Modern Indian Architecture
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Lecture 17
Western Architects in India - Le Corbusier - Part 4

Students, I welcome you again to this ongoing series on Modern Indian Architecture and today we will look at Part 4 of Western Architects in India and we are focusing on Le Corbusier.

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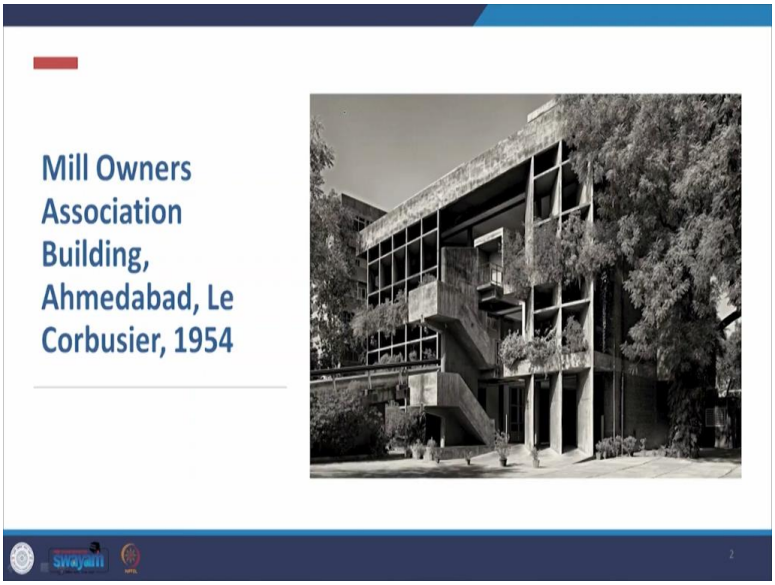

The Mill Owners Association building designed by Le Corbusier in Ahmedabad in 1954 is the next work that I am showing to you here. Earlier we saw Villa Shodhan. Now, this building was on a monumental scale and it had a processional approach. So, in that sense, it is closer in its vocabulary to the buildings of the Capital Complex because it has a monumental scale.

And this idea of a processional approach is also coming from classical architecture, particularly, Greek architecture that he had studied when he was young. He had gone on a tour of Europe and he had studied these buildings. In fact, sketched them and processional approach was one idea that he had been fascinated with at that time.

The idea of focusing the building in a frame and being able to see the building from a distance appears again and again in its buildings. Not just here but we see that in Chandigarh and then we go back and we see that in France we see the Villa Savoye, we see that in Villa

Stein that the buildings can be seen from a distance, the entire building can be seen, as you would be able to see a classical temple or a greek temple.

And in those days today, for example, when you people make a section or elevation in order to show us the scale of the building, you will put a figure of a human being next to it. He normally would do that by using an automobile and the reason was because there was a connection between the way an automobile is designed and it progressively grows to perfection as I talked about in my earlier lectures.

And the same idea of identifying standardized elements and taking them to perfection in his buildings So, the presentation of an automobile in front of his buildings, old black and white pictures, for example, of the Villa Stein showing the automobile, was in fact connecting those two ideas together.

So, we see the same putting the building in a frame being able to see it from a distance here in the Mill Owners Association building. And this has a very bold west front which is dominated by a massive brise soleil. Now, the Brise Soleil is not only working as a sun breaker.

It is also become a sculptural addition to the buildings, as it happened in the assembly building in Chandigarh. He could have done with a much more scaled down version of a sun breaker. We see that example in the work of Chitale in Chennai which is functional but aesthetically not powerful. Whereas in Chandigarh and even here it is a very powerful aesthetic statement. It is a sculptural addition to the building and then there is the approach ramp.

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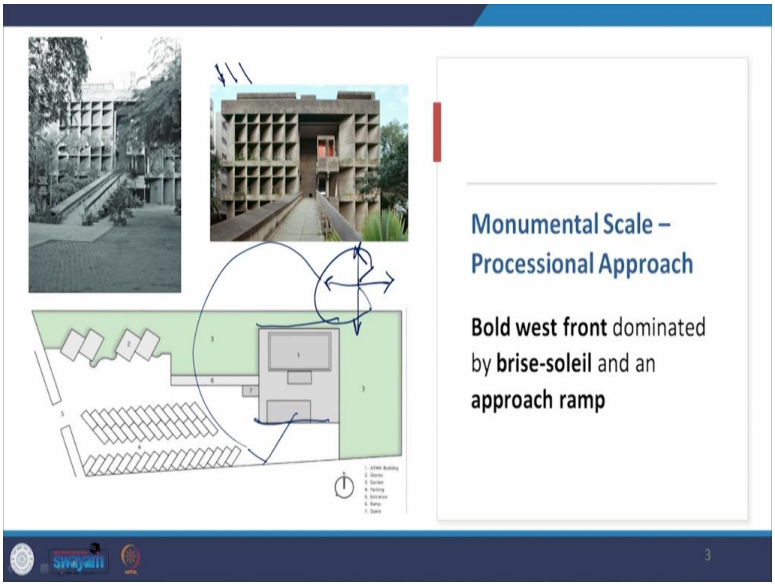

Now, this is the west, this is this is the north. So, if we just take the solar path again just to show how much he was conscious of the climatic impact of the building. So, here is the solar path for summers. So, that means that when you come to the west façade, pretty much more it is completely taking care of the sun because it is an at an angle of 45 degrees the Brise Soleil and the sun is completely cut off. And this side is a blank wall, in fact, both sides are shear walls. On the rear side which is the east side the Brise Soleil is different.

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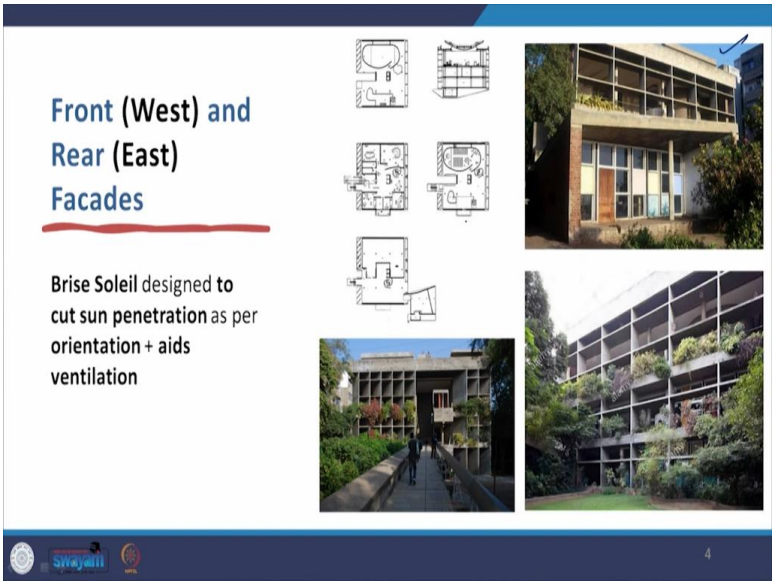

It is like this. So, it is just straight as we saw in Villa Shodhan, the only thing is the Brise Soleil in Villa Shodhan appears to be deeper than that of Mill Owners Association building.

