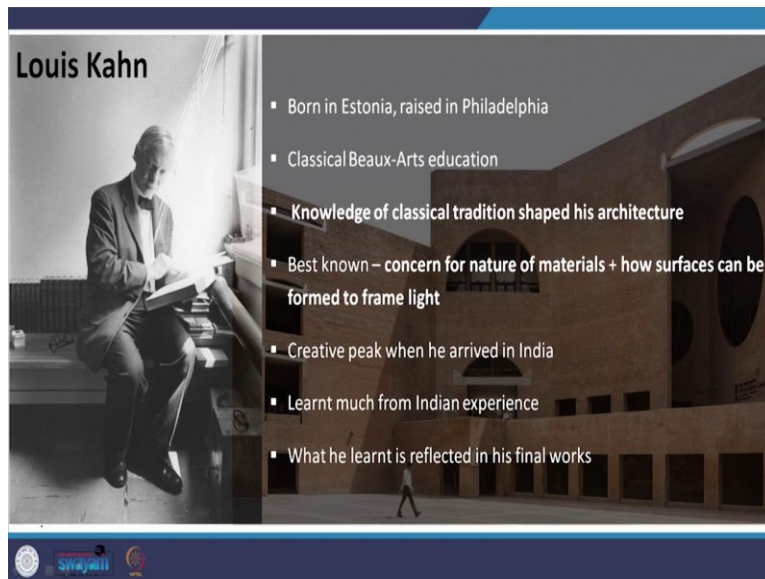


**Modern Indian Architecture**  
**Professor P. S. Chani**  
**Department of Architecture & Planning**  
**Indian Institute of Technology, Roorkee**  
**Lecture 22**

**Western Architects: Louis I Kahn - Part 1**

Hello students, we will continue our presentations on the impact of Western architects. And today we will start looking at the impact of Louis Kahn

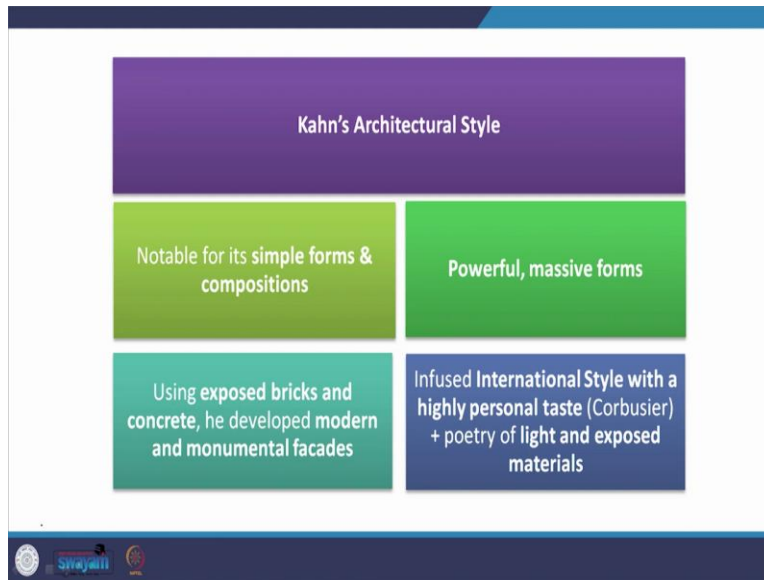
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Most of you must be familiar with the very famous work that he did in India. And that is, IIM Ahmedabad. And that was the only work that he did in India. But its impact has been very widespread, not only because of the work itself, but because that he was a tremendously important educator.

And his lessons were passed on to the young architects who worked alongside them, or who had come in association with him. He was born in the Estonia and raised in Philadelphia, and he had a classical Beaux-Arts education , Knowledge of classical tradition shaped his architecture all his life, and he was best known for his concern for the use or the nature of materials, and how surfaces can be formed to frame light. He had reached his creative peak by the time he arrived in India, and he also learned much from his Indian experience just as Corbusier had done, and what he learned here was also reflected in his final works.

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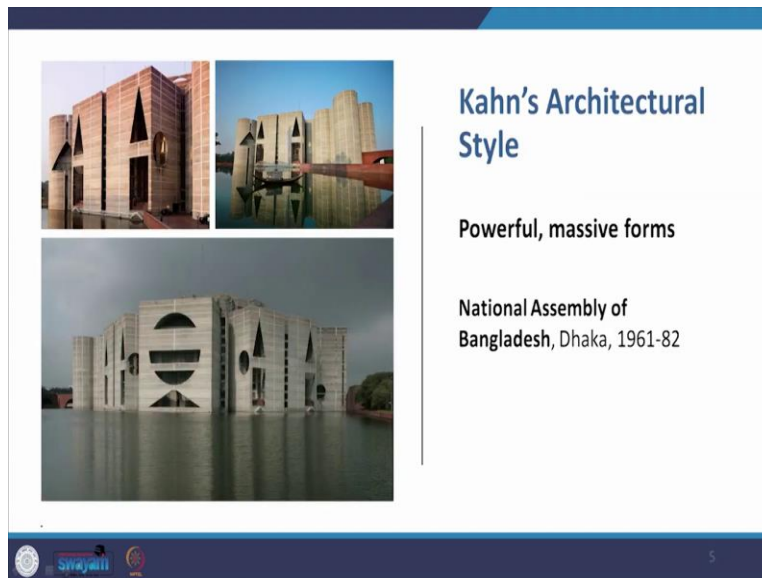
Kahn's architectural style, if we were to locate it in a nutshell can be put in four salient points, that is it is notable for its simple forms and compositions, but they are monumental, is very powerful in massive forms use of exposed bricks and exposed concrete. And using them he developed modern and monumental facades. So, other than Corbusier, he was another architect who gave that kind of monumentality to institutional buildings, he infused in national style, with a highly personal taste or style, just as Corbusier had done. And there was this poetry of light and expose materials in his work.

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For example, if we look at the notable use of simple forms and compositions, then we can look at the Yale University Art Gallery did in 1953, and the Kimbell Art Museum in Texas in 1972. So, these are some of the projects that I am listing here, that if you get an opportunity, please do go through them. They are very important with regard to modern architecture.

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Then if you talk of powerful and massive forms, then we have the National Assembly of Bangladesh, which was from 1961 to 82, and parallelly the project we will be looking at in a little more detail is the IIM Ahmadabad.

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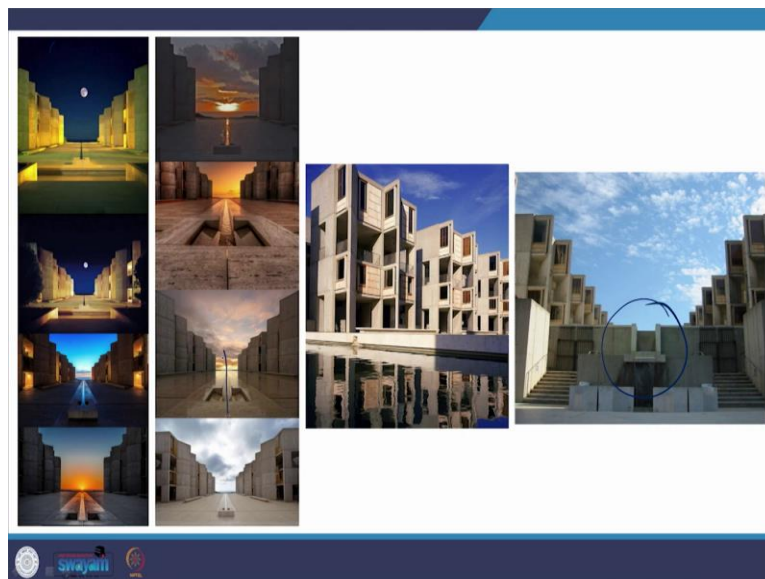
We also have this beauty in brutalism that we find in his works of the National Assembly of Bangladesh.

