

**Interior Design**  
**Prof. Smriti Saraswat**  
**Department of Architecture and Technology,**  
**Indian Institute of Technology Roorkee**

**Lecture - 14**  
**Interior Design: Space-Making Crafts; Space-Making Elements; Inter-relationships**

Namaste, hello everyone. Welcome to my NPTEL course on interior design. Today we are at lecture 14 and we will continue our discussion. You know what we discussed during lecture 13, we are sort of building up on that and we will talk further on interior design. Building elements or SME or SMC, which is space-making crafts.

And while we talk about these, there will be a consistent focus or a common discussion on local resources, craftspersons, community participation, and their skill sets. And then how we sort of establish interrelationships amongst them. And then we see, you know, this entire space conceptualized together or enhanced or, you know, created or felt. So, these elements and crafts come together, and through different skill sets, participation, and interrelationships, how do we create such interior architecture experiences? So, like I said, SME or the

building elements, SMC, building crafts or space making crafts and how by default whenever we talk about these. And we understand the conceptualization of space or interior architecture projects. We do try to understand the role and contribution of all of these and then try to also understand the interrelationship amongst all of these put together. So, these are the contents. So, space making elements, we had already started discussion and we saw this table, but just to summarize again, we do have architectural elements, interior elements or ornamental elements, you know, all these interior and architecture elements put together and you know, that make a space, they are called SMEs or space making elements and these are the

categories that have been, you know, sort of adopted from the prior research and it's also a part of my PhD research at IIT Roorkee and there are some more details that are added there if somebody is interested to look at. So, since we already discussed a lot about these elements, I'm going to talk a bit about, you know, some of the attributes of these and some visuals I'm just going to show. So, not sort of technical

definitions that we have already seen. So, when I talk about the floor, it's a very crucial element.

And if we talk about its origin, you know, In Sanskrit, it is derived from Bhutal, where 'Bhu' refers to earth or ground, and 'Tal' refers to the bottom or base. It sorts of becomes like an anchor point or reference, and we have to really see this as a very important element within interior architecture projects. And it could be an unmodulated floor surface like very linear and very consistent and uniform. It could also be something modulated, where there is a play of levels. It could be something very psychedelic.

It could be something very, very, you know, different from what we experience on a plain surface. It could be natural. It could be man-made. We could have different kinds of articulation. It could have a vegetation cover as part of nature or a natural stone.

Or we could, you know, design expressions, customize details, and do interventions as part of our skill sets to create different kinds of floors. There are different kinds of spatial roles that the floor plays. We have already had some kind of discussion. And it does strongly define and demarcate different zones. It helps in the articulation of spaces and defining the boundaries within a space.

And even accessories such as rugs, mats, carpets, etc. They help in delineating that much space for a different function through a change in texture or color, etc. And there are different attributes, you know, these elements could assign to a space or a project. For example, a floor could express a threshold. It signifies a threshold.

It offers a transition from ambiguous surroundings to contained volumes. And, you know, these are like a series of stepping stones. It's a house in Osaka. So here it's an expression again of thresholds. This is an elevated floor, you know, defining a threshold.

The Friendsworth House in Illinois. This is a Bhunga house in Kutch. We are looking at the plan. Here, we also have very interesting details in terms of the floor. And here there are these stones which are approaching the entrance.

They guide us toward the entrance and define the threshold. This is the house in Kyoto. Over here we see some traditional flooring in the interior house of Kyoto again. So, it could express thresholds and define volumes. Then there is this one application: Sangath, Ahmedabad, architect B.V. Doshi's office.

And here, we see how the floor is used for different purposes and the interesting role it plays. The floor defines a sequence of pauses and movements, right? So, without directly entering in the office, how one is navigating through that space and there is a sequence of pause and movement. And then, we are taken to the office.

That's also a sort of journey, and the floor plays an important role there. The floor, again, as an element connecting and binding the landscape with the built space. So, this is the exterior landscaping shown here through this drawing and pattern, and here we see how it becomes a sort of binder, you know, it sorts of coheres the landscape with the built space. And then floor as a communicator, you know, the branching out of spaces, the kinds of stories that one understands through, you know, these building elements. So, all of these are actually very important.

