


TANGIBLE PARAMETERS FOR AFFORDABLE LOW COST HOUSING IN INDIA



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Is it possible for the present Government to provide houses to all by 2022? Can the shortage of housing units in the country be overcome in a cost-effective manner?



India is facing an acute housing shortage to the tune of 18.7 million. 98 % of this is comprised by families of the weaker and low income groups, whose actual incomes make it impossible for them to own even the cheapest available housing unit, given the soaring housing market.

If you think that only the cost of land and materials is the root cause of the higher cost of houses, you are wrong. In reality, the cost of housing comprises several factors, each of which is responsible for the high costs of housing today. Let us look at the various factors, which determine the overall sale price of houses. If all the factors are properly dealt with, it will not be impossible for housing for all to become a reality by 2022, as mandated by the present Government.

A. Site Selection

Reduction of cost begins with the selection of the site. For housing to be affordable, careful site selection is essential. The following

criteria may be considered for selecting a proper site. The site should:

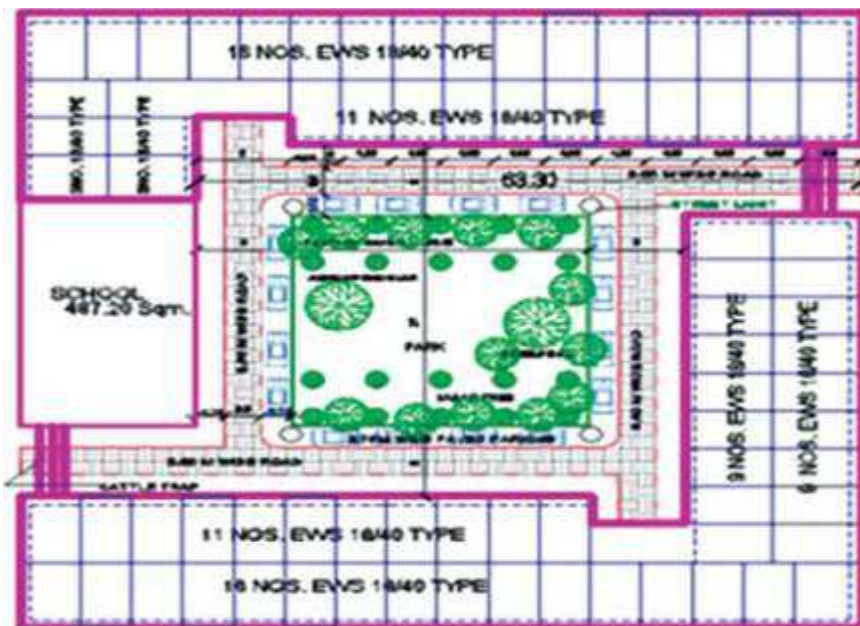
1. Be under the category of residential as per the local master plan (otherwise a lot of energy, money and time is lost in initiating the development and construction process, leading to unnecessary cost overruns)
2. Not be within an eco-sensitive zone
3. Not be a low lying area, which is likely to be affected by floods
4. Not have a regular geometric shape (It is always better to have a larger frontage, which faces the approach road. This frontage should be free of encroachment.
5. Be well connected with transportation hubs, such as railway station, bus terminus, airport, as well as educational institutions and hospitals.
6. Be close to basic physical infrastructure including potable water, electricity, sewage and drainage disposal points.
7. Have soil with good bearing capacity
8. Have soil free of organic waste, saltpeter and other harmful chemicals
9. Be located away from restrictive archaeological areas and the airport funnel zone
10. Not be in the vicinity of any polluting and hazardous industry (Even air polluting industries located at a distance, which fall in the windward direction, may make a housing scheme non-liveable and unpopular)
11. Be bereft of obstructions, such as HT lines, water channels, underground gas pipe lines and abadies or slums

B. The Layout Plan

The layout plan of any residential area plays a decisive role in checking the overall cost of the housing plot or the built unit. As a matter of fact, an efficient layout plan can reduce the cost of the housing unit by as much as

10-15 percent. Therefore, it becomes a challenge for the architect as well as the town planner, who are required to improvise, strategize and focus more on creativity while preparing the layout plan of the residential area. It is pertinent to mention here that the infrastructural pattern of the project is greatly dependent on the layout plan and determines its cost and efficiency. The following guidelines may be of help in this regard:

1. Care should be taken to retain the natural topography and contours (Unnecessary levelling of a site leads to extra cost, and in most cases disturbs the site drainage).
2. Effort should be made to conserve the sites existing flora and fauna.
3. The saleable area should be maximized by:
 - Following the basic principles of geometry
 - Economising on road areas and lengths
 - Avoiding wasteful odd-shaped open spaces.
4. Even though, it is a common practice to arrange housing units around open spaces for better social cohesion amongst the residents, this results in a marginal increase in the length of service pipes. This causes costs to go up. Therefore, the planner should try and come up with a balanced approach.
5. There should be provision for all the basic social infrastructures, like schools, hospitals and community centres, within the residential areas. This will save people the effort and trouble of commuting long distances and spending on transport and fuel).
6. Properties that are large, should



Cluster Planning

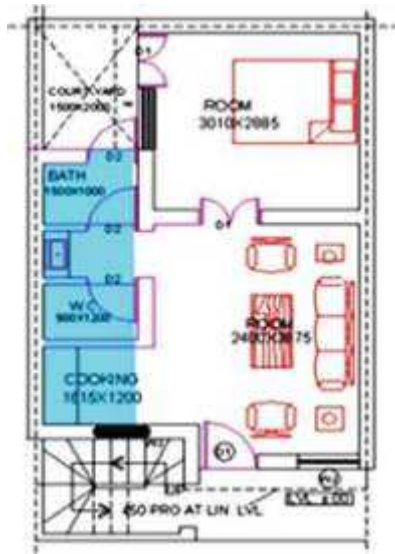
ideally face trunk and arterial roads.

7. The sources of water supply should be located at the highest points, while the sewage and drainage disposal points should be located at lower levels. This results in better efficiency in terms of energy and savings in terms of running costs of these services.
8. Decentralisation of physical and social infrastructural facilities helps in initial as well as perpetual costs.
9. The housing plots should be rectangular in shape with their shorter side facing the road. The most functional and economical ratio of width to length is considered to be 1:2.
10. Floor Area Ratio or FAR norms should be upgraded on the basis of the status of infrastructural services.

C. The Housing Unit Design

The housing unit is the end product of a housing project, and is the actual place where people live. This dwelling ought to be not just safe and comfortable but also healthy and capable of meeting or fulfilling the basic needs of human inhabitation. At the same time, the EMIs should be affordable so that the owner of the house does not have to shoulder much burden. Therefore, it is extremely important for an architect to follow all the basic principles of design. Some of the more significant principles are listed as follows:

1. Reduce the length of the wall as much as possible. The ratio of the perimeter to the plinth should be low.
2. Go for a simplistic design with lesser offsets.



Clubbing of wet core areas-W.C, Bath & Kitchen

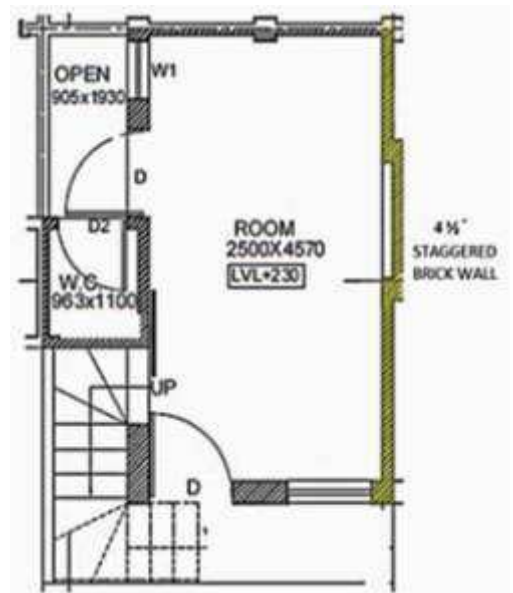
3. Optimise on the number of doors and sizes of windows.
4. The wet yet core areas, such as toilets and kitchen should be clubbed together.
5. Reduce or eliminate altogether the circulation areas.
6. Construct common walls between two housing units.
7. Optimise room sizes and heights.
8. Create multipurpose spaces.
9. Use vertical spaces for storage purpose.
10. Encourage semi-finished type of construction and core housing system. This ensures that the house owners do not end up redoing the finishing items, such as flooring and internal wall plastering. This also ensures that there is no wastage of scarce building materials.