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Then we have the use of exposed bricks and concrete. And using them he developed these modern monumental facade. So, we have the example of IIM Ahmadabad which is an exposed brick. And we have an amazing example of the Salk Institute in California in 1965, which is really one of the very important works of Louis Kahn, besides IIM Ahmadabad than the others.

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So, this particular slide actually highlights the beauty in the silence of his work. It has got a very strong central axis in this part of the project. And these various images actually highlight the various the view of the vista that we get in different times of the day. At night, when the moon is full, during the evening, or in early morning. This is so beautiful, that it actually brings out the artist in the work of this architect.


It is amazingly put together, as if he could visualize the beauty this project will bring out and we will again, have a glimpse of this work when we talk of the Mughal Sheraton in Agra, and that will predominantly be focused at this particular water body, this channel that he has provided throughout and we will try to see it in two different projects. We will have a look at it when we talk of Sangath and we look at it when we talk of Mughal Sheraton. So, I am just giving you a you know kind of a heads up of how this again will reappear as a glimpse in those two different projects.

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Kahn's architectural style was infused with international style without a doubt, but it had this highly personal taste that could Corbusier also had. So, when we look at his project , for example, the Exeter library in the US in 1972. It had this clear-cut identification the international style, but he gave it the personal twist to it or taste to it. And also, the poetry of light and exposed materials continued. So, if there is exposed brick on the outside of the Exeter library, there is exposed concrete or a brutalist touch of concrete on the inside of the library.

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## Corbusier ~ Kahn

**Monumentality** in **exposed concrete**  
~ **exposed brick**

A **haunting beauty** about both works


Both **adapted their architecture for India's reality** vis-à-vis materials, dependence on human labour, lack of mechanisation and comparatively poor building technology + **climate**

And designed buildings of **lasting global stature**

10

Now, when we try to look at Corbusier in, parallel with Kahn, what I find personally is this monumentality and exposed concrete the Corbusier brought in Chandigarh, Kahn brought the same thing and exposed brick in Ahmedabad. And there is a haunting beauty about both works, just as we looked at the Salk Institute, that haunting beauty in that axis that he has provided or the vista that is provided in that Institute, and both adapted their architecture for India's reality. With regard to materials, dependence on human labour, lack of mechanization, and comparatively poor building technology plus, of course climate. And they designed these buildings which have a lasting global stature.

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## Corbusier ~ Kahn

Corbusier more influential – greater engagement due to Chandigarh and Ahmedabad projects

Kahn to India later + only one project, but educator for several young architects

These young architects influential in modern Indian architecture

11



## Corbusier ~ Kahn

Monumentality in exposed concrete ~ exposed brick

A haunting beauty about both works

Both adapted their architecture for India's reality vis-à-vis materials, dependence on human labour, lack of mechanisation and comparatively poor building technology + climate

And designed buildings of lasting global stature

10

Now Corbusier, of course is more influential primarily because of the quantity of work that you did in India. He had greater engagement because he did the entire city of Chandigarh, along with his team, and he also did the projects in Ahmedabad. Whereas Kahn came to India later and did only one project. But he was an educator for several young architects. And these young architects were influential in shaping modern Indian architecture. So, the contribution of both Corbusier and Kahn has been immense along with what we saw of Walter Gropius earlier.

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**Louis Kahn**  
**Servant & Served Spaces**

Strong **formal distinctions** between served spaces and servant spaces

**Servant spaces** - spaces that serve other spaces, e.g. stairwells, corridors, restrooms, or any other back-of-house function like storage space or mechanical rooms

E.g. - **Richards Medical Research Lab., Univ. of Pennsylvania, 1965**

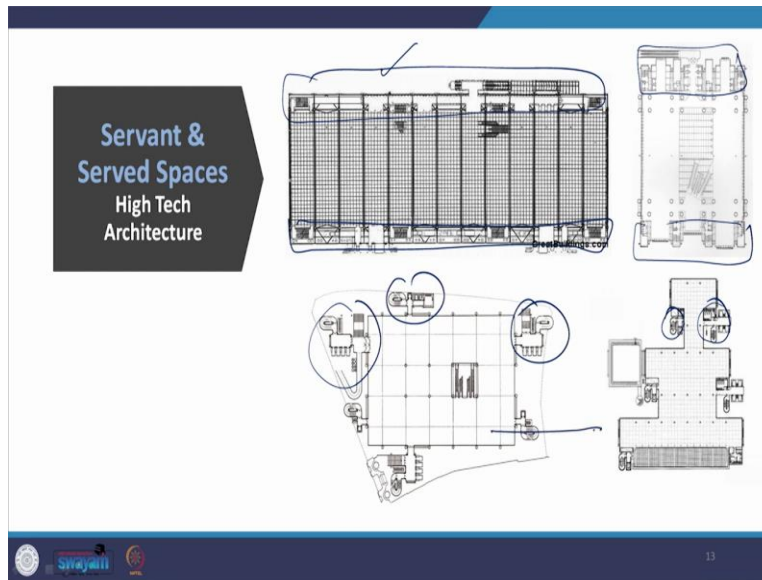
The slide includes a photograph of the Richards Medical Research Lab building and a floor plan diagram. The diagram is divided into two sections: 'Richards' and 'Goddard'. A legend indicates that blue areas represent 'Served spaces', orange areas represent 'Exhaust shafts', and green areas represent 'Air intake shafts'.

Now, one of very, very, what you would say a critical conceptual definition that is always linked with Kahn is that of the ideas served and servant spaces. There is a strong formal distinction between these two whereas servant spaces refer to spaces that serve other spaces, like stairwells and corridors and restrooms, or any other back of the house function like storage spaces and mechanical rooms. And he highlighted this concept in the Richards medical research lab in the University of Pennsylvania in 1965.

Now, if you will go on the internet, you will also find that the idea of served and servant spaces goes all the way back to the Renaissance period in the works of Andrea Palladio, but it is in the tech in the context of modern architecture this is always generally associated with this particular project and with Louis Kahn.



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Now, they again get reflected in the works of high-tech architects like Renzo Piano, Richard Rogers, and Norman Foster. For example, if you look at the plan of central Pompidou by Piano and Rogers, you find that the servants spaces are on the periphery of this amazing gallery. If you look at the HSBC in Hong Kong, you find the same thing. This has been done by Norman Foster, in Lloyd's of London again, you find the same thing. And then again, in 88 Wood Street building, you find the same thing. These two buildings have been designed by Richard Rogers partnership.

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And Louis Kahn on brick. Some of you might have heard of the famous quote of Kahn, which is more or less become a dictum that he asks a question of brick what it wants to be. His palette of materials, textured brick and exposed concrete, were often juxtaposed or put together with highly refined surfaces, like travertine, marble and wood.