Crucial aspects of design also have some philosophical underpinnings and, you know, some kind of symbolism, iconography, apart from the functional aspects. These are also very interesting and important parts for a designer to understand. This is the very famous Fallingwater in Pennsylvania, and here also we see how the floor becomes an important point, you know, sort of binding the entire exterior landscape with the overall built form, helping us navigate from one zone to another through these series of pauses and movements, understanding a certain sequence within the space. Then, the column—and the Sanskrit equivalent is 'Stambh'—we already discussed the orders, the five kinds of orders, and here again we see these columns in place, the entire detail about the shaft, base, capital, and entablature. and how they help conceive a space and what are the functions that they do within a space.

Again, we see some of the examples over here and we talk about columns. Here there is a repetition and there is a rhythm. Here, we see these sort of twin columns defining the grandeur and the main entrance. Of course, landmarking. This is again a sort of a landmark and a very, very historic example.

And over here at the center, if I'm not sure if it is too visible, but here we see this interesting placement of a column. Here again, some examples. This is from Ahmedabad. And then you see the one-point perspective over here. A very interesting perception within a space.

This is another example over here. And we see the columns in the Taj Mahal, the minarets and columns. And, of course, a very interesting example like this. You also see contemporary examples like the Mumbai terminal and other columns which are used in contemporary projects. So they serve many different functions.

Then another SME is the wall, and we see examples again. This one is from Gujarat, and again, some very historical examples. Then again, what does a wall do when it is about the subdivision of a space? So, it has this attribute, and then, you know, understanding the placement of walls helps us demarcate certain spaces—this zone versus that zone. And then here again, right, within a walled city also, this sort of grid and then the subdivision.

Wall also acts as a communicator and encoder of messages so here again it's a very sort of a fluid surface over here we see and this is the brick wall which is done in a very interesting louver pattern this one over here again Lots of messages, you know, history of the place, important elements of a particular architectural style. Also, you know, if there is any kind of epigraphical detail, you know, something written, something etched on the wall or some kind of a carving or some kind of a motif which is denoting a certain meaning. So those kinds of details are also seen on the wall as a building element. One of the applications could be the City Palace in Udaipur. Here again, we see different kinds of walls on different scales, segregating space and assigning different functions. This is like a single-line schematic, and we have all these subdivisions within this palace in terms of space and functionality, where the wall acts as a

This set of walls is more like a maze, navigating from one space to another. So it's Chandramahal, you know, Pritam Nivas Chowk, Diwan-e-Khas and all of these areas. And we see interesting details of mirror work and mosaic work or Meena Kari work within this palace at different eye levels on walls, which sort of again accentuate the space. They create drama, they create aesthetic. Plus, again, it becomes a communicator and encoder of messages.

From that particular time period—where did this glass or mirror work come to India from, or whether we influenced it to be taken outside India, and so on. This is another application: the Vietnam Memorial. We see how the wall becomes a very crucial medium to communicate. It's a very interesting project that has to endorse and encompass humane aspects. Because it's a memorial, it has to be very subtle. It has to incorporate aspects of emotional design and so on. This is another

example where we see the communication and piece of writings and everything. Door, another element, we have talked a lot about its purpose and why it is an important building element. It originates from Japanese word 'turi' and it means gateway leading to heaven. And the Sanskrit synonym is Dwara. And we see some of the examples over here, which sort of do act like, you know, gateway to heaven.

Door also acts as a guide to movement and it defines entrance, it defines movement, it helps us navigate and within a floor plan, you know, wherever we see like door openings, it also gives us a sense of direction. Then it also acts as a modulator of facade. So here if we see here there is a lot of articulation and there is a lot of you know modulation on the facade that sometimes could be achieved through door as a building element. And what material is it made out of? What are the details that we do on that building element?

So, it acts as a modulator of the facade or acts certain interesting details, also catches the movement of eye and, you know, sort of becomes a very interesting part of the entire facade. One of the applications could be the Bulandarwaza and here again we see this sort of an entrance gateway or you know the typology within the door family and then again how important it is in terms of the scale and grandeur and the functionality it assigns to the project and the overall form. Window is another, of course, interesting building element. It derives from the old Norse word, vindagva, you know, means eye for wind. There is also a Sanskrit equivalent of window.