But that is also because it was on the south west side and it had a bigger role to play. Whereas here, it is on the east side and the sun glare is not that big a problem here.

Now, the Brise Soleil is designed to cut off sun penetration as per the orientation, so the west design is different from the east design and also aids ventilation .So, he is not designing Brise Soleil blindly. He is taking care that the right sun breaker or the right call it louvers is presented on the side where it is needed for a particular purpose.

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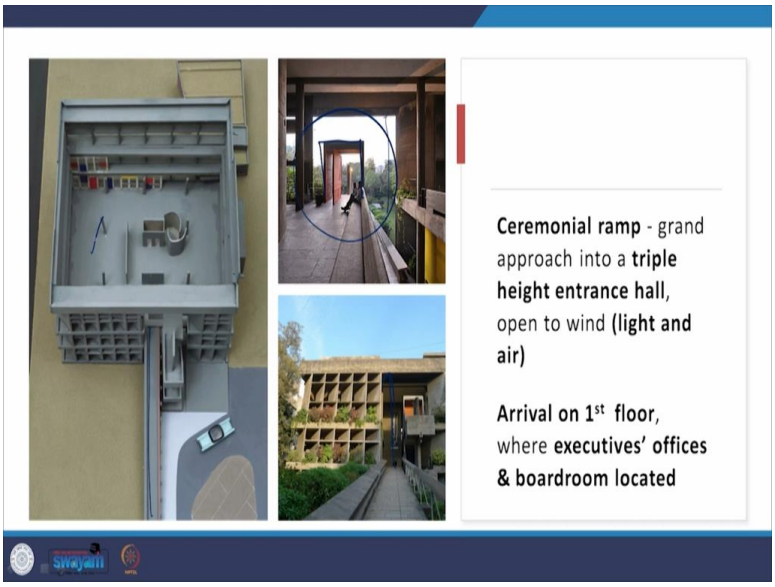

So, aesthetic balances with the function, go back to one of my earlier lectures where I talked to you about the Vitruvian triangle structure function and form when they come in very good harmony, the building becomes really beautiful, iconic. It is a building that will really stand out. Now, that is why we see that his buildings are a very good connect between these three.

Now, here the ceremonial ramp is a grand approach into a triple height entrance hall which is open to the wind. This is the entrance hall and is an amazing idea. Because this is the entrance doorway. This is got this pivoted door and then it is open on all sides and gives the expansive view of the front. And this is the triple height space to which it opens up and brings in light and air into the building. You on from the ceremonial ramp, you arrive at the first floor which is where the executive offices and the boardroom is located.

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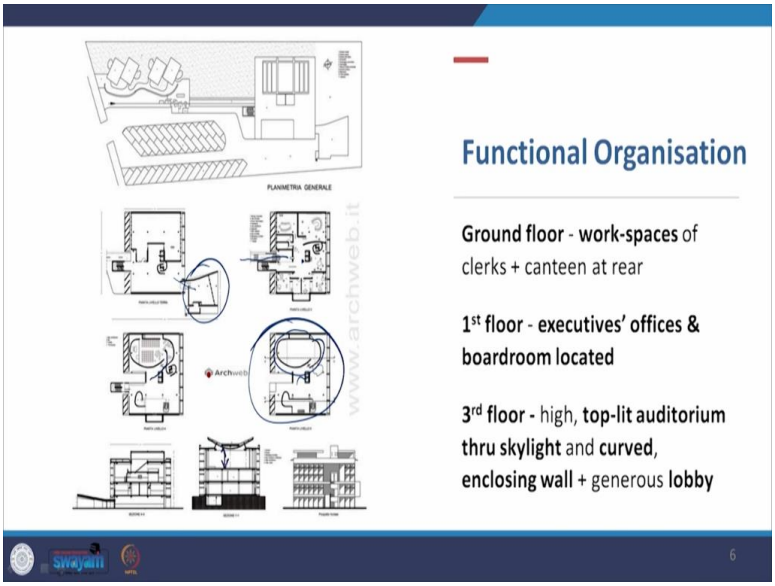

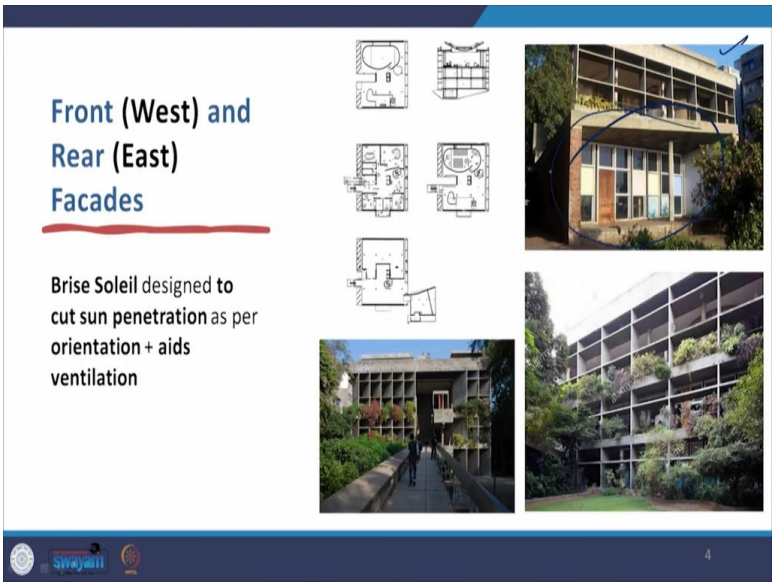

Now, if you look at the functional organization then as you enter, now, you enter in from the ramp to the first floor like I said the offices of the executives are located but on the ground floor the workspaces of the clerical staff is located. And behind it is a single story canteen. If you go back again to show you the canteen, this is the canteen at the rear of the building and this is the canteen.

And the third floor where you have the high toplet auditorium, the light is coming through a skylight and this has a curved and closing wall which indicates that these walls are non-load bearing and there is a very generous lobby provided. Now, here also, at this level also you do enter into the auditorium. So, the auditorium is actually double height and you have the lobby.

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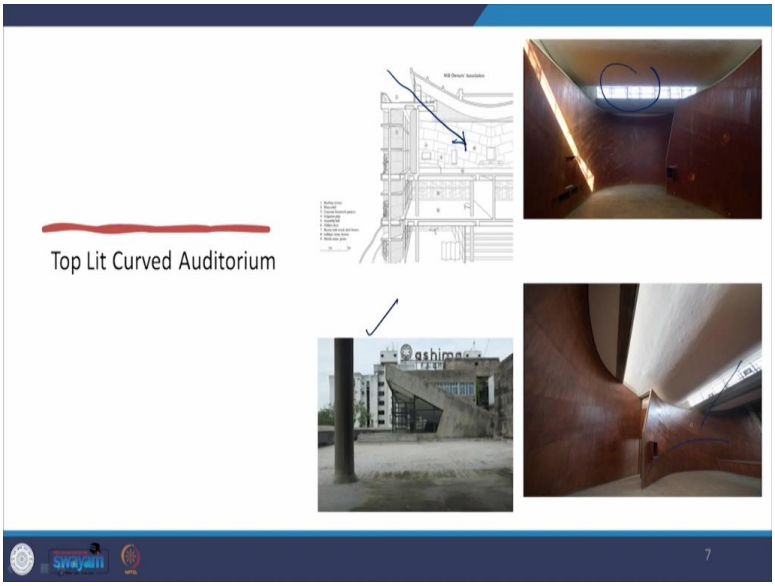

Now, the auditorium is top lit through the skylight. If you look at the section, this is the skylight from where the light is filtering in. This is the picture of the skylight at the top, this is again the curved wall and the skylight from where the light is filtering in.

