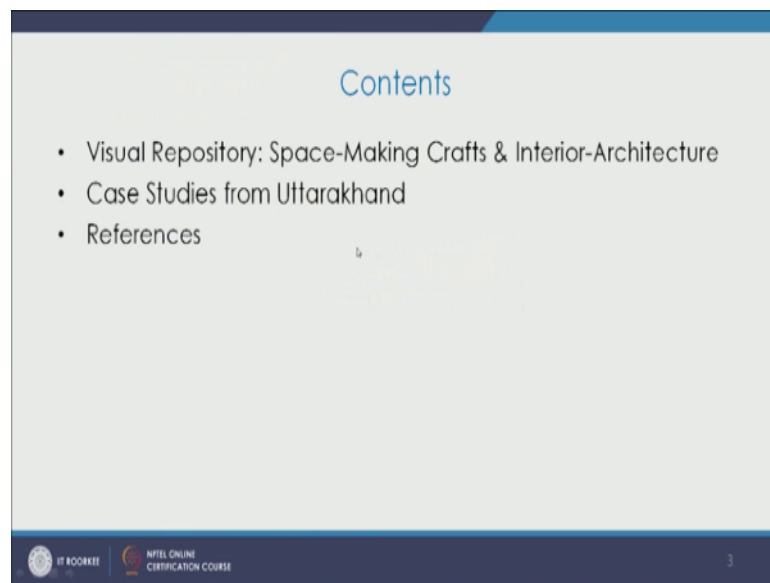


**Role of Craft and Technology in Interior-Architecture**  
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**Department of Architecture & Planning**  
**Indian Institute of Technology, Roorkee**

**Lecture – 19**  
**Case Studies from Uttarakhand**

Namaste! Hello everyone welcome to the NPTEL course, Role of Craft and Technology in Interior Architecture. So, today we will discuss module 19 and we will see varied Case Studies from Uttarakhand. So, it is basically a visual repository so there are lot of visuals and slides which I will be just running through and then we will talk and discuss about different interior architecture styles and building crafts of Uttarakhand.

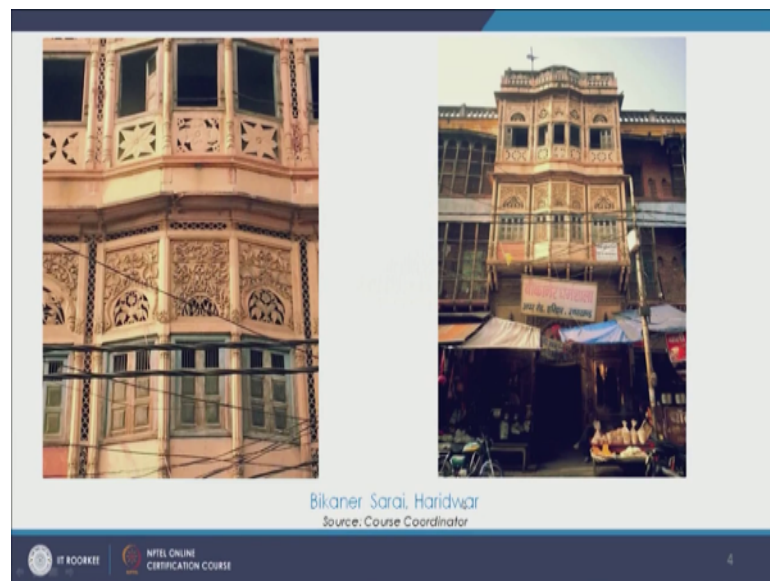
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So, just to give an overview what are the contents for today's module, visual repository space making crafts, or building crafts and interior architecture. And we will understand them through case studies from Uttarakhand and we have a list of references towards the end. So, there are different kinds of interior architectural styles whether we talk about residences or public buildings or different kinds of construction methods that we see in Uttarakhand.

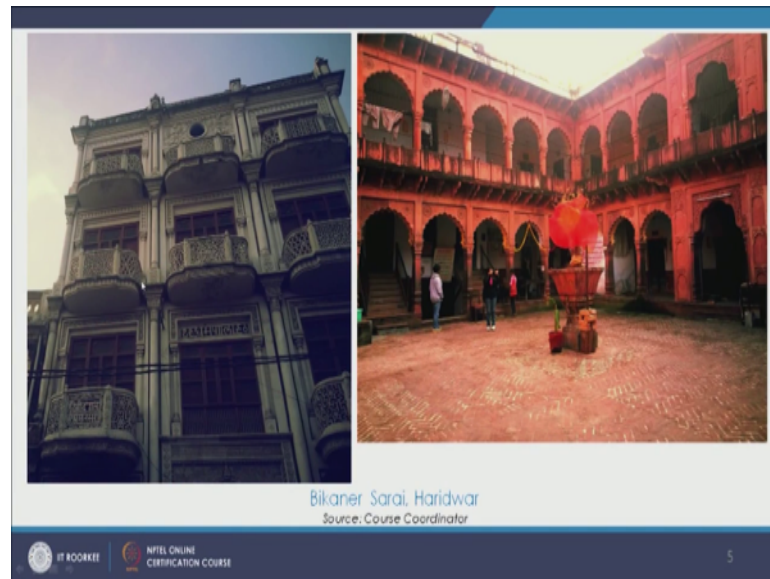
So, I just tried to put together different case studies whatever like I have documented on my own an experience on site. So, we will just see through it and to understand the final details we will rely heavily on the module which talks about decoding systems within interior architecture, but for now it is just a visual repository and we will just try to see things and absorb them. So, this is one Sarai the travellers inn that we see in Haridwar,

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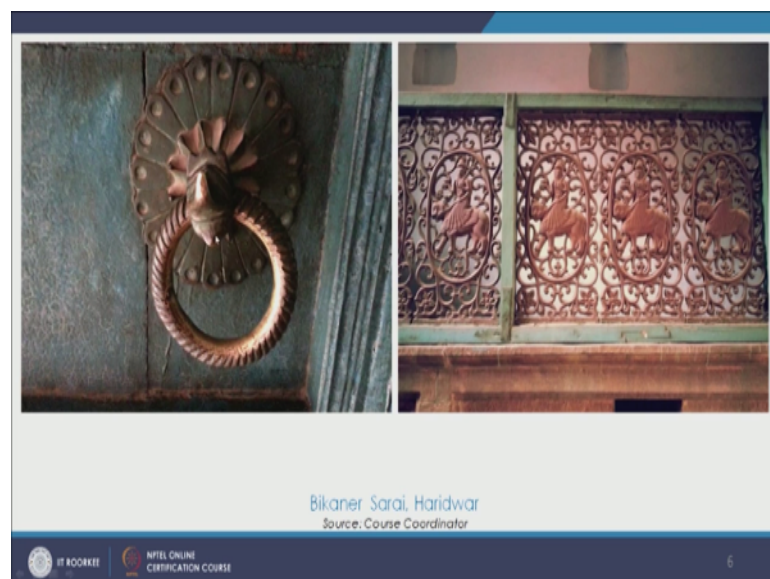
Its called Bikaner Sarai and it is a very old Sarai and here we see the facade and we see the work you know here the carvings and the stone work that is done over here. So, when we go to Haridwar you know there are just near the Ghaats there are narrow lanes and while walking we will just see the Dharamshalas and we will just you know try to navigate through the spaces and all that comes outer highlighted or gets highlighted over here is just the facade which has the major details. So, this stands out and it has some level of intricacy and the work which is done by hands.

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The same Sarai and these are the Jharokhas or the balconies and we see in the you know interiors. So, this is again a central courtyard and a distinct characters to spaces and we see these you know arcades over here and some carvings and relief work which is happening here. So, again this is like you know the central courtyard which finds entire space.

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We also see the detailing in the hardware. So, here we see the door knobs and here we see the realigns. So, the metal work that we see over here is very interesting and Roorkee and Haridwar they actually have this traditional technique you know they there is lot of work that we seen wrought iron and cast iron. So, that is seen over here, these are different frames which show different spaces within the same Sarai.

