and brief descriptions follow:

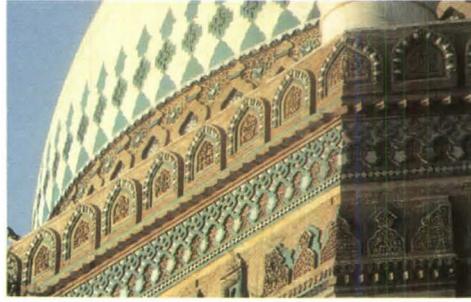
Tanjong Jara Beach Hotel and Rantau Abang Visitors' Center was designed by Wimberly, Whinesand, Allison, Tong & Goo of Hawaii with Akitek Beisekutu Malaysia of Kaula Lumpur as part of a Malaysian government project to provide a resort facility and conservation area. The beach hotel, located on a 77-acre site along a crescent beach, includes duplex cottages and two-story buildings with eight to 12 guest rooms, all constructed of native hardwood and raised three to five feet above ground with open sided rooms and steep pitched roofs with gabled grilles. The visitors' center, located six miles north of the hotel, includes a sea life museum, a botanical garden, a bazaar for local crafts, and a nature area.

The Haj Terminal (also winner of a 1983 AIA honor award, see May, page 276), designed by Skidmore, Owings & Merrill, is a 105-acre fabric-roofed structure separated into two pavilions. Each pavilion has five modules with 21 self-contained, identical, semiconical structural units. Used only for a six-week period during the annual pilgrimage to the Holy City of Mecca, the terminal provides space for ticketing, customs, baggage retrieval, and waiting areas with shops, restaurants, benches for sitting and sleeping, and toilet facilities.

The Andalous residence hotel in the new resort of Port El Kantaoui, designed by Serge Santelli, is part of a major com-

plex that includes three hotels and recreational, sports, and entertainment facilities. The three-story structure utilizes vernacular elements, including a central courtyard with an interior garden, a series of pools and fountains, exterior stairways, and traditional arches. Its white facade is interrupted by small windows and decorative bands of traditional ceramic tiles.

The rehabilitation of the lavish, 18th century Azem Palace in Damascus, Syria, by Shafiq al-Imam and Zaki al-Amir to house a museum relied on French plans from the 1920s and descriptions by family members to reconstruct the severely damaged complex. The rebuilding re-



The restored tomb of Shah Rukn-I-Alam.

spected the existing structure and the cultural heritage of the period and integrated a modern residence added in the 1930s, designed by Michel Ecohard.

A small vacation house in the resort of Akyaka, Turkey, designed by poet Nail Cakirhan, was selected for "sensitive revival of craftsmanship and cultural sensitivity." It features a rubble stone foundation, timber framework, infilled brick walls, tile roof, handcrafted woodwork, and built-in furniture.

The restoration of the Darb Qirmiz Quarter in Cairo, Egypt, included the preservation of seven monuments, the earliest built in 1368, and the rehabilitation of 22 residential buildings constructed after the 18th century. Two commercial complexes and several apartment houses have been constructed on vacant sites in the quarter, and the area has been opened to through traffic.

The reconstruction of the Hafsia quarter in the Medina of Tunis to public housing included the addition of a canopy over a commercial street to link the two sections of the medina and infill housing designed to blend with the existing buildings. The architects, Wassim bin Mahmoud and Arno Heinz, preserved narrow, winding alleys and courtyards to maintain the scale of the traditional architecture.

For the great Mosque of Niono, completed in 1973, planner/builder Lassiné Minta employed vernacular architecture and traditional technologies, including load-bearing mud brick arches, floors and roofs of wood, matting and earth, wood scaffolding in bearing walls, and rice husk plastering.

Restoration of the 14th century tomb of Shah Rukn-I'Alam in Multan, Pakistan, included clearing the site, reinforcing the masonry walls, replacing tiles, and repairing damaged woodwork. Architect Muhammad Wali Ullah Khan was honored for increasing the "awareness of the need for the conservation of the great monuments in the country."

Sherefudin's White Mosque in Visoko, Yugoslavia, designed by Zlatko Ugljen and S. Maklin, engineer, was honored for combining modern and vernacular elements and maintaining the traditional atmosphere of a destroyed mosque located on the same site. The complex includes an exterior courtyard with a fountain, outside prayer area, and a public library.

The Ramses Wissa Wassef Arts Center in Giza, Egypt, designed and founded by Ramses Wissa Wassef, is constructed of clay and mud bricks and features traditional vaulted and domed structures. The school has grown to include workshops, showrooms, a sculpture museum, and housing for teachers and students.

Jurors were Turgut Cansever, Istanbul; Rifat Chadirji, Baghdad; Habib Fida Ali, Karachi; Mübeccel Kiray, Istanbul; Charles Moore, FAIA, Los Angeles; Parid Wardi bin Sudin, Kaula Lumpur; Ismail Serageldin, Washington, D.C.; Roland Simounet, Paris; and James Stirling, London.

Paris Opera House Competition: 'Folie de l'architecture'

French President François Mitterrand last month invited three of six finalists in an international design competition for a new Paris opera house to carry out "further studies" on their proposals. A 20-member international jury had asked Mitterrand to choose one of the six, but it also acknowledged that there was a basic flaw in the competition requirements: Site and building program were incompatible.

Those invited to elaborate on their schemes are Carlos Ott (Canada), Rocco Sen Kee Yim (Hong Kong), and the team of Dan Munteanu, Teodor Georgesco, and Odile Perreau-Hamburger (France). Eliminated from the competition are Christian Depurtzamparc (France), J. P. Viguier and J. F. Jodry (France), and Nicholas Hare (United Kingdom).

The competition was first announced in 1982. The site for the new opera house is an irregular parcel of the disused railway station on the Place de la Bastille. The design program called for a 2,700- to 3,000-seat opera house, four large staging areas, a full-size rehearsal stage, and a "modular" theater seating 600 to 1,500 spectators to be used for experimental opera performances.

The concept of the new opera house is
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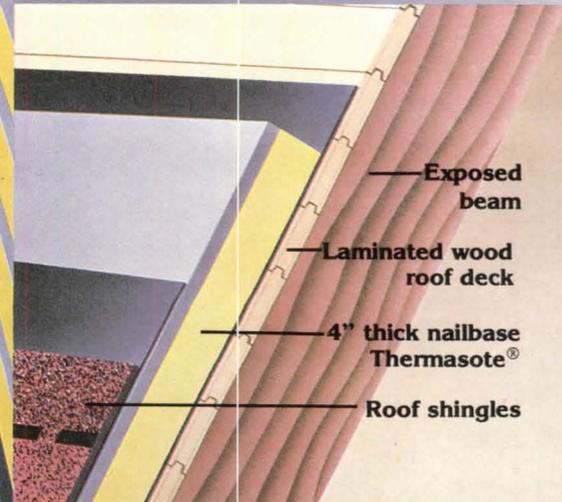
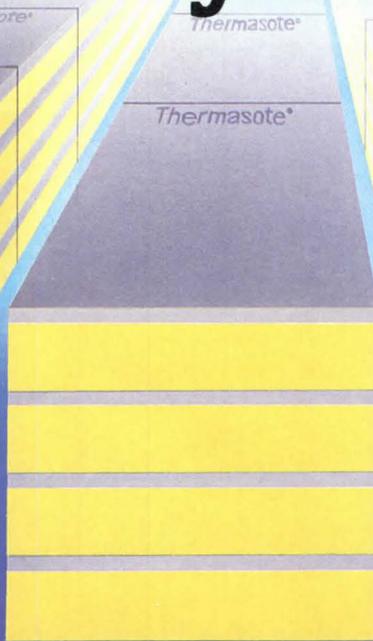
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Circle 14 on information card

Awards and Competitions from page 22 significantly different from that of Charles Garnier's celebrated Opera House, completed in 1874. The new opera is to be a working home for the furtherance of the popular music revival that is going on all over France. It is also a manifestation of the government's cultural ambitions for a new, and now somewhat faltering, socialist arts program. Both opera and the opera house are meant to be as accessible as the nearest cafe-restaurant.

The schedule for the new opera calls for at least four different works to be presented over a two-month period "every day and throughout the whole year." Many sets will therefore have to be held in reserve and used in rotation. In this kind of scheme, physical management becomes

the major ingredient of the architectural program. The whole competition therefore concentrated on the amount of space required on site to accommodate the technical requirements.

In judging the 766 entries, it soon became obvious to the jury [of which the author of this article was a member] that these basic programmatic requirements created seemingly insolvable problems to the architects. In fact, in the end, the jury found only 70 reasonably successful, workable schemes.

The first problem required competitors to take the mission's stage layout diagram and overlay it on the site. In reviewing the entries, the jury found that only three alternative layouts could be achieved without breaking the boundaries of the site

or offending aspects of "functioning" or security. The stage space requirements imposed the following conditions: The width of the main stage plus lateral set spaces had to be 70 meters; each project had to incorporate six ancillary stage spaces for rapid rotation of sets at the mean ground level; alternative set spaces were to be situated 16 meters below mean level; adequate connections were required (without interruption) between the main stage, the rehearsal stage, and the workshops; independent scenery circulation was required for each stage at the mean ground level as well as for the scenery maneuvering space below ground level.

The effect of all this was to create a large "inviolable" area on the plan. As this area nearly filled the site across its diagonal it allowed insufficient room for placing the 2,700-seat auditorium and restricted space for the circulation and entry to the modular auditorium.

Other issues brought into question the whole notion of international architectural competitions on this scale. Such competitions, most professionals would admit, are one of the most attractive ways of entering the international arena. They are a way of achieving instant fame—as Jørn Utzon proved with the 1956 Sydney Opera House competition. But, as competitions are usually set up for special public buildings, they are judged in a blaze of publicity, which results in schemes overblown in their design and structural considerations.

For the opera house, there were the gestures of entrants who thought the jury would be impressed by cooling tower shapes. Then there were schemes hung together with taut cables connecting low-slung roofs covering the various functional areas. Some of these looked like fishnet stockings hanging between a multitude of unconnected thighs. And then there were those who decided, against all advice, to change the rules as they went along, and those who wished to confuse the jury by designing a building for another place.

As well as these, there were rebels and "artistic" candidates who dolled up their schemes in garish colors (against the submission rules); there were those who entered pictures of scale models as well as eclectics and revivalists who won approval from those members of the jury who shared their historical interests. A number of schemes, however, took the traditional idea of the egg-in-the-box theater (curved auditorium in a rectangular frame) and respected the linearity of the site. Such a decision emphasized the importance of the program and the projected site, but fell foul of the different spaces that the area was required to provide.

The many and varied approaches show the dilemma that faces an open competi-

continued on page 29

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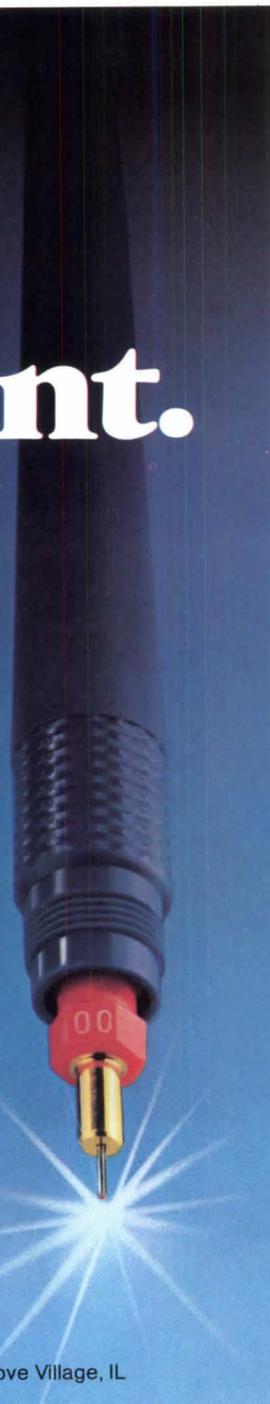
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Awards and Competitions from page 24
 tion entrant. The problem occurs less with limited competitions. However, one could hardly argue the superiority of the proposed ABK National Gallery extensions, produced as the result of a limited competition, against the design of the successful Beaubourg, chosen in a competition similar to that of the opera house.

Indeed, the total number of submissions received was roughly the same: 776 for the opera house and 681 for Beaubourg. The sheer waste of effort is still to be assessed. At a rough estimate, the cost of entries absorbed by the architectural profession was \$7.5 million to \$9 million. Prize money totaled around \$480,000 divided between 32 entrants. The architect of the design chosen by the president will receive normal fees for the work.

For some architects, it was clearly fun, and worth every penny invested. But it must be admitted that it was a competition dedicated to the *folie de l'architecture* as well as to what the French journal *l'Express* last year called *de la musique*. DENNIS SHARP

Mr. Sharp, a member of the competition jury, practices architecture in London and was founder and editor of AA Quarterly (1968-82).

Practice

Hurricane Window Breakage Raises Questions in Houston

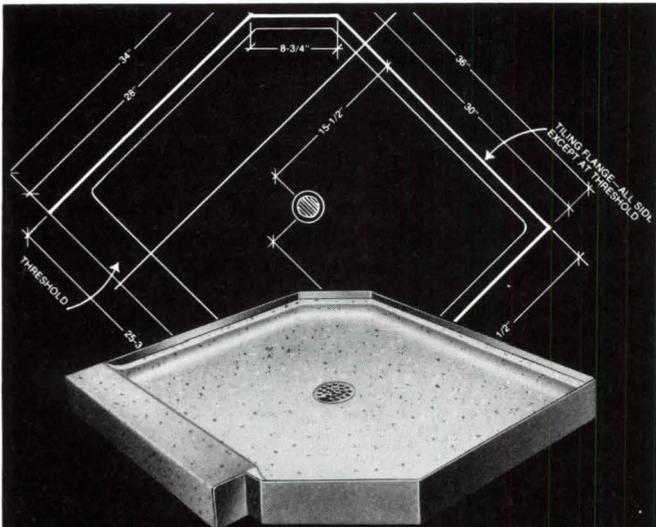
Now that Hurricane Alicia has been reduced to a grim memory, architects, engineers, and claims adjusters are trying to determine why an estimated 2,000 windows popped out of downtown Houston buildings during the Aug. 18 storm. Allied Bank Plaza and the InterFirst Bank Building were the hardest hit, with Entex Tower, One Shell Plaza, and the Hyatt and Sheraton hotels suffering lesser damage. Alicia caused over \$1 billion in damage in Houston and nearly \$350 million in nearby Galveston.

Initially, flying debris was blamed for most of the breakage, with roof gravel the favorite villain. Most of the damage occurred in the middle and lower sections of buildings, with the tops remaining comparatively unscathed. Recently, however, several experts have begun to revise their preliminary conclusions to include the possibilities of faulty curtain wall design, excessive "racking" or flex-

ing of building frames, and unanticipated wind tunnel effects.

H. Scott Norville, a civil engineer at Texas Tech's Institute for Disaster Research, said that he has modified his earlier views on the impact of debris. "Debris was undoubtedly a major factor," he said, "but we've also had reports of windows being blown out intact, which suggests they may have been weak to start with or else were popped out by the motion of the building. Also, I'm uncertain why so many windows broke on the back or leeward sides of buildings." Norville said investigators have discovered windows that cracked without apparent impact. In one building they found a curtain clamped tight between the glass and the window frame, suggesting that the glass had bellied out, then snapped back in place.

Horace Cude, Houston's deputy build-
continued on page 32



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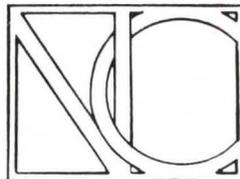
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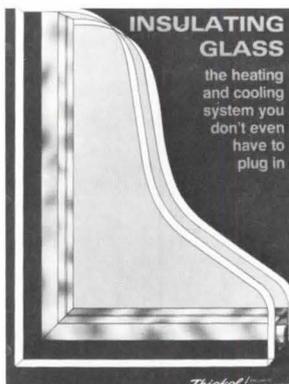
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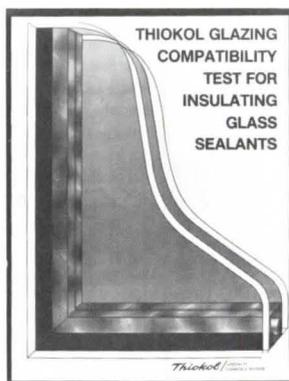
"How To Avoid Failures"

Article lists 10 steps toward improving the lifespan of insulating glass units.



Glazing Compatibility

Procedure for determining the compatibility of insulating glass edge sealants with standard glazing compounds.



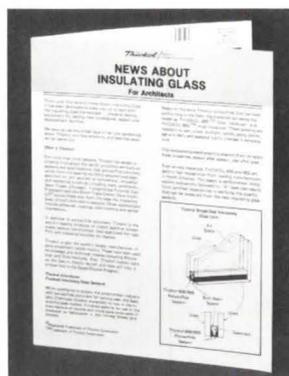
Specification/Test Methods

Article describes common methods of testing insulating glass including: original dew point, ultraviolet fogging, weather/cycling and high humidity exposure.



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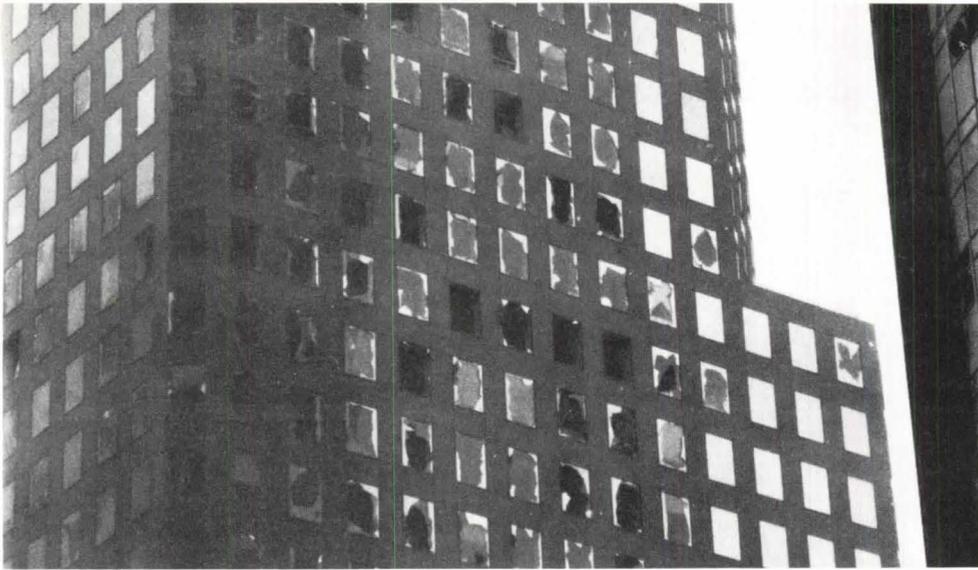


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Practice from page 29

ing inspector, said the city's building code requires that highrises be designed to withstand winds of 90 m.p.h. Cude said most buildings are designed to withstand even higher winds. A wind gauge in downtown Houston registered winds of 97 m.p.h. before Alicia's force blew it away.

"Alicia's winds were not extraordinary in a code context," said Joseph Minor, also with the Institute for Disaster Research. "But it doesn't surprise me that there was a lot of breakage. We've seen this debris mechanism before." Minor agrees with Norville that "racking" and faulty curtain wall design may also have contributed to the breakage. "It will take six months to a year to complete the gathering of data," Minor said.

As a result of Hurricane Alicia, building codes in both Houston and Galveston are being reviewed with an eye to providing greater protection against hurricane winds. The Galveston City Council has declared a temporary moratorium on new construction and banned repairs on seriously damaged buildings on the Gulf side of the seawall.

Like other American cities, Houston requires that windows be tested for wind pressure, but not for impact from debris. Ironically, at the July 13 meeting of the Southern Building Code Congress in Little Rock, Ark., the hurricane committee proposed changing the standard building code to require that in hurricane areas windows be designed to withstand debris. Such a requirement is standard in several cyclone-prone parts of the world, most notably Australia. "There's no question that this is a reasonable proposal," said Minor, a member of the congress. "We are supposed to design buildings for the forces that impinge on them, and in hurricane areas that includes debris." The proposed change was referred to a review committee for additional study.

Because the most severely damaged buildings were located in a compact four-block area of downtown Houston, between Louisiana and Lamar streets, the possibilities of venturi effects and unpredictable wind currents is also being examined. Bob Halverson, a partner in the Houston office of Skidmore, Owings & Merrill, architect of Allied Bank Plaza, said that the building was wind-tunnel tested and "performed as we expected it would." Allied, an all-glass building, lost an estimated 450 windows during the storm. InterFirst Bank, constructed of granite and glass, lost an estimated 700 windows. Halverson would not discuss the specifics of the test, and information is not immediately available about tests on other buildings in the area.

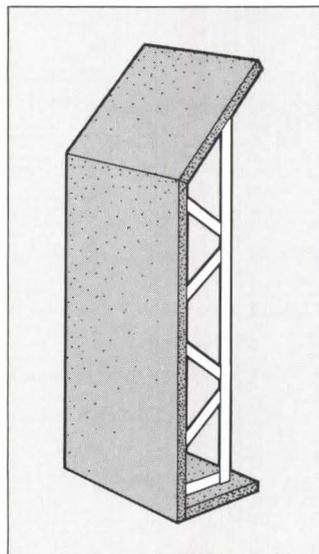
Although a wind tunnel can simulate the action of wind, it cannot account for the sudden changes in wind speed and

continued on page 36

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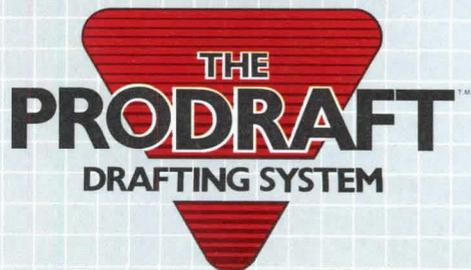
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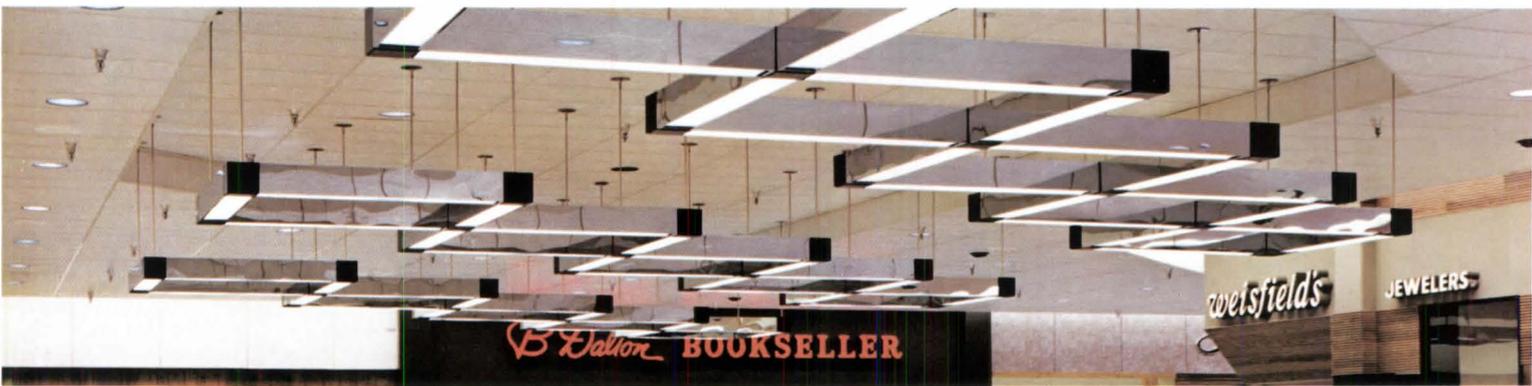
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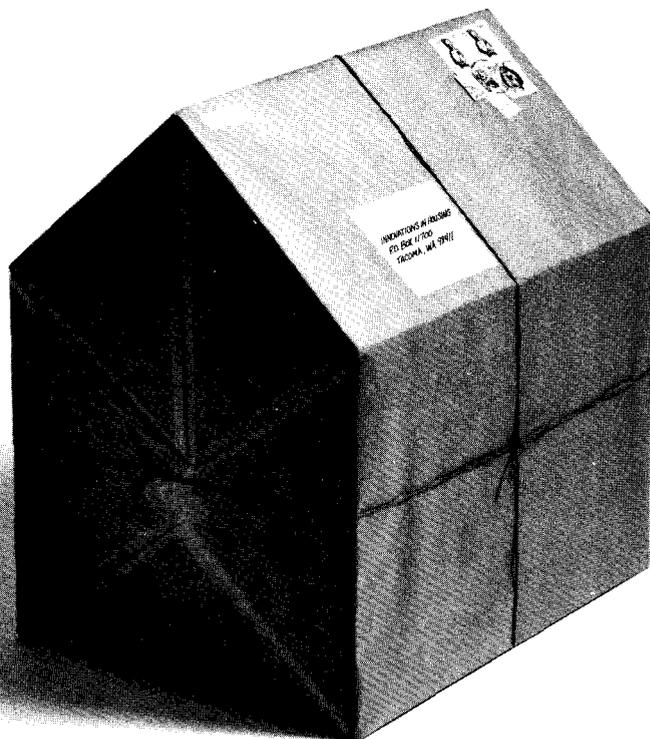
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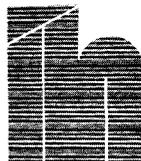
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Practice from page 32

pressure that occur during a hurricane. Nor can it account for flying debris. Experts disagree on the appropriateness of constructing glass skyscrapers in cities such as Houston. "Technology allows us to build tall, and economics dictates that we do it," said Don Geis, a natural hazards specialist with the AIA Foundation. "Before saying that there shouldn't be any more highrise glass buildings in Houston, you'd have to determine if there are enough damaging hurricanes to make them invalid. It's a judgment call, but I'd say no."

Dr. Hal Garrish of the National Hurricane Center in Miami sees the situation differently. "In those areas that are hurricane prone, like Galveston and Houston,

you have to think twice about putting a lot of people near the coast and up high. We've been concerned for some time that many coastal cities are too lax in their building codes when it comes to hurricanes."

Designing a building to withstand the highest winds and every kind of flying debris would, in the opinion of most engineers, be economically impractical. On the other hand, no deaths or injuries from falling glass occurred during Hurricane Alicia, a fact that makes cost benefit thinking more palatable than it would otherwise be. "Building codes exist first of all to provide protection for the public," said Minor. "If in glass breakage an overriding life safety issue emerges, then economics doesn't matter." DAVID DILLON

Formaldehyde Insulation Ban Lifted; Warnings Persist

Over the objections of its Consumer Products Safety Commission, the Reagan Administration has allowed urea formaldehyde foam insulation back on the market. Although industry spokesmen maintain that the product is safe when installed properly, Nancy H. Steorts, head of the commission, warned that it "can be very harmful to consumers" and the public should not be led "to the mistaken belief that this product is now considered safe."

The commission imposed the ban last year, basing its decision on scientific data linking the insulation to cancer, respiratory distress, and skin irritation. An appellate court struck down the ban this spring, based on questions about the commission's legal and scientific arguments, while acknowledging that complaints "identify a real problem." Nevertheless, the Justice Department declined to appeal to the Supreme Court, and the ruling by the Fifth Circuit Court of Appeals stands.

In a letter to Mrs. Steorts, Solicitor General Rex E. Lee wrote: "... my decision not to seek Supreme Court review does not reflect any disagreement with the merits of the commission's decision to ban urea formaldehyde from the American marketplace."

Nearly 500 consumer product liability suits have been filed over the product in recent years. A commission staff member says failure to appeal the lifting of the ban will not affect that litigation.

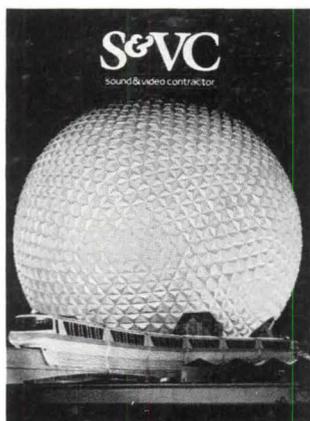
Carter Selects Design Team for Presidential Library, Center

Four low, circular buildings arranged in a semicircle on a wooded lake shore in Northeast Atlanta are to comprise the Carter Presidential Library and Center. Carter himself selected the design team for the \$25 million project, a consortium of Jova/Daniels/Busby of Atlanta and Lawton/Umemura/Yamamoto of Honolulu. Site planning is by the Atlanta office of EDAW, Inc.

The 150,000-square-foot complex will occupy a gently sloped, 30-acre site between the Emory University campus and downtown Atlanta. Visitors arriving by car will drive past a circle of flags and proceed to parking spaces screened by the natural terrain. Walkways will lead to a pair of covered promenades flanking a series of three gardens. The promenades will meet as a glazed reception area overlooking the lake and Atlanta's skyline and providing views of the curvilinear complex along the shore.

Most of the anticipated 600,000 annual visitors will proceed to the museum, a

continued on page 38



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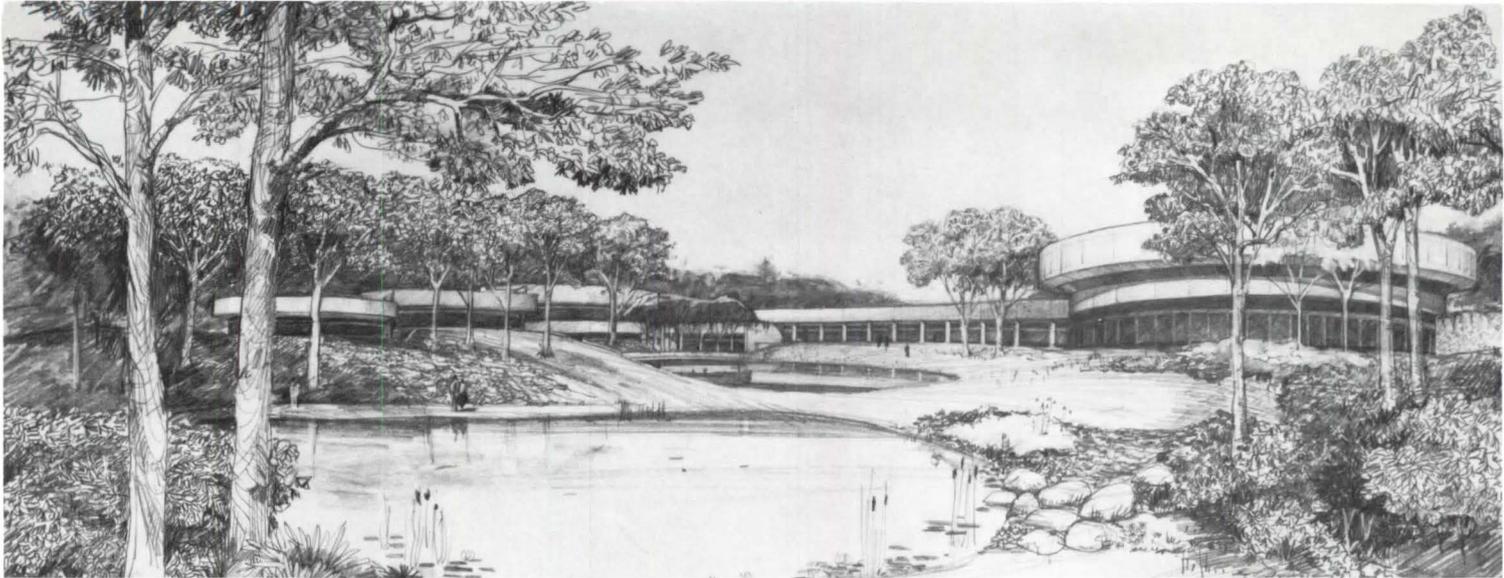
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Practice from page 36

circular pavilion at the southern end of the complex. Programmed for the museum wing are two film theaters, an exhibit about the presidency in the 20th century, a reproduction of the oval office as it was during the Carter years, and an exhibit on the Carter presidency and the Carter archives.

Three smaller, connected, circular buildings will comprise the opposite wing. The two-story "presidential pavilion" will house offices for Carter and his staff, suites for visiting dignitaries, and conference/meeting spaces. The "resources pavilion" will house administrative offices for the center as well as books and computer links to the libraries on Emory University's campus several miles away. The third building, the "fellows pavilion," will provide offices for the academic staff of the center and additional conference space.

