Principles of Construction Management
Prof. Sudhir Misra
Department of Civil Engineering
Indian Institute of Technology, Kanpur

Lecture – 32
Legal issues in construction management – An introduction

[FL] and welcome once again to this series of lectures on principles of construction management and today which is the 32nd lecture in this series, we will start a new module legal issues in construction management an introduction; of course, through this module of lets a 4 or 5 or 6 lectures, we will not be able to make lawyers out of the people who are trying to follow this course, but the interest on the intent in this module will be to basically take you through some of the important legal accepts of construction management.

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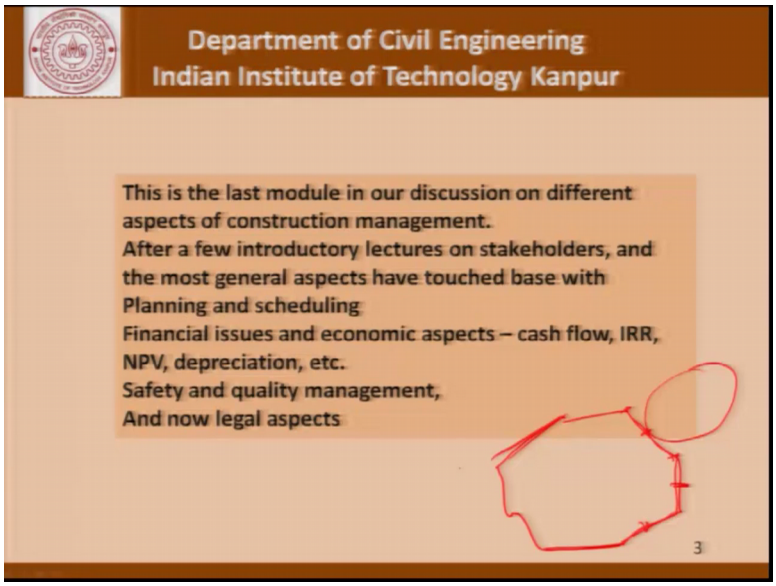

So, this is the last module of our discussion on different aspects of the subject after few introductory lectures at the outset of the series on stakeholders in the most general aspects we have touched base with.

Planning and scheduling financial issues in economic aspects cash flow IRR in NPV depreciation and so on; safety and quality management and now it is the turn for legal aspects; sometimes I feel that in this series of lectures, we are sitting in a hexagonal or octagonal tower; let us a 10 storey is a 20 storey is a height and each of these sides of

this octagon; hexagon represents one of the facets of construction management and we are opening windows at different walls from different heights and trying to see whatever goes on in that particular domain with its the financial domain or its the scheduling and planning domain or it is the; or it is the quality domain the safety domain and so on.

So, this time it is the turn of the legal domain. So, we will be talking about legal issues.

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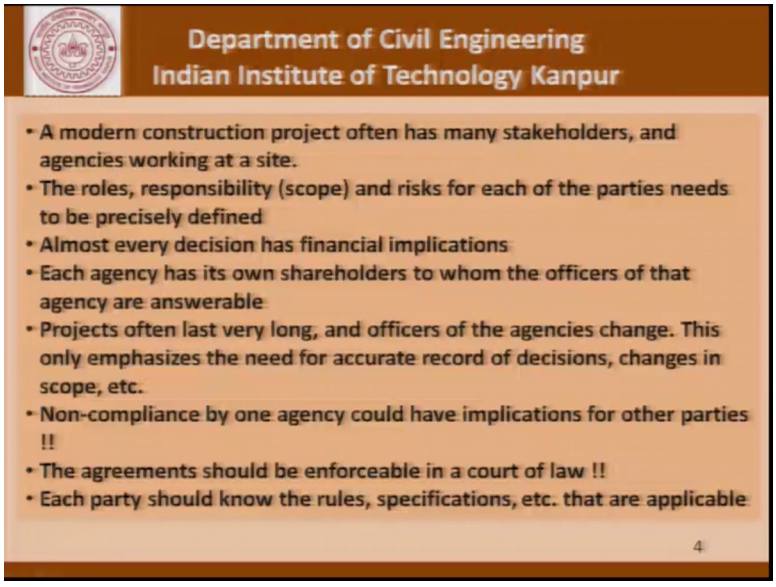

Now, why we need to do that first of all you must understand that a modern construction project of in else many stakeholders and several agencies working at a construction site or not only a site in the design planning and execution of the project the roles responsibilities the scope and risks for each of these parties needs to be precisely defined almost every decision has financial implications and this is something which really important that if decisions have financial implications who should take those decisions why should those decisions be taken in a particular way was the person required to really take those decisions all that has to have a bases and it cannot be oral documents or oral understandings that has to be written down in a document and that is why we come to contracts as you seen this course each agency has is a shareholders to whom the office of that agency are responsible.

So, if there are multiple agencies. So, any agency cannot simply exceed to the request of another agency in which involves commitment of resources of that agency because the

shareholders of the stakeholders of that agency would say that; well, this was not called for and you did not do justice to our investment in your company.