It is called vaatayana, where, you know, vat means wind and aayan means to come. This is like one of the examples. Windows can be understood in terms of anatomy. You know, it could be like a perforated window or a casement window, which has a proper structure and system in place where we have, you know, the top rail, bottom rail, and all these details. Or it could be something very abstract, intricate with perforations, with lots of motifs and patterns.

So, perforated. Then there are other examples. This is a dormer window. Here we see the roof and the window at an angle. And this is like the bay window.

So different countries, different climates, according to different needs, there can be different kinds of windows and openings. There are, again, a lot of attributes, qualities, and characteristics that a window could, you know, serve the purpose of and be known for. So, here, this example is from CEPT. This is the north light. This is the window opening.

over here. So, it could act as an aperture for light. It could have a play of transparency and porosity. It could again create a drama in the space while simultaneously, obviously, you know, offering the function. It could also act as a passage for air.

So here again, this is the very famous Ronchamp project and here we see it act as the passage for air. Again, as a facade modulator, like we talked about the door and here we see the Gaudi's architecture and here Hawa Mahal and how these window openings, they become facade modulators and they modulate the entire facade or the surface on which they are placed. Again, also as an image maker, creating a certain image or a certain pattern or a certain, you know, conceptual understanding, some philosophical idea or imagery, even that a window could facilitate. It could be something very intricate and very ornate or it could be simple and geometric. One of the applications shown here is the Bohra house in Siddpur and we see a lot of window openings over here.

Now, let's talk about the stair. So, the origin of the term lies in the old English or old German word Stigan which means to rise. And there's also a Sanskrit counterpart, which is Padasath. So, stair has, you know, different anatomy and it has different attributes by virtue of that anatomy. It could be a straight flight.

It could be spiral, helical, and so on. These are some of the examples. And, you know, it sorts of assigns movement within a volume. It could also be seen as a pedestal, you know, giving this kind of pedestal or plinth to the built form and creating an experience for the user to arrive at a certain point. It could also be used as a sort of seating.

So there are different kinds of attributes for steps and stairs. As a movement guide, you know, how we are navigating within the space over here. So here, in this

interesting project, how it becomes a part of the spiraling gallery and something like this, also in the form of a ramp. Something which becomes like an aesthetic element or part of an industrial design vocabulary, even that is possible. So, this is Centre Pompidou.

And again, as a space modulator that we have been talking about, or a facade modulator here also. Sort of spiraling steps or staircase, you know, along this minaret or these sorts of towers or turrets. So that gives a very interesting modulation to the entire space and the surface. Sometimes also as a ventilation shaft, like we see the examples over here. One of the applications is the Sun Temple Modhera, you know, the stepped one, and we see such interesting examples.

Throughout history. Then we have a roof. The roof is again an important building element and has been referred to as a ceiling in Middle English terms such as 'ceiling' and derives its roots from Latin, often referring to heaven. There is also an English and Dutch term for this. They refer to it as a cabin. The roof also has different kinds of anatomical forms.

It could be a flat roof like a slab, an inclined roof, a curved roof like a parabolic one, a dome, or a vault. It could be a folded plate roof. Like corrugated sheets, it could be a membrane—a shell or tensile roof structure—or a space frame, hexagonal or square, etc. The roof anatomy is very fascinating and can create an interesting vocabulary for the entire design of the built form of the project being worked upon. It has several attributes: it acts as a shelter sometimes, sometimes as an overhead plane, and it provides a spatial enclosure.

It also acts as a modulator of volume, sometimes as an image maker or encoder of symbols. iconography, communication, storytelling, all of that. This is one of the very famous Bahai Temples in New Delhi, where we see a very interesting roof form. There is one more case study where we have sort of seen these different building elements put together in a very interesting way, very famous Jawahar Kala Kendra. Different kinds of walls, different kinds of openings, and a very interesting roof form.

