Modern Indian Architecture
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Lecture – 18
Western Architects in India – Le Corbusier – Part 5

Hello students, we will continue our presentations of Modern Indian Architecture and we are looking at the series on the contribution of western architects in India. Right now, we are focusing on Le Corbusier.

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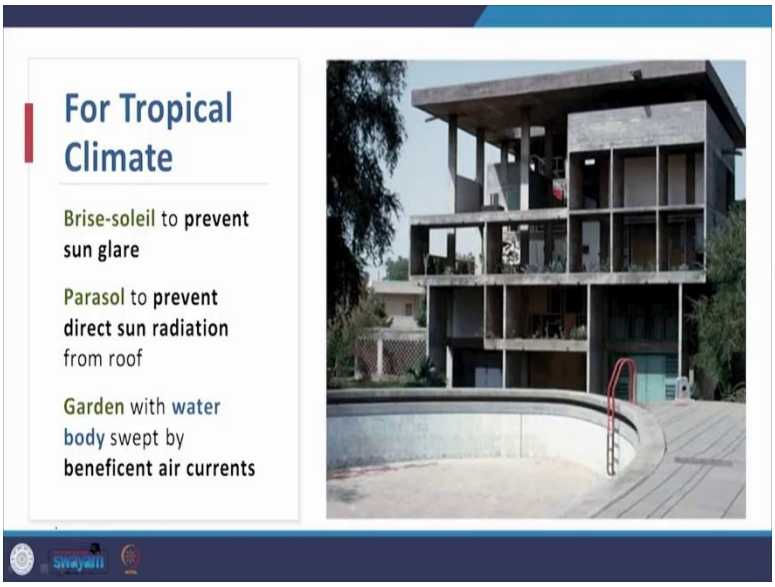

Now , I will just summarize what we had seen in the last presentation and before that I would like to say one thing to you that what I had mentioned last time also that the contribution of Corbusier to Indian architecture, modern Indian architecture cannot be understated. Primarily ,because of him designing a city like Chandigarh in India and Chandigarh becoming a lab or an exhibition facility to depict what were the latest ideas in modernism and in brutalism, etc.

It was a fantastic exhibition of what could be done in Indian climatic conditions with the kind of labour force that was available to us, with the kind of building technologies that were available to us, the kind of materials that were available to us. So, his buildings have resulted in imitation and interpretation of his works by Indian architects both in different ways like in planning, in overall building form and in building elements.

Now, we will also look at the contributions of other western architects like for example, Walter Gropius, Louis Kahn but I believe that Corbusier surpasses them all. Of course, one thing is common about them because they are all coming under the umbrella of modernism. So, their ideas have a commonality. The ideas that are propounded by all three of them or

other modern architects have a similar trend in them. So, if one is talking about rationalism or functionalism or structuralism we will find the imprint of that in the works of other modern architects. So, that commonality was there.

So, once when we look at for example, the work of B. V. Doshi, we will find a presence of Corbusier's ideas and Kahn's ideas. Sometimes you will find the dominance of the ideas of Bauhaus and Walter Gropius. But even in that sense, I would still state that Corbusier was the pioneer and the forerunner of these modernist architects by the works that he did in the 1920's, he established one of the strongest impacts that we have had on modern architecture in the 20th century and those ideas are still being interpreted in the 21st century.

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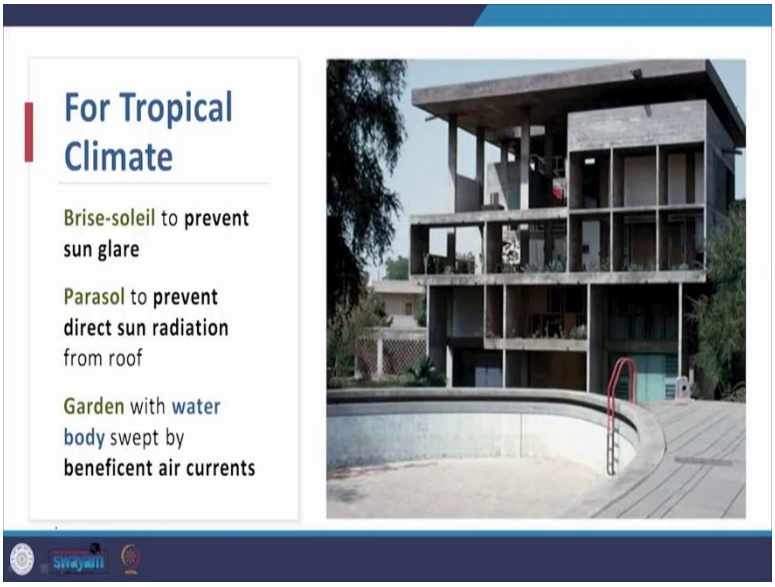

Now last time we had seen that for tropical climate for example, Villa Shodhan, we had seen three things that he did and that was the Brise-soleil to prevent sun glare that was the Parasol to prevent the direct solar radiation from penetrating through the roof and that was the water body, the pool that was provided in the southwest facade or the rear facade so that the beneficent air current that would flow over the water and then enter into the house.

Now the other contribution, so what I said was that he contributed in our understanding of overall planning, space planning. The overall build form and building elements. He also contributed in the understanding of how modernism could be designed in tropical climatic conditions. Also, how Indian materials, the kind of the labour intensive building technology and the kind of materials that were available, how they could also be used to design modern buildings. Now, I am not saying that he was the only one like I said before but definitely his contribution is vast.

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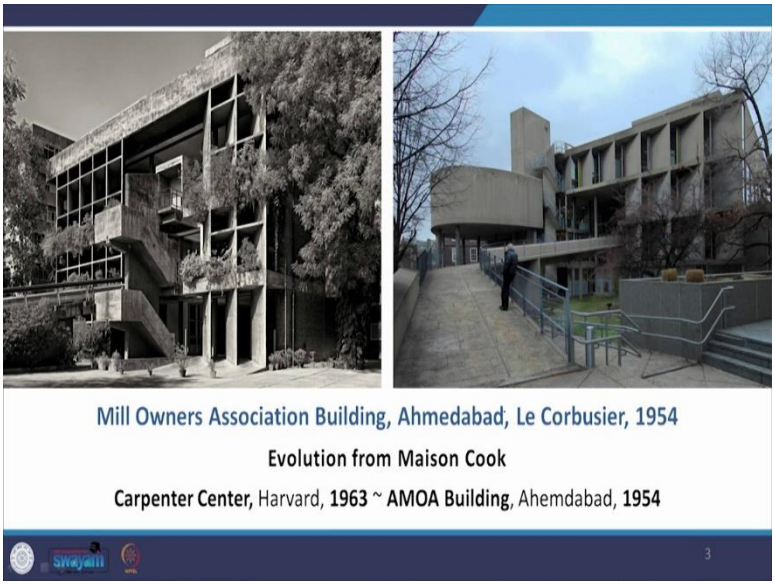

Now we also saw the Mill Owners Association Building in Ahmedabad in 1954 and we had seen that for example, if the Villa Shodhan was derived from miso Citroen and the Villa Savoye. Then the Mill Owner Association Building, the derivation comes from Maison Cook and of course Villa Savoye and behind it all is the domino system that he designed earlier.

This idea of the Mill Owners Association Building also carries forward in the Carpenter Centre in Harvard. So, there are ideas coming from behind in the timeline and are then presented in India and then they are carried forward to other projects internationally.

