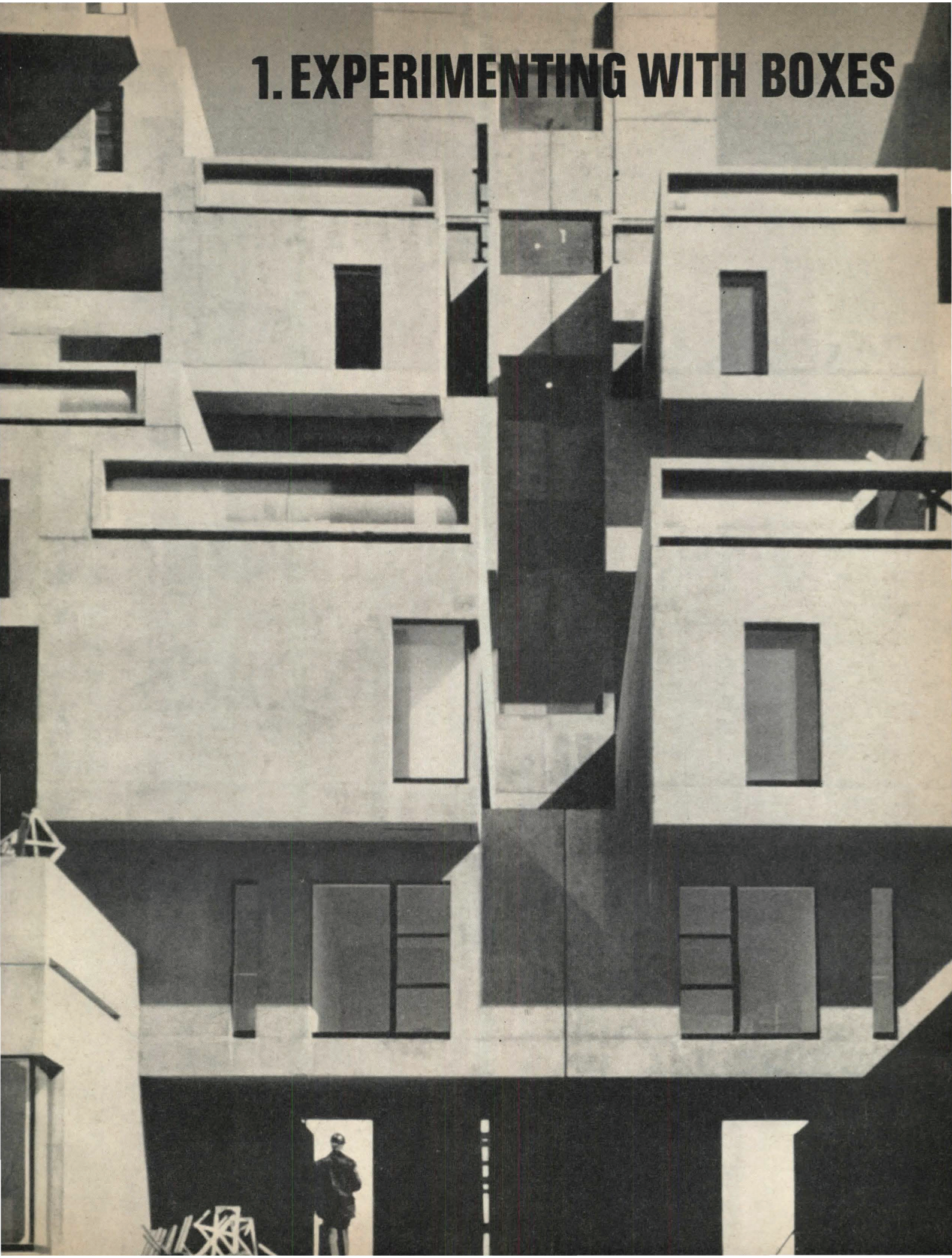
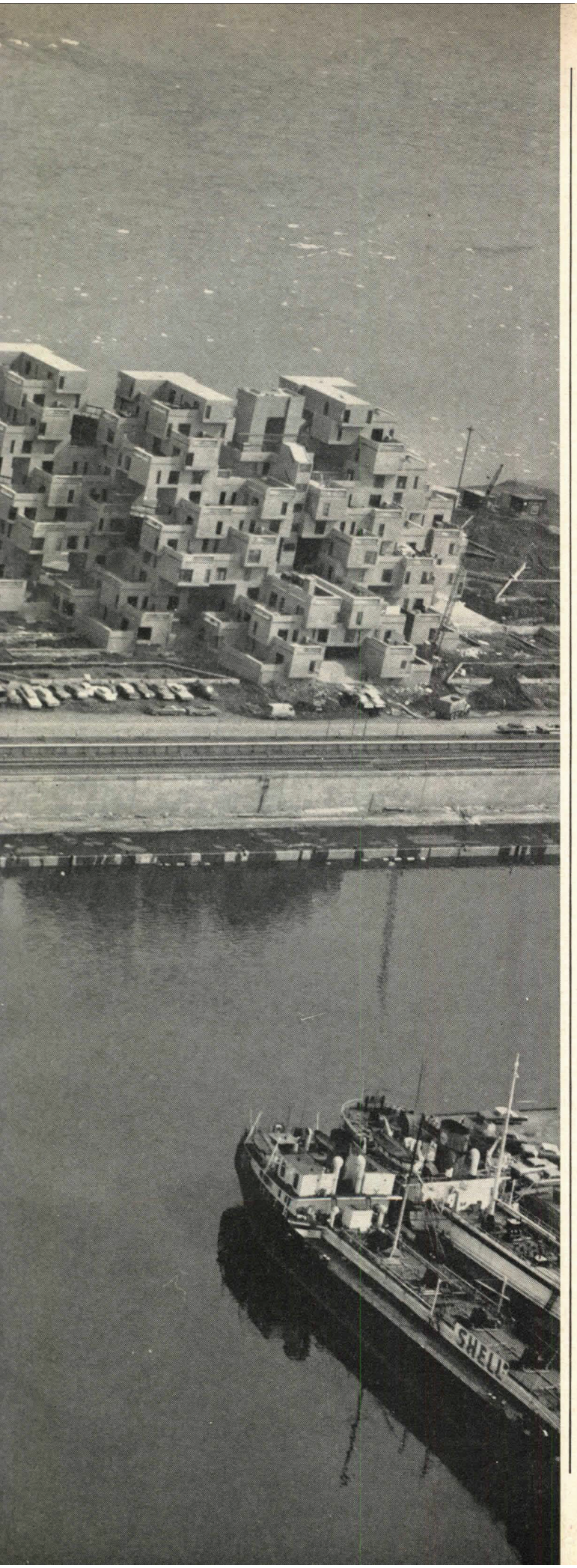
1. EXPERIMENTING WITH BOXES