So, these a kind of issues that a company keeps an mind and that is why they have to be very importantly guarded by the employees were signing contracts. So, it is a matter of identifying with the company trying to look after the interest of the company at best projects of in laws very long and offices of the agencies change and this only emphasizes the need for accurate record of decisions changes in scope and so on.

So, since it could be 3, 4, 5 years that a project goes on maybe sometimes little longer officers may change especially when I comes to warranty periods the defect liability periods it could be even much longer and therefore, what is exactly the defect liability what exactly are the terms and which a certain thing will be repaired at the company's cost that has to be precisely laid out and that is why we need written documentation and written documentation is basically a legal frame work non compliance by one agency could have implications for other parties now that is why we have to understand that is which party he has to do what and only.

Then we can actually identify who did not comply with their roles and responsibilities and who is at fault and the agreements should be enforceable in a court of law because at times it may happen that the companies may not yield to nonverbal or un official or informal negotiations. So, it will recover the court of law to enforce a certain agreement there for those agreements have to be drafted in a manner that they will be and forcible in a court of law and that is why we have to have systems by which the agreements that are drawn up are drawn up as if they are legal documents.

Now, nobody ask an engineer to drop those documents, but the engineers are involved in the wetting of those documents they are involved in the execution those documents and if you are involved the execution of a document you had better been involved in the process of drawing it up whether you draft them; whether you prepare the first after not we should do exactly what has gone on in that document that is why we have to have some understanding of legal issues as for as constructions managers are concerned.

Each party should know the rules its specifications etcetera there are applicable. So, these are some of the things that came to my mind and I thought I share with you at the outset of this module on legal issues and construction management.

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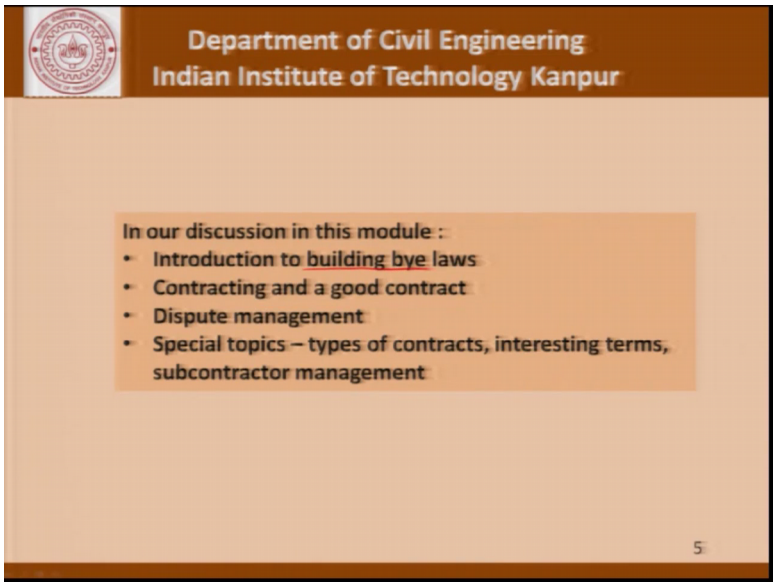

Moving further as far as this module is concerned are discussion will largely focus on introduction to building by loss contracting and a good contract dispute management.

And some special topics like the types of contract interesting terms and subcontractor management now introduction the building bye laws is; obviously, not in the same league as far as contracting dispute management types of contracts is concerned building bye laws is interesting and perhaps; the very first brush with the law where an engineer is dealing with the civic responsibilities of the municipal requirements which are basically professional issues laid down in order to ensure a proper functioning society. So, today's discussion would largely be can find to building bye laws.

And we will talk about contracting and a good contractor. So, on in subsequent discussions that we will have in this module I just spend of minute on this interesting terms we take up some interesting terminology from legal partners and try to discuss it a little bit because that will give you the flavor that like any specialize subject any professional subject know also has it is so on very specialized vocabulary. For example, when we talk of resistance in electrical engineering terminology it has different meaning compared to lets a civil disobedience similarly slum as far concrete is concerned as a very different meaning than slum in the economic regime.

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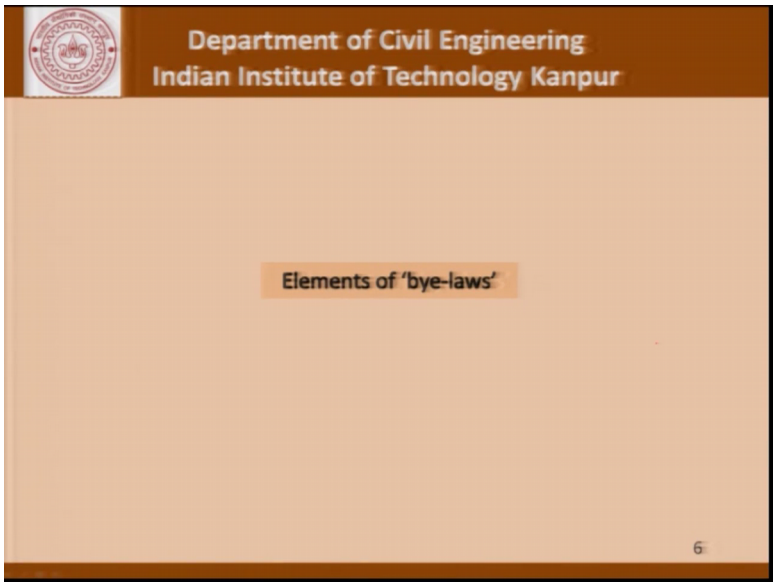

So, that is why we will just pick up some terms from the legal pared lines which are commonly used this far as construction management is concerned and go or them in a brief lecture. So, continuing our discussion today lets come to the elements of bye laws.

