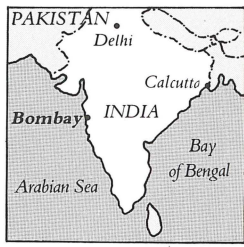


The New Landscape



The following text represents two chapters from a recent book by Indian architect and RIBA Gold Medal winner Charles Correa entitled *The New Landscape* (Strand Books, PMB Road, Bombay, 1985). Fundamental issues with regard to low-cost urban housing are raised in Mr Correa's statements,

which he kindly let us use as a lead-off article in the presentations of this issue's theme. Moreover, he has just completed construction of low-cost housing at Belapur, New Bombay, which epitomises his own design concepts and we have, therefore, included a glimpse of these also.

Space as a Resource

Visiting a city like Bombay or Calcutta, the first thing that strikes one is the poverty all around. This urban poverty is perhaps the worst pollution of all. Way before you see smoke in the sky or smell sulphur in the air, you see people all around, living and dying on the pavements. Is it inevitable that poverty should degrade life in this manner?

The same poverty, in rural India, has a far different expression. The people are as poor, in fact perhaps even poorer, but they are not so dehumanised. In the village environment, there is always space to meet and talk, to cook, to wash clothes. There is always a place for the children to play. Need we take a look at how these same activities occur in our cities? Obviously, there is no relation between the way our cities have been built and the way people have to use them.

Urban living involves more than just the use of a small room of 10 square metres. The room, the cell, is only one element in a whole system of spaces that people need. This system is hierarchial. For us, under Indian conditions, it appears to have four major elements:

Firstly, the space needed by the family for exclusively private use, such as cooking, sleeping, storage and so forth;

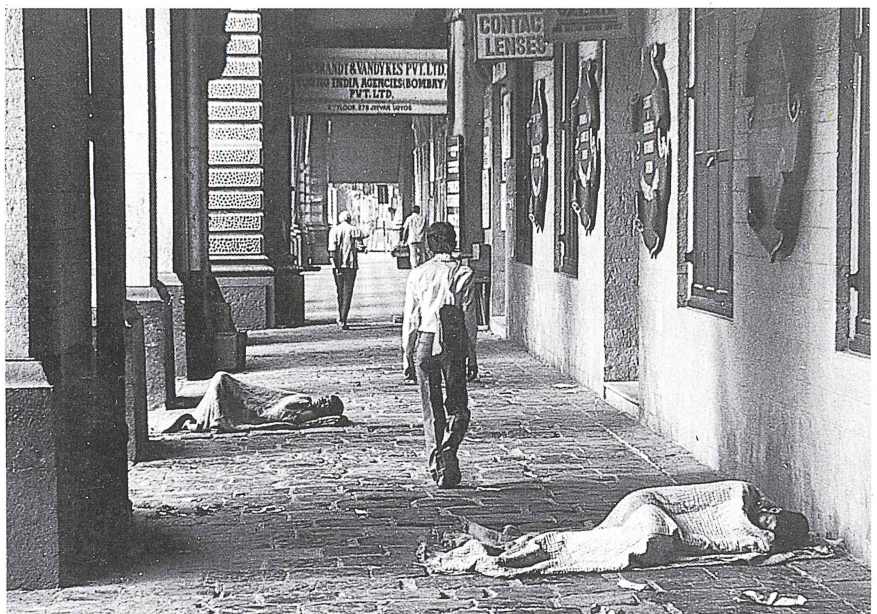
Secondly, the areas of intimate contact, i.e. the front doorstep where children play, you chat with your neighbour;

Thirdly, the neighbourhood meeting places (e.g. the city water tap or the village well) where you become part of your community;

Finally, the principal urban area — e.g. the *maidān* — used by the whole city.

In different societies, the number of elements and their inter-relation might vary, but all human settlements throughout the globe (from the little hill towns of Italy to the sprawling metropoli of London or Tokyo) have some analogue of such a system; an analogue which modulates with climate, income levels, cultural patterns, of the society concerned.