So, you find that here for example, in the Salk Institute, the flooring is travertine marble and, on the interior, he has used fine finished woodwork along with exposed concrete. And Kahn argued that brick can be more than just a basic building material. And it is important that you honour the material that you use, you can only do it, If for example, you honour the break and glorify the break instead of short-changing it. And this is the idea though not stated in so many words by wright was also used by him in that he would not for a large number of Peri houses, the work was not plastered, the bricks were exposed and find finished etcetera.

And the same thing can be said about exposed concrete in the works of Corbusier or the use of iron and steel in the work of Mies van der Rohe. All these architects for them material has played a central role in the projects that they have done and the honesty of the material in the way it has been exposed. And the same thing is continued in modernism , in late modernism.

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**Kahn's Influence**

His influence similar to Corbusier, but smaller scale

Those who worked & learnt much from him:

- Chandra Sen Kapadia
- B.V. Doshi
- Kulbushan Jain
- Anant Raje

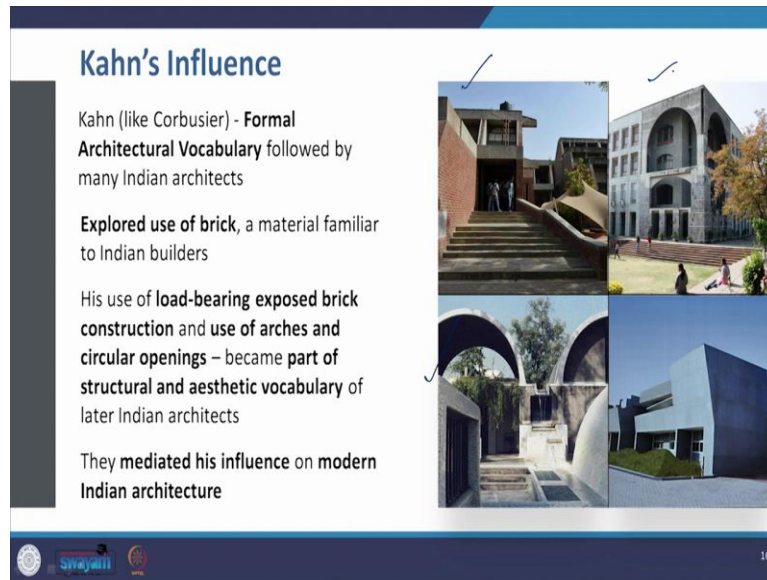
The above mediated his influence on modern Indian architecture

The slide features five portraits: Louis Kahn (top right), Chandra Sen Kapadia (top left), B.V. Doshi (bottom left), Kulbushan Jain (bottom middle), and Anant Raje (bottom right). Blue checkmarks are placed next to the portraits of Kahn, Kapadia, and Raje.

Now, Kahn's influence is similar to that of Corbusier, like I said, but a smaller scale. But as an educator his work his impact has been immense. Those who worked and learned much from him include Chandra Sen Kapadia, BV Doshi, Kulbushan Jain and Anant Raje. The above mediated

his influence on modern Indian architecture, as we will see in the works ahead in this following the works after the presentation of IIM Ahmedabad.

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Kahn's influence like Corbusier was a formal architectural vocabulary, which was then followed by many Indian architects, he explored the use of brick which is a material familiar to Indian builder from ancient times, and his use of load bearing exposed brick construction his use of arches and circular openings became a part of the structure and an aesthetic vocabulary of the later Indian architects.

So, we find exposed brick and concrete for example, in CEPT Ahmedabad we find the use of arches in Sangath , for example, and we find the very close link between the works of Louis Kahn and Anant Raje, for example, in the Indian Institute of forest management in Bhopal. So, we find that his works, come back to us again. And there is another point that I will add here. We have also talked about a similar connection between Corbusier and Doshi in his works. In that exposed brick and concrete was also used by Corbusier for example, in the Sarabhai House and in the museum that he designed in Chandigarh, and also in Sanskar Kendra in Ahmedabad.

So, Doshi and many other architects do that. But please, again, refer back to my earlier lectures where I said that even in pre-independence, just post-independence types, architects like, Walter Sykes George was also using exposed brick and concrete. So, that has been a continuous series of the use of exposed brick and concrete all the way into the buildings even till today. Then

again, when we talk of arches we did talk about when we talk of arches, and in this case, these are vaults, We did talk about the use of the Catalan vault by Corbusier in the Sarabhai house, and how Doshi then started adopting vault in for example, the Atira housing. And then he carried on and adapted the vault in the Sangat and the Gandhi Labour Institute. And so, there is this connection of arches , vaults in the works of Corbusier and Kahn and we find the reflection in the works of Doshi and also in the works of an Anant Raje and other architects.

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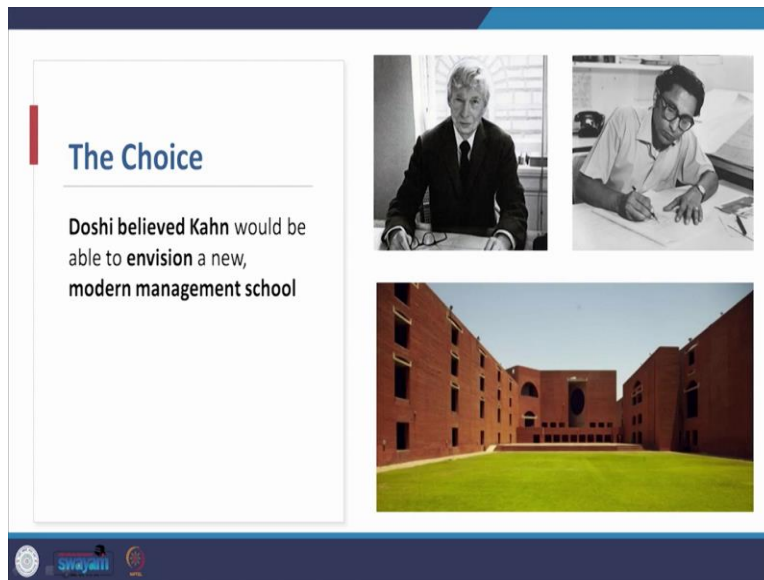


Therefore, they mediated the influence of both Kahn and Corbusier and also we find others mediating the influence of Walter Gropius in later works or the works of modern Indian architecture. In 1962 he was invited to India to design IIM Ahmedabad. So now there is a 10-year gap from the start, or the invitation to Corbusier to design Chandigarh, which was in 52, to Kahn coming in 62. In the 1950s Chandigarh was done 60s IIM Ahmedabad. So, this influential architectural intervention from abroad. Like Courvoisier and other foreign builders through Indian history, Kahn work in the subcontinent resulted in significant evolution in his own design thought.

So, that has always been a consistent trend, whether it was the coming in of Islamic architecture in India, and morphing into Mughal architecture, which was more a combination of Islamic architectural thought and traditional Indian Hindu architectural thought, and other symbolisms that came in and then later on the same thing happens in colonial architecture, when we see Indo

Saracenic architecture and other developments, even the use of traditional Indian elements in new classical works of Lutyens and Baker and then we find that these western architects come to India and adapt their architecture to India, but they go beyond that. They take these lessons and they go ahead from there.