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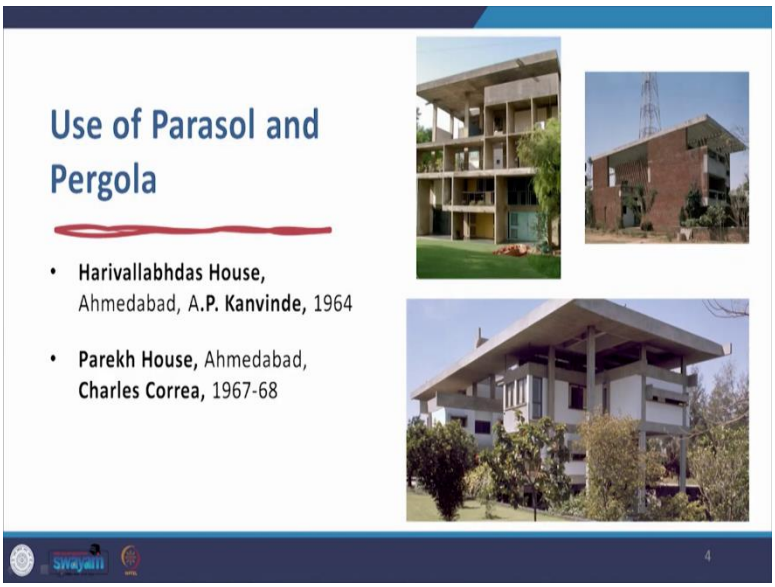

So, the use of the Parasol and the Pergola for example, the Pergola in its original form as he had done in Villa Shodhan was used by Kanvinde in the Harivallabhdas house. Whereas

Charles Correa brought in the idea, the concept of Pergola. So, the Parasol was used by Kanvinde and the Pergola was used by Charles Correa. And Charles Correa continued to use Pergola's in many projects after this and we will look at some of those projects later.

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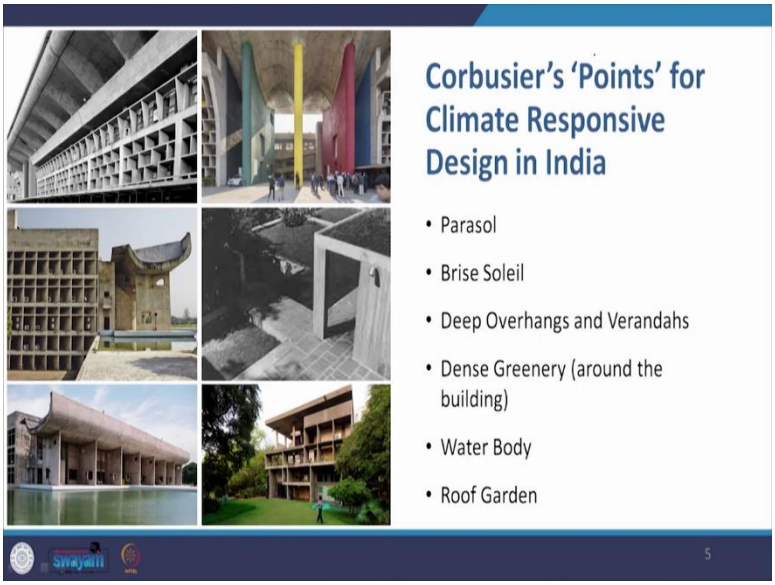

Now, Corbusier's points if I would to say of climate responsive architecture then would be your climate responsive design would be the Parasol, the Brise-soleil, the deep overhangs and verandas, the dense greenery, the water bodies and the roof garden and all these ideas played a key role in the modern buildings that were to come by young Indian architects.

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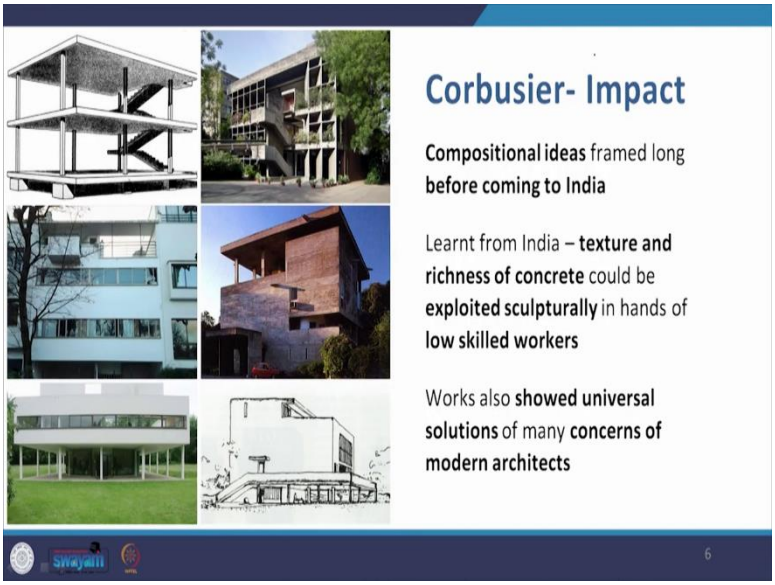

Now Corbusier impact again if just to put, summarize it is the compositional ideas to frame by him before he was coming to India and then he could implement them in India. So, that

was a very you might say, a very fortunate chain of events that happened. Then he learned from India, texture and richness of concrete could be exploited sculpturally in the hands of low-skilled workers.

We should also understand one thing about Corbusier that though he began with for example, platonic forms in Villa Savoye, now what is the platonic form? Platonic form is when the planes are straight and smooth and they are not punctured. So, he went on to make a change in that by puncturing the facades through terraces and the other punctures of fenestrations etcetera. We find them in the Villa Shodhan.

So, this idea was then carried forward by other architects that they moved away from a straight cuboidal platonic form to forms that had these voids and punctures in them and it was made possible because of the RCC frame. For example, by the use of RCC shear walls. The other thing was, here his works have showed the universal solutions of many concerns that modern architects had. So, he brought it here.

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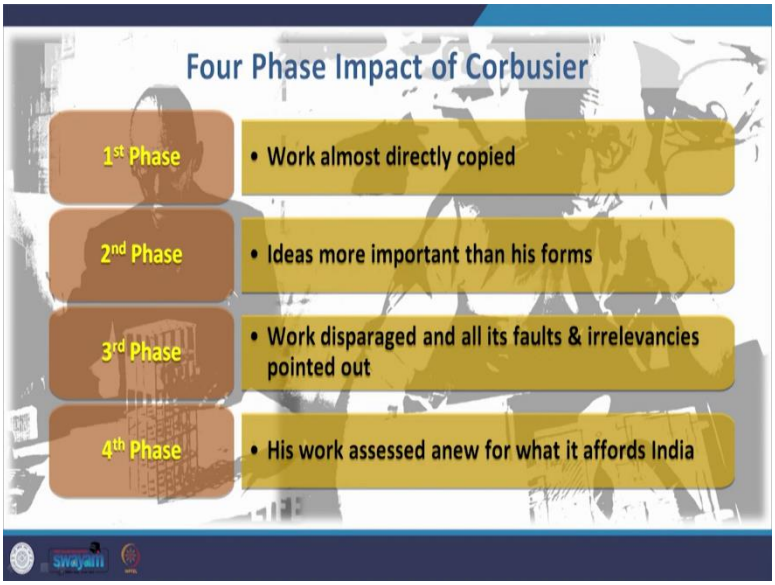

Now the four-phase impact of Corbusier was, first his work was directly imitated. Second is work was not imitated but interpreted. The idea was taken and it was given a different texture in Indian buildings. Then the work was heavily criticized, disparaged and its fault and irrelevancies was pointed out and it was bound to happen because now there was a certain time gap from the time when he did those projects and when the projects at least about 20-25 years had gone by and there was a time to stand back and look at the projects and how the projects had functioned over time. Therefore, criticism is bound to happen.

That is generally the case, that it is not easy for us to if I would say audit a design of a building as soon as it is been implemented, it takes time for the building to run over a period of time, for it to be used by people and the surrounding spaces.

For example, let us check the corporate capital complex and then there are certain critical viewpoints that evolve out of that. They could be positive critiques, they could be negative criticism of the work. Then again his work has been again reinterpreted in the 21st century and it has been assessed in a new way by architects like Sanjay Puri and Matharoo Associates.