Now there are two important facts about the workings of these systems. The first is that the elements can consist of either covered spaces and/or open-to-sky spaces. This is of fundamental significance to developing countries, since almost all of them are located in warm tropical climates where a number of essential activities can — and indeed do — take place outdoors. For example: cooking, sleeping, entertaining friends, children's play, etc. need not be exclusively indoor, but can function effectively in an open courtyard (provided of course,



Text, photographs
and plans by
Charles Correa.

that privacy is reasonably assured). In Bombay, for instance, we estimate that about 75% of essential functions of living (sleeping, cooking, entertaining friends, etc.) can occur in an open-to-sky space; and, since the monsoons are limited to 3 months, this holds true for about 70% of the year. Thus open-to-sky space has a usability coefficient of about half (i.e. $.75 \times .70$) that of a built-up room. Similarly, we can estimate the usability coefficient of the other built-form conditions (verandahs, pergola-covered terraces — even that of a tree-shaded courtyard!) that lie in the spectrum between the enclosed room and open-to-sky space.

Now just as they have *usability* coefficients, each of these spaces also has a *production cost*: brick and cement in the case of the room, more urban land (and hence longer service infrastructure lines) in the case of the courtyard. The point of trade-off between these two variables determines the *optimal* pattern — and density — of housing at a particular location. And if you look around the Third World today, you will find countless examples of marvellously innovative habitat, from the Casbah in Algiers to the paper houses of Tokyo. Each one being an adroit trade-off between the usability coefficient of these various kinds of spaces on the one hand, and their production cost on the other.

The second important fact about this hierarchy is that all the elements are mutually inter-dependent. That is to say, less space in one can be adjusted by providing more in one of the others. For example, smaller dwelling units may be compensated by larger community spaces, or vice versa. Sometimes there are glaring imbalances: public open spaces in Delhi, for instance, follow the usual norm of 1.5 hectare per 1000 persons — which works out to about 75 square metres of public open space per family. But what a staggering difference it would make to the families living in the packed hovels of Old Delhi, if even just a *fraction* of this public space (now mostly squandered in the monumental vistas and parks of South Delhi) could be traded off for a small courtyard for each family. The pattern of their lives would undergo a sensational improvement.

To identify this hierarchical system, and to understand the nature of these trade-offs, is of course the first essential step towards providing viable housing. Without this, one is in grave danger of formulating the wrong questions. This

misunderstanding is the reason why so many attempts at low-cost housing perceive it only as a simplistic issue of trying to pile up as many dwelling units, (as many cells) as possible on a given site, without any concern for the other spaces involved in the hierarchy. The result: environments which are inhuman, uneconomical — and quite unusable. Environments that ignore the fundamental principle, that in a warm climate — like cement, like steel — space itself is a *resource*.

Equity

For centuries now, every society has produced the housing it needs, naturally and indigenously. Mykonos, Jaiselmer, Sanaa — this is not habitat that an outsider has to come in and “design”; this is the end-product of a process that is organic to society, like flowers that bloom on a meadow. So if they haven’t appeared, then it’s a sign that something is wrong with the system. Our job is to understand just *what* is malfunctioning, and try to set it right.

But instead, we immediately start to *design* houses for these people. Why do we do this? In spite of our good intentions, our attitude is really quite ugly. It would seem that we want to believe that the reason the poor do not have houses is their ignorance; so *we’ve* got to show them how. This is much easier on our conscience than the truth: which is, that they are homeless because they are on the losing end of the system.

It’s an absurd situation — as if there were a famine, and in order to feed the great mass of starving millions, architects and/or housewives ran around writing cookbooks. If people starve it is not because they don’t know how to cook, it is because they don’t have the ingredients.