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The slide features a white background with a blue header and footer. On the left, a vertical red bar is positioned next to the title 'The Choice' in blue. Below the title, the text reads: 'Doshi believed Kahn would be able to envision a new, modern management school'. To the right of the text are three images: a black and white portrait of a man in a suit, a black and white photo of a man in a white shirt working at a desk, and a color photo of a large, modern brick building with a central courtyard and green lawn.

Now, the choice of bringing Kahn to India. It was Dosh who believed that Kahn would be able to envision a new modern management school that was needed in India.

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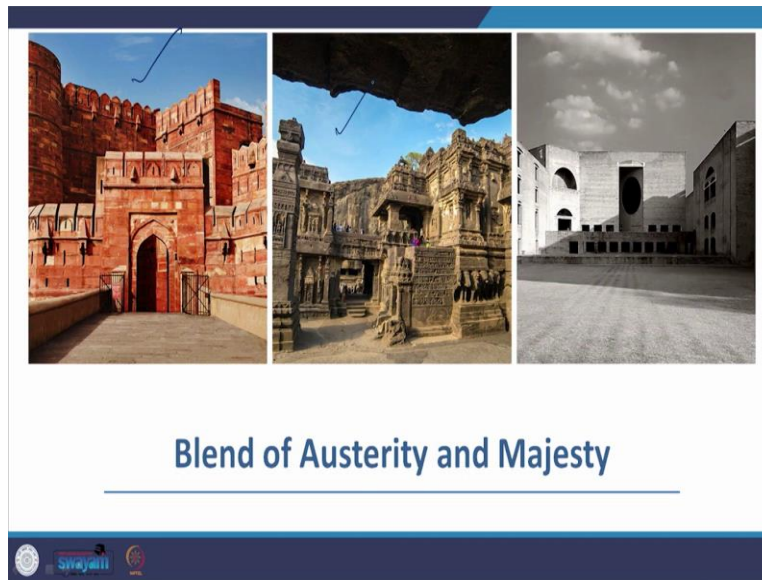


And here in this project, Kahn was able to bring out his intense love of different things. His oft proposed or well-known quote in a question form, if rather statement, even a brick wants to be something and it starts with the conversation, if you ask a brick, what does it want to be? And there is a very interesting conversation. That is a very famous paragraph that if you get an opportunity do read it.

And his long-standing love for brick ruins was once again rekindled in India, he recognized the link between India's ancient architecture and the surviving traditional brick technology and labour-intensive construction. So, he continued with what was available in India, and built on that. In IIM Ahmadabad it was an excuse for him to build in brick on a scale which was not possible elsewhere.

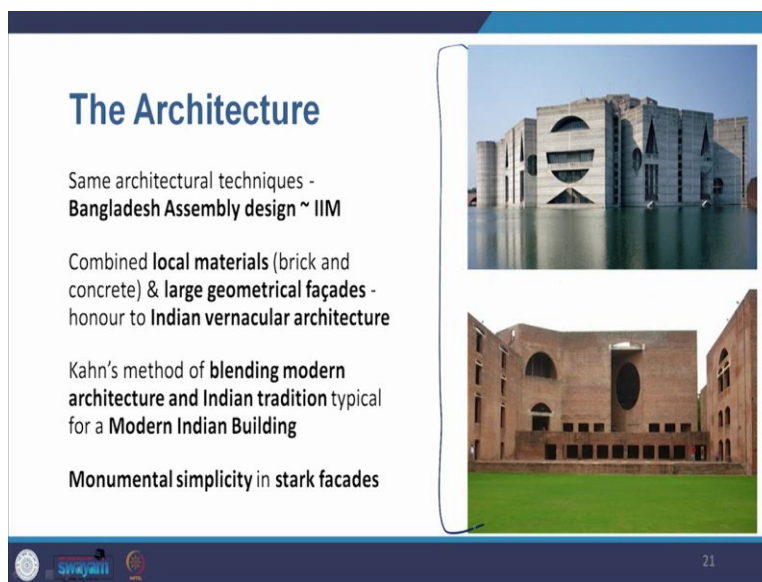
And he stretched the bounds of conventional masonry technology, and reaffirmed the timeless power that is there in massive brick construction. Kahn work promoted brick to a new status in the vocabulary of Indian architects and expose brick and concrete work, like I said, has continued even till today, for which many of our western architects, like I said, have been instrumental in bringing that vocabulary into modern Indian architecture.

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Now, there is this blend of austerity and majesty in IIM Ahmedabad, if you look at what is known as the Louis I Kahn or the LIK Plaza, and you see in this black and white picture, framed against the sky, this amazingly serene building standing in silence, the exposed brick monumental work of IIM Ahmadabad and I would like to see it compared with the forts and temples of India, which also have fallen silent, and they radiate that same beauty that same Majesty in the silence of those work. The ruins the brick ruins or stone ruins, which rekindled that romance and Louis Kahn.

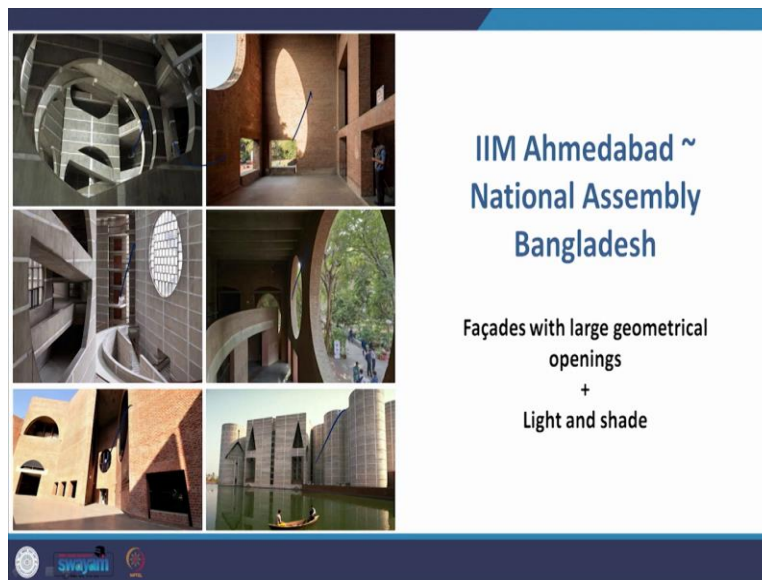
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Now his architecture, the same architectural techniques he adapted or adopted in the Bangladesh assembly design, that is he combined local materials brick and concrete and large geometrical facades to honour India's vernacular architecture. And in both these buildings, you find this monumentality expressed in geometry, this is actually known as geometric expressionism, which happens to be one of the distributaries of modernism in late modernism as defined by Charles Jencks.

So, if you look at the various distributaries or various strands of late modernism, one happens to be geometric expressionism. And we find those works even for example, in the works of I. M. Pei. If you think of the glass pyramid at the Louvre is an example of geometric expressionism of for example, the Bank of China in Hong Kong by I M Pei. Now Kahn method of blending modern architecture and Indian traditional Indian tradition is typical of modern Indian buildings. And the monumental simplicity is presented to us in stark facades, totally unornamented.

