Urban Housing
Lecture 6

Components of Development Control Rules – 1

Let's start with first important component is the land use control

Land use Control: The role of a central body is to create certain set of rules for maintain proper health standards for health, safety, moral and welfare and when a land value is set. It's subject speculation so in order to avoid speculation and also to avoid deterioration of a environmental hazard due to mixture of incompatible land uses. There is a need for land use control and a mine a part of land use control comes with a subdivision control. It's nothing but ownership of land being subdivided into pieces and parts of flats. That governs different sides and streets. Basically the subdivision control plays very important role in organising the streets in a particular manner whether the city grows in a organic way or in a formal way.

This metaphorical image gives you a clear picture of why incompatible land uses could not be there. So this clearly explains sky driving schools cannot be close to a crocodile form.

Now in a real world an living environment cannot be close or cannot be aborting a industrial settlement. An industrial area and of course a residential area can work together in a particular neighbourhood but not close to each other. This is what we mean by land use control in terms of governing a different mixture of land uses.

As this image is clearly says you have a series you have a site where you have one particular road that divides different sites so what we can clearly see is that this formal arrangement of a street and the formal arrangement of different housing units on either sites dictates the subdivision. And on a larger scale when you look at the bottom image on the right on side you can see a clear picture of retinal formal standard arrangement of different sides and different streets and on left hand side on contrast to each other you could see the same parcels of land but in a way organised in an organic formation . next would be the height control.

Height Control: So this is to ensure adequate supply of light and air. The normal practice of giving a governing a height control is by linear

measurements and based by the number of stories along with that multiple of street with and sometimes the centre of the road could be taken at a particular angle to also measure the height.

Plot Coverage: Next coming to plot coverage a common terminology that every architect or every architecture student come across. So it is specified by percentage of plinth area to plot area and plot coverage along with the height basically decides on the size and the bulk of the building. So how big or how height the building grows is based on the plot coverage and the height control. So it's also depends on several factors like character of area, plot size, availability of the services like water supply and sewage disposal. so all these are smaller parameters that govern the entire coverage and that also dictates how much you can build on a particular plot, on a particular land.

Another metaphorical image that's give you a picture of casting shadows by buildings aborting the road. So You could see a drive way and you could also see series of placements of taller buildings on road which cause shadow. Which probably creates visual hindrance for a person or a driving person to derived on the road. This also creates a visual hindrance for pedestrians to walk along so this visual interrogation should not be boat because of the placement of buildings and this should just be altered by the height control.

And other picture that explains a important of heights so you could see series of four or five buildings down the line which has a formal cemetery which are probably ground one and ground one and half structure but to the extreme right you could see a building that is slightly higher than the conventional buildings of the short. So this red line is the mark of the height control where if set a particular neighbourhood it should not go beyond this line if it goes beyond the shadow caused by this would fall in the other building and would not ensure adequate supplier flight and air, for yourself and for your neighbours. The images below will also clearly explains graphically the importance of what floor area ratios what ground space index is and what open space ratio is so the first image is nothing but you could see the pink nothing but the floor area ratio where the ratio of the gross floor area divided by the plant area which is highlighted at the bottom now the inverse in the ground space index so the percentage built

on the ground which is highlighted by pink to the area of the plot and the last image is the amount of open space that is created on the ground so that is the area of the ground divided by the gross floor area so these three are slightly interconnected with the each other but there is a minute difference which distinguishes all these three.

Another conventional image to make you easily understand what building coverage ratio is that is the plot coverage and floor area ratio. So assuming a land or a plot area of hundred area square meters and out of its 50 squares meters is build on the ground and 30 squares on the first floor. So the building coverage ratio as you could see is 50 percentage which means that the area that is build on the ground 50 meter squares divided by 100. In convention to the percentage now floor area ratio is nothing but it is the total floor area that is 50 and 30 divided by 100 into percentage so that comes upto 80 percentage. So the minute difference away here is that floor area ratio takes into consideration the plot floor area that is the number of floors into the floor area. Moving on to the set back an other common term that every architect come across. So this is nothing but the amount of set back you let the building from the aborting road. So it's for us to achieve spaces for landscapes and privacy. And more importantly reduces the level of noise from the street and also acts as a buffer or a barrier in terms of reducing the dust from the street it is also reduces the fire hazard meaning if there are wall to wall construction imaging there is no set back in a building there are all the walls are wall to wall now there is a fire spread in a building where if there's no set back fire tends to spread across through the next buildings so this also acts as a buffer in not spreading the fire across the buildings and also of course provides space for parking so parking will come is a another topic which will come across the recently so next coming to floor space index or floor area ratio so graphically we have already seen it now to define it is the ratio of the total gross floor area of all the stories of the building to the plot area so it also depends on few parameters. first including the standard of parameter next prevailing land values land value is another important so we have already seen in a previous chapter that land is an important commodity that governs the prizes of housing values so in this when a land value goes high this FSI that is floor area ratio, the floor space index is a key or plays a pivotal role for any developer to increase or decrease the cause of the value so more in the

