We reminded ourselves about community development, we reminded ourselves of the approach of young architects to know how to do modernity with tradition. And we reminded ourselves that technology is also going to play a key role, along with the fact that environmentally conscious design is vitally important for the years to come. I will end here and we will come back to the last and final presentation of this series next time. Thank you

Modern Indian Agriculture
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Indian Institute of Technology, Roorkee
Lecture 40
Search for a New Architecture - Part 5

Hello students welcome to the last and final presentation of this series on Modern Indian Architecture. And that is a Search for New Architecture part 5.

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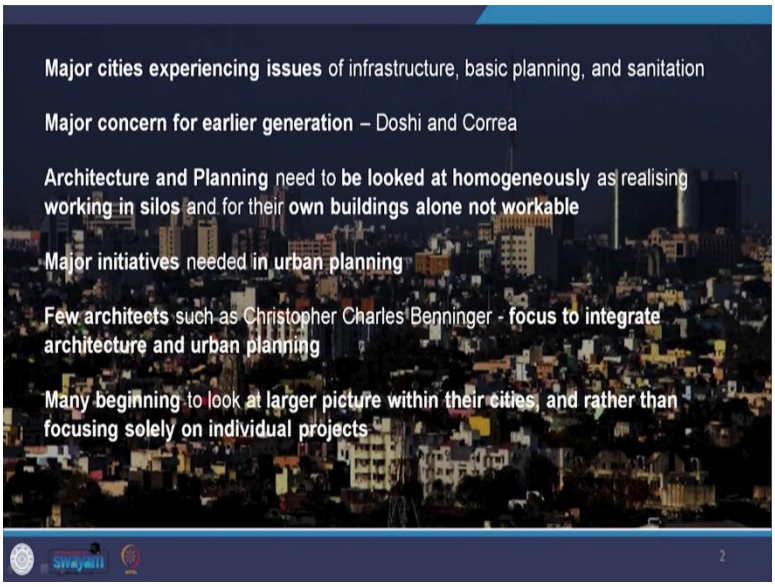

Major cities are experiencing issues with regard to infrastructure, basic planning and sanitation. And there are major issues of concern, even from the early generation with regard to these issues. That is reflected in the works of architects again, like the V. Doshi and Charles Correa. Therefore, now there is this outlook that Architecture and Planning ought to be looked at homogeneously.

If you remember last time, I talked about the Smart Cities mission in the PM, a scheme of the government. One looking at the overall city and one looking at housing particularly and therefore the outbreak of Architecture and planning to be looked at homogeneously. Realizing that working in silos for their own buildings is not going to be workable anymore. Therefore, major initiatives are needed even in urban planning by architects, not only planners. And for architects like Christopher Benninger, the focus to integrate architecture with urban planning is already there.

Many are beginning to look at the larger picture within their cities and rather than focusing solely on their individual projects. So, the whole project and the impact it has on the overall

city and the impact it has on the environment, Natural Environment are both of importance for an architect today. So, there is a need being felt for architects and architecture to engage with cities.

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Housing, for example is a problem. But it is also an opportunity, how? Growing economy and population is leading to an enormous housing need in India and that need atleast for the economically weaker sections is being looked or the initiative is being taken from the schemes like the PMAY, but there is also a rising architectural work and massive opportunities in the housing sector today. And not only because of housing, but also because of other kinds of buildings that are coming up for an architectural firms their work in India and their working in India is also increasing. Cities lack of infrastructure is also an opportunity to design and make a difference to the nation. That is why many architects who are studying to go abroad to study architecture, so many of them are returning back to practice in India, because of the challenges and opportunities that exist in our country today. So, many are interested to do something to read this challenge that we are facing in our built environment.

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Now, let us look at the issue of conservation. There are different things that are the concern of architects today. One is the impact of the socio-cultural imprint on the city. So, architecture's impact on that socio-cultural aspect of the city is important to architects today. Then there is the issue of the social responsibility of an architect, an architect such as Brinda Somaya, Pratima Joshi and PK Das, on working towards that. For example, this picture shows Pratima Joshi standing with these children and these women and this actually is a community toilet that she has designed.

So, there are architects who are confronting such immediate challenges to our society. Then there is the work with regard to community architecture and the work and restoration or conservation of heritage structures in which architects are working. For example, Brinda Somaya herself and then there are architects like Nimish Patel, Parul Zaveri and Bijoy Jain, who are bringing forward immense results of craftsmanship and crafts people, which is already a dying art, but they are working with enthusiasm to bring a revival in that.

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So, there is this exploration of an Indian identity in architecture and architecture that is true to our culture that reflects our own socio-cultural identity is gaining credence. Earlier when we talked of the works of Charles Correa and BV Doshi, Raj Rewal and Laurie Baker, they were representative, they represent international representation was through their works. India's international representation was through their works, but today there is a younger contemporary practices which are coming up and the international recognition to Indian architecture and Indian identity is being reflected through the firms like Sanjay Puri Architects, Matthew and Ghosh Architects and Morphogenesis. Sanjay Puri, Matthew and Ghosh and the form of Morphogenesis.