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IIM Ahmedabad, like I said, is a parallel to the National Assembly of Bangladesh. And when you start comparing these two buildings, amazing correlations come up in front of us, both of them have facades with large geometrical openings, and both of them have a play of light and shade. So, all these different pictures, these are the, this is two images of the National Assembly. And this is the two images of IIM Ahmedabad , IIM Ahmadabad versus the National Assembly. So geometric expression, light and shade, monumentality, large geometrical openings in both



these works in the Indian continent, two amazing buildings in the final years of Kahn happening in the Indian subcontinent.

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This is IIM Aheadabad spread over 67 acres of lush greenery, as you can see in this aerial view, it is completely surrounded by greens and greens all around it except for the Plaza which is devoid of trees and you have the green landscape.

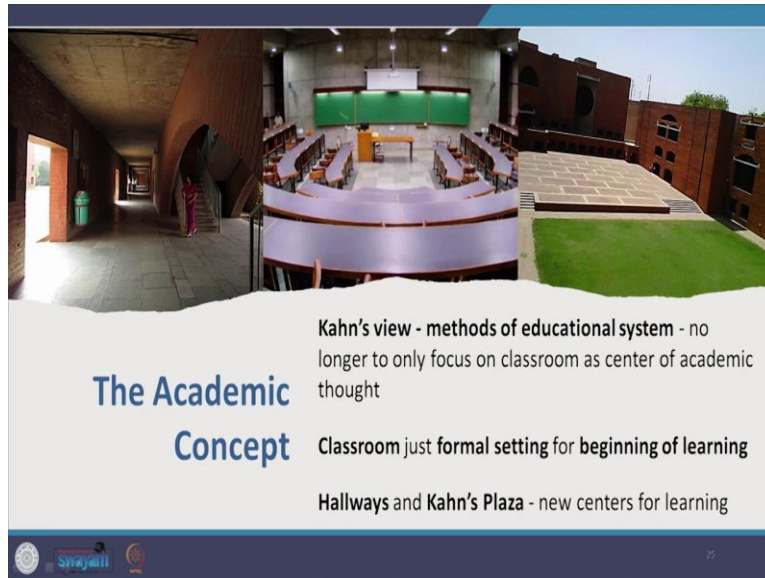
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Now, the Complete campus is the old campus which was done by Louis I Kahn and added on by an Anant Raje which we will look at. And the new campus which has been done by Bimal Patel.

So, here we have. So, this is the old campus, this part, this is 67 acres. And this is the new campus which we will look at.

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And now the academic concept and we will come back to the site plan again, Kahn's view was the method of the education system is no longer to only focus on the classroom, as the centre of academic thought. Classroom is just a formal setting for the beginning of the learning process. And then onwards, it moves on to more informal spaces, like hallways, in this case, like a plaza as new centres of learning. And this is very important, because the same concept was then adapted or adopted by B V Doshi, in CEPT Ahmedabad to create that same kind of learning environment, where there are informal spaces of student interaction and learning.

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**The IIM**


Conceptual rethinking of educational practice.....

Where

Education a collaborative, cross-disciplinary effort occurring in and out of classroom

Dormitories distinguished from teaching zones by contrasts of diagonal and rectangular geometry

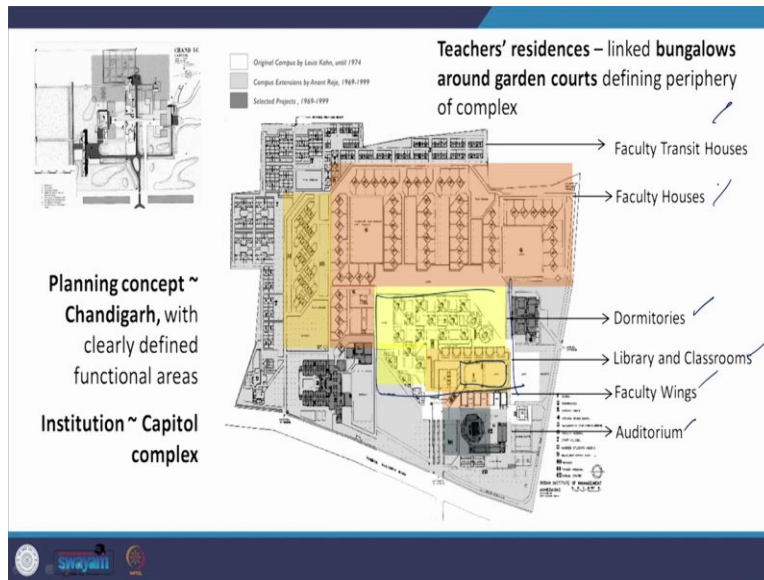
Functions linked together with a street network allowing vistas through sequence of light and shade



The image shows a detailed architectural floor plan of the IIM campus. The plan features a central vertical street that branches out into a grid-like network of smaller streets. Buildings are arranged along these streets, with some showing diagonal orientations and others rectangular. The plan includes various rooms, corridors, and outdoor spaces, illustrating the spatial organization and the interplay of light and shade mentioned in the text.

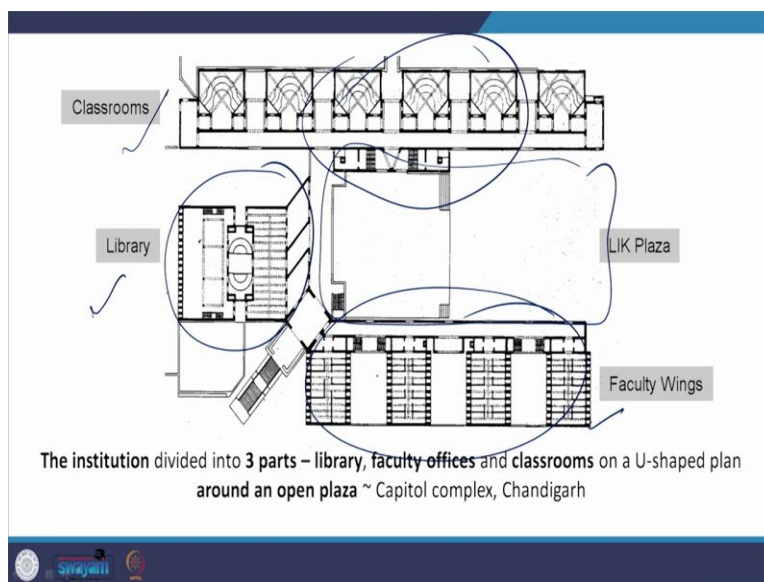
Now, the conceptual thinking of educational practice, which he brought out is that education is a collaborative cross disciplinary effort, which is occurring both in within and outside the classroom. The dormitories are distinguished from the teaching zones in the campus designed by Kahn by the contrast of the diagonal of the dormitories versus the rectangular geometry of the lecture halls, and the functions are linked together with this street network, particularly this street, which is allowing for a vista through the sequence of light and shade between the dormitories and the lecture halls. Now, this is an important point to remember, because we will see the same kind of approach by Bimal Patel particularly in the new campus.

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Now, in the planning concept, if we look at the overall plan, then it is very similar to the segregation of various facilities done by Corbusier and his team in Chandigarh. For example, here, we have the institutional area, this institutional area, which is akin to the capitol complex in Chandigarh, and this has the dormitories, the library and the classrooms, the faculty wings, the auditorium and the LIK Plaza being in the centre of it. And then we have the teacher's residences, which are linked bungalows around these garden courts, which are defining the periphery of the complex, there are the faculty transit houses and the faculty houses.