FSI more advantage for a developers less the FSI it is vice versa. So another existing characteristic of development also decides the floor area index for example you tend to create a new development in an area like a special economic zone where you have IT or commercial buildings surrounding you and the floor area ratio of that could be around 2 to 2.5 so now a new development that is been bought by you can also be around 2 to 2.5 so you need not build in the conventional floor space index but a slightly higher value would be caught by you. This is meant by existing characteristic of development it's also governs by living space standards and finally the total land value on the maximum desired population in the planning area. Target population obviously housing is for us, housing is for any user so the target population plays a very important role in also deciding necessary floor space index.Another graphical representation which gives you a clear idea of non wall to wall construction so as could you see a gap between both the building so what is mentioned by here is the set back front in the first set back and this separates this building from another so effective set back from all sides creates an advantage for any user to expand and also for the government in terms of future expansions. In other word incrementality could be a other word which could be attributed for this set back development.

So another graphical representation which shows you proper buildable area so that is , this is the plot area that is been covered on the ground and the dotted line which you could see is the plot boundary or the lot boundary. And the front setback is the amount of space that the building line in the setback from the aborting road and the sides setback on the either sides. clearly building setbacks are govern by all the setback should be measured perpendicular from the nearest property line which means that this is the shortest distance that is perpendicular taken from the shortest edge of the road as the moves on the setback could be higher but the setback should not be smaller so this in terms allows future expansion for the public authority as well as the user yourself moving on the density

Density: Density is an overwhelming word. Especially you take developing countries, developing contexts density is something very important. Every day as days grow people grow and more and more people migrate or tend to migrate into developing cities. So in this case density places a very important role or pivotal role in a housing development. So first important

character is avoid overcrowding in newly developed areas. To avoid congestion in streets and to reduce fire hazards. More people more evacuation has to be taken care of , next moving on to building line control it is as simple as a control for the hazard or a control building in the plot line. This is also effectively related to the frontage which means that it's an arterial important streets for the purpose of reserving spaces for widening the streets , execution of utilities and sometimes architectural sound. Imaging you have not let and setback and your neighbour has build a setback and say in a time duration 5 to 10 years. There is a proposal by a public authority to widen a road and in this case setback always plays an important role in saving your house from the road expansion. If you not giving a building line control probably that might be taken away chosen away by the private investors or probably by the public authority. Another interesting image where you could see this one family riding in an bike as an extension so houses and to extend like this metaphorically. So more and more people get into cities more and more people need housing more and more people need transport so everything has to be scattered by the public authorities in especially in cities like India. An interesting image again this is a non peek time exhilarates the amount of people walking on the road even though the traffic is less now imagine the vice versa where total number of vehicles are the same. And what will happen to an pedestrian quality. So every city has to be planned or a control has to be imposed in order to avoid these kind of congestion. And especially you need to provide space for pedestrian and also need to space for vehicles. This graphically explains what a building line is to above so this dotted line which almost connects the front of entire building. So the building mass logy could vary from each and every user. So every person who builds on his own lots can have a different shape of a parametric form or different views of houses. But the front yard or the front line could be maintained as a minimum building line so that in case the streets tends to expand in near future these people are safe.

Components of Development Control Rules – 2

Parking Requirements: So it is intended to keep the right of way free from parking which means that as we already saw in that image parking should be proposed in order to avoid the hindrance of pedestrianisation and also to reduce congestion and accidents. Calculated based on

occupancy and total floor area so every building has been given a particular standard on how many car parks could be especially housing layouts based on density. So it depends on how many flats and what could be the occupancy rate, how many people dwell in that decides how many vehicles parked in that area.