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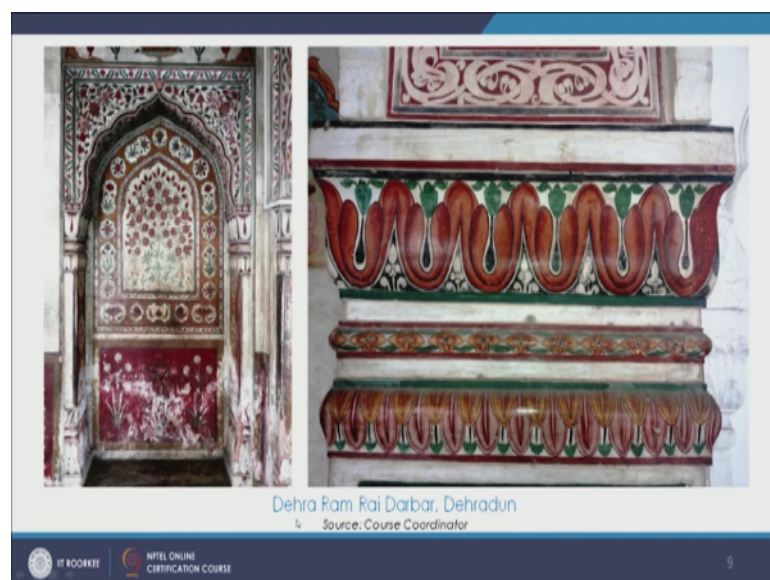
So, different space making elements and different you know furniture elements here we see the door here we see the staircase and yeah furniture is not there. The central courtyard, the hardware over here, so it is just a repository.

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Then these are some pictures from Chamoli and it has very intricate wood carvings and see over here the structural integration we see the brackets with lot of you know carving here we see the carving getting done on site and the artisan or the craftsperson is working on it.

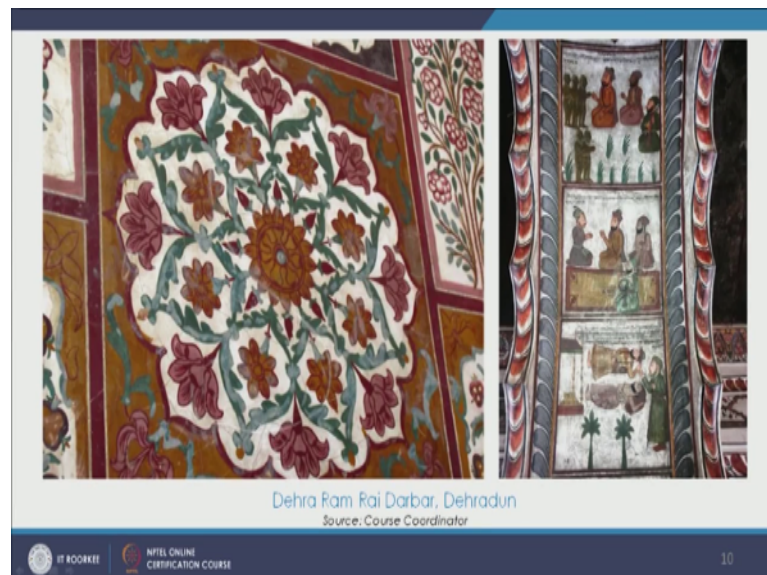
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This is one Gurdwara in Dehradun you know the place of worship of the Sikh is called Dehra Ram Raj Darbar. And it is a very old Gurdwara very famous lot of people come here from you know far off places and it is known for its frescoes.

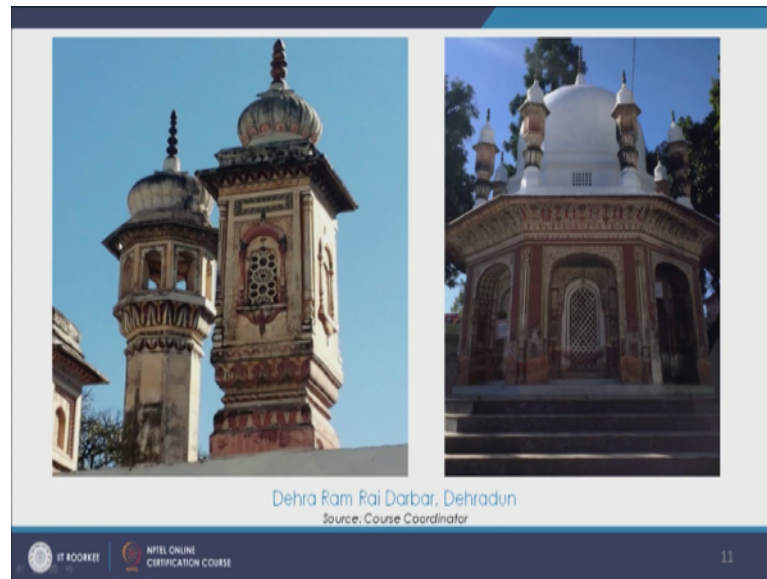
So, here we see you know several motifs we see the different colours which are natural pigments and if you go today like these are recent pictures few years ago. So, lot of them have actually you know they have come out of the wall and the condition is dilapidated. And some steps have been taken forward for its conservation and restoration and few of the panels can still be seen in very original forms and original colours and there are different motifs over here and different designs that we come across.

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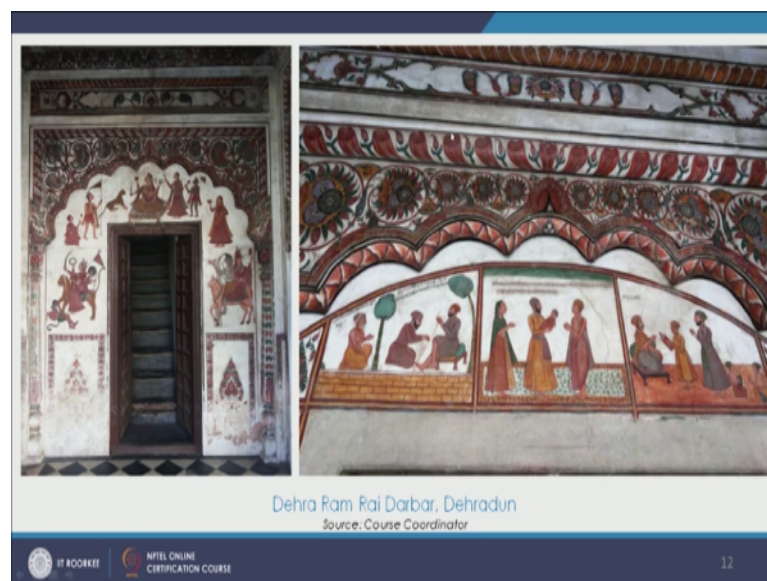
Again some pictures and here also we see lot of narratives and you know there are lot of stories of different gurus and rulers and the you know the people who belong to the time and it was getting constructed or otherwise from the religion. So, those kinds of stories are here, which flanked the you know arches the spaces between them, under them wall ceilings.

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Here we see some details and these are all change the key elements and we see, you know details of the Minarets and the dome and we see space making elements and, we see the you know details of the Minaret and the dome and we some work over here. Again some you know frescoes and here it is a very beautiful sight here, if we see the so, much detailing it is very very intricate very detailed out and still preserve in its you know original form.

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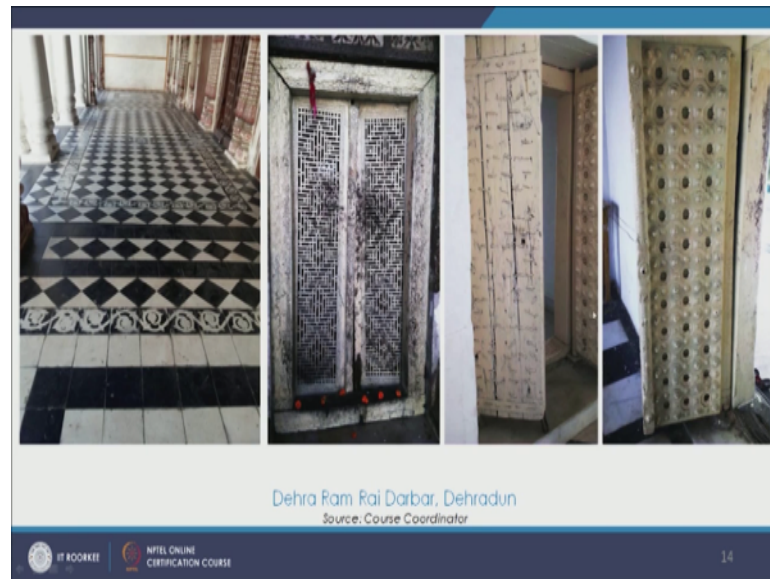
So, all the frescoes that we see over here and they have varied motifs, these are another pictures here we see this entrance door and then this wall completely you know, decorated with all these natural pigments and frescoes and different stories that go with them, again another picture which shows the details.