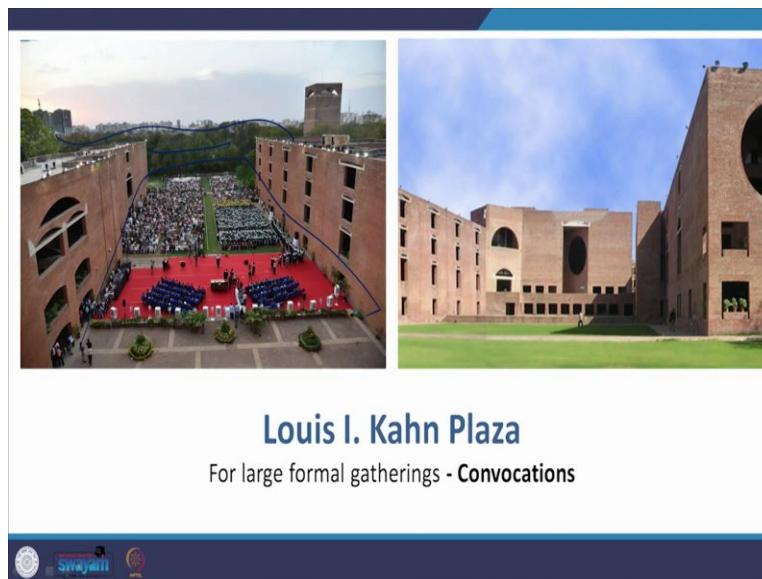
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Now, when we talk of the institution itself, it is divided into three parts, there is the library, there is the faculty offices on this side of the faculty wings. Then there are the classrooms, the lecture theatres, all housed around the LIK Plaza. Now, so there is this open plaza in the institution of IIM Ahmedabad and then there is the open plaza in the capital Complex Chandigarh.

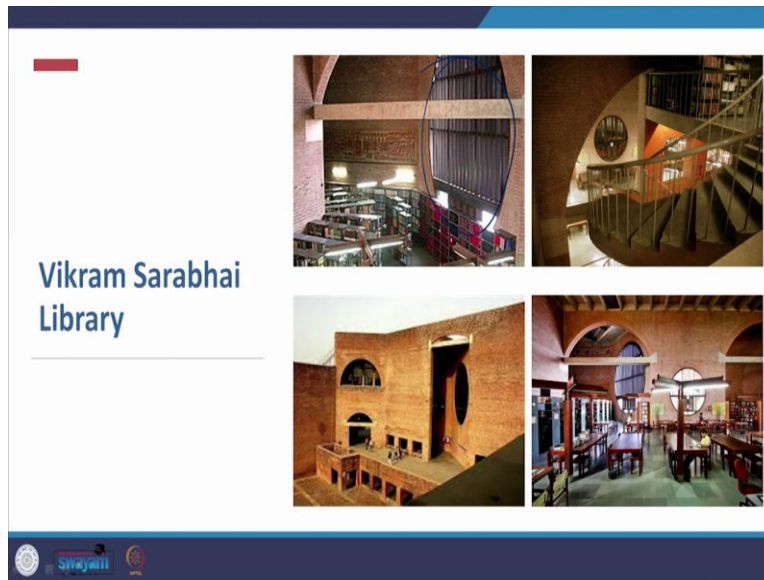
The difference being that this is a much more structured Plaza, because it is more or less in a quadrangle between these three focal points or focal spaces of the library, the lecture theatres and faculty wing. Whereas the open plaza of Chandigarh is more unstructured and the buildings like I said at the time are like the space makers, they are leading to the generation or the boundaries of the plaza.

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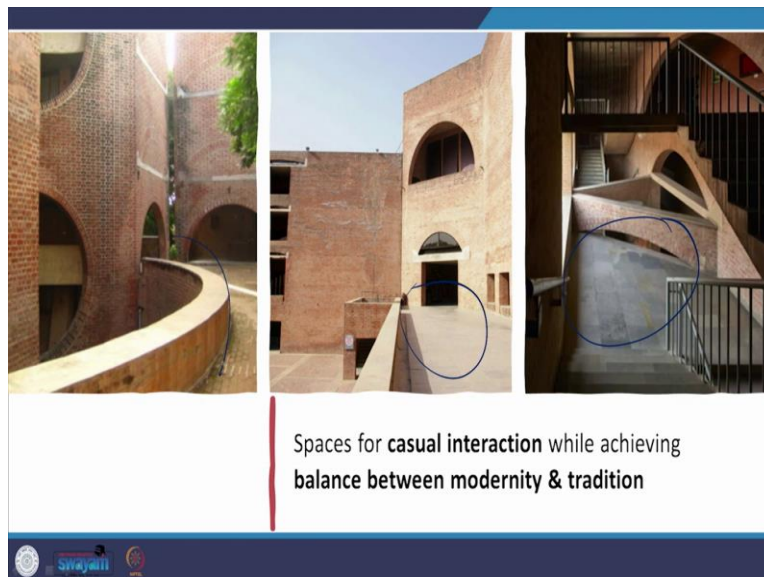
Now, this LIK Plaza then turns for formal gatherings like convocations of the institute, because it is so well structured, that such a formal event can easily take place here. But if you can look this picture carefully, that there is a series of trees that are provided in the backdrop. So, in a sense, this plaza gets composed in a quadrangle format, if we take the trees also as the edge of the fourth side, which is open. Now, this is an important point, because we will refer back to this when we talk of the management development Center designed by Anant Raje where he specifically, brought out this point in his design.

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Now, this is the Vikram Sarabhai library and these amazing geometrical cut-outs, these circular cut-outs bringing in light into the library without the glare, these spiral staircase within and there are many other details which we had we have paucity of time if you do get a chance to , please read it up.

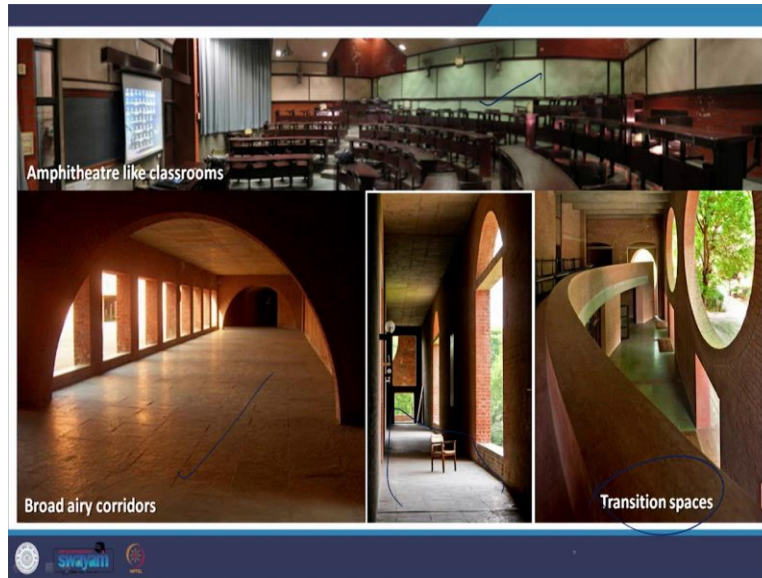
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Then we have the spaces for casual interaction while achieving this balance between modernity and tradition all over, we have various spaces, which are created within the campus where

students can informally get to interact with each other, as for example, when they pass by each other, or when they get an opportunity to have an informal interaction with each other.