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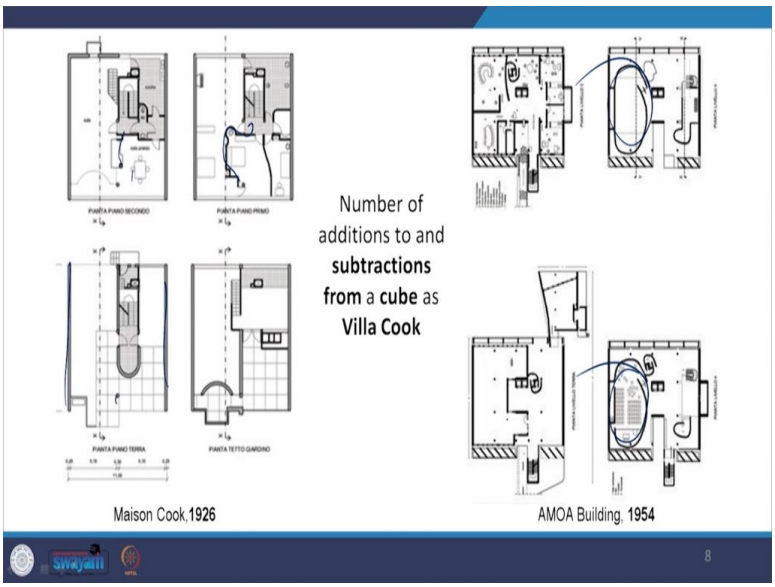

Now, when I compared Villa Shodhan to the previous buildings, I gave you the example of Maison Citrohan and Villa Savoye. Now, Villa Savoye will remain common in the influences or the ideas he carried forward because Villa Savoye was the summer of the ideas of the villas using the five points of a new architecture.

In Villa Savoye, it was actually nine points of a new architecture. Because it included points like the ramp, this is the staircase and the curved bathroom also along with the remaining five points. And there is one more point in addition to that. Now, here in the Mill Owners Association building, it is comparable to Maison Cook that he designed in 1926.

Now, Maison Cook has a structural design which is a combination of shear walls and the pilotis, So, we have the pilotis in the floor plan. Now, the number of additions to and subtractions from a cube, as they appear in Villa Cook also appear in the Mill Owners Association building. So, if there are open spaces and there are curved walls, etcetera then the same appear here also in the Mill Owners Association building. So the idea is carried forward from Maison Cook.

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Now, Corbusier took the ideas developed in the Villas and adopted them in his monumental public buildings in beton brut, we have already seen that in Chandigarh. So, there are large spaces, for example, with the free standing staircase you find that in the Mill Owners and you find that in Maison Cook or Villa Cook. And then you have the curved walls in Mill Owners and you have it here also in Maison Citrohan. So, these curves walls are curved walls are indicative of their non-load bearing nature and thus plasticity in the plan.

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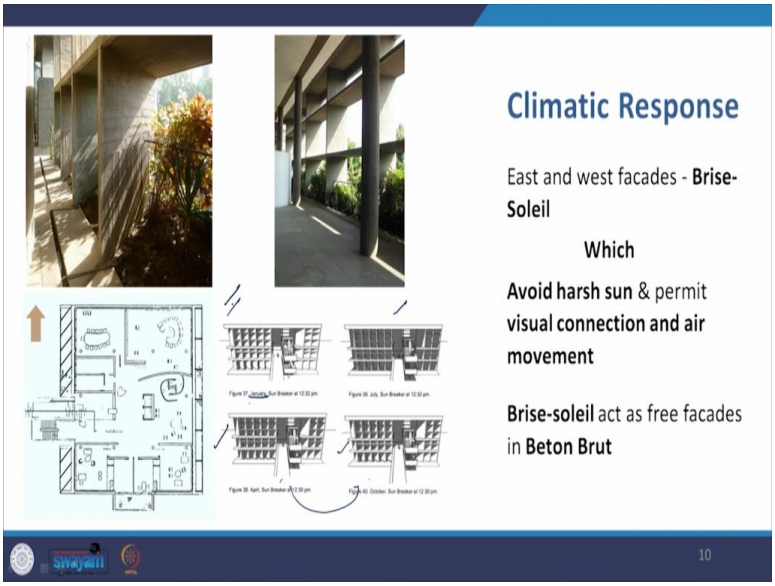

As a climatic response, the east and west sides have got the brise soleil which absorb the harsh sun and provide a visual connection as well as air movement. Now, this is how the brise soleil on the west responds. This is in January, as you can see the shadow effect on the brise soleil and when you come to July when you come to April, for example, the shadows lengthen on the brise soleil and the sun is becoming harsher. It is probably one of the harshest in July and the brise soleil completely cuts off the sun all together.

And then in October, it starts reappearing. October and April seem to be very similar in the response. Whereas in January you are getting maximum sun penetration from the west side with this west brise soleil. So, this shadow, the sun path analysis clearly shows to us that this is an efficient brise soleil for this building and this also acts as a free facade in rough concrete or beton brut.

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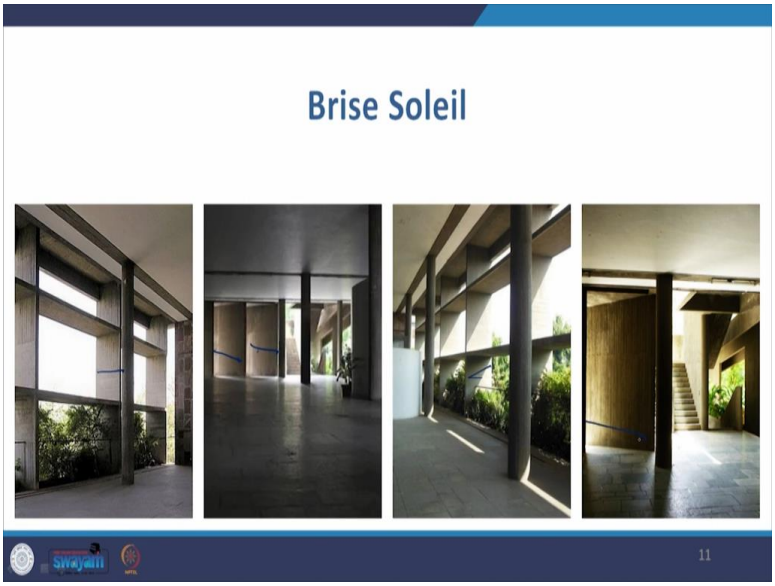

Now, this is the brise soleil from the interior, as you can see how deep it is towards the west side. Whereas it is straight and of course, deep enough towards the east side. This is how deep it is on the west side.