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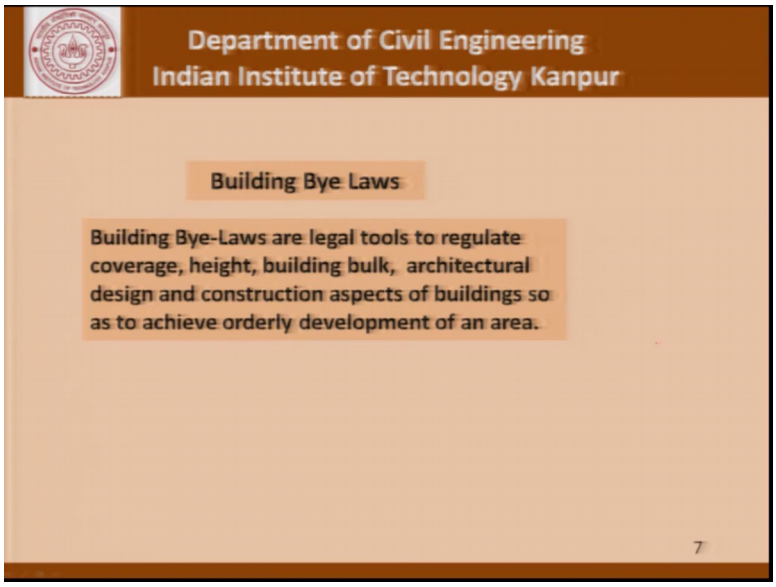

And building bye laws are legal tools to regulate coverage height building bulk architectural design and construction aspects of buildings. So, as to achieve orderly development of an area; so, this orderly development of an area is the keyword we cannot as a society allow haphazard development of residential areas commercial areas

industrial areas educational institutions hospitals without concern to the neighborhood there have to be certain rules.

Which will be imposed on what should be the environment of a hospital if there is an existing hospital what should be the rules that will govern in creating other structures in the neighborhood similarly if there is an industry what should be the rules that govern the neighboring structures there is something which is very obvious when we talk in terms of example in a airport they will have to be a long corridor which will have restrictions as far as the height of the building is concerned. So, this is the kind of legal requirements not necessarily in a very strict legal sense, but in a municipal sense where the society through documents like the national building code imposes certain restrictions on functional aspects design aspects architectural aspects of building in building construction authority been interesting exposure for us to go through some of the very simple terms and try to understand them.

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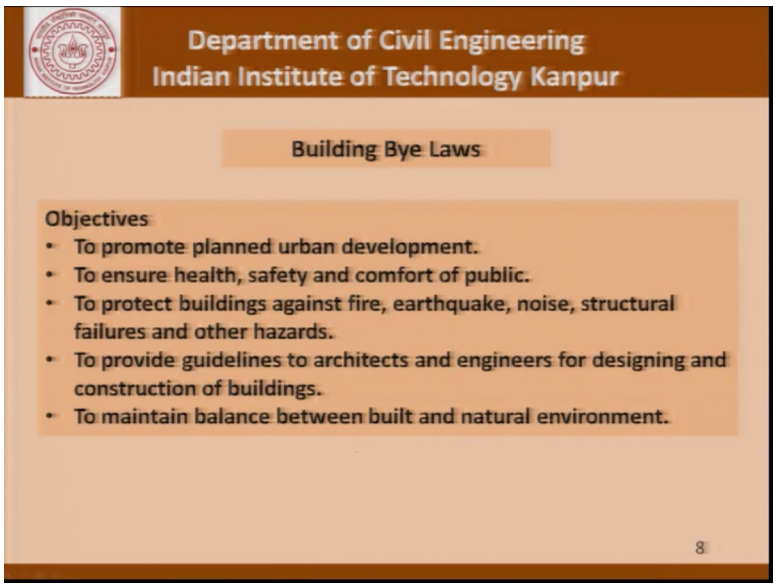

And of course, if you are interested you can always refer to the national building code another document which will give you more insight. So, search for the building bye laws is concerned the objectives are to promote planned a even development to ensure health safety and comfort of public to protect buildings against fire earthquake noise structural failures and other hazards to provide guidelines to architects and engineers for designing and construction of buildings and to maintain a balance between built and natural

environment. So, this is something which is the stated objectives of having building bye laws; obviously, the society cannot allow indiscriminate creation of structures of buildings in the environment in an urban area primarily of course, these building bye laws govern the construction in urban areas.

