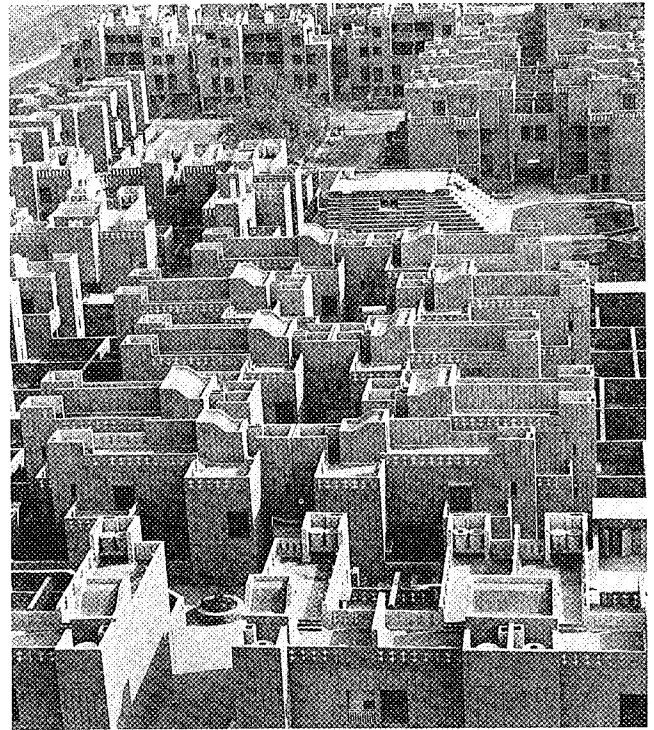# 3. Asian Olympic Village, Delhi

Raj Rewal

Charles Correa posed the question—what is a suitable proto-type for mass housing today?—and then described various buildings which can perhaps be categorized, if I may simplify, as blocks, slabs, or terrace housing, the three major systems that have been worked out in the West in the last forty years or so. Most people found all of them wanting. Another form that has been much less well developed is the cluster, whose major source of inspiration, outside the West at least, is the traditional cluster found in the various cities in the Indian sub-continent, in the Mediterranean, the Arab world, Persia, and other places. I do not know why they have not been looked at more seriously. In Lahore the cluster takes the form of a con-fined area, houses set in a series of enclosures; in Registan clusters support outdoor life. Roof terraces and verandas, to-gether with the street, create an image that is much lacking in present-day architecture. In spite of the fact that it provides a tremendous amount of space, the cluster is essentially a single homogeneous unit. Even in the colder areas, from Kabul through most of North India, where the cluster is used, the roof becomes a terrace in summer. In India the cluster is set off by a gateway, or darwaza, which is also a very important feature for defining spaces.

These elements provide possibilities for mass schemes which could be built quickly by development authorities and still retain certain traditional values. The concept I used for the Asian Olympic Games Village in New Delhi is based on