A nonsectarian chapel to seat about 100 is to be located several hundred yards from the main complex. It will also open to an amphitheater arrangement to accommodate several hundred more in a woodland clearing.

San Francisco Museum Plans Architecture, Design Program

The San Francisco Museum of Modern Art has announced plans to establish a department of architecture and design, the first program of its kind at a West Coast museum.

In announcing the program, Henry T. Hopkins, director of the museum, said, "The rich creative heritage of the West and the rapidly growing audience for the design disciplines demand the development of such a program." The department plans to collect, exhibit, and educate in various aspects of the two disciplines, but, Hopkins said, "we do not intend to mimic the activities of the Museum of

continued on page 42



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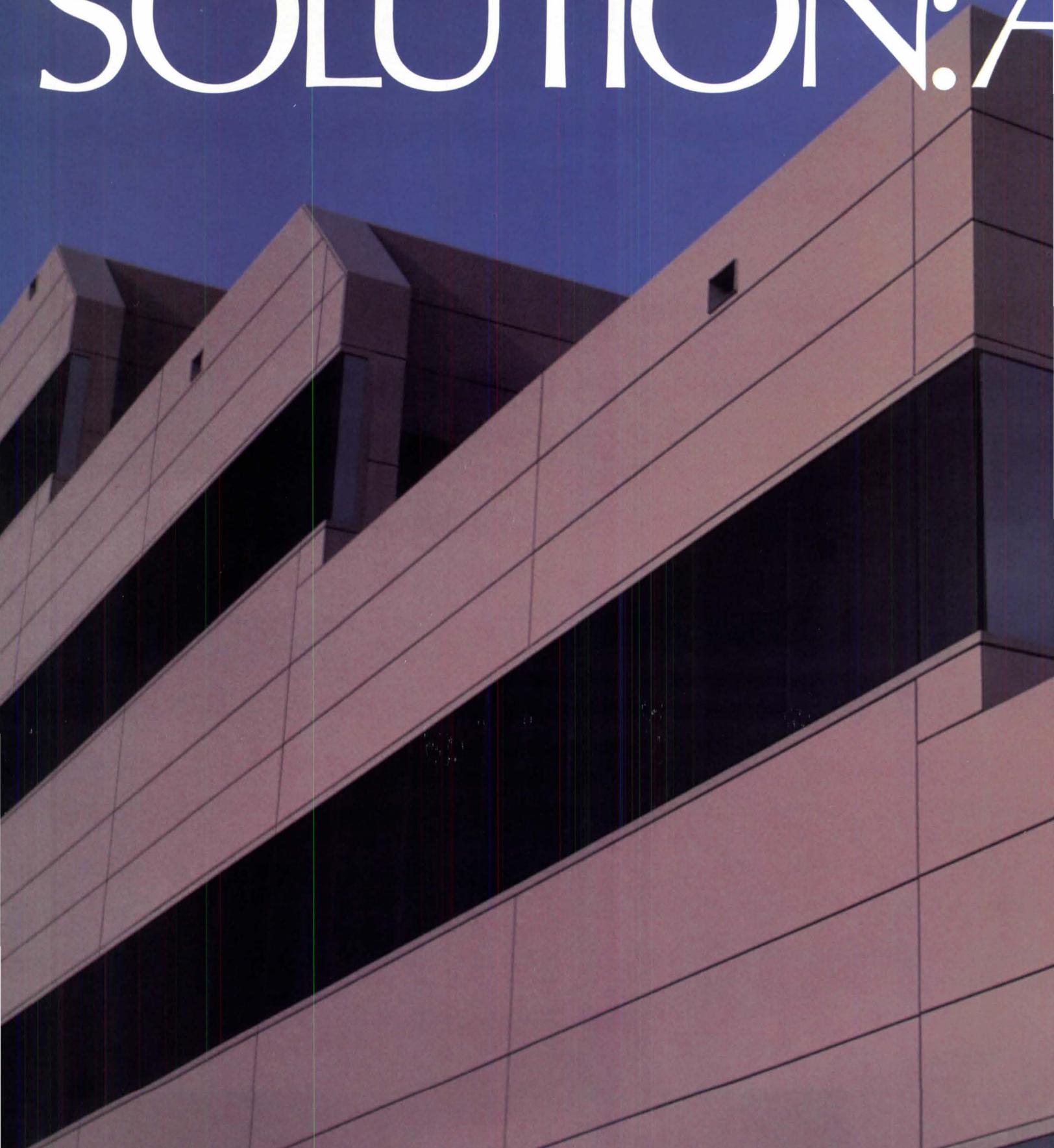
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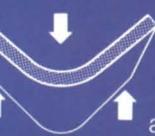
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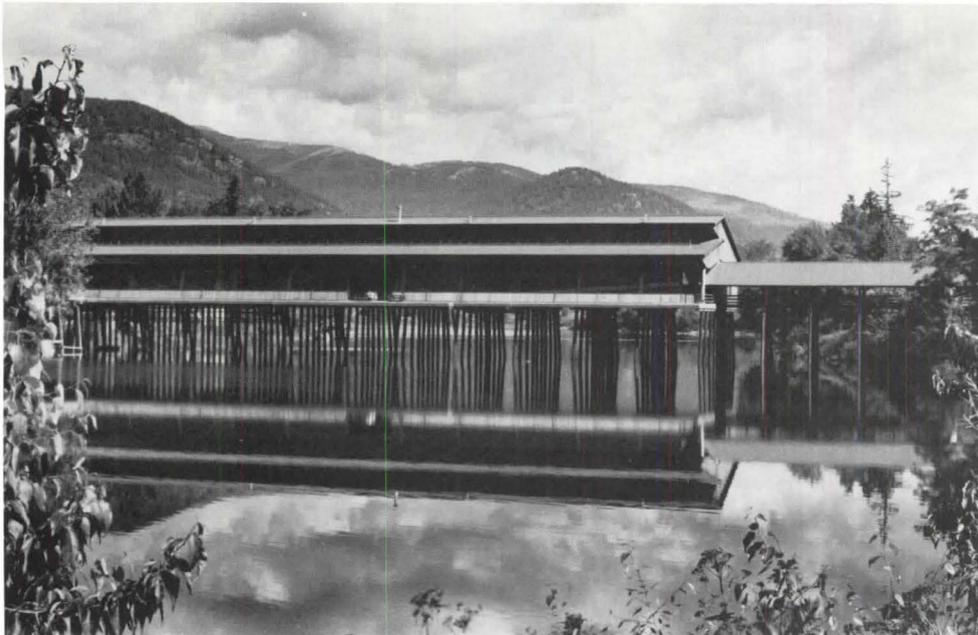
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Shopping Mall on the Water. The recently completed Cedar Street Bridge Public Market, located over Sand Creek in Sandpoint, Idaho, is a mixture of New England covered bridge, Florence's Ponte Vecchio, Grecian agora, and sunlit winter garden. It replaces a bridge built in 1908 on the same spot, and connects the town center of Sandpoint to a railroad station and lakefront park. Jonathan Stoumen, AIA, of Miranda, Calif., is the architect. The 350-foot-long public market is constructed of pressure-treated wooden piles, prestressed concrete planks, and buckskin tamarack poles with wood-to-wood connections. Inside, a brick paved, multilevel street is lined with shops, offices, and eateries. The market also employs passive solar design features such as a low, sparsely fenestrated north wall, a fully glazed south wall, folding lattice sunscreens, and movable insulation.

Practice from page 38

Modern Art in New York or any other institution. We will look at architecture and design from our West Coast perspective."

Plans for the department include appointment of a curator in 1984 and setting up a full schedule of events, including both collecting and originating exhibits, by 1985, the 50th anniversary of the museum. Before a full-time architectural curator is appointed, the museum will continue to present design exhibitions developed by other institutions.

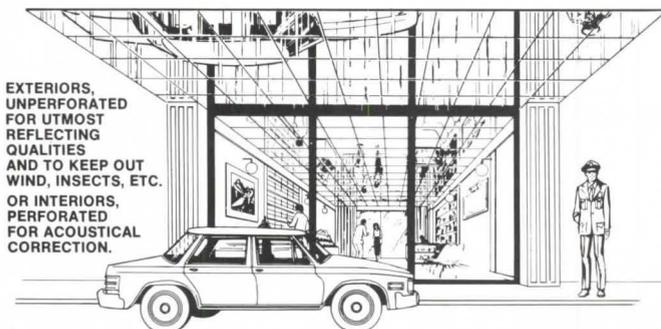
One of the first exhibitions, "California Counterpoint: New West Coast Architecture 1982," to open early next month, will feature projects, visionary work, and completed buildings by contemporary California architects.

Two other exhibits are scheduled to celebrate the announcement of the new department. On view through Nov. 20 is "Issey Miyake Spactacle: Bodyworks," a collection of recent creations by the Japanese designer. An exhibition featuring tea services designed by postmodernist architects is scheduled to open next February.

In order to raise funds for the program the San Francisco Chapter/AIA is sponsoring a Beaux-Arts ball Oct. 29 and has committed a minimum gift of \$10,000 to the museum toward hiring a curator. □

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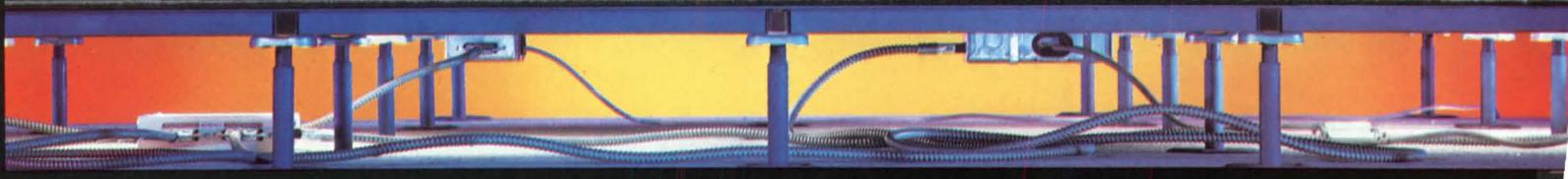
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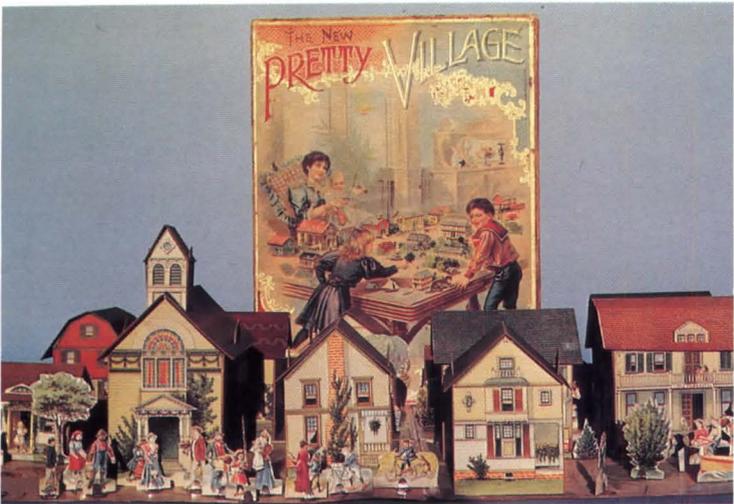


Roger Scharmer



Larry Harrel

Tom Vinetz



The Arts

'Home Sweet Home' Exhibits

The images above are among many being shown in a series of collaborative exhibitions and programs on early American vernacular housing. "Home Sweet Home" is comprised of 13 separate exhibits (each with its own curator), the first three of which open this month. The Craft and Folk Art Museum in Los Angeles is coordinating the series, which will be shown throughout next January in museums and galleries in the L.A. area.

Each of the 13 shows covers a special aspect of vernacular housing or the influence it has had on architecture. The house with totem pole (top left) is part of "Plank

House Architecture of the Northwest Coast Indians," opening Nov. 8 at the ARCO Center for Visual Art, Los Angeles.

The house as play object (above left) is examined in "Building by the Little Folks: Early American Construction Toys" at L.A.'s Pacific Design Center, beginning Nov. 1. And that peculiar West Coast genre—the architecture of fantasy (above right)—is part of "California Castles," at the University of Southern California Art Galleries, Nov. 7.

A three-day symposium on "Home Sweet Home" will deal with vernacular housing form and a sampling of regional styles

from across the country. A dwelling of boyant design (top right) will be one of the symposium subjects under "Floating Architecture: Houseboats."

The entire production was conceived by California designer Gere Kavanaugh and Charles Moore, FAIA. "Home Sweet Home," says Moore, "celebrates our sense of place and how that sense has been achieved through the special qualities of these little-known gems of American houses."

Grants from the National Endowment for the Arts, the Ahmanson Foundation, the Graham Foundation for Advanced Studies in the Fine Arts, and the National Endowment for the Humanities will fund, in part, the exhibit series and symposium. MICHAEL J. CROSBIE



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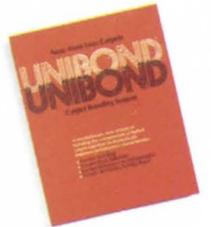
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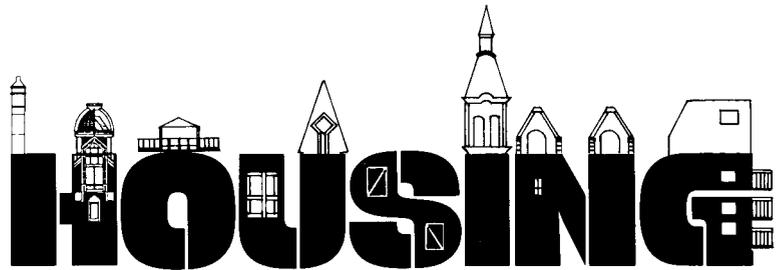
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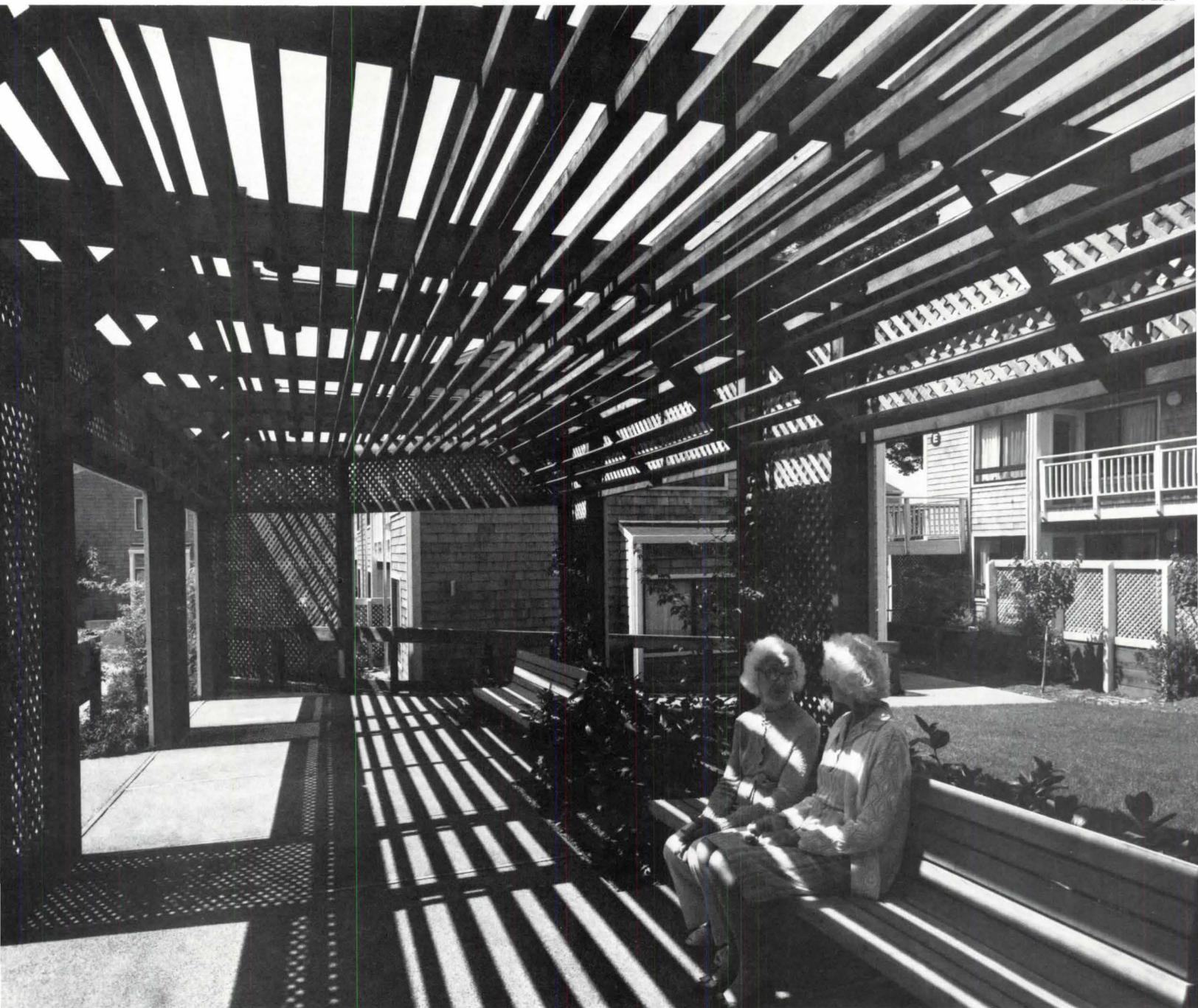
is a rather forbidding word. It brings to mind images of faceless blocks, designed with more good intentions than skill. And yet housing, as the sheltering of people, heavily involves the essence of architecture.

This issue is devoted to the subject, but there's very little in it that could be called faceless. In fact, we believe that it demonstrates the skill, sensitivity—and even wit—that architects are bringing to housing design these days.

The issue begins with a discussion and presentation of housing for specific segments of the population with special housing needs. Following that is a look at local efforts to fill the void left by the virtual federal withdrawal from the field of housing the poor.

Next comes a collection of other building types that have been converted into housing, something that's happening with increasing frequency. Then we look at industrialized housing, especially the impact, or lack thereof, of HUD's Operation Breakthrough.

Finally we present a set of individual houses, on grounds that the house is a laboratory of design, presenting all of the issues found in larger buildings, often in more intense form. The houses here are alike in their friendliness and comfort with their surround. *D.C.*



Housing Designed For Special Needs

Changing approaches are required by a changing population. By Marguerite Villecco

In recent years, housing starts have been down and interest rates up, higher than anyone ever imagined. Traditional housing couldn't find a market, and traditional problems were, in any case, changing. The period proved bad for business but rich for ideas. Like it or not, architects have had time to think. And the focus has not only been on what to design, but for whom.

Some of the exploration has been stylistic. Postmodernism lives in the housing market, sometimes in elegant flights of fancy (the very rich pay in cash, unfettered by the costs of borrowing) and sometimes in modest replication. In the mid-Atlantic region, the most profitable home builder featured neo-Victorian homes at median housing costs; turrets, gables, and porches sold, while neo-colonial and California-modern languished. Fan windows have become de rigueur for the fashionable homeowner.

Economics have been examined and re-examined. Creative financing rode on inflated balloons and the motto "Buy now and refinance later." Refinance as soon as interest rates come down, *if* interest rates come down. And they haven't much, for mortgages, at least. Some balloons may be traded for conventional mortgages now, but at rates five times the inflation rate, demanding more and more of the paycheck and making homeownership intimidating if not prohibitive.

Living at home is in fashion again, or, more accurately, living at home *again*. Mom may no longer be home to do the cooking, but millions of adults have considered the alternatives and found the comfort, economy, and convenience of the parental home and hearth newly attractive. Freedom in a minimal one-room apartment may cost twice as much as negotiated adulthood at the home front.

The nuclear family is back in style, but not in numbers. Only 7 percent of American families have the proverbial working father and homemaker mother with kids. And they are among those hardest hit by the costs of money and housing, requiring top-percentage earnings to buy a home and a picket fence. So, if they're unable to buy, others must, and their needs must be met as well. New groups and groupings of people must be considered in housing design.

The young adults living at home are finding one alternative is doubling up, not carnally but economically. The two-income buyer comprised of unrelated adults has given rise to the singles, or mingles, condominium market. The swinging singles market of the 1970s, aimed at social freedom and swimming pool fantasies, celebrated the short-term lease. The 1980s version is strictly business, if one reads the ads. Long-term investment is the appeal: double incomes, double space, and double your tax refund, perhaps with profits in the future.

Developers have learned that not all two-income households are traditional families and have learned to sell accordingly, not only to young, but more mature adults as well. Architects are providing smaller units, with twin baths and bedrooms, allowing division of space by equals. Plans include private and communal areas without the hierarchies of families, easy-care materials, some suggestions of elegance in isolation, and professional amenities—in lieu of the family room—that include answering and other services for the working professional. The duality of design features allows residents to share expenses while separating lives, even within shared space.

Increasingly, the elderly are perceived as an important market for housing. The fastest growing segment of the population, the elderly, both rich and poor, are finding power in numbers as their preferences and needs become important market issues. The image of the family homestead headed by a patriarch has long vanished, the large homes subdivided, deteriorated, or sold to those who have the money and energy to sustain them. The elderly are increasing and increasingly on their own, many by preference; they are also increasingly the audience for new development, public and private.

The concept of special housing for the elderly, as though the passage of years superseded more individual characteristics, is itself controversial. Isolating elderly citizens on compounds, where the arrival of a new neighbor assumes the death of an old one and infirmities are shared, is the prevalent specter.

Those who are older are not more the same than the rest of us, although they may have some concerns in common. With age comes increasing uncertainty about one's health and the reliability of one's abilities over time. At a time when control of one's own life may be jeopardized by circumstance or capability, security becomes more important. Growing older may not be the extension of the familiar, which assures, but presents new and sometimes disorienting situations and demands. Mobility, vision, and hearing may change, gradually or precipitously. And social circumstances change greatly. Friends and spouses die; children move into their own lives; and for many women it is the first time they may live alone or predominantly with other women. For many the difficulty may be making decisions on the basis of one's own rather than others' needs. Those who have cared for others most of their lives, happily or not, may suffer the loss of structure responsibility provides.

Yet for each person aging is different. Not all elderly are poor or infirm by any means. The correlation of ability with age can be very misleading; some are strong at 80 and weak at 50. Age impinges on very different lives, experiences, and attitudes and

may not make one less the person one was, but more so. Personalities may strengthen and preferences solidify. Having to let go of some things may make it more crucial to keep others.

Sometimes the life styles may surprise. While many people wish to remain in familiar surrounds, some unconventional sites have recently proved successful. In one instance, a college dormitory was converted to elderly housing; the location proved stimulating and convenient. In another instance, a developer's residential tower in a shopping center parking lot was enthusiastically adopted by elderly tenants. Hardly homey in appearance, the parking lot location put residents close to people, shops, and services, instead of being isolated.

For the poor, life style options are more limited. But public housing projects for the poor are, in some cases, serving not only the physical needs of the elderly but their desire for choice and security as well. Public housing projects make amenities difficult but not impossible, and codes are subject to interpretation once a designer's track record is established.

Housing for the disabled is also maturing as a design problem. As with housing for the elderly and poor, there has been a great deal of research in the recent past, but the checklist approach to meeting special needs is starting, in some cases, to give way to broader appreciation. The best designs serve the individual disabilities of residents, but are not bound by them. The blind and the deaf, as well as those with mobility problems and mental illness, are challenging designers with special constraints that suggest esthetic as well as functional innovation.

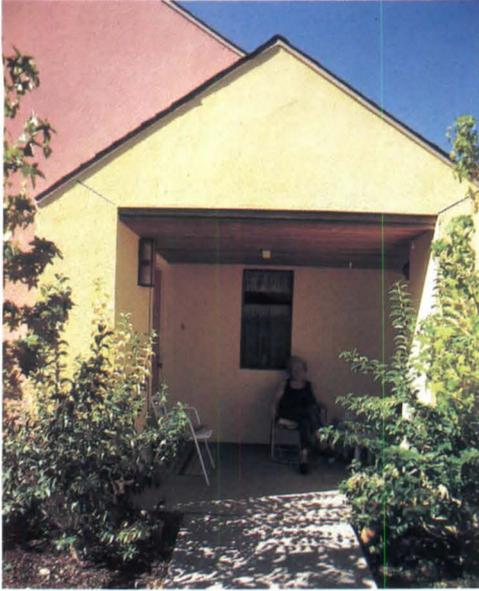
Whether the focus of a housing design is disabled, single, elderly, or ethnically or culturally bound, the designer's intuition must be informed, not only of special needs but individual fantasies and aspirations. The artist's need for low-cost housing and large spaces, coupled with the desire to create personal space, can be documented in hundreds of statistics, and has been. Similarly, the needs of the elderly, family, rich, and poor can be statistically described, and specifications for hardware, structure, location, and price can be derived. Too often design has stopped there, or the designer felt pre-empted. Housing for the future must respond to new awareness, respect, and greater knowledge about special needs. It must also serve the most traditional and human feelings about home and hearth, providing security, comfort, and pleasure to those who inhabit it, however different for each of us that is. And here the design must exceed the program. Some examples follow.

Opposite, trellis shelters walkway to main entrance of Parnow housing for the elderly in San Rafael, Calif., by Marquis Associates (see page 54). Below, one of three adjoining house/studios for artists in Venice, Calif., by Frank Gehry.



Tim Street-Porter

Clusters of Bungalows



Some people in Oroville, Calif., thought Winston Gardens was "too good" for publicly assisted housing. Even regional HUD officials sometimes alluded to the project's quality with concern, as did some of the elderly residents moving in. They didn't expect such amenity. "This is too good," one man said self-consciously.

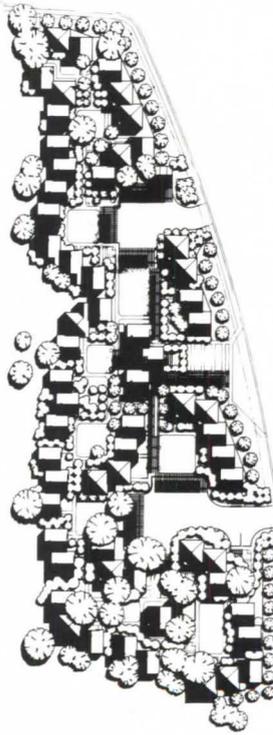
Winston Gardens does in fact challenge preconception. The clusters of individual bungalows connected by trellised walkways little resemble the image of assisted housing, but that is no accident. "We put 15 years of learning to work with HUD and the elderly into Winston Gardens," notes Sandy Hirshen, FAIA, of Hirshen Gammill Trombo Architects. (Ron Gammill was principal designer of the project.)

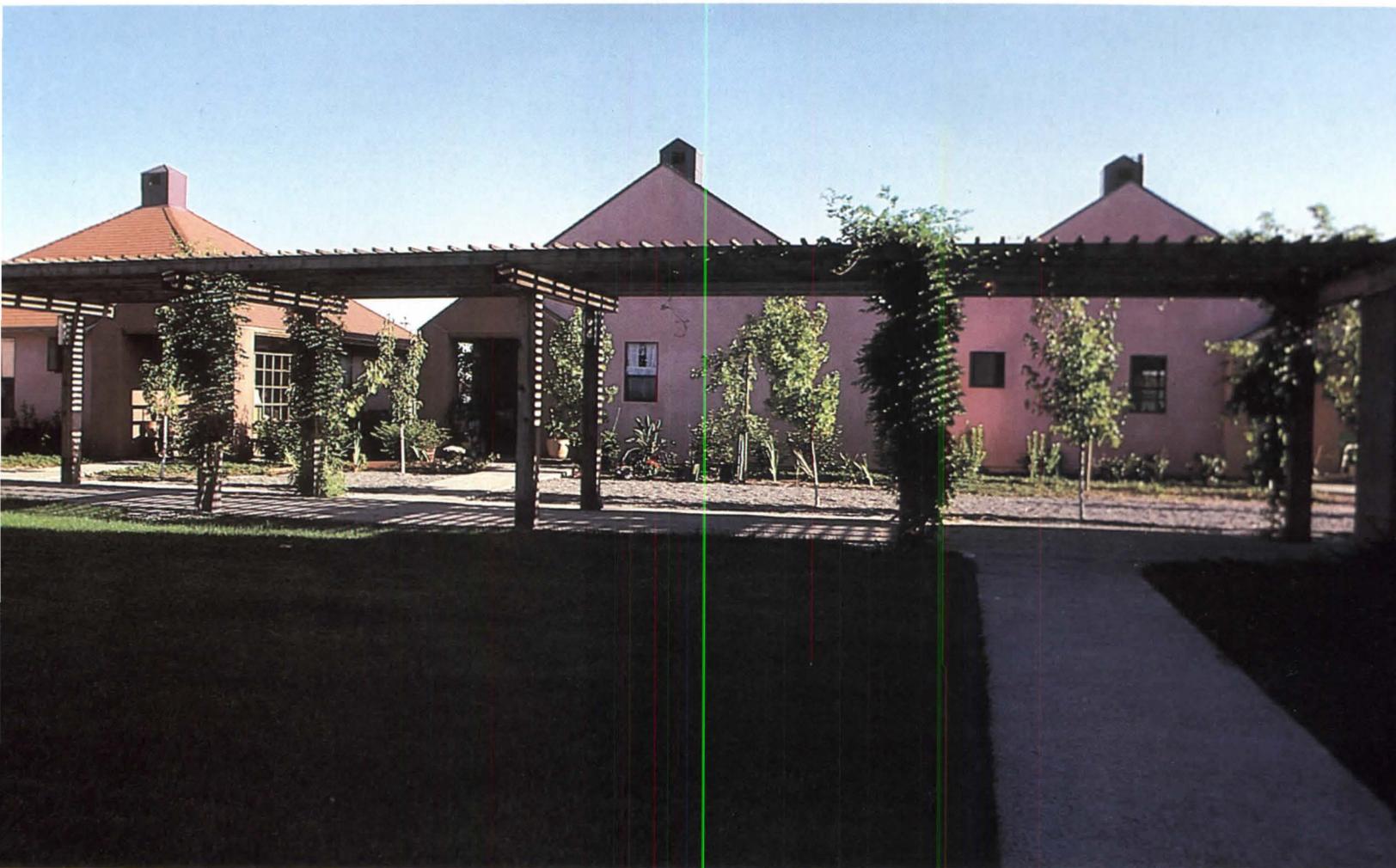
Most of the people living in Winston Gardens come from rural backgrounds; they are mostly white working class and, as is common in elderly housing, most are women. Of 60 dwelling units, only three are occupied by couples, including the manager and his wife.

The dwelling units have the feel of individual houses. Said one woman, "I think of this as my house, although I call it an apartment when I'm in town." Common walls are minimal, and color helps give individual identity to the buildings. The hues range from warm yellows, browns, and pinks at one end of the complex to cooler blues and lavender at the other.

Inside, the houses are very small. Many residents had to give up furniture and other personal belongings to come here; large items just wouldn't fit. The units are available with two floor plans and, most often, residents are advocates for the one they have. But one of the plans features a diagonal wall, inserting a triangular dining room in the center of the floor, and the use of this space seems to confuse many residents.

Many aspects of the buildings attest to the architect's experi-





ence in dealing with the elderly. There is a full complement of security devices; in fact, the entire scheme reflects recognition of how quickly fear can come to older people. There are levers on doorways, easier to turn than knobs; residents can sit in showers or on the edge of tubs.

Outdoors, the landscaping, trellised walkways, and porches lend the complex a feeling of coherence and comfort. Fruit trees and shade trees complement the trellises. Areas surrounding the houses are planted, but some residents would like to plant their own.

Entrances to the dwellings double as psuedo porches. The formal relationship of porch and house is attractive, but the space is ambiguous. Only occasionally, when porches were close to each other, could residents be seen sitting and talking from one to the other.

The community center, thus far, seems the least successful element of the project. It is an eminently attractive building, entered beneath a trellis, with mirrored glass, cathedral ceiling, a fireplace, laundry, and sauna. But residents have yet to fully use it. The dining area needs furniture. The living area has tables awaiting the next bridge game, but the fireplace, decorated by a small "No Smoking" sign, has never been used: "How are we supposed to handle firewood?"