What are the magic ingredients that get flowers to bloom, naturally and spontaneously? We have just seen that one of the most crucial factors is density. Beyond a certain level, societal processes break down. Without doubt, this is the reason why, right up to the Second World War, Bombay could attract a great number of immigrants without having to throw them destitute on the pavements of the city. It is only in recent years that the municipal planning policies have swung away from low-rise buildings in favour of more sophisticated and expensive solutions; this additional cost being met of course by raising the selling price of the units. And with the appalling scarcity of urban land in our cities (be-



cause of their obsolete and overloaded structural patterns), it is very easy for the developer to command these prices.

Yet by increasing the *supply* of urban land, residential densities could be kept within an optimal range of between 250 to 1000 persons per hectare. Going beyond these densities puts the Third World city into deep trouble. In fact the analogue to body temperature is very tempting: we all know we are ill when we cross 98.4°F; perhaps there is a similar indicator for cities? One suspects that this is true not only for the Third World, but for the industrial countries as well. For instance, the difference in *overall* densities between London and Paris is only marginal, but is much greater when we focus on the residential areas — and this makes a sensational difference to the kind of accommodation available to the average resident in each of these cities. Paris is a marvellous creation, but you’ve got to be rich to live well, the average citizen having to make do with the pokiest little apartment — while just about every English family has a terrace house with a garden.

Unfortunately, the notion of low-rise housing is associated with the kind of sprawl one sees in the suburbs of cities; but this, of course, is not what we are talking about. In its concentrated form, low-rise housing is the timeless and classic pattern of residential land-use, for it has a number of crucial advantages, to wit:

- It is *incremental*. That is, it can grow with the owner’s requirements and his earning capacity. This advantage may soon become a political imperative in many Third World countries, where available resources — at least for the next few years — are going to be pre-empted by other priorities. It has great *variety*, since the individual owner can design and build it according to his own needs.

- This pattern is far more sensitive to social/cultural/religious determinants of our environment — factors which are of increasing concern to developing countries. For in such a pattern it is relatively easy for the people to adjust the spaces to suit their own preferred *life-styles*.
- It will make for *speedier* housing, since an individual building his own house is a highly motivated person. Furthermore, this initiative would engender an increase in per capita savings, so that housing is built without sacrificing other national investment targets.
- A low-rise building has a much shorter construction period. Thus, the *interest cost* of capital tied up during construction is considerably less.
- It need not use high-priority construction materials. Multi-storeyed buildings must of necessity use steel and cement — commodities which are in excruciatingly short supply in developing countries. On the other hand, the individual row house can be constructed out of just about anything, and then *improved over time*.
- Of course, if the house is constructed of unfired brick and country tile, then it may not have a life span of more than 15 or 20 years — as compared to a reinforced concrete structure with a life span of about 70 years. But this impermanence is really an advantage. For after 20 years, when our economy improves, we might presumably have more resources to deal with this problem of housing. As Charles Abrams has pointed out, “*renewability*” should be one of the prime objectives of mass housing in developed countries; for as the nation’s economy develops, the housing patterns can change. And this option can be ensured by assigning housing sites not to individual owners themselves but to co-operatives of, say, 20 to 50 families. In time, perhaps 2 or 3 decades from now, the whole parcel of land can be re-developed in keeping with the technological and economic advances of that day. The ugly five-storey concrete tenement slums built by governmental housing agencies all over the Third World are really the work of pessimists. What they are saying is: we are not going to have any future.

But for the Third World there is one crucial advantage to this pattern of housing that may prove to be the most decisive of all, and that is: Equity. Today the

amount of urban space one controls is directly proportional to one’s status and/or income: it has no connection with actual family size (poor people have families as large as rich people — in fact, larger). This space differential, therefore, cannot be justified in human terms, but only in economic ones. In contrast, consider the cities of Australia where almost every family has a quarter-acre lot — no more, no less. Australia is locked into equality — it can never become elitist. The exact opposite is true of most of the Third World. Despite all our rhetoric about social justice and equal opportunity, we are locked into inequality. Our cities make sure of that.

