

**Interior Design**  
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**Lecture - 21**

**Interior Design: Green Interiors: Introduction to Rating Systems; Examples**

Namaste. Hello everyone. Welcome to my NPTEL course on Interior Design. Today, we are going to talk about green interiors. I will essentially discuss the rating systems with an overview and introduction to them, along with some examples. It's a very important discussion because we often talk about green buildings and their impact on the environment. Often, we do not talk about interior spaces, even though that's where we spend most of our time—throughout the day and across different seasons of the year.

They have a significant impact on the environment. So how do we design, you know, interior spaces in a very, very energy efficient manner and that we cause less harm to the environment is what the focus of today's discussion is. So, as you can see, we are focusing on green interiors and highlighting rating systems. We will be discussing that throughout this session. The broad topics will include green building rating systems.

So, what is a green building rating system, primarily? And what are the green building certifying organizations in India? What are the criteria for rating and some references that will help you for further exploration about this subject? So when we talk about a green building rating system, basically it is, you know, like thumb rules or a set of guidelines. And it is sort of...

The emergence of longitudinal research over a long period of time, where after certain experiments, validation, verification, and evaluation from the market and on-ground application, certain guidelines are formulated. They are designed to understand the performance of buildings and assess their environmental performance overall—how do they affect the environment. They are usually market-driven tools, and they influence building practices to a great deal. It is an important discourse: are these rating systems always useful? Should we always apply them?

What happens to our fundamental senses of design? If we know the fundamentals of design, do we have to rely on these rating systems? There are always people talking in

favor of this and others who say we do not need a rating system. But if we design with the fundamentals of design in place and with passive design practices, it is easy to achieve good energy performance without harming the environment. So this is my personal take that, you know, these are sort of set guidelines and they could be used as references.

It is good to refer to them because, as I said, they have been formulated after extensive research and assessment of applications over a long period of time. They always help in understanding how we calculate the environmental performance of our interior spaces and overall buildings. It is actually based on certain criteria, which are also set after much discussion and research. The parameters we are going to see do affect the performance of a building. It is important to keep them in consideration while designing buildings, spaces within the interior, the exterior envelope, and cohesively the entire interior architecture.

So what you see on the screen are some rating systems that are used all over the world. And it's a huge range and different parts of the world and different countries have adopted different rating systems. And there is this huge plethora, which is like, you know, there is CASBEE, there is Greenmark, there is Green Star, there is LEED. So there are a lot of these rating systems which have been adopted based on which country, you know, employs them and how it works for their environment and their climatic conditions and how have they been adopting those and utilizing them for evaluating the performances of the building. So if I talk about the certifying organizations in India, we also largely have like these three organizations.

There is USGBC, there is IGBC and there is TERI. And they have been instrumental and they have been like very active in designing and formulating these certifying procedures and these guidelines and which have helped. lots of architects, institutes and different individuals to design very, very energy efficient and environment responsive buildings. So here what we see are the rating systems that are adopted in India. And if you could see what is highlighted is LEED CI.

And this is what is the emphasis of today's discussion primarily. So we talk about these so many rating systems, but LEED CI is primarily focused on commercial interiors. So it is a very, very distinct and very specialized rating system that focuses on interior spaces. And like I discussed in the very beginning, it is very important to focus on the

interior spaces. And there is a lot of impact that, you know, the design of an interior space would have on an individual's mental well-being, on the environment, because we really inhabit them most of the year and for the longest time possible.

So if we see the USGBC, there are rating systems like LEED NC, LEED CS, and others. And within that, there is LEED CI, which is a very important tool for interior designers and interior architects. And within the umbrella of IGBC, we see LEED India NC and LEED India CS. There is also Green Homes. There are special economic zones (SEZs) where these regulations are distinctly applied and designed for that purpose.

There is also Green Landscape and Green Factory. And then we have TERI, which has our very own indigenous rating system, GRIHA. Because there was always this kind of discussion: why do we always have to follow international standards and rating systems? Because India is a very different context. We are a very, very diverse nation.

We have geographical diversity. We have our own climate zones. And also... Our thermal comfort, ergonomics, dimensions—all of that compared to a European nation or other parts of the world—would be slightly different. So, this was an attempt by TERI to come up with a very indigenous rating system known as GRIHA.