Zoning : It is as similar as land uses which we saw in the first so it guides a location decision, encourages those who complement each other and preclude those, which conflict. Which means that an industrial area an industrial area can work together. But housing inside an industrial area cannot work together. A hospital restaurant can probably work together. An industrial and hospital cannot work together. So these has to be medicated by a central body and authority in order to get an efficient way of planning for cities. And lastly in a way it achieves a density control specifying height of the structure, minimum depth of the side, front and rear yards, minimum plot sizes, frontages and percentages of lot to be rebuilt upon. So even rebuilding evacuation and then building newly also comes into same factor.

Parking interestingly India produces around 2.5 million vehicles and out of which 1.9 are used for passengers, cartages two wheelers three wheelers. So every year every car company has say as motor company or a motor industry has a target of sale to sell 30 thousand 40 thousand 50 thousand vehicles. What happens if the road and the parking is not there so probably every building. Everything starts from the smallest point a city cannot be planned as such it's starts form a smallest point of the dwell or say a smallest point of a side to a city so every plot or every lot in a city is been subdivided should necessary to take consideration these kind of parking requirements as shown in the image. Say for example the first image shows 90 degree parking which is nothing but you need a minimum of 22 feet of a wit for a tow way that is a dry way where one vehicle can go and can one vehicle can come out and have a clear turning radius for the vehicles to park under each lot and each lot would be around 19 feet in depth so comfortably a car can park in. Next going on to sixty degree parking where slightly the dimension increase where the inclination of the car parking lot facilitates the car to move in easily but for a single way you might be 15 feet of it so this moves on so every building has to take in consideration these parking standards so as to provide congestion free zone and congestion

free buildings one which is permitted one which is not permitted so probably you could have a drive way as you see in this image you can have a proper driving lot and a drive way so that you can easily park and walk under instead of a pedestrian been hinted by this you can easily park a car and walk under as a pedestrian and your drive way separated from your park way now look at this image where have a dive way and a walk way crossing perpendicular to each other. What happens if a car passes through and a person walk by so it is not safe. So probably taking that into consideration your drive way and vehicles are and pedestrian should be segregated. Advertisement control and architectural control

Advertisement control: Two interesting fact that a city always takes into consideration. So the first one advertisement is a befoul interest one is for public safety and awareness and it is also ads an aesthetic values we would soon seen in an image and source of the revenue in a local authority. More number of ads its generate more revenue. Now architectural control it is to achieve an hormonal environment but harmonies is different from a monotonous environment so city plans have to take in careful consideration that the building or a city is not monotonous but rather being harmonious. This remains be of an island planning called IG brogan Amsterdam where the policy takes into consideration three different source of the three different island. Every island practices it's own way of dealing with buildings so the first island is called freedom island where a architectural control is none. You just have the height to be same but any architecture could use any colour any material any texture any fuss art any road width any kind of opening so this is the freedom island where completely the buildings contrast each other. The next set of island proves a policy that anything could be done by different architect keeping into mind a standard height and also the amount of open space or the plot coverage. so these two are there in the fuss arts could change the material could change. Now the third island is a strict island where you have to maintain proper high standards proper road widths and proper material that has been used in a fuss art. So the planning is almost the same in the third island where every building looks the same that's creates an monotonous environment which is not required for any city. This is to further exhilarate what monotony is so imagine your in an condition where you have blue and white building you have been lost where to go and what

to do because all the building look alike. So this creates a confusion or this also creates a visual tension in terms of making building the same. Chandigarh created from tabula rasa all these kinds of similar exhibit of hazards and every aspect of design is being taken from the initial stage of the design proposals to the final stage. So it was a single team of architects who designed this entire hazards based on modular principles and different proposals. So from commercial buildings to government houses, factory, industrial everything designed by a single team of architects. Which also governs what kind of hazard controls or what types of architectural controls could be there in every building. Though these buildings are of different functional use but it's exhilarate in terms of architectural control. This images shows you what an architectural and advertisement control is about. In Chandigarh there are different sets of roads that is v1 to v7 where there are four different categories of architectural centralism post. In v2 road along the commercial sector you have the series of buildings which are complimented each other in terms of the architectural controls of the fuss art using same material and in the street market streets in the v4 roads where the residential in tracks with the commercials where you have mixed used buildings. Again a strict hierarchy of architectural controls is used and in this image where you could see a monotonicity is being reduced but mostly the fuss art looks almost the same. So instead of having the fuss art same. There are little bit of ads here and there which make the fuss art more interesting and more dynamic. So advertisement controls and architectural control work hand in hand and it's also ads aesthetic values to it. So there are also little bit of textures as you could see in the image which is further add on to the architectural elements of the fuss art. So this is also creates an identity for a particular community. Later when Chandigarh develop this also made lot of private infant developments. So now you could see again a simple harmonious environment but individual house is being designed according to individual taste. So the heights remains the same almost the colour remains harmonious. This is what i mean by harmonious environment even though the architectural your simple element like values rates, windows, window forms change but it looks harmonious as an elevation so there is a user who had created a border, there is a user who has values rates so these different elements go hand to hand each other and especially this also