This inequality, of course, is a direct outcome of the enormous spread of the income profile. Yet this pattern of housing gives us a way out of the dilemma, for it can easily be perceived that plot sizes ranging from 50 square metres to 100 square metres would be viable both for the poorest sections of society (furnished perhaps just with a couple of trees, a tied-up goat, and a lean-to roofed with country tiles) as well as the affluent (as witness the very elegant town-houses in Amsterdam, San Francisco, Udaipur and other cities). In fact, this kind of optimal sized plots — or shall we call them *Equity Plots* — could be viable for more than 95 percent of our urban population. This is indeed a concept with profound socio-political implications; one which could constitute a crucial step towards defining a truly egalitarian urban society, totally different from that prevailing in the vast majority of Third World cities.

A policy of Equity Plots would have the added advantage of not pre-determining social and economic mix in the neighbourhood, or across the city. Most planning today, regardless of its noble intentions, ends up with a rigid caste system of residential areas — as witness Chandigarh. The reason for this is simple. Since the plots are of vastly different sizes, the planners have to decide about their positioning within the sector, ahead of time. In such a situation, there is no way a planner can place the clerks’ houses cheek-by-jowl with the Ministers’; and once the plan is implemented on site, the pattern cannot be changed. So we get cities which are rigid and inflexible, and do not respond to the social forces which are constantly at work, and which make older “un-designed” urban centres such an organic mix of income groups and communities.

Belapur Housing, New Bombay

This sector is to house about 550 families in an area of 5.4 hectares in Nerul (a node about 2 kilometres away from the city centre of New Bombay). Within this sector, housing for a wide range of income groups is provided, as under:

Income groups	Budget
LIG (Lower)	Rs. 20,000 (US\$1700)
MIG 1 (Middle)	Rs. 30,000
MIG 2 (Middle)	Rs. 50,000
HIG (Higher)	Rs. 80,000 (US\$6700)

