

# **B. ARCHITECTURE**

## **INTERIOR DESIGN (AR6005)**

### **COMPONENTS OF THE INTERIOR SPACE – LIGHTING & LANDSCAPING**

#### **Lecture – 5**

#### **Introduction to Interior Lighting:**

Light is defined by the English author Thomas Fuller

“Light God’s eldest daughter, is a principal beauty in a building.”

Another definition to the Light is given as

“Design is defined by light and shade, and appropriate Lighting is enormously important.”

Designers all but handy, to talk more about lighting interior space is actually been defined by light which is used inside so any space can be made can made look good or bad just for improving the lighting of the space if one important category which we can introduce or improve in interior space which will enormously have an impact on the interior setting then the first thing that design has to look at the lighting of the space because good lighting supports convenience, comfort and favourable reactions emotional reactions at the same time a bad lighting hampers utility may produce depression and displeasure with the space.

How do you define good lighting for example you may have very good object ive, you may have designed very good utilitarian object or you may have a designed a very good aesthetics space if the lighting in that space is not showing the object properly then the whole effort which is gone in designing the space goes to waste.

So that different types of lighting you will be talking about accent lighting, will be talking about task lighting, will be talking about general lighting, ambiance lighting. Lighting in different areas different contexts in this particular presentation.

While good lighting can achieve the following affect set the desire mood or atmosphere for example if the same space has to be used as the particular interior space planning to used it as training room or a lecture room that kind lighting which create that kind of an ambiance is different

from space being used as the home, office or probably a bar or a club to create that kind of ambiance or a setting to that space lighting actually helps.

So kind of lighting we use, colour of the light we use, intensity of the light we use, the total number of lights we use create actually sets of the space and actually sets of the ambiance of the space. So light can be used to create the desired mood or atmosphere at the same time it can direct or concentrate attention on a particular object. Say if you created a finish room or a particular sculpture in your room are you create a particular corner of extreme design interesting or aesthetics interest in a particular space then you would like to highlight that space even more than the other space which are there in the room. So interior lighting can be directed towards that can create can be concentrated towards that so that that particular object gets more attention, so that can be created using lighting.

The other important thing which we can achieve using lighting is control shading and Shadow to aid the viewer in seeing form and texture.

So another thing which we can do is using lighting you can create dramatic effect you can create light and Shadow you can create very interesting composition of light, say if you created the wall panelling with fabric texture or a wooden texture which you want to highlight even more you can probably create dark shadow and light effect on that particular wall.

So that the texture get even more escalated and get its aesthetics important which it deserves that can be created using lighting are you can emphasise or modify spatial perception.

A space can be made to look large or small using the light which is being used in that space. So if you're using dark black colour on the ceiling and then not actually directing any light on the ceiling at all then this space looks smaller same space, same volume, same dimensions of the space can be made look bigger by just introducing white ceiling and directing more light upon the ceiling and the walls. So the reflected light makes a perception of a human mind field that the space is bigger. So that's the amount of weight age lighting can cast in an interior space.

Let's get into different considerations for good lighting

The first thing would be the lighting level

Lighting level is the amount of light. So say particular interior spaces been used in elderly person, so the amount of light in that space has to be high irrespective of whatever usage. So it is for because depending upon the age of the person the amount of light can differ and then the usage says

if the particular space is going to be used as a work desk or a planning space then the amount of light on the top should be 150 lux, light is amount of light is usually measured in Lux, so if it is going to be a corridor space it can be 50 lux. We are just enough for a person to see what is around not any kind of activity is happened, no kind of activities happening in that space it's just been used as a transitional space.

So light level is one important consideration, second would be the brightness and contrast and glare.

The glare is one problem which any lighting designer or interior designers as to addressed. Say if you're putting a direct light on a workspace which is actually hitting on your monitor it's going to create a glare on the person who is using it. So it's going to reflect the direct light going to get reflected from the monitor and it going to create lot of discomfort for a person who is using it. So obviously you would want to switch off the lights and the whole purpose of putting that light to create that kind of an ambience is lost. So placement of light is important and it shouldn't create glare should be very comforting it should create a more soothing effect for a person who is sitting down and working on it.

So that is one important criteria and the brightness of it and contrast of it shouldn't be too bright, shouldn't be hitting on your eyes, shouldn't be hitting should be actually reflecting from a surface it can be from the ceiling or can be from other reflecting surfaces on the walls that is one important criteria then its contrast and diffusion, we wouldn't want to see direct light in interiors anywhere.

