FAR, Density and Impact on Urban Morphology

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Abstract

This document contains examples of residential, mixed use, commercial and industrial developments in any city of today. Because mixed-use development includes both residential and commercial development, that section offers information on both measures. For your convenience, we have included locator maps to assist with the identification of these properties. The examples in the residential section represent a range of densities. Residential density classifications are based on the Comprehensive Plan's definition of density levels. The levels of density are arranged in this document according to the measure of gross density per site.

The examples in the commercial and industrial sections represent a wide range are organized by ascending Floor Area Ratios (FARs). We have provided aerial photographs of the site, as well as the FAR It should be noted that no two projects are ever alike, even if the density or FAR are identical. Buildings of equal FAR, for example, can have significant differences in appearance depending on the site, landscaping and architecture. The same is true of projects with an equal number of dwelling units per acre. For that reason, the example photos are supplemented by site plans and aerial photos to help convey a sense of how these buildings occupy their sites, relate to surrounding sites, and look and feel to the pedestrian on the street. Hopefully, they help to relate these abstract numbers to real buildings.

And will try to clarify the relationship between FAR and the DENSITY and some others aspects which are mentioned above in the form of chapter. And again the impact on the urban morphology and some interlinked relation in terms of the form, social infrastructure, condition of the living people, physical infrastructural status and finally the economical value in all the four cases mentioned here.

Keywords *FAR, Density, Urban Morphology, Planned, Unplanned, Transformation, Infrastructure,*

- ### INTRODUCTION (VARIOUS DEFINITION)

Some of the definition are as follow:

FAR: the floor area ratio (FAR) or floor space index (FSI) is the ratio of the total floor area of buildings on a certain location to the size of that location, or the limit imposed on such a ratio.

as a formula:

Floor Area Ratio= (Total Covered area on all the floor of all buildings on a certain plot)/ (Area of the plot)

The **floor area ratio (FAR)** can be used in zoning to limit the number of people that a building can hold instead of controlling a building's external shape.

For example, if lot must adhere to a 0.10 FAR, then the total area of all floors in all buildings on the lot must be no more than one-tenth the area of the parcel itself. (In other words, if the lot was 10,000 sq. ft, then the total floor area of all floors in all buildings mustn't exceed 1,000 sq. ft.) Common exclusions to the total calculation of square footage for the purpose of **floor area ratio (FAR)** include unoccupied areas such as mechanical equipment floors, basements, stair towers, elevator shafts, and parking garages.

An architect can plan for either a single-story building consuming the entire allowable area in one floor, or a multi-story building that rises higher above the plane of the land, but which must consequently result in a smaller footprint than would a single-story building of the same total floor area. By combining the horizontal and vertical limits into a single figure, some flexibility is permitted in building design, while achieving a hard limit on at least one measure of overall size. One advantage to fixing this parameter, as opposed to others such as height, width, or length, is that floor area correlates well with other considerations relevant to zoning regulation, such as total parking that would be required for an office building, total number of units that might be available for residential use, total load on municipal services, etc. The amounts of these things tend to be constant for a given total floor area, regardless of how that area is distributed horizontally and vertically. Thus, many jurisdictions have found it unnecessary to include hard height limitations when using floor area ratio calculations.

Thus as FSI 2.0 would indicate that the total floor area of a building is two times the gross area of the plot on which it is constructed, as would be found in a multiple-story building.
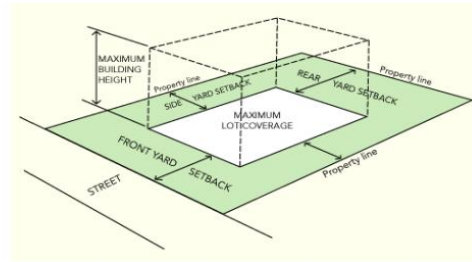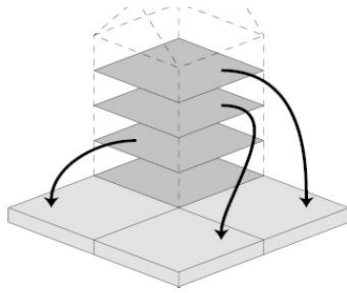