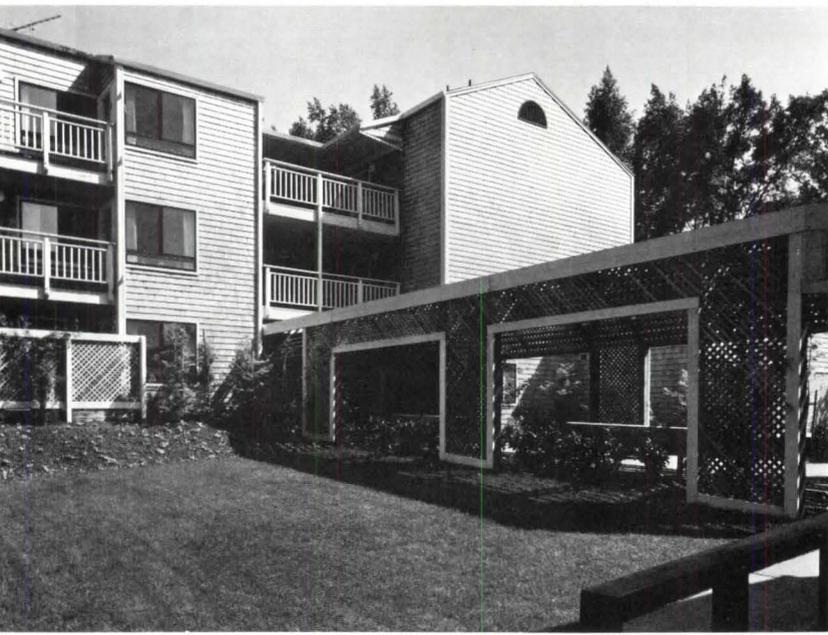
The sauna has a sign noting that since it is rarely used, one should arrange hours with the manager. He notes the difficulty of getting in and out, the fear people have of falling. "And these women are very modest; they're not used to these kinds of things," he notes. A woman said, "I'd much rather have a pool. I think we'd all use that. Saunas make one weak and that I don't need."

Across page, bottom, the angular community building. The other photos are of the dwelling units, with their welcoming porches and deft gradations of color. Trellises are widely used; the long one above shields the dwellings from the parking lot.

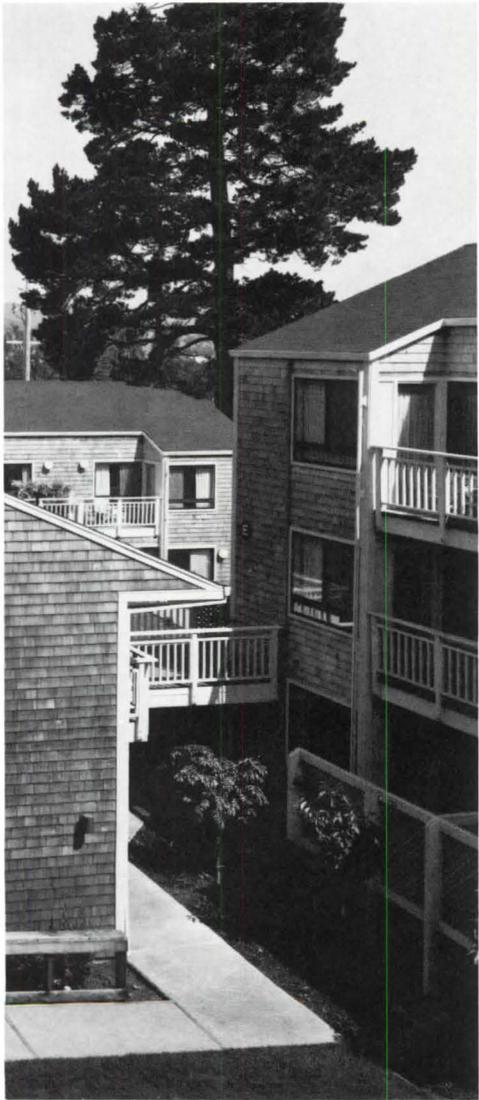


The Squeezing of Subsidies

The design of Parnow housing for the elderly in San Rafael, Calif., was in large part an exercise in making the most of a very limited number of dollars gleaned from a variety of sources: HUD, the state, the cosponsoring Jewish Synagogue and Catholic Church on either side of the site. Marquis Associates (J. Peter Winkelstein, FAIA, partner in charge) was quite willing to trade off fineness of materials and refinement of detail for such amenities as balconies, a trellised walkway to the main entrance, a creek-side deck opening from the community room, and a bridge across the creek at the rear to a picnic bower (the latter elements the work of landscape architect Richard Schadt). The project provides 71 one-bedroom apartments, eight for the disabled and all accessible by elevators and ramps. Each opens to its own deck or patio. It was brought in under a budget ceiling of \$34,172 per unit. The design makes maximum use of the site as well as the budget. The density is a high 30 units to the acre, and the project had to avoid overwhelming the residential neighborhood. It doesn't feel that tight: Buildings increase in height front and rear and are arranged around a pleasing variety of open spaces. The creek on one side of the site, the hills behind it, and the trees everywhere work with the unassuming buildings to create a very pleasant environment indeed. The project is nonsectarian, but the adjacency of the sponsoring institutions, with the coming and going of children and younger adults, adds life to the scene.



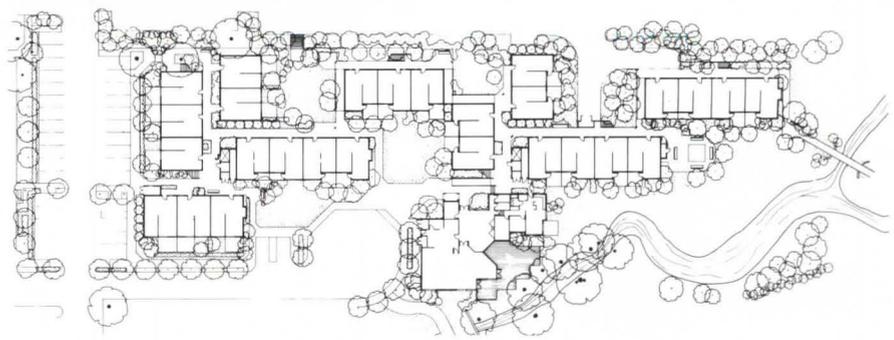
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Top, a side view of entry trellis. Above, varied heights of buildings and balconies won by building economies give a pleasing sense of variety to the tightly knit project. Above right, deck opens from community room beside meandering creek.



© Warren Jagger

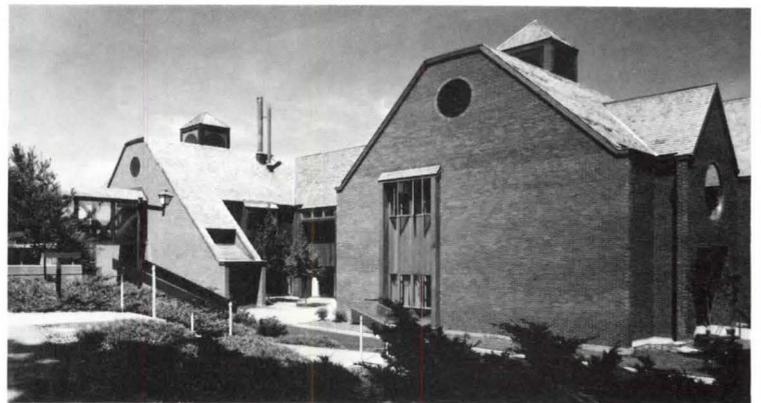
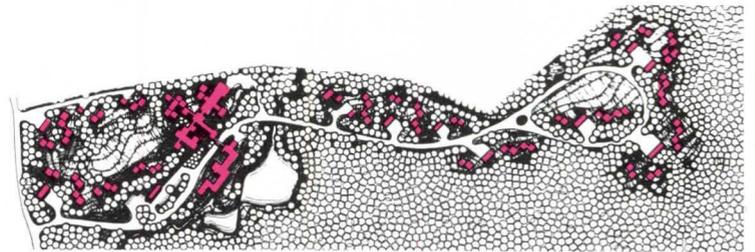
A 'Continuum' of Care

Institutional images of care for the elderly disappear on approaching Noble Horizons, a continuum care facility in Salisbury, Conn. Designed by Jeter, Cook & Jepson, the community provides for both the well and infirm, assuring continuity and familiar surroundings through various levels of care.

The image Noble Horizons presents is that of a small New England settlement nestled in the trees, with chestnut-stained redwood cottages arranged in clusters with well-tended gardens. The clusters, for the well elderly, are connected by walkways and open green spaces that encourage an afternoon stroll. There are 32 cottages, some near the entrance and some larger ones on a cul-de-sac, with 12 more planned or under construction.

There are three levels of care provided in facilities that are notable for their unobtrusive presence and attractive siting. For individuals requiring modest assistance in housekeeping and personal care, there is the 25-bed home for the aged. For residents requiring nursing supervision, there is the intermediate care facility, and for those requiring total nursing care, the nursing wing provides 24-hour supervision.

A community center provides a visual and planning focus to the settlement. It is linked by covered bridge to the nursing wings across the road and connected by an administrative area to the home for the aged.

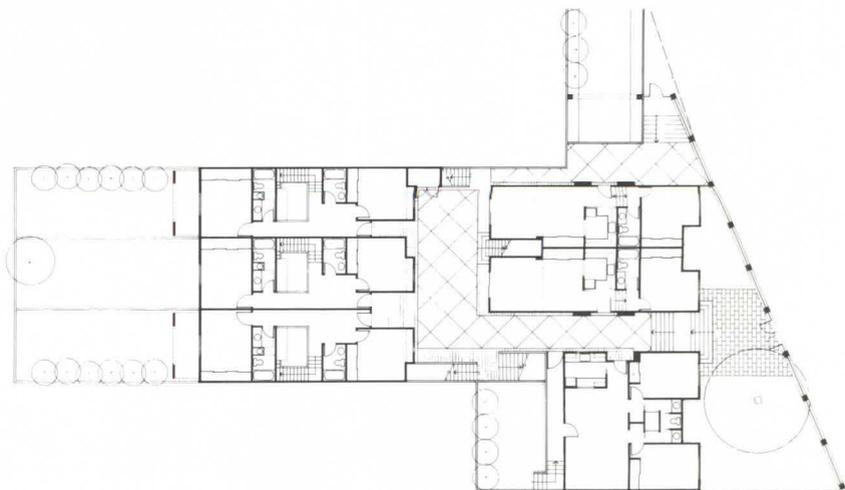
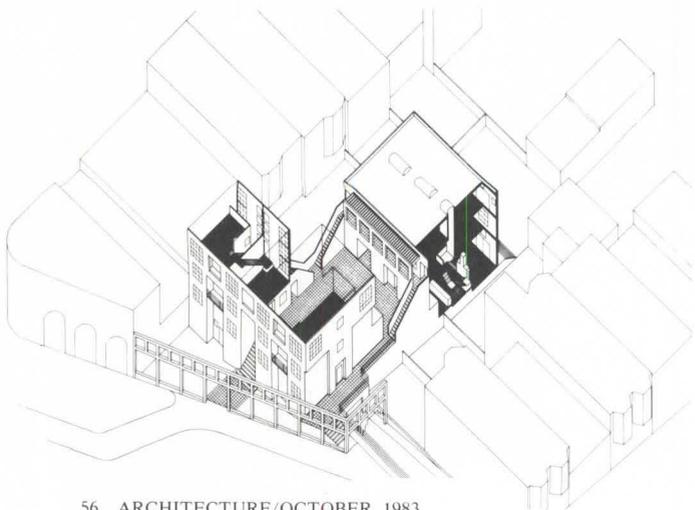
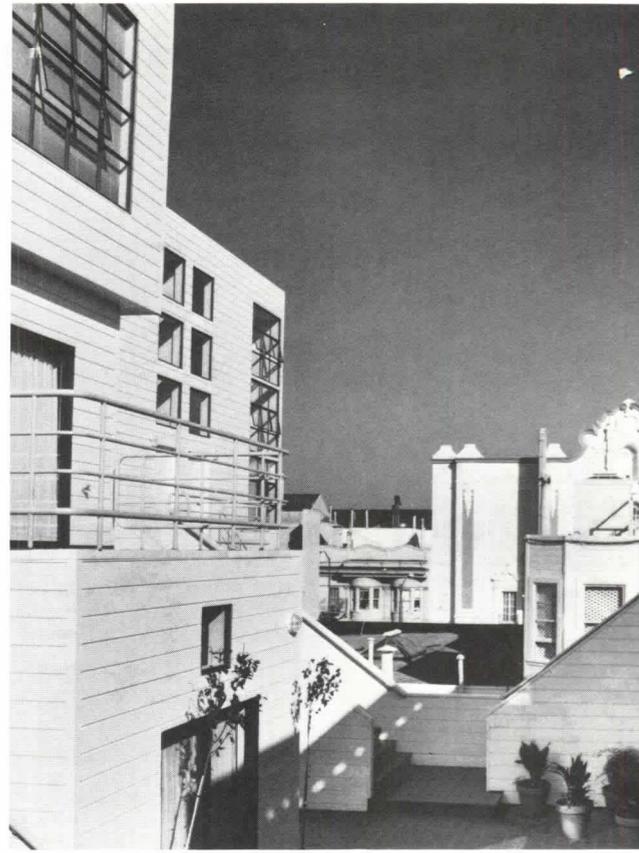


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Top, strong, decidedly rural forms of a housing cluster. Above, the burly, variegated community building. Bridge leads to adjoining infirmary. Below, quiet buildings on a pastoral site.



Bill Mead



© Jane Lidz

Courtyard Complex

Castro Commons stands white and modern, its proscenium entrance stark against the colorful eclecticism of San Francisco's gay community. Designed by Daniel Solomon & Associates, the project is visible but separate from its surround, standing high above a subway entrance and plaza. Inside its secured theatrical facade, the project features courtyard housing, first brought to the city by speculators of the gold rush era.

Solomon, who was involved in efforts to revive courtyard housing after the city's 1973 zoning law prohibited it, has been exploring new forms of courtyard housing in a variety of projects. Since 1978, changes in the zoning law have allowed courtyard housing on "key lots," such as Castro's.

The Castro project was initiated by a developer who had grown up in the neighborhood, believed in it, and had several gay real estate brokers that could speak to special needs. Solomon and the brokers toured other projects and planned amenities that would serve gays as well as other singles in the area. As a result, the units provide a neutral palette for personal embellishment and decoration inside; the quality of design and construction is high; there is both real security and the image of security. There are two master bedrooms in the larger units, allowing equity in assignment.

The bathrooms also provide equity among adults, with private and separated sinks and shared toilet and tub facilities. In one unit, there is a lavish vanity with a large tub and shower accessible from two sides, skylit, and large enough for several people. Kitchens are large and open.

Also utilizing the courtyard plan is Midway Terrace, situated on a residential street near the waterfront. Midway looks like a California-modern fire escape building from the front, unobtrusive on the street. Inside, a small courtyard plan allows entrances to units off the street, with large floor-through units distinguished by a curving hallways on the first floor and four duplex units above. Solomon refers to it as an urban commune, providing privacy and intimacy for its residents. Each of the four units has access to the roof, which uses mechanical system enclosures to define separate outdoor eating areas, each with sink and electrical outlets, and each appearing well used. Inside, the units feature compact spaces with built-ins and open bedroom plans, creating the illusion of space.

Left, the crisp, white lines of the Castro housing, with balcony/walkways overlooking entry courtyards. Right, Midway housing, its facade a wry rendition of fire escape flats of old. Each unit has an assigned area on the roof.

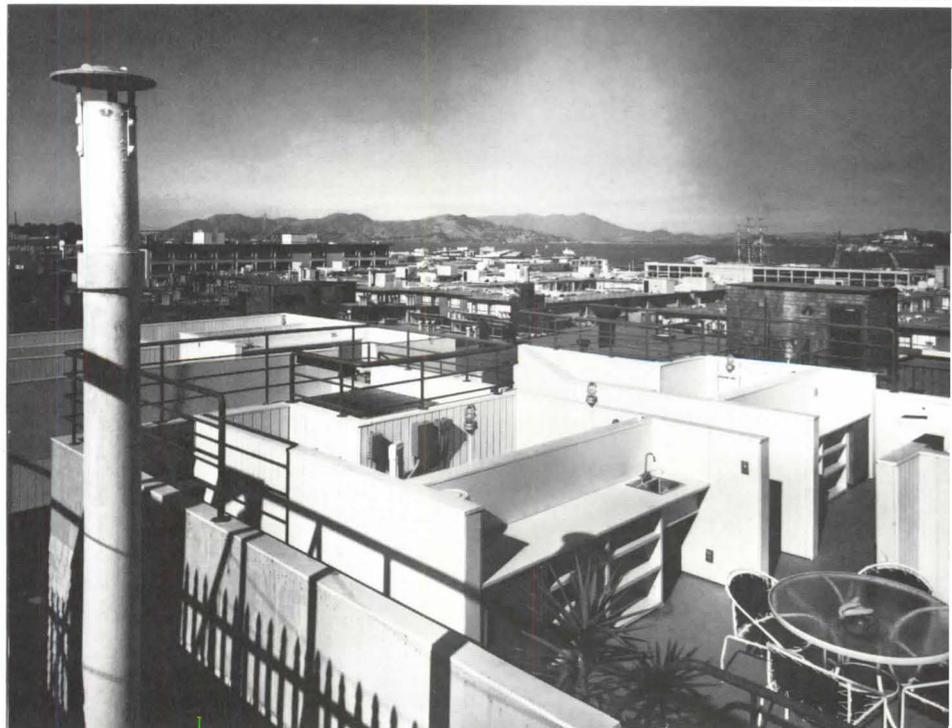


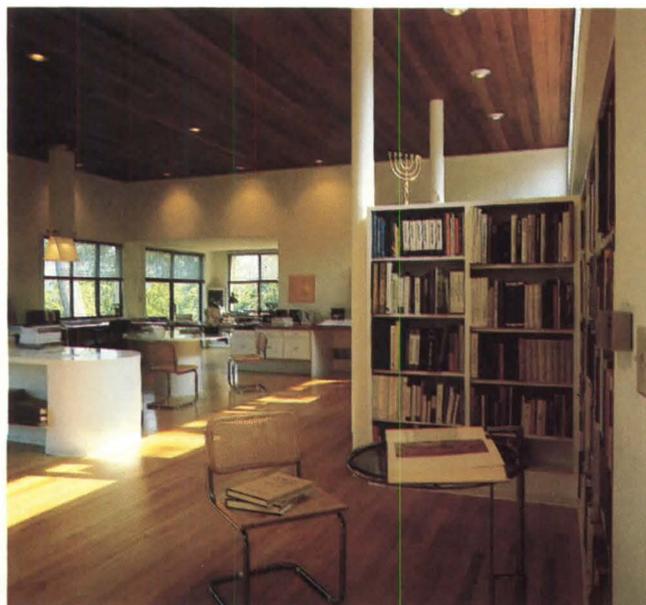
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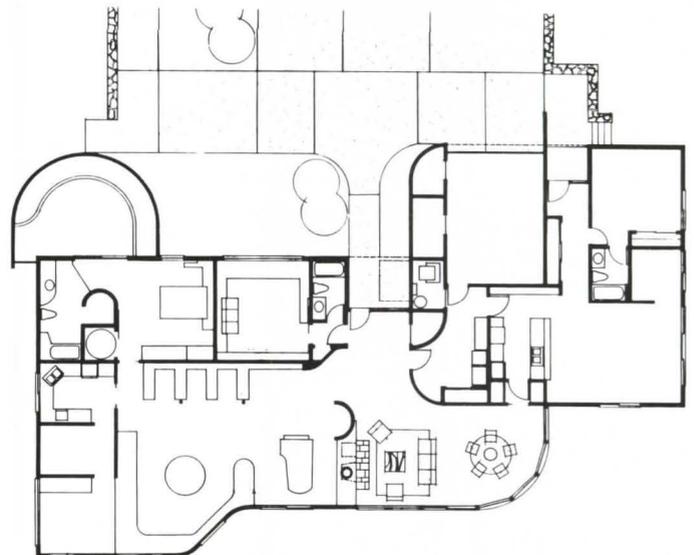
Drawn from Adversity

Sleek, neat, and rounded, the Folk house is notable for its curvilinear form reminiscent of the 1930s streamlined modern period. But first impressions of curving glass walls and redwood siding, which become almost ethereal at night, give way to substantial fascination on the inside. For the Folk house, designed by James Tuley, AIA, and located in Charlottesville, Va., is a circulation machine designed for a law professor confined to a wheelchair.

Tuley did his homework before starting the design; he read the standards and guidelines that abound for handicapped housing. "But none seemed applicable. My client was sophisticated, set in his ways, and knew how he wanted to live," says Tuley. "He is also six feet, four inches tall, with a very long reach. The standards just didn't work."

The curvilinear theme of the house evolved, almost surprisingly and without preconception, in response to the wheelchair. The professor moves fast and wanted open circulation providing maximum freedom. Tuley began working with curves, and, combined with an overall sense of proper scale for the house, the curve became its own esthetic—outside curves enclosing internal curvilinear spaces.

The house is 3,650 square feet, with 1,640 square feet of that



devoted to an apartment and garage. The garage is the front door for its owner, who drives into the garage, rolls into the laundry (located so he could remove dirt from the wheels), and then through the door inside. The front yard is concrete, an apparent parking lot, with a curved wall enclosing a garden visible inside. The concrete facilitates wheelchair movement.

The interiors are free and open, with an abundance of light and air, not only from the outside, but between rooms. The plan is flowing, with one space curving into another and large open spaces for movement. Dominating the interior are the special concerns of the client: an avid reader about art, music, and dance. There is a library with 550 linear feet of bookcases and a built-in stereo system with 36 feet of storage for LP albums. Stacks are spaced to assure easy access for the wheelchair, with heights adjusted to the professor's long reach.

The living room and dining area, with a fireplace at one end and a glass prow at the other, is more formal. Furnishings are discreet and singular, providing spaciousness with little space. The remainder of the house is more conventional in plan, but in its details sensitive to the special needs of the client.



Living area is essentially one large, flowing space with a great many curved corners. On one side are easily accessible, library-like book stacks, left. Exterior, top, and fireplace, right, epitomize the house's marked early modern character.

Place in the Community

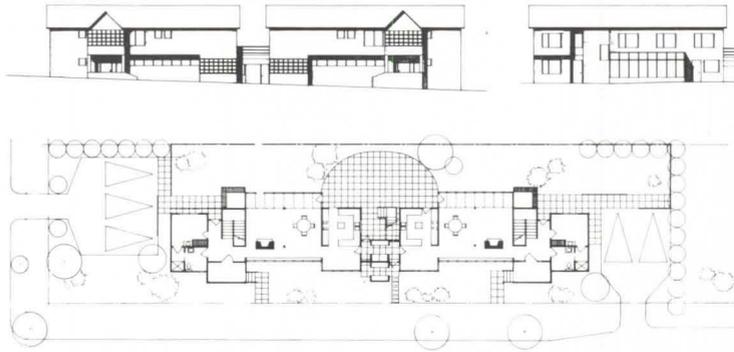
Bonita House, shingled in a modern version of Berkeley vernacular, sits near the University of California campus like any new housing to which young faculty might aspire.

But Bonita is not campus housing, it is a conjugal housing facility for the mentally ill—a permanent home for those not able to live alone but able to live responsibly with each other. Its residents have been through a progression of institutional care systems and have achieved independent living. Each pays rent and each is responsible for maintaining the house; there is no supervision. Posted lists of assigned tasks attest to the care of the house; it is, in fact, meticulous while well lived in.

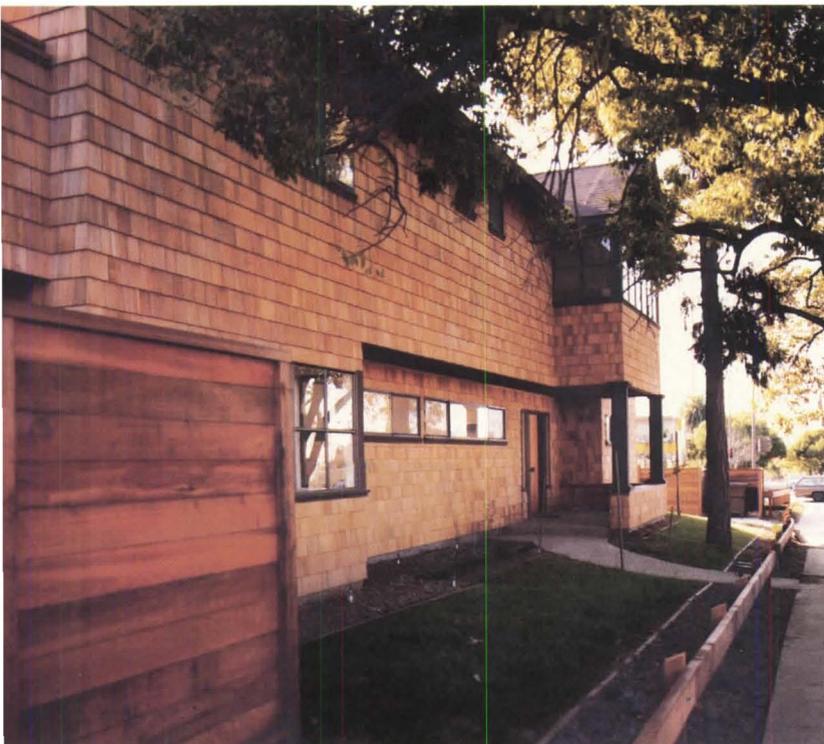
Built for \$380,000 in 1982, Bonita was designed by Hirshen Gammill Trombo Architects in association with Mui Ho. The plan is for two houses, mirror images of each other, connected at the ground level by a patio and, at the second level, by an outdoor walkway. The plan provides individual privacy amid community, and allows residents to visit freely between as well as within the houses.

Both men and women live at Bonita, six residents to each house. Individual bedrooms are filled with personal belongings, arranged in built-in bureaus and closets with curtain access. Across the hall from the bedroom, a study with three windows provides retreat.

The ground floor contains another bedroom, accessible to the physically handicapped. The common spaces are large and open, with a greenhouse view of a landscaped backyard and patio; a living area is at one end, a dining area at the other.



The Missouri halfway house, above and right, has a carefully worked out plan and sprightly facades that are, in effect, false fronts.



The two houses in Berkeley, left, are mirror images of one another, joined by an open bridge on the second floor.

Perky Halfway House

Looking like outdoor stage sets, the group homes for the developmentally disabled in Higginsville, Mo., are exaggerations of themselves. Designed by Devine Architects, Kansas City, Mo., for residents who can comprehend only basic forms, colors, and uses, the homes are deliberate overstatements. They are transitions to the real world for some; for others, they offer training and a glimpse beyond institutional surrounds.

Each of the houses has eight residents; the units are 3,100 square feet and built on two sites within the larger grounds of the Missouri State School and Hospital. Other facilities include 1950s dormitories and a medium-care hospital, which provide transition to the new group homes.

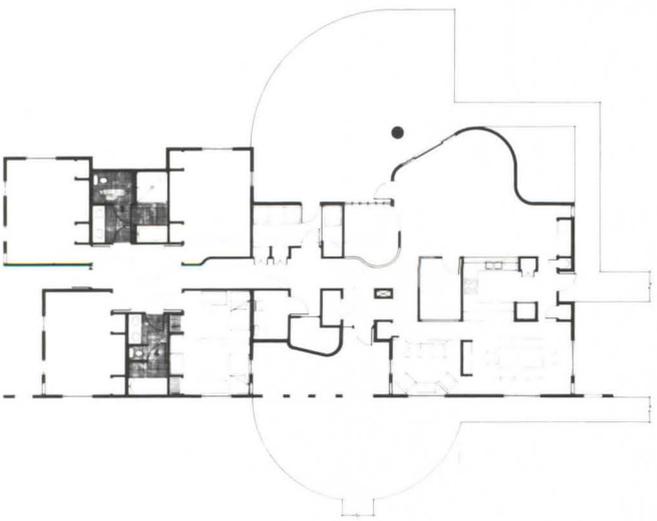
Every effort is made to assure a noninstitutional environment.

The siting echoes the nearby town with double-loaded "streets" distinguished by strong two-dimensional facades along sidewalks and landscaping that stress the image of an auto/pedestrian corridor. The streets are laid out in gentle curves so that residents have views of other group homes, trees, and pedestrians, as well as service areas between buildings. Building components, including porches, back doors, and patios, are carefully articulated to make their perception easy; clarity is evident throughout.

The homes behind the playhouse facades are traditional and cheerful, with institutional requirements as discreet as possible. Nurses' stations, fire and emergency protection systems, and provisions for the physically handicapped are unobtrusive. Living rooms are designed to encourage informal mixing; bedrooms suggest homes, not dormitories; and the recreation areas are brightly lit game rooms, unlike the therapy space with which residents are familiar. Materials throughout suggest a home environment, both indoors and outdoors. □



Paul S. Kivett



Paul S. Kivett

Housing the Poor: A Lost Priority?

Just 15 years ago efforts to improve the nation's housing stood high on the list of national priorities. Housing, along with jobs and education, was widely viewed as one of the lifelines that could lift families from the urban slum ghettos. In 1968 Congress established as a national goal the provision in 10 years of 26 million units of new and rehabilitated housing, six million of them for lower-income families. The same goal was advocated by one of two presidential commissions that filed reports that year containing a total of 142 recommendations for fostering better housing.

As evidence of a lost sense of urgency, consider the following:

- Congress has not passed a major housing-authorization bill for two years; it is well into a third year with no action by the Senate to match a House bill enacted in July.

- In a radical redirection of housing policy, the Reagan Administration is relying almost exclusively on rental allowances for housing poor families in existing homes and apartments of their own choice.

- Because deregulation of financial institutions has permitted traditional thrift institutions to invest in almost any field, housing investments no longer get preferential treatment in the financial markets.

The diminished sense of urgency for national strategies to attack housing problems at the national level is at least partially offset by action—by both grassroots and establishment forces—to satisfy the enormous demand for housing. Seldom is this demand expressed in such dramatic fashion as by a housing group that has maintained a “tent city” in Boston's Copley Square for 10 years. These stalwarts thus signal the Boston Redevelopment Agency and the developers of a \$400 million multiuse project that the prime site they are using was assembled with public authority and public money and hence should contain some housing for low- and moderate-income families. A more common manifestation of housing demand is exemplified by a lottery in Orange County, Calif., early this year in which the names of 123 winners were picked from a drum containing the names of 3,300 applicants for subsidized suburban houses.

How bare is the federal cupboard of federal housing subsidies? It is completely bare of assistance for new construction

under the Section 8 program, adopted in 1974 to make occupancy feasible by low-income families in new, privately built housing. HUD makes one exception: Some 14,000 units a year will be assisted in housing projects for the elderly built under the department's Section 202 program. Some 5,000 units of moderate rehabilitation, with expenditures limited to \$7,500, will be assisted under the Section 8 program. HUD now distributes the bulk of its housing subsidies—at a current rate of about 45,000 a year—to individual families in the form of housing certificates. The certificates are paid to landlords to cover the difference between 30 percent of a family's income and the fair market rent for the housing unit.

With the traditional tools of their trade gone or fast disappearing, how are local governments and community-based housing concerns satisfying the housing needs of their constituents? More slowly, of course. Nevertheless, throughout the country housing sponsors are adapting to the redirection of national policy, using ingenuity and adopting many of the techniques of commercial developers. These are of two types: (1) nonprofit sponsors of housing for a single neighborhood or segment of the local population, and (2) residential development agencies, which tend to be public/private partnerships that often form alliances with commercial and nonprofit developers to provide housing for an entire city, county, or metropolitan area. Local governments, using a range of incentives and sanctions, have become a third major generator of affordable housing.

Consider first the new heights of ingenuity to which the nonprofits have risen.