creates an kind of a tasteful experience for also adds an aesthetic values by the user itself.

Rules for Homes: We need rules so this clearly tells the highlights of proposed Bihar municipal building by laws and building code so this clearly tells what we have seen before based on land use, height, setback, definitions, rider. So this states that land use regulations about land for commercial or residential use have been specified and high rises would be more than 18m high. So in terms of height so upto 20m height should not be more than 1.5 times the sum of the road width and open space so which means that here they are calculating the width of the road and the open space in between and 1.5 time the height should be the height of the building so which means that every city can have its own building by law so all these by laws tend to change according to different contexts and different cities setback, separate tables for setback or proposed by the government. And the definitions of balcony multilevel car parking pent house so all these have to be specified by the developer and the additional cost incur has to be pay to the municipal authority.

Building Byelaws

Do we need a building by law, what is the importance of building by law or is there is necessity for any law to be governed i am creating my own environment architecture is something creative do we need these laws in order or do these laws hinder or creativeness of course no. All these are set of laws which guides you or guides the city to move in a systematic or planned or in a organised way of development. So here are some objectives of building by law as you could see here so it allows disciplined and systematic growth of the buildings and it also protects the safety of public against fire, noise, health, structural failure and they also provide utilization of space so that efficiency in planning is achieve. So all these have to be taken care by an architect who designs a building so all these start with an urban or an architectural housing process so this is the first step of anyone to take in to so that to have a harmonious growth and well maintained and balanced cities. Moving on to the last part on how do we calculate the methodology for setting standards so now just we taking an

example of residential facilities. So for calculating the residential facilities we need to taken into consideration certain things existing population, migration plus natural growth which means that every city tends to prove in every city there is a migration patten so this leads into projected population. So what do we do with this very simple the existing population has to be survived. Survey based on what there are three different characteristics. One is housing conditions second is socio economic condition and cultural factors third is about the amenities about to them so when these has to be survived there are certain parameters should be taken care while doing this. So in terms of housing the point has to be kept in mind includes family size, occupancy rate that is in a particular area how much amount of density is needed or how much will be the occupancy rate infrastructure facilities and now social economic conditions directly reflects income generation with in a family how much would be the household income, the life style of them, cultural practices and social practices and of course affordability which we look at the third chapter. And amenity is directly reflects few certain points which includes schools, parks, playgrounds now for a housing community or for a residential community to sustain you need this all these parameters now even before setting a standard say for example you set on a land use control or you say that this area is comfortable as a zone as a residential. So you take into consideration how much people migrate or what are these conditions so when the income level, family size and the necessity of amenities and all these have been calculated you could easily judge this area will be suitable for parks, this area would suitable for housing, this area should be comfortable for commercial purpose. Now all these directly reflect into what would be the area required. Moving on to the other perspective that is projected population this is again into three different characteristics. One would be the rate of house hold formation, migrant characterises that is who migrate, how do they migrate from where do they migrate and what is there participation rate in it. Next would be employment, income, and why do they basically come in search of migration patterns so now all these reflects into waters called as state policy. So now a state or a municipal authority takes into consideration how many people held or hosted within that city in order to confirms all these properties provide housing and this state physical policy directly relates into what would be the desirable environment or what would be the areas for housing to be provided, what

would be the unit typology what would be the size of it and whether it should be give apartment or it should be give individual houses what would be the height if it is an apartment high it go in order to accommodate these people in order to accommodate the density. So now all these will again reflect back into what we call as area required so now when we merge both these that is the requirement of the existing population and the requirement of the projected population we directly get what would be area, or the net area required for residential facilities. Now the same calculation remains for calculation of health recreational facilities so all these facilities that is the standard we talk about in the development control rules have a basic reasoning starting from what existing population requires and what migrated population requires.