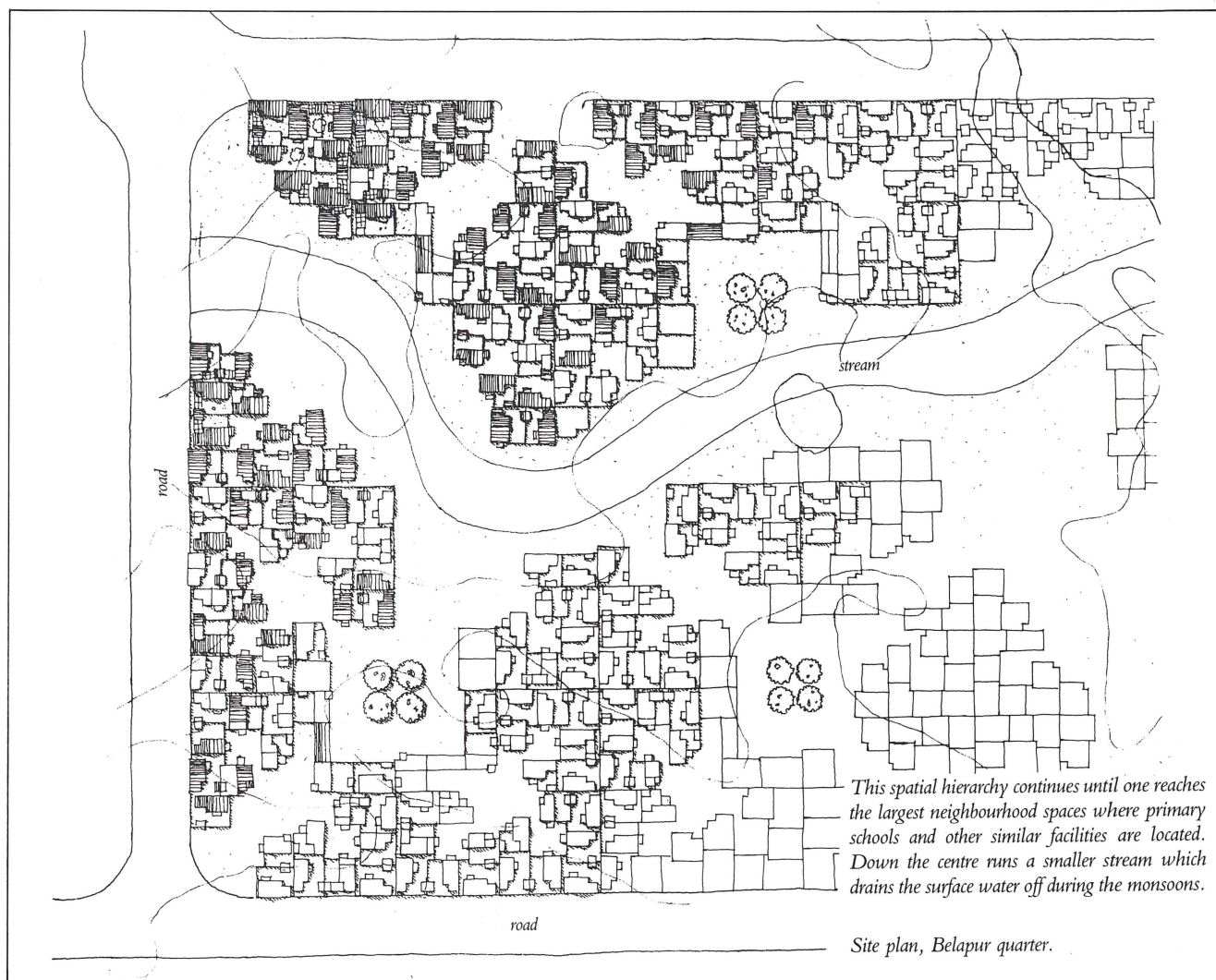
Since the sector is located relatively near the MRT station, the overall densities are high — but, at the same time, the following principles have been strictly adhered to:

- Each family has open-to-sky space to augment the covered built-up area — within the parameters of the optimal cost-benefit trade-off discussed.
- All the houses are incremental, i.e. can be extended by the occupants. In order to achieve this, firstly, each house is placed on an independent site; secondly, it does not share a common wall with its neighbour.
- Although a large range (as high as 1:4) of income groups are housed here, the variation in plot sizes is from 45 square metres to 76 square metres (a ratio of about 3:5). This has been done for two reasons: firstly to sharply decrease the urban inequity which is so cruelly evident in our towns and cities; and secondly, because poor people have families as large — and in fact, often larger — than rich ones. So that even if economic factors preclude the possibility of their getting much covered space, they would at least be ensured of their fair share of open-to-sky space, which — in a warm climate — is an essential amenity.

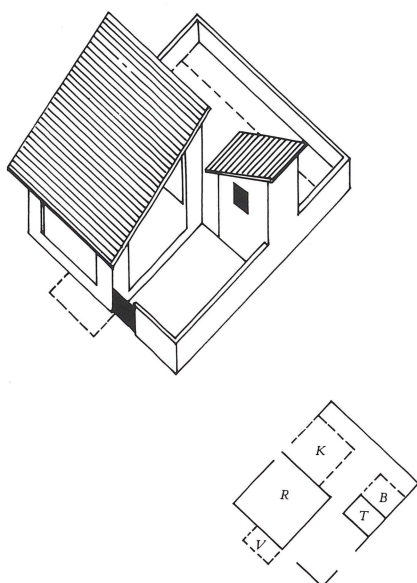
Right: One- and two-storey house-types with adjacent “open-to-sky” space on the lot itself for incremental extensions as need and affordable.

Far right, above: View of a two-storey unit with its courtyard for outdoor domestic activities in a hot climate.