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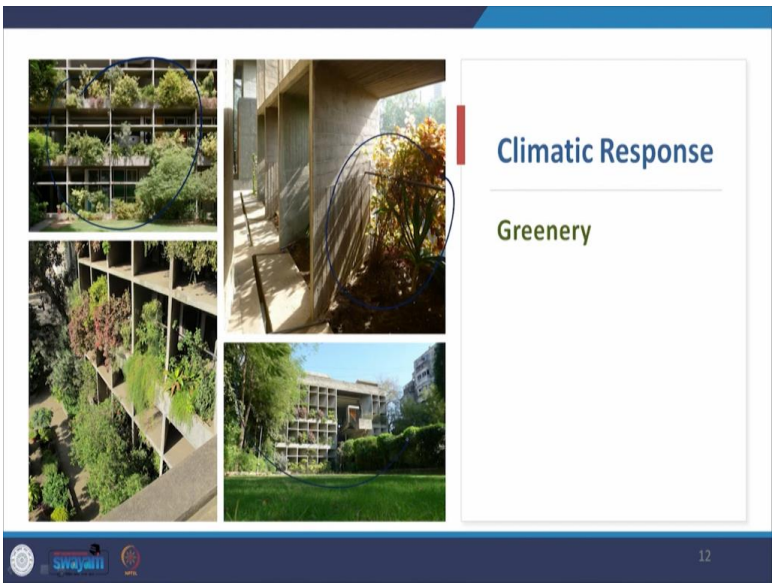

The climate response is aided by greenery. One of the points of climate responsive design of Corbusier, dense greenery within the the louvers or the brise soleil as you can see and all around the building.

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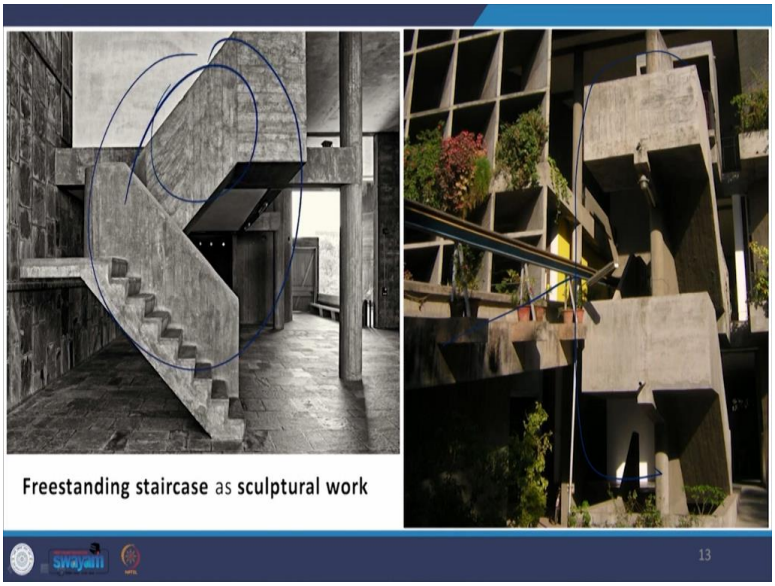

Then there is the free standing staircase as a sculptural element. One is provided on the outside next to the ram and then there is within the building. Very clearly you can see the impact of rather the beton brut.

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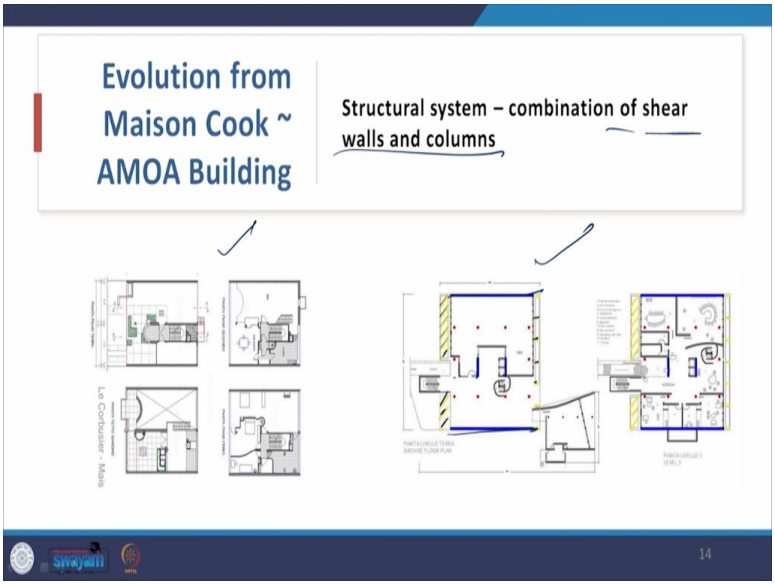

This structural system, combination of shear walls and columns, as I told you what you find in Maoson Cook, it reappears here in the Ahmedabad Mill Owners Association building. There are two shear walls here. There are shear walls within. And amazingly, these sun breakers, these brise soleil panels also serve as shear walls.

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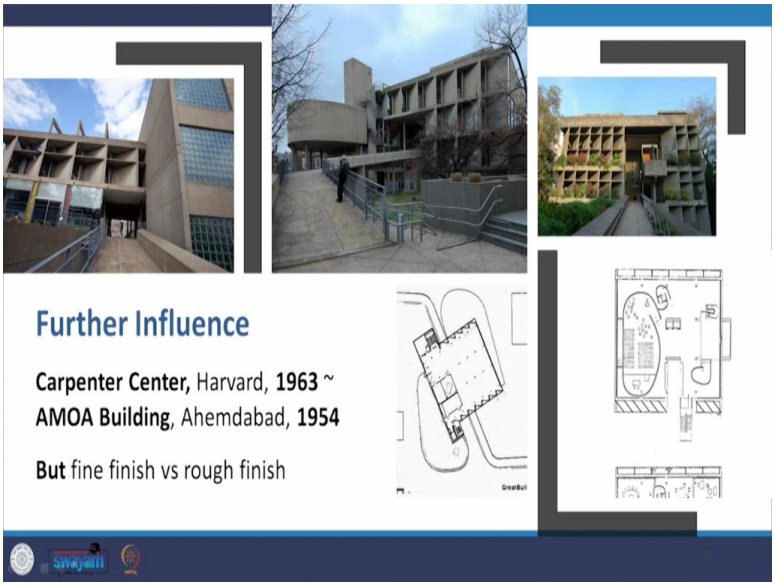

Now, the influence of Corbuzier on his own work not only comes from the past to Chandigarh or Ahmedabad but carries all from there in his own works beyond that, for example, in the Carpenter Center. So, Mill Owners Association building impacted the design of the Carpenter Center. This also had these deep louvers at an angle. It also had the exposed concrete finish, the only difference was it was a fine finish versus the rough finish of the Mill Owners Association building.