Possible Building Configurations for 0.25 FAR

25% Lot Coverage — 1 Floor

12.5% Lot Coverage — 2 Floors

6.25% Lot Coverage — 4 Floors
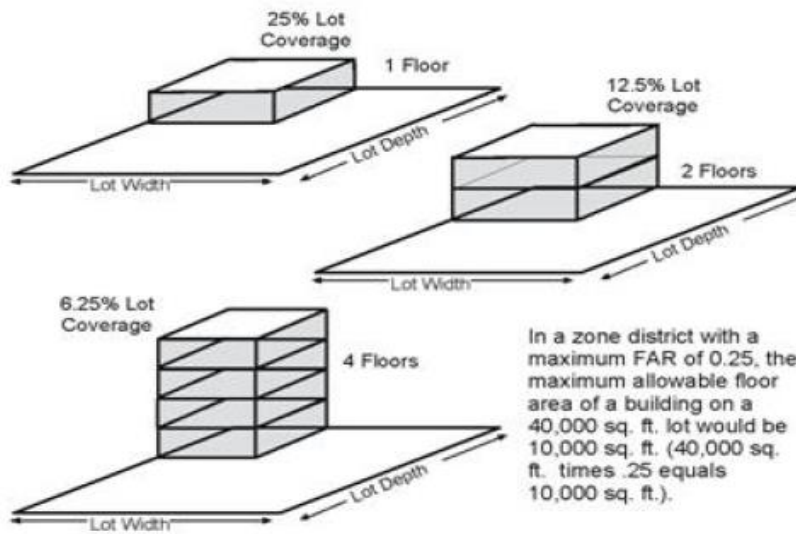
In a zone district with a maximum FAR of 0.25, the maximum allowable floor area of a building on a 40,000 sq. ft. lot would be 10,000 sq. ft. (40,000 sq. ft. times .25 equals 10,000 sq. ft.).

NOTE: Variations may occur if upper floors are stepped back from ground level lot coverage.

$$\text{Floor Area Ratio (FAR)} = \frac{\text{Gross Building Area (All Floors)}}{\text{Lot Area}}$$

4 STORIES

2 STORIES

1 STORY
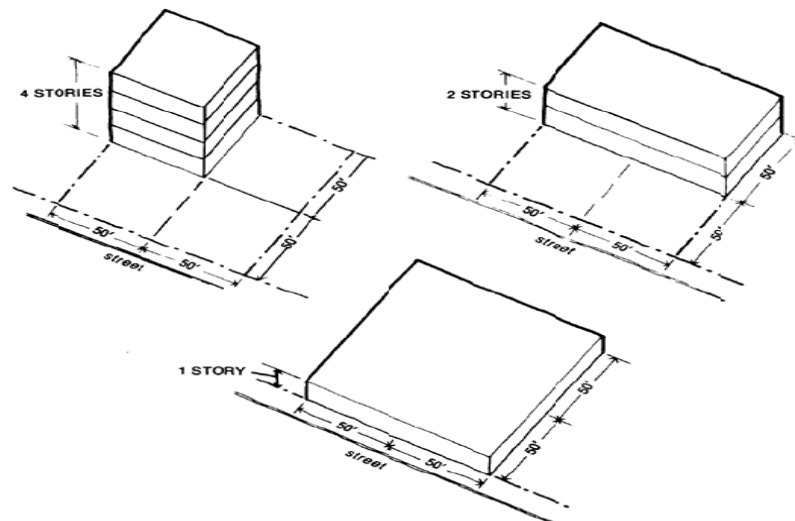
The above illustrations show three different buildings with the same floor area(FAR 1.0).

Population Density

Urban density is a term used in urban planning and urban design to refer to the number of people inhabiting a given urbanized area. As such it is to be distinguished from other measures of population density. Urban density is considered an important factor in understanding how cities function. Research related to urban density occurs across diverse areas, including economics, health, innovation, psychology and geography as well as sustainability.

It is commonly asserted that higher density cities are more sustainable than low density cities. Much planning theory, particularly in North America, the UK, Australia and New Zealand has been developed premised on raising urban densities, such as New Urbanism, Transit-oriented development, and Smart growth.