St. Ambrose Housing Aid Center in Baltimore, founded by Vincent Quayle, a former Jesuit priest, helped 1,500 families in a low-income neighborhood of Baltimore buy their own houses until rising costs and tight money made home ownership impossible for most neighborhood residents. Salaries in the area range from \$5,000 to \$15,000 a year. “We are now landlords, owning 80 units,” Quayle says. Renovations carried out by St. Ambrose range from those requiring only modest structural changes to the costly gutting of buildings and replacing the interiors. The latter process will be needed to convert a former Catholic school into 28 one-, two-, and three-bedroom apartments for

lower-income families. Quayle and his associates estimated that \$1.3 million would be needed to carry out the design of Kelly/Clayton & Mojzisek for the project. Through the city government Quayle negotiated one of the rare urban development action grants that HUD makes for housing. This covered \$300,000 of the cost. Through syndication, he brought in private investors and thus raised another \$350,000. Investors were easily attracted to the project, not only because it was backed by the full faith and credit of the Baltimore archdiocese but because the old school had been designated a historic site, a fact that gives them a tax credit for 75 percent of their investment.

To get the remaining \$650,000, Quayle persuaded the Maryland state housing finance agency to lend St. Ambrose the remaining \$35,000 at 6 percent interest. The center will repay the loan from the rentals.

Fostering home ownership in an ethnically mixed Kansas City, Mo., neighborhood remains the major objective of this city's West Side Housing Organization. West Side was started seven years ago to help erase years of community neglect of an area near the Kansas border. It is one of a number of neighborhoods in American cities that have been virtually isolated in recent years by expressway construction.

“When we started the organization in 1977 the neighborhood had been written off,” says Fred Jaben, West Side's president. “There had been no new houses or capital improvements for 80 years.”

In its early days West Side concentrated on helping the predominantly Hispanic owners of the area's modest houses to carry out rehabilitation. Funds to facilitate these efforts came from the Missouri Housing Development Commission, a HUD neighborhood self-help grant, foundations, and the Lutheran Church.

Three years ago the organization started building houses with passive-solar features on vacant lots in an area that provides southern exposure. Using basic designs provided by such Kansas City architects as designer-builder Ralph Keys, they sell the houses to area residents before construction starts. A number of innovative financing measures are used to make the homes affordable. A typical financing package includes a first mortgage from the Missouri Housing Development Commission at the below-market rate of 10 percent, a second mortgage held by West Side or one of a number of community

Mr. Lawson is a freelance writer in Washington, D.C. **Linda Scott** of Washington assisted in the research for this article.

groups that assist it, and credits for "sweat equity"—the labor the owner puts into the house. Tax abatements on some of the lots reduce monthly payments as much as \$25.

By taking advantage of a state statute used to acquire land for nearby Crown Center, West Side recently gained four tax-exempt lots and a source of revenue for a revolving pool of mortgage money. Missouri Statute 353 permits nonprofit organizations with the approval of municipal governments to condemn land and provides for a long-term tax abatement on such land. The parcel acquired by West Side was land taken by the state for a highway interchange but never used for that purpose. By including in the condemnation proceedings an adjacent tract owned by the developer of a luxury condominium, West Side was able to gain tax abatement for the developer's site. For this consideration, the developer is giving West Side a percentage of profits from the sale of condominium units. This transaction may yield as much as \$200,000 for West Side's revolving fund.

Small, neighborhood housing sponsors are just beginning to use such sophisticated financing devices as real estate syndication and complicated legal stratagems, but partnerships of business leaders and public officials have for decades combined public and private resources to provide housing on a citywide or areawide basis. In an era of disappearing federal housing subsidies and radically changed mortgage markets, these joint ventures are becoming increasingly important.

In a recent issue of the *Journal of Housing*, John Nolon, executive director of the Center for Community Development Preservation, Inc., outlines methods used by five successful residential development agencies, most of them formed by public and private forces to accomplish what neither could accomplish alone. Nolon describes a series of transactions used by Neighborhood Housing Services of Chicago, Inc., to develop housing in the city's changing and declining neighborhoods. Neighborhood Housing Services, a nonprofit organization, formed a for-profit affiliate, New Partnership, Inc., which issued both common and preferred stocks. Neighborhood Housing Services retained all the common stock, and thereby kept voting control. The preferred stock was sold to Allstate Insurance Co. for

\$500,000 to provide New Partnership's initial capital.

Allstate and New Partnership reached agreement on a 12-year plan under which Allstate would redeem the preferred stock in designated amounts over five years, beginning in the seventh year. New Partnership then organized a nonprofit Mutual Housing Association to provide efficient, sensitive management of its projects. The association is governed by a board consisting of New Partnership directors, tenants, and public sector representatives.

Nolon also points to a quasi-public housing company in Bergen County, N.J., that operates a land-banking project to acquire small parcels for lowrise housing for moderate- and middle-income households. With designs chosen by competition, the company has pioneered in winning local approval for smaller, lowrise condominiums affordable to families previously priced out of the market. To ensure continuing affordability, the development corporation retains an option to purchase if an owner decides to sell. As a further deterrent to price inflation, it places a deed restriction that limits the resale price to the original purchase price plus annual appreciation no greater than the consumer price index.

No national figures are available on the total yield in affordable housing units from inclusionary zoning laws passed since the mid-1970s in some suburban jurisdictions, notably in California, but including Montgomery County, Md., and Boulder, Colo. Typically, these laws require developers of new free-standing houses, town houses, and condominiums to set aside a percentage of their units for purchase by families of moderate income. Montgomery County developers have provided 2,644 such units under a law that has been in effect since 1974. Single persons earning up to \$27,900 and families of five earning up to \$35,900 are eligible to purchase these houses.

Fortune magazine reports that while only 5,098 units have been built in the last four years by the 21 California localities with inclusionary zoning laws, builders have made commitments to build 10,875 more over the next several years. In an article that terms these laws "Robin Hood subsidies," *Fortune* Editor Gurney Breckenfeld contrasts the production stimulated by inclusionary zoning with some 20,000 units of affordable housing built in 1982 alone by California builders without "local compulsion." Breckenfeld notes that the buyers of these houses—"mostly

dinky affairs . . . on cheap land" in exurbia—"have solved the affordability problem in time-honored fashion by accepting less living space and longer commutes."

Last January the New Jersey Supreme Court issued a decision that a long-time legal advocate of equitable housing practices describes as "a detailed guide book to state courts on the practical aspects of overcoming exclusionary zoning." In an analysis of an opinion clarifying a 1975 ruling, Washington attorney Herbert M. Franklin writes that "the court boldly and unanimously reinforced its earlier decision establishing an affirmative inclusionary zoning obligation requiring local governments in New Jersey to adopt land use regulations that permit a realistic possibility for a fair share of housing opportunities for low- and moderate-income households, based on regional need for such housing" (*Fundamental Fairness in Zoning: Mount Laurel Reaffirmed*, Potomac Institute, 1983).

San Francisco provides the most dramatic case of municipal muscle flexing to generate housing construction. Since its office/housing production program was established in 1981 the city has collected nearly \$19 million in fees from office developers to help subsidize 2,637 units of new and rehabilitated housing. The plan is legally rooted in California's Environmental Policy Act, which requires that developers file with the City Planning Commission reports on the environmental impact of their plans. Planners assign residential requirements to office developers on the basis of data showing that 40 percent of all office employees prefer to live in the city.

Given the pace of office construction in downtown San Francisco in recent years, this option could not be exercised without substantial increases in housing. The more affordable developers make the housing they provide, the greater their credits under the commission's formula for compliance with the plan. Affordable housing units developed with subsidies gives a builder a two-for-one credit. A three-for-one credit can be earned for each affordable unit provided for moderate-income occupants without subsidy, and a four-for-one credit is given for a non-subsidized, low-income unit.

A bill that would apply a version of the San Francisco plan to office developers in Washington, D.C., has been introduced in the District of Columbia City Council. The measure would make the issuance of building permits for commer-

cial structures costing \$20 million or more subject to an agreement by the developer to provide housing units of not less than 10 percent of the value of the commercial building.

Predictably, the bill met stiff resistance when it was first offered. But its sponsor, Councilwoman Charlene Drew Jarvis, says subsequent soundings of community response have convinced her that there would be support for an alternative measure, perhaps one that would rely on a system of incentives to gain compliance.

If housing has lost its ranking on the scale of national priorities, as was suggested at the outset, can local efforts such as those in the brief sample reviewed here produce housing on the volume attained in the post-1968 period? Congress's goal of 2.6 million units a year was not attained, but a review by the Nixon Administration in 1972 showed that 2 million units had been built since passage of the landmark 1968 act.

To return to this level of production under today's circumstances some or all

of the following must happen: There must be a vast increase in the number of former clergymen, grassroots organizers, and business executives who can fathom the intricacies of real estate syndication and tax abatement. Local government officials must be more alert to the possibilities of housing trade-offs for commercial development. Suburban jurisdictions must find ways of making inclusionary zoning measures more equitable for all who participate—developers and housing-hungry citizens. □

A Neighborhood Grows in Charlotte

One of the nation's most impressive collaborations of citizen-activists and the business sector has created a flavorful new downtown residential neighborhood in Charlotte, N.C., virtually out of whole cloth in seven years.

As recently as 1976 downtown Charlotte consisted largely of a collection of towers rising like a mirage from a wasteland wrought by surface parking lots and vacant sites cleared in the urban renewal era. But then, to the surprise of many, the Junior League restored one of the few remaining houses in the Fourth Ward, a sector of downtown that had only a scattering of buildings left, most of them inhabited by transients.

Then a few brave souls began moving houses, most of them Victorian, from elsewhere onto the relatively inexpensive Fourth Ward lots. One of these was Dennis Rash, then dean of students at the University of North Carolina in Charlotte. Rash was acquainted with Hugh McColl, president of North Carolina National Bank, (NCNB), and succeeded in interesting him in the future of the Fourth Ward, close by NCNB's handsome headquarters at Charlotte's traditional center, the intersection of Trade and Tyron streets.

McColl responded by setting up the NCNB Development Corporation to act as catalyst and help finance development in the Fourth Ward through a low-interest

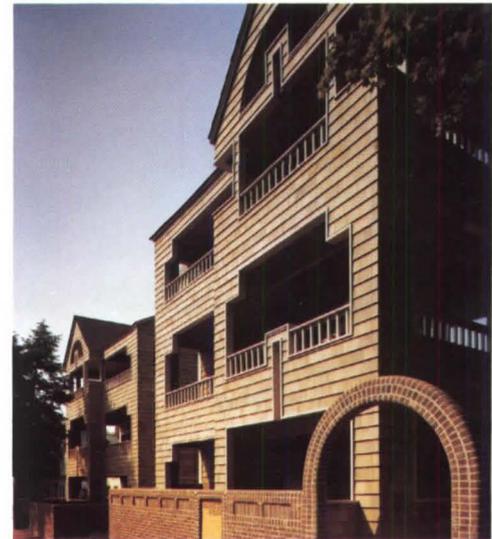
loan pool. Rash is now president of the development corporation.

The 14-block core of the Fourth Ward now contains nearly 1,000 dwelling units, and its assessed valuation has risen from \$1.2 million in 1975 to \$31.9 million. There have been 18 separate developments, some subsidized units for the elderly but most owner-occupied, multifamily housing for upper-middle-income households.

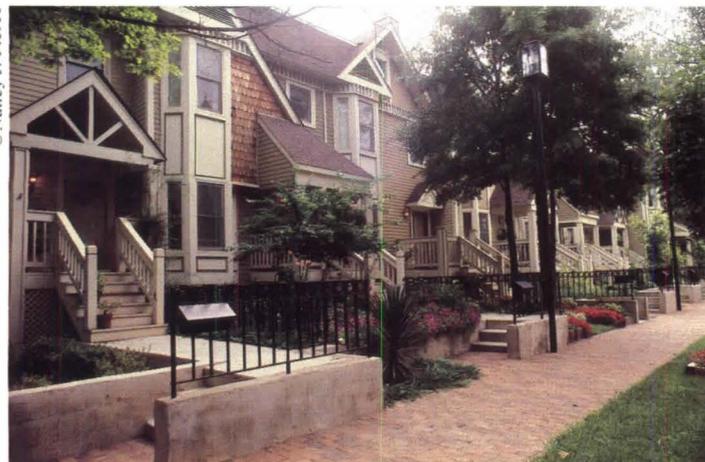
Early on, those involved in the Fourth Ward's revival obtained its designation as a historic district, even though at the time it was all but empty. The reason is that the historic district law is the only legislation providing for design review in North Carolina, and most of the South.

When Fourth Ward design review was just getting started, there were two diametrically opposed ideas about what should be built. Those who took the historic district designation literally wanted old Savannah or Charleston. The architects wanted all contemporary. "We had some frank discussion about what should be done, but we kept using phrases for design quality, not style," Rash recalls. Phrases like "visual complexity" or "human scale" or "walking environment." "We kept using the word 'urbane,'" Rash notes.

The first chairman of the Fourth Ward design review committee was Charles Hight, dean of architecture at UNCC. "We



Charlotte's Fourth Ward housing: (1) *Barringer Square* by David Furman, AIA; (2) *revived and renewed old Victorian*; (3) *Sixth & Pine* by Jenkins/Peer; (4) *10th Avenue town houses* by Reg Narmour.



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Joann Sieburg Baker

Suburbia Comes to the South Bronx

interpreted it broadly," he says of the historic district tag. The booklet published to help show developers and architects what was desired included photos of Charleston and Savannah, but they were usually streetscape elements rather than architecture. "We had someone submit a 'colonial' row of town houses. They were certainly shocked when it was rejected," Hight recalls with some delight.

"We generally knew whether a project was good from the first look," says Hight. "Some went through quickly, others were like pulling teeth. As we went along we required architects to include streetscape drawings. The better designs usually included them to begin with, but you'd be surprised how many architects didn't know what we were talking about."

Fourth Ward's 18 residential developments are a mixed bag, and almost everyone considers that a good thing. The best streets, really, are those that have either town house rows that play off traditional features like gables, porches, and bay windows or streets that have a number of smaller developments side-by-side. The least successful, in the opinion of many, is the largest development that you simply see too much of. And it is the continuity of "urbane" streetscape elements—the brick-on-sand sidewalks, the street trees, the porches leading to raised ground floor entries, the low walls or picketed metal fences that gently separate unit from street that give Fourth Ward its texture and—yes, it has to be said—ambiance.

The worst moments are the occasional solid brick wall with a band of glass block fashionably flush about two-thirds of the way up, or the units that relate to internal parking better than to neighbors and streets. Landscaping as it matures will undoubtedly soften these indiscretions.

There have been some significant lessons learned from the Fourth Ward experience/experiment. NCNB found out that its development corporation was not temporary. It is a statewide bank, and NCNB Development Corporation has projects similar to Fourth Ward—in-town town houses with historic overtones—under-development or complete in Greensboro and Fayetteville.

The other big lesson emerging from Fourth Ward has been the one learned by the City of Charlotte and its leadership. For years Charlotte had said it wanted to be the next Atlanta, and the 40-story towers seemed to be making the wish come true. Fourth Ward has helped turn around the whole thinking about a business-only or business-and-hotel core. This fragile, residential toehold has caused the whole town to take a stand about uptown, as Charlotte calls its downtown.

PHILLIP MORRIS

Mr. Morris is executive editor of Southern Living magazine.



Don Hogan Charles/The New York Times

They sit amid vacant lots and burned-out shells of buildings: two ranch style, split-level, single-family houses that seem to have fallen out of the sky onto a 15-acre site in the heart of the South Bronx in New York City. The houses, used as models for prospective buyers, created a flurry of quizzical amusement last April when dedicated as Charlotte Gardens, a development that will eventually have 90 such dwellings.

The project is being directed by the South Bronx Development Organization, Inc., a city agency headed by Edward J. Logue, Hon. AIA. The project's location on Charlotte Street is poignant, for it is here that President Carter, and later candidate Reagan, climbed over broken bricks and boards to symbolize their concern for such inner-city devastation. "With these houses my hope is that in 1984 we won't have any presidential candidates coming here," Logue says.

It has been the lack of any action by the federal government, evidenced in the elimination of many housing subsidy programs, by the Reagan Administration, that has caused Charlotte Gardens to come about. Rather than leave the site empty, housing requiring no government subsidies is being built, but it will not be affordable by lower-income families.

This has caused several residents to complain about the project. They claim that lower-income housing is needed "before worrying about these fancy houses," as one local detractor put it.

Peter Bray, project director for Charlotte Gardens, says that this complaint is unfair in light of the fact that no housing at all would be built due to the lack of subsidies.

To charges that Charlotte Gardens is a gentrification project, Bray says that this is not the case, because gentrification

replaces old residents with new. Charlotte Gardens is displacing no one and is intended to entice upwardly mobile South Bronx residents from moving to other parts of the city.

Bray also claims that Charlotte Gardens will prove an economic asset to the community. "We're trying two different concepts," he says. "One is that home ownership is required to provide stability in any neighborhood, and two, that we need to retain economic diversity. No neighborhood can be stable with a 100 percent low-income population."

The choice of factory-built detached houses for the development was dictated by economics, Bray maintains. The three-bedroom houses are being offered for \$49,975. Bray says that town house units, although providing a higher density, would have been more expensive to build—about \$10,000 to \$15,000 more per unit. This difference in cost is due to additional site work for codes and utility hookups. "Town house construction requires that you build masonry firewalls in between the structures," says Bray, which increases the amount of on-site labor. More sewer connections also would have been required for a higher density development.

Will the strategy work to keep people from moving out of the South Bronx? Bray says that so far it looks as though it may. Of the 507 applicants, 49 percent are from the area, 30 percent are from the North Bronx, and about 11 percent are from Manhattan—mostly Harlem and East Harlem. The remaining 9 percent are from New Jersey, but many of them once lived in the South Bronx and now want to return.

The first 10 buyers are now undergoing mortgage approval at the bank. All 90 units are expected to be completed by July 4, 1984. MICHAEL J. CROSBIE

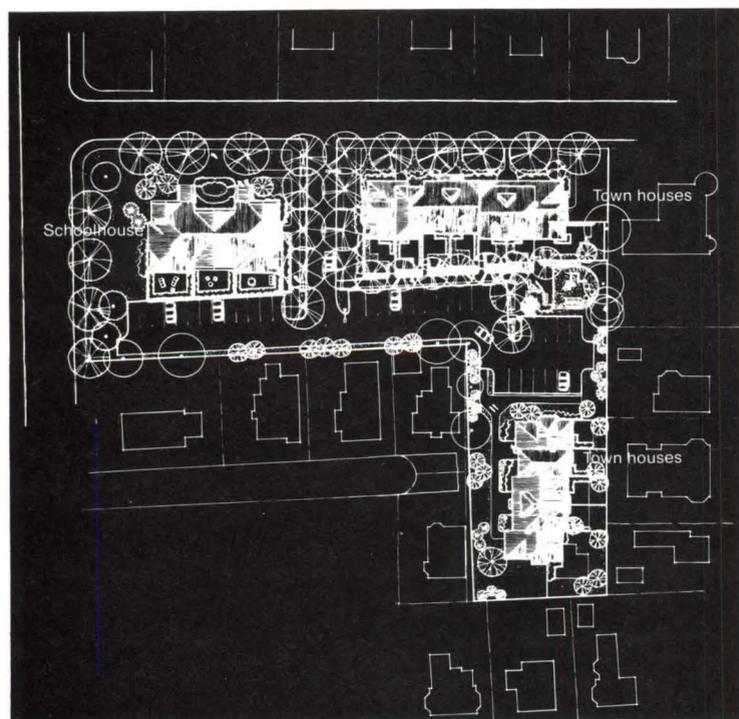
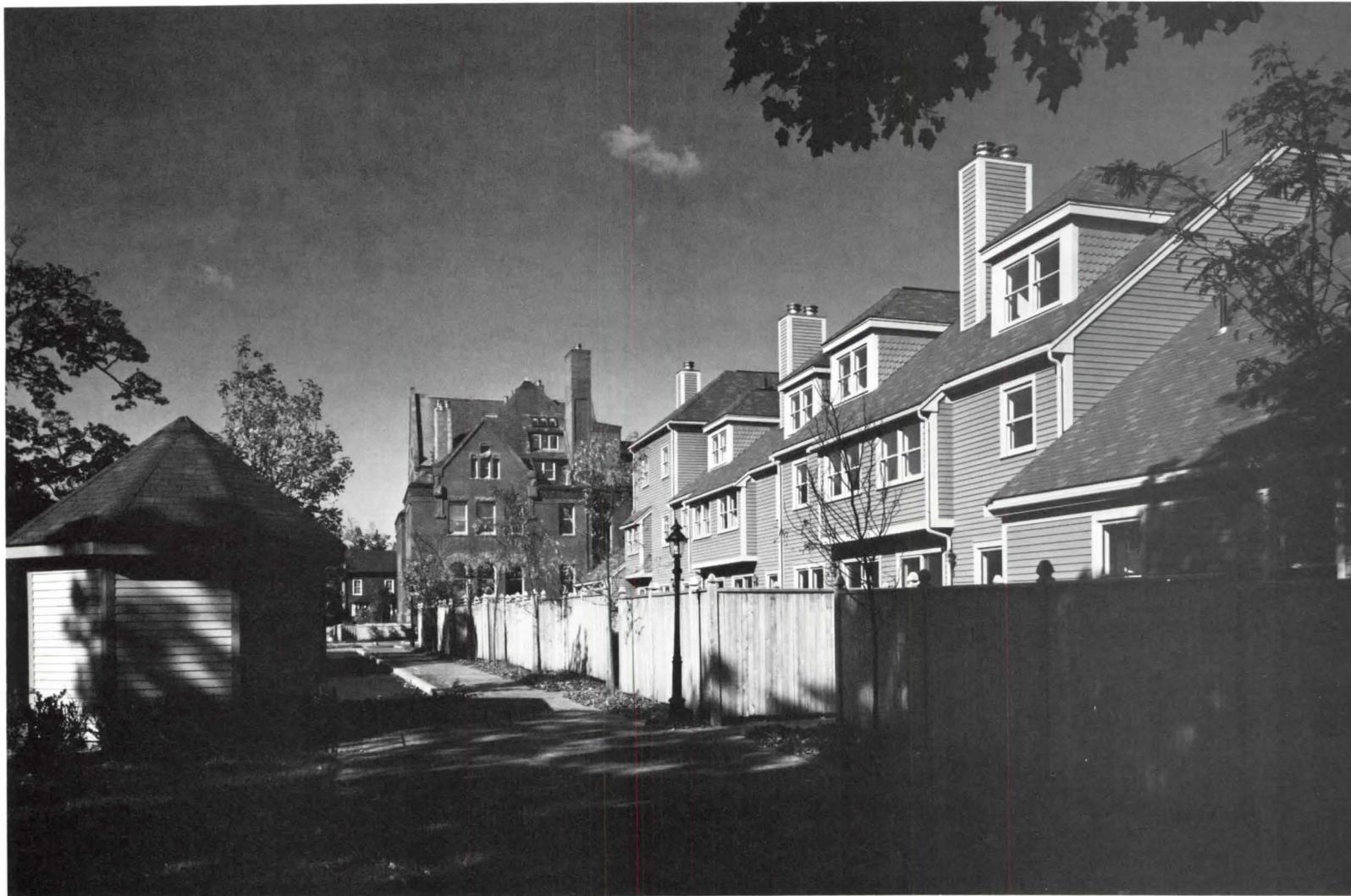


Housing Wrought From Other Building Types

*A collection of conversions, starting with a
Massachusetts school. By Carleton Knight III*



Sam Sweezy



Demographic change of the kind the nation is experiencing means that not only do we need more of some kinds of buildings, notably dwellings for small households, but that we need less of others, such as schools. The result is a rash of adaptive use projects converting "surplus" buildings into housing, several of which are shown on these and following pages.

Town officials in Newton, Mass., a Boston suburb, decided in the late-1970s that something had to be done with the aging and vandalized Clafin School. Vacant for several years, the 1890s Richardsonian Romanesque structure had become a blight.

They sponsored a competition that required a developer, an architect, a use, and a bid price for the building. Fourteen entrants offered a variety of residential and commercial uses, but then the town decided to limit the conversion to housing. Entrants were asked to resubmit, and a subsidiary of the Newton Cooperative Bank, working with Sasaki Associates of Watertown, Mass., won. Its scheme called for conversion of the old school to housing and also for construction of two rows of new town houses next to it.

Across page top, Clafin school casts a warm glow at night. Bottom, view from school shows private courtyards of new town houses. Above, forms and massing of new town houses mediate scale between neighborhood and school (site plan left).

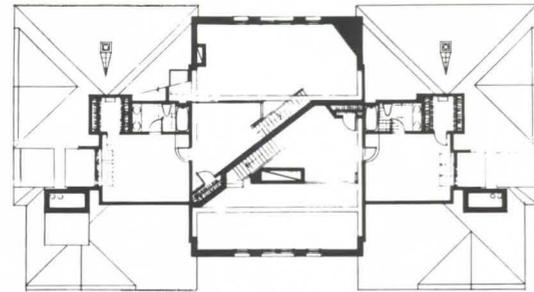


A variety of unit sizes and plans.

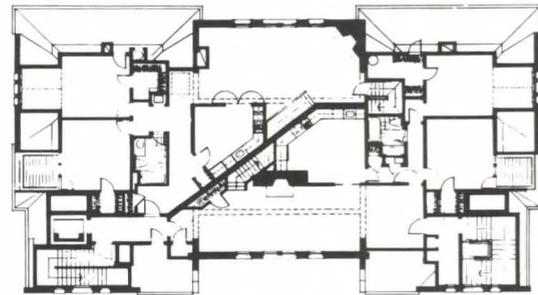
The architects converted the four-story school into 13 condominiums ranging in size from one to three bedrooms. The school's 24-foot-high auditorium on the top floor was recycled into two penthouse units with upper-level master bedrooms that open onto private balconies. Ground-level units have private patios.

Twelve new units, ranging in size from two to four bedrooms, have been constructed in two contemporary wood-frame buildings on what had been the school parking lot. They act as a transition between the small-scale neighborhood and the massive, brick, brownstone, and granite school. "The town house roof configurations," report the architects, "resemble large single-family homes rather than numerous separate units, while bays and dormers, porches, scalloped shingle details, and exterior paint color reflect familiar Victorian features."

Above, new town houses resemble large, rambling homes. Across page, living room on top level of school utilizes old roof trusses as design element.



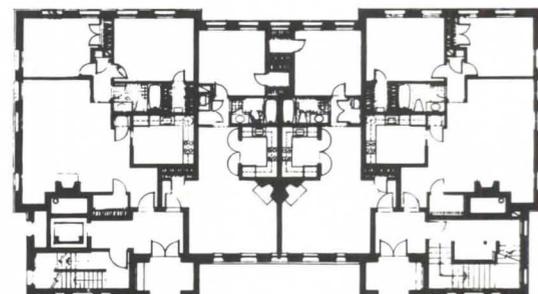
Fourth floor



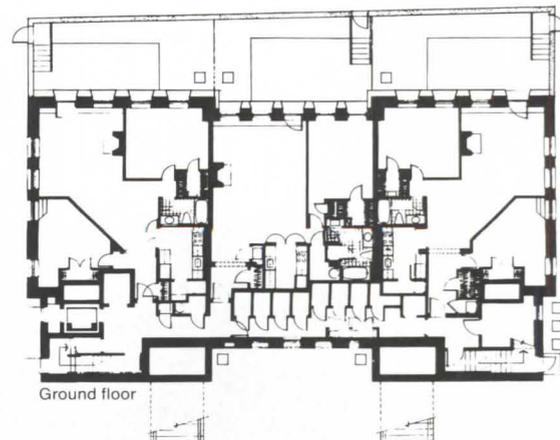
Third floor



Second floor



First floor

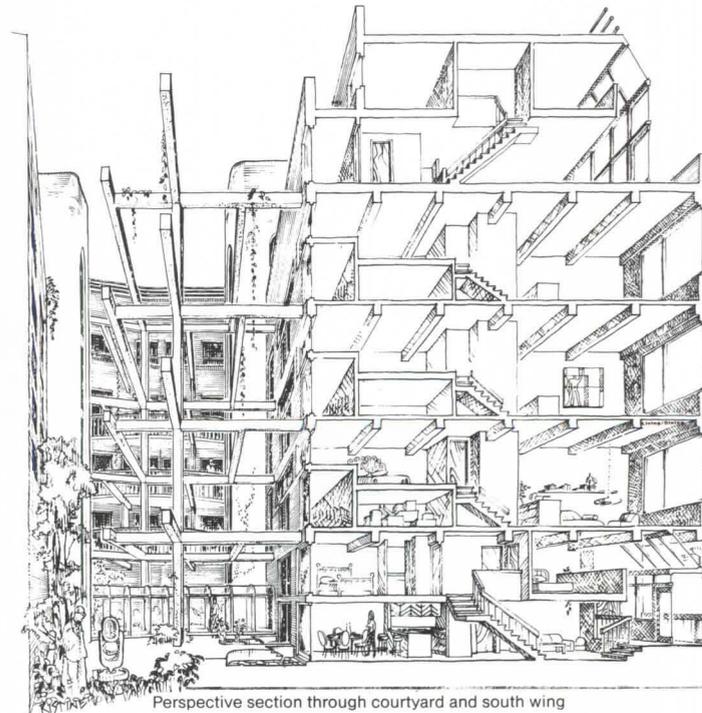


Ground floor



Living Space Carved Out of a Garage

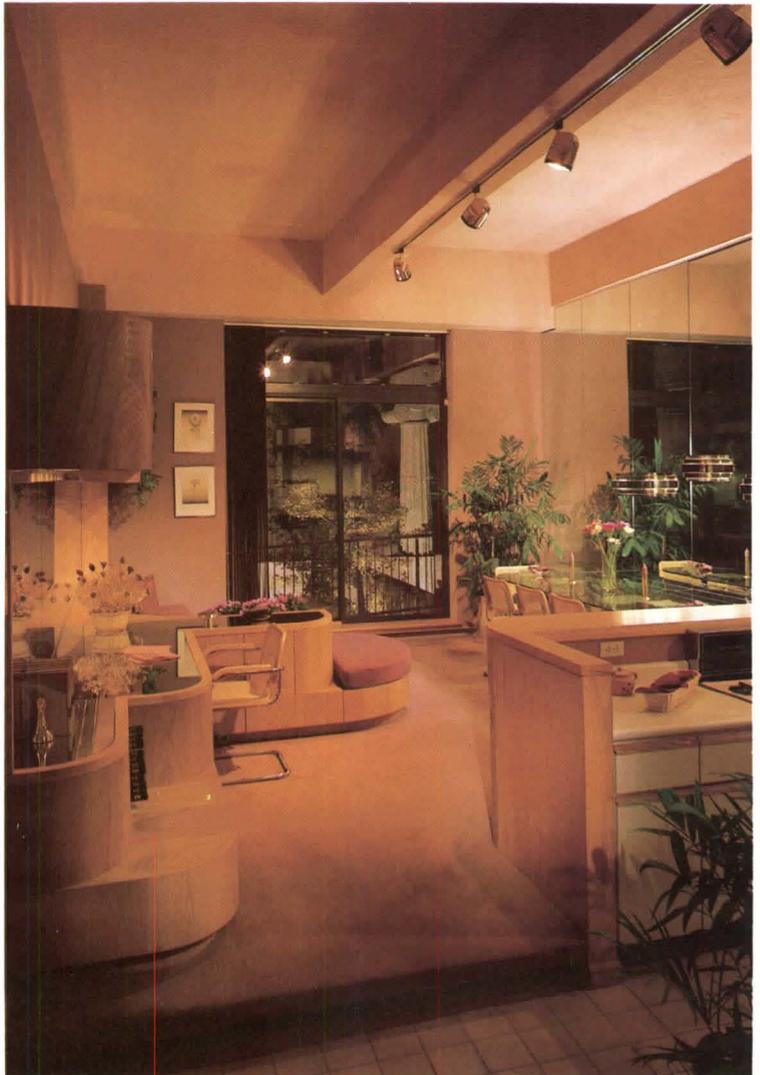
It becomes a condominium around a courtyard. Architect: Stephen B. Jacobs and Associates.