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We also see the you know stone work here and this is marble. And these are new additions not the original Gurdwara. So, the stone work over here these are added later. So, we see different kinds of materials in different kinds of craft forms.

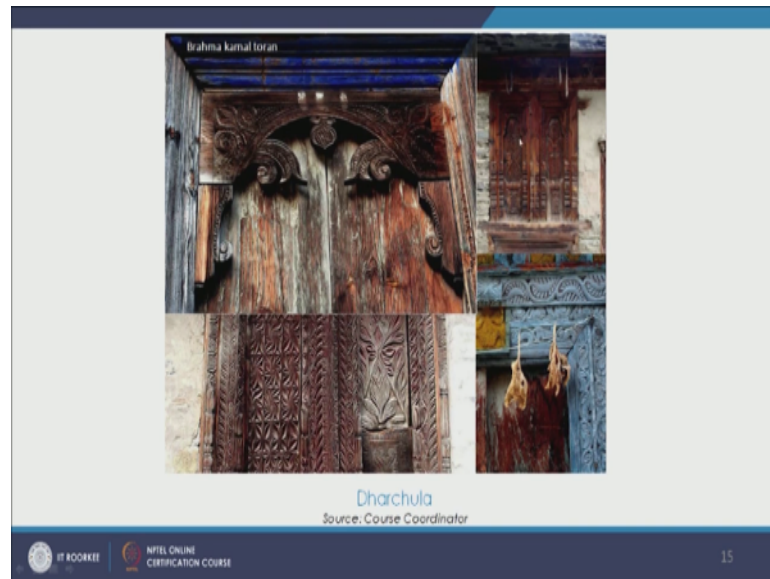
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We see this timber and metal craft different kinds of you know doors we see and this is also a very old door. So, we have this metal and timber and the this paint on that so, its hiding it but the original details are quite aesthetic then again you know the flooring, the marble flooring and the inlay that is happening.

So, all these you know interior spaces and interior elements like doors and then floor and we have these details of twin columns with frescoes and motifs and paintings on them. So, these create another experience when one goes inside, other than the spiritual context where it is situated.

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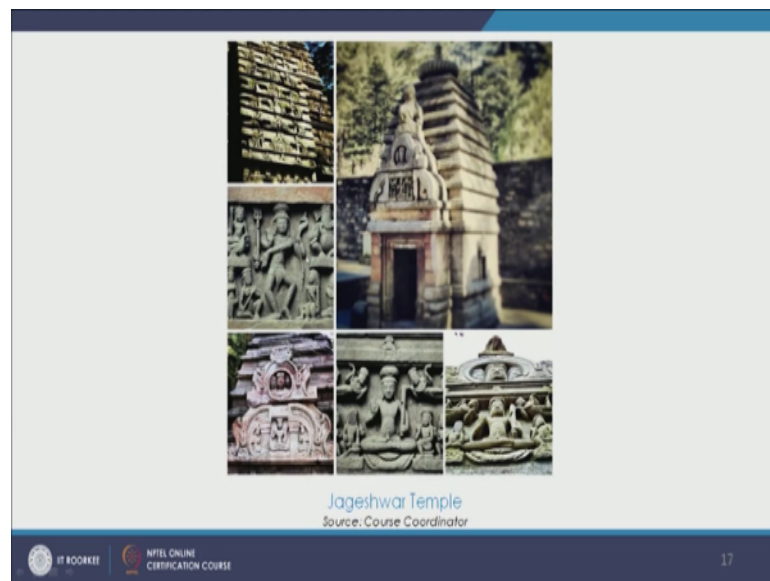
These are some pictures from Dharchula which is in Uttarakhand and it is known for its community indigenous construction which is earthquake resistant and climate responsive. And we see some windows over here, we see the door frame and door jamb and we see some detailing of the you know, timber and carving and the different kinds of motifs that are being made. So, we see these pictures, here this is another one.

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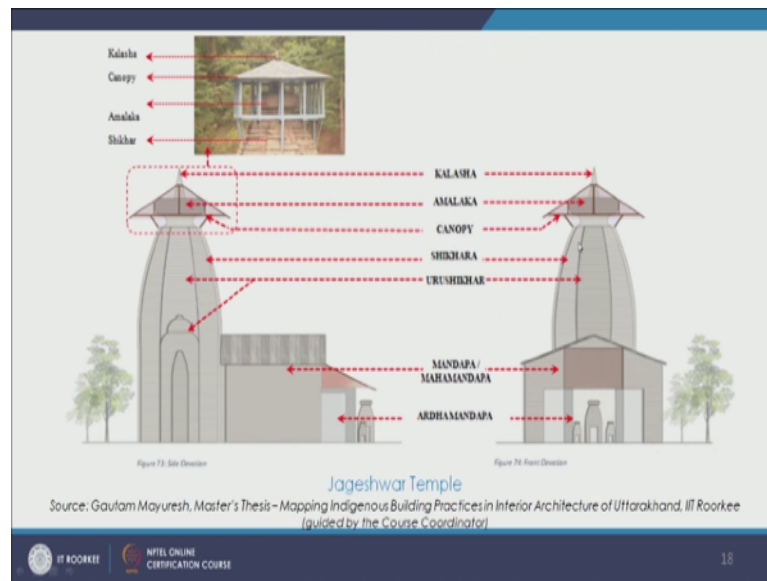
so ornamentation over door and windows it is like very detailed, if we can see over here, here we see the details again like usually there is a Ganesha Murti for over here like we saw in one of the previous modules and all the carvings and details and also the colours that have been put over here. So, these are all intrinsic to the interior architecture style and done by the community.

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These are the pictures of the Jageshwar temple which is a very famous temple in Almora Uttarakhand and it is entirely done in stone. And it is basically dry masonry and it has very intricate carvings which bring out the details of you know the gods and goddesses and the nature the motifs from nature all that we see over here.

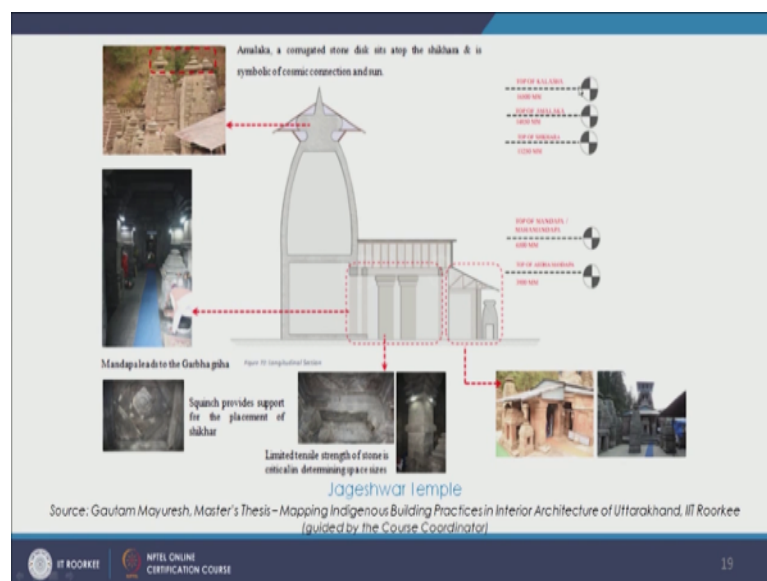
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Here we see a drawing and it tells us about different you know space making elements. So, we see this Kalasha and then we see the Amalaka over here, this canopy Shikara, then there is Urushikhara, we see the Mandapa and we see the Ardhmandapa.

So, you know the different elements of temple architecture of India. So, that's how it has been made, but what is unique from outside are the different kinds of carvings and the construction details that have been done in stone.