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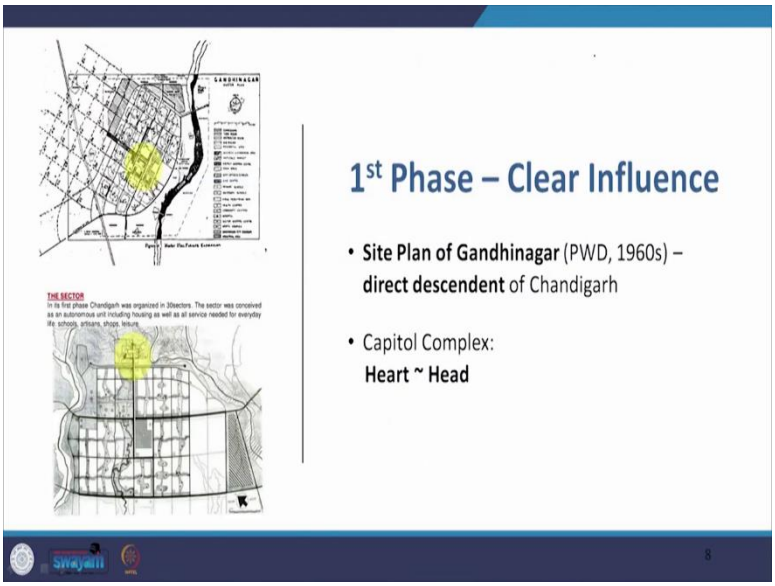

Now we saw the first phase, the clear influence that we see in site planning appears in the sectoral planning of Gandhinagar. The appearance of space planning that we see where the buildings are, they form the boundaries they are space makers. They form the boundaries of an open plaza. We see that appearing in the Punjab university by J.K. Chaudhary.

Then there is the coming in of the impact of brutalism in many buildings in India like I told you last time, India has the seventh largest number of brutalist buildings in the world and again it refers back to the fact that he brought those wonderful buildings in Chandigarh and Chandigarh became that exhibition for those buildings to be closely sort of Indian architects. So, for example, when we talked the first phase where there is a very clear imitation of his work, we find that in J.K. Chaudhary's IIT Delhi.

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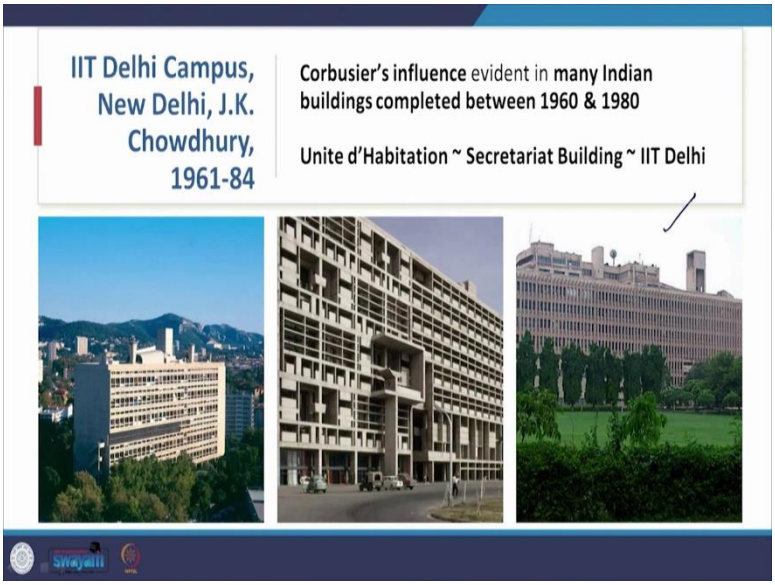

Corbusier's influences evident in many such buildings completed between 60 and 1980 and this building, the IIT Delhi sees a very clear connection between the form, the built form of Unite d'Habitation in Marseille and the Secretariat building in Chandigarh. Even in the elements for example, if you take the roof garden of Unite d'habitation and we take the roof space off IIT Delhi, there are similarities and then you can see the overall build form, there are similarities.

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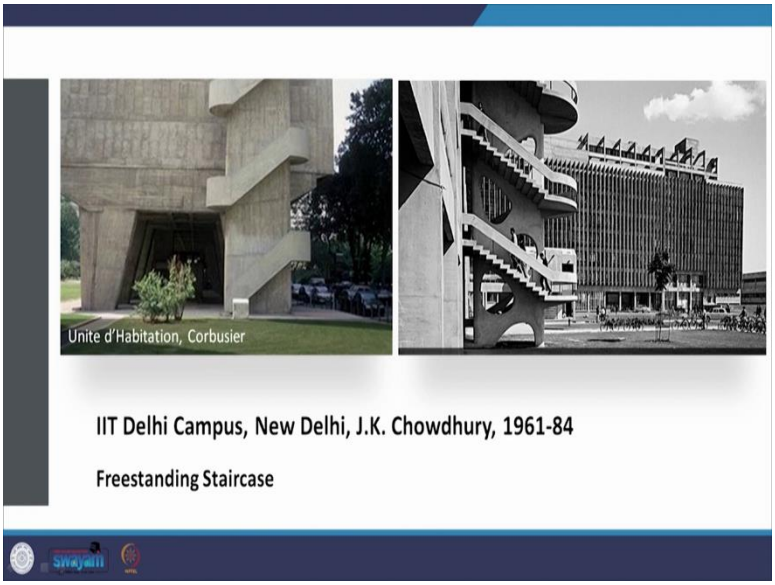

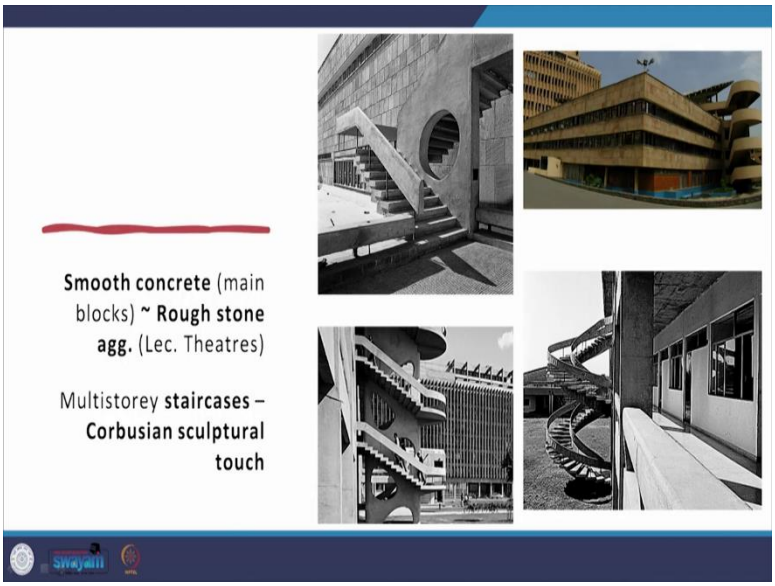

And then there are similarities in elements. Specific elements for example, freestanding staircases designed in a sculptural manner. We had already seen that in the Mill Owners Association Building. Now we see that here, this is the freestanding staircase outside Unite d'Habitation which serves as a fire escape and we see the same concept evolving, being used by J.K. Chaudhary in IIT Delhi.

Then specific elements like the freestanding staircase, J.K. Chaudhary did a combination of a smooth concrete in the main blocks and rough stone aggregate in the lecture theatres and the main, the multi-story staircases whether you see it here or the spiral staircase. Now please remember that though I have not shown you in the spiral staircase, the idea of the spiral staircase is coming from The Villa Savoye. He has used what is called as the scissor staircase

there. So, this seems to be a derivation of that and then we have the freestanding staircase itself.