Perspective section through courtyard and south wing



Todd Henkels



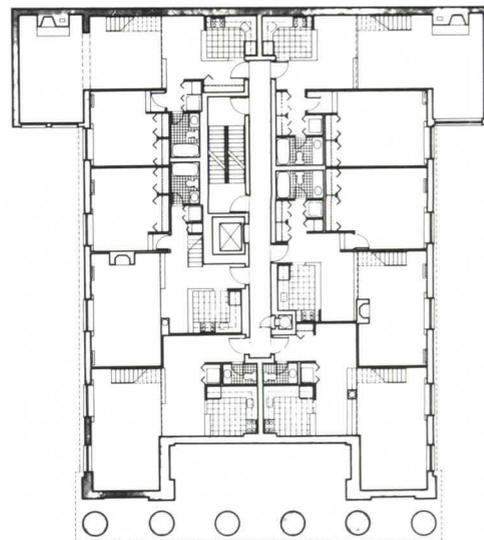
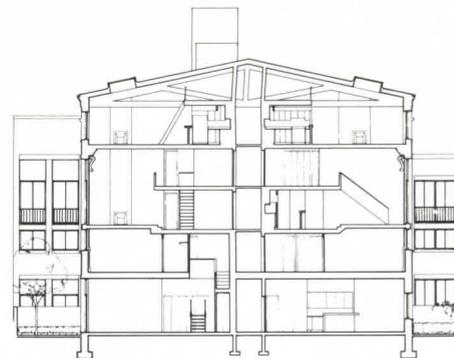
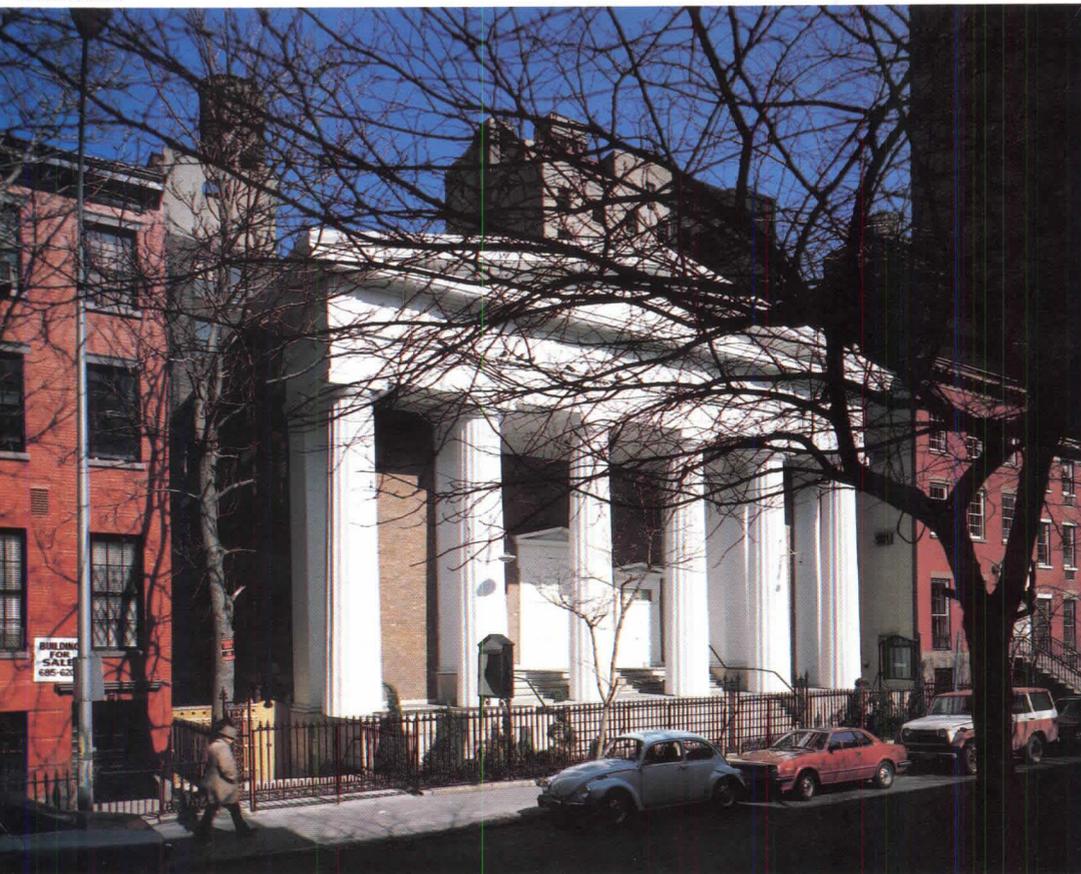
This 1931 New York City garage seemed to have everything against it in terms of recycling into housing. The 13-foot ceilings were not high enough to create duplexes, the concrete-encased steel frame was irregular, floors were sloped, a spiral ramp was in the middle, and the building was a full block deep, limiting the interior's access to light and air circulation.

After several developers passed on the building, Sherwood Equities of Hewlett, N.Y., decided to take up the challenge and sought the assistance of Stephen B. Jacobs & Associates, New York City architects experienced in such conversions. The designers turned the building's many liabilities into assets.

The interior was carved out to create an atrium, the ground floor lowered to permit duplex units, and an inventive structural system utilizing rigid foam and concrete beams installed to permit the addition of new duplex penthouse units on the roof. Most units are one-bedroom and feature full-height living rooms overlooked from sleeping levels that are raised above storage rooms and bridge across the single-loaded corridors to gain windows on the courtyard.

The 84 condominium units, which were priced from \$140,000 up, sold well.

Above, mundane industrial building near the Hudson River was creatively recycled into housing by selectively removing portions of the building core for a courtyard.



Greek Revival Revived

Also by Stephen B. Jacobs & Associates

The 13th Street Presbyterian Church in New York City is a classic example of a distinguished building—the *AIA Guide to New York City* describes the 1848 structure as “the best Greek revival church in the city”—for which there is no use. Efforts to find an institutional user came to naught because of the high cost of maintenance.

Choral Associates of New York City purchased the church and commissioned Stephen B. Jacobs & Associates to convert it into 15 units of cooperative housing. The church is within the Greenwich Village Historic District, thus any alterations required landmarks commission review.

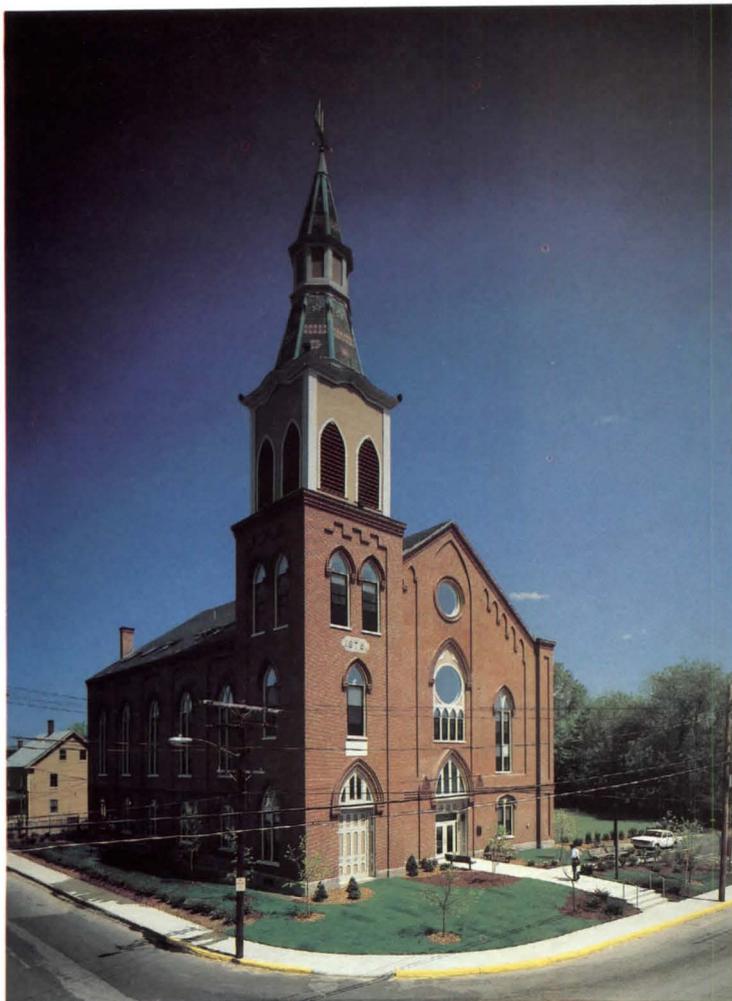
Changes not visible from the street but necessary for the building’s continued use were permitted. Since the front facade was so significant, it was restored meticulously, but because the building was no longer a church, the front doors were sealed and a new entrance created through a mews to the rear. Skylights were added in the roof and a new row of windows was installed along each side of the former attic. Sliding glass doors opening to private patios replaced small ground-level windows.

Inside, ornamental window surrounds and pilasters were preserved, but little else of the original interior remained, much of it having been destroyed by fires in 1855 and 1902. The wood floors and timber trusses were retained by creating new fire-resistant public halls and stairs that compartmentalize the interior.

Noteworthy Greek revival church facade was restored carefully while inside, limited remaining existing details were reused in spacious rooms.



Tom Henkels



Religious Conversion

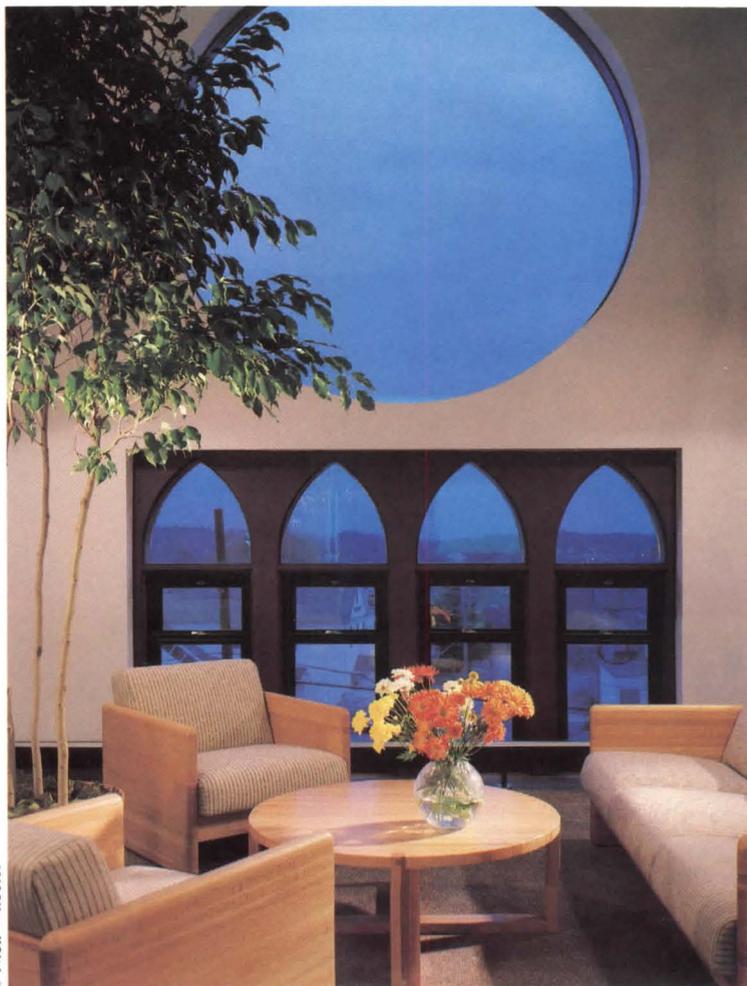
Architect: Hammer Kiefer & Todd

After the U.S. Department of Housing and Urban Development awarded the Dover, N.H., Housing Authority 25 units of housing for the elderly in 1980, a search was made for possible sites. None was deemed suitable with the exception of St. John's Church, an 1876 structure abandoned for 10 years. In terms of location, important for the elderly, it was ideal, in the center of downtown. But could the church be converted economically? HUD requires that rehab projects not cost more than 90 percent of its typical new construction.

A feasibility study by architect Hammer Kiefer & Todd, Inc., of Cambridge, Mass., demonstrated that it would cost less to renovate the old church—and restore the old, 120-foot-high wooden steeple, the highest point in town—than build 25 new units. And, reports architect William R. Hammer, because of the nature of the old space, the apartments are on average 25 percent larger than typical HUD-financed units. After balking for a while, HUD finally approved the project.

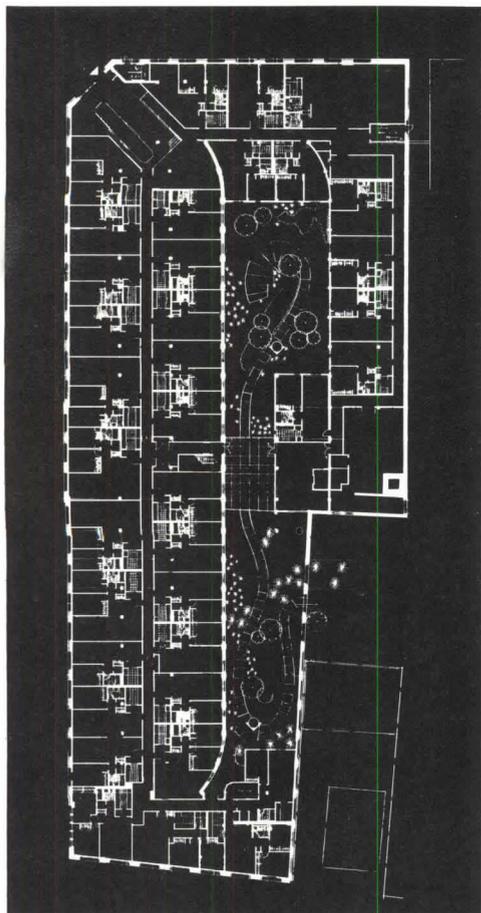
Exterior changes were limited. Skylights were added in the roof to brighten the attic, now the fourth floor, while a new floor was constructed to bridge the 25-foot-high nave. The center core, where there is no light, was utilized for stairs, public toilets, and the elevator, while the basement crawl space was lowered for installation of utilities and storage. The \$1.1 million reconstruction was completed last year.

Exterior of abandoned 1876 church was restored, including the steeple, now topped with a new, gilded sailing ship, symbolic of early commerce in the town. Below, community room utilizes arched windows and oculus in middle of facade.



Living at The End of The Line

*The Car Barn. Architect: The
Boston Architectural Team*



After the trolleys stopped rumbling through the streets of New Bedford, Mass., in 1947, the car barn built in 1910 for their storage and maintenance was left vacant except for minor warehouse use. The massive, reinforced concrete structure had a 26-foot ceiling on the first floor and a 22-foot one on the second; seventy trolleys could fit on both floors of the building at one time.

It had been considered for reuse by several developers, but nothing seemed to work until 1978 when the city, fortified with Section 8 funds, solicited proposals for elderly housing. The Claremont Co. working with the Boston Architectural Team proposed converting the car barn into 114 units (83 one-bedroom and 31 two-bedroom).

The 370-foot-long brick and limestone facade was restored in accordance with federal standards required by the tax code in order to receive accelerated depreciation. Inside, however, major changes were in order. The building's extreme depth—160

feet—made layouts difficult. As a result, two large courtyards were created by cutting out the center portion of the structure. This permitted use of a double-loaded corridor—with units opening to the front or to the courtyard on one side and a single-loaded corridor on the other. On one part of the rear, the existing wall was left to serve as a privacy screen for the garden in the new courtyard.

Taking advantage of the high ceiling on the first floor, the architects added a new second floor. This steel-frame floor lines up with an existing window spandrel. Windows on this new floor are the top portion of the arched windows on the facade. The unusual vaulted ceiling remains in the second-floor units.

The \$3.75 million reconstruction project, financed by the Massachusetts Housing Finance Agency, was completed in September 1980, and the units were fully rented by the following January. The city sees the project as a catalyst for revitalization of the surrounding neighborhood.



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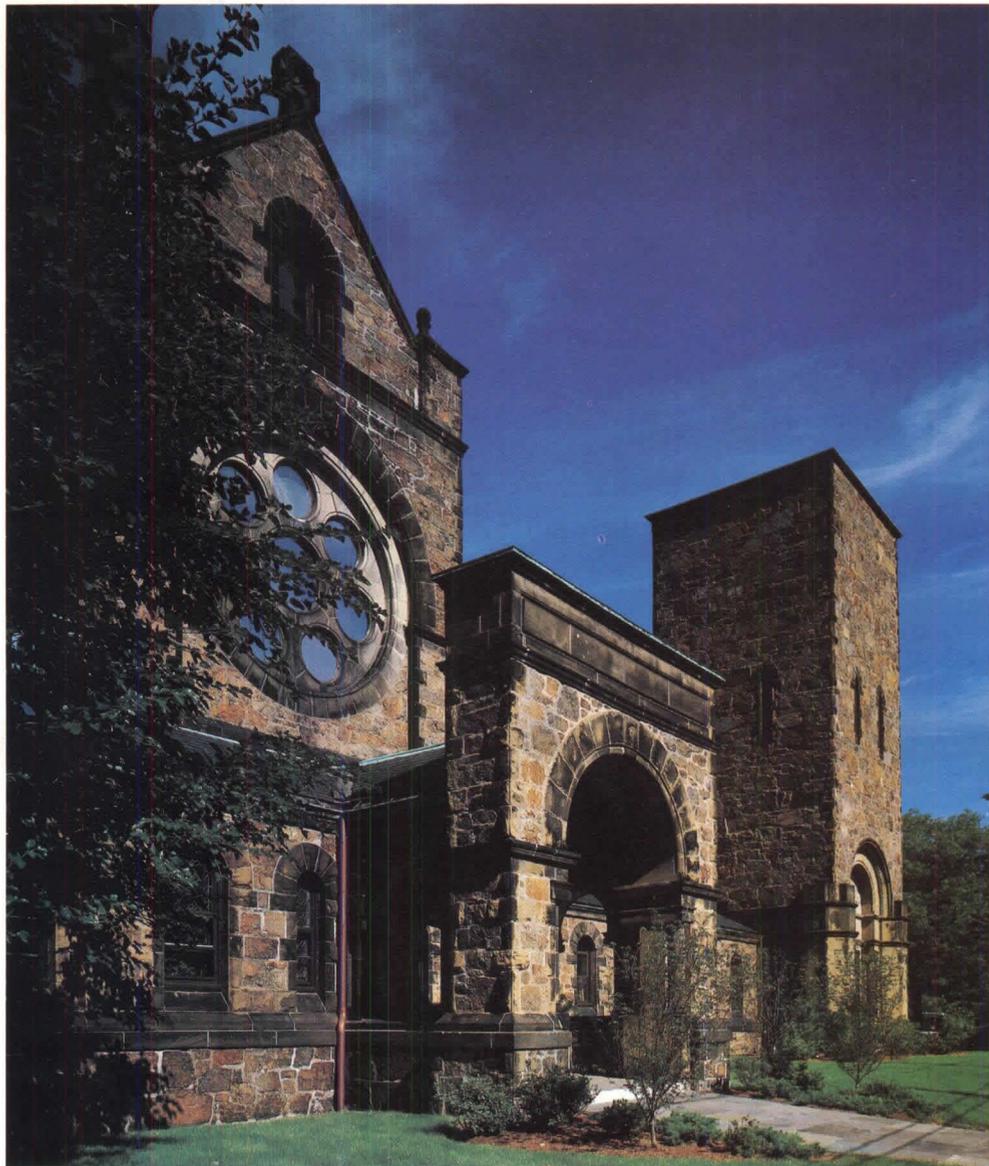


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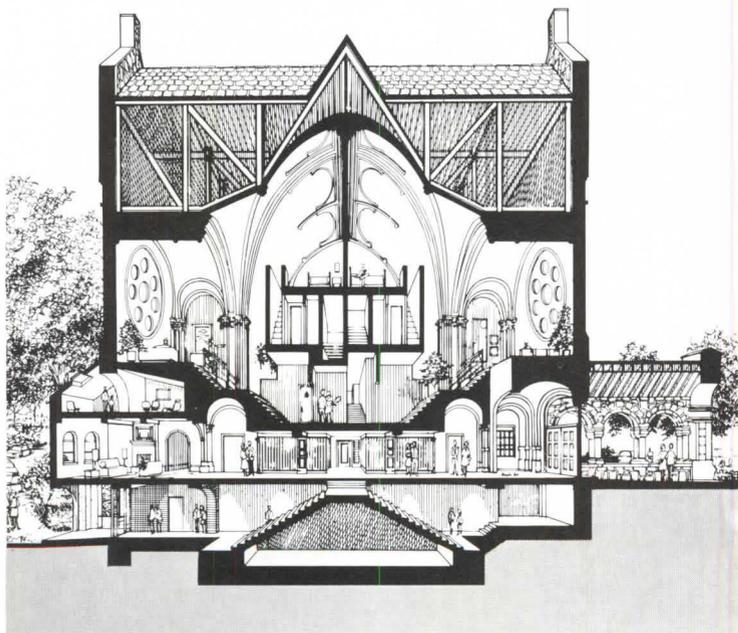
Old trolley maintenance and storage building was adapted to elderly housing by cutting out center for two courtyards, top, and adding new second floor, above, which allows units to retain arched windows and vaulted ceiling. Left, banners line community space under original 26-foot ceiling.

Robust Form, Reused Space and Details

By Hammer Kiefer
& Todd
and Hendrik S. Holmes



Photographs © Nick Wheeler



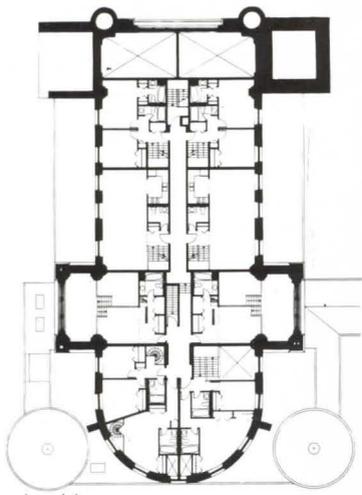
Residents of Brookline, Mass., immediately to the west of Boston, decided in the mid-'70s that they had had enough and weren't going to take it anymore. What had riled Brookline was the continuing demolition of older buildings and the construction of new highrise apartments and condominiums.

When developers threatened the long-vacant St. Mark's Methodist Church, built in 1896 at 90 Park St., the community went to work and got the Richardsonian Romanesque structure designed by George A. Clough listed in the National Register of Historic Places. That alone would not save it, but a sensitive developer/architect, Hendrik S. Holmes, did. He believed the building had potential, thinking its complex, highly irregular forms could be adapted to housing. Working in joint venture with the firm of Hammer Kiefer & Todd, Inc., he proved that theory true.

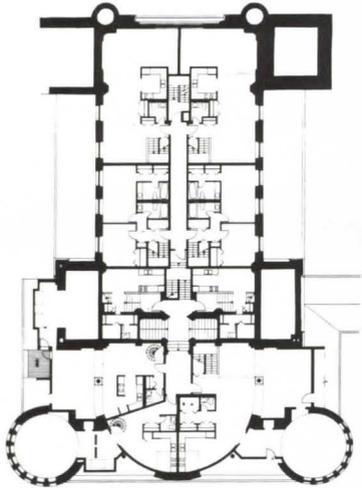
By utilizing the existing space and reusing the details, such as oak paneling and plaster moldings, costs were kept down while creating 20 unique units ranging from 1,500 to 2,500 square feet. Many of the units are duplex and feature large volumes; there are five levels in the transept units.

The job was not easy. Notes architect William R. Hammer, "It's a very complicated building. Nothing lines up."

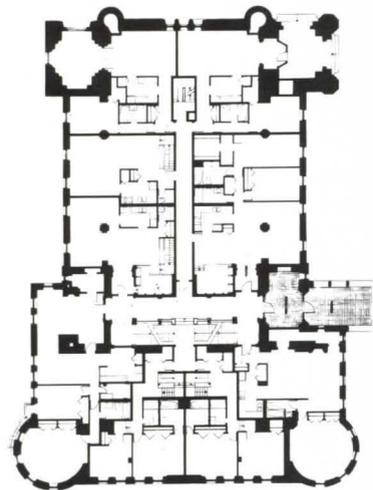
Cutaway drawing shows how units fit into highly irregular nave of 1896 church. Across page top, living room features magnificent plastered column and capital, while original woodwork adds to unique character of lobby, below.



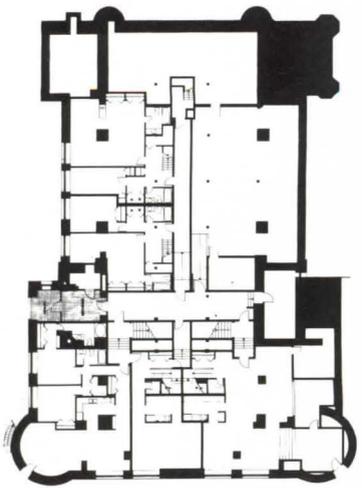
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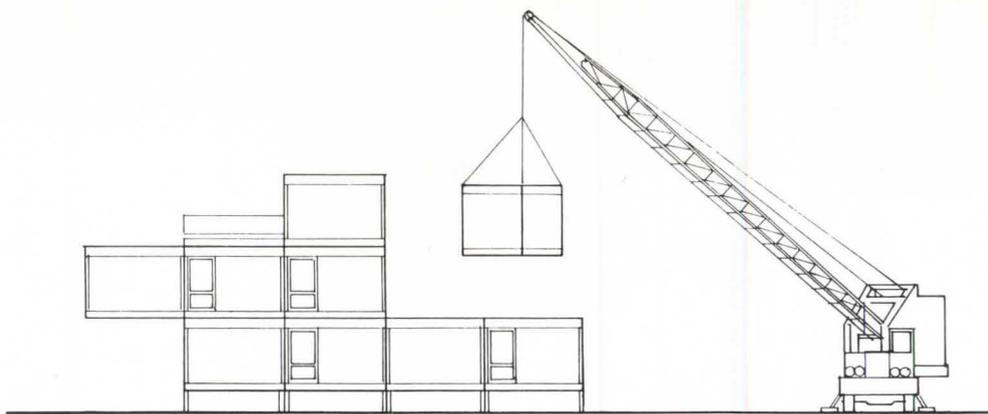


Level 3



Level 2





Courtesy of Duane Thorbeck. AIA

Industrialized Housing: The Residue of 'Breakthrough'

By Michael J. Crosbie

"Although more and more parts of the building are constantly being made by machine, progress [in industrialized housing] is hampered by lack of comprehensiveness, with which this problem should be attacked as a whole. Much time will be gained if a comprehensive scheme of action is set up by the best experts, cooperating in all the many fields of building activity." With these words, written in 1938, Walter Gropius put his finger on the chronic problem that had prevented the many ingenious schemes for industrialized housing in America from being applied on a mass scale.

The history of these efforts is rich. Prefabricated houses were an item of trade between the American colonies and the Caribbean islands, and the settlement of the West was aided by portable structures. Throughout the 19th and early-20th centuries, patent after patent was granted for industrialized housing techniques (some by Thomas Edison, Buckminster Fuller, Frank Lloyd Wright, and Gropius himself), none of which could compete with conventional building.

Comparing the cost of automobiles to housing between 1913 and 1937, Gropius found that while the price of a car plummeted, the cost of a house rose dramatically. He credited this to automation in one and not the other. The auto industry also differed from the housing industry in that its products were distributed and serviced through a sophisticated network of dealerships. It further had special financing arrangements and national regulation.

Gropius conceived an "institute for building integration" that would create a similar context for industrialized housing. "Federal, state, and municipal authorities would cooperate with architects, engineers, contractors, manufacturers, realtors, bankers, and trade-unionists as their

advisers, to produce a final solution of the pressing need for housing," he wrote. The institute's goals would include regulating regional planning by interstate legislation, preparing the investment market for industrialized housing and for new ideas of a housing service, improving building regulations by adapting them to new building techniques, and research for actual prefabrication.

Three decades after Gropius wrote this, the federal government launched an ambitious program similar to his proposals in scope and intent if not structure. It started in the Housing and Urban Development Act of 1968, which called for 26 million new units in the next decade, and directed HUD to develop new housing technologies to produce 25,000 dwelling units over a five-year period.

The program was aborning in the transition between the Johnson and Nixon Administrations, and could not have fallen into more enthusiastic hands. Nixon's new HUD Secretary George Romney was a former Michigan governor and, more to the point, former head of American Motors Corporation. Romney believed in assembly-line production, which had shown the world how to produce a quality product within the reach of just about everyone. To head the new program Romney brought in Harold B. Finger from NASA, an agency noted not only for developing high technology, but for its ability to organize complex operations successfully.

The program's name went through various renditions. At one point it was to be called "Operation Sprint," but sprint connoted a short dash forward of only limited duration. "Breakthrough" turned out to be the best word to describe what the program's supporters wished to achieve.

Romney and his staff identified the inability of the housing industry to meet

the goal of 2.6 million units a year in its "antiquated" methods of building, specifically in its less than enthusiastic adoption of advanced technology. They also realized, as Gropius had years before, that building codes, zoning regulations, finance policies, and the seasonality of the housing market had limited the application of industrialized housing on a mass scale, which required standardized building regulations and continuous, high volume markets.

Thus, Breakthrough's focus was not only on new technologies, but also on adjusting the context of home building in America to accept and perpetuate these technologies to meet housing demand with units that were lower in price. "What we are trying to do is focus not only on technical ingenuity," said Romney, echoing Gropius, "but the whole complex of modern industrial management on each stage of the problem: the identification of markets; the identification and more effective use of available land; the design of the product and its environmental situation; its production; and its financing and distribution to the consumer."

The program was structured in three phases. Phase I was the design and development stage where manufacturers, architects, institutions, and other entities would be invited to submit proposals for industrialized housing systems. HUD would select about a dozen or so and contracts would be awarded to further develop and refine the systems for production. In Phase II the systems would be demonstrated on a number of sites around the country representing various markets. These prototype units would allow consumers and home builders to see what was possible with industrialized housing. In Phase III volume production would commence, based on the groundwork laid in the prototype phase, and 25,000 units eventually would be built. Phases I and II were expected to be completed by mid-1971, with Phase III terminating two years later. Paralleling these phases, the government would be using its influence to introduce new codes and labor agreements, and identify and prepare new housing markets.

At the commencement of Phase I, HUD sent out requests for proposals to over 5,000 organizations and received 632 responses. In five months HUD narrowed its selection to 22 systems. The producers selected represented different parts of the private sector. Companies such as Alcoa, Boise Cascade, General Electric, Republic Steel, Stirling Homex, and TRW had never produced housing before, although some made building materials. Others such as Inland-Scholz and Rouse-Wates were developers or builders who had teamed up with industry to produce a system. Some were already in the business of manufacturing houses, such as

Camci, FCE-Dillon, Home Building Corporation, Levitt Building Systems, National Homes, Material Systems Corporation, and Shelley Systems. The remainder—Building Systems International, Christiana Western Structures, Descon/Concordia, Hercoform, Pantek, Pemtom, and Townland—were new to the field.

The systems offered a range of industrialized housing technology, both panels and modules and combinations of both. Some were conventional: Christiana Western used a system of shop-fabricated wood frame panels for walls, partitions, and roofs. Rouse-Wates used simple precast panels, and FCE-Dillon employed a precast and site-cast concrete panel technique, with wooden wall panels inside.

Others were a bit more inventive: Alcoa used a wet core module, similar to an idea of Fuller's, in combination with wood or aluminum walls. Descon/Concordia's concrete panel system was bolted together at the site and combined with prefabricated bathroom and kitchen units.

A few systems used materials or techniques that had little previous exposure: TRW's was a module system made up of paper honeycomb cores covered with a fiberglass-reinforced polyester resin that had been developed for missile nose cones. Pantek's system employed foamed-plastic core panels, framed with aluminum and covered with a stressed skin, which could be tilted into place. Material Systems used roof and wall components made of inorganic reinforced fibers and a resin mix that could be poured and molded.

The selection of prototype sites soon followed. In the summer of 1969 HUD invited state and local officials as well as private developers to propose sites. They were to range from five to 30 acres in size, be accessible to major highways, and have utilities (or provisions for them) near their boundaries. The municipalities were to also promise zoning flexibility that would allow HUD to determine land use plans. Of the 141 sites proposed in 37 states and the District of Columbia, HUD selected 11 but for budget reasons settled on nine: Indianapolis; Jersey City, N.J.; Kalamazoo, Mich.; King County, Wash.; Macon, Ga.; Memphis; Sacramento, Calif.; Seattle; and St. Louis. The sites ranged from inner city to suburban/rural, from 50 acres to two acres.