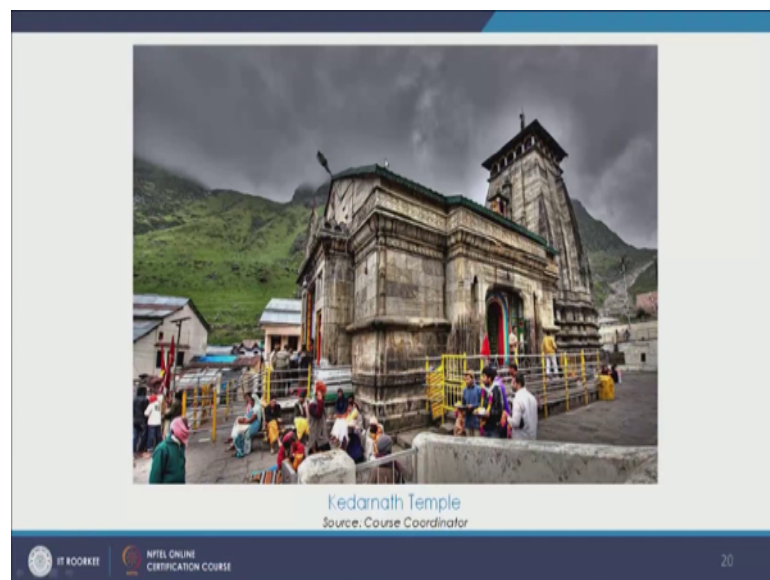
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Another few details and the pictures that we see over here; the section see limited tensile strength of stone is critical in determining the space sizes. So, because this stone was used it was all dry and block masonry and then we know that limited tensile strength is there in stone.

So, keeping all this is in mind and working just with the gravitational forces and how this entire temple which is so huge, humongous and it has a lot of height you know we see over here in the section. That is how it has been constructed and created by the wisdom of the community and the people and the Sthapatis who used to make temples.

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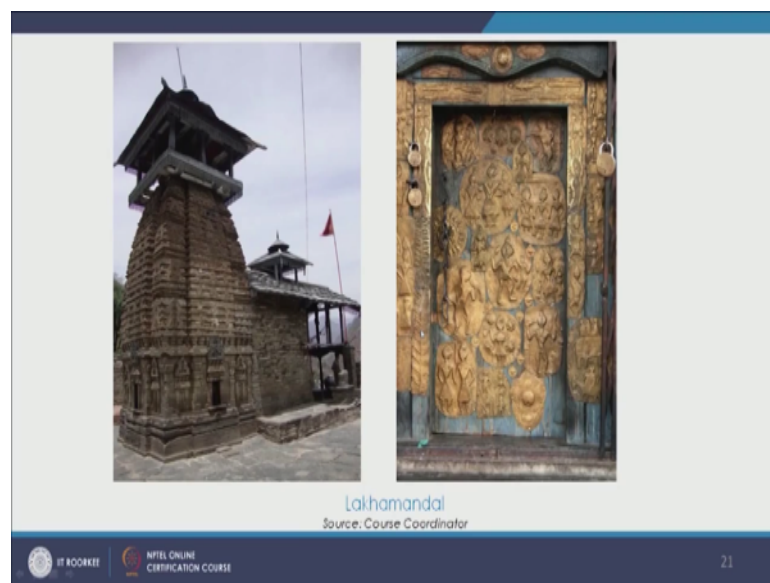
So, this is again stone craft and interior architecture, Kedarnath temple very famous temple and we all know that in 2012 this serious calamity happened and all the buildings and structures which was surrounding the temple they were just devastated but this temple stood and that is what is to learn from you know past and how the strong buildings were made, what were the principles of construction, how did they take care of the natural calamities in earthquake and wind forces.

And other than that also there is this you know the spirit of seva and how the community comes together when it is constructing a temple, and their age old wisdom and knowledge about this material stone and how the details like this the relief in the carving.

Also where they are situated and if somebody stands over here can they watch it. So, what is the level of detail, what is the depth, what is the cone of vision all that is kept in mind and of course structurally it is a very sound building and it has its own structural dynamics and also the energy centre why it is placed on the site.

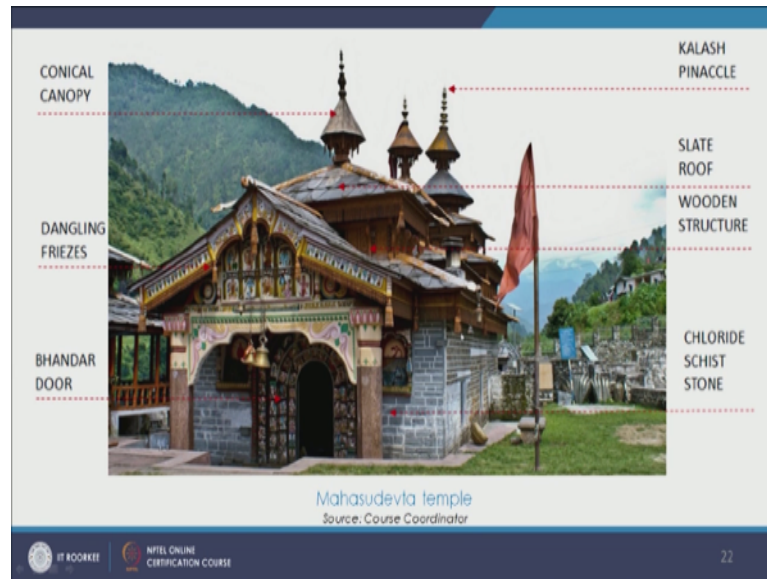
So, there is so much to learn from the existing interior architecture styles in traditional knowledge systems. So, through all these case studies will at least just try to have a glimpse of these different interior architecture art craft styles and just try to absorb them. And whosoever is interested in a particular case study they can go into the details later few of them we will try to understand when we see how to decode the systems within interior architecture styles.

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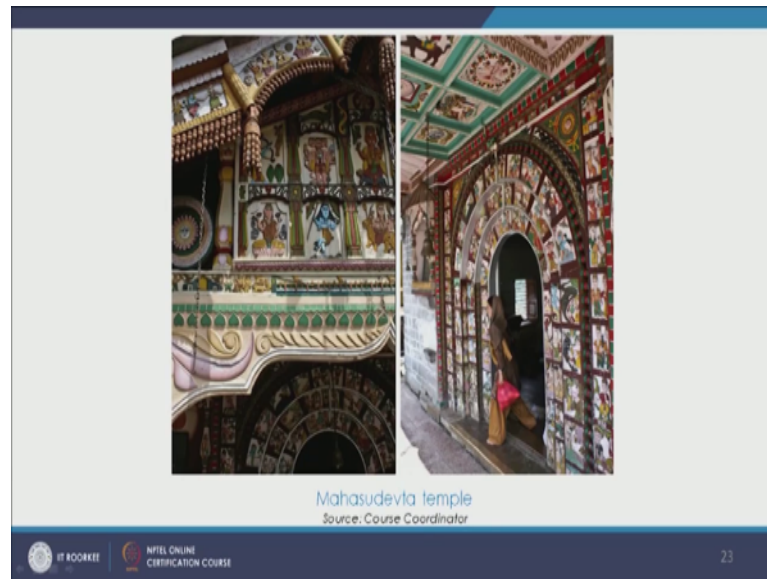
This is another temple which is Lakhamandal and we see a lot of detail over here, which is metal and door and again it is you know local stone and done by the community together and it has this timber canopy.

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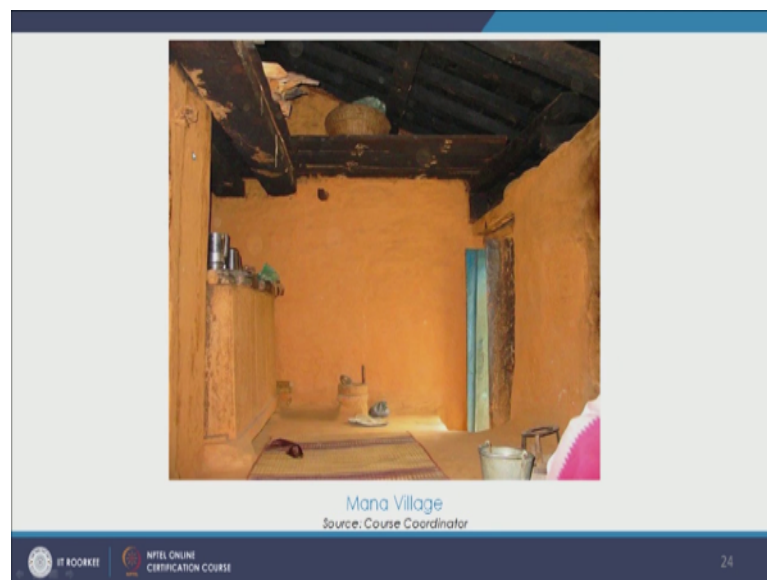
Mahasudeva temple another very famous and beautiful temple in Uttarakhand and we see different space making elements, we see this conical canopy over here, we see the finial, the Kalash Pinnacle over here and these are all the slate roof and Uttarakhand has lot of interior architecture styles which have the slate roofs and locally we have called Pthal. So, this is how it is done. There is this wooden structure over here that we see, then here we see these dangling freezes these freezes of this part over here. Then we see this door which is also very detailed out and we see this stone the local stone out of which the construction is done, which takes care of the structural details as well.