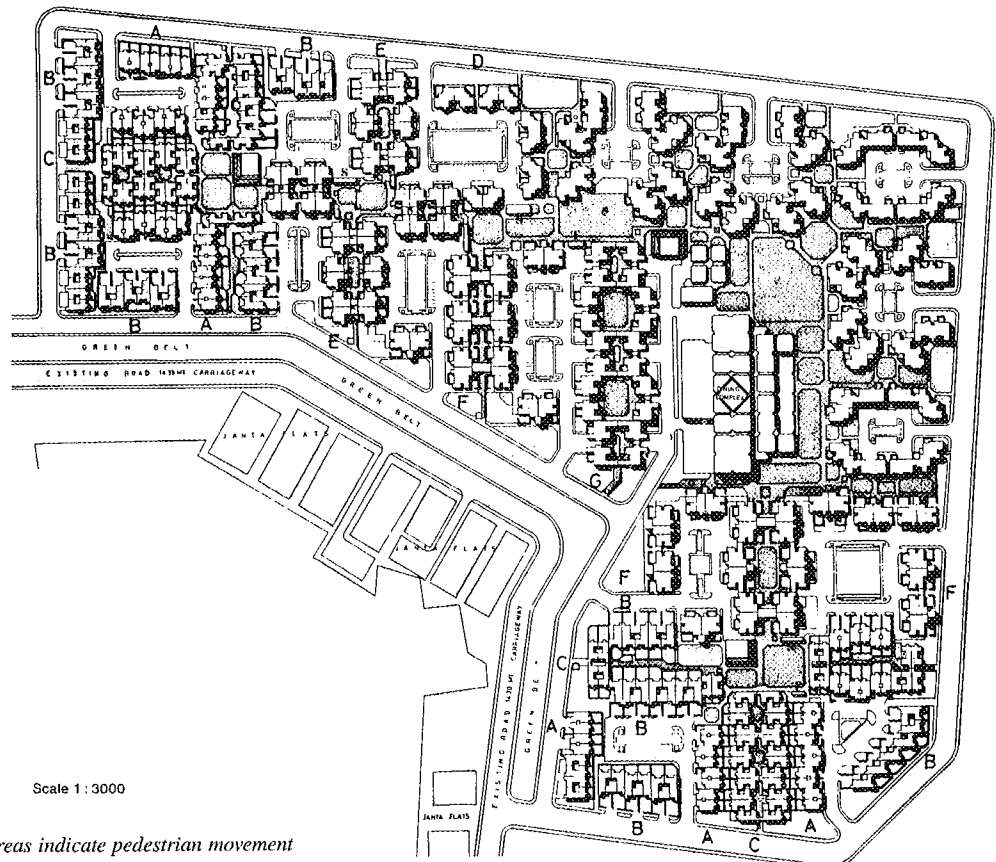*Pl. 1*   *Asian Olympic Village, view showing inspiration of traditional cluster organization*
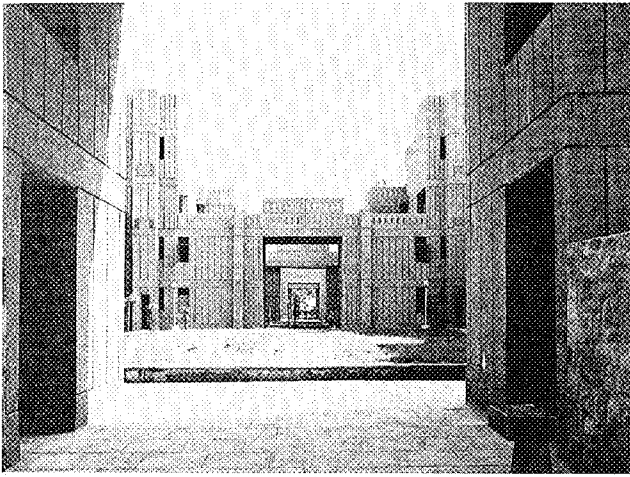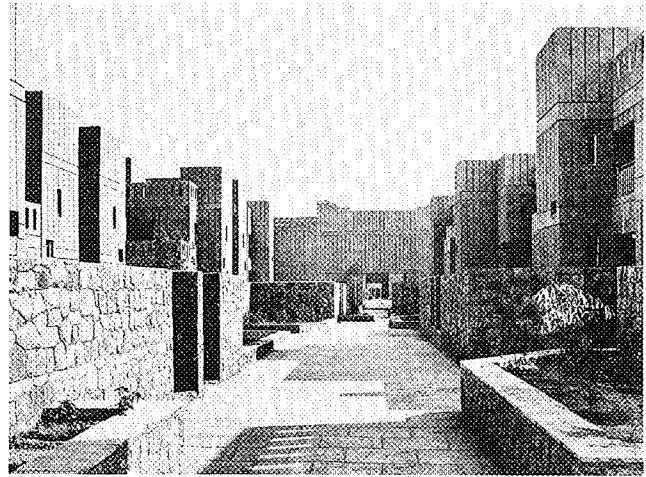

Scale 1 : 3000

Fig. 1   *Layout plan; shaded areas indicate pedestrian movement*

Pl. 2   Sequence of spaces and courtyards punctuated with gateways

Pl. 3   Pedestrian streets

a sequence of spaces interlinked with narrow pedestrian streets, shaded and kept alive through a careful mix of recreational and commercial areas broken into comprehensible units and often defined by gateways. The sense both of enclosure and of continuity of movement is maintained throughout this scheme. The pedestrian movement areas interlink from one end to the other.