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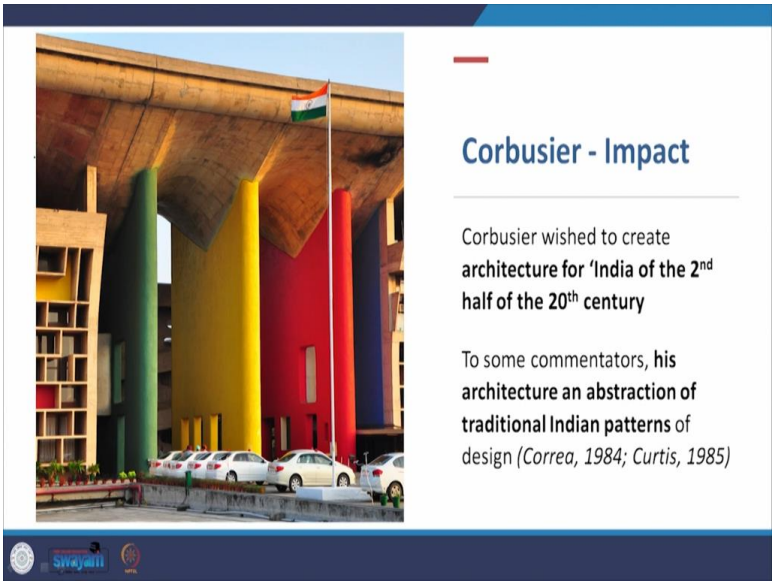

Now, corbusier wish to create an architecture for India of the second half of the 20th century. To some commentators his architecture is an abstraction of traditional Indian patterns of design as stated by Charles Correa in 1984 Curtis 1985.

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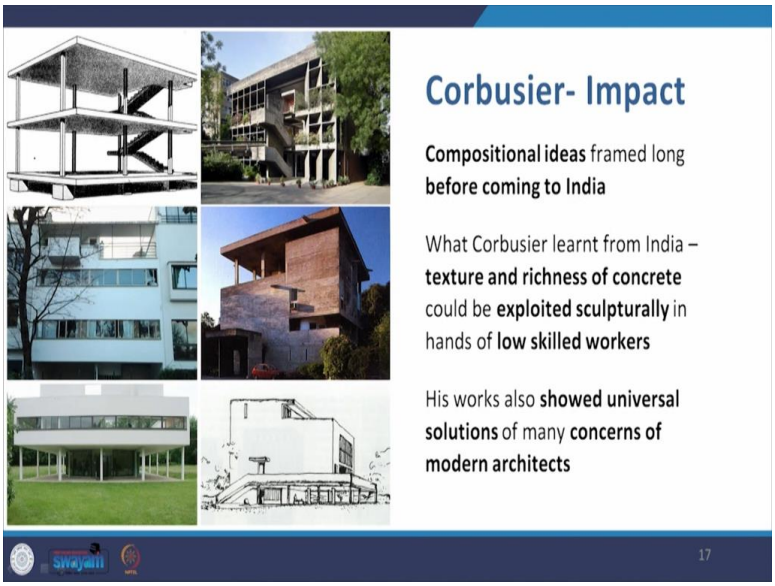

And his impact is the compositional ideas framed long before he came to India. I have already discussed it in one of my earlier slides that how when he began with Villa Savoye, as he moved on , he graduated to brutalism which was very suited for India. So, what Corbusier learned from India?

The texture and richness of concrete could be exploited sculpturally in the hands of low skilled workers. And his works also showed universal solutions of many concerns of modern architects, particularly, with regard to the planning of the spaces, with regard to climate responsiveness and structural solutions.

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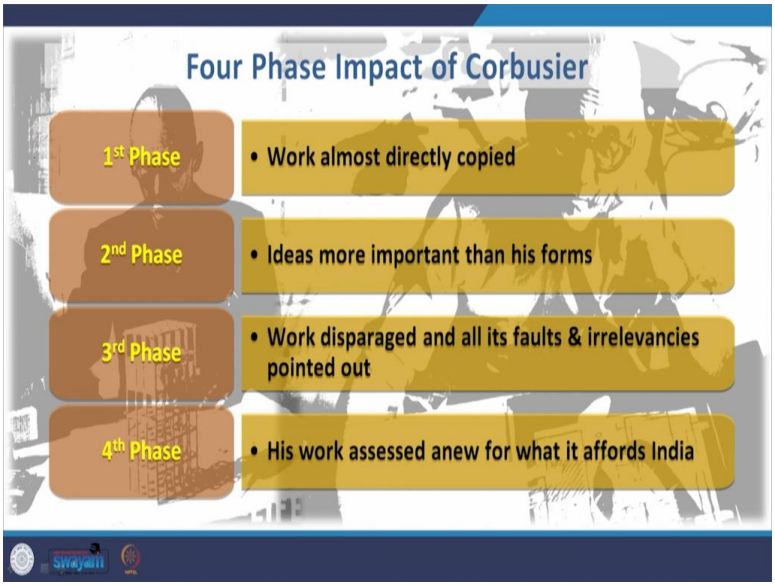

Now, there is a fourth phase impact of Corbusier on modern Indian architecture. The first phase was when his work was almost directly copied. The second phase was when his ideas were more important than his forms and therefore his work was interpreted. The third phase was a critical phase or rather we would say a criticism phase where his work was disparaged and all its faults and irrelevancies were pointed out and there are many points in which there is a very reasonable criticism of his work. The fourth phase has been when his work has been assessed in a new way for what it affords India in the 21st century.

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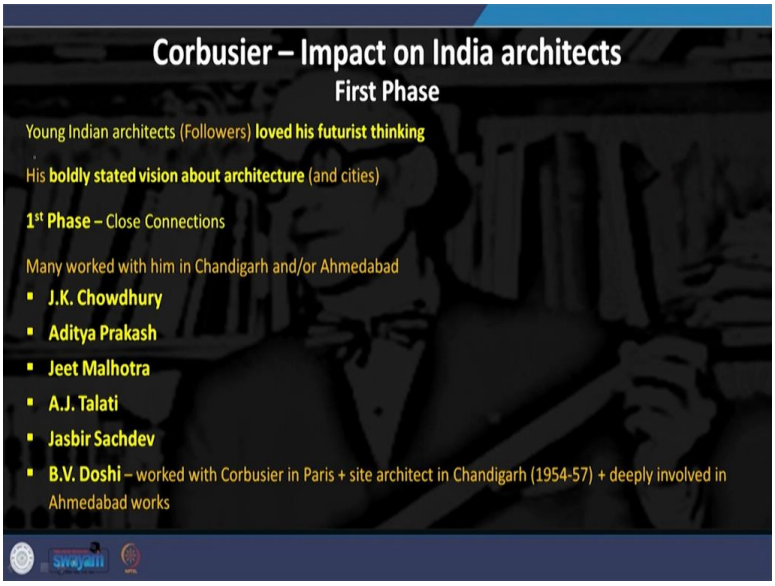

With regard to his impact on Indian architects in the first phase, young Indian architects loved his futurist thinking, his boldly stated vision about architecture and they had a very close connection with him, particularly, because many of them worked with him in Chandigarh and or Ahmedabad.