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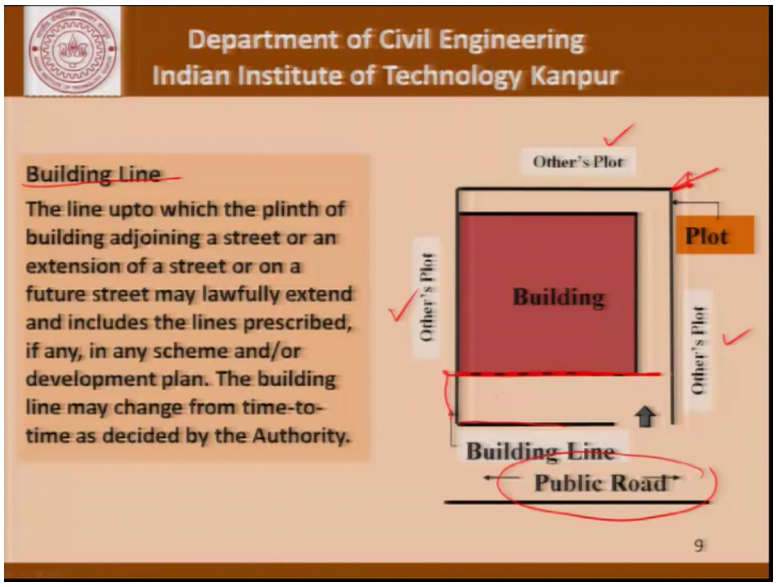

The first term that I wanted to introduce to you is the building line. So, if you look at this picture on the right hand side we have a plot which is defined by this line. So, we have a plot hear a plot here in a plot here this plot on the last side is adjacent to a public road and now ones it comes to this kind of a set up there is this concept of a building line which is defined here.

So, this is the building line the building line is the line up to which the plinth of a building adjoining a street on extension of a street or on a future street may lawfully extend and include the lines prescribed if any in any scheme and or development plan the building line may change from time to time as decided by the authority this could be the municipal cooperation or any other designated authority responsible for drawing up these kind of guidelines and implementing them as far as conformity to land use plane.

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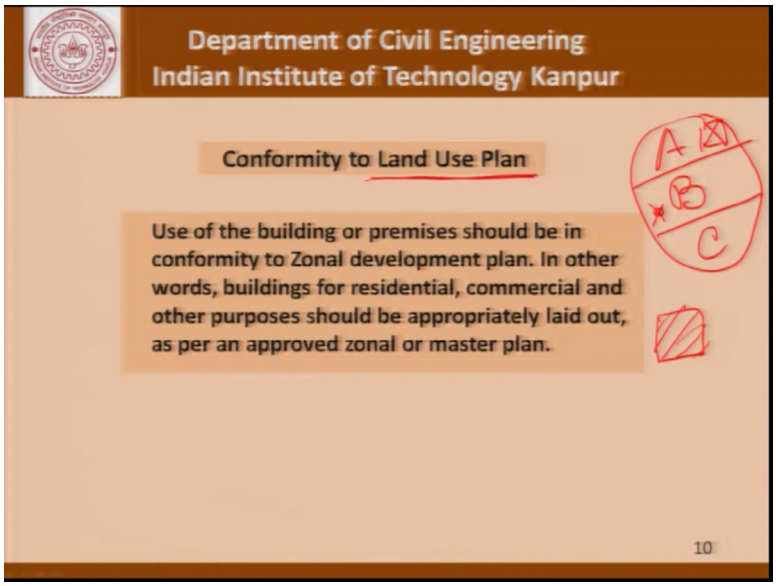

Now, this is something which is important to ensure as far as the building bye laws is concerned the first thing that is comes to mind is the land use plane somebody has to have approved that out of these total area; this area will be marked for purpose A, this area is marked for purpose B, this area is marks for purpose C.

So, now we have to see the if I propose structure which has the use which is primarily a in nature it should not be located here it should be located here. So, these are the kind of things that we have to ensure that the proposed structure confirms to the land use plan. So, if it is proposed in a particular site does it confirm to the proposed.

Does it conform to the agreed and decided land use for that particular area the use of building premises should be in conformity with the zonal development plan. In other words, the buildings for residential commercial another purpose should be appropriately laid out as per an approved zonal or master plan.

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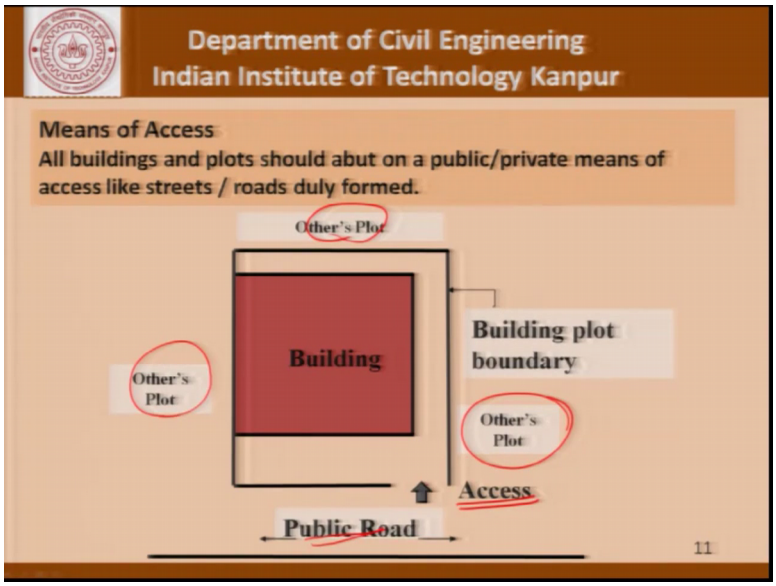