HABITAT'S CLUSTER

BY ROBIN BOYD

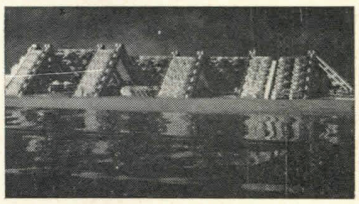
Moshe Safdie was the architect of Habitat 67 in every sense of the word. Without him it would not only have looked different, it would not have happened at all.

It was he who first proposed the idea of a living demonstration of urban housing as one of the highlights of Expo 67. He was working on a master plan for the Canadian Corporation for the 1967 World Exhibition, and he saw the chance to build the subject of his final-year thesis study at McGill University—a study that was still much in his thoughts. He sold the idea to the corporation, was granted money to develop it, and prepared a presentation that carried away three governments: municipal, provincial, and federal. Thus it happened in 1964 that Safdie, at the age of 26 and just three years out of college was commissioned to build his dream.

It was not a lonely dream. The Habitat idea has hovered in the background of the architectural conscience all this century, one way or another. Its basis is that modern architecture must become more involved in making an appropriate total environment for modern life. The rules require the integration of car traffic, vertical circulation, outdoor and indoor communal amenities, and last, but perhaps not entirely least, apartments in which people might actually want to live. Not so very long ago its image was the Corbu spectacle of towering headstones linked by ribbons of elevated roads strung across parkland. This vision faded after World War II when glass slab skyscrapers and elevated freeways suddenly appeared in disorganized abundance and lost their romantic novelty. So the monumental vision dissolved into Le Corbusier's Unité d'Habitation, in which the individual units were beginning to have identity. Then the Unité image gave way to the cluster concept, which starts with the individual units and builds up to a monument.