The futuristic thinking resting on both traditional ethos and the core tenets of a contextual and a responsible architecture. And an architecture that is built to its context. That is another older presentation when I talked that in the search for a new architecture, so many architects are now focusing on local and regional problems, rather than looking at architecture on a national level, it is the local problem that is proving to be more challenging and therefore it is also leading to a diversity in our architecture.

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Now one area that is really causing a critical showing a critical growth pattern is the representation of Women in Indian Architecture. Now, women's participation has been there even in the past, but it is increasing much more today. And that is true for all professions because women in India are coming more and more into the workforce. If I remember my figures correctly, in an earlier presentation, I had said that in 2020 the number of architects which are registered with the Council of architects are about 58 percent of them were men or 52 percent for men and 48 percent for women.

So, there is a kind of a parity that is coming up. So, women's participation in architecture is growing and they are making a major contribution to architecture and planning on many forums, women are initiating changes. So, we have, Eulie Chowdhury. Now this is an older generation. We have Sheila Sri Prakash, we have a Aishwarya Tipnis, we have Gira Sarabhai of the NID design frame, we have Abha Narain Lambah, we have Anupama Kundoo, Brinda Somaya, Chitra Vishwanath.

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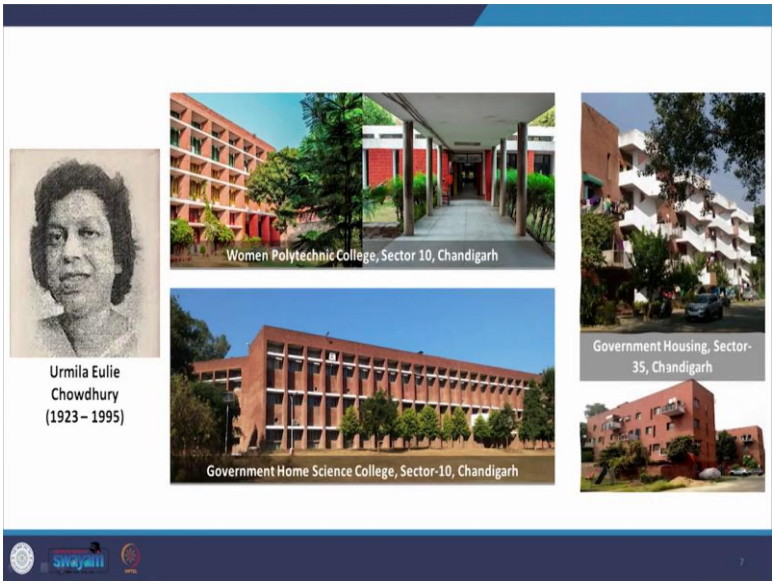

So, when we look at Urmila Eulie Chowdhury. She is one of the beginners. She worked along in the international style architecture of Chandigarh and she came up with examples like the women's Polytechnic college way back in the early years of modern architecture in India, Government Home Science college in Chandigarh and a government housing project again in Chandigarh.

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And then there is Gira Sarabhai, who along with her brother had gone to intern under Frank Lloyd Wright. And she designed the Calico Museum of Textiles in Ahmedabad and the Calico Dome in Ahmedabad in 1963.

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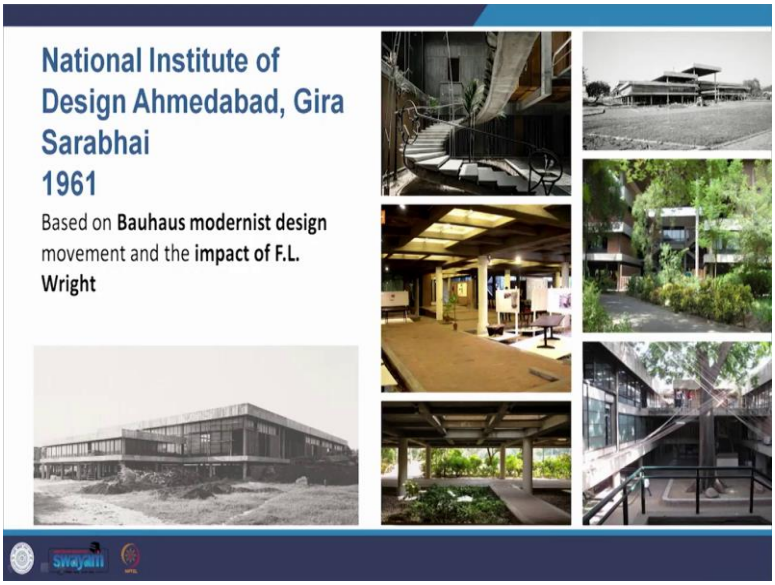

Now project, which is most known for is the NID building the National Shoe Design building in Ahmedabad in 1961. It is based on the Bauhaus modernist design of functional organization, along with an imprint of Frank Lloyd Wright upon it.

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And then those Brinda Somaya, who continues to practice she is both an architect and an urban conservator. And she has projects which are ranging from design of institutional campuses to rehabilitation of a community for example, that which was devastated by the Bhuj earthquake and the restoration of an eighteenth century church for example. So, there is designing of new campuses, rehabilitation and restoration.