And it is very fascinating. But our focus is CI today, and we are talking about commercial interiors and how this rating is done. So, if I just give you an overview about LEED CI, basically, as we discussed, it is formulated by USGBC. And Currently, what, you know, we are following is the lead version 4.1 and otherwise there were some versions which were used in the past also.

So, there is always this kind of longitudinal application, and if there is some revision, modification, or incorporation of different guidelines that come over time after assessing these applications and getting feedback from the market and designers, there is always this sort of addition or revision that keeps happening. So, these are certain versions which are easily available and Interior designers and firms—the offices that practice interior design projects—have the option to register for version 4.1, which is quite effective and comprehensive. So, when we talk about the rating system, there are certain areas essentially addressed, like site planning, water use, energy use, materials use, and indoor environmental quality, which we also refer to as IEQ. So, these are very important factors, and, as I mentioned a few slides back, these are also

the areas, parameters, or factors that would essentially play a role if one follows the fundamentals of design principles. We know how important it is to plan a site, optimize its planning and use, and how water is used on the site. And what is the energy usage or energy consumption? What kinds of services and systems are employed during the design of a building or the interior spaces? And since we are talking about commercial interiors and interior spaces primarily,

Materials play a very, very important role because, you know, we talk about sustainability. We talk about energy efficiency. We talk about environmental impact assessment. And we do understand, as architects and interior designers, what a profound role materials play in that. So, the selection of materials and materials—

What kind of procurement methods? From where, you know—how many kilometers are you procuring them? What is your sustainability radius? So, to get the materials, all of that is very, very important. And it does impact the rating of, you know, the design-build procedure and the interior design project. And, of course, the IEQ, because it's very important to have a

good environmental quality while inhabiting a space, because it does have a lot of impact on physical and mental well-being, and it does form a very important criterion while, you know, rating a building and coming up with a certain system of points which a building would get after checking all these parameters. So, here I would just like to emphasize that the focus of the rating is on design parameters and not on how the facility is operated. So, this is very important. We were talking about certain parameters on the previous slide and how the design parameters have been applied or employed while designing this building. But how it is operated and what the different maintenance procedures are, etc.—that's not part of the rating per se, but nonetheless, it's important.

How the facility is operated and what the post-occupancy evaluation is—all of that is, of course, important. But for the calculation, yes, we primarily focus on the design parameters. So here we see all these important criteria that we were talking about. So site planning—very, very important. 21 points are assigned, you know, for the substantial efforts that go into the planning of the site.

What is the orientation? How do you get the daylight and, you know, maximize daylighting? Then water use has 11 points. So water efficiency is that important parameter. And then energy use.

So basically, energy and atmosphere—it has a very, very high 37 points. And there is material use. And since we are talking about interiors, all the more important. So materials and resources—17 points. Then IEQ is 14 points.

Innovation in design is very important. And Looking at the contemporary trend and practices where we are, you know, doing innovation and we are trying to adopt new technology, new methods and we are trying to cater to this overall concern of climate change and sustainability. Innovation in design is very, very important and it does have six points. And yeah, I'm very happy to point out the point number seven, which is listed here, which is the regional priority.

And it has four points. So basically anything related to a particular region, regional context, some natural resources or, you know, locally available resources, some kind of an identity, you know, that would impart this interior architecture or interior design project, some kind of a critical regionalism or identity, all of those things, some very special and unique material palette would which you would probably get in that particular region and not anywhere else. All of these points are also considered under LEED CI and these are very, very important. So this is more or less like a total of 110 points that we are talking about.

And the rating depends on your project and how many points could be, you know, after careful assessment, they could be assigned to your project. So basically, yes, that is the level of rating based on a certain point that a building or a project has. So it's certified with 40 to 49 points and then 50 to 59 would give it a designation of silver rated. And from 60 to 79, it would have the distinction of gold rated. And then above that, up till 110 points, it's like platinum rated, which is sort of the highest rating level in terms of the performance of a project.