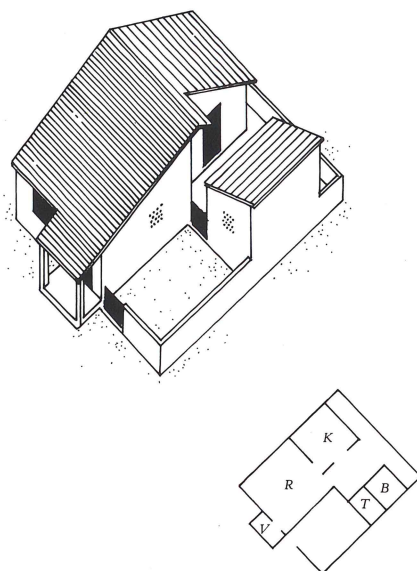
Far right: A typical one-storey unit in the grouped housing. Differences in volume and orientation of individual units create a diversity in the overall aspect of the quarter.



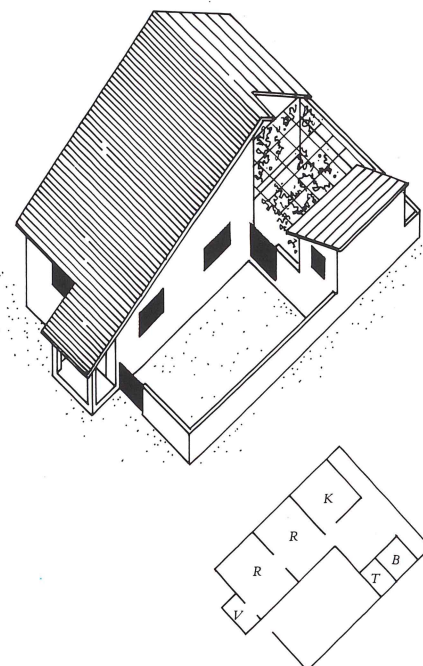
Type A



Type B



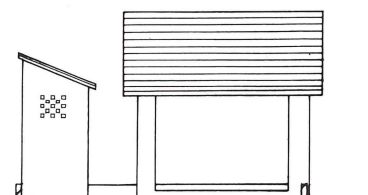
Type C



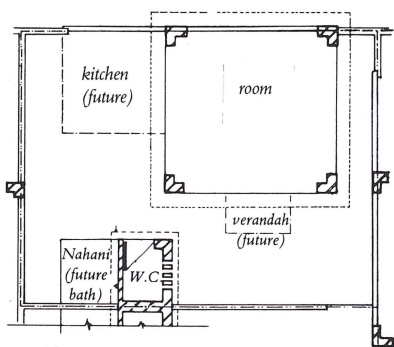
'A' Series:

These houses consist of a plinth with a roof above, a WC and a tap, and a yard.

The following is the typical plan and elevation in this series. Other types in this series are separately enclosed.



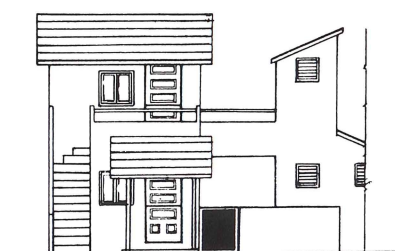
Side elevation



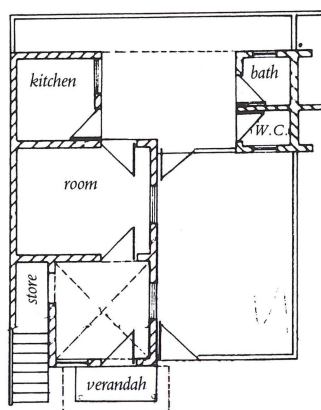
Plan

'E' Series:

These houses consist of double-units one on ground floor and the other on 1st floor. The ground floor unit consists of two rooms, kitchen, bath and WC, courtyard, a small store and a covered yard, while the 1st floor unit consists of room, a side room, bath and WC and two terraces with a staircase. The built-up area is 75.37 square metres and plot area is 66.62 square metres.