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This is a design of a new campus the Goa Institute of Management in Goa 1993. I saw this presentation earlier with you this project in a small way.

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And then we had the Tata Consultancy Services Campus, Indore in 2018.

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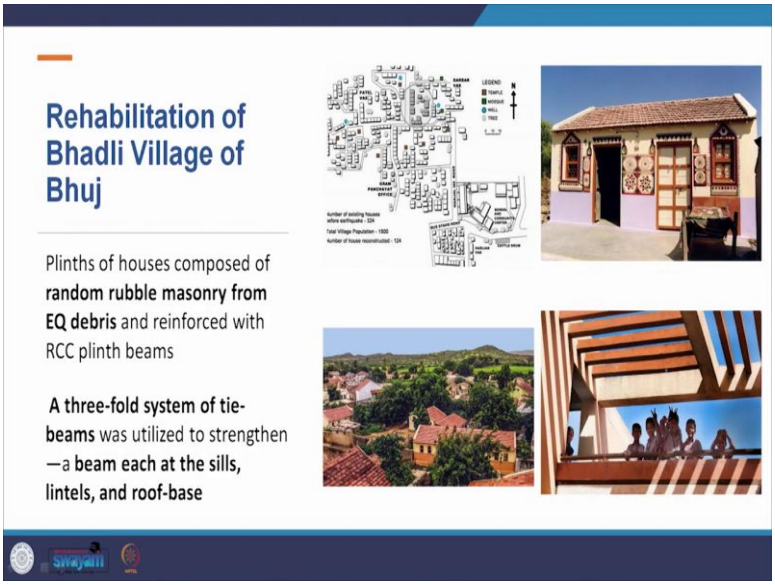

We had the rehabilitation of the Bhadli village of Bhuj in which the plinths of houses are composed of the rubble that was there from the earthquake debris and then the project the houses are reinforced with RCC plinth beams. Now it is called a three-fold system of beams to maximize strength a beam at the sil level, at the lintel level and the roof-base. So, the idea of a seismic band both provided both at the plinth level and the sil then there is one at the sil level and there is one at the roof base or other I should say at the sil level, the lintel level and the roof base.

So, three points these bands or beams are added to provide reinforcement from seismic events in these buildings.

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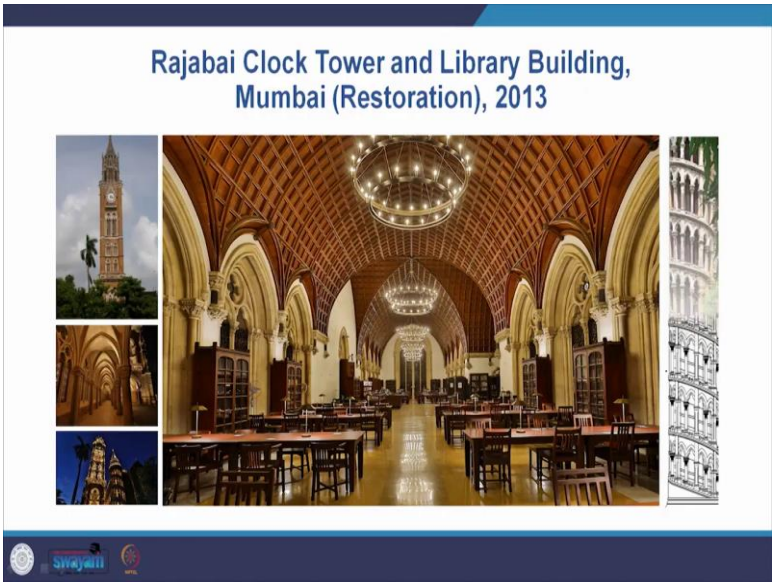

Then there is the Rajabai Clock Tower and Library Building in Mumbai that was restored by her in 2013.

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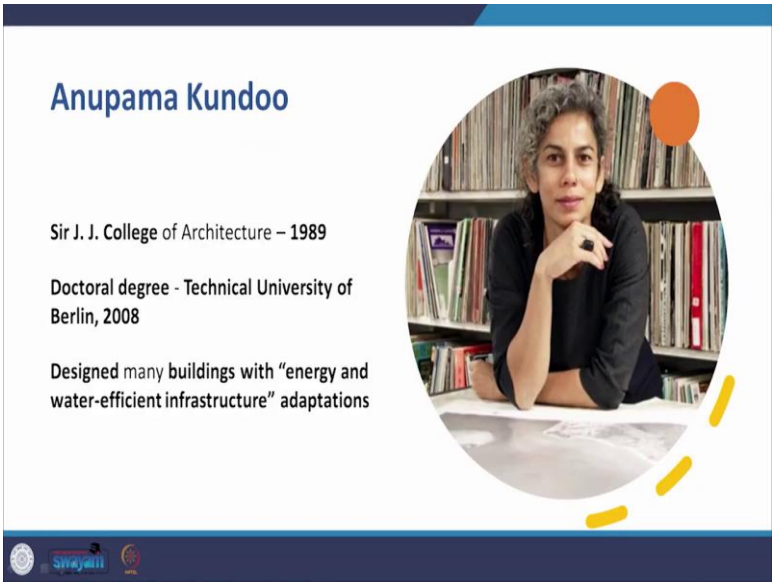

Well that is Anupama Kundoo, who was educated in the Sir J. J. School of Architecture. She graduated in 1989. Then did a doctoral degree from to Berlin in 2008 and designed many buildings with energy and water efficient, water efficient infrastructure adaptations.