However, the link between urban density and aspects of sustainability remains a contested area of planning theory. Many experts on sustainable urbanism, including prominent urban designer Jan Gehl, argue that low-density, dispersed cities are unsustainable as they are automobile dependent. A minority, such as Randy O'Toole, author of Gridlock and a senior fellow at the Cato Institute, counter that raising densities results in more expensive real estate, greater road congestion and more air pollution. At a broader level though, there is evidence to indicate a strong negative correlation between the total energy consumption of a city and its overall urban density, i.e. the lower the density, the more energy consumed.
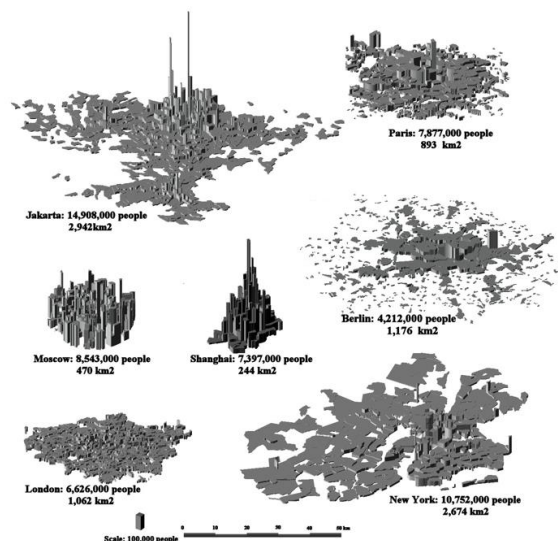
1. Case -1 (HIGH FAR and LOW DENSITY)

High FAR and low density means the built up area per capita will be more in this case. High FAR means more built up space and low density means the less people in the given pocket of the area. By dividing the total area by the total population we get the area per capita. This will be high in this case Example may be like **New friends colony, Plotted development in any posh areas like Noida.**

In these areas if we talk about physical infrastructure is very good because load in the infrastructural component is less. Social infrastructure is also very good in these type of colonies or we can say that the living condition of the people in these areas area better than the others one.

Per capita income of the people is more in these type of posh colonies. Road width is wider in these area as
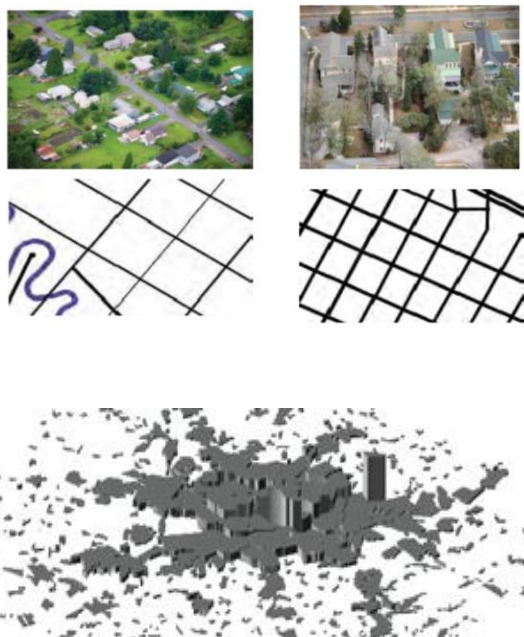
compared to the others.

For an example if we see NFC the posh colony of the Delhi we find that all the facility are available for the living to the residents. Because this colony is designed on the basis of high FAR and low density. This far is not very low but in comparison to density we can say this is more. Impact and morphology of the NFC is better in compared to the others area of the Delhi like Shaheen Bhagh, Abul Fazal and many others area of slums and village or urban village life.

High FAR and low density can be the example of hilly areas where density is low. But in such places FAR is now high so they don't lies in these categories.

High FAR and low density is also the example of the very posh area like retirements resort. In these area infrastructure quality is very good because of the low density load. Living conditions are also good as well social infrastructures.
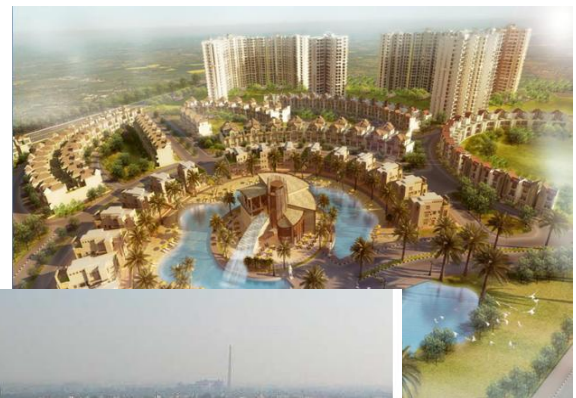
2. Case -2 (LOW FAR and HIGH DENSITY)

Low FAR and high density means the total built up area is less as compared to the total population so the per person require area is very less. So all the problems discussed above can meet in this place or areas. Infrastructure in these areas is very bad. Economy is also not good. Also haphazard way of construction can be seen here.

Crime rate is also very high in these areas because of very low literacy rate and the awareness of the people. Example o such area are Mumbai Dharabi, Shaheen Bagh, Zakir Nagar and many more in India. Urban can also be in this categories and unauthorized colonies also.