In hopes of countering the image of industrialized housing as cheap construction for the poor, the housing would try to attract a mix of economic classes. "If we approach the problem of quality homes in the right way," said Romney, "not only will people of low income benefit, but people of moderate and higher incomes will also want to buy and live in them. Thus you won't have a stigma attached to living in a particular unit." This was a strategy that Romney had used

while at American Motors to market the Rambler. The car was introduced as a fully loaded luxury model—a rich man's second car. Other models with more standard equipment as optional were then offered, but the Rambler was still identified as a high quality automobile.

While producers and host communities were gearing up for the prototype phase, Breakthrough got down to the toughest part of its program: wrangling with labor, codes, and creating a volume market. Early on Romney had negotiated a "tri-trades agreement" between plumbers, electricians, and carpenters that would alleviate problems concerning who would assemble what and when, on-site and in the factory. But labor disputes still caused delays on several of the sites.

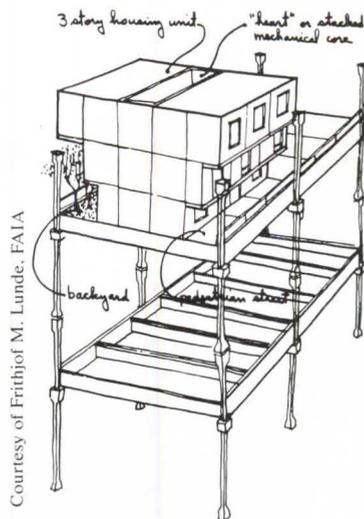
In an effort to meet industrialized housing's requirement of standardized codes, HUD asked the National Bureau of Standards (NBS) to develop special "Guide Criteria" for evaluating the safety of the 22 systems. The NBS guide was written as a performance standard describing how a material or method of construction was to perform. NBS laboratories were used to test all the systems.

The guide was a tough standard (some believe unreasonably so) to meet. But NBS and HUD were concerned about the systems' quality not only for liability reasons but also to counteract the perception of industrialized housing as cheap construction. "NBS was demanding more investigation of a lot of materials than we had ever seen before," says George E. Buchanan, AIA, who was an architect for Descon/Concordia.

Photographs by Michael J. Crosbie



Above, Camci with Descon/Concordia in foreground, Jersey City; above right, top to bottom: TRW, Sacramento; Inland-Scholz, Indianapolis; FCE-Dillon with Pantek in foreground, Sacramento; boarded up Material Systems units, Indianapolis.



Townland system in Seattle as built, left, and a conceptual drawing of assembled units on prefabricated concrete decks.

It was also hoped that tougher standards would be more readily accepted by state and local building officials. They were, to a certain degree, but local codes still caused delays and increased production costs. By the mid-1970s, however, 31 states had enacted legislation for state-wide code approval programs where none existed prior to Breakthrough.

The problem of creating a volume market was a harder one, and integral to the success of the entire program. The original strategy was to induce state and local governments to develop inventories of their housing needs, identify specific sites, develop requirements for the sites, and prepare utilities and other community supports. But many of these governments had neither the resources nor the inclination to do this, while others were leery of identifying potential markets without a guarantee that housing would ever be built there.

According to John Maxim, who headed Breakthrough's marketing efforts, a new strategy was developed in which HUD would offer participants access to subsidy funds, specifically Section 236, which provided for people who could not afford private market housing but were ineligible for public housing.

Groundbreaking on all nine sites occurred between October and December 1970, about a half year behind schedule. Many of the systems underwent little change for prototype production, but others were quickly altered. TRW, for example, had to abandon its mandrel-spun, building-sized modules and revert to panels. According to Christopher Arnold, AIA, president of Building Systems Development (TRW's architect), the mandrel process was only economical if there was an enormous number of houses to build. "The panel system was much more flexible and easier to get dimensional variation," says Arnold. The change was a letdown for HUD, however, which had publicized the space-age technology of

spinning entire houses off of mandrels.

Building Systems International's more conventional concrete panel system was also cut back for cost, but this was due more to the lean Breakthrough budget. "There was a change in the size and shape of it," says Arthur Keyes, FAIA, whose firm was involved with the system. As it was finally built on the Macon site, the system showed less of the variety possible with different building heights, says Keyes, and its panels, which were originally to contain all utility ductwork, were greatly simplified.

The Seattle units were the first completed and occupied by May 1973. Jersey City's were the last, completed and occupied two years later. Finger had predicted that some of the prototypes would be completed a year after the start of the program with all completed within two years. He was four years off. By the time all the prototype units were completed, 2,938 had been built, all but 144 being Breakthrough units. The prototype phase had cost HUD \$49.5 million.

Only 15 producers participated in Phase III, the volume production phase. The others were unable due either to financial or production problems. A small number ended up suing HUD, and some of those suits are still pending. In any event, the 15 producers that did participate completed 25,000 units, and others also built according to Breakthrough designs. All totaled, Breakthrough was responsible directly or indirectly for nearly 35,000 housing units, with a program cost of \$72 million.

Operation Breakthrough was officially terminated in 1974, but the program had the wind knocked out of it long before that. In January 1973, amid complaints that there were major abuses of housing aid programs, Nixon suspended all subsidies. For producers who had put all their marketing eggs in the subsidy basket, this proved disastrous, and many did not survive the Nixon housing moratorium.

Also, Romney was persona non grata with Nixon because of campaign comments on Vietnam, and anything identified with Romney—including Breakthrough—was

suspect. At the outset of Nixon's second term Romney and Finger were replaced by James Lynn and Michael Moskow. Arthur Newberg, who for a time was acting director, says Breakthrough was not a program of the new group. "That's a natural political phenomenon, but there was so much excitement and enthusiasm about the program that we didn't expect that to occur."

Operation Breakthrough may no longer exist, but the housing it built still does. What affect have the intervening years had on the nearly 3,000 prototype units? HUD has kept track of all of them and has a Section 233 experimental housing program that provides assistance if the Breakthrough units develop problems due to their innovative nature. All defects are corrected according to minimum property standards.

Daniel Kluckhuhn, who manages the program, says that most of the problems that have developed have been due to leaks, where water has infiltrated a panel and has caused it or its exterior to deteriorate. Because the panel systems have more joints and connections than conventional construction there are more opportunities for leaks to occur.

There also have been problems with exterior coatings popping or peeling off. In the TRW units, for example, the original finish cannot be reapplied so it has been replaced with conventional wood siding. Overall, says Kluckhuhn, in comparison to conventional HUD projects, the Breakthrough units have had slightly more problems "because the systems were innovative in a lot of respects and many companies that produced them were not in the home-building or construction business."

Some systems have fared better than others. According to Robert Cole, a sub-contracts manager with BE&C Engineers (a Boeing subsidiary), no matter where they are located certain systems consistently have more frequent problems. Boeing contracted with HUD at the end of Breakthrough to oversee the completion of the prototype units. Since then it has provided technical services, reviewing and managing repairs.

Cole says that Material Systems and Descon/Concordia have had more troubles than most, but this is due, he believes, to the fact that these two systems were more innovative than most. Christiana Western units, on the other hand, have been virtually trouble free, but employed more site-built techniques. "That generally holds true for all the systems," says Cole. "Their success tends to relate primarily to their lack of innovation. The traditional systems performed by far the best of all."

In comparison to the systems, the sites themselves have proved more of a success. Cole, who has visited all of them, says

that they have been well maintained, are still popular places to live, and in some cases spurred upgrading in adjacent areas. "The Seattle site became the anchor to a fairly decent-sized redevelopment of several adjoining blocks," says Cole. The Sacramento site continues to attract prospective homeowners, as does Jersey City.

The producers have fared less well than their products. Of the 21 who built prototype units (Stirling-Homex never reached that phase), all but a few are no longer in business. Building Systems International, Descon/Concordia, Hercoform, Pantek, and Townland no longer exist. No trace can be found of Camci, Christiana Western Structures, Home Building Corporation, Levitt Building Systems, or Material Systems Corporation. General Electric looked for a market for its system overseas but eventually canceled its housing program in the late-1970s. Boise Cascade, Pentom, Republic Steel, and TRW no longer build houses, and Rouse eventually licensed its system and plant to two other companies, one of which still produces housing. Alcoa continued to sell its core and panel system until October 1977, during which time it produced 50,000 units. Scholz Homes, owned by Inland Steel, closed its plant last February and ceased all operations in July.

FCE-Dillon, now known as Forest City Dillon, continues to build housing with the concrete system it developed in Breakthrough. The company was in the development and general contracting business prior to the program and had experience in concrete construction. According to Kenneth Yarus, vice president of architecture and engineering, Forest City Dillon has built approximately 230 buildings since Breakthrough (in excess of 40,000 units) with emphasis on government housing for the elderly.

Joseph Sherman, former director of Breakthrough, says Forest City Dillon survived the program and continued to build housing because it didn't rely on HUD to provide a market. "They followed our advice," says Sherman, "not to rely strictly on government programs. They went out and actively sought additional markets when they were building the prototypes. And as a result, they had a sustaining market afterward."

Besides Forest City Dillon, the only other producer that was involved in Breakthrough and continues to build housing is National Homes. The company began producing panelized homes in 1940 and since then has turned out about a half million units. Although it offers 350 stock plans, National estimates that 40 percent of its business is devoted to "customer-designed" housing.

If industrialized housing manufacturers learned one thing from Breakthrough, it is that the producer needs to be in control of the market. One manufacturer that

has developed this talent is Cardinal Industries. Last year it produced 5,200 modular housing units, all based on a 12x24-foot module, which can also be used for motels and office buildings. Cardinal's success rests on the fact that it is its own best customer. The company acquires and develops land for its buildings and also coordinates investment sales and property management. Through its investment division Cardinal offers limited partnerships to investors seeking tax shelters. Last year this division raised \$48 million.

Because Cardinal acts as its own developer and manager it can keep tabs on the market, which allows for growth projections one year in advance. When one market, say single-family housing, goes into a slump, Cardinal simply switches to motels or office buildings. By organizing and monitoring its own market, Cardinal can maintain the steady production flow essential in industrialized housing.

If Breakthrough ultimately failed to create a market context to sustain volume



Courtesy of Duane Thorbeck, AIA

production, did it at least have an impact on advancing home-building technology? That's a difficult question to answer, but the fact remains that the number of home builders using industrialized building systems and products has continued to grow since the late-'60s.

According to the National Association of Home Builders (NAHB), 18 percent of the home builders responding in a 1969 survey said that they used some form of industrialized building whether it was off-site fabrication of major building parts, basic structural components, factory-built modules, or other forms of prefabrication. By 1976, 30.3 percent reported that they were using such industrialized building techniques.

And as an indication of how industrialized building has become accepted by home builders, in 1969 nearly 75 percent identified themselves as using "conventional construction." By 1976 this number had risen to 90.5 percent while the percentage of those using industrialized building techniques also increased. This is a likely indication that the use of such industrialized construction methods in the interim had become identified as "conventional construction."

The category in the survey that increased the most was the use of basic preassembled structural components, which rose from 9.6 percent to 18.8 percent. According to Donald Carlson, editor of *Automation in Housing*, the use of preassembled components has grown significantly. Preassembled roof trusses, for example, are used in 95 percent of all site-built houses today, where they were unheard of 30 years ago. There are approximately 2,000 component manufacturers in the U.S. Carlson says that mobile, modular, and panelized home companies produce 49 percent of all single-family houses and lowrise apartments now built.

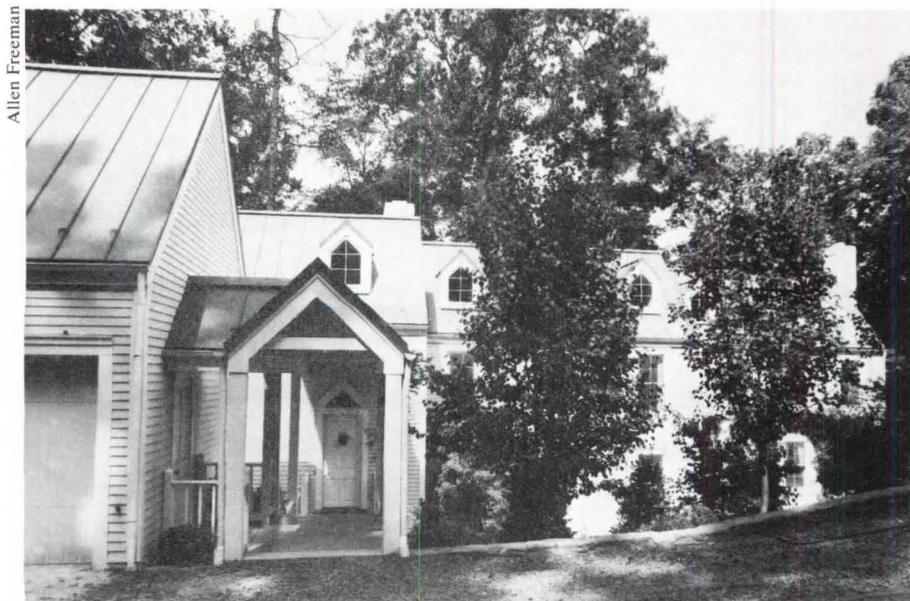
Add to this activity the popularity among conventional builders of prehung doors and windows, prefabricated bathroom units and stairs, utility cores, preassembled floor trusses, wall panels, and a host of other industrialized building materials and techniques, and an image emerges of an industrialized home-building industry—not the Breakthrough image of houses rolling off an assembly line, but industrialized nonetheless, and more adaptable to the erratic housing market.

More technology has not resulted in more housing, however. Last year saw the fewest housing completions since World War II. Between 1968 and 1978 there were 16.6 million units built by the private sector, a long way from the 26 million-unit goal. And housing is less affordable now than it has ever been, especially for lower-income families.

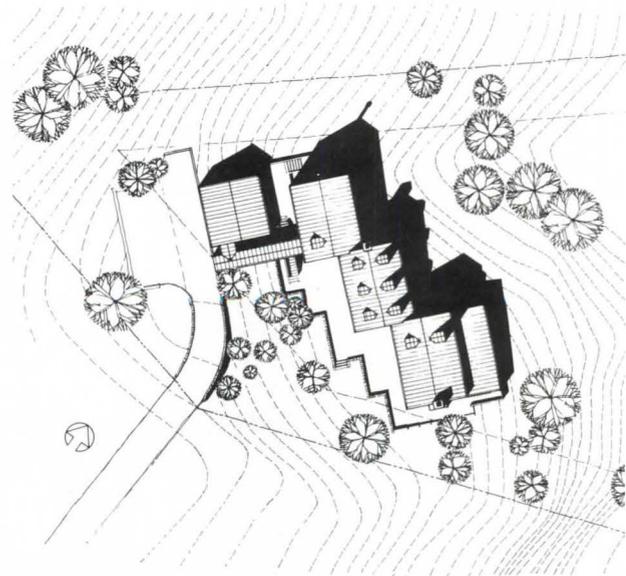
But the U.S. housing industry may be in for the kind of shakeup that the automobile industry experienced a few years ago: competition from imports, specifically from Japan. And there appears to be a Breakthrough connection. Christopher Arnold recalls that while developing the TRW system, Japanese housing producers would visit periodically to see what the Americans were up to. Frithjof M. Lunde, FAIA, a Breakthrough architect for Townland, says that while visiting the General Electric housing plant he remembers a team of Japanese technicians examining the system. They later licensed it and built units overseas.

As it turns out, in 1972 Japan's Ministry of Housing was so impressed with the concept of the Breakthrough program that it conducted one of its own. According to Douglas A. Nyce, who was assistant to the president of the Rouse-Wates system, the site was located on government reclaimed land on Osaka Bay. Approximately 30 contractors competed for a portion of the 6,000 unit community, known as Ashiyahama. Like the Breakthrough prototype sites, it included not only housing but schools, community health facilities, and commercial development. Nyce says that the project was completed and

continued on page 99



Allen Freeman



Tripartite Form, Country Accent

*The Foster house in McLean, Va. Architect:
Hartman-Cox. By Andrea Oppenheimer Dean*



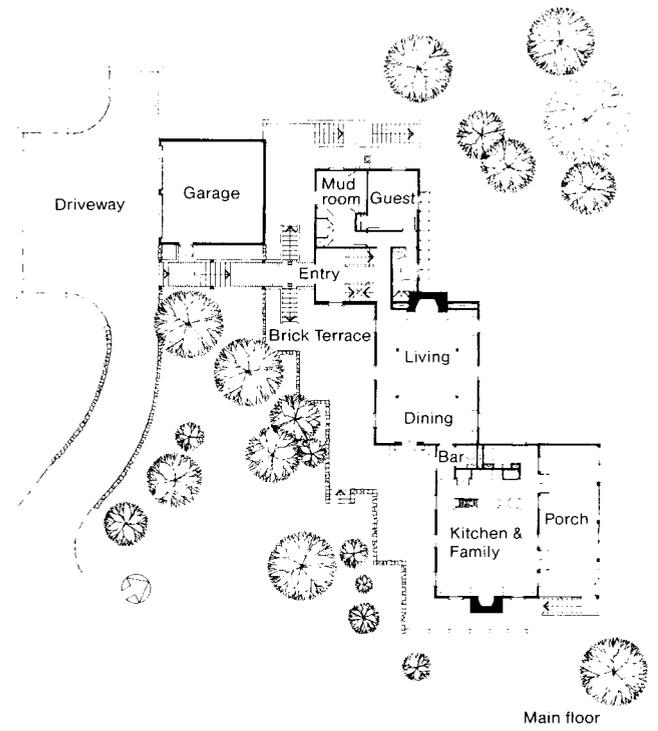
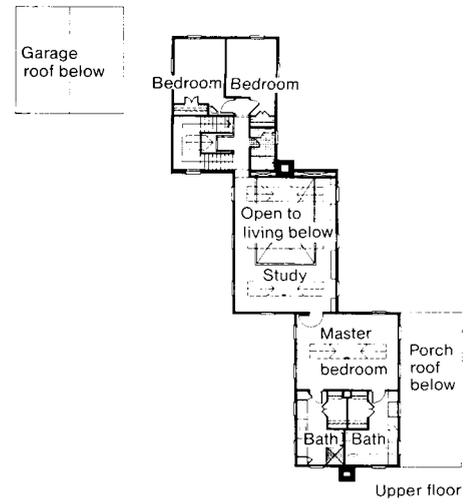
It is an '80s rendition of a farmhouse. The approach is from a rough, unpaved road; the site is a narrow crest of a densely wooded hill that slopes steeply down to the Potomac River. You'd never guess the Foster house by Hartman-Cox is only minutes from downtown Washington, D.C., or for that matter in McLean, Va., a wealthy, horsey, sometimes pretentious suburb. If anything, the house has a studied casualness and lack of affectation.

It is quite isolated except for two neighbors. One, still under construction to the west, is an elaborately "upscale," gigantic, neo-palazzo developer-built house. The other, just south and older than the Fosters' house, is one of Hugh Newell Jacobsen's less pleasing efforts, which shows only a blank, white facade to the west where one approaches. Though it played no role in shaping George Hartman's design, in its overall geometries another Jacobsen house is recalled by Hartman's house for the Fosters, the so-called "telescope house" in central Pennsylvania. There Jacobsen broke down a very large volume into ever smaller "little houses," each attached to the gable end of the preceding one. Such incremental extension was the traditional way of adding to farmhouses as the family grew. The Foster

residence is similarly composed of three attached "small houses" strung out from north to south. But while Jacobsen used the device to echo a traditional form in an historic area, Hartman employed it here as a logical accommodation to a difficult site and the client's request for a two-story house with large and distinct areas at ground level, a fairly formal one for entertaining, plus a casual, all-around family room.

What the Foster house resembles most of all is the 1981 sanctuary addition to the Immanuel Presbyterian Church, also in McLean, also by George Hartman, and winner of an AIA award this year (see May, page 265). The similarities go beyond such general likenesses as the buildings' vernacular, wood frame, farmhouse-like shapes to more specific resemblances. In both, dormers act as formgivers for the exterior, while admitting soft, natural light to two-story interior spaces. Overhead light fixtures in the two buildings are almost identical. Both structures are

Following the contours of its site—a narrow ridge of a densely wooded steep incline ending at the Potomac River—the house extends, accordion-fashion, in three discrete elements. Entrance from the road and garage is via a bridge-like, covered arcade.



Allen Freeman





Simple shapes and deliberately rural details.

entered through a covered arcade, virtually the same arcade. And if the little church begins to resemble a model, in part because it has no contrasting textures, the Foster residence looks even more like a model, even a bit like a doll house. (Hartman explains this as the result of a conscious overscaling of windows and detailing, and repetitive use of abstract, simple shapes.) And both church and school have a cozy, warm feeling, "an old timey feeling," Hartman calls it.

This feeling is continued inside. The entrance, like most entrances designed by Hartman, has natural toplighting and serves both as a stopping place and a transitional zone between the outdoors and inside. Because it is a half level above grade, one stair leads up to two bedrooms, another down to a mud room and guest room, if you go left, and to the second little house, if you go right. This second element contains a 660-square-foot,

Far left, the double-height, formal living room with second story balconies and rooftop dormers admitting soft, natural light. Left, a view from the porch into the family room. Above, the house as seen from the river side.

two-story, fairly formal living and dining space suffused with soft, diffused light from the dormer windows. The second level consists of east- and west-facing balconies, lined with bookcases, and a small study.

The third and largest element is where the family lives. At ground level is a large, open space, at one end of which is a kitchen, at the other a fireplace, and in-between an informally appointed area for eating, talking, reading, whatever. Running the length of the family room on the east overlooking the river is an enclosed porch with beaded board ceiling.

Detailing throughout the house is "somewhat unusual for us," says Hartman. It is deliberately rural, "with cover strip detailing, applied bases, shoe molding, bases on the columns, wainscoting."

This sense of being in the country is underscored by the fact that the house changes dramatically with the seasons, being open to sun and views of the river in winter, shaded and closed in summer. Every room has cross ventilation; many have openings on three sides.

As Hartman says, "The house isn't theoretical; there's not a lot of fancy rhetoric or rationale. We've done exactly what the Fosters wanted, better than they could have done it themselves. That's a service." □

Porch with a House Attached

*The Robert Mangrum house, Delaware coast.
Architect: Joseph E. Wnuk & Assoc. By C.K.*



A large, screened porch with a kitchen and bath was all that constituted Robert A. Mangrum's initial requirements for a vacation house in coastal Delaware. But there was a complicating factor: He wanted to be able to use the house year-round.

By creating a convertible 1,000-square-foot "porch pavilion," Washington, D.C., architect Joseph E. Wnuk, AIA, was able to give Mangrum the simplicity he wanted and the shelter he needed in cool weather. This transparent space, which is oriented to the most private part of the site, contains a living room, dining area, kitchen, and generous screened porch 30 feet wide by 15 feet deep. Three bedrooms and two baths (the scope of the project increased from the original concept) shield the angled, open room on two sides.

The porch pavilion is changeable depending on the season. In warm weather, commercial sliding glass doors open and stack at the ends to join interior space with the sheltered porch, while in the winter, the doors are closed and the space is reoriented through a dormer in the roof to the fireplace.

In either configuration, however, the effect of the space being a room in the middle of a forest remains.

Mangrum found the two-thirds-acre wooded site in Middlesex Beach, Del., a few miles south of Rehoboth, a popular summer vacation spot. Just 400 yards from the Atlantic oceanfront, the site is unusual in that most of that area has sparse vegetation. Mangrum found it ideal; he wanted privacy and minimal maintenance.

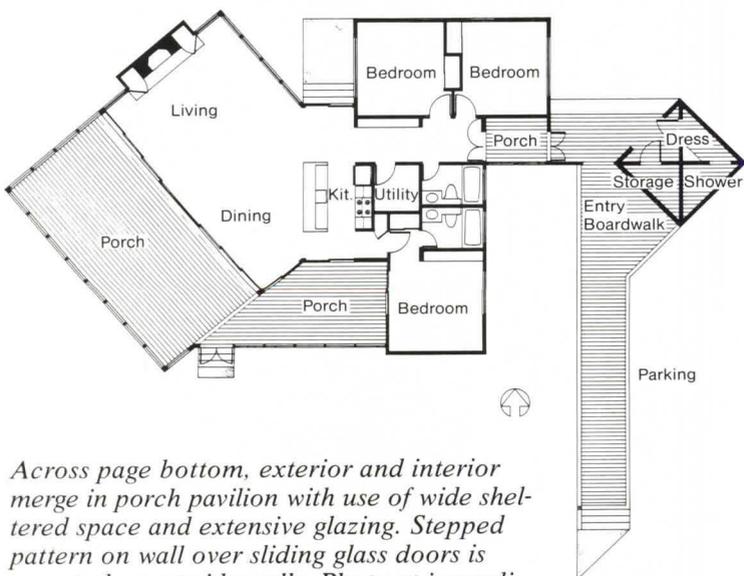
He was not interested in creating an "architectural statement," preferring a home that fit into the neighborhood, and he wanted the property "to look as though nothing had been changed" by the addition of the house. Taking these cues, Wnuk found inspiration in the area's vernacular homes, particularly the porches.

Wnuk designed a sequence of spaces to lead to and reinforce the dramatic quality of the porch pavilion. This procession starts with a 50-foot-long boardwalk from the parking area that terminates at a squared entrance portal framing a view of the woods. To the right, a playful, angled tower with a chamfered top shields an outdoor shower and storage while acting as a counterpoint to the porch pavilion gable at the other side.

To the left, a small, screened porch serves as an entry vestibule connecting through double doors to a short, high passageway that offers a tantalizing glimpse of the 16-foot-high porch pavilion at the end.

Wnuk created an alluring, layered look to the porch pavilion. Inspired by Victorian cottages in the area, he designed a stepped pattern of windows above the sliding doors that is duplicated with screens on the porch. The pattern is repeated on the oppo-





Across page bottom, exterior and interior merge in porch pavilion with use of wide sheltered space and extensive glazing. Stepped pattern on wall over sliding glass doors is repeated on outside walls. Photo at immediate left shows open porch on left and enclosed living room on right; column in center shields sliding glass doors.

site wall of the living room and echoed in the end wall around the fireplace, whose bright metal, round chimney can be seen freestanding behind a large window.

The architect points out that this attractive window design also has a practical side; the glass was less expensive than if triangular shapes had to be cut specially.

Similarly, while the porches (700 of the house's 2,100 square feet) have esthetic interest, they provide a significant energy savings as well. Wnuk notes that the canopy-like quality of the porch minimizes heat gain and catches the prevailing breezes too. Mangrum reports, to his delight, "the house is filled with light, but no direct sun in summer, while in winter direct sunlight warms and brightens the interior."

A secondary porch off the master bedroom was designed to catch the sun for late-morning breakfasts. Two guest rooms were placed separately for privacy and so they could be left unheated in the winter.

As the transparency and spatial arrangements enhance the merging of interior and exterior, so do the materials. White cedar shingles, stained light gray, cover the outside of the house as well as the inside walls of the porches and in the outdoor shower.

Overall, the \$135,000 dwelling (including landscaping and interior furnishings) is just what the client ordered, an outstanding house that does not stand out. □

Whimsical Tower, Colorful House

*The Simon/Bellamy house in Connecticut.
Architect: Mark Simon. By Carole Palmer*

"It's trying to puff itself up" says Mark Simon, AIA, of his little bungalow turned Victorian, planetarium, church—well, at any rate, home. The before-photographs reveal just a simple, undistinguished rectangular box with a pitched roof, sitting on the Connecticut shore in the shadows of horse chestnut trees and Victorian neighbors.

Simon gutted the building and created a funneling corridor that runs straight through the house on the ground floor and similarly on the second and even briefly on the third. Even for someone walking up to the house from the sidewalk, the funnel begins to draw you in and attempts to whisk you right through the house to the bird bath in the backyard. Intriguing sights along the way, however, invite you to stop and inspect.

Each room is an experience unto itself but an obvious part of a whole. The sculptured details given to the ceilings dictate, more than anything else, the individual spaces and their character. An inverted oval shell is suspended from the dining room ceiling, hovering at a comfortable height above the dining room table. In the living room rippling wooden waves traverse the length of the room, and from the library's domed ceiling, 360 bicycle reflectors cascade like shooting stars. Some of the bookshelves here pivot and give way to secret storage spaces.

The color theme throughout the house is primarily a luminous cornflower blue, warm terra cotta, and deep dark green. The colors, though unusual in themselves, and again in conjunction with each other, give a sense of solidity to the other rather fanciful gestures.

Simon raised the side walls four feet to create a second floor, placing closets along one side and cozy niches in the bedrooms along the other. The master bedroom, warm red, is a very private room with its own elegant little sink perched in a tiled alcove. A small deck leads off this room and is integrated into the tower structure as it begins its climb up the exterior of the house.