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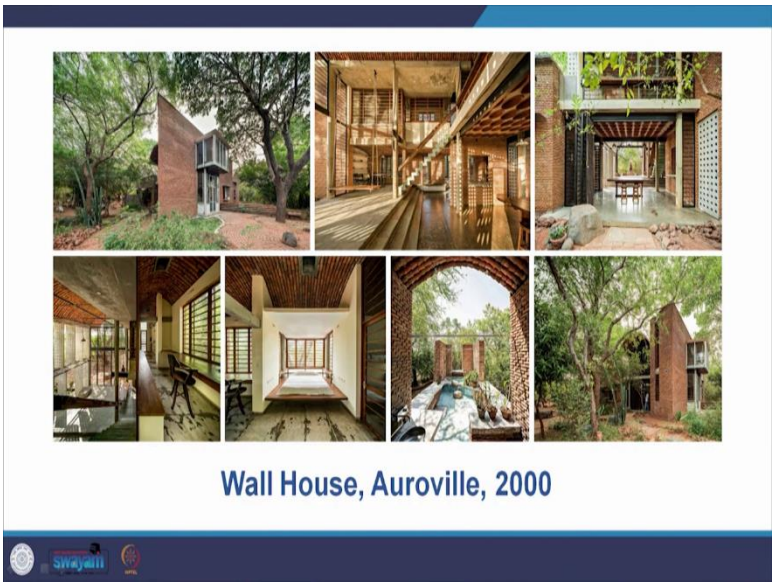

So, one of her most famous projects is the wall houses Auroville she designed in 2001.

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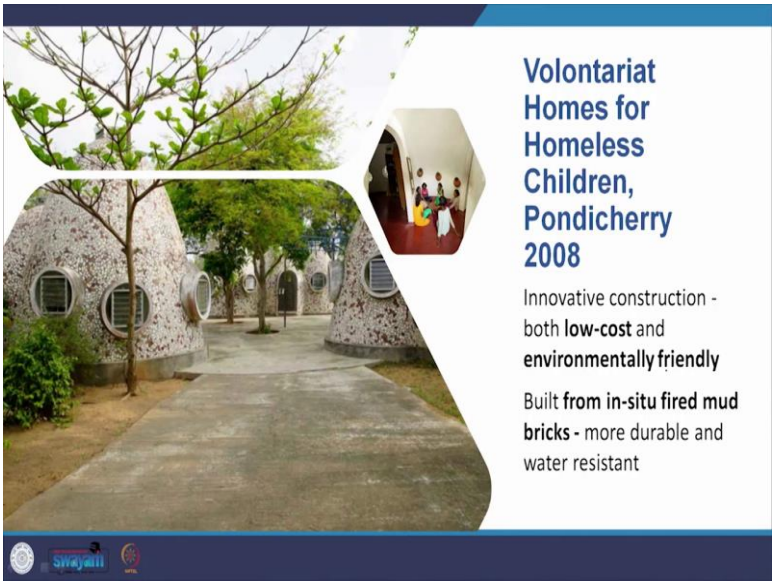

And there is the Volontariat Home for Homeless Children Pondicherry in 2008, which is an innovative construction which is both low cost and environmental friendly. It has got these in-situ-fired mud bricks, which are both durable and water resistant.

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And then there is Chitra Vishwanath who was had a diploma in civil engineering from Nigeria. Then got B Arch from CEPT, Ahmedabad and started a practice in 1990. She works in ecology and ecological and sustainable architecture and gives utmost importance to the ecology of the site and the use of eco-friendly materials.

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The material she consistently works with is Earth. And she for example, in the Buddhi School in Bangalore, in 2019. The walling element is compressed Earth blocks or CEBs. And for floors, roofs, she used conventional RCC. CEBs were manufactured on site. The soil was sourced from the basement of a large apartment complex that was coming up about 5 kilometers away. And the earth that was being taken out to create the basement of the project was then used here to make the CEBs and that is it greatly reduced the material footprint and does the carbon footprint of the project.

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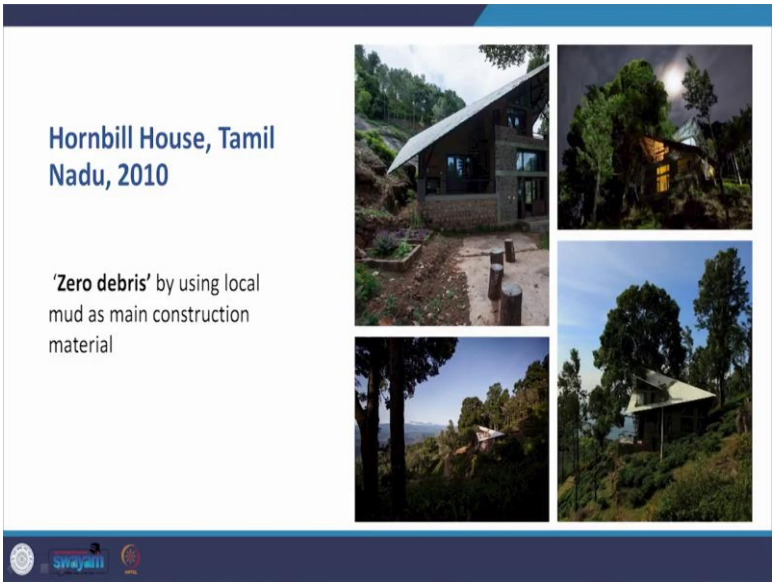