Now, coming to another topic the means of axis all buildings and plots should a, but on a private or public means of access likes streets roads duly formed. So, we cannot have a building which is closed from all sites it is like a landlocked country. So, we cannot have a building which does not have access to a public road. So, in this particular case the access is shown here because on the others slight because on the other sites there are plots of other people. So, there has to be an access to a public road which has been duly formed then there is this concept of setbacks.

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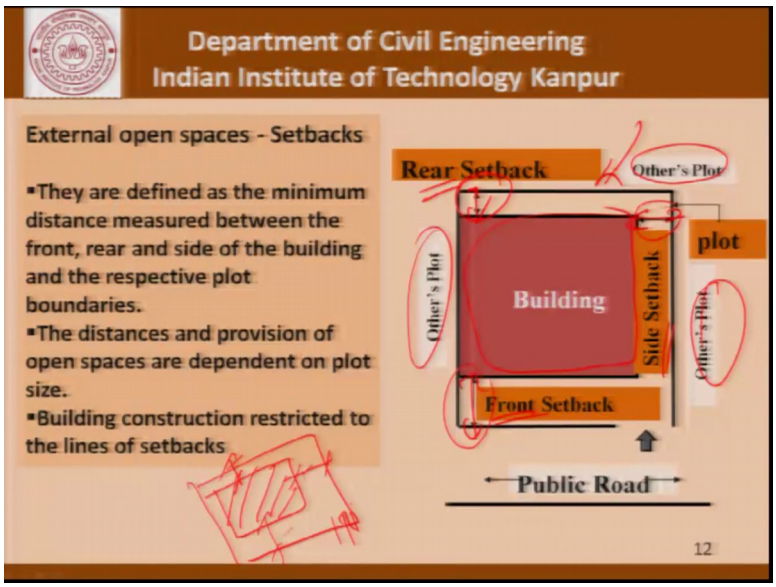

Now, these are defined as the minimum distance measured between the front rear and side of the building and the respective plot boundaries the distances and provisions of open spaces are dependent on the plot size and building construction restricted to the lines of setback.

So, in this particular diagram that we see for the same layout weather three plots or three sides and this plot has access from here the front set back the rare setback and the sights setback which is this distance here this distance here in this distance here these of the setbacks which have to be preserved when we are trying to do the construction in the building.

So, the building construction itself is confined to only this area notwithstanding the fact that the plot is so much. So, we have a plot area and the building area is confined to a smaller percentage defined in terms of these set packs the front setback the side setback and the rear set pack and of course, we have the access that has to be provided. So, this setback basically makes a building an independent entity from the other buildings.

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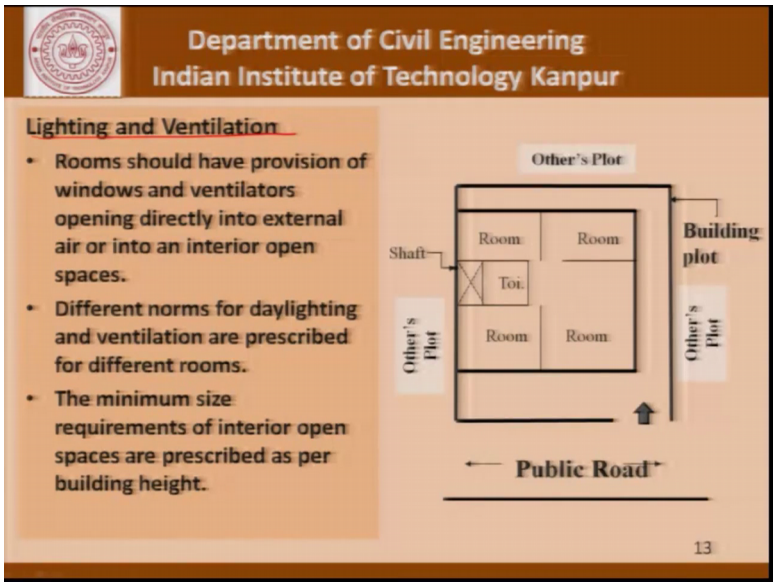

Moving further; there are rules that govern lighting and ventilation for example, there are rooms room should have provision for windows and ventilators opening directly into external air over into an interior open space different norms of the day lighting and ventilation are prescribed for different rooms the minimum size requirements for interior open spaces are prescribed as per the building height.

So; obviously, we can imagine that lighting and ventilation requirements would be different for schools hospitals residential buildings industrial or office buildings for that matter.