According to Reyner Banham, the cluster concept was first stated in an article by Kevin Lynch in 1954—the year Unité was completed. In 1957 Alison and Peter Smithson described the ideal as a "close-knit, complicated, often-moving aggregation, but an aggregation with a distinct structure." They advised: "We must think out for each place the sort of structure which can grow and yet be clear and easily understood at each stage of development."

In the following decade many a building was erected which professed to subscribe to these high principles but which finished up as just another closed, competitive apartment block. In 1960, Kenzo Tange, with his students at MIT, first gave the cluster a powerful image, and later that same year developed the idea further in his well-known proposal of a plan for Tokyo.



But Moshe Safdie was the first to keep hold of the ideals, and a strong image, *and* to get it built—even if not quite as he first proposed.

His original scheme had some 900 dwellings for 5,000 people in two separated blocks. The larger was composed of parallel, spaced, staggered rows of neo-Unité slabs which were, in effect, toppled inwards until their top corners touched and they supported each other while making an equilateral triangle with the ground. It was a nice development from the Tange-MIT scheme, which clustered the dwellings on the sides of enormous tents. These threatened to be somewhat dingy on the inside,

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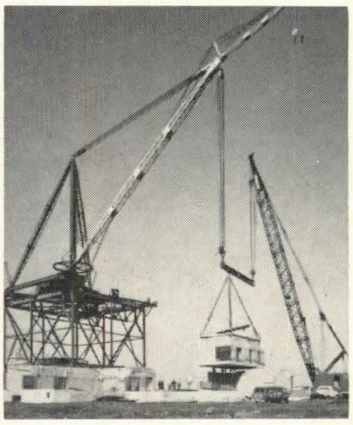
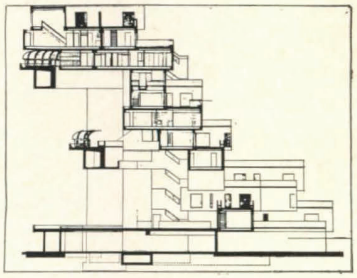
whereas in Safdie's scheme the undersides of the slopes still had open outlooks. His smaller block was a shorter modification of the first; all the slabs leaned the one way, although they zig-zagged in plan. They were supported by vertical circulation shafts.

What has been built is only a large part of the smaller block, capable of housing some 700 people in 158 units.

Safdie's triumph is that, despite this, he has held on grimly to the essentials of the original idea and has not allowed it to become, in spirit or image, just another one of those familiar things. It manages to convince as a little scrap of tomorrow. Since this was the object of the exercise as an Expo exhibit, almost any price paid in practical building discomfort and economies was prejustified. The estimated final cost of about $100,000 per average apartment sounds ridiculous enough, but these few units have to be considered as pacemakers for something bigger, or not considered seriously at all. This cost, after all, includes massive overheads—for example, one special crane costing $750,000—which would have been no more costly for the originally planned 900 units.



The sociological objective of all clusters is to bring people back close to the heart of the city (or to cheer up those who are still left there) by restoring a sense of community—yet, at the same time, providing something of the space and privacy enjoyed in the suburbs. Habitat 67 responds to this in several ways. Its site is a socio-architect's delight, for it recovers a section of Montreal's lost waterfront. Its size is just big enough and its character quite strong enough to impress any inmate with a sense of a unique environment. There are communal play terraces, and various amenities leading off the wide balconies which serve as communication on every fourth floor and which are called, as you may have guessed, streets.



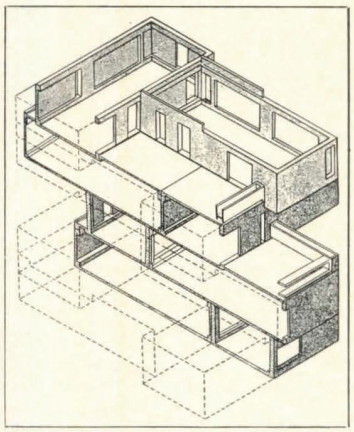
The technological objective of clusters is to exploit mass production of the minor, monotonously repetitive elements of dwellings within a major structural system. Habitat 67 responds to this with a technique already well publicized. Concrete boxes measuring 17 ft. 6 in. by 38 ft. by 10 ft. high, and weighing 90 tons, are precast in a "factory" on the site, sandblasted and fitted out on the ground, and hoisted into place on that expensive traveling crane. Compromises along the way have led to less than half the finishing trades being done on the ground. Bathrooms are continuously moulded glass fiber shells. Kitchens are neat but ordinary.