Then she designed the hornbill house in Tamil Nadu in 2010. It is a zero debris project, because she used local mud as the main construction material.

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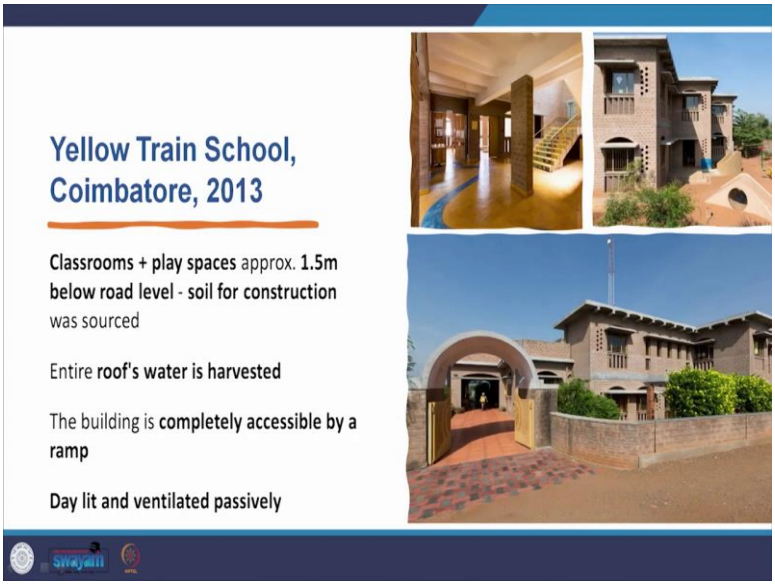

Then there is a very famous project was called the Yellow Train School and Coimbatore in 2013. Here the classroom in the play spaces are approximately 1.5 meters below road level to provide soil for the construction that is taken out because of the earth digging that has been done. The entire roof's water is harvested, the rainwater is harvested and the building is completely accessible from around that has been created to go down into the areas and it is more daylit and it is ventilated passively.

So again, here she is using soil as a construction materials. So, three projects in series, where she is used as a primary construction material.

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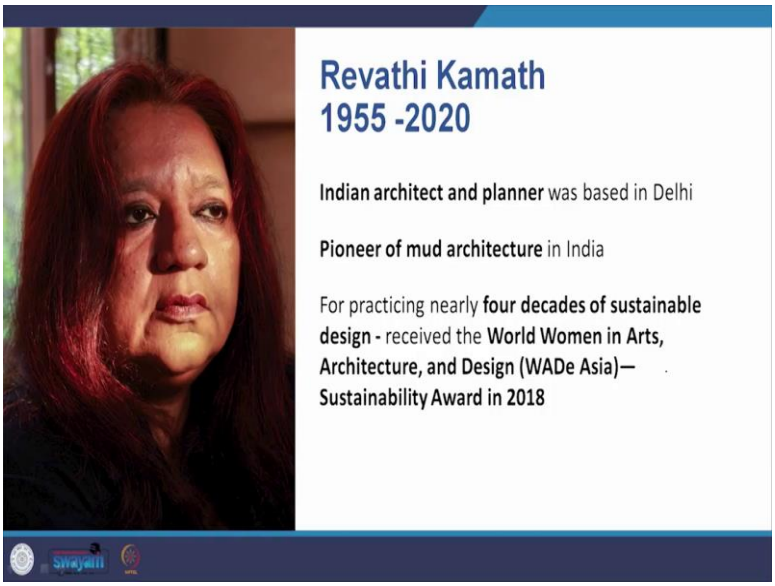

And then of course there is Revathi Kamath who unfortunately passed away in 2020 from 1955-2020. And she was an Indian Architect and Planner based in Delhi and a Pioneer of mud architecture in India along with her husband, the Vasanth Kamath. She made so many interesting projects. She practiced for four decades and sustainable design for which she received the World Women in Arts Architecture and Design Sustainability Award in 2018.

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For example, her project is the Lakshmansagar Resort in Raipur Rajastan where the materials were sourced locally, so the foundation. The entire project has this aspects in it, the foundation is in local state. Sun-dried mud bricks for the walls. Local sandstone for the doors and window frames. So, the bracket, lintels and roof slabs. Kikar or Acacia wood and eucalyptus logs for the beams, local marble for the flooring and the bathroom basins have been hewn out of solid rocks.

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Then there is the Wellness resort called NAAD in Sonipat, Haryana, which is a unique design where all spaces are oriented towards the central water body and the hierarchy of spaces is natural ventilation.