So what happens even if you're creating a continuous strip light it's you it's better to have it bouncing from another surface which means it's better have it as reflected light, which would be more diffuse rather than direct light which is more direct on it, which would create a very good ambience then four important criteria is economic issues basically the different types of lighting fixtures you should be looking in detail the last slide which is one LED lighting fixtures light emitting diode which are the latest trend in lighting it's more expensive when it comes to traditionally used to incandescent light or probably the fluorescent lamps that three time expensive in terms of the installation cost of the first cost but then over the running a lifetime of the lighting fixture.

The amount of electricity consumed in lighting the space is twice as much as the LED fixtures used twice less than the ordinary fluorescent or a incandescent light fixtures.

In that way the running cost dramatically decreases over a period of 3 to 4 years you will be able to recover the initial cost which your are put in installing LED light fixtures and these days LED fixtures available in

different forms, shapes, sizes which will be looking in detail in the next lights. So these are the consideration for good lighting.

## **Types of Lighting:**

The different types of Lighting that two broad categories the one is day light and artificial light. So day light the primary criteria of day light admitting the light inside that itself is a very you know huge task you know very challenging task for a interior designer because that various criteria space on which day lighting actually works which will be discussing the next slide.

The second would be controlling the light using multiple layers of glazing or a different shading devices depending upon the orientation towards the sun and the direct light treatment and also the window treatment like sheer curtains or a Blinds or roller Blinds treatment on the window glass itself you can use different stickering on the glass.

These are the components should be looking at in terms of Daylight which should be discussing in detail when comes artificial light, it starts from planning of the light where the light need to be placed.

What kind of lights needs to be placed? what is the colour of these lights all these have to be planned for that particular space and then lighting needs depending upon the requirement for which area this lighting is being used depending upon that need to classify the need that some special purpose lighting like you are auditorium lighting or a Hospital lighting, restaurant lighting. These are special purpose lighting which we need to which will look in detail then would be selection of lighting fixtures.

The different lighting fixtures like you know down lighter, upper lighter. These are the different types of lighting and then when it comes in different you know to be more technical the light emitting diode, which are LED you get a fluorescent lamps, incandescent lamps, strip lights, spotlights, tube lights different categories. So selecting which fixture would be up for that particular space and then spacing of this where needs placed at what intervals it needs placed to give a cohesive lighting all these different aspect which should be looking at in terms of artificial light.

So let's discuss day light in detail. So day light is passes strategy using natural light to eliminate interior spaces. The benefits from day lighting Ranges from improved aesthetic qualities including better Colour balance, connection to the outdoors increased energy efficiency adding an active component can enhance the effectiveness of these strategies which is shown below

So day lighting the primary concern is admitting the light inside, it can be through the walls, through the opening we are creating in the walls which we usually call doors and windows or it can be through roof lighting or atrium lighting which we create in the ceiling.

So there different types in which we can bring in daylight you can either give a overhang roof and then give a openable window, so it actually shades the direct light allows only the diffuse or outdoor daylight cut to come in direct either than sunlight which is heating in which will cost too much of heat there is another way of doing which is this reflected light from the top light in perspective.

we can create light shelf or we can use diffusers on top in the ceiling to defuse a light and then allow it through the ceiling itself other ideas for decreasing the glare in terms of the day lighting using a vegetative plants which are deciduous plants which will have their leaves in summer and then shut off the leaves in winter.

So these are two examples of creating blocking direct sunlight during the in exteriors that other would be creating screens outside are you now creating louvers outside.

So as you see the day lighting has various challenges because sun for the same window during different time, different days of the year or different times in a same day the amount of light is coming into the window is different.

So you cannot plan task based on daylight because day light keeps varying there are various aspects on a cloudy day, you get less light on a very sunny day, you get direct lot of direct light, during a summer day you get overhead light, during a winter day you get an inclined or angled light, during the early mornings you get different light and during the evening you get light is different and so it is very dramatic it cannot be used for an activity space that's what day light creating an activity space using the day light is very difficult to control the day light that's why designers find it very difficult for activities spaces like offices, classrooms or the projection rooms usually daylights totally cut off and then artificial lights are mostly used to create the space. Again daylight can be used in a very dramatic way in corridor like how you have seen this image daylight been introduced in the ceiling and in the wall, this is actually a sculpture and the amount of light and the quality of light keeps changing during the day has the sun moves the shadows move and the light is also keep moving. This is other interiors space using day light by Tadao Ando architect and here again the light is dramatic and as you can see it cannot be controlled by any human mind. Advantage artificial light has over day light has explained here. Artificial light in modern world means electric

light towards the design the artificial light has a potential and potential advantage of being used totally controllable and in terms of brightness, colour, placement, quality it is totally in a controllable. If you look at the image here you can see the light has been placed in the floor, in the ceiling, indirect locations were coves were created inside the seating to accenture space in the coves in the backdrop which is creating washing the wall just wall washers, up lighters and down lighters have been used sparingly in the design. So that overall ambience has been created. This whole space the lighting can be controlled is in the control of the designer.