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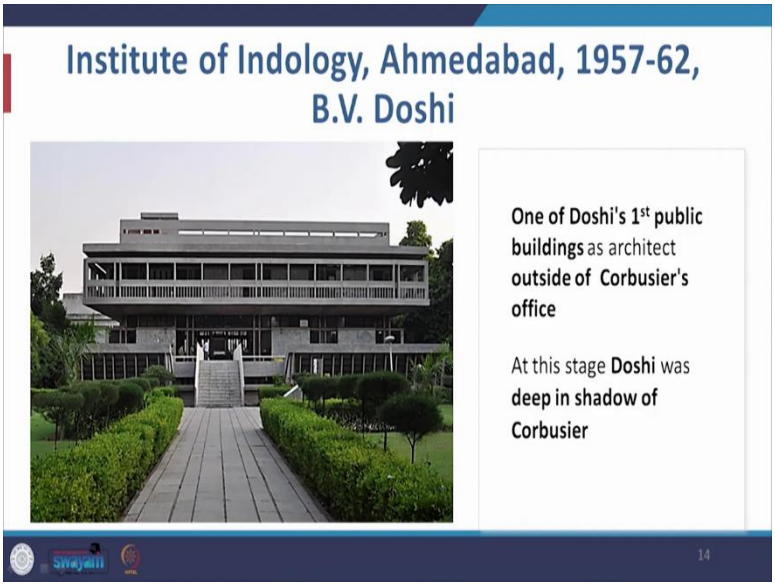

Then we have the Institute of Indology, Ahmedabad. Now, when we look at the building it does not seem to be a very close imitation of the works of Corbusier as the work of IIT, Delhi. But this is one of Doshi's first public buildings as architect outside the office of Corbusier's atlea or his office and at this stage though she was deeply in the shadow of Corbusier.

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So, if we look at the comparison, we can say that the intuitive Indology is closely linked with the unbuilt governor's palace in Chandigarh. Now when you look at the two buildings as you see here visually you cannot see the connect. I will show you the connect.

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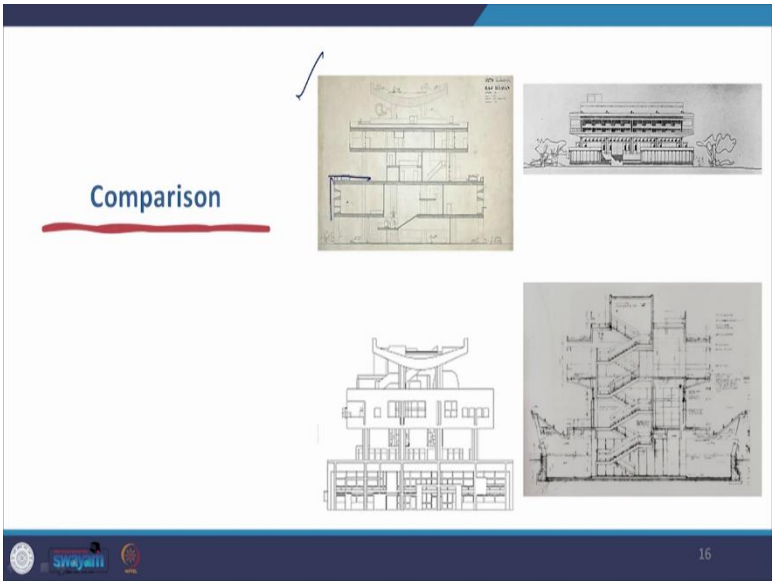

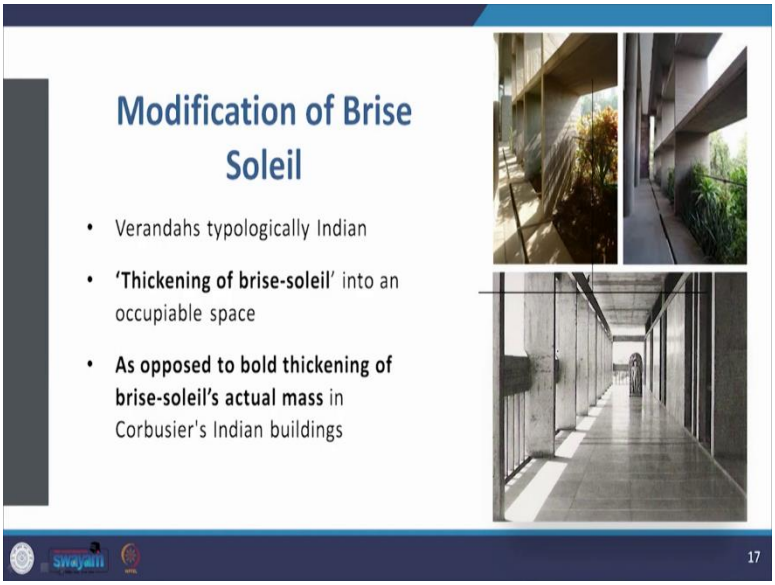

See it here, this is the section of the governor's palace. If you look at the form, there is this base, then this and then like this. Now, if you look at the institute Indology in the section, it is very similar. So, the section actually reveals the similarity but then Doshi moved forward with some of the ideas for example the use of the Brise-soleil and he re-interpreted it.

Now verandas are typologically Indian forms and the thickness of the Brise-soleil, he converted that into an occupiable space. Let us see for example in the villa Shodhan, the Mill Owners Association Building, very thick Brise-soleil. What he did was, he expanded

converted into a verandah and the Brise-soleil now becomes a kind of a rectangular column in exposed or rough concrete. So, instead of the Brise-soleil we have a verandah as opposed to the bold thickening of the Brise-soleil's actual mass, we see in Corbusier's Indian buildings, it turns into a verandah in the work of B.V Doshi.

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Then there is the individual development in exposed concrete we find that this institute is supposed to have very old ancient parchments and documents to be preserved here and these collections were stored in the indologic, in the open to outside air basement. You can see the skylight of the basement here and this is being done so that we can preserve the climatic conditions required to keep these documents safe.

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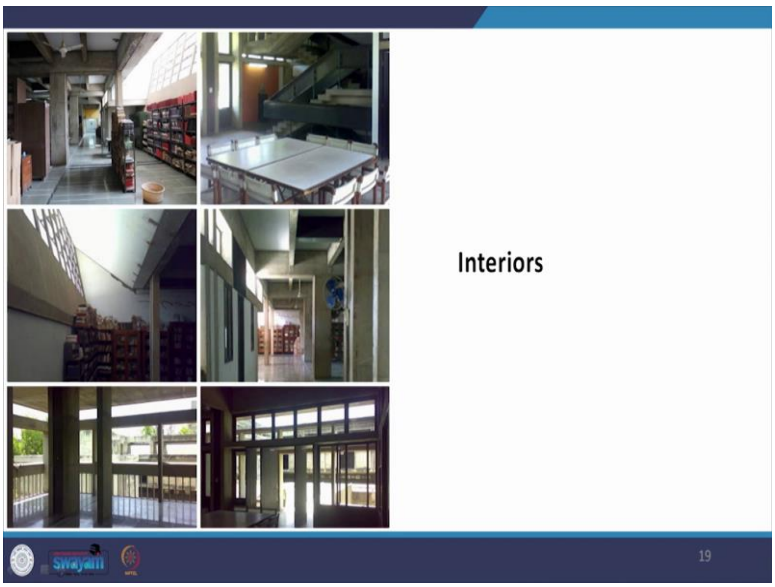

So, these are the interiors, this is the basement. So, you can see that that this is where the documents have been preserved, this is the skylight, this is again the view of the skylight and in the interiors you see not only the way the spaces move from the interior to the exterior but also the use of exposed concrete in the interiors and how serene the spaces look with the sunlight not coming as a glare but coming more as diffused light into the building.

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Then Doshi has also indicated that there is a regional influence in his works and in this particular work. He has mentioned the influence of Sarkhej, the Palace of Sarkhej and Adalaj on his designs. So, if you see the overall form, this historical building has got some connect with the institute of Indology. Now there are many buildings during the 60's 70's like I said both direct and indirect impact.