The Village is built on a 35-acre site in South Delhi. The central feature of the plan is a dining hall which will ultimately be converted into a commercial and recreational complex. Of the approximately 700 housing units, 200 are individual town houses and 500 are apartments in two-to-four-story structures with a density of 28 units per acre.

In the Village a peripheral road leads to cul-de-sac parking areas, leaving the central spine free of traffic. We provided garages for most of the units; about 75 percent of them are attached to the buildings; the rest are in two parking areas. No parking space is more than a few minutes' walk from the house unit. A narrow pedestrian street no more than six or seven feet wide encourages sociability and provides shelter from the heat. In places we added circular spaces to grow trees and discourage vehicular traffic. On the pedestrian street there are no overhead wires; all utilities are buried underground.

Courtyard walls surround adjoining houses. The individual houses are linked together, sometimes as terrace housing and sometimes in clusters. The use of color on doors defines the individual houses on the street—one is orange, the next green, the next white, and so on. Some of the narrow streets end unexpectedly in a large square, both to emphasize the closeness and to change the scale or vista and lend an element of surprise. Gateways reveal another kind of space further into the square.

The larger units were designed vertically, with roof terraces at various levels and courtyards in both the front and rear. All the houses are clustered together to form enclosures, semi-public spaces common both in India and elsewhere, where one meets people on the doorstep, not inside the house. These spaces belong solely to the surrounding inhabitants so they willingly look after them.

The individual unit is a simple design with a small basement. One single desert cooler can cool the entire house. A small court in the basement acts as a light and air shaft. The front, communal courtyard is formed by joining cantilevered

toilet areas on the first floors. The Development Authority, which is famous for building badly, advised us not to put the toilets on top of the living room or the kitchen because they were bound to leak. They suggested we cantilever them out over the street so that breakdowns would be immediately noticeable and accessible. This trick also provided the gateways.

Where four streets join to form a quadrangle, a major element—either shops or a recreational facility—is placed to give a focus. In North India the mohalla, or neighborhood, is defined by a well, a mosque, a temple, or some similar landmark. In this much more secular situation, we tried to find practical features—shops, for example—to perform the same function. In one I covered an electric substation with steps to make a space for sitting or playing around.

In the apartment clusters, there is a central space with a gateway, courtyards at various levels, roof terraces, balconies— all overlooking the internal space with which they are aligned. We used very simple elements, slits, etc., on roof parapets to provide air movement and still retain privacy between adjacent units. I wanted to keep the structural aspects as rational as possible and avoid arches and other clichés. If there was to be symbolism it had to be expressed entirely by the spaces.

The plan consists of a central court and other courtyards at various levels. This formal geometry allows in one system all the major elements of design—central space, private courtyards, roof terrace, and a gateway—and both semi-public and private spaces. Though each individual unit or block might be the same, the elements can be linked in different ways to create different kinds of spatial enclosures. We all know that mass housing is very poorly funded by all public authorities—they feel there is no point in wasting money on it. That is why repetition is one of its most prominent features. I tried to avoid repetition insofar as possible by interlinking units in these various ways. In a scheme of about 550 units, there are eleven or twelve different types of cluster.

New Delhi is full of bungalows set amidst gardens, though as land costs soar, the one-acre bungalow lot is shrinking to the 150 square-yard plot. New Delhi is also filled from one end of the city to the other with identical parallel blocks of flats that are built by municipal corporations, public-works departments, and engineers. In some cases housing of 1,500 or 2,000 units of peeling yellow plaster takes up more space than what

I have used in this particular scheme. The density of this project is 28 or so; the average size of the flats is about 1,200 square feet. Some are only 900; some go up to 1,700 or 1,800 square feet.

Cars are forbidden in the public spaces of the project. We provided garages and deliberately put an element in the middle of any path broad enough to accommodate a car to keep people from driving through it. Similarly we raised the green spaces eighteen inches above ground level to discourage people from riding or walking on the grass. Landscaping was otherwise kept comparatively simple.

Finally, a brief word about finishing materials: crushed Delhi quartzite stone was applied to the surfaces of the buildings as a kind of plaster. We respected the structural beams and columns; in case of building movement, cracks would appear only around the joints. Construction was fairly quickly done in Delhi; the workmen are getting used to this kind of construction.

Discussion

QUESTION: Have the units been sold and are they now occupied? If so, who bought them, and how have they responded to the urban environment you have created?