So, there is J K Cchaudhary, Aditya Prakash, Jeet Malhotra, A. J. Talati, Jasbir Sachdev, and of course B. V. Doshi who worked with Corbusier in his atlean, in his office in Paris and then he was a site architect in Chandigarh and was deeply involved in the works of Ahmedabad.

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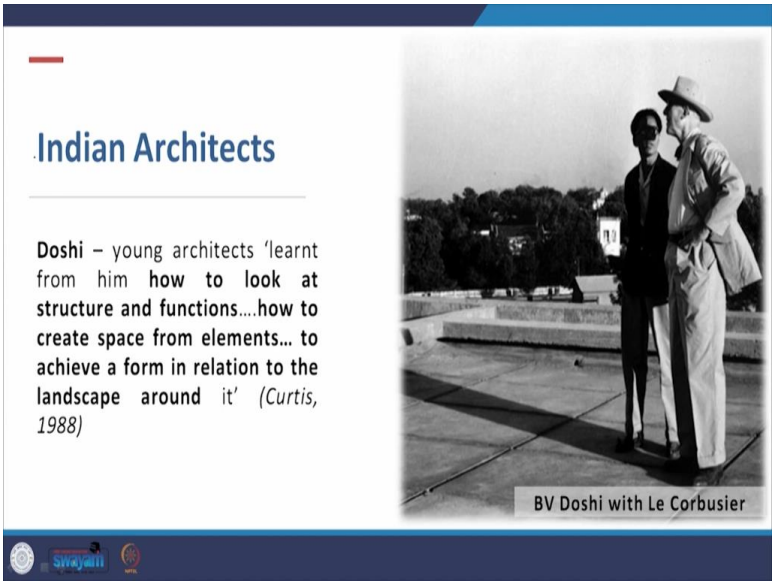

Doshi said that young architects learned from Corbusier how to look at structure and functions, how to create space from elements and to achieve a form in relation to the landscape around it.

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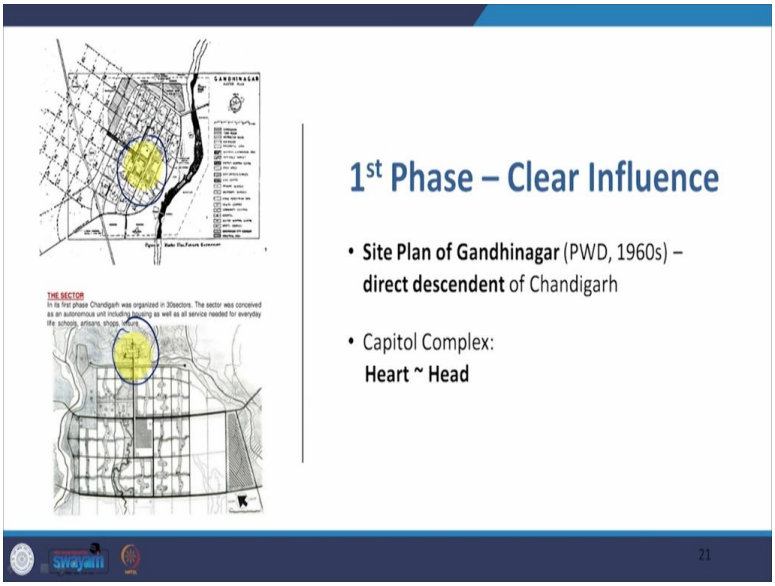

In the first phase that is , when the works were directly influenced by the works of Corbusier. For example, in planning, the site plan of Gandhinagar by the public works department in the 1960s is a direct descendant of Chandigarh. The Capital Complex is the head of Chandigarh versus this Capital Complex of Gandhinagar which is the heart of Gandhinagar. The overall planning of Gandhinagar is a sectoral planning as is Chandigarh.

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Now, the Capital Complex of Gandhinagar has large scale architecture which follows the pattern of the Chandigarh Capital Complex and these are the buildings of the Capital Complex of Gandhinagar.

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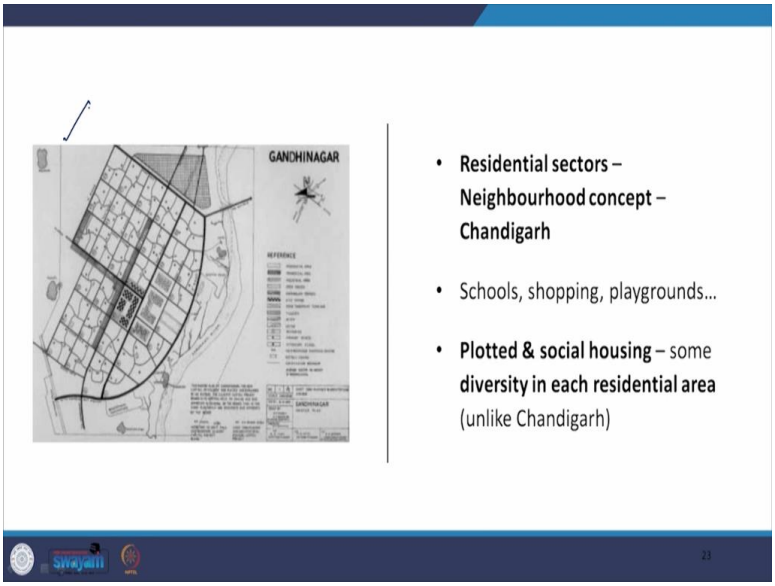

The residential sectors have a neighborhood concept like Chandigarh. So, as you can see this is also sectoral planning. So, there are schools and shopping areas and playgrounds but it has plotted and social housing which is in divergence to the residential development of Chandigarh. So, there is some diversity in each of the residential areas of Gandhinagar.

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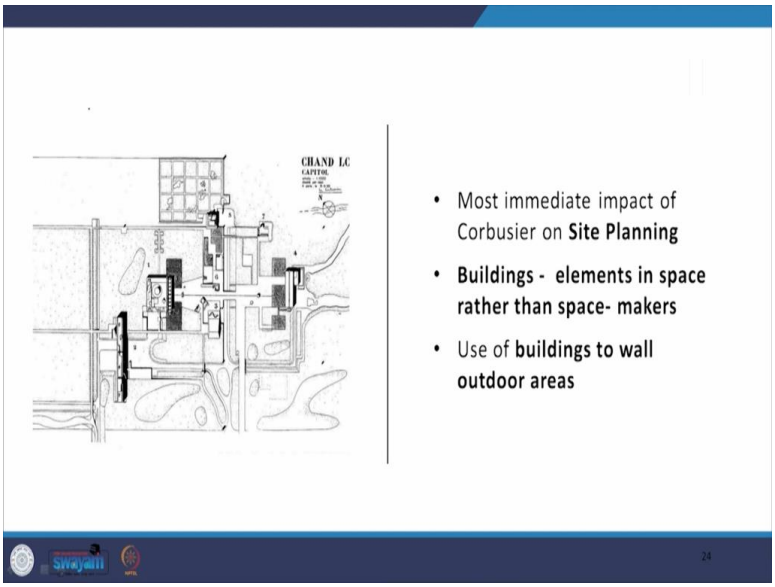

The most immediate impact that Corbusier had on site planning was that buildings are elements in space rather than makers of space. I will repeat that buildings are elements in space rather than makers of space. So, buildings are used to wall outdoor area. So, there is a

space, for example, the open plaza of the Capital Complex and the buildings act as if they are the boundaries of the space defining the open plaza.