And when we especially go within the interior space, we see from flat roofs to domical to vaulted, all different kinds of examples within this entire project. So skylight courtyards like this are from the interiors. So, once you are situated inside

and you are near the entrance, then you look upward. Very interesting material palette, color palette, different symbolism again, defining the space, defining the entrance, natural stone, color palette, and the natural pattern of the stone, how it is used to the advantage of the user experience and enhancing the built form. Now, continuing with the space-making crafts, since we already had a very elaborate discussion on the

classification of these crafts and what we mean by SMC. These are some of the plates or inventories that I have tried to put together here as some examples. And these were developed by me as part of my PhD that I submitted at IIT Roorkee and defended at IIT Roorkee. So, let's say we are talking about a building element: window. And this is one case study from Uttarakhand, a place called Khazanchi Mohalla, Almora.

So now if I have to analyze this building element in terms of what typologies or what types of windows I see here, I see casement windows which have one panel, two panels, or three panels. The craft that I see on the window openings is likhai kaam, which is carving, wood carving precisely. What are the built forms associated with these openings? Rectangular.

And somewhere, there is also a Mihrab. And there are symbolism and semantic aspects also, you know, assigned to these openings. So, it acts as a visual link with the outside world. Sometimes, a veil conceals things from the outside world. And so on.

What are the different functions? So, you know, protection from weather, daylighting, and ventilation. What is the construction like? You know, so what are the different parts? What if I have to break this opening into its constituent parts?

And then, you know, how does the assembly happen? So when I'm showing these examples and when I said in the beginning that whenever we talk about SMEs and SMCs, There is, of course, a profound role of, you know, the makers, their skills, their understanding of this material. They know it like the back of their hand, how things are put together. What is the joinery?

How does the assembly happen? What are the different attributes of these elements and crafts? And what do they convey? What is the semantic or symbolic meaning behind them? And what is the actual function they fulfill?

What is the form like—whether it's rectangular or any other kind of form? So, this is sort of putting all that analysis together. So, what are the embellishments that we see here on these openings? Natural motifs, floral motifs, some geometric motifs, and also figurative motifs. And what are the narratives or stories that we get to know through these window openings in Khazanchi Mohalla, Almora?

So, narratives of nature, of expression, of culture, mythology, and also spatial narratives. We understand the space and this entire residence also through narratives carried by these openings. So, here this is like one complete inventory where we see a building element, craft associated with it, and all the details that I just discussed. This is another one where we see the element door, and here we see the element wall. So, if I talk about the door, we see both likhai kam, which is wood carving, and then aipan, which are the ceremonial paintings.

We see both these crafts over here. So, one is more like a narrative craft and one is more like a building craft. So, SMC and SNC, those two we discussed and we see both the examples here. What are the types of these doors? That also is mentioned again.

Symbolism, what are the narratives they communicate or encompass? Embellishments, how the construction is done and what all different functions do these doors that we see in this particular house which is at least 300 years old and more similar examples in this entire mohalla. So, we see this kind of sort of attributes and interrelationship between all these aspects that I am talking about. Then the wall, which is again an important building element type, load bearing, non-load bearing, interior, exterior, what craft goes on it, what is the built form, semantics behind it, some observations which are put here in the form of images, different functions, embellishments and again the narratives.

This is another sort of an inventory or analysis where again we have tried to highlight for you the space making crafts and the surface narrative crafts. So, here we see, you know, this is one example residence in Garhwal and here we see, you know, stone and timber which is used in alternate bends. And this side of the world, it is famous for its Koti Banal style of architecture. So different building elements like balcony and, you know, roof, staircase, walls. And we see different kinds of crafts over there in different intensity.

So, we see some structure-based crafts, you know, core structure, the steps which are handcrafted from a single log of timber. And we see some combination of that. We also see surface narrative crafts like this kind of carving, which is not structural per se. But there is some carving that is integrated on the surface. And there are some kinds of objects of use that we also see inside these houses.

They are there on the other plate. And there is the surface finish. So, there is this local soil which is known as Khar soil. And for the finishing of the kitchen, it is used, you know, for the finish. So that's in the interiors.