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So, there are these amphitheatre like classroom then these broad airy corridors, there are these corridors where you have the diffused light coming in. And there is hardly a point in the interiors of IIM Ahmedabad where there is any glare coming in. All the light coming in is generally diffused as it enters into the interiors. And this is an example of the transition spaces.

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### The Climatic Design



**Buildings grouped close together and angled to catch prevailing wind from SW for most of the year**

**Large facade omissions - abstracted patterns from Indian culture**

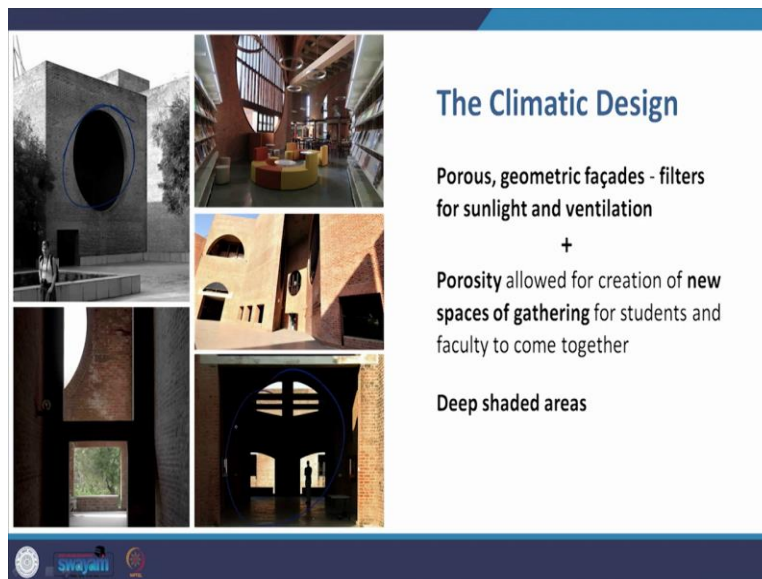
**Positioned**

**To act as light wells and natural cooling system protecting interior from India's 'harsh' climate**

Now, the climatic design, the buildings are grouped close together and angled to catch the prevailing wind which comes from the southwest direction. For most of the air and therefore, this is how all this entire composition is, this is how the wind flows in for most of the year. And the large facade openings that you see for example, are obstructed patterns from Indian culture. And they are positioned in such a manner to act as light wells to bring in light into the building.

But this is diffused light, and they also act as natural cooling systems and protect it from the harsh Indian climate. And again, we are looking at this example that we have seen earlier in Indian Institute of Indology, the work of B V Doshi how traditional Indian architecture has been a kind of inspiration and trying to bring in this kind of diffused light and natural cooling.

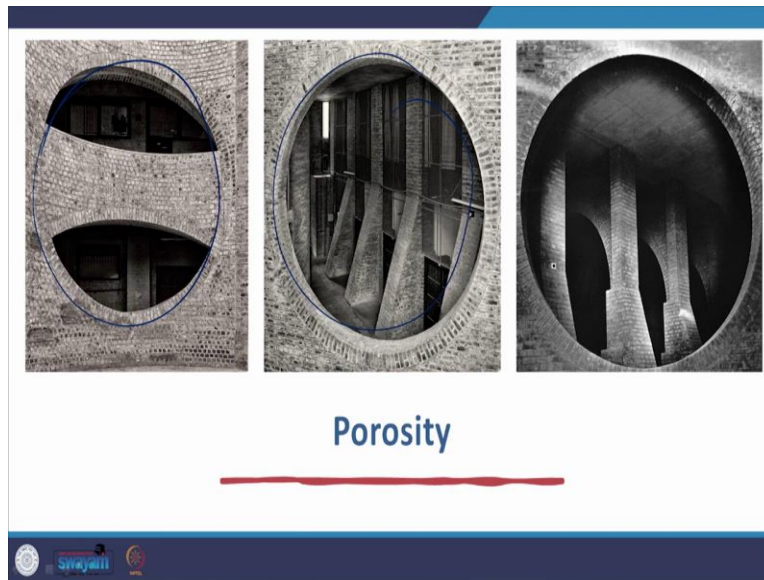
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Now, the porous geometric facades that you see all over the campus filter in this light and ventilation. The porosity also allows for creation of new spaces for gathering for the students and faculty to come together. And you find these deep shaded areas all over the campus.

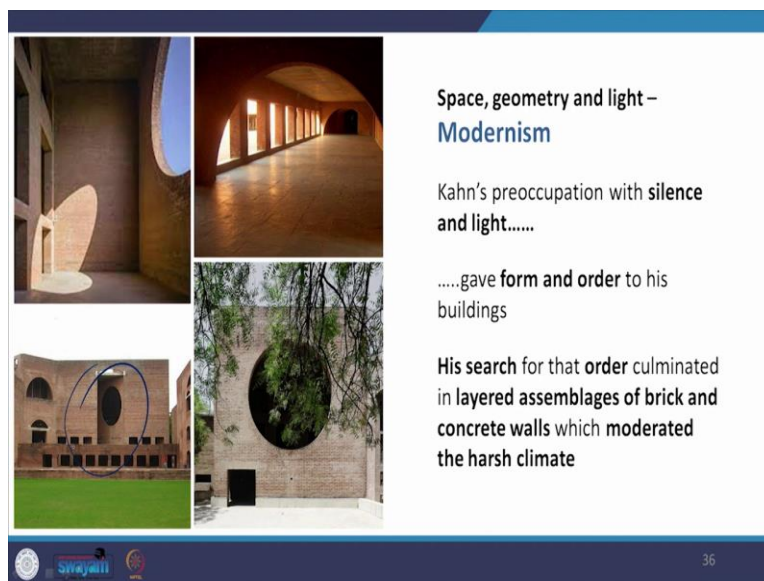


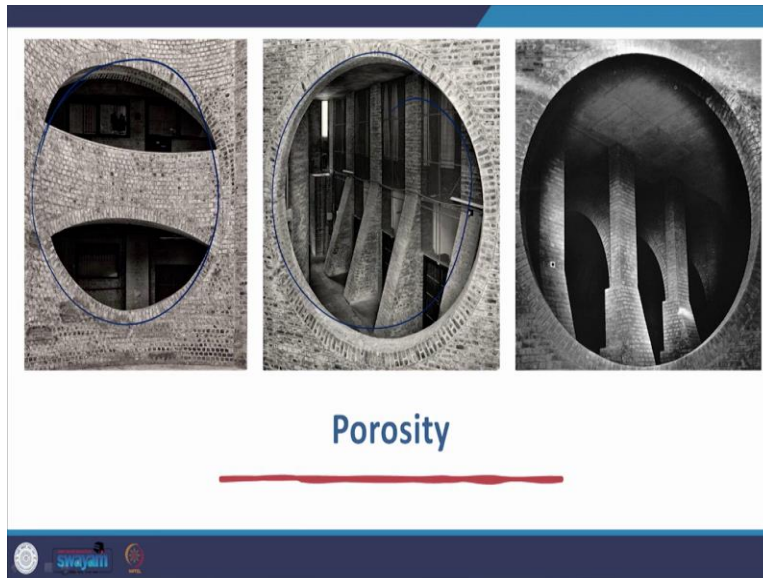
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So, this is an example of the porosity and the various geometrical shapes that are used to generate this kind of a porous facade.