And How high it is on the tally of achieving those points, which makes it very energy-efficient, more responsible, and less harmful toward the environment. Yes. So, it's also important to understand the scope of work for interior fit-out. So, when one works on interior design projects, there are a lot of different, you know,

areas where a designer could contribute, and these cohesively create a very interesting and important project, which creates an impression and identity for itself and also performs well. So here, if you look at the screen, we see this daylight And daylight is a very important factor. So, you know, how much could you maximize the daylight and minimize artificial lighting? This comes within the scope of interior fit-out. And the interior designers and architects—it comes from their design sensibilities and understanding of the site.

Also, there are constraints and challenges at times. There may be shared walls. There may be fewer possibilities of letting daylight enter your building or spaces. But then you have to navigate the site and see what could best be done. And then, other than daylighting, how carefully are you designing the lighting and the light fixtures?

And they should be designed in a manner that you get just the right amount of illuminance and it's good enough to, you know, do your work, read. Or, you know, sometimes if the reading is not required, maybe the lux levels have to be reduced. Or if you have designed like occupancy sensors where the light would dim itself when the occupant is not there. So we would discuss few of these concepts. So lighting is a very important part of this entire scope of work within interior fit out.

Then finishes are very, very important. And so essentially, when we talk about finishes. So, you know, in within the finishes, what are sort of paints and textures and laminates and how it would impact, you know, your overall interior space, whether they're light reflecting, light absorbing and so on. And yes, furniture plays a very, very important role because we are talking about interiors and furniture design is an extremely crucial and important part of designing interior spaces. And then again.

what kind of furniture is designed, what are the material choices for that etc. And yes, the space making elements like partition, they are also very important and then of course services, plumbing, fire safety, other kinds of systems that are employed and also building elements like flooring. So, all of these are important and while designing each of these and then catering to this entire scope, one has to very cautiously and responsibly choose the, you know, raw material resources and design very, very effectively to minimize the impact on the environment and create more responsive spaces and which are more eligible to be qualified as green interior spaces. And then what environmental impact do these have?

That's also important that we understand that while we were also talking about the scope of the project, it's important to also individually understand the environmental impact they would have. So like if we talk about this daylight over here, of course, there is a direct correlation with site planning, as I was explaining, you know. What kind of site you have? Where is it oriented? Are you getting the enough daylight or not?

And then daylight has this direct connection or implication with the energy use or energy consumption, you know, within your interior space. Because if you do not have enough daylight, of course, you will have to rely much more on the mechanical systems and it would increase the energy consumption overall. And of course, daylight has a very, very profound impact on the IEQ that we have been talking about. If we look at the partitions, there is this connection with the materials that are used to design this partition. What kind of materials have been used?

And there are also finishes. Finishes also impact the IEQ. And what are the kinds of finishes that you have chosen? Are they more... towards the natural palettes or they have lots of organic compounds within them do they have lots of chemicals so how do we minimize that because we inhale all of them when we are inhabiting interior spaces so it's important what kinds of finishes also we choose not just the overall material you know like brick or concrete or glass so they have a lot of implication on your

Interior spaces, their response to the environment, and how you would achieve a rating system, but also the finishes and, yes, furniture. If we talk about materials again, there is a lot of direct implication. What are the kinds of materials chosen for designing those furniture pieces? So, basically, when we talk about green buildings, Wiggins says that green building is not about a building; it is about people, and this is a very, very important thing to understand. Yes, you are evaluating the performance of a building or an interior space, and one is trying to assess the performance by giving certain points, which are based on certain parameters or criteria that are very carefully and cautiously chosen and developed over a long period of time. But it's essentially about the people because it's people who are inhabiting that building or those interior spaces. And it's largely to do with their physical and mental well-being, as I was pointing out all the time.

So it's very important to understand that it's not just a set of technical guidelines or rules. It's about health. It's about the people who live there. It's about their experiences. It's about all of those emotions, you know.

They go through while designing, being associated with the project, or living inside it. So it's very important to see these rating systems from that perspective and through the lens of human-centered design. So I hope this introduction gives you an overall understanding of the rating systems and why they are primarily so important for interiors and why we have this distinct LEED Commercial Interiors as a rating system. Next time, we are going to talk about green interiors in terms of different attributes like IAQ, IEQ, and furniture, a little more in detail than what we discussed today. I hope you enjoyed this discussion.

And there are certain references that could really help you explore more on your own and go into the details. Thank you very much. I'll see you next time.