REWAL: The units were built to be sold after the Asian Olympic Games had ended, but unfortunately the project became quite a problem for the government. Almost everyone wanted to buy a flat or housing unit there, partly because of the location and partly—or so I hope—because of the design. Normally the procedure is simply for the public authority to auction off the units. In this case, they felt that the auction price would be too high, and the government would be accused of building only for the rich. So instead of an auction, they first hit upon the idea of selling them to Indians living abroad who could buy them in foreign exchange. But in the end that idea too was rejected, and they sold them to public-sector organizations, that is, to civil servants. The housing will be occupied in November.

QUESTION: You suggested that the use of color would lend variety and give identity to the units. But what happens after two or three years' time when the paint has worn away? Won't that deprive your scheme of a vital element?

REWAL: No, we used a finish of stone pebbles or grit which is permanent. The variations from one cluster to another are very slight, in any case. We used monochromes of yellow, brown, orange, and natural stone on the buildings themselves to avoid all-gray housing—one of the terrors I have seen elsewhere. Warm colors give variety, that was the main thing; the color will never change. The metal gates and shutters are a different matter; one has to keep them painted or they will rust. We have used bright colors on them, but the paint in any case will have to be renewed from time to time. They will be owner-occupied, so I have no reason to think they will not be maintained.

QUESTION: I commend you; your housing project is very beautiful. But you mentioned you wanted it to be a prototype for housing. What do you see as the future of this project as a prototype?
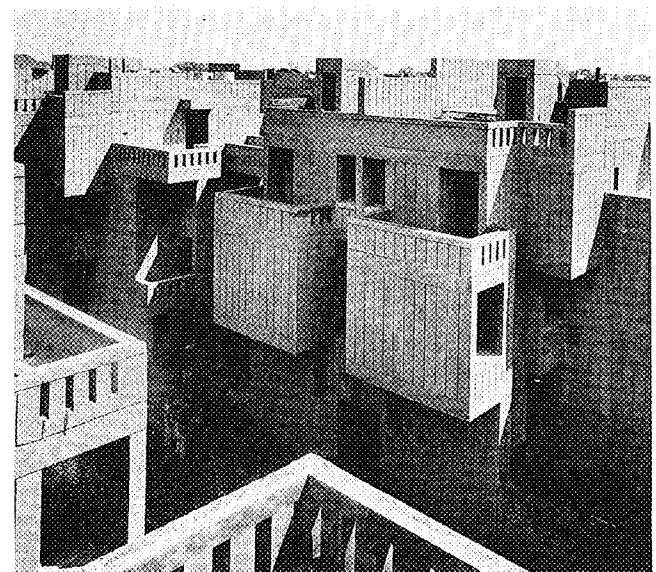
REWAL: The prototype I regard as the cluster system, not the project itself. We incorporated more than sixteen types of indi-
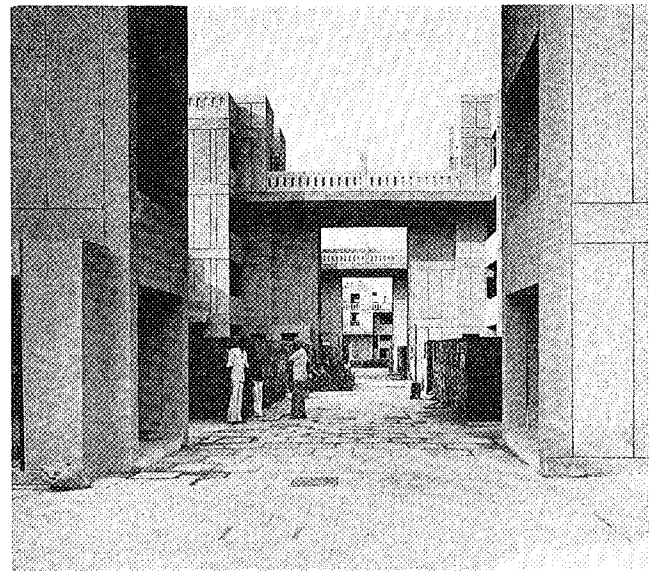
Pl 4   *View of pedestrian enclosure*
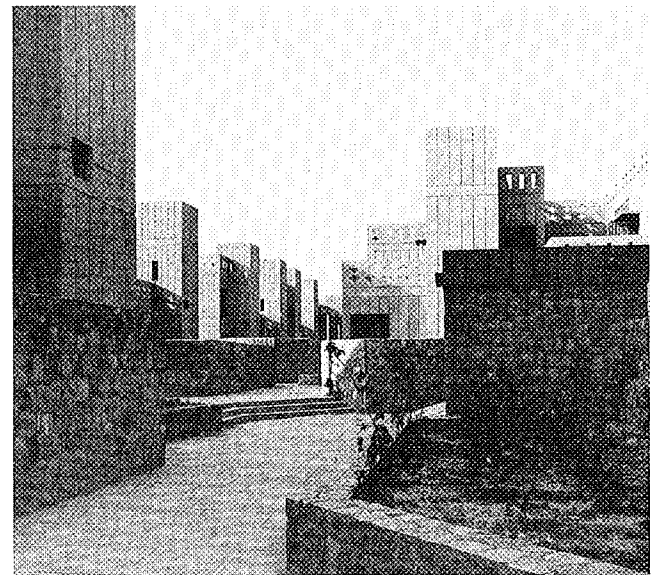
Pl. 5   *Pedestrian streets generated by unit types A, B, and C*