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There is also the aspect so this is the one segment where we looked at the rising contribution of women in Indian architecture and the critical role that they are playing as architects and planners. Coming to the point of and this is one of the last points that I am going to make on integration of tradition and technology.

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Technology being successfully integrated in design. I talked about it earlier, when we were looking at the works of morphogenesis in Sanjay Puri, how traditional knowledge systems are being married to contemporary technology, emerging architects take the ethos of Indian architecture and they are integrating it with the contemporary vocabulary, particularly technology. And this is bold and experimental architecture being done for example by Malik architects. These two buildings are the designs of Malik architects amazing and abstract forms and Planet 3 Studios. These two interiors are by planet 3 studios. There are many involved in critical reinterpretation of our buildings and spaces should be.

You can for example, look at the work of Khosla associates to see how spaces are being reinterpreted. And the house I would like to refer to is a house that they have done in Bangalore and you can look at that it is called the courtyard house, please do not look it up on the internet.

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So, we will conclude, like I said last time, one project I talked about last time Villa Khan's project by Shirish Beri. In this project, I will conclude my entire course with the upcoming project called the Rustomjee school in Mumbai by Sanjay Puri.

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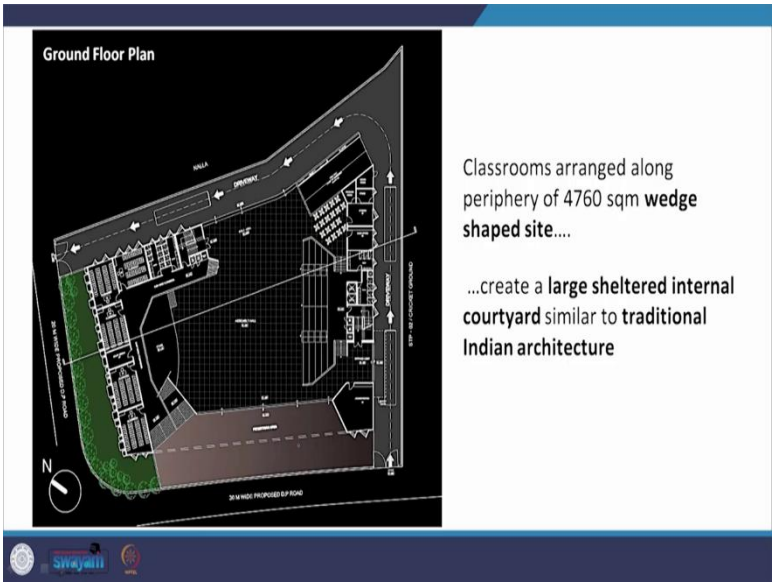

It has got classrooms arranged along the periphery of a 4760 square meter wedge shaped site and it creates a large sheltered internal courtyard similar to what we find in traditional Indian architecture.

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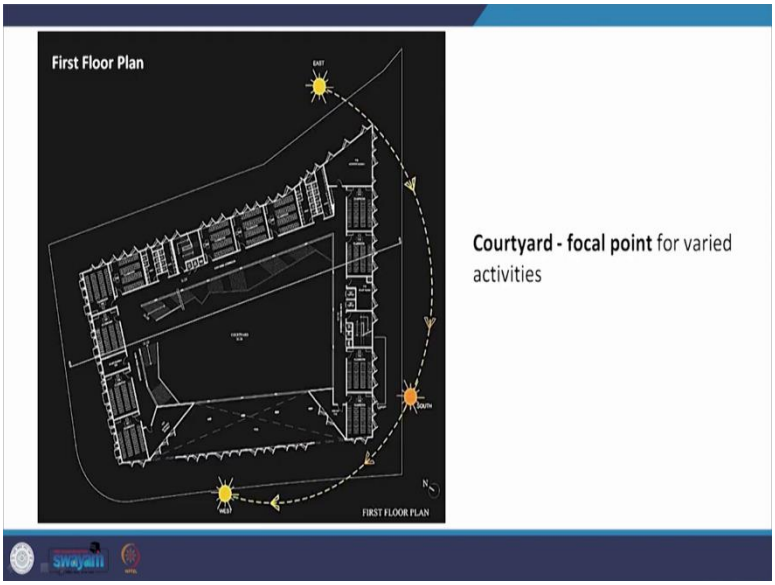

The courtyard is also the focal point of varied activities. This actually shows us the solar path from the east going all the way towards the west.

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And there are tilted windows that provide a block from the south sun. This is the south sun. So, the windows are designed in a manner they are provided these some shading devices in a manner that cut away the south sun and bring in diffused sunlight into the school. Then when we talk of the central courtyard, the central courtyard has got this amazing pergola over it.