The designer can choose to use only the up lighters during the accentuating the space, the designer can use only the down lighters to create ambience of the space.

## **Planning Light in Interior:**

First step for creating interior lighting is planning the light.

- Define the general aims in terms of character and atmosphere.
- Consider the specific purposes.

It has to be you need to be clear, what area you can be creating the lighting. If its residents, is it kitchen, is it master bedroom or is it living area or is it gym space is it going to be your recreational area.

it going to be your family living or a lobby space, outdoor area or a balcony depending upon which space and what kind of character that space has to be depicted, the lighting has to be planned and then

- Ascertain the intensity levels for proper vision and balance these against energy and first installation costs and other factors to decide on the lighting type itself.

So again the cost factor first time installation cost might be higher but if it creates at ambience, if it is sufficient in terms of that running cost why not use that particular light for that used.

- Select fixtures based on the general aims and specific needs.

So depending upon their aims and specific need which your are define for that space select the particulars fixtures and then the placement of fixtures.

Say if you are using hanging light on top of a breakfast counter or a kitchen counter, it can be at hanging at the height of 6 feet bottom and the same hanging lights been used in corridor space then it's good to keep the hanging at 8 feet height. So placement of the fixtures the height

of it from the ceiling from the floor and the distance between two fixtures all these are covered placing in placement of fixtures.

So lighting is usually planned on overlay sheets placed over floor plans. Reflected ceiling plan is called RCP. The usual final drawing in which most of the lighting is indicated. Although the portable lamps are indicated on the furniture plans. RCP placed in very important role in the lighting of the space and visual effects of this lighting is shown as in computer simulations during design.

So when you are presenting your lighting design to a client you sure most of it in your reflected ceiling plan because this ceiling is going to hold most of your fixtures and like your floor lamps or a table side lamps can be shown in your or a wall lamps can be shown in the furniture layout.

So when you're presenting the theme to your client just by showing this fixtures you're not be able to perceive the amount of light or they affect the light is going to create. This is mostly created by the designer and then it's shown to a client only by using a computer simulation.

Which will be showing or a realistic photographic images saying how the effect is going to look after being implemented?

So this is one of the typical lighting diagrams for a kitchen. Say you can see first your task to place the task lighting over the work zones. So if this is going to be your kitchen top your tubler or your strip light on top of your kitchen top has to be placed first and then the light above your hob which is again your main activity space and then the hanging light which are on top of your island counter.

So these are the main lights only by using these lights the activity in the space can happen and then the secondary lights which are the ambient lights. The ambient lights are just to fill the dark spots with general lighting, so after you create the activity lights then the overall ambient of the space will look dark because it's not still lit for general usage then you at interval of every 6 feet this is the thumb rule which we using any kitchen interior design. So every 6 feet you will have to have a ceiling mounted light in your kitchen so that overall ambiance of the spaces lit. Apart from that you have specific task lighting on top of your counter top and top of the island counter, on top of your hob, on top of your other activity spaces in your kitchen.

Once is planning is done on the floor plan then what you show your client is a rendering or your image which shows him how it will look if you look at their image on your screen, it has hanging lights, it has activities own lights which are like spot light which on on top of your worktop.

There are ceiling-mounted lights and then is inish which are accentuating the space or your accessories. So a combination of all this makes a perfect lighting for your space this is good example of a well lit kitchen for a proper ambiance and activity.

## **Lighting Needs in Interior Space:**

Here hence the planning of light and this can be used for every area say you are not only your kitchen you are bathrooms your bedrooms in residential design if we are talking about different phases you are living area will be look good to have a chandelier in your living area to add-ons to the aesthetics at the same time general lighting can be cove lights and spot lights or wall lights, the combination of all this creates the aesthetics creates the mood and also access an element in defining the activity in the spaces well that how lighting has to designed for each and every space.

Let's go into area by area in a residence. So that its explained in a much clear way. The lighting needs there are classified into three different types of lighting. The one is task lighting, general lighting and special lighting which is accent lighting.

So general lighting it's very important because its ambiance, so any space you're walking in you cannot have dark space it has to be ambiance has to be lit. So ambiance lighting plays an important task lighting depending upon the task as i told you on a study table you need to have a study lamp, on a bedside table you need have a bedside lamp for reading lamp on your bedside table or on your kitchen top you need to have a hanging lights for using your utensils in the right way. So depending upon which activity it's been used for on a work top space on your office or a conference table about your conference table you need have conference light show the person who is sitting on your opposite you need to see the face much more clearly in the conference room or a meeting room.