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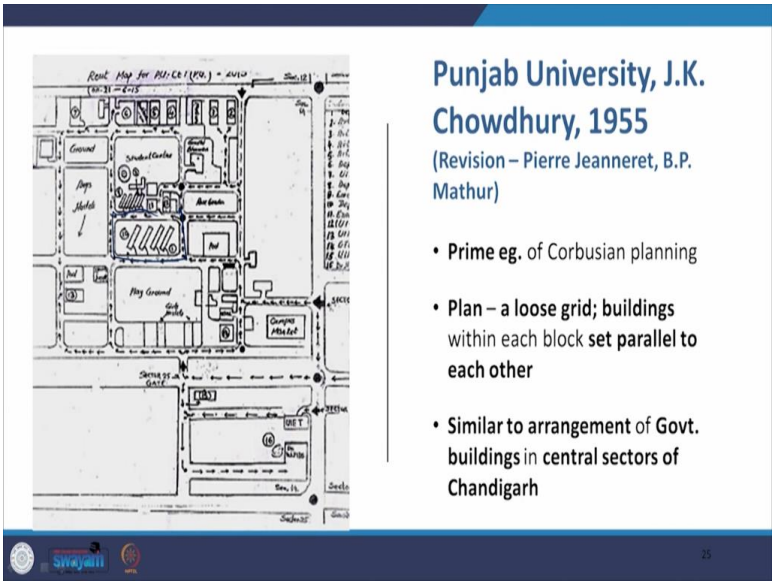

So, when we come to the planning of Punjab University by J. K. Chaudhary in 1955 which was revised by Pierre Jennneret and B. P. Mathur. It is a prime example of Corbusier planning. The plan is a lose grid in which buildings in each block. For example, let us take one block here. They are placed set parallel to each other similar to the arrangement of government buildings in the central sectors of Chandigarh.

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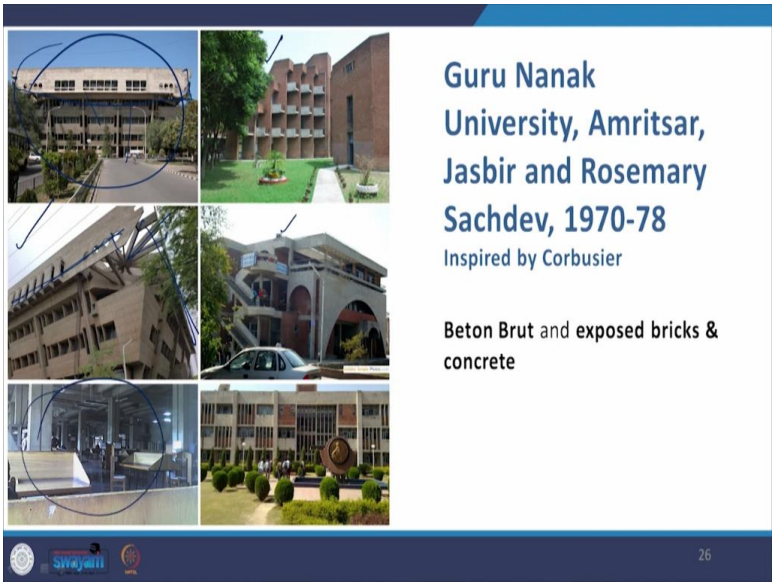

Now, with regard to the the building design itself, we come to the Guru Nanak Dev University GNDU in Amritsar designed by Jasbir and Rosemary Sachdev from 1972-78. It was also inspired by Corbusier. It is also inspired by Corbusier. It is a first phase influence where there is beton brut and exposed brick and concrete buildings.

So, the focus of the GNDU campus is their library building which is in beton brut rough concrete and it is an amazing building and you can study more about it through books or internet. This has got an amazing structural frame, particularly, at the top where you have these radially projecting beams holding on to these elements and the entire building is tapering towards the ground level.

And this top floor overshadows the floors beneath it like overhang to the building. So, this idea of the overhang also coming from the works in Chandigarh. Then you have exposed bricks and concrete in the hostels and in other buildings. Then there is complete exposed concrete in the interiors. For example here in the library.

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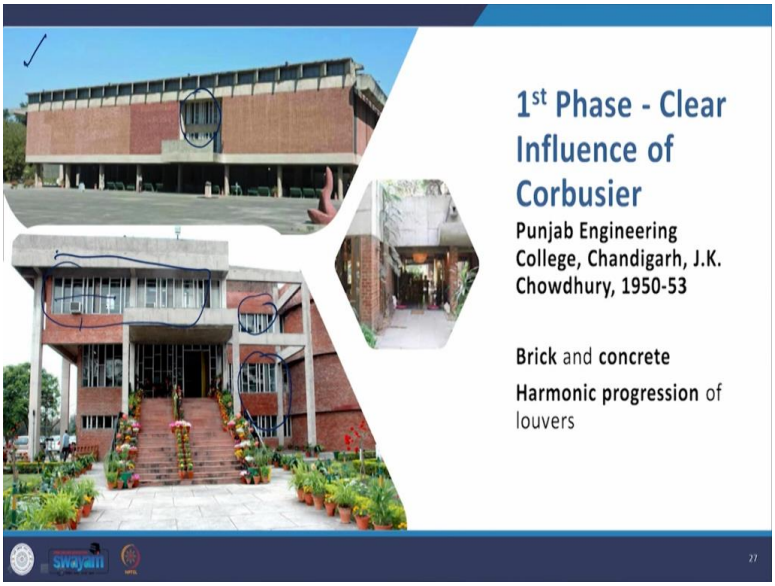

Now, there is influence in the Punjab Engineering College from the work of J. K. Chaudhary from 1952-53 where it is again a combination of bricks and concrete. This is a museum that he designed in Chandigarh and this museum like I said also that this work not only is he influenced by his own works of the earlier phase but the works he did in India carry forward to the works ahead.

This work is similar to a work he did in Japan, a museum in Japan. Apparently, it is the other way around because that museum was built earlier and its design or the design of this museum is a very similar design to the museum he did in Japan. But that was in exposed, I believe grit finish or concrete finish whereas here it is in exposed brick and concrete.

Now, there is also the harmonic progression of louvers and you can study this when you you can study the modulus scale of Corbusier on your own. And along with that you can study the idea of harmonic progression of louvers. And you see that appearing in J. K. Chaudhary's building also. So, not only is it exposed brick in concrete, there is also the harmonic progressional of louvers as you can see that all the louvers are not equidistant from each other.