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### The Climatic Design

**Buildings grouped close together and angled to catch prevailing wind from SW for most of the year**

**Large facade omissions - abstracted patterns from Indian culture**

**Positioned**

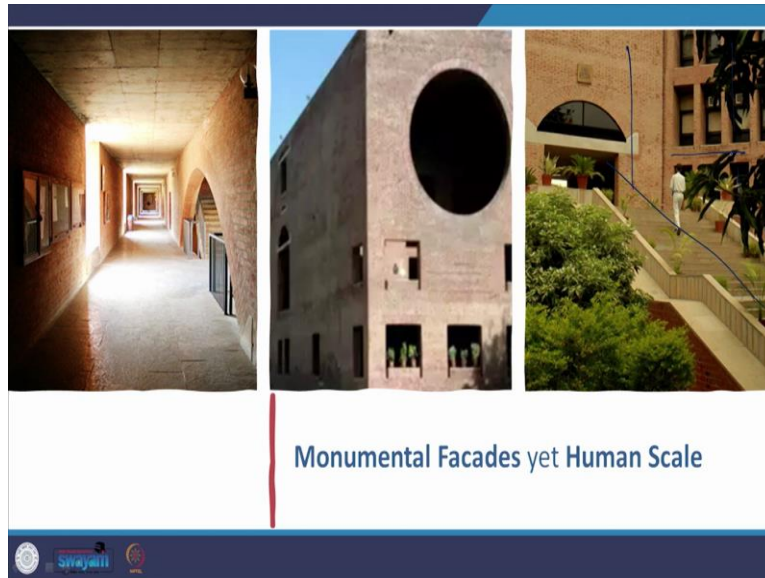
**To act as light wells and natural cooling system protecting interior from India's 'harsh' climate**

So, the three things that play into the building, which is like one of the core ideas of late modernism, space, geometry and light there in modernism carried on in to late modernism. So Kahn preoccupation with silence in light, gave form and order to his buildings. His search for that order, culminated in this layered assemblage of buildings of brick and concrete walls, which help in moderating the harsh climate.

So, for example, if you look at this entry to the library itself. So, there is a kind of layered assemblage, you are not just jumping into the library straight away, you are passing through a kind of a layering of walls to enter within the library. Then if you go back again, you will find the same layering in this porous facades, you find the layering for example, here, where you have

this and then you have the corridor within so these kind of so-called layered barriers, this kind of an assembly is created to moderate the climate.


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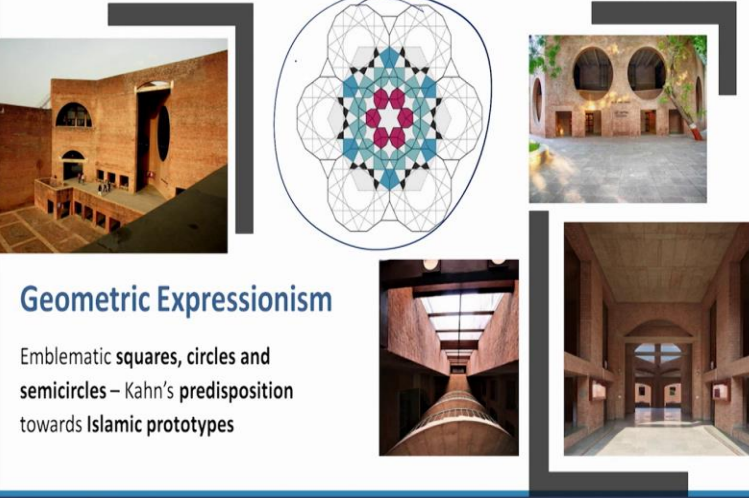
Now, the monumental facade in IIM Ahmedabad is on a human scale, because within the monumental at one point, when you look at the building, it appears monumental. But when you look at the building closely, you find that in that monumentality next to it, there are a series of floors within it.

So, if you are entering the library, for example, from the rear staircase here, which is diagonally placed, it gives you this monumentality, but right next to it, when you look at the faculty wings, you find that it is a series of floors. So, there is a monumentality, but immediately next to it is the reflection of the human scale.

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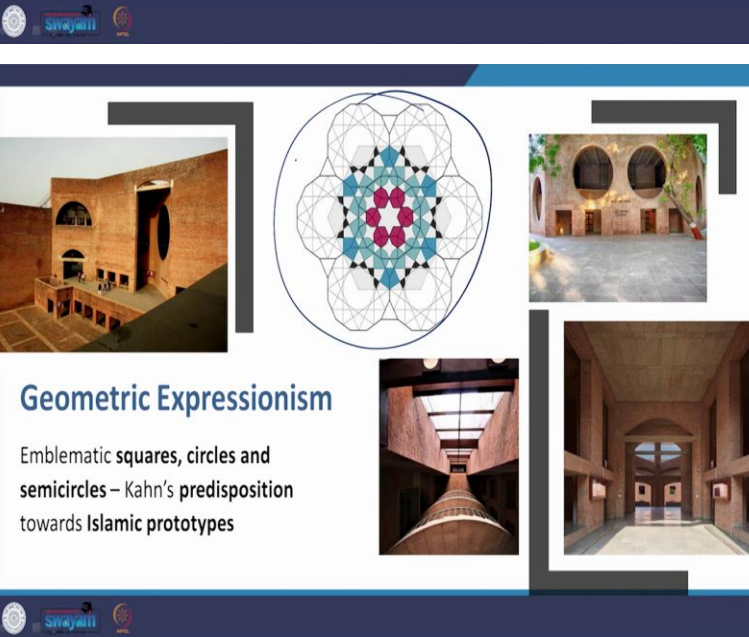
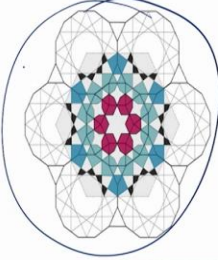


### Arches & Openings in Brickwork



### Geometric Expressionism

Emblematic squares, circles and semicircles – Kahn's predisposition towards Islamic prototypes



This is arches and openings in the brickwork. And there is, like I said, geometric expressionism, which is also said to have been derived from Islamic prototypes, which was something that impacted Kahn. So, when you look at these emblematic squares and circles and semi circles, and for example, you look at this Islamic motive, you find that these geometries are from Kahn predisposition to Islamic prototypes.

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So, his contribution is designed to transform the way modern architecture establishes itself in one's culture. Because his work is not just an example of modernism, it is also an example of placing modernism in a particular cultural context, that being India in this case. And therefore, this is one of those works that was a precursor to regional modernism, or critical regionalism in India.

Where modernism was given a regional face, it did not remain a faceless identity, which had become, which was the anti-reaction against it in the 60's and 70's all across the world. I mentioned it earlier also, it happened in Finland, happened in Japan, happened in India. And modernism was given a regional identity. So, we will stop here. And we will begin the next session by talking about the Indian architects who were influenced by Kahn, and we see that influence in their works. Thank you.