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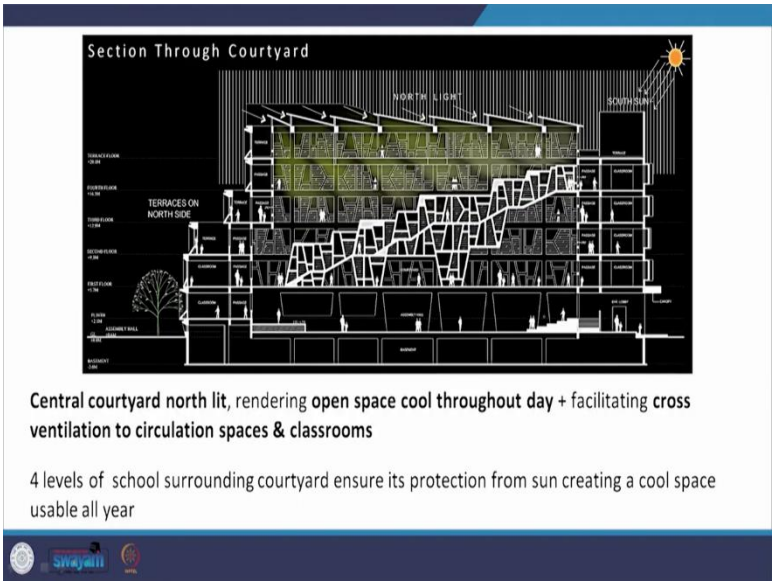

It is not like rendering the open space that is in the courtyard , cool throughout the day and facilitates cross ventilation to circulation spaces and within entering the classrooms. The floor levels of the school are surrounding the courtyard to ensure its protection from the sun thus creating the school space as mentioned above, it is usable throughout the year.

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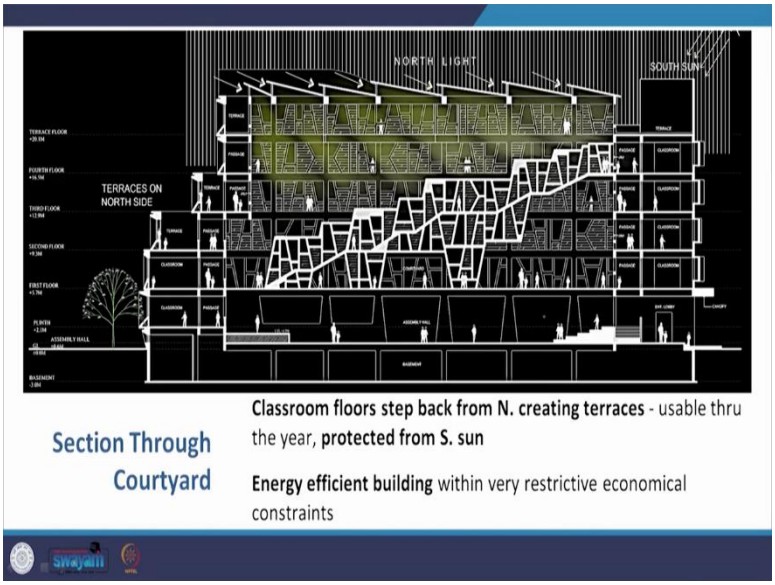

Now, when we take a section through the courtyard, it shows in the classroom floors stepped back from the north creating these terraces that are usable throughout the year and are protected from the south sun. This building is energy efficient and it is within very restrictive ecological constraints that it is on a very economical budget that it has been that is it has been devised.

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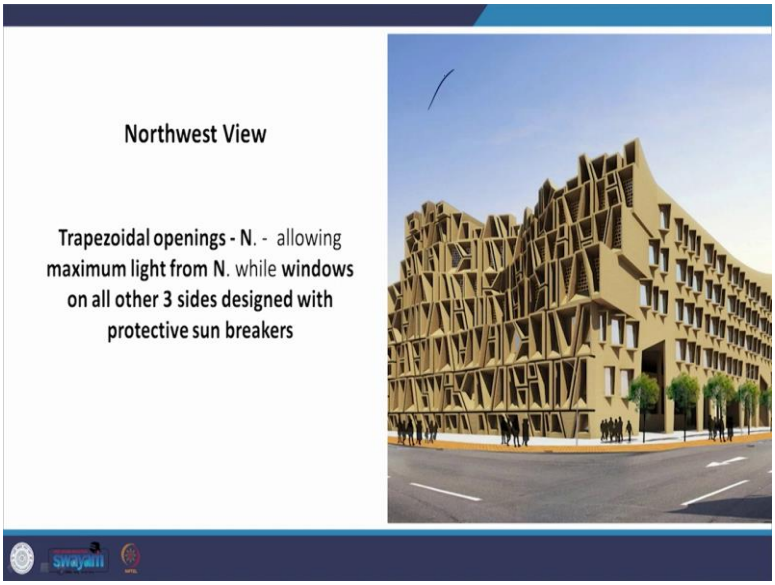

And in the North West view there is these trapezoidal openings towards the north in this Northwest view to preserve the openings toward the north allowing for maximum light diffused light coming from the north side. While windows on all three sides are designed with protective sun breakers.