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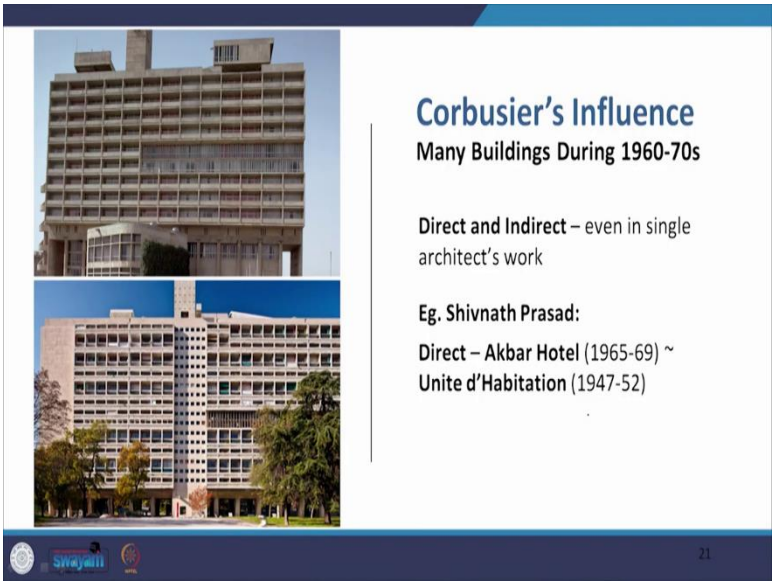

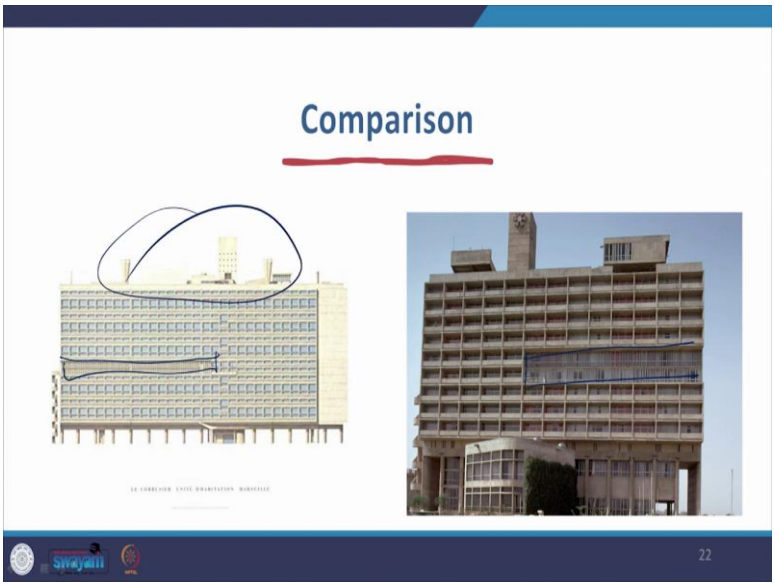

So, there is one building which is amazingly a very close imitation of Unite d'habitation and that is the Akbar hotel in Delhi in 1965 to 69. So, if you see the visual comparison it is startlingly very close. Here it is, even the mid-wing of Unite d' habitation which was supposed to be the shopping wing and so Corbusier had highlighted that by giving it a different set of series of louvers, the floor has been visually indicated differently and we see the same thing happening in the Akbar Hotel. Even the roof garden of Unite d'hbitation has resonance in the Akbar Hotel.

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Prasad then soon realized that he was imitating Corbusier's forms rather than the design process. He was not interpreting Corbusier's concepts and ideas, he was directly imitating them. For example, here if you look at the, again the freestanding staircase of Unite and here it is in the Akbar Hotel. Nearly identical except for the fact that this has a Pilotis and the Pilotis is not visible here.

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So, he moved on what would I would call as the second phase of Corbusier's impact of interpretation. There was an architectural self-awareness in the Sri Ram Centre that he designed in Delhi from 66 to 69 and it was around the same time as the Akbar hotel. It is a

private trust that had proposed the project to promote dance, drama and theatre and it is one of the important cultural buildings in Delhi.

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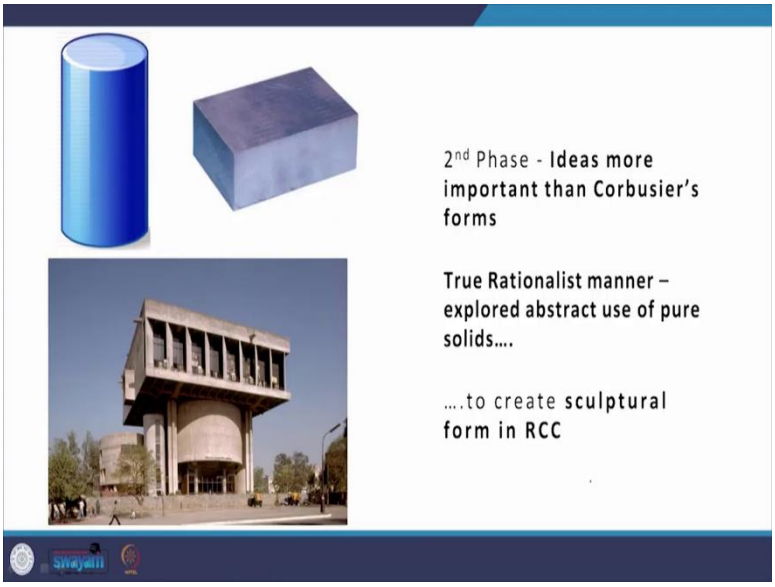

Now, in the second phase, the ideas were more important than his form. So, in a true rationalist manner , Shivnath Prasad has explored abstract use of pure forms a cylinder and a cuboid to create a sculptural form in RCC. So, we have a cylinder which is mounted by a cuboid.

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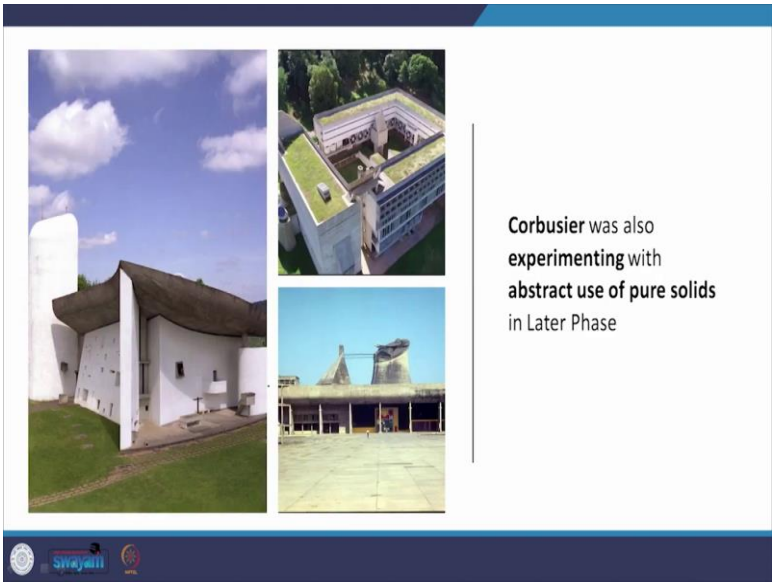

Now, this kind of sculptural experimentation was already being done by Corbusier and he was making abstract use of pure solids in his later phase. We see that in the Ronchamp chapel monastery, Lathure and of course in the assembly building in Chandigarh. Corbusier was one

architect who had moved away from a pure rationalist mannered approach in the beginning to coming to architecture being an art form also that the building itself should be like a work of art. So, there is culturalism or sculptural form in his later buildings.