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The door that I was mentioning, these are some pictures over here some details some motifs and of course the original motifs and paintings are not there in very good condition everywhere so at some places they have been restored and preserved.

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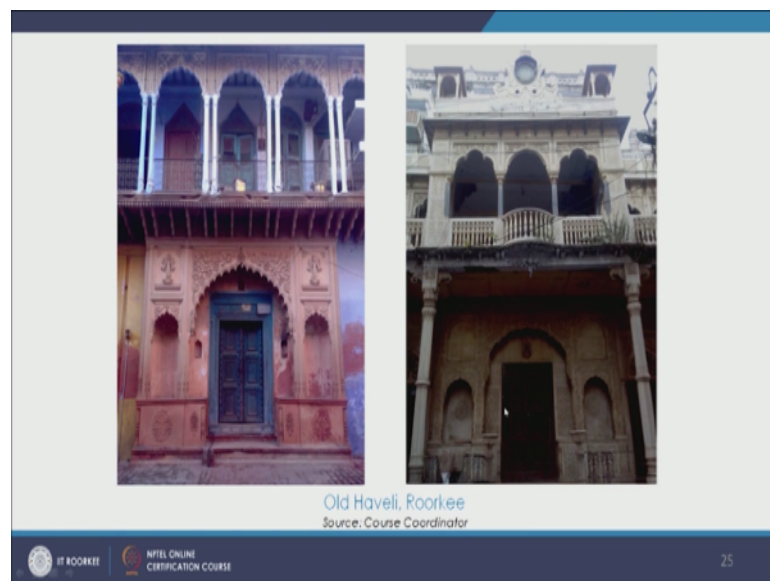


This is an interior space of a village in Mana which is like we are discussing Uttarakhand. So, it is a village in Uttarakhand its apparently call as the last Indian village and these are the interiors and we discuss in one the modules you know the local khar

soil and the timber and how the community they create their own living spaces and they do the *Leepan* work on floor every few months and they also do this you know khar soil plastering after every few months.

So, this is all done indigenously by the community, with the local material, natural resources.

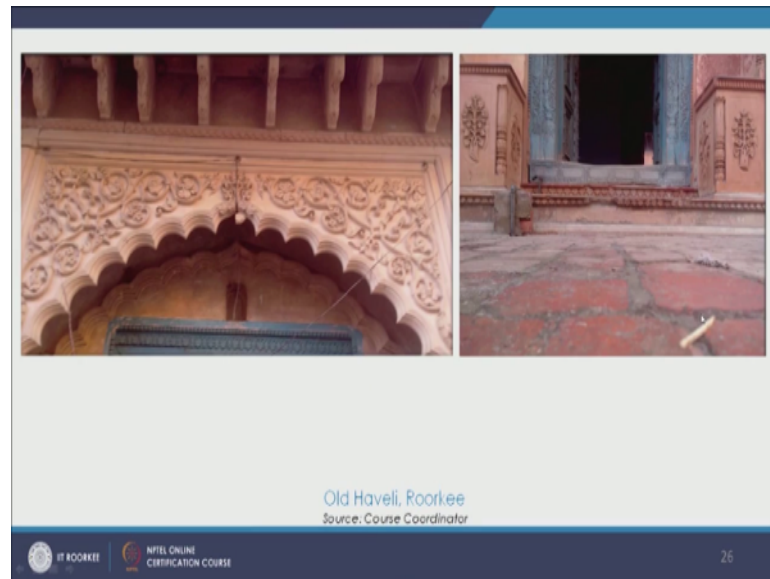
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This is an old Haveli in Roorkee itself and this here we see lot of details in timber, we see details in metal and stone. So, it still there in good condition and it also reflect on the economic status of the person who lives there, and there are several stories that we get to know of the past when we visit here and talk to the owners and which they very happily agreed to discuss and you know get interviewed also.

So, this is a very exquisite you know entrance we see over here. So, we see this door and this typical feature we also find in Shikhawati Havelis in Rajasthan, the place, this veranda to sit and is there in Gujarat also they are known by different names.

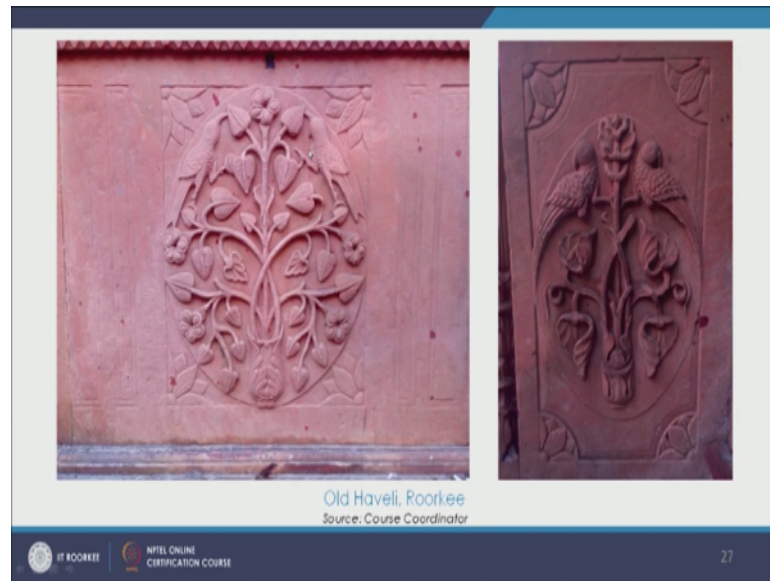
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So, these are very typical characteristics of Havelis and this ornamentation that we see here in stone and then here we see timber and also there is a metal work. They are all detailed out by hands and they are done by the local artisans and crafts persons. Some other pictures that we see over here, the details, details of the ornamentation and we see the structural details the brackets over here which is again a stone then we see all the details here on this platform, we see the timber on the frame and the jamb and here inside the panel of the door also. All those details we get to see also we see some details on the threshold here and here.

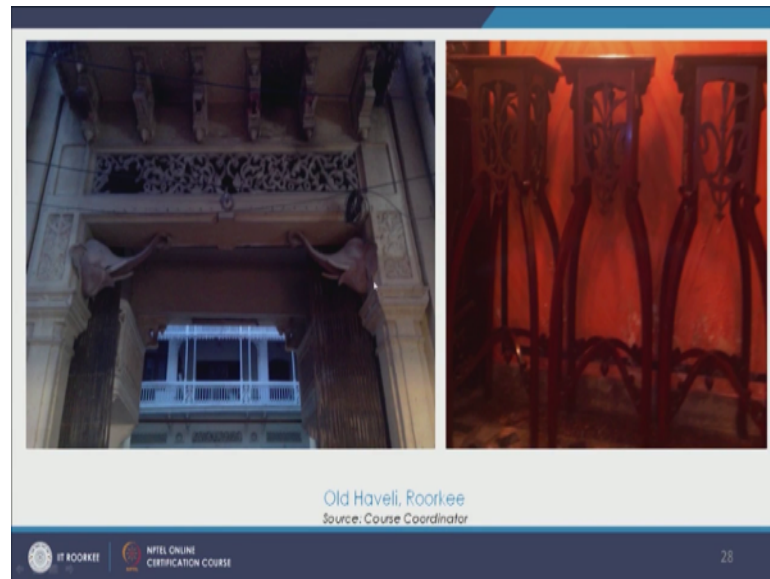
So, all of these practice by community and they are very age old practices which have been you know transferred from one generation to another and we still see Havelis like this in very good condition in present Roorkee itself you know in the present day.

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Some zoom in details what are the motifs and like in most of the you know old buildings Havelis and residences we see there is so much to talk about nature and surroundings and what these you know floral motifs embed within them as meaning. So, there is everywhere this common practice of a embracing nature, celebrating harmony with nature and also these floral motifs represent godliness you know. So, god has created everything is god's creation so celebrating all that has been given to us bestowed upon us, we see all these different kinds of details that have been done in stone, again here we see the structurally integrated stone craft.