As images shows, there is no more space for the community facility and infrastructural facility. Water logging, kachi roads and many others problems.

3. Case -3 (HIGH FAR and HIGH DENSITY)

HIGH FAR and high means per person required area can be more and less also. Depend upon the construction style. If in such type of areas we go multi storied then the quality of life can be improved . on the other hand if we go horizontally then the quality of life can be decreased. Means slum formation or unauthorized colony condition can also take place in such type of area.

Figure shows the area of NOIDA where FAR is more and density is also more but quality of life of the people not affected means is better. Economy of these people area better as compared to others and the morphology of the such areas you can see.

Examples of such type of areas are group housing, multi storied and the best examples in INDIA is NOIDA where JAYPEE group is developing a site of 1200 acre near Taj

express way is totally multi storied and plotted development. And they are using the max of FAR and giving the better quality of the life.

Max of these areas are pre-planned so the quality is betters. Social infrastructure are well designed in these area. Proper open spaces, community spaces, parks, and parking. Better quality of roads can be seen there or in these kinds of areas. But in reverse of this there are also some areas which are not pre planned. Means when density increased in these areas peoples started to upward.

This is the main reason to degrade the quality life of the

people. This is the area where service are not as the population area in these area. So the examples can also be Shaheen Bagh, and we think sometimes slum forms also.

Economy is very low, haphazard way of construction. Sometimes no bye laws are followed in some areas. Living condition is very poor because no open spaces, no proper streets and no proper facility needed for the living pf the peoples. Image shows the area described above..

Mostly urban village of Indi falls in these categories. Because they all are designed when population already migrated. Problem also can be seen. Image shows the condition of the bye laws followed there which is a big issue in these area.

4. Case-4 (LOW FAR AND LOW DENSITY)

Example of these area is Chandigarh and many more pre planned areas. In these categories

those area lies which are for govt purpose and the construction is restricted in these areas. Well planned area where all the facility area provided to the living ones.
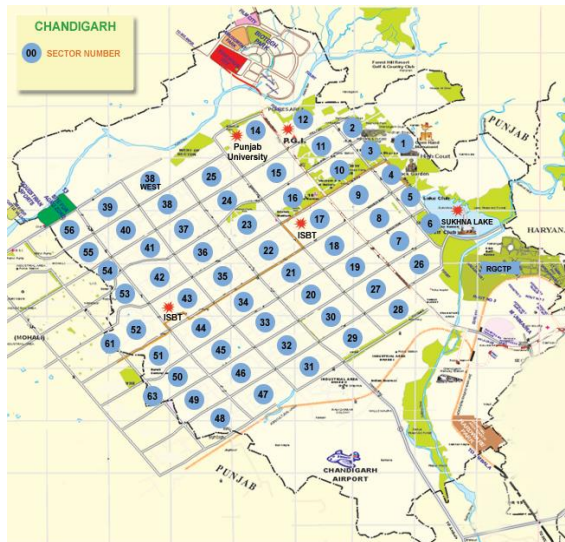

Economy is very good of these peoples. Healthy environment, proper area for parks, parking, open spaces and proper infrastructural services to the peoples.

In above four types of FAR AND DENSITY relationship we have covered
But this very difficult to relate the density and FAR as well as living conditions. One says density is living facility will be more. But this is not true all time. **So showing some pics to relate the FAR,Density and the Urban Morphology.**