This is another example over here, and here also we have tried to understand different kinds of building elements, columns, arches, and what kind of material palette goes into making them. Also, like there was an in-depth analysis also about the community of makers and how these things are made and how much duration of time. So I cannot discuss everything here. But again, I'm just trying to emphasize this interrelationship between all these aspects that, you know, I began my lecture with. And so here also we see space-making crafts, structure-based, which is the core structure of the house.

And, you know, the columns, the structure integrated wood carving that we see here, there is some kind of combination that we see here. There are also surface narrative carvings that we see. So not the structural part but some kind of integration like here there is a band of carving which is just a surface integration. In the interiors, we also see the aipan, which is like the surface finish. So, of course, this analysis—as I have been discussing—there is a reference to the work done at CEPT in the context of Himachal Pradesh, and then the research that I have done in Uttarakhand, where we have just tried to put examples from both.

These are again, you know, examples where I'm talking about space making crafts and I'm talking about structure-based crafts and these are seen in the case of furniture. So, furniture carries dead load and live load, and it's quite structural in its design. So, we see those examples. We also see structural cladding. So, there is timber detailing over the mud flooring.

So, those kinds of details we see here. There are also utilitarian objects, like floor mats. So, we see all those kinds of examples. Here there is also again, you know, wood carving on the window, which is the likhai kaam. This is another consolidated

plate, and here we see structure-integrated craft, which is the likhai kaam here in the door jamb.

You also see surface finish or SNC, the surface narrative craft which is this open work at the threshold. Here we see the structural tread flooring, this timber plank over mud floor. You also see structural application in the furniture over here. Here we see the structure base craft in terms of the core structure and the design of the columns. Here we see surface integrated craft.

So, some carving but surface integrated. Also surface finishes here that we see the aipan art. This is surface cladding. So, this is done out of ringal which is a species of bamboo which is found in Uttarakhand. So, this is just the cladding part.

And again, the objects of use. This is also made out of ringal. So, this panelling that you see over here and also the baskets, it's done out of ringal. And there are also, you know, the woolen blanket which is locally made. So, we see objects of use and decor.

We see surface narrative crafts. We also see space making crafts. So, all the categories more or less are seen here in this inventory. So, we could analyse interior architecture projects. you know in terms of different building elements that go into the making of them and then what are the different space making or building crafts that we could see over there at different levels and different capacities like i was explaining and then how with the help of profound experience of these makers and their skill sets

the tools and techniques they use to create these kinds of details, how all of these put together within an ecosystem, connecting all the dots can help us make and enhance a very interesting interior space or an interior architecture project. This is one more interesting inventory which helps us understand that You know how we can understand the composition within a space or within a facade or within a plane by decoding what kind of crafts go into the making of it. What is the interval at which they are placed? What are the different kinds of motifs that are used?

At what eye levels are they put? Are they recurring? Is there a rhythm? So, we can understand this entire composition, you know. So this is a sort of a structure that I had given to this inventory.

So, what is the description of motifs? What is the space-making element which is seen here? It's a wall. It's rectangular and cuboid. The motifs are Ganesha, ornamented arch, and geometric band.

The craft seen over here is again the Likhai Kaam, which is wood carving. The material is tun, which is a local wood found here. The technique is relief carving. So, within carving, there are also different techniques. The community of shilpakars or divans.

So, all of those details, you know, what is the logic of it structurally, ornamentally, culturally? What are the dimensions? What is the placement of the craft in terms of eye level? So, all of that composition and organizing principles. So, there is a recurrence of motifs at certain instances, which are marked here at A and so on.

Patterns are organic, inorganic, or geometric. And, you know, whatever we have been studying about elements and principles of design, balance, rhythm, etc. What style? So, 18th-century row housing and, you know, what is the value matrix? Or how do people see these houses, these spaces, these designs, or these motifs? So, this entire analysis is done over here.

This is the south facade. So, yeah, with the help of SME and SMC, we can establish You know, these kinds of organizing principles, we can understand through makers working with them. How are things put together in such scientific manner with regard to form, function, placement, organizing principles, all of these. So next, I will be summarizing this week's findings and learnings.

Some of the references are over here.

Thank you. I'll see you again.