So, depending on the kind of building that is being planned or that is been constructed the lighting and ventilation requirements are laid out it cannot be left to individual architecture individual planners to say that well I am happy with the half meter by half meter window in this room there has to be minimum that is laid out and that is what is defined. So, it is like saying that we have always talked in terms of standardization and this course we say that we cannot leave it to the individual engineers to decide whether concrete having an average is of 24 mp confirms to a does not conform to m 20 concrete there are clear cut procedures and standards which define whether or not a concrete is acceptable similarly the building bye laws in a manner of speaking they lay down the rules and regulations for weather building is acceptable from a planning point of you were it is except from a bye laws point of you and that is why we have this concept of approval of a plan.

So, the plan is first drawn up and somebody looks at it and approves and checks that it meets the requirements in terms of lighting ventilation firefighting setbacks and so on so forth that list is exhaustive and of course, it is not the intention here to go through that entire list.

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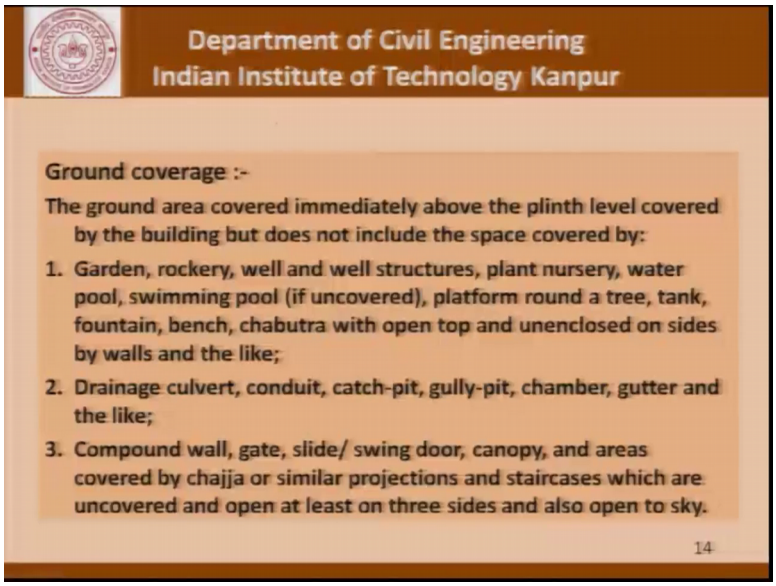

Yet another term that we come across in this bye laws is what is called ground coverage that is the ground area covered immediately above the plinth level covered by the building, but does not include the space covered by garden rockery well and well structures plant nursery water pool swimming pool if an covered and so on so forth drainage culvert conduits catch pit gully pit chamber gutter and the like compound wall gate slide swing door canopy areas covered by the chajja and similar projections and staircases which are uncovered and open at least on three sides and also open to the sky.

So, this is basically just a explanation of what is the ground coverage and how it is to be defined. So, these are terms which architect must understand.

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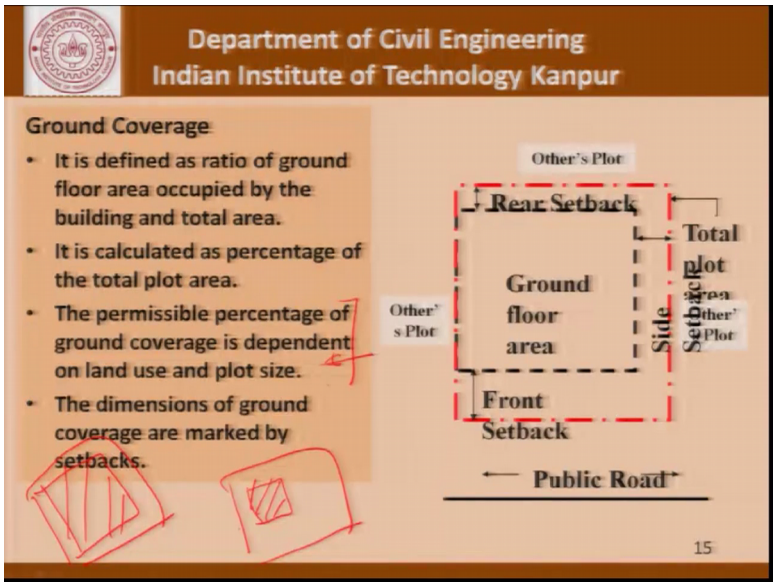

And they try to ensure the compliance with this in actual practice essentially boils down to ground coverage been defined in terms of the ratio of the ground floor of the building to the total area its calculated as a percentage of the total area and the permissible percentage of ground coverage is dependent on the land use and plot size the dimensions of ground coverage mock by setbacks. So, when we say something like this that is the permissible percentage of ground coverage is dependent on land use and plot size know if we have a plot which is this peak; weather the ground coverage allowed is only this much or for the same plot size we can cover.

So, much would depend on what kind of building is preplanned if it was school; for example, we would say that well that should be at least the play ground and there for the

ground coverage allowed for a school would be smaller than certain other buildings. So, that is why we have to keep in mind this kind of rules which have been formulated and; obviously, subject to change from time to time and from place to place.