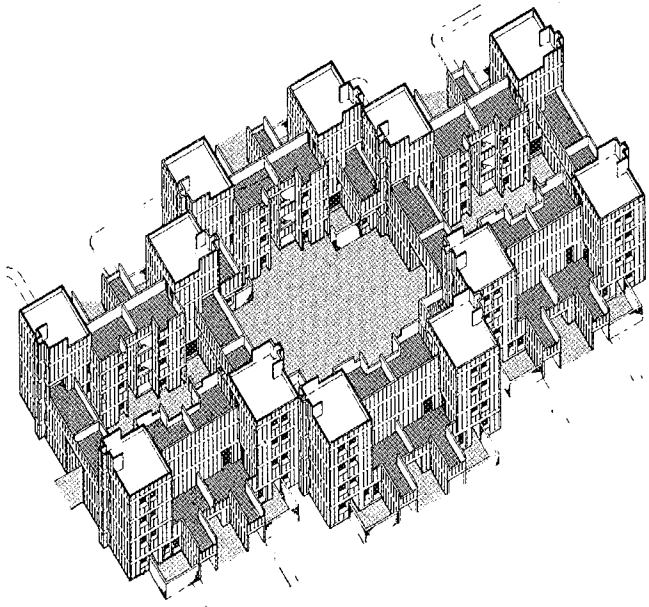*Pl 6*   *View of housing showing roof terraces and balconies*

Fig 2   Diagram, using type G plan, showing how a basic unit is combined to form a cluster with a variety of spaces

vidual flats and house designs within the scheme, but the system we designed to create public space, semi-public space, and private space — important features in our climate and our culture — is what is prototypical. These different spaces correspond to different relationships with people. One category of acquaintance is greeted on the street, but not taken into the privacy of the home. Another category belongs to the mohalla, and with them one has a closer relationship. Yet another is greeted in the semi-public space that is surrounded by ten, twelve, or sixteen interlocking units. Each category of relationship has its corresponding category of social space. Whenever one designs mass housing one has to have some sort of prototype like this in mind. Otherwise one will again end up with the block and slab invented in the West and repeated throughout the world or with terrace housing.

QUESTION: One of the basic materials you used was reinforced concrete. Don't you find that choice to be inappropriate for the climate?