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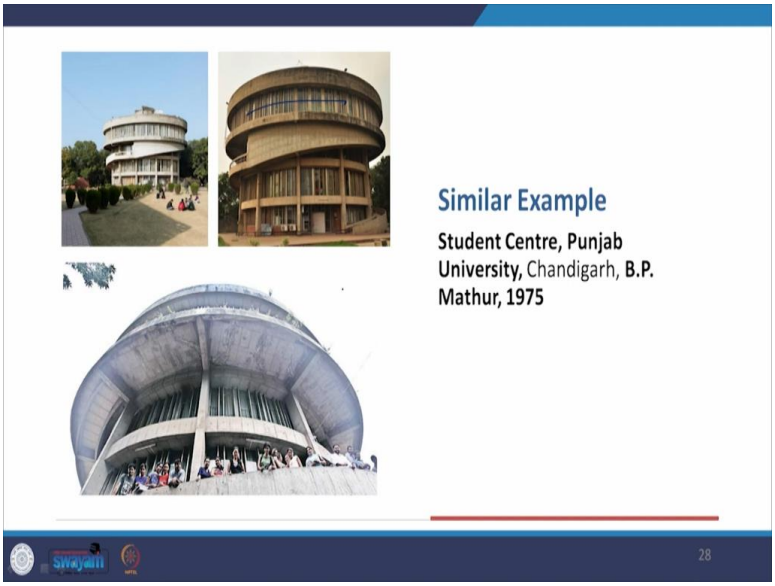

Then a similar example, you can see in a circular building by B. P. Mathur in 1975. The student center in Punjab University, this also has this harmonic progression of louvers and it is a building in beton brut in rough cast concrete.

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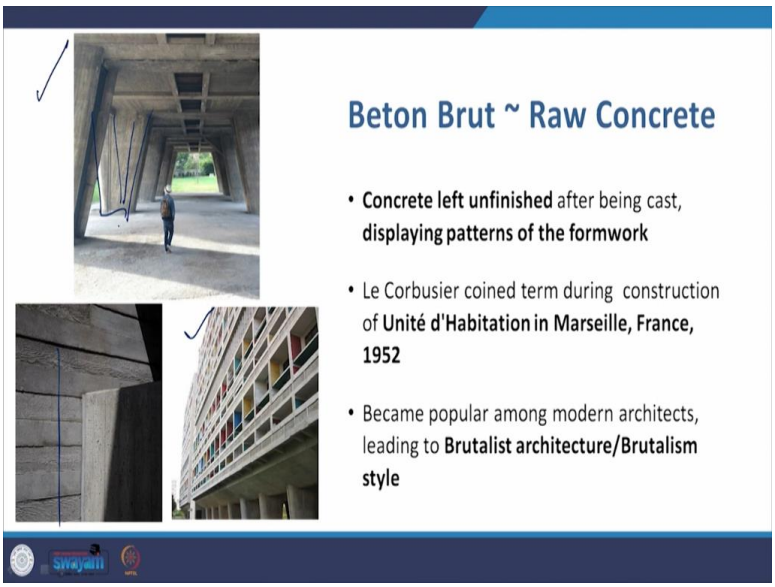

Now, just to give you a recollection of beton brut or raw concrete, concrete left unfinished after being cast, displaying the patterns of the formwork, as you can see here. The shuttering has been removed and the design of the shuttering, the imprint is left, that the concrete is left as it is.

So, LeCorbusier coined this term beton brut during the construction of Unite D'habitation in Marseille in France in 1952. This is the building. This is the Pilatus of the Unite D'habitation at Marseille. Massive Pilatus in beton brut. And this became popular among modern architects leading to 'brutalist architecture' or 'brutalism style'.

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Now, the aesthetic varied with different form work over the years, board shuttering or smooth formwork. So, you have board shattering here and you have a smooth form work here. Now, smooth formwork in beton brut is seen very much in the works of architects like Tadao Ando and other Japanese architects. And this is a smooth finish formwork. The material of the formwork varied also. It could be glass, wood, steel etcetera leading to different appearance when the surface was left behind.

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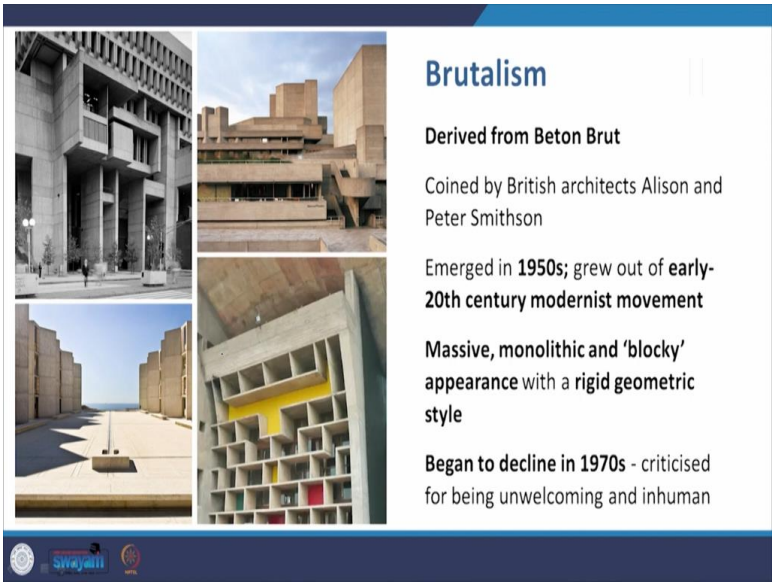

Now, derived from beton brut is brutalism which was coined by British architects Alison and Peter Smithson. It emerged in the 1950s and grew out of the early 20th century modernist movement. So, there were many strands to the earlier modernism of the international style. There is minimalism, Bauhaus itself was an offshoot though it was a school in itself and there is brutalism and many others.

Now, the massive, monolithic and blocky appearance with a rigid geometric style was the hallmark of brutalism but it began to decline in the 1970s and was criticized for being unwelcoming and inhuman but brutalism continues to be there and we will look at those works in some of the buildings, at least a couple of buildings in the later part of the 20th and 21st century in India. Now, brutalism in India has been exercised by many architects. Kuldeep Singh is there and Shivnath Prasad is there and many other architects who have employed it.

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B. V. Doshi himself has done it in the Premabai Hall and it is there in the Sardar Vallabbhai Patel stadium etcetera. I. P. Kanvinde has exercised it.

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And brutalism in Chandigarh is a rugged construction that suited Indian construction technology and available materials. In fact, India has the seventh largest number of brutalist buildings in India. As I have told you earlier with regard to Art Deco India has the second largest number of Art Deco buildings in the world after Miami.

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Now, one example of this clear influence of brutalism or the work of Corbusier is that he did the center Le Corbusier here in Zurich in 1967 and this was in steel and this was then adapted in beton brut by S. D. Sharma in 1997 for the Le Corbusier Museum in Chandigarh, sorry, I am, not this one, this one.

In Chandigarh in beton brut. Beton brut versus in steel in Zurich. And very similar this is the front, the roof escape in the front has a triangle with the vertice pointing downwards and in the rear it is pointing upwards. And we see the same thing happening here. Very very similar. In fact, a very close replica of the central Le Corbusier in Zurich.

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So, I will end here and we will continue with the inspiration of Le Corbusier on the work of Indian architects. Thank you.