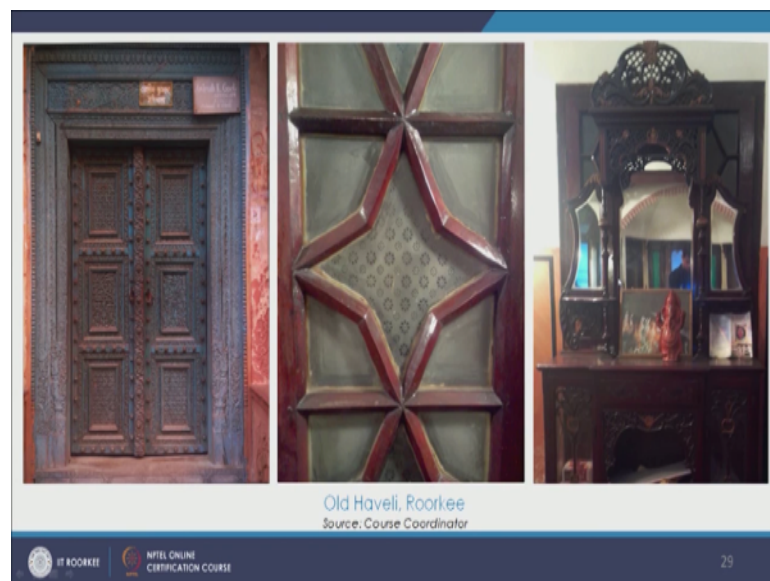
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We see over here this elephant and this works as a bracket over here, here it works as a bracket. We see some stone work here which has been broken now we see these brackets.

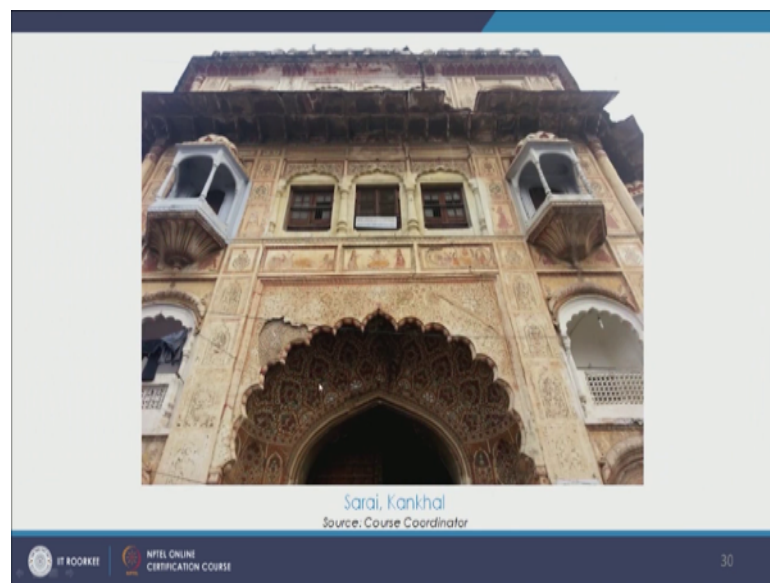
So, all these are like space making elements, columns, brackets and we see some work happening on the surface so, some is surface integrated, some is structural integrated all those details we see also there is very interesting furniture belonging to the times when this Haveli was made we see this different kinds of stools.

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We see these kinds of door panels and window panels so, timber and glass, this is again the zoom in picture of the entrance door and it is like in most of the cultures and in our customs, we see the entrance door is very elaborate and its quite intricately done because its the entrance and it welcomes people and also talks about the economic status of a family. So, this is an in very intricately. We see some interesting pieces of furniture over here we see this table dressing table.

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So, all those details were seen inside this Haveli, this is another Sarai or the travellers-inn which is situated in Kankhal again its near Haridwar. And here also we see you know these distinct characteristics of old Haveli we see this Jharokhas and we see these you know beautiful frescoes and the all the works over here is done in bricks and then there is this lime plaster on it. So, this is quite old and lot of it is still in good condition but few parts they need some restoration and some finishing work. So, this is a very interesting Sarai. So, it was the Haveli which is now converted into a travellers inn or a Sarai and facades instantly catches our attention like I was telling in one of the previous slide also.

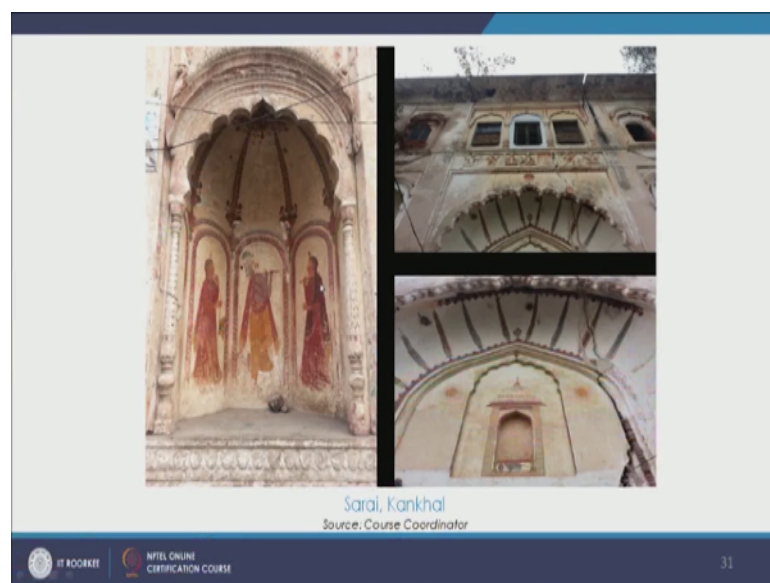
So, near Haridwar there so, many tourists who come because there is Ganges and everybody visits the ghats. So, you know just navigating through narrow streets in coming across such beautiful facades and when we go inside the spaces you know they are the interior spaces are still of the old Havelis and they have their peculiar

characteristics. Also this door which is you know humongous it is on a very huge scale and it has some timber and metal details.

So, all these details are very interesting to look at now what is more crucial is like in one of the modules we were discussing about the creative and culture industries, its also crucial to find out the people the artisans and the communities who have worked on it and whether these are continued today in what form and why are they not practicing it today and if we can link interior architecture practices and building crafts with the creative and cultural industry part and try to you know also dig out deep the employment and the livelihood of the artisan community or the craftpersons who have been working on that.

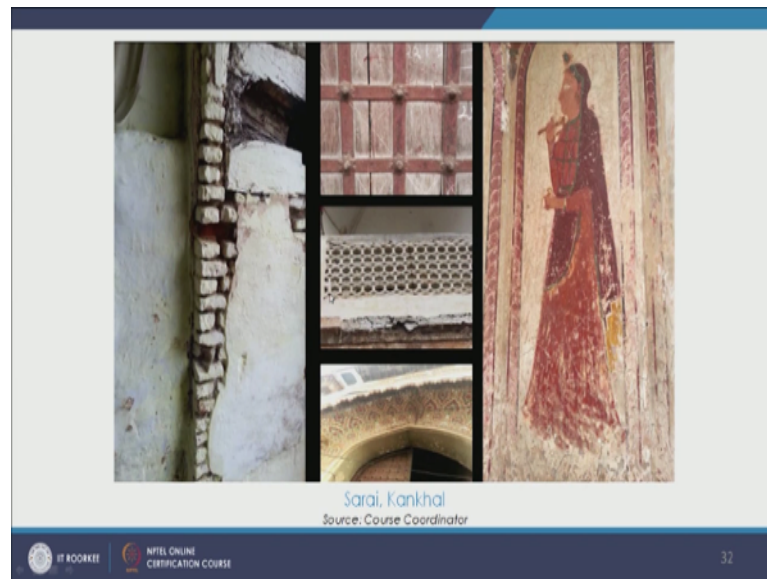
As architects and designers it could be huge contribution whichever project we do or wherever we go to study and document, rather than just documenting the material, techniques and tools if you could also understand you know which is the community or the cluster that practices that still practices all these techniques and art and craft forms and these interior architecture styles it would be a huge repository in itself. Many people are doing in their own ways and we all can also contribute. Again it has frescos, if we see this Sarai at Kankhal.