The apartments come in three sizes. The smallest is a single box (665 sq. ft.). Bigger units are made of two or three boxes linked together, usually in a two-story arrangement.

The Russians, of course, have been precasting apartment boxes for years. The standard Russian boxes are about the same size as Habitat's, but are stacked into slabs safely and squarely and are held together by gravity.

Safdie's biggest innovation was to tie pairs of blocks together vertically by post-tensioned cables, three on each side, fitted into internal pilasters, the outer ones 3 ft. from the ends of the boxes. This system allows the boxes to be stacked in almost any way imaginable. One can be tied down at right angles to the box below. Another box

can be offset above with nearly half its length cantilevering out over, perhaps, a children's play plaza. Up to five such cantilevers may be stepped out perilously one above the other if the architect calls for it. This device has made possible the outdoor-living decks enjoyed by all apartments on exposed parts of the roofs of lower boxes. (The decks are bordered by automatically watered flower boxes!) It also provides the antigravity, science-fiction Flying Housing look, which is exciting, frivolous and entirely appropriate for Expo 67.



To that extent it is a resounding success. Nevertheless some awkwardness is inherent in the free-stacking scheme. For instance, plumbing is necessarily scattered haphazardly throughout the complex. Safdie solves the resulting problem of waste pipes by gathering those of each apartment together under a false floor and discharging them into the nearest vertical plumbing stack. He passes them through a single antisiphon trap. This eliminates the need for any back vents, which indeed would have reduced the attractions of life on the roof gardens. The system works, but the need for false timber floors everywhere deflates the concept of precast, self-sufficient boxes.

The artistic objective of clusters is to make the whole greater than the sum of the parts. Habitat 67 achieves this, first, by making sure that there is a whole. All the structural elements, the vertical elevator towers, sloping stairways and horizontal "streets," as well as the boxes, are consistently of precast concrete. The surface throughout is sandblasted and as austere as the form is extravagant. Although a fashionable diagonal is stressed both in plan and in section, the progression and recession of the boxes in defiance of the overall discipline lends a quality of irrefutable empirical aptness reminiscent of villages not far from Moshe Safdie's birthplace of Haifa. But the hollows between some boxes, affording glimpses of other precariously stacked boxes several floors and maybe hundreds of feet away, play a teasing game with space that is entirely of this century; while the concise, yet open-ended, almost still-growing form of the whole belongs intimately to the late 1960s.

Thus, in terms of sociology, technology, and architecture, Habitat 67 should go far—as far as it is possible for any building of its size to go—in fulfilling its primary function of demonstrating to Expo visitors a third way of life, and a possible way of building it.

A fourth objective of cluster blocks is humanist: to make the units especially good places for living. In Habitat 67, the apartment boxes, which are literally and figuratively the bricks that support the whole idea, are found to be, on entering, somewhat anticlimactic. After the spatial thrills and the brave grey concrete of the exterior, the insides of the boxes seem no more communicative than most other good, conventional, compact, smoothly plastered apartments. After all, that is the nature of a box. Half the model apartments have been decorated by a shelter magazine, so perhaps the interior quality of the architecture is irrelevant.

FACTS & FIGURES

Habitat 67, Montreal, Canada. Owner: The Canadian Corporation for the 1967 World Exhibition. Architects: Moshe Safdie and David, Barott, Boulva, Associated Architects. Engineers: Dr. A.E. Komendant (structural consultant); Monti, Lefebvre, Lavole, Nadon & Associates (structural); Huza & Thibault and Nicholas Fodor & Associates (mechanical and electrical). Landscape architects: Harper & Lantzius Consortium. General contractors: Anglin-Norcross Quebec Ltd.

PHOTOGRAPHS: Page 35, staff photo. Pages 36-41, Aerial Photos of New England.