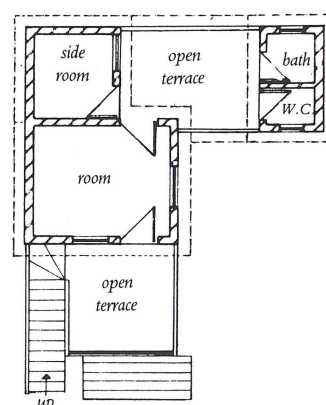
Side elevation



Ground floor plan



Elevation

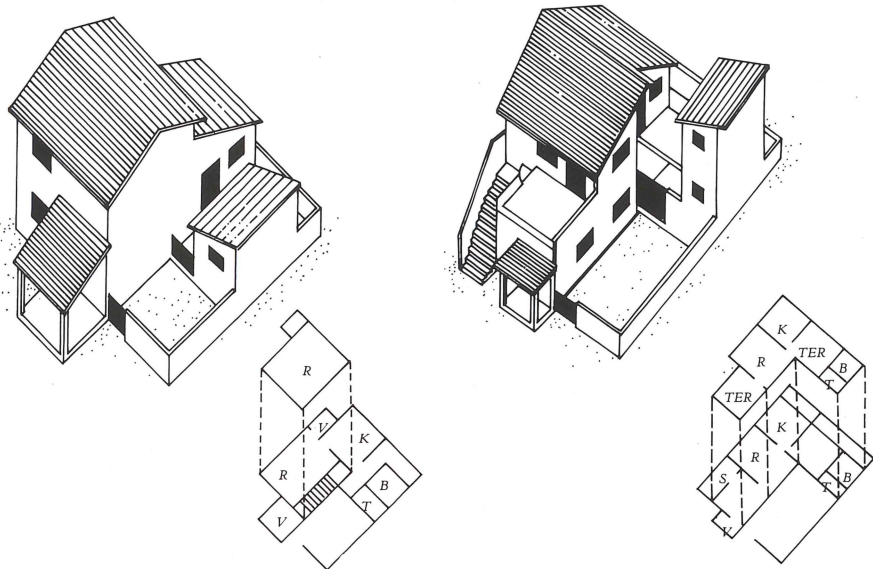


First floor plan

Plans and elevations of type A and E, illustrating potential for future additional rooms.

Type D

Type E



Above: Plans and axonometric drawings of the five house-types proposed to future residents.

Below: A cluster, showing houses do not have party walls with their neighbours to begin with, although sanitary facilities do abut along enclosure walls.



Usually, this low-rise high-density housing is organised along linear corridors.

In this case, a cluster pattern was used. The basic element is a pair of houses, with the toilets back to back (to save on plumbing costs).

At the smallest scale, seven such houses are grouped around an intimate courtyard (about 8×8 metres).

Three of these clusters combine to form a bigger module of 21 houses.

Three such modules interlock to describe the next scale of community space — approximately 12×12 metres.

This spatial hierarchy (courtyard to threshold, etc.) continues until one reaches the largest neighbourhood spaces where schools and other similar facilities are located.

The system is arranged on the L-shaped site in such a manner that these spines of community spaces open up to the hill behind. Along a diagonal running through the site, is located the bazaar.

The typology of the houses forms two different sets. Within each set, the houses can grow incrementally to the next stage of development, as the family income increases. The houses under construction, are simple enough to be built by local masons and *mistries*, with the participation of the people themselves.



Left: Detail of standardised windows and doors of wood designed to accommodate a variety of situations.

Left below and bottom: Human scale has been carefully preserved while nevertheless satisfying requirements of increased densities for urban housing.



Charles Correa is a leading architect in India and a member of the Steering Committee of the AKAA and MIMAR's Board of Advisors. He was awarded the RIBA Royal Gold Medal for Architecture in 1984.