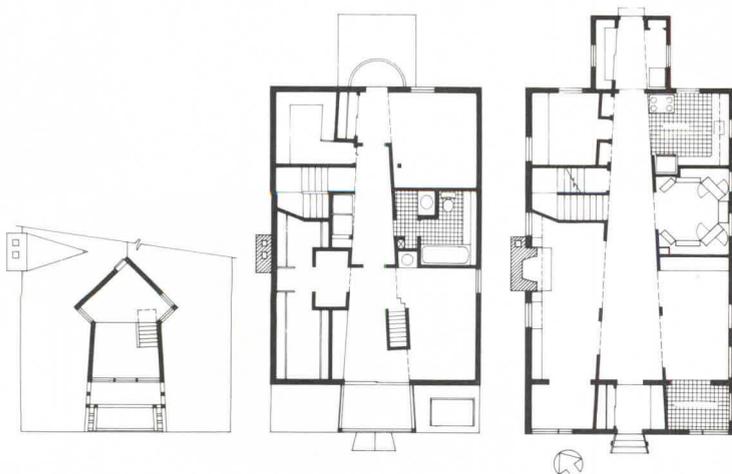
Back inside, narrow, steep, carpeted stairs climb up to the

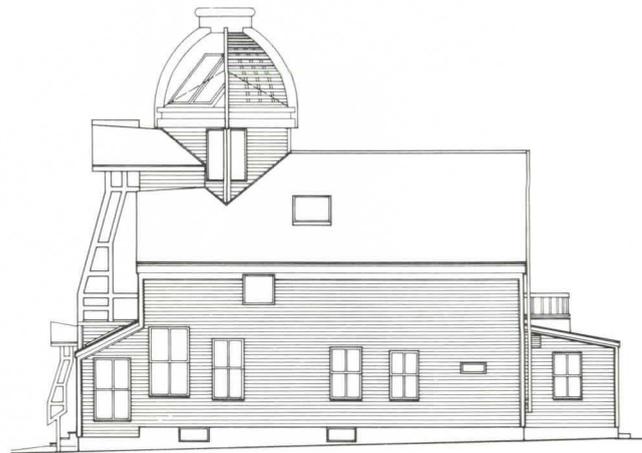
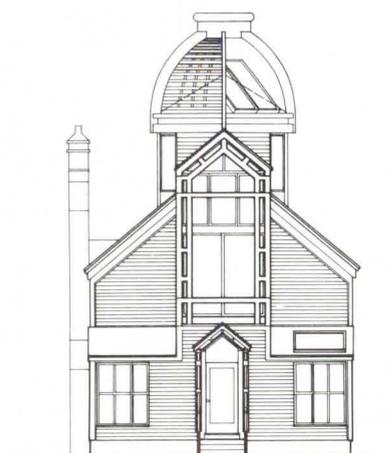
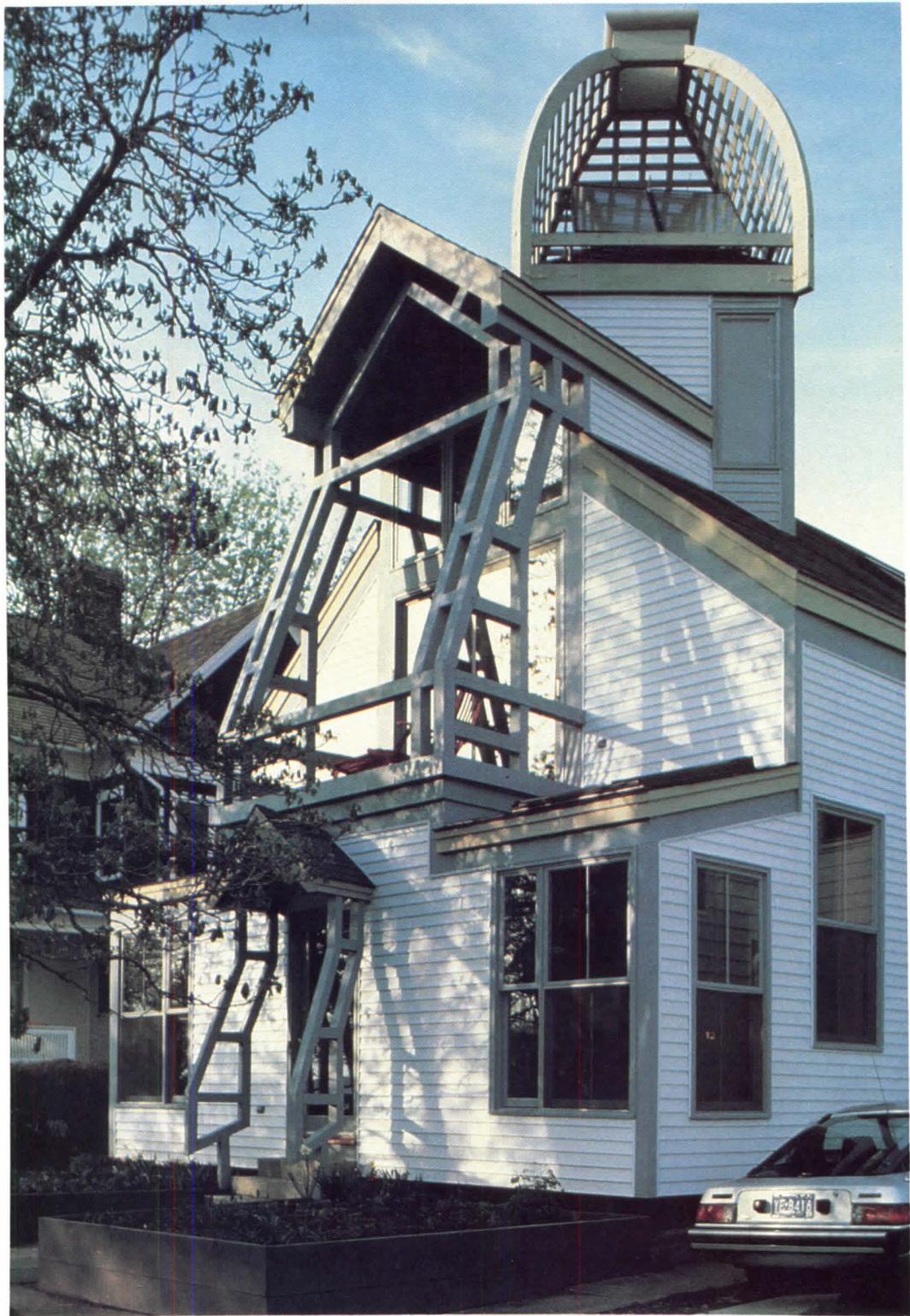
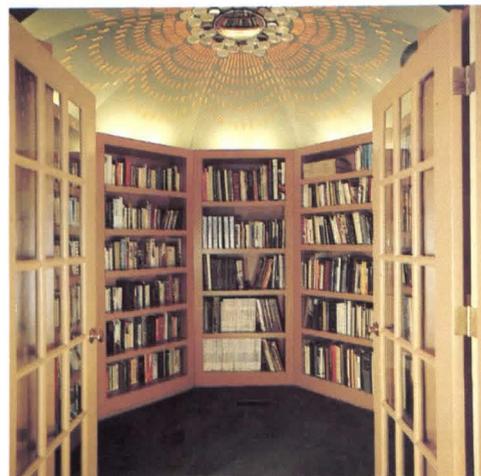


Above, corridor through main floor; immediate right, top to bottom, third floor loft space, children's bedroom, and reflector besprinkled library; far right, the prow with rotated tower.

loft, the interior culmination of the house. Simon lets simple forms (pyramid, triangle) dictate this space and achieves a simple elegance that is missing on the two lower floors. From here the view is of Long Island Sound in the winter, but in the summer the loft is a tree house, hidden and special.

The tower not only brought the house its new identity, one that the neighbors admire, but it also serves as a framework for the two hot water solar collectors. It sits astride the prow of the house, twisted 45 degrees off center to give the collectors full advantage of the southern sun. On casual glance it appears to be doing something—turning slowly, or maybe looking for stars—but in actuality, as Simon puts it, its "plunky verticality" is just "in rhythm with the houses in town." □







Joshua Freiwald

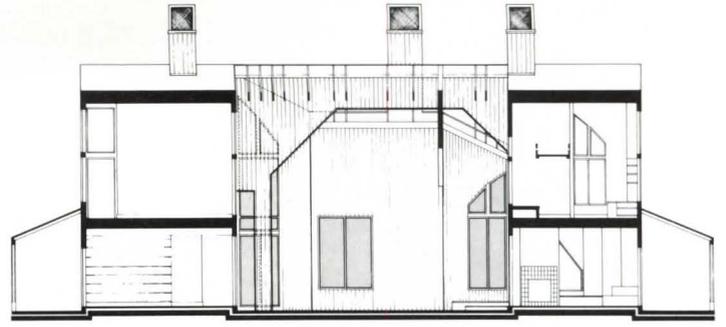
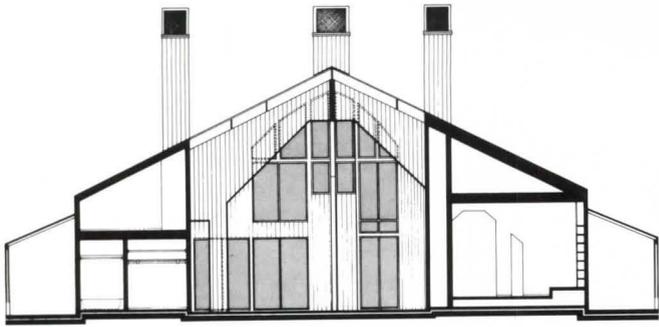
Variations on a Regional Theme

*The Allewelt house, Modesto, Calif.
Architect: MLTW/Turnbull. By M.V.*

Farmhouse familiar is a first impression that doesn't last long as one approaches the Allewelt residence. The familiar veranda and farmhouse form, echoing a barn just down the road, has a hole in the roof, with blue sky visible through the framing. The rupture disturbs as it fascinates, and the house begins to cast its magic spell.

Located in an old hay field in Modesto, heart of California's Central Valley, the site is notable for its flatness and heat. Traditionally, houses are designed for maximum shade, with widely overhanging roofs sheltering continuous porches. In his early houses, William Wurster translated the image into a plainspoken modern vernacular. William Turnbull, FAIA, architect for the Allewelts, turns the idiom inside out.

Turnbull envisions the house as a gazebo, but the gazebo is inside, punching its way out. The familiar provides the stage, a basic black backdrop for the incredible. Earlier Turnbull houses have played with the lattice theme, but contrasts seem stronger here.

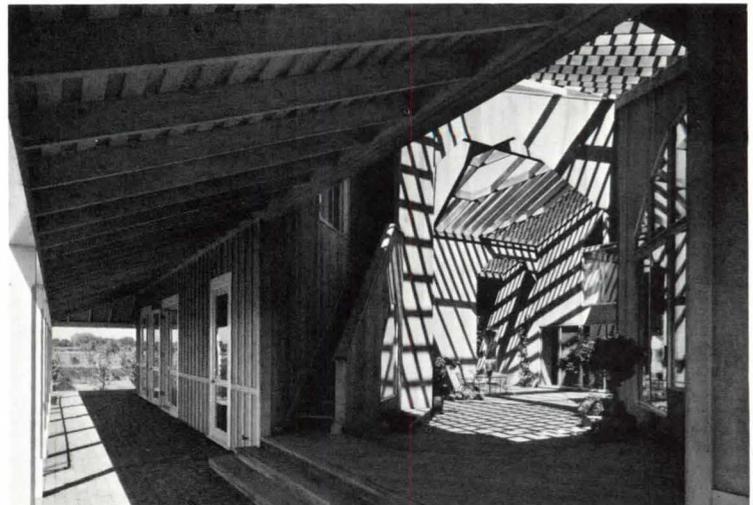


© Rob Super

The basic form and its strange departures are effective programmatic interpretations. The Allewelts wanted a comfortable home for themselves and their three children, two of whom were already away at school and only home occasionally. The duality of adult and children's worlds is expressed by separate structures, symbolized and joined by the ruptured roof. The diagonal cut in plan is oriented to catch and funnel summer breezes, providing an indoor/outdoor living area in the process.

The Allewelts approached Turnbull with a series of articles and photos. Some were contemporary houses, others Williamsburg traditional. Turnbull found the common thread: traditional with a fascination for the curious. And because the children were leaving, Turnbull suggested the separate structures, with their promise of a guest wing in the future.

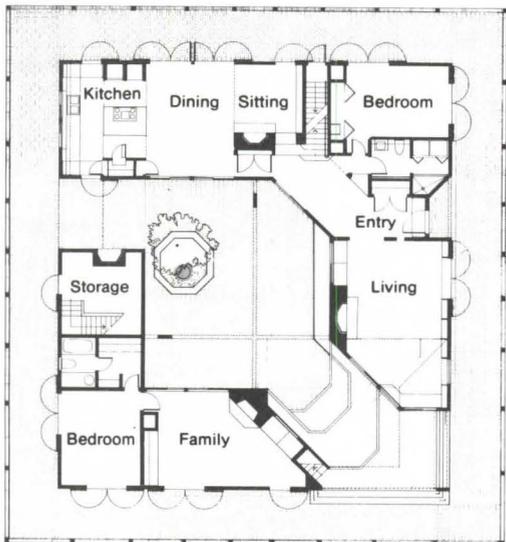
North elevation, opposite, provides contrast to rear, above, where oasis setting for valley farmhouse takes on constructivist twist. Open roof framing covers diagonal atrium, right.



© Rob Super



Second floor



First floor

In plan, adult areas at top, children's area at bottom, the two linked (and divided) by atrium. Below, kitchen/dining room opens to study. Right, the view from the atrium, across page, view from porch into atrium.



A central spectacle of light and volume.

The entrance to the house is surprising because the house is much larger and the door much taller than they initially appear. Once inside, one looks up and out, for the ceilings soar, windows abound, and light streams in from above and sideways. Through the windows one sees a rough-hewn cathedral space with its roof blown out and dramatic patterns of light and dark of intermingled scale and tone.

The main structure is essentially a one-bedroom house, with a master bedroom, bath, and study on the second floor, and a living, dining, kitchen, and guest room on the first floor. The





living area is small and looks to the children's wing through a rising window array through which the sky, structure, and landscape are also visible. Comfortably furnished in blue print couches and filled with books, the living room centers on a Wedgewood blue tile fireplace.

The kitchen is straightforward and open, made for casual family use, with windows facing the pool in back through glass shelves. Tucked in a corner, opposite the kitchen, is a sitting area and fireplace, with family belongings, books, and cushioned wicker furniture.

The second floor features a study under the eaves—a cozy retreat from house and residents. The entire north facade, pro-

tected by orientation from the summer sun, is a composition of windows suggesting traditional form and scale. The windows open directly into the master bedroom and upstairs hall, and indirectly into the bathroom, through a huge transom over the door. Skylights and cutouts add further light and air to the bath.

The smaller children's wing, with special built-ins by request, has bedrooms up and down, and a recreation lounge area at ground level. The structure is designed to afford privacy, yet visual connection with the parents' wing.

In back, the landscape culminates in a pool, which narrows toward the rear and twists out of sight. Turnbull looks for plants to grow over the narrow neck. □



Concrete masonry Trombe walls are located behind the glazing which borders the upper portions of the building.



View from the interior, looking out, showing the extensive use of concrete masonry for passive solar heating and cooling and structural purposes.

Energy consumption for both heating and cooling was cut an estimated 85% in this passive solar concrete masonry U.S. Department of Energy building.

Wind Energy Systems Test Center Building

Rocky Flats, Colorado

MCB, Architects

Interior walls of concrete masonry, used for thermal storage, are employed throughout the project.



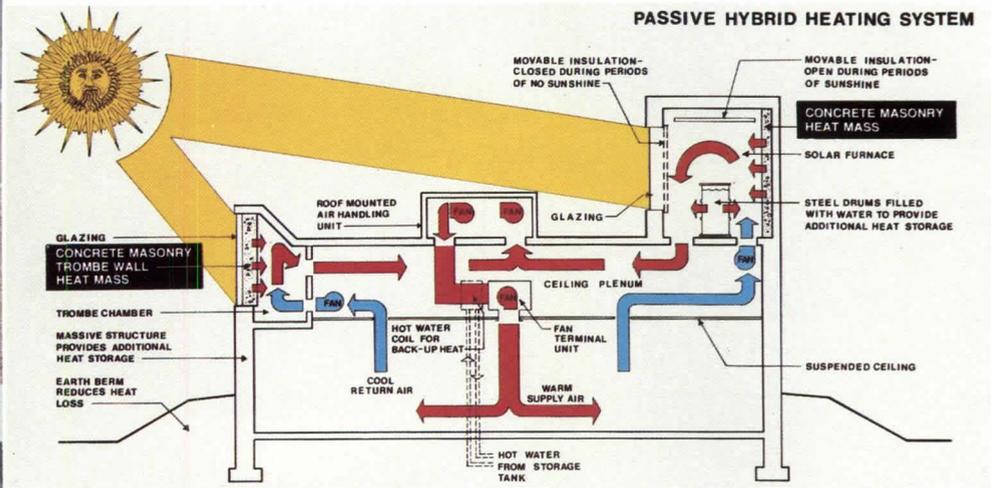
Twenty-five miles northwest of Denver, Colorado, at Rocky Flats, is a unique 22,700 sq. ft. structure housing office space, a technical library and laboratory facilities for the U.S. Department of Energy's Center for Wind Systems Testing and Development, managed by Rockwell International Corporation.

Originally designed to use another building material, it was redesigned in concrete masonry for its superior cost effectiveness. The structure uses passive solar concrete masonry construction for *both heating and cooling*. Even in this area of cold winters and high winds, energy consumption for both heating and cooling will be 85% below conventional buildings. This facility is the most energy efficient federal building constructed to date.

Exterior walls are loadbearing concrete masonry with split ribbed block veneer on the lower ten feet and passive solar Trombe walls of regular



Cavity walls are of 8" concrete block with 4" block veneer. The cores were grouted. Cavities were filled with foamed-in-place insulation.



"MCB, Architects chose concrete masonry for this project because it was compatible in character with the ruggedness of the site; it is cost efficient; and its mass stores heat well, while minimizing temperature swings within the building."—MCB, Architects.

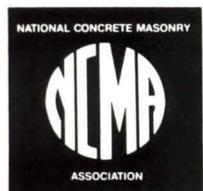
Don Combs, Ron Crutchfield and Alan Phipps of MCB, Architects.

concrete masonry on the upper six feet. Earth berms are also employed for further insulation and energy conservation. Concrete masonry is used throughout the interior for thermal storage.

The storage capacities of the concrete masonry walls help maintain temperatures in the 68 to 70° degree range without the use of a conventional heating or cooling system. Back-up heating or cooling can be supplied using an active solar system designed into the building.



A detail of the concrete masonry exterior walls which utilize split ribbed units and bands of regular concrete masonry. The glazing of the two concrete block Trombe wall sections is seen at the right.



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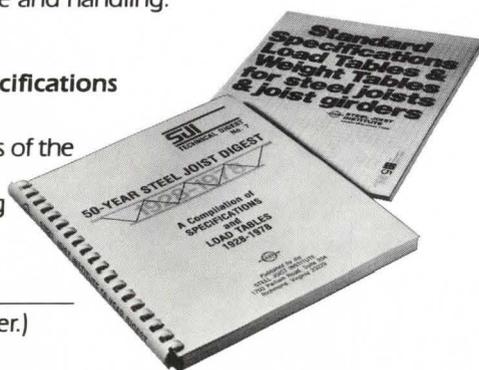
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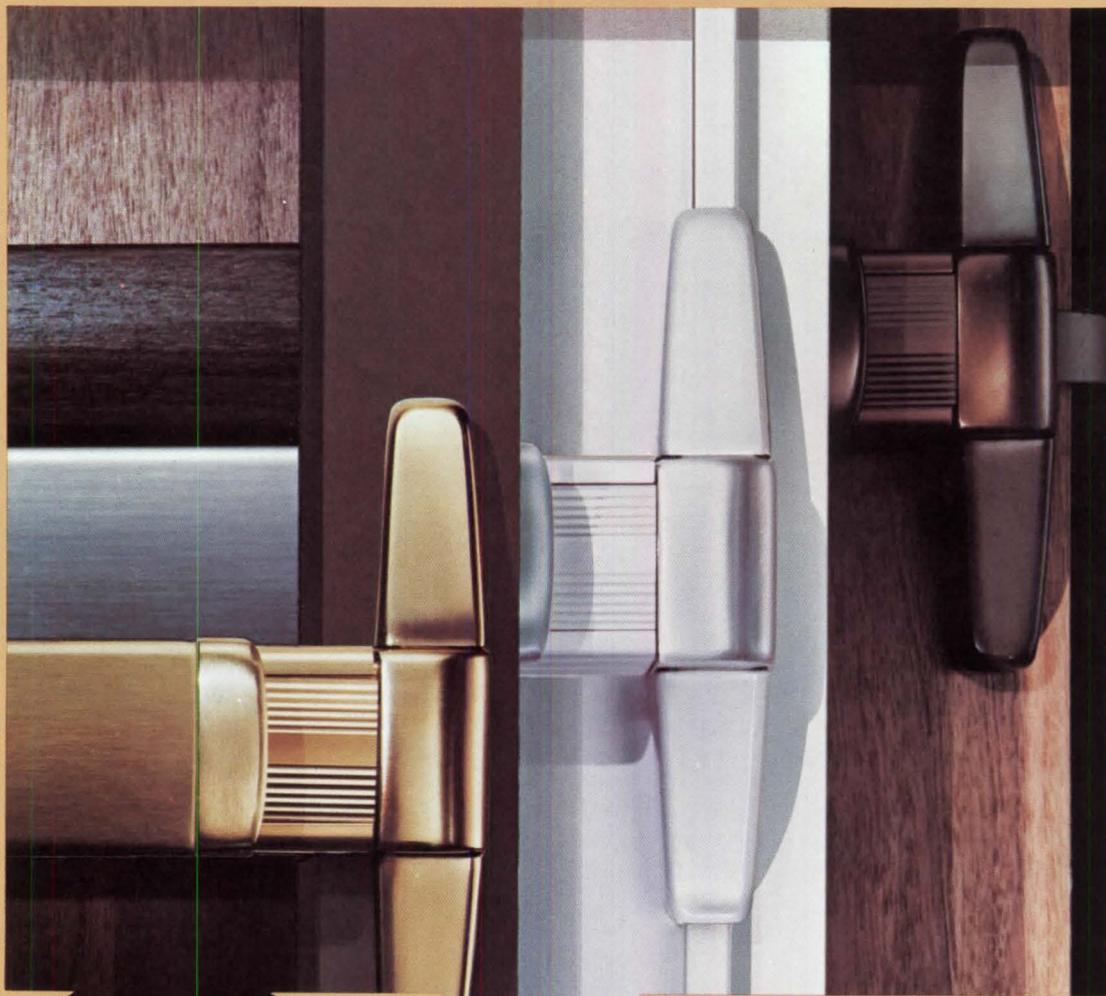
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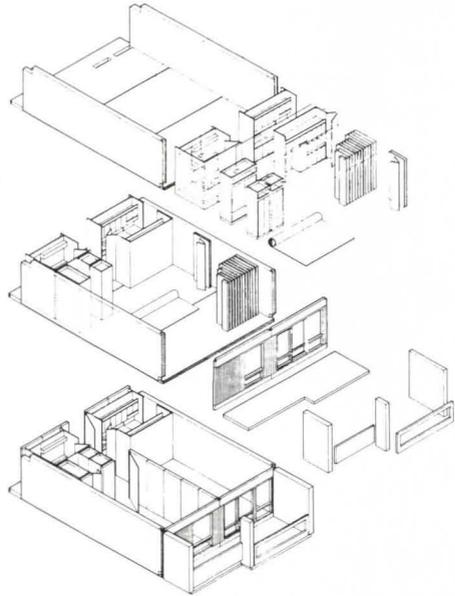
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Breakthrough from page 81

provided a boost for industrialized housing in Japan.

Nyce is now president of Investors Management Group Ltd., a Baltimore-based building and development firm. He says that for the past five years the company has had a partnership with AOKI Construction Co. Ltd. of Japan, which has been building houses in the U.S. AOKI produces about 250 units a year using wood panel systems. The Tokyo-based company was a participant in the Ashiyama program and at that time visited



Courtesy of George E. Buchanan, AIA

several countries looking for systems that it might use to compete in the program. AOKI finally settled on the Rouse-Wates system, licensed it, and refined it for use in earthquake-prone Japan, with Nyce serving as project manager.

Last January at the NAHB convention in Houston, five Japanese housing manufacturers participated in a seminar. John Kupferer, former head of NAHB's Manufactured Housing Council, says that the reaction from the American builders was "more emotional than practical." When it was announced that the Japanese were building houses in four hours there was concern that they might employ those methods in the U.S. On further inspection, however, Kupferer says that the claim is not sensational: "We're building houses in less than four hours." He explains that the Japanese houses in question are not complete when they leave the factory, needing further assembly on-site. "Cardinal Industries has an assembly line that moves eight feet an hour," says Kupferer, "and produces a house every two hours, and it's ready to live in."

Still, the performance of some of the Japanese firms is impressive. One of the panelists at the NAHB seminar was from Sekisui House Ltd., the country's largest housing manufacturer. The company now has four plants and produces approximately 30,000 units annually. A three-

bedroom, 1,600-square-foot Sekisui house currently sells for \$62,000. Its smallest model is 634 square feet and sells for \$19,020. All of the panelists said that their companies are using robots and computers in combination with other assembly line and automation techniques. Japan's housing market is restricted by land costs, however, which can run as high as \$300 a square foot. Land costs in the U.S. now account for approximately \$8 to \$11 a square foot for the average single-family house, which makes the American market attractive to Japan.

One can imagine how the American home-building industry could react: domestic content quotas that would require Japanese imports to have so many board feet of American lumber; campaigns by home builders with a patriotic appeal ("Let Americans build America" might be a catchy slogan); or the chairman of National Homes making television commercials, à la Iacocca, offering the challenge, "If you can find a better built home, buy it!"

Because of protectionism and the high cost of shipping it is not likely that the Japanese will export houses in quantity. But they may export their technical and managerial skills. According to Sanford R. Goodkin, an international real estate and housing analyst, the Japanese may build houses in the U.S., either through joint ventures or privately owned factories, perhaps teaming up with a giant retailer like Sears that would market their product. "I see that as the inevitable evolution of the industry," says Goodkin.

In September he conducted a tour for American home builders, cosponsored by NAHB, of Japan's complete industrialized housing process, with emphasis on the building materials used, how interest rates are kept low, the relationship between government and business, and how the Japanese cope with density, land utilization, and site planning. Goodkin thinks that competition from the Japanese, and things that American home builders can learn from their operations, may result in everyone's benefit. "The Japanese are constantly trying to perfect cost and manufacturing efficiency, and they've done that brilliantly," says Goodkin. "I think it would make the competition more interesting and it would be good for the whole U.S. manufactured housing industry." He also believes that the consumer would benefit. "The product would improve, would be in greater supply, and available at a lower cost."

Foreign competition just might provide the stimulus to improve industrialized housing in America, just as it improved the automobile. And that would prove to be an ironic footnote to the history of Operation Breakthrough, the program that tried to turn out houses like America built cars. □

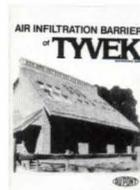
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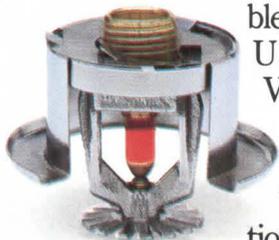
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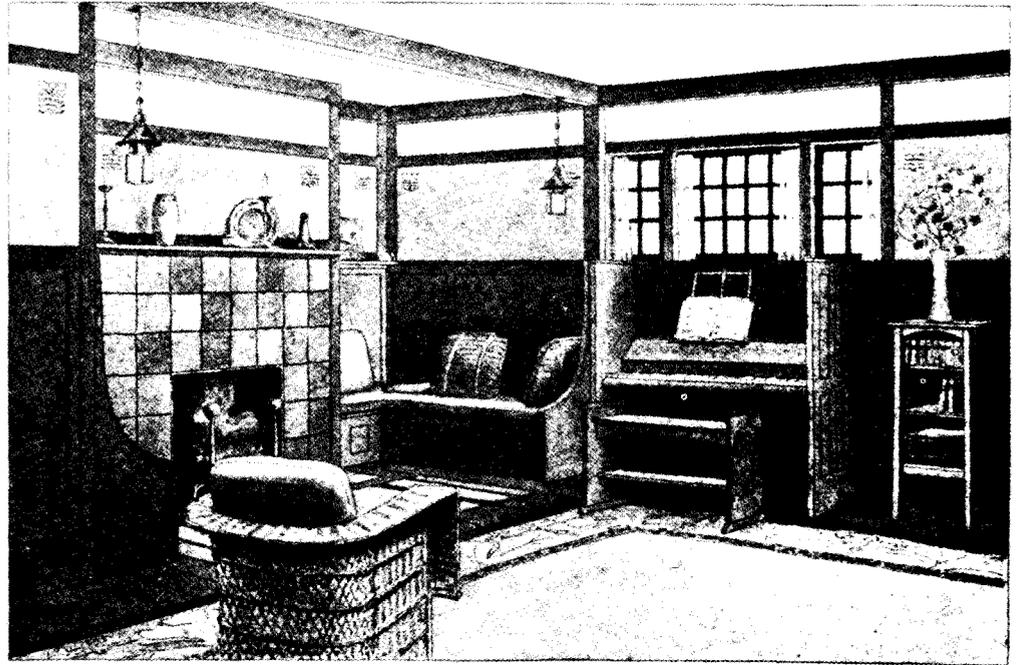
Early 'Minirevolution' In House Design

Gustav Stickley, the Craftsman. Mary Ann Smith. (Syracuse University Press, \$22.)

During the first two decades of the 20th century, a minirevolution took place in the American single-family house. There appeared, as one of its sponsors claimed, a "straightforward and common sense" architecture devoted to middle class life. These houses, for the most part, were intended to be located in a garden suburb with plenty of vegetation, and to relate to their surroundings through verandas, pergolas, field stone foundations, and materials and form. Typical trademarks were rectangular cubic massing, low rising pitched roofs, outer walls of stucco, brick, or shingles, and applied decoration reduced to a minimum. While the exterior was almost bland, the interior was a work of spatial dynamics, with the living and dining rooms and the halls opening onto one another. The fireplace, constructed out of field stone or brick and sometimes covered with tile, was generally the focal point. An inglenook or built-in seats surrounded the fireplace; walls and trim were in flat, simple oak paneling; and ceilings had exposed oak rafters. The broad staircase, defined by stout and rectangular newel posts, balusters, and columns, contained several landings. Upstairs, frequently a sleeping porch or two opened off the bedrooms.

This new house became exceedingly popular and appeared in all sections of the country. Its creators were many, from Frank Lloyd Wright to anonymous authors of builder's manuals; the single most important influence, however, was probably Gustav Stickley (1858-1942), who variously called his designs bungalows and craftsman houses and cabins. Stickley, of course, was principally a furniture maker who created an American style of arts and crafts design, sometimes called "mission," which was solid oak, rectilinear, unornamented, and straightforward. This furniture was made in Syracuse and then sold from stores and by means of his magazine, *The Craftsman*. In time, he created a small arts and crafts empire and became the principal American spokesman for William Morris and other English prophets and designers.

After the demise of his craftsman business in 1916 through financial overextension, Stickley's reputation suffered the inevitable decline and his furniture



This 1905 'plain house' living room has a fireside nook and casement windows.

became outmoded. In the 1960s, a rediscovery began, first with John Crosby Freeman's *The Forgotten Rebel: Gustav Stickley and His Craftsman Mission Furniture* (1966), followed by museum shows and reprints of his works and studies, until now when Stickley's furniture brings high prices in antique shops and at auctions.

About Stickley as both an individual and the leader of a movement there has been a great deal of puzzlement, misinformation, and general ignorance. Hence, Mary Ann Smith's book is approached with a great deal of anticipation. It is a welcome addition to the literature on Stickley and the American arts and crafts movement, providing some answers to the problems of Stickley, though, unfortunately, not all. As an object, the book is well composed—in good arts and crafts style—with a rectangular format and pleasing typeface. Unfortunately, the illustrations are skimpy, and the photographs are generally poor.

Since Stickley's career as a furniture maker and writer are better known, Smith has chosen to concentrate on his architecture, which also is her field of expertise at Syracuse University. Yet, as she recognizes, Stickley's other activities are inseparable from his architecture, and they shed light on his architectural intentions.

Part of the problem with Stickley is the lack of records and documentation, and also his promoter personality. Other than his magazine and a few late account

books, little documentation remains. There is no complete list of commissions, nor of those to whom he sold plans. A few of the architects who worked with him are known, but most are not. Did he actually design the houses? He had no training as an architect nor even as a furniture designer and, while that does not necessarily mean that he did not design, his methods for furniture design were unconventional, to say the least.

Whether he actually designed his craftsman furniture, or whether he can even be credited with originating it, is questionable. In addition to such English sources as Voysey, Mackmurdo, and other arts and crafts designers, there are possibly some American competitors for the title. Stickley liked to claim that, inspired by Shaker and early American colonial and Windsor chairs, he originated the idea of the extremely simple furniture design in 1886. This claim should be treated circumspectly—which Smith does not—for there is no evidence of such designs and, up until 1898, Stickley was apparently still manufacturing standard, ornate Victorian furniture. After 1898, his furniture was apparently designed by his waving his arms and verbally explaining to a workman what he wanted done. Then the piece would be inspected and criticized by Stickley, again waving his arms and talking, and so on until a final design was decided upon and put into production. Certainly, this method would not translate into architecture with much success.

Architecturally, the most interesting work that *The Craftsman* magazine com-

continued on page 102

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missioned and printed was a series of houses by Harvey Ellis in 1903-04. Ellis (1852-1904), a peripatetic, heavy drinking, architectural genius of the Midwest, worked for Stickley for a few months before his death. His designs show an awareness of the revolutions taking place in Glasgow, Vienna, and Paris, and were vividly displayed in the magazine. Both before Ellis came on board and after his demise, Stickley published many undistinguished, not to say laughable and naive, designs of little redeeming value. About the only thing of interest in these designs was the interior fittings, all of which points out that Stickley was basically a furniture manufacturer who got into the decorative arts business. At times, he did publish the work of other architects: Wilson Eyre, Irving Gill, and Barry Parker, among many. Louis Sullivan contributed a few articles in 1905-06, which led to the National Farmer's Bank commission in Owatonna, Minn., but none of his work was published. No Frank Lloyd Wright and very little Prairie School work ever appeared.

What did appear extensively from 1907 onward was the work of Greene & Greene and, indeed, the argument can be made that the influence flowed both ways between the brothers Greene and Stickley. Through reading the early issues

of *The Craftsman* the Greenes crystallized their esthetic of fine craftsmanship detailing. And, alternatively, there are a few designs in the magazine after Stickley's discovery of the Greenes that betray their influence in outflung pergolas, siting, and materials.

While it probably will never be known how many houses Stickley's club inspired, or the number of plans sold and built, there is another group of commissioned houses that Stickley claimed he designed and that he published in *The Craftsman*. The number of designs is uncertain, but through a great deal of hard work, Smith has tracked down and analyzed a number of them. They are, in general, more substantial houses for upper middle class clients.

In some of Stickley's work there is a special feature that deserves comment, and that is his primitivistic, *Call of the Wild* attitude. His work can be seen as part of the general turn-of-the-century, "strenuous life" and back to nature movement. In some of the designs published in his magazine Stickley evokes this attitude with tree trunks as porch columns, field stone walls and chimneys, and rough textures.

Stickley's architecture seldom rose above the mundane and, while he showed more talent with interiors and furniture, even they are frequently flawed and awk-

ward. But he was a promoter of the arts and crafts, and design reform, and that may have been his greatest talent. When the steam ran out of the movement both nationally and for him personally, he simply retired in 1916 and apparently did nothing for the remaining 26 years of his life. Mary Ann Smith's book indicates all the work still remaining to be done to understand the complexities of the arts and crafts movement in America.