REWAL: It is in fact a frame structure with reinforced-concrete columns and beams. The quality of the brickwork is, unfortunately, poor, because we no longer have the good bricklayers as we once had in Delhi ten or fifteen years ago, so we had to cover the brick with plaster. We devised a plaster which gives a permanent finish because, again, in group housing the problems of maintenance are very severe. This permanent finish is made in panels which cover fairly large areas. Crushed stone
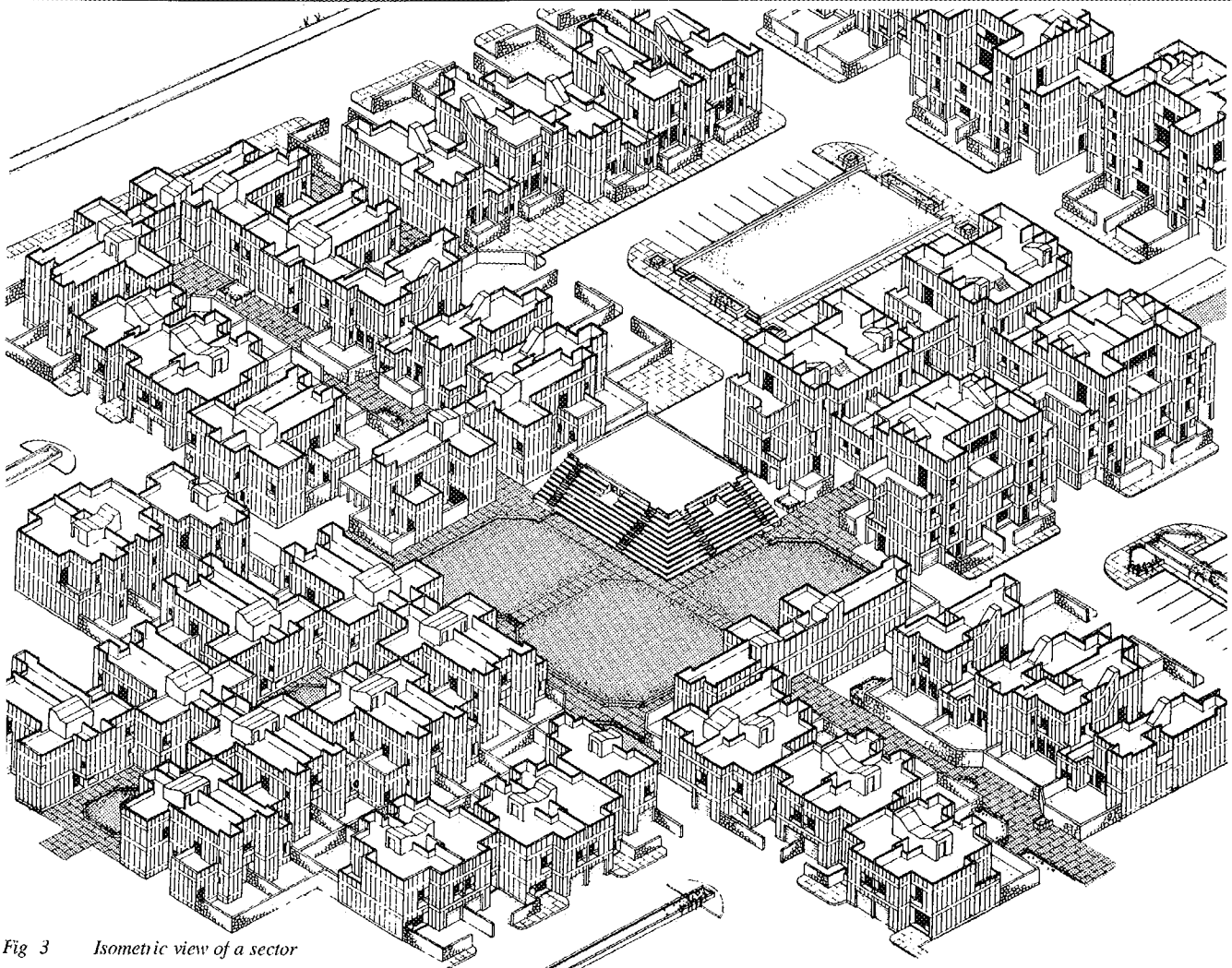

Fig 3   Isometric view of a sector

is applied to the surface with cement, and after an hour or two, depending on conditions, water is sprayed on the surface; the grit that remains is the permanent finish. It is quite cheap and done very quickly right on the site.

ISMAIL SERAGELDIN: This is very much an adult environment. The spaces are organized for walking, the lawns are purposely raised. Where in the scheme is there space for children?

REWAL: A complex which was used as a dining room for the athletes during the games is the central focus of the scheme. Eventually it is to be converted into a shopping area. Around it is the largest common space, which presumably could be used by children. The raised lawns are also not so high that the children could not play on them. Field games can be played in a district park that was originally a practice field for the athletes.