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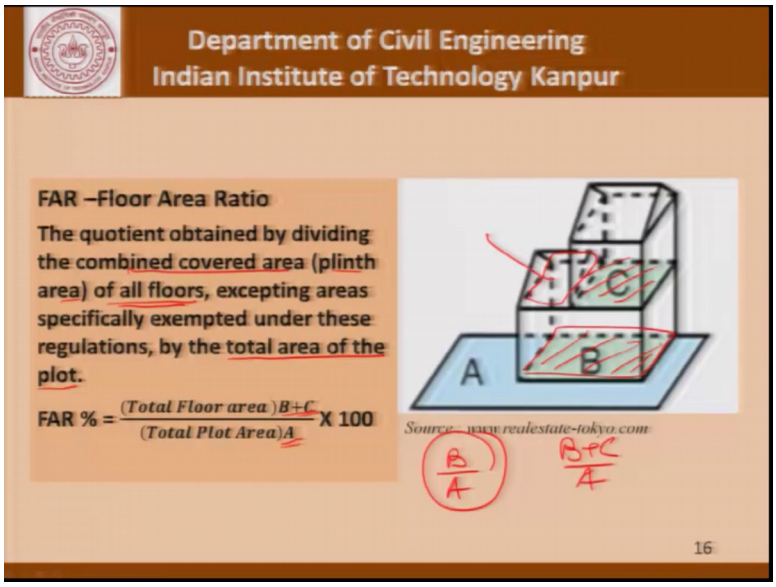

So, moving further there is another very interesting concept call the f a r or the floor area ratio now what this term essentially means is it is the question to obtained by dividing a combined covered area that is plinth area on all floors accepting areas is specifically exempted under these regulations by the total area of the plot far as a percentage is basically if you look at this picture is on the ground floor we have be as the area where we are constructing on the next floor we have constructed only see and this area here has been left out.

So, the floor area ratio as far as this particular structure is concerned would be B plus C divided by A. So, we are talking of the entire covered area on all the floors and then dividing it by the plot area. So, it is like ground coverage and floor area ratio different because the ground coverage essentially would only be B upon A in a manner of speaking where as the floor area ratio would be B plus C upon A; the floor area ratios; obviously, govern buy a lot of thought processes.

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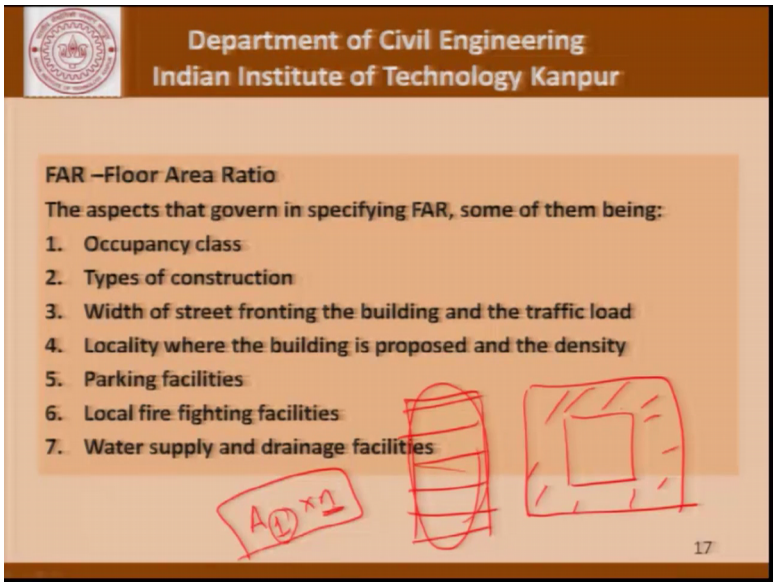

So, the aspects that govern is specifying a floor area ratio are of occupancy class type of construction width of the street fronting the building and the traffic load locality weather buildings is proposed and the density parking facilities local firefighting facilities water supply and drainage facilities and so on. So, basically what we are saying is that if in this plot of land we are going to make a building which is having a ground coverage or so much, but it has let say 10 floors.

The number of occupants is depending on the number of floors the number of occupants would depend on the total area will basically B the area at one floor multiplied by the number of floors. Now if this is the total number of people which are going to be leaving there now if the total people living there the total number of people living or occupying that space is related to the total area we have to cater as far as the open area is concerned to their parking needs to their circulation needs and so on that is why it is important to ensure that the floor area ratio is properly defined and complied with.