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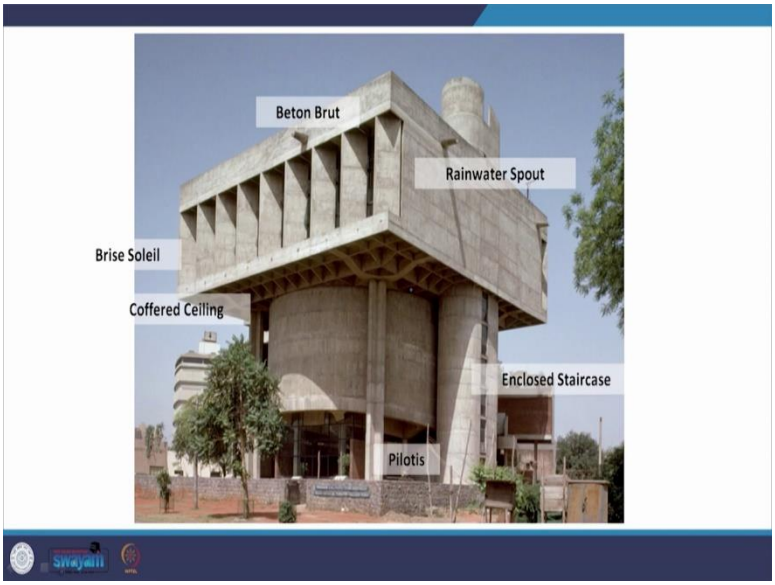

Now, if we look at this Shri Ram Centre, all the evidences of Charles of Corbusier's elements are there. There is the Beton Brut, that is the rough caste concrete of the façade. There is the Brise-soleil as you find in the Mill Owners Association. There is the rainwater spout, there is the coffered ceiling is an idea that he brought in. There is now an enclosed staircase instead of an exposed staircase and of course there is the Pilotis coming like this and holding up the cuboid.

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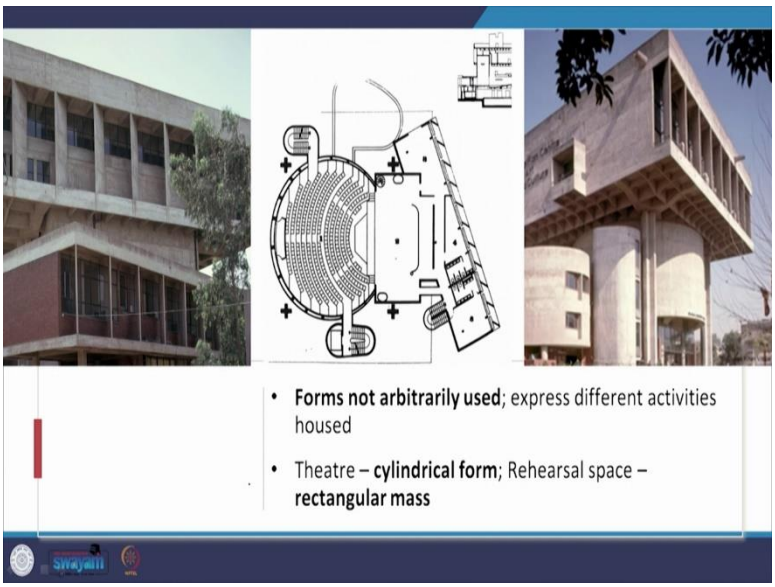

Now the forms that you see here the pure form of cylinder and cuboid is not an arbitrary use. They have specific visual force in them, in that they express different activities at our house there. So, for example, the theatre is the cylindrical form whereas the rehearsal space is the rectangular mass. You find that this entire area is a set of two rectangles, two cuboids rather which are placed like this. This is the stage and then behind it is the rehearsal space.

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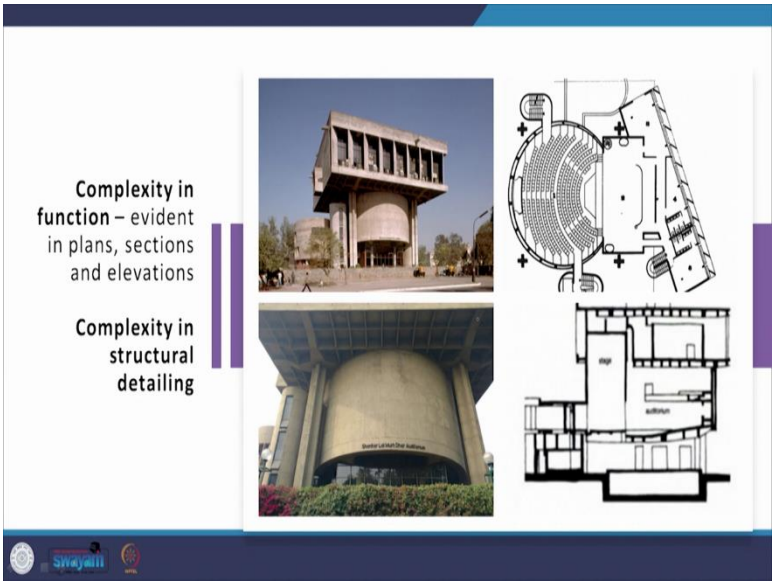

Now the complexity in function is evident in the plants and sections and elevations and again we remember the ROM plan or the designing of space in three dimensions. That is you cannot interpret looking at the floor plan what the overall space is. We saw the example of the Villa Molar and how Corbusier did that in the Villa Shodhan and again we find that in the Shri Ram Centre where you cannot interpret what the building is from inside until you look at the section along with the plan that the spaces are designed like that. So, there is also complexity in the structural detailing. For example how wonderfully he has mounted the cuboid on the Pilotis and then he supported it with a coffered ceiling.

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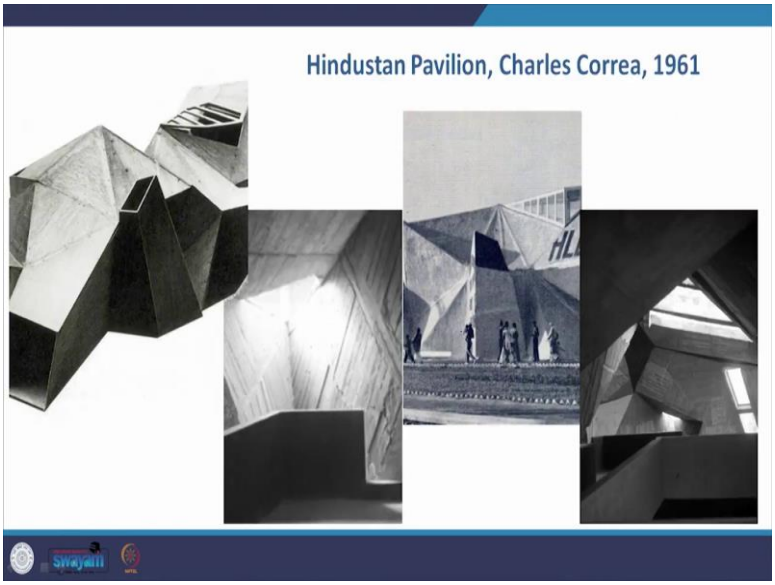

Then there comes the Hindustan Pavilion by Charles Correa. The only idea he is carrying forward here is the use of rough cast concrete or bitomp road in 1961. It is a very interesting form because it is completely a plastic form that he has derived here.

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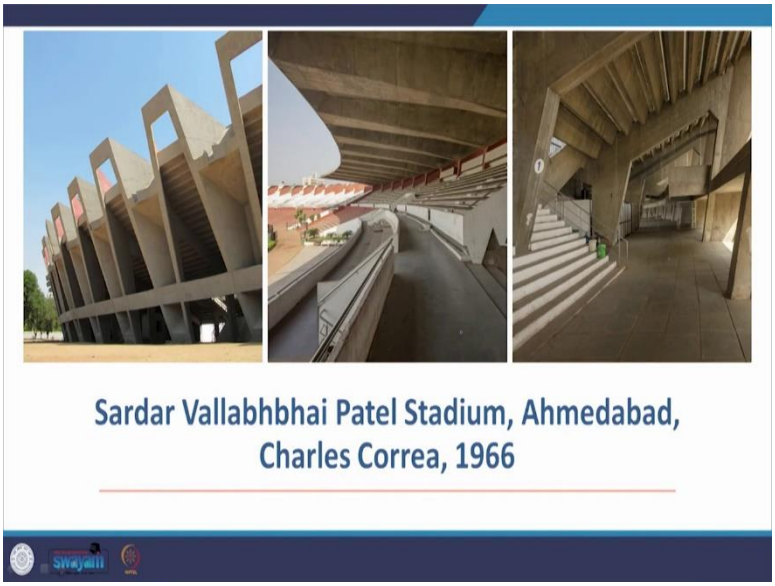

And then there is a Sardar Vallabhbhai Patel stadium in Ahmedabad, Charles Correa 1966. Again, in rough caste concrete, again a brutalist work. Tibet House by Shivnath Prasad in 1970, again a brutalist work. Then there is the Hall of Nations in New Delhi by Raj Rewal 1972, it is the world's largest space frame in RCC. Never attempted before at such a large scale and this is, the idea of the space frame originated, we see that in the geodesic dome of Buckminster Fuller appearing in the 1967 World Exposition Montreal.