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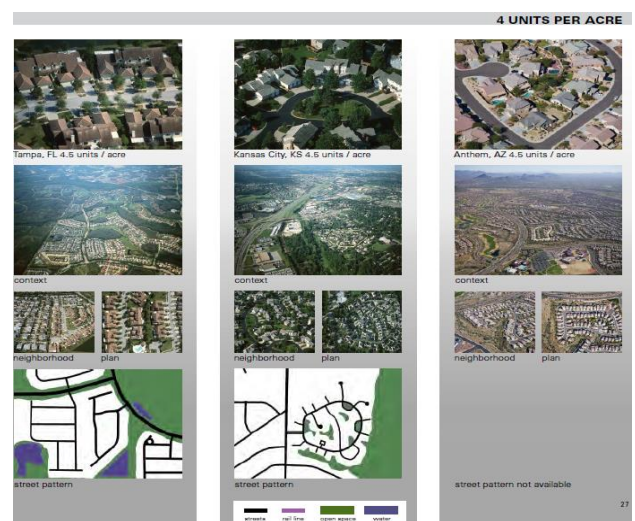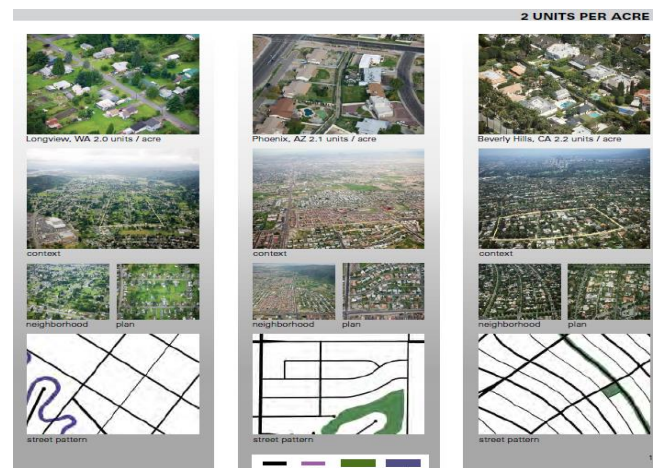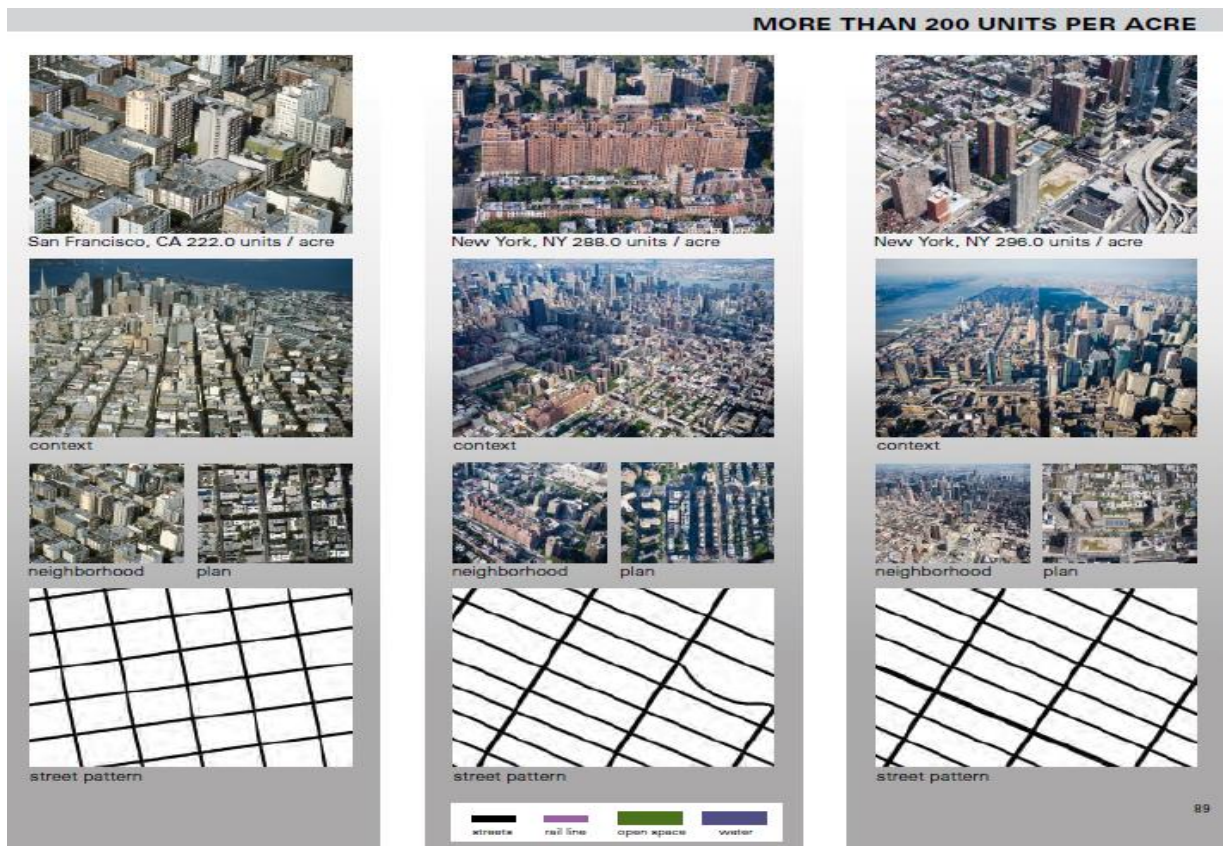
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