So all these activities based on which is the lighting has to be planned this task lighting and special lighting or a accent lighting is just to accentuate the object or a particular space. So if you're keeping your accessory inish or your keeping a particular decorative item in your region or your living room that needs to have that kind of accent lighting are you putting a piece of vegetation or a landscaping on your table then that need to have that kind of attention because it's in particular important element in a aesthetics so putting light on that is called accent lighting.

Let's say and it's clearly mentioned are shown in the images general lighting, task lighting and accent lighting and different ways of using different spaces.



Let's go in detail entrances and stairs cases and landings to create interest use more up lighters on the wall, down lighters from the ceiling, accent lighting, and general lighting is very important then getting into your living room. Living room you have different objects like your ledgers, so again down lighter are important your wall lights accentuating, your ceiling is important, your table lamps giving more you know decorated effect on your ambiance it's important special for large rooms with high ceilings, larger scale fitting not only provides the required amount of light but also a visual that is what telling about chandelier in your living room.

Similarly floor standing up lighters give soft elimination to your dark corners that's why floor lighting is important in your entrances, stair cases and landings flush light fittings or resistant down lighters.

as excellent choices as wall washers because they be flushed against the wall. As you're walking around or walking up or down it's not going to hitting on your face, so these lights are more important

in the entrances or a transitions zones then dining light usually hanging lights on your dining table will create more interest because when light hanging on top of your table the table is lit and whatever you're putting on top of a table either serving the items or your crockery, your cutlery, your saucers or cups all that all that means that particular attention because those are and again looking at one another and endues more talking on a table, if you don't want so you want to be concentrating on the food as rather than a person sitting against you on a dining table again the kind of lighting endues the task.

So that's why dimmers which is a great idea and dining room not only to create that the atmosphere and for entertaining but to eliminate the room for preparations and cleaning as well then kitchen, we have already discussed in detail about Kitchen then office or home office area.

We have been discussing about table lamps, wall lamps, task lighting in office area, bathrooms a simple wall light position about the mirror wall do the job. Similarly above your shower wall can have down lighters

again your dining room where you to relax and unwind wall lights are important when kids using the space again wall lights much better than your floor lamps or your furniture mounted lamps.

## **Selection of Lighting Fixtures:**

Then we get in those special purposes of lighting depending upon what kind of space it is special purpose comes into place. We are going to discussing about only four typologies of building because typologies handling understanding each type of typologies will have to be learnt more than presenting.

### (i) Offices:

So generally in offices these days this is typical office in abode office in the US where you know lots of activity lights have hanging from the ceiling most of the offices in modern days they don't allow natural light because it very difficult to control the natural light use it for the particular purpose. So artificial light are controllable at same time with constant through the day, through the year in the calendar all the time it can look the same that's why artificial light some more advise in offices in work area.

The second example would be your retail store as a showroom, as were ambience of the store itself can determine whether the customer would buy the product or not.

So it's so important lighting in retails space jewellery showroom needs have more lighting compared to your accent or you know dramatic lighting in retail store for accessories in your shoes.

So this is an example of for your lighting in your clothing, restaurants it parallels store lighting at the same time light determines the quality of the restaurant in any area.

So this is one of the examples for restaurant lighting, then you know talking about lighting fixtures that different types of lighting fixtures like chandelier and flush lighting, semi-mount lighting, pendant lighting, island lighting, resistant lighting, track lighting.

These are different types of fixtures and depending upon which fixture fits in which space we can be using it and designer actually has liberty to use any of these fixtures anywhere and then return rules were used what, at the same time different types of fixtures which are available apart in the fixtures a different types of lighting itself it can be you know ceiling mounted lights recessed lights, eye boiled lights, lens lights and fluorescent lamps, high intensity Lamps. It can be LED lighting the different types of fixtures which are available in the market which again plays a very important role in lightning as well.

Whereas Technology advances at different fixtures available in the market this image shows you different types of decorative lighting which are available for a designer to choose from ceiling mounted, ceiling hanging lights, floor mountain, floor hanging, wall mounted lights sculpture in lights another important thing is the colour temperature, the different ranges in which the chart actually shows 3000 Kelvin which is soft only three different types of interior lighting. The one can be warm lights, neutral lights and cool lights. The warm light starts from 2600 Kelvin and goes up to 3000 Kelvin which is neutral light starts from 3000 to 4100

Kelvin above 4000 Kelvin is all more of white light. The different colour temperature which defines different lighting is actually mentioned in chart here that can be referred.