The idea of the geodesic dome had come earlier than that but the person who brought it into the limelight in front of the world was Buckminster Fuller. So, the Hall of Nations is also brutalist, it is another modern expression of Corbusier's work.

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But you can see that it is an idea, now the built form of Hall of Nations, you do not find anything like that in Corbusier's work. This is a space frame but the only thing is, it is an exposed RCC. Now it is column free structure because the space frame is carrying the load. So, massive open spaces are created due to the RCC space frame in the Hall of Nations and the connected hall of industries. You see the entire complex in this picture.

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Now there is this uninterrupted exhibition area in the Hall of Nations of 6700 square meters, 82 meters by 82 meters and 27 meters high. It is an amazingly vast space that you see here and the other interesting point is that the ramp is like a processional approach as you see in

the Mill Owners Association Building and this ramp also opens up on the first-floor level as in the Mill Owners building.

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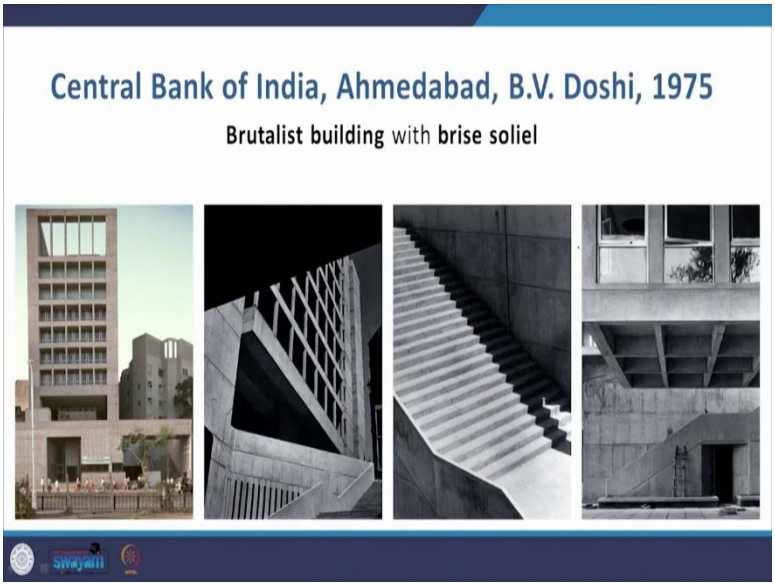

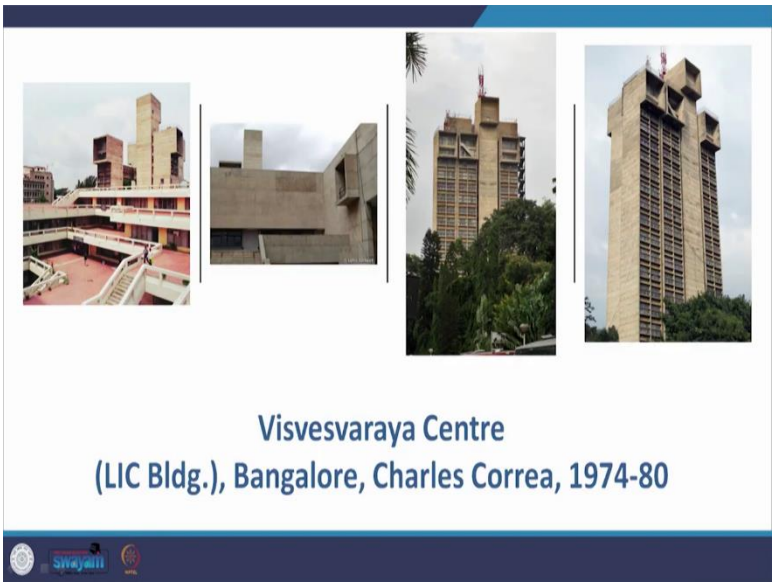

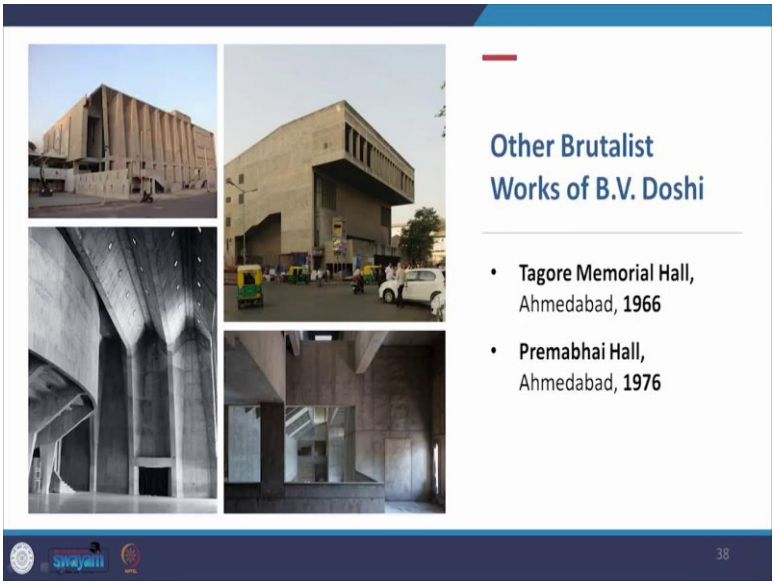
Other Brutalist Works of B.V. Doshi
• Tagore Memorial Hall, Ahmedabad, 1966
• Premabhai Hall, Ahmedabad, 1976
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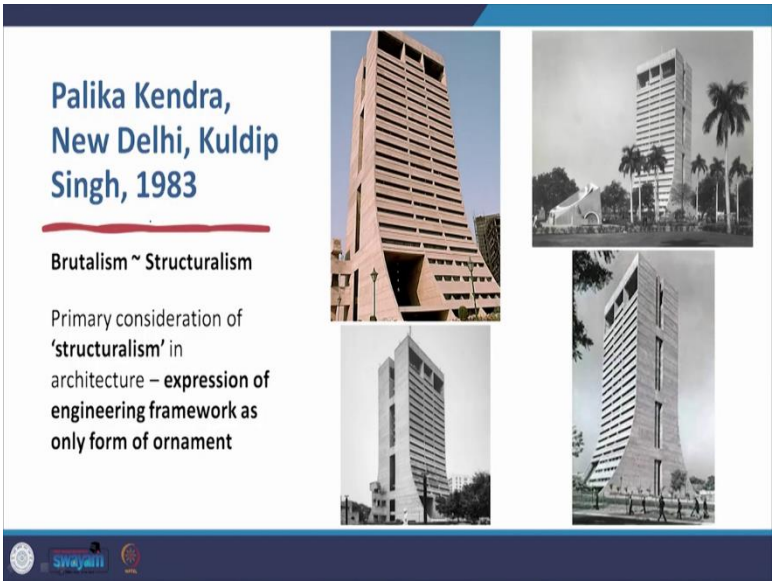
NCDC Building, Hauz Khas, ND, Kuldeep Singh, 1978


Palika Kendra, New Delhi, Kuldip Singh, 1983
Brutalism ~ Structuralism
Primary consideration of 'structuralism' in architecture – expression of engineering framework as only form of ornament

Now another example of brutalism is the Central Bank of India in Ahmedabad by B.V Doshi 1975 along with the use of Brise-soleil in the office building. Visvesvaraya Centre, the LIC building in Bangalore by Charles Correa 1974 to 80. Another brutalist works of B.V Doshi are the Tagore Memorial Hall and the Premabhai Hall. Even in the interiors it is an exposed concrete.