D. Building Materials and Technology

In addition to the design and planning aspects as discussed earlier, building materials and technology also play a primary role in arriving at an afford-

able cost for the house. It is a known fact that building materials are largely responsible for the menace of global warming. Therefore, the building materials and technology should be selected on the basis of their present cost, as well as from the point of view of environmental sustainability and life cycle costs. The following points may be kept in mind while deciding on these aspects:

1. Use materials available locally as far as possible.
2. Select the materials on the basis of their life cycle costs rather than the present cost.
3. Opt for the 4 1/2 staggered brick walling system instead of solid 9 brick walls.



Use of 4 1/2 inch staggered common wall

4. Choose Rat Trap bond walling systems. The benefits of the system are as follows:
 - i) It helps reduce material consumption by 25 to 30 per cent.
 - ii) Low material consumption leads to a significant reduction in cost.

- iii) It provides better thermal insulation.



Rat Trap Bond

- 5. Wherever possible, Jalties should be used in place of windows. The benefits are as follows:
 - i) They reduce costs.
 - ii) They enhance building aesthetics.



Jali Work

- 6. Easy-to-handle prefabricated components should be used as far as possible. The benefits are as follows:
 - i) This helps the standardisation process.
 - ii) These maintain the quality of construction.
 - iii) These reduce the construction time.



Use of Precast Lintel

- 7. Encourage the use of Ferrocement. The benefits are as follows:
 - i) It is light weight.
 - ii) It is cost efficient.
 - iii) It is energy efficient.
 - iv) It is a green material.



A Ferrocement Prefabricated House

- 8. Make use of Adobe (clay) construction extensively. The benefits are as follows:
 - i) It is cheap.
 - ii) It is eco-friendly.



A fully finished Adobe House

- 9. Avoid complex construction systems.
- 10. Avoid high-rise structures. They unnecessarily increase the pro-rata cost of construction.

E. Finance

Housing projects require a lot of finance. Finance is not easy to arrange and can be rather expensive. Therefore, a proper financing mechanism is the backbone of any affordable housing. Without developing adequate financing mechanisms or making

available special financial packages to both the developers as well as to the house purchasers, housing projects cannot aim to succeed.

To curb the cost of finances, the period of construction should be reduced to the bare minimum, with the help of modern technology. The latest scientific monitoring tools should be introduced in all housing projects. There should be more flexible EMLs with lower initial instalments and longer repayment periods.

For people working in the informal sector, loan repayment should be facilitated on a daily basis instead of monthly instalments.

F. Miscellaneous Costs

- i) In India, the process of sanctioning building plans is a tedious and time consuming one, which puts unnecessary burden on the allottees. Therefore, there is a need to simplify this process immediately. As far as possible, pre-sanctioned building plans should be made available to the allottees at the time of giving the possession of the property.
- ii) The cost of publicity of a housing project, which is ultimately borne by the house purchasers, must be kept reasonably low by the developers. Also, the costs of application forms and luxuriously printed brochures, put unnecessary burden on the prospective buyers. These should also be made reasonable.
- iii) In the governmental system, the administrative charges also add to the soaring housing costs almost about 10-15 %. This should be brought down to 4-5% only by way of efficient working and

reducing the typical bureaucratic approach to planning and execution.

- iv) In case of private builders and developers, the profit margins are a cause of worry. But it is not known, who in this globalised open economy system, can control them or advise them to help achieve the goal of providing a shelter over every head by 2022.

Conclusion

Undoubtedly, shelter is one of the basic needs of every human being. In any civilised society, each and every citizen should be provided with a reasonably decent and liveable shelter or housing/dwelling unit. The government of the day has to work relentlessly to achieve this goal. It is good that the present government has bound itself with a mandate of achieving this goal. If all the parameters are carefully put to practice, this goal, which appears utopian at the moment, may definitely become feasible. It would be ideal if all of us, that is, architects, town planners and engineers, could bind ourselves with the mandate of the government and ensure that each and every citizen of India has a shelter over his head by 2022.

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