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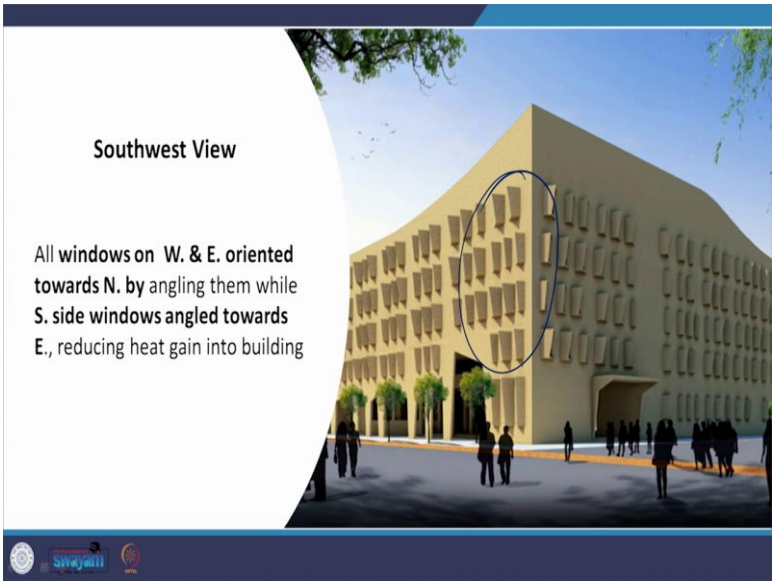

The Southwest view all windows on the west and east are oriented towards the north by the kind of sun shades that have been provided on them. Angling them while on the south side windows are angled towards the east to reduce the heat gain within the building.

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These are examples of earlier sun breakers or sun shading devices or Louvres that were provided. We have looked at these buildings all four of them. We had seen the CBRI by AP kanvinde , we had seen the IIC building by Joseph Allen Stein, the Justice Court of Justice building, the High Court building in Chandigarh and this is the assembly building in Chandigarh having these 4 to 5 degree brise soleil, very deep verandah and brise soleil in the High Court building. And then there are the brise soleil or the louvres the box louvers in CBRI and the jali work in the IIC.

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And thus this shows the internal courtyard the artist's imagination of the internal courtyard view of the school Rustomjee school showing you this amazing light filtering in form

towards north side and this vast courtyard is cool throughout the year. The use of this pattern of opening along the internal circulation spaces in the roof of the courtyard creates this jali effect, which reflects Indian architecture elements in a contemporary way. So, this jali work pattern is reflected in the courtyard.

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This is the internal courtyard view again.

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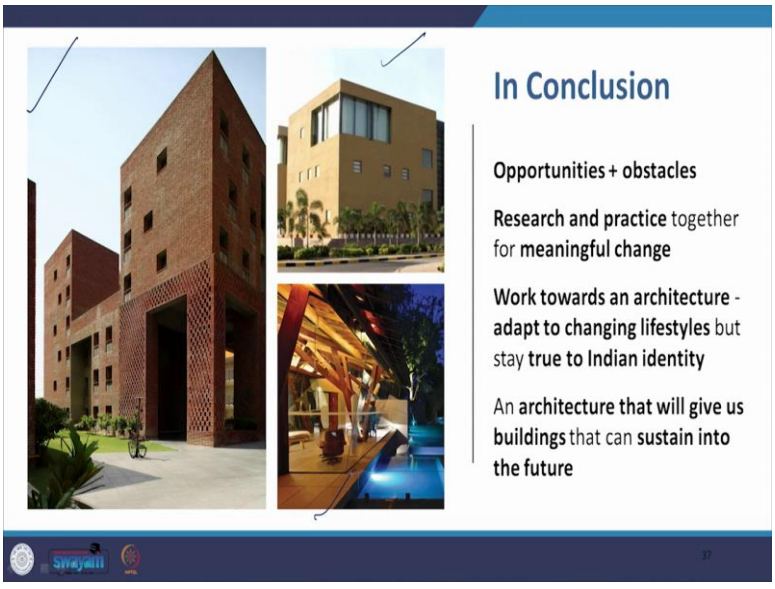

In conclusion to this entire course that I have started with you with these three projects that are the one is of morphogenesis. This is the house by P. K. Das. And this is a building by Malik Architects. Opportunities and obstacles abound in Indian architecture today. The

architecture or the world of architecture that you will walk into as professionals of architecture or that you will walk into as academicians or researchers, because research and practice are together going to bring a meaningful change in architecture and planning.

We are working towards an architecture, which is adaptable to changing lifestyles and that stays true to an Indian identity and architecture that will give us buildings that will sustain into the future and that will build us a lasting legacy. I conclude here by saying my heartfelt thanks to my entire team that has supported me. No man is an island, no man can do any job without a support that is provided by his colleagues and associates.

So, I have my team, my research scholar Farhan Asim, my project associate Shiva Rai. And there are others within my lab who have assisted me from time to time. There is of course, the E Learning Center team led by Mr. Sharad, who have ably supported me and who have taken in my idiosyncrasies rather my lateness of time and breaking up their schedules and let have accommodated me patiently. So, I could complete this 40 series lecture series along with you.

I can honestly admit that along the way, I have learned new things. Aspects which are not very clear to me have become clearer. But there are aspects which have come up new in which I need to explore further. I thank you so much for being my audience. I wish I could have an opportunity to have a face to face interaction with you. And I do hope in the future, someday we might get an opportunity. Thank you so much for being with me throughout this course.