And then there is the contribution of Kuldeep Singh who designed several buildings in brutalism and that is the NCDC building in Hauz Khas in 1978, this is the building and there is the Palika Kendra in New Delhi in 1983. Now this building is not just brutalist , it also has the concept of structuralism.

Now what is structuralism? The primary consideration of structuralism is that, it is the expression of the engineering framework as the only form of ornament. So, if you look at this building you do not find any ornamentation. In that sense it is minimalist but the way this freestanding staircase has been provided and the way the overall form has been provided that serves to aesthetically ornament to the building in a sense.

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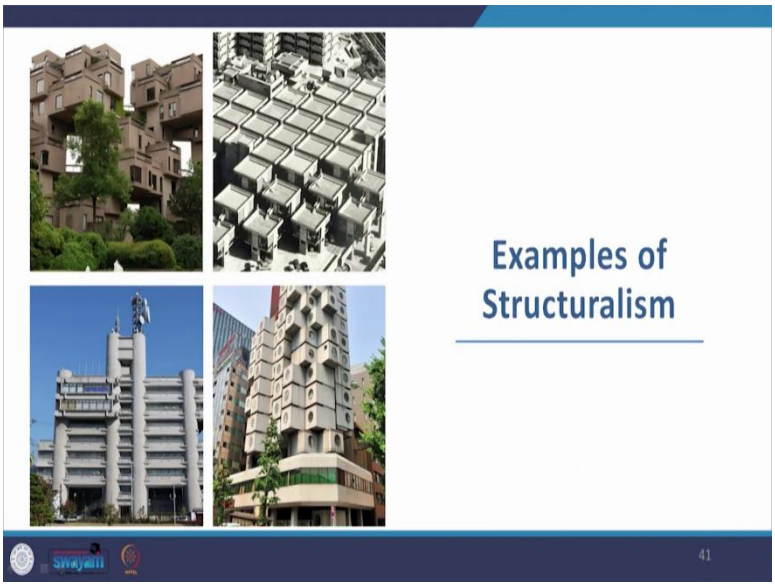

Now, this idea of structuralism came up in other buildings across the world in Japan, in the Montreal Expo 67 by the work of Moshe Safdie called habitat 67. Now the other thing about these are two Japanese buildings I believe by Kenzu Tange, one of them is by Kenzu Tange, the other one is by Kisho Kurukawa.

The other idea along with structure in Japan was that of metabolism. So, if you get an opportunity do read it up. It will be an interesting study because those Japanese works of the time were strongly influenced by the idea of metabolism.

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The Palika Kendra form was then then carried forward by him in a convention centre in 2010 by Kuldeep Singh. So, this is how the entire complex has evolved, this is the Palika Kendra and this is the convention centre. If you look at the form of the Convention Center, it is a carryover of the form of Palika Kendra.

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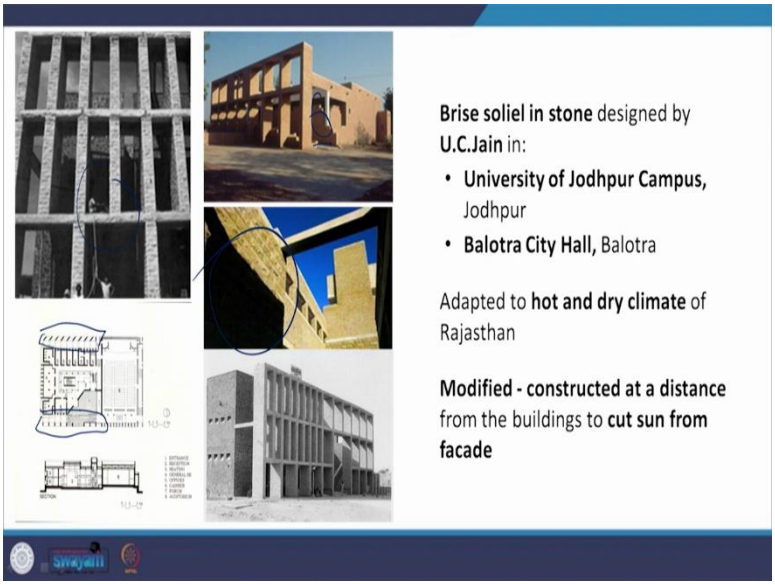

Then there is the use of Brise-soleil by U.C Jain in the Jodhpur University campus and the Balotra City Hall in Balotra. Now what he did was, he did both these Brise-soleil in stone that

was the readily available local material. So, in that sense he was also using the idea of Corbusier to use local materials and also locally available labour force and technology. So U.C Jain went with what was available to him to come up with these very interesting iconic buildings. They are both adopted for the hot and dry climate of Rajasthan.

Now in this case, the Brise-soleil has been modified in the sense that in both buildings, it is constructed at a distance from the building façade. Here for example, if you look, the Brise-soleil in the Balotra city hall is on both sides. You have this Brise-soleil, perpendicular to the building facade and this is at an angle of 45 degrees on the other side.

Now this is very similar to the way Corbusier provided it in the Mill Owner Association, the only thing is even in the Mill Owners Association and in Villa Shodhan, I am sorry, in Villa Shodhan, the Brise-soleil was slightly detached from the facade not completely attached to the facade but U.C Jain went much further.

He took it even further than that, there is a clear significant gap between the facade and the Brise-soleil, it is completely standing alone so that the sun glare is cut off much earlier and you can see how the shadow falls on the facade here and even here . So, that gives us distinct advantage in the hot and dry climate of Rajasthan.

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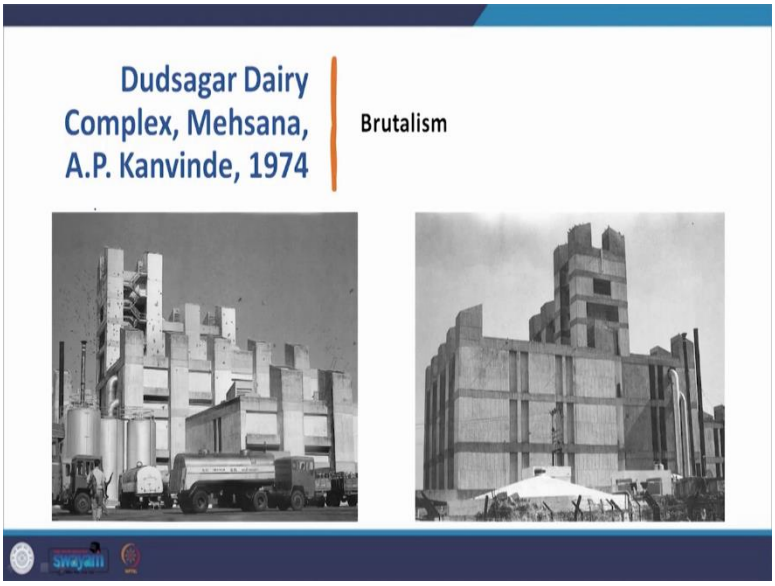

Then there is the brutalist work of A.P. Kanvinde in the Dudsagar Dairy Complex, in Mehsana in 1974. So, what do we find here? That brutalism was implemented or was taken as a design idea where many iconic young Indian architects Kanvinde, B.V. Doshi, Charles

Correa, Kuldeep Singh, Shivnath Prasad and others and it was very strongly influenced by the architecture of Chandigarh.

The other, so three things again. Space planning, overall build form, sculptural form within the building, materials, technologies, labour. All these are and of course the climatic response of modernist building in tropical conditions. All of these ideas were taken forward by Indian architects.

The other idea was that of the use of exposed brick in concrete buildings which was done by exposed brick in plaster exposed brick in concrete, exposed brick in plaster by Pierre Genere, Maxwell Fry, Jane Drew in the neighbourhood of Chandigarh and exposed brick in concrete by Corbusier in his buildings in Ahmedabad and also the Chandigarh museum and art gallery in Chandigarh. So, we will come to that in the next presentation. Thank you.