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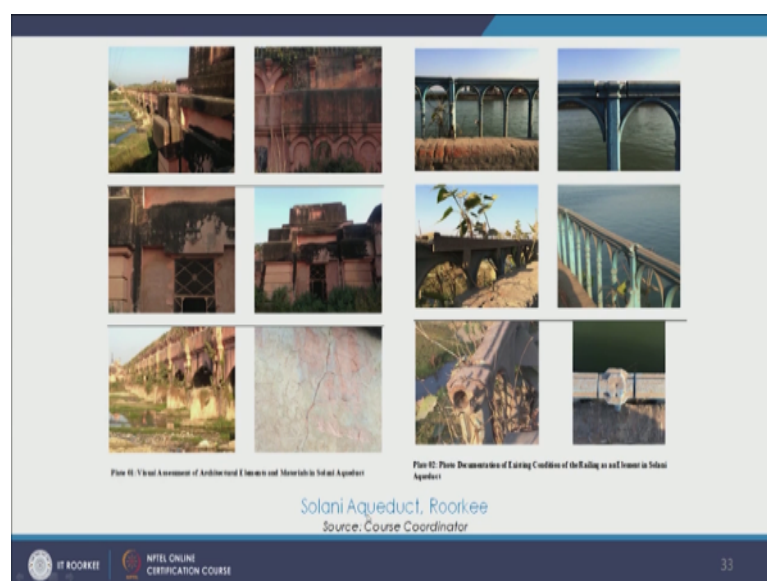
So, all these details they are still there its very old Haveli which is converted to Sarai.

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And we see all these details of you know the brick and the plaster, we see here this metal and timber door, the early doors which were made in you know checkered grids with this metals, floral motifs we have frescoes over here. So, all these pictures they you know and the documentation which was done, it gives it creates a visual repository for us.

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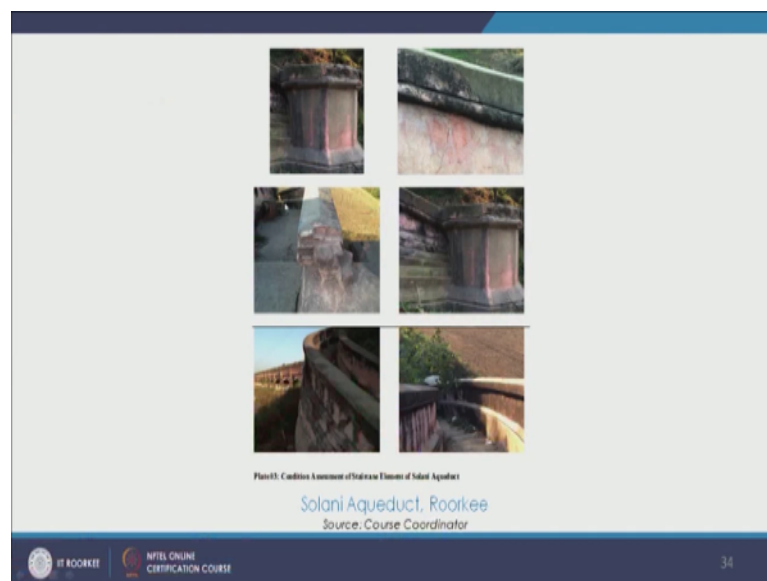


These are some pictures of Solani aqueduct Roorkee, it is actually the first aqueduct in Asia and it was constructed during the Britishers reign and today there is this old aqueduct which is structurally very very sound, when the condition assessment was done here at IIT Roorkee the structure is still intact there are very few minor leakages and there is one aqueduct which is opposite that.

So, if one is here, the one is over here across the stream across the road another aqueduct which is new and which is made by the funding from the world bank, but this one has its own peculiar character its very aesthetic also and still it is in good condition and we see different elements, different space making elements over here we see these columns, we see this you know bridge the arch the structure of the aqueduct and we see lot of metal work over here in the joinery, here the metal railing these are the kind of joinery details that are there.

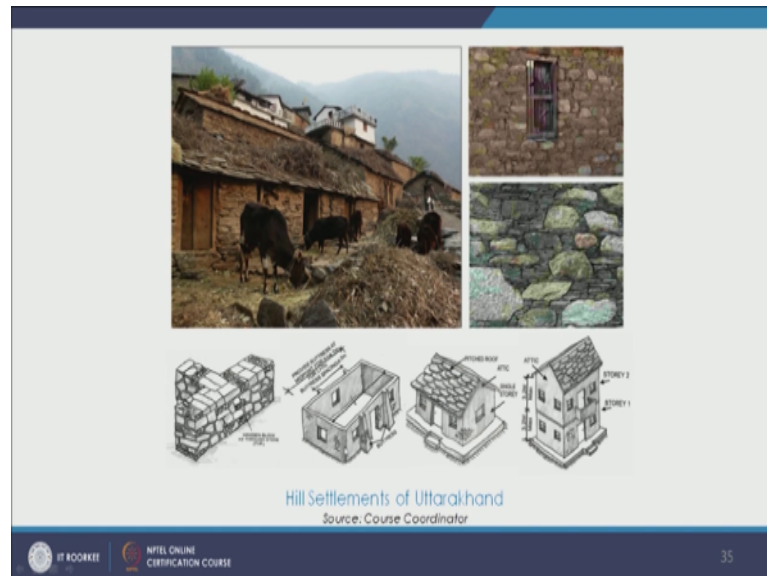
So, all the space making elements and their details, and the kind of work that was done originally in this aqueduct which is like very old. This gives us lot of information about the kinds of industries in the building craft that could be practiced at that time we see other elements over here.

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So, this staircase spiral staircase that goes all the way like that. So, these are different pictures of this aqueduct.

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Then we have different hill settlements of Uttarakhand which Uttarakhand is known for and there is a different system of construction and cattle is always kept on the ground there are climatic reasons for that. So, when we see the decoding system part will learn more about it.

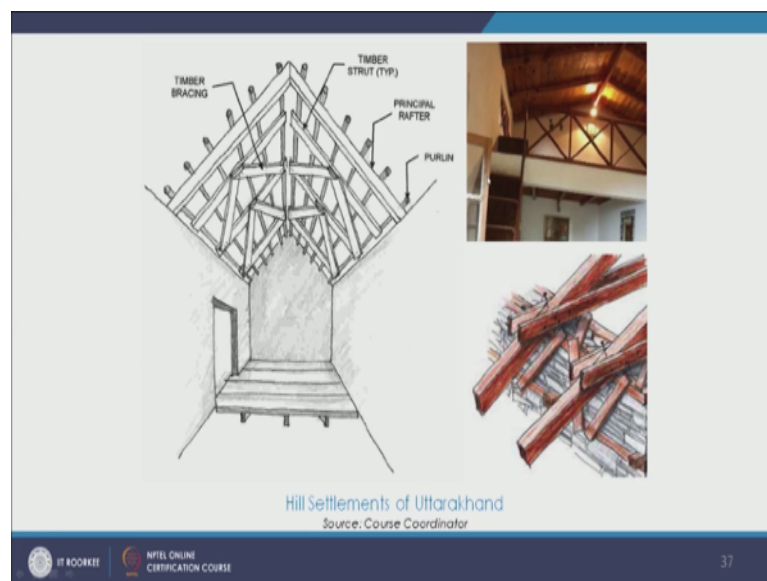
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And you know there this local way of making there is a mud layer, there is a timber planks, there are local stones which are called Pathal and that is how we make these kinds of roof forms with ridge beans and then they take care of heavy rain and the slope is provided. So, all different kinds of settlements, different kinds of interior architecture styles and all these are done by the local people the owner of the house along with his family, the community, they have this knowledge how these roof forms can be constructed, how will the take care of the rain and the slope should be like that the water drains out and the local stone available they know about everything and of course now, these construction practices are getting replaced because there is newer material and new technology available.

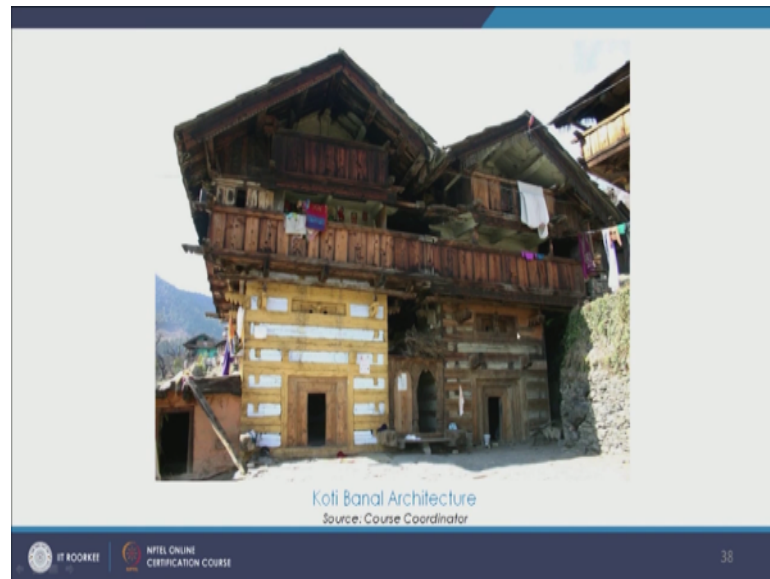
But still we see lot of interior architecture forms and the case studies in Uttarakhand which you tell us and make us learn about these age old practices.