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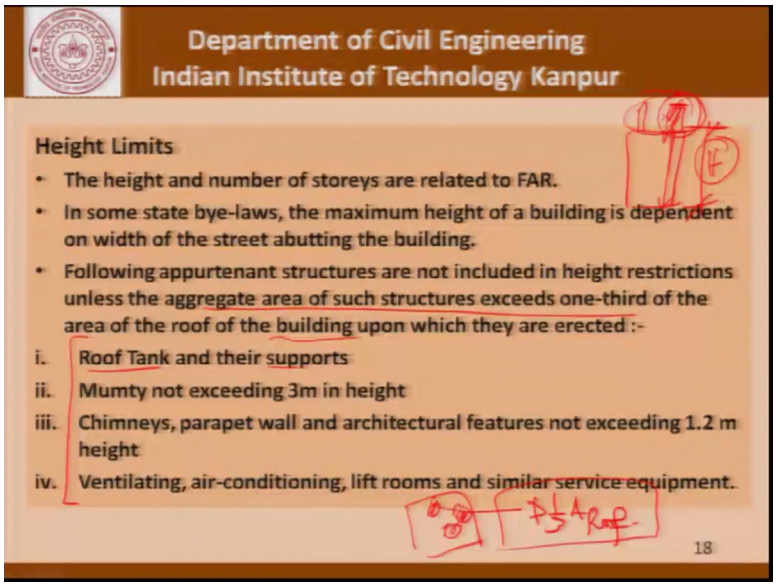

Then there are of course, height limits for a structure the height and the number of stories are related to fear of course, in some states and the bye laws there maximum height of a building is dependent on the width of the street abutting the building following apartment structures are not included in height restrictions unless the aggregate area of such structures exceeds one third of the area of the roof of the building up on which they are erected roof tank and supports Mumty not exceeding three meters in height chimneys parapet walls and architectural features not exceeding 1.2 meters in height ventilating air conditioning and lift rooms and similar service equipment.

So, you must reading some of these sentences is like this and a sentence like this gives us a flavor of the legalize it gives the flavor of the fact that it is a document which is not necessarily written by an engineer it has been written by a person who would be interested to actually try to ensure compliance with each and every aspect of it when we are talking of the height of a building basically its very simple that this building is this height.

Now, what happens if somebody erects a small tower here or there is a lift room somewhere here because ultimately they will be a lift which will be operating through the floors and we may have to construct a lift room on the top now will this height be taken or this height be taken. So, now, what is being said here is that the height is restricted to this age and these structures will not be counted in that height provided that

as far as the plan of the roof is concerned such is structures whatever they are roof tank and they support and. So, on the sum of these is not greater than one third the area of the roof.

So, this is the kind of provision that we have and I am living it to you as an assignment to find out that when we talk of the highest structures in India or highest structures in the world whether they have such towers or a structure on the roofs and whether they have been counted in defining or measuring the height of the building moving further, then there is this issue parking norms.

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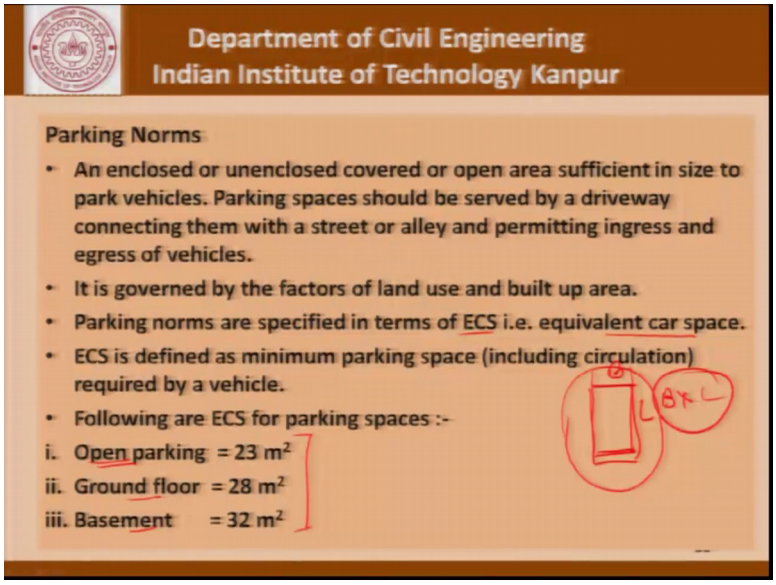

And enclosed or an un enclosed covered or open area sufficient in size to park vehicles there has to be a norm which would govern that we have to provide for a certain amount of parking space.

So, parking space should be served by driver connecting them to the street and ally and permitting ingress and egress of vehicles its govern of factors of land use and built up area; obviously, parking norms a specified in terms of ECS which is equivalent car space and ECS is defined as the minimum parking space including circulation required by a vehicle.

So; obviously, what we are looking at is that if this is the vehicle and if you measure the vehicle this will have a breadth and a length. So, it is not the vehicle itself which is

important, but also there has to be space around this vehicle. So, that it can whenever itself into position in the driver can come out something can be loaded onto that vehicle and so on. So, for that the ECS or equivalent car space has been given depending upon whether we are talking in terms of an open parking or parking on the ground floor or parking in the basement. So, depending on where the parking is there is an ECS and how many ECSs you should provide for a building is again given in the norms depending on the land use and depending on the type of the building.

So, with this I think we have gone through a certain amount of terms and phrases which govern the functional design of a building in terms of the setbacks in terms of the height the floor area ratio ground coverage parking norms and so on. So, with this become to a close for discussion today as far as the reference the concerned possibly the best reference that you can have is the national building code and I would request you to compare some of these provisions that are given in the Indian national code with provisions in other codes the similar provisions and I look forward to seeing you in subsequent discussions on legal aspects of construction.

Thank you.