TAY KHENG SOON: Whenever I study a housing scheme, I first like to quantify it. Without data, it is very difficult to know what kinds of options were available and evaluate the options taken. For example, I did some quick calculations: 28 units per acre at an average of 1,200 square feet per unit gives a floor space ratio of 0.77. That means the total enclosed floor area is 0.77 of the land area on which the units are built. By comparison, Setapak is 0.75. So the floor space production by the two different forms—yours is four-story walk-ups, right?—

REWAL: No, there were also a lot of two-story units.

TAY: Okay, heights ranging from two to four gave a floor-space production of 0.77. Setapak is two- and three-story, and the floor space production is very close to that. When questions are asked about comparative quality and space, one must begin with a common denominator. You provided quite a lot of public open space on grade level, but your private open spaces are on upper levels, so basically your choice has been to move the private open space into a separate domain. In the Setapak case the decision was to put the private open space right next to the public domain. The result is a different kind of environment.

REWAL: No, there is a misunderstanding. All the units have a courtyard on the ground very well defined by a fairly high wall of seven feet or so.

TAY: Don't misunderstand me; I admire your scheme very much. All I am trying to say is that there are choices involved in housing and that at the base of the choices are geometrical problems. If you want to give every unit access to the ground, you have to give up certain things. If you want to have public spaces on the upper levels, you have to give up something else. These are the trade-offs. The question that was asked about a place for children is relevant here. Geoffrey Paine, in his study of slum settlements in Old Delhi, quantified the usable space factor—what he calls the "efficiency factor." Although the actual living space is only something like 10 square meters (100 square feet), the actual utilization because of overlapping use, because of street use for children playing, for cooking,

GROUND FLOOR PLAN MEZZANINE FLOOR PLAN FIRST FLOOR PLAN SECOND MEZZANINE FLOOR
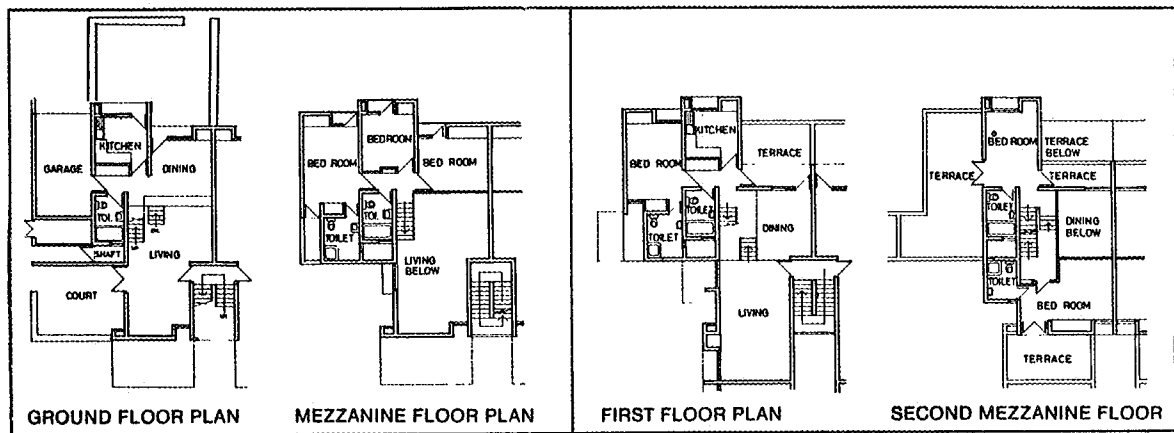
Apartment Type E1   Apartment Type E2