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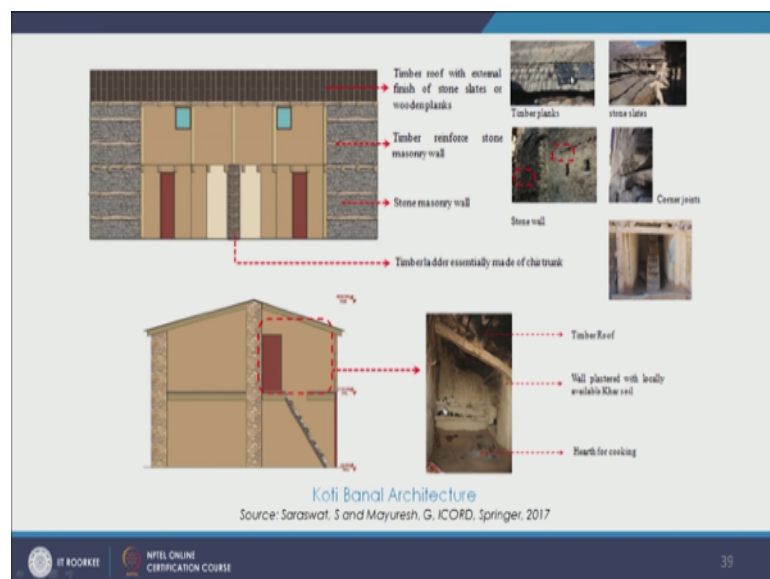
This is from the interiors and the details.

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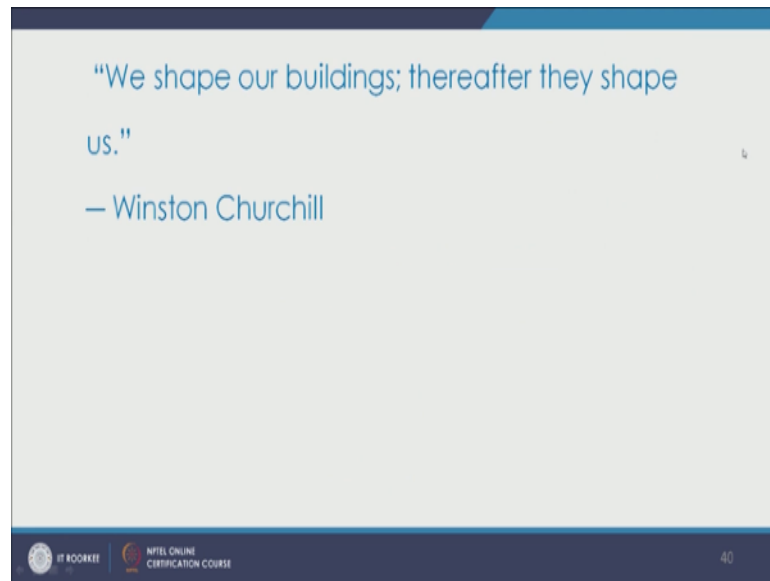
Koti Banal style of architecture we saw in previous modules, we see lot of drawings, we saw the join the details. So, any visual repository of Uttarakhand is incomplete if we don't put the Koti Banal style of architecture. So, we already have a hang of things now that it has alternative bands of timber and stone and it is its earthquake resistant and what are the different spaces inside it. This is one slide,

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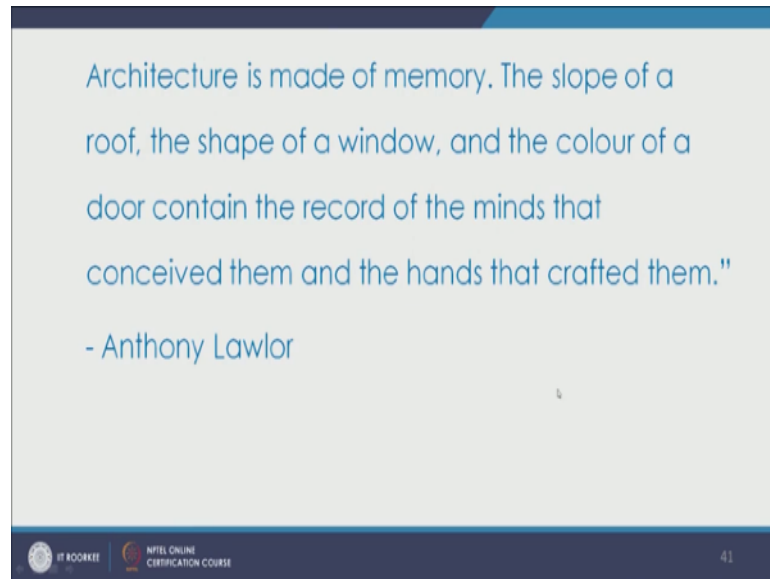
this is village Malari and one residence there and we see the Koti Banal style the alternate timber and stone bands and we see this section over here which shows the spaces this again the interior and the local khar soil and the timber roof over here and we see some corner details and this handmade scooped out staircase.

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So, all the details we see over here. So, we saw several kinds of interior architectural styles of Uttarakhand and we will keep seeing them you know and we have already seen few in few other modules. So, we are just trying to understand the kinds of interior architecture styles building crafts and their trying to understand the interrelationship throughout this course. I would like to end by this interesting quote by Winston Churchill, “We shape our buildings; thereafter the shape us.” “Architecture is made of memory.

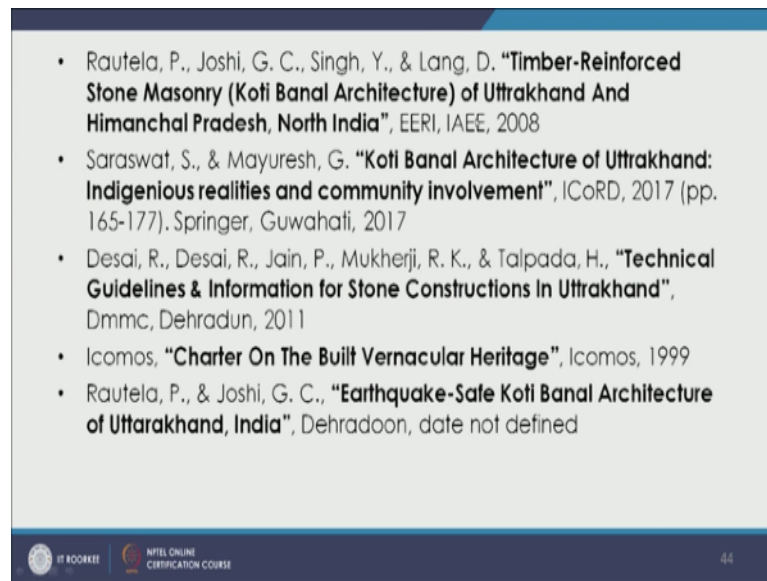
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The slope of a roof, the shape of a window, and the colour of a door contain the record of the minds that conceived them and the hands that crafted them.” This is what we keep discussing all the time that the places that we live in have memory association and the art craft forms only enrich those memories and experiences within the interior architecture that are created in which we don’t just get shelter but there are several other things like these memories and experiences.

Our next module, we will talk about the miscellaneous case studies that we saw throughout the week. So, we will see the you know different consolidated repository of varied case studies. References.

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These are specific to what we discussed today. So, we see here Koti Banal architecture we see the community involvement indigenous realities, we also read about the technical guidelines for stone construction, charter on the built vernacular heritage earthquake safety.

All that is particular particularly specific to the Uttarakhand construction interior architecture. Other than that what we have already discussed about interior architecture art craft forms there are several other references paintings and other techniques that have been employed by the communities and people of Uttarakhand.

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So, here consolidated references they will be beneficial whenever we talk about this course and this subject whichever module we are at, but all of them have a role to play.

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So, craft traditions of India, craft atlas of India, the larger overview, paradigms of Indian architecture.

Thank you.