RICHARD GUY WILSON

Dr. Wilson chairs the architectural history division, school of architecture, University of Virginia.

The New Jersey House. Helen Schwartz; photographs by Margaret Morgan Fisher. (Rutgers University Press, \$14.95.)

The historic preservation movement has generated interest in housing styles and housing types, and the Garden State, with its rich history and complicated settlement patterns, was due this kind of publication. New Jersey has almost every kind of style and vernacular house built in the U.S. Helen Schwartz discusses most of these types in her brief but clearly written chapters that follow each of Fisher's photographic portfolios. This kind of organization invites the reader to study the buildings visually, with the aid of infor-

continued on page 104



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Appointment Criteria Candidates are sought who have the requisite academic qualifications and professional experience. Priority will be given to persons who have achieved distinction as teacher-scholars or as teacher-practitioners.

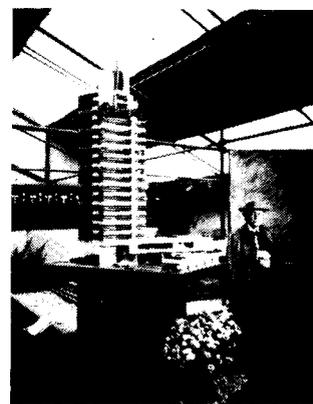
Application Applications will be accepted on the form available from the Graduate School of Design Appointments Committee, c/o Catherine Kornyei, Harvard University Graduate School of Design, 48 Quincy Street, Cambridge, Massachusetts 02138, USA. Applicants should not send dossiers. Applications should be received by December 1, 1983.

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mative captions, and then to read Schwartz' summaries of relevant cultural and architectural history.

The first chapter discusses settlement patterns and the architectural resources that are extant, including the Scandinavian, Dutch, English, and German heritage. A section on early vernacular styles describes the remaining examples of New Jersey's folk architecture, most of which was overwhelmed by industrialization, the influx of an immigrant population, and the growth of cities. An extensive review of historic styles follows, going from Georgian to the period after World War I that embraces the Depression era, planned community development, federal influences on housing, industrial housing, and contemporary housing design.

The book concludes with a section on "Towns of Interest," and a modest glossary and bibliography. The towns section presents brief descriptions of individual structures or districts within larger cities, and accounts of villages and towns that have significant examples of New Jersey's historic architecture.

As for analytical method, Schwartz relies on traditional approaches to American architectural history, and most of the text chronicles the development of style, with proper attention to design elements

and systems of ornamentation. Some attention is given to the use of local materials and to the impact of industrialization on architectural elements, although little attention is paid to the impact of climate on design. Schwartz has a demonstrated preference for detached, single-family residences, especially the suburban type. As a result, less attention is paid to certain urban structures, such as the variety of row houses, two-family and duplex types, triple decker multifamily units, as well as four-plex and garden apartment buildings. Also missing are tract types, such as the ubiquitous ranch.

In terms of historiography, a few construction dates, even bracketing by decades, would have helped to understand the overall development of the New Jersey house over time. On balance the section on contemporary housing falls short of adequate treatment. Somehow, Radburn, Roosevelt, a Wright, a Breuer, and a Graves house (an unusual three-horse parlay) and a planned community of townhouses do not a history make. This last chapter truncates the book the way New Jersey just runs out of peninsula at Cape May.

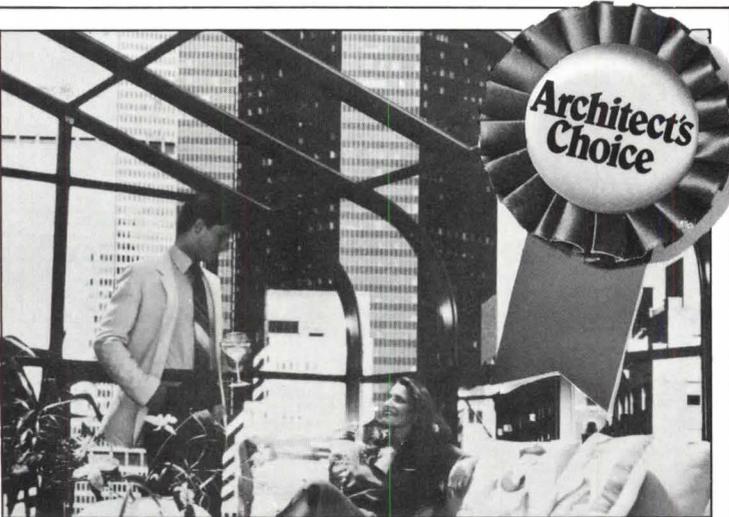
Margaret Morgan Fisher's photographs are well done, nicely composed, and clear, and her patience in waiting for shots without summer foliage or winter snow is

admirable. The selection of photographs reflects the author's bias for elegance, for the romantic Victorian above all else. New Jersey's housing is more vernacular, even richly so. But this book is a thoughtful slice through culture, and it is a welcome addition to the growing body of literature that puts us back in touch with ourselves. HERBERT GOTTFRIED

Dr. Gottfried is a professor at Iowa State University's college of design.

Planning and Design of Airports. Third edition. Robert Horonjeff and Francis X. McKelvey. (McGraw-Hill, \$44.95.)

First published to critical acclaim in 1962, this work, authored by the late Robert Horonjeff, professor of transportation engineering at the University of California at Berkeley, went through a second edition in 1975 to reflect more recent technological and legislative developments. The third edition, to which Francis X. McKelvey, department of civil engineering at Michigan State University, brings his experience of more than 20 years in engineering research, follows the framework and philosophy of the previous editions. But the work is updated and expanded to bring to the reader significant developments in this ever-changing and dynamic field. □

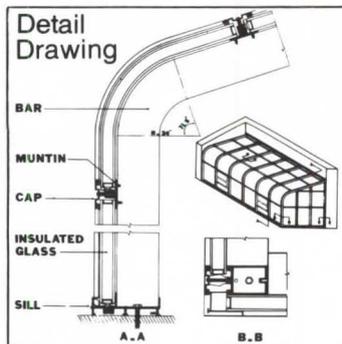


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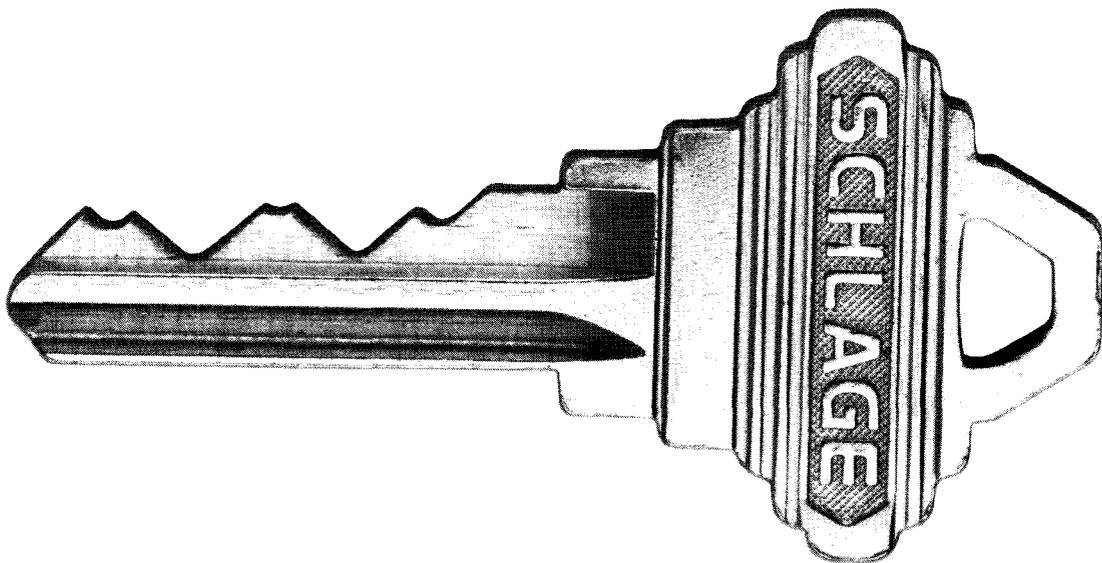
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Letters from page 8

that the Cossutta design was selected. It is a wharf building with sufficient public access. It doesn't pretend to have an outside like Quincy Market or have an inside like the Ford Foundation. One can access the building easily from two prime locations and its cafe on the park, and the new Blue Line transit station connectors are successful indeed. The atrium is a unique and elegant space that shall be remembered for years to come as a great hotel space. The terraces are excellent places to enjoy Boston Harbor and the pedestrian and boating activities on Long Wharf.

What bothers me most about the article is that, according to Campbell, there's a lot of good and there's a lot of bad, yet the bad is so negatively highlighted.

We are pleased that Bob Campbell was so complimentary of the adjacent Waterfront Park by Sasaki Associates and trust that our landscape design for both the hotel's exterior and interior will be well received over the years just as the hotel, on its superb Long Wharf site, weathers the storms of the sea and of the pen to be one of the great buildings of Boston's new history.

Stuart O. Dawson
Principal, Sasaki Associates
Watertown, Mass.

DEATHS

Terry Atkinson, Tucson, Ariz.

Edmund James Austin, Southern Pines, N.C.

Herman G. Cox Jr., FAIA, Fort Worth, Tex.

Betty Jo Jones, Houston

Louis E. Korn, Los Angeles

Fredrick Liang, Honolulu

Roy Joseph Pallardy, Jefferson City, Mo.

Lloyd Pike, Phoenix

Frank Anthony Ranallo, Vista, Calif.

Samuel G. Shepherd, Gwynedd, Pa.

E. J. Shobe, Westlake, Ohio

Jacob Rowland Snyder, FAIA, Treasure Island, Fla.

Arlon Lowe Van Orden, El Cajon, Calif.

John Jamieson White Jr., Chevy Chase, Md.

Charles B. Willard, Pennsville, N.J.

Sir Nikolaus Pevsner: One of the century's leading architectural historians, critics, and editors, Sir Nikolaus died in London on Aug. 18 at the age of 81.

Educated in Germany, the country of his birth, he fled to England in 1933 after the rise of Hitler. He joined the faculty of Birkbeck College in London shortly after his arrival. He was Slade professor of fine arts at Cambridge University from 1949 to 1955, and held the same professorship at Oxford University from 1968 to 1969.

Sir Nikolaus produced volumes of work on the art and architecture of his adopted

country. He was the originator and chief contributor of *The Buildings of England*, on which he began work in the 1940s, producing 46 volumes between 1951 and 1974. He was the editor of the *Pelican History of Art* series, and for a time served as editor of the British architecture journal *Architectural Review*. He was also the author of such historical works as *An Outline of European Architecture*, *Pioneers of the Modern Movement*, and *A History of Building Types*. He coauthored *A Dictionary of Architecture*, the first edition of which appeared in 1966.

In 1967 he received the royal gold medal for architecture, and he was knighted two years later. In 1981, AIA presented Sir Nikolaus with a medal in recognition of his contributions in chronicling the history of architecture.

BRIEFS

International Design Competition.

The local authority of the community of Campione d'Italia in conjunction with UIA is sponsoring an international, two-stage design competition for the restructuring of the town center of Campione, including the creation of a new casino and cultural recreational facility. Registration fees of 300 Swiss francs (or equivalent in foreign currency) payable to Rubrica Concorso Campione, c/o Credit Suisse CHIASSO, compte no. 89.082-51/1 and forms with name of competitor or team leader, address, telephone number, and proof of the right to practice architecture must be received before Nov. 4 by the Competition Secretariat, c/o UCAL S.A., Via Brentani 9, CH-6900 Lugano, Switzerland (telephone number 091/51 2888).

Housing Design Competition.

The Minneapolis College of Art and Design and the National Endowment for the Arts design arts program are sponsoring a national design competition, "A New American House," for the design of housing for people who live in nontraditional households, such as single parent families, people living alone, artists, and the elderly. The competition is for the design of urban infill housing in the Whittier neighborhood of Minneapolis and is open to architects, landscape architects, graphic designers, artists, and students with a sponsoring faculty member. The registration deadline is Jan. 25, 1984. For more information, contact Harvey Sherman, Minneapolis College of Art and Design, 133 E. 25th St., Minneapolis, Minn. 55404.

Ghetto Architecture Exhibition.

Sponsored by the Center for Social Sciences of Columbia University, "Ruins and Revivals: The Architecture of Urban Devastation," an exhibition of photographs that analyzes the character and changing

form of American ghettos over the last five years, is on view through Nov. 3 at the Municipal Art Society's Urban Center, 457 Madison Ave., New York City.

Third World Architecture Exhibit.

An exhibition of recent works by 22 architects "Contemporary Third World Architecture: Search for Identity," will be on view at the Pratt Institute Gallery through Nov. 17 before going on a national and international tour.

Deadline for Rome Prize Applications.

The American Academy in Rome has set Nov. 15 as the deadline for receipt of applications for one-year fellowships in painting, sculpture, musical composition, architecture, and landscape architecture, and six-month advanced fellowships in the design arts. For more information, contact Fellowships Coordinator, American Academy in Rome, 41 East 65th St., New York, N.Y. 10021.

BUILDING SPECS

Foster Residence, McLean, Va. (page 82).

Architect: Hartman-Cox, Washington, D.C. Lighting: Edison Price, Lightolier. Paint: Duron. Roofing: Vincent Brass and Aluminum Co. Windows: Caradco Corp. Locksets: Schlage. Bathroom accessories: Kohler.

Mangrum Residence, Middlesex Beach, Del. (page 86).

Architect: Joseph E. Wnuk & Associates, Washington, D.C. Insulation: Owens Corning Fiberglas. Roof shingles: Certainteed. Wall shingles: Western Red Cedar. Skylight: Wasco Products. Wood sliding glass doors and windows: Rolscreen Corp. Metal sliding glass door: Northrop Architectural Systems. Finish hardware: Schlage, Grant, Ives Corp. Gypsum drywall systems: U.S. Gypsum. Ceramic tile: American Olean. Paints and stains: Benjamin Moore, Cabot, Olympic. Prefabricated fireplace: Preway. Toilet accessories: Nutone, Hallmack. Kitchen equipment: Whirlpool. Cabinetry: Rose-line. Plumbing fixtures: Kohler. Heat pump: Carrier. Ceiling fan: Nutone. Light fixtures: Lightolier, Sterling, Stone Cove, Prescolite, Mobern.

Allewelt Residence, Modesta, Calif. (page 90).

Architect: MLTW/Turnbull, San Francisco. Sliding glass door: Arcadia. Double hung windows: Andersen. Insulation: Owens Corning. Countertops: Formica. Fireplace: Rumford. Paint: W. P. Fuller. Weatherstripping: Temko. Handrails: Builder's Brass. Resilient tile: Armstrong. Tile shower: American Olean. Bathroom fixtures: American Standard. Hinges, butts, door tracks: Stanley. Locks: Schlage, Plymouth. Door studs: Quality. Surface bolts: Baldwin. Hot water heater: National. Shingles: Red Cedar. □

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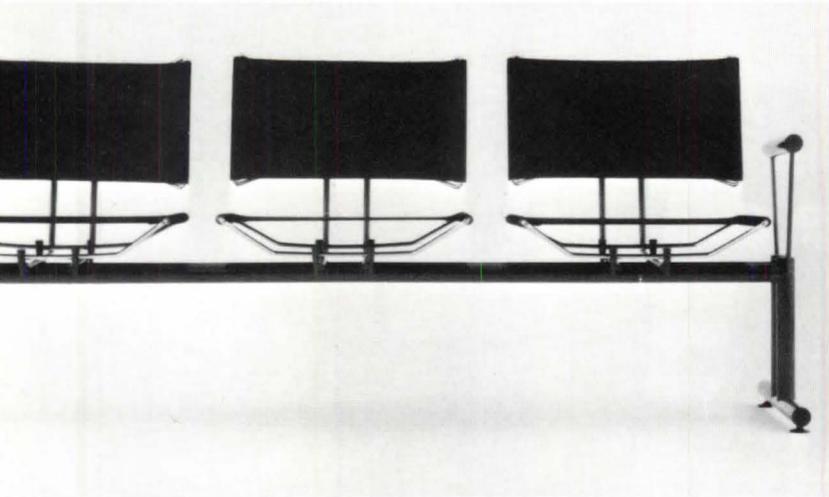
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1



Furnishings

As resources for design and objects of design. By Nora Richter Greer

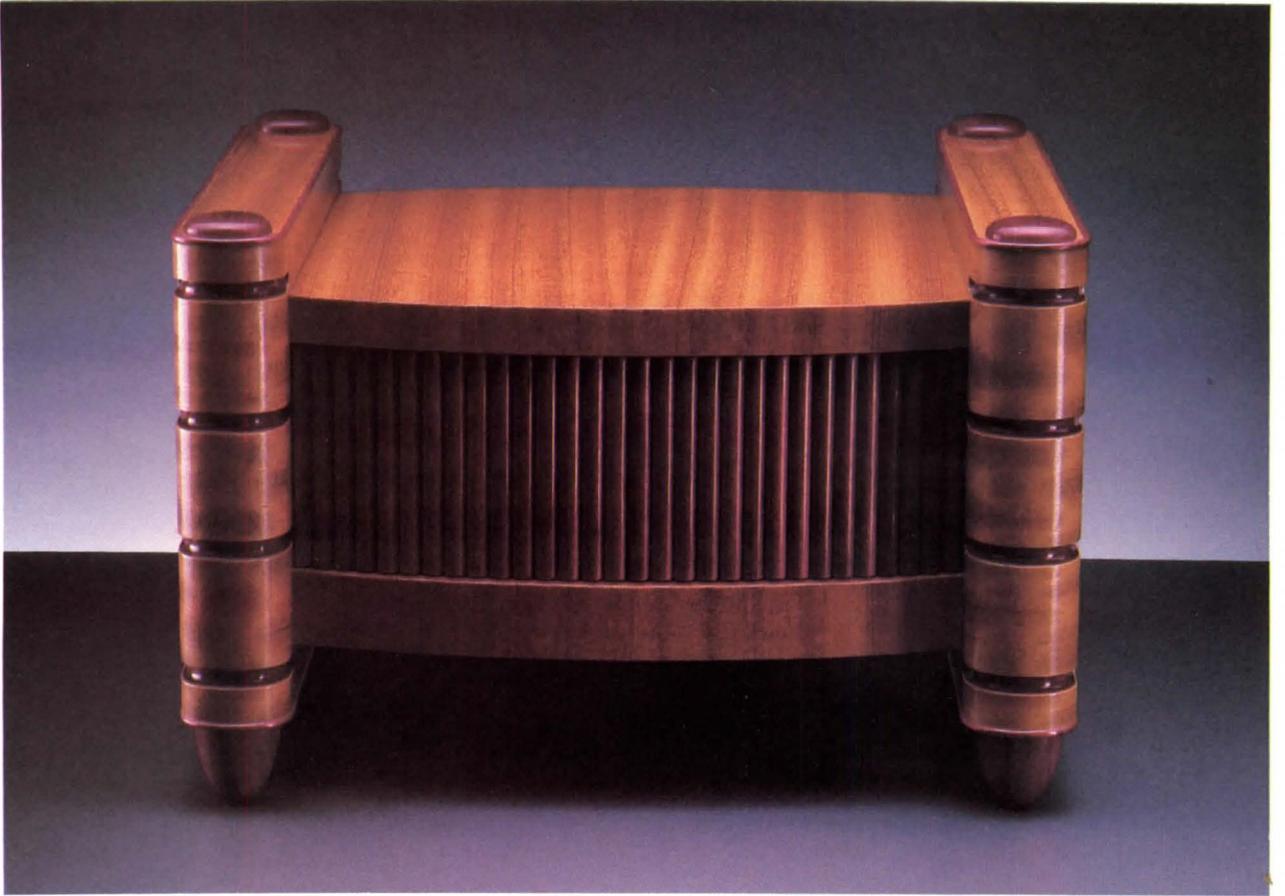


2

The high-tech Bitzch chair collection (1), designed by Hans Ullrich Bitsch for Harvery Probbler Inc., is available in several versions—with arms or armless, multiple seating, lounge chairs, occasional stools. The leather or canvas seat and back covers are shaped by stainless steel supports. Metal frames are polished chrome, satin chrome, or black, red, blue, or white stove-baked enamel finishes. For the Envirotex Collection (2) designer Hazel Siegel developed a palette of 45 colors that is new to the manufacturer, DesignTex Fabrics, Inc. The new colors are used in plaid, striped, herring bone, and cube patterns on either 102/104-inch-wide opaque knitted fabric or 72-inch-wide woven fabric. The fabrics are intended for hospital, hotel, restaurant, and office use.

From the studio of Californian Ian Forsberg comes the meticulously detailed and elegantly crafted chest (3) of Amazon yellowwood and purpleheart. The front features drawers with purpleheart knobs; the rear has purpleheart accordion panels. TLV 62 Geometric lighting (4) offers great flexibility: Each lamp can be set in positions ranging from directly downward to parallel with the ceiling. Manufactured by TrakLiting, Inc., the fixtures can be set on tracks or be fully self-contained. The fixtures have halogen projection lamps with dichromatic reflectors (that dissipate heat through the back) and clear protective lens and are available in white, black, antique brass, polished brass, polished chrome, satin chrome, and polished copper. Steven Lombardi's constructionist seating system (5) has a gray slotted metal frame that can be lengthened or configured to suit an individual's needs. Glass table ends can contain fluorescent light tubes, and cushions are offered in a variety of colors. □

© Ian Forsberg

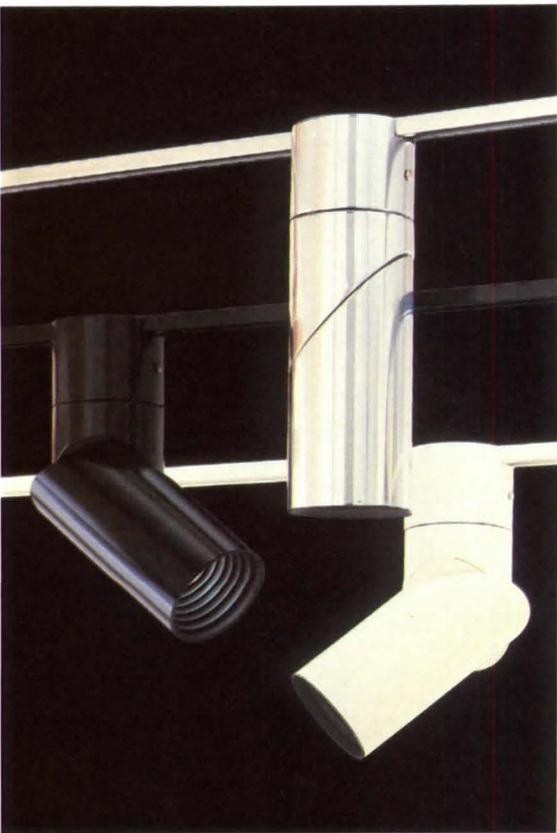


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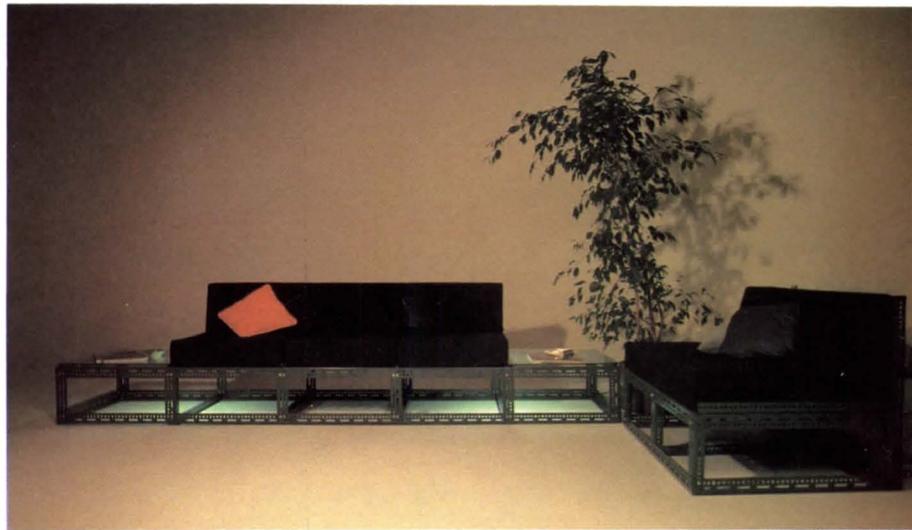
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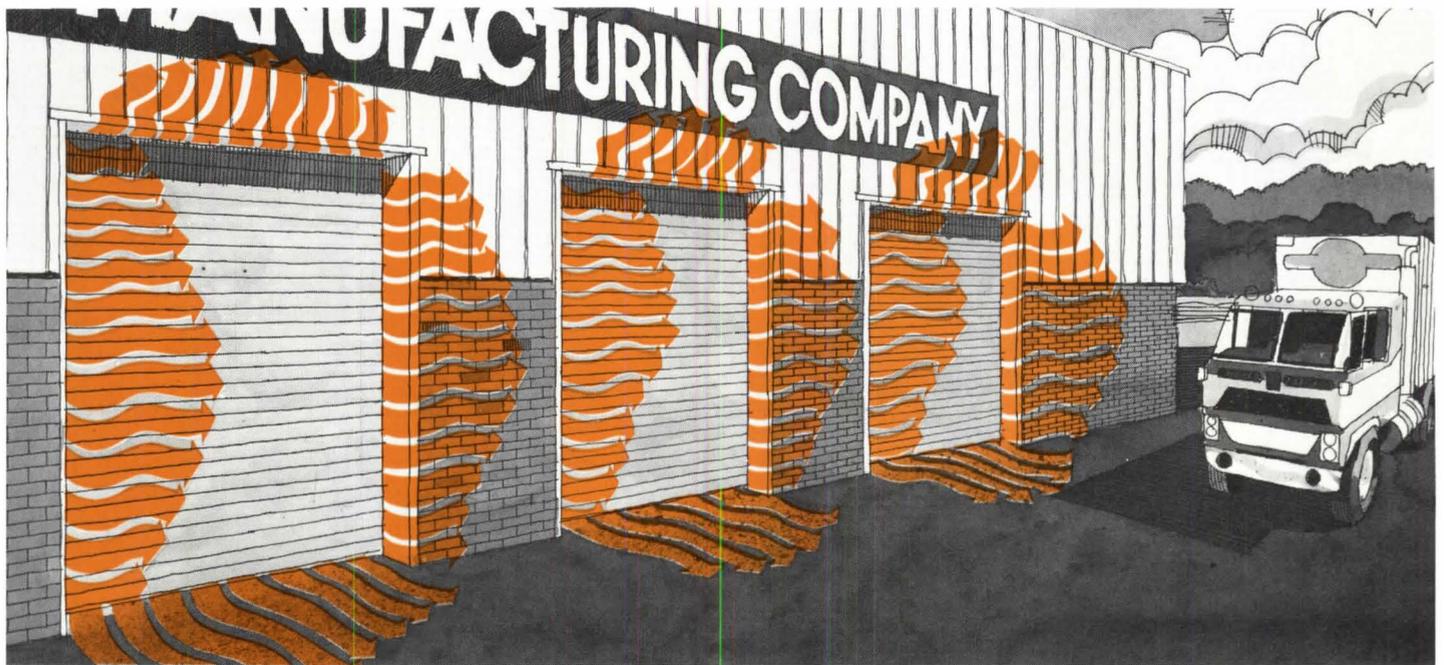
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5



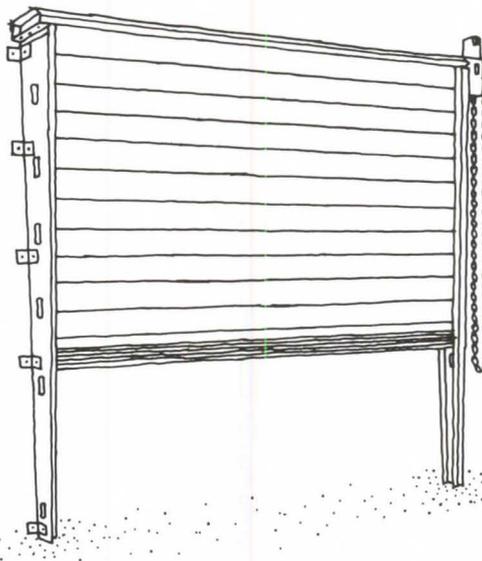
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The Inryco[®] Telescoping Door reduces air leakage for long range savings!

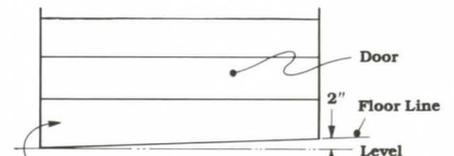
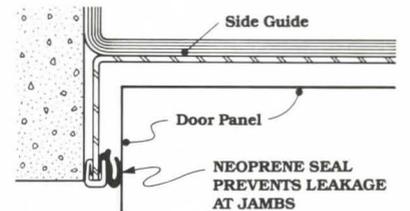
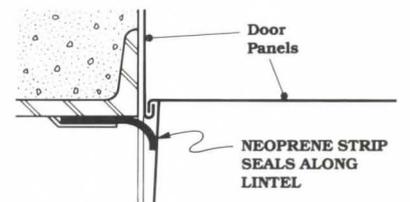
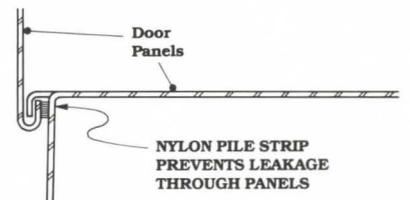
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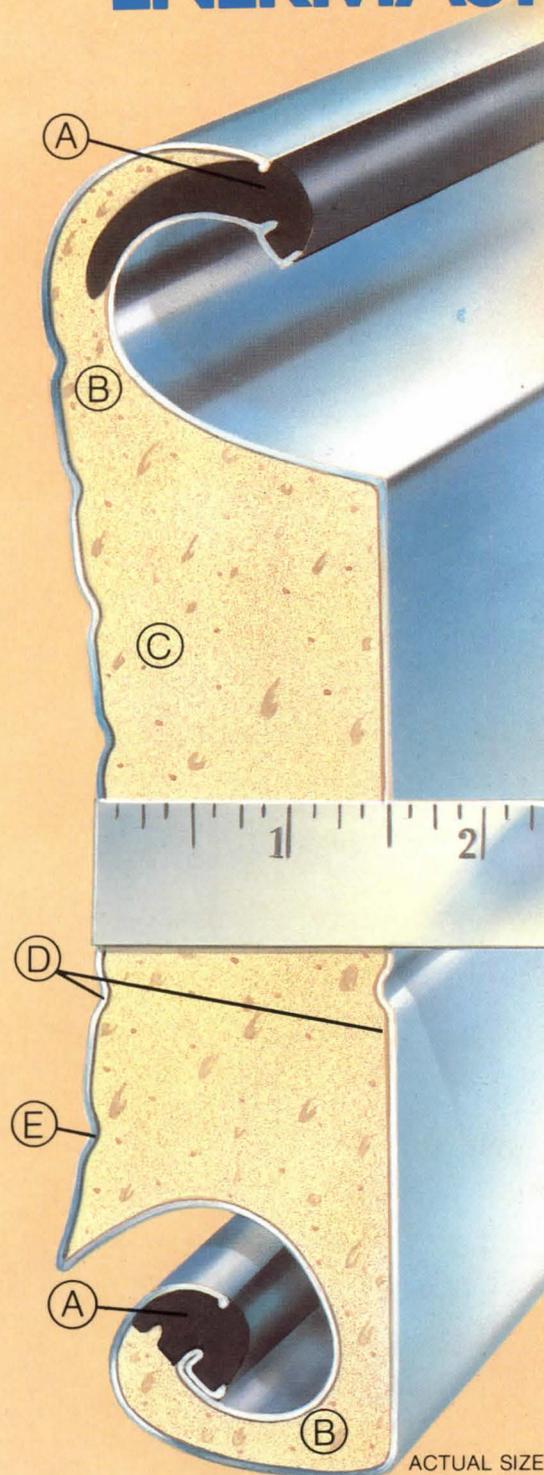
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