THE BASIC UNIT
— block of four apartments

TYPE E

THE BASIC UNIT OF
BLOCK IS DESIGNED
IN SUCH A MANNER
THAT IT CAN BE
LINKED ON SIDES
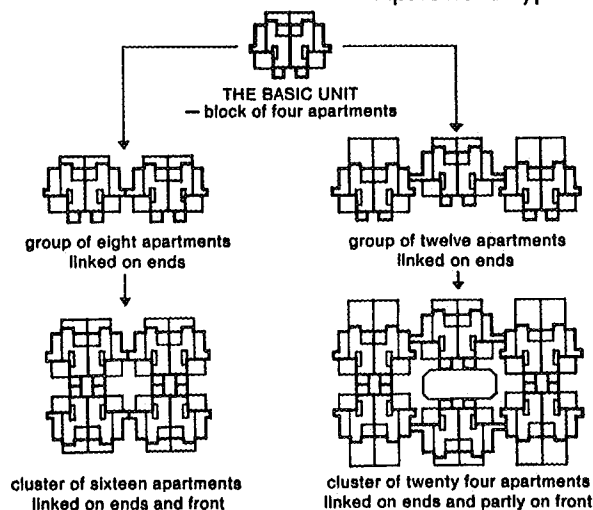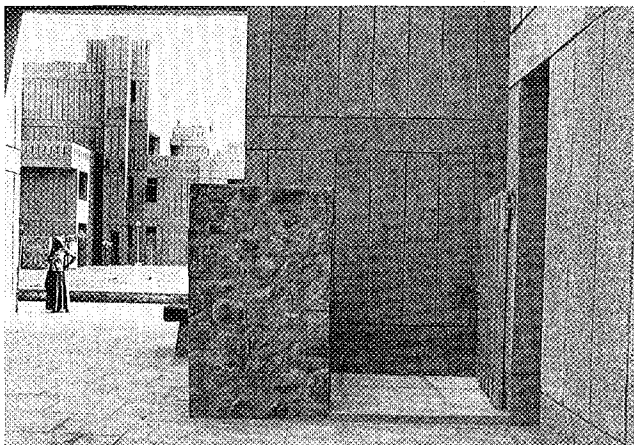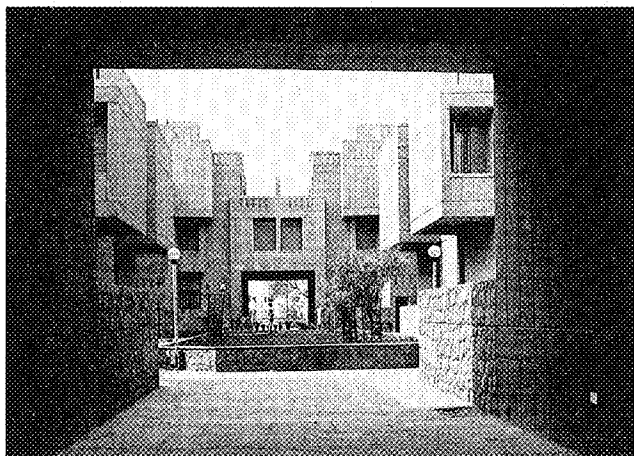AND ON FRONT
TO CREATE A
CLUSTER OF
8, 16, 24 UNITS.

group of eight apartments
linked on ends

group of twelve apartments
linked on ends

cluster of sixteen apartments
linked on ends and front

cluster of twenty four apartments
linked on ends and partly on front

Fig 4   Type E apartments combined to create clusters of various sizes

Pl 7   View through gateway (type G)

Pl. 8   Internal courtyard (type E)

and all kinds of other things, multiplied the floor space by four. This factor becomes very important when we compare highrise solutions with lowrise solutions. In highrise solutions that multiplier factor is much reduced. Although the actual floor space produced may be lower in lowrise, the utilization factor will make the available space greater.

REWAL: There are also bylaws in Delhi, and one is that the ground coverage cannot be more than 33 percent. As this was a housing scheme done for the Delhi Development Authority, we had to respect it. It was not inappropriate in our situation, because this is middle-class, not low-income, housing. A lot of the space will actually be absorbed by cars. Remember too that all public authorities in India look down on certain traditional values. They say they want "modern" architecture and judge schemes in those terms. In that context I had to be very careful to incorporate all the marks of contemporary living, because one false step would have stopped this kind of housing in its tracks. It would have been another ten or fifteen years before another architect could take it up. Four-story slab blocks repeated endlessly all over the city suit many very well Remember that this scheme had to be approved not only by the architect-planners of the DDA but also by the engineers and by the administrators from the point of view of sales.

SUHA OZKAN: I find that effort very noble from an architectural point of view, as well as useful. You did not get trapped into pastiche of any kind, and you projected everything to a contemporary scale, while using an architectural counterpart for every traditional, climatic, or local value. That was an enormous task, and the results I think are extraordinary. This is what we really need in our part of the world. The more alternatives we have, the more comfortable we will be in criticizing and developing our ideas and projecting them into the future.