History of Architecture and Culture – 5

Lecture 30

Works of Louis Kahn

Louis Kahn was born in Saaremaa Estonia in 1901. His family emigrated to the U.S. in 1905.

He graduated from the university of Pennsylvania with a thorough grounding the beaux art school of architecture.

During the 1920's and 30's he worked as a draughtsman and, later, as a head designer for several Philadelphia based firms.

Louis Kahn's works are considered as monumental beyond modernism. Famous for his meticulously built works, his provocative un built proposals, and his teaching, Kahn was one of the most influential architects of the 20^{th} century.

He was awarded the AIA gold medal and the RIBA gold medal. At the time of this death he was considered by some as America's foremost living architect.

As identified by the da Vinci we often encountered three types of shadows:

- Attached shadow
- Shading and
- Cast shadow.

Attached shadow falls on the body itself like a cantilever roof causing a shadow on the façade.

The second type belongs to bright and dark contrasts, which are inherent to the form and depend only on the source of light, example if there is a ball and there is a light over here the ball will be bright on this side and dark on the other side. If the light is on top the wall will be bright on top dark in the bottom.

The third that kind of shadow is called the cast shadow. It could be a result of a tall building generating a shadow on the street or on another building due to the projection of building outline.

Louis Kahn took more of all the interesting light and shadow effects in his buildings and he created a very very interest compositions.

Kahn's archetypical forms go back to Greek architecture which he studied in the 1950's. He says Greek architecture taught me that the column is were light is not and space between as were the light is. It is a matter of no light, light, no light, light. A column and a column brings light in between them. To make a column which grows out of the wall and which makes its own rhythm of no-light, light, no-light, light; that is the marvel of the artist Louis Kahn says.

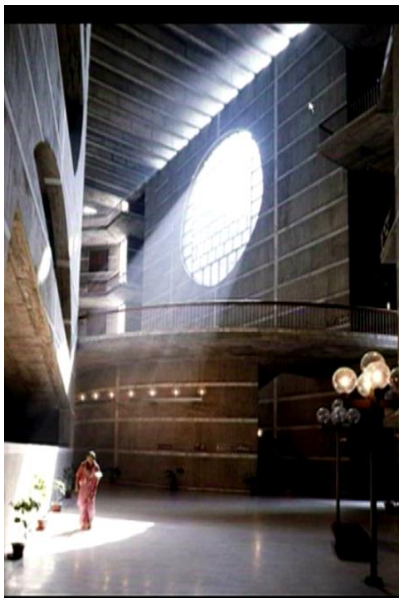
Take a look at this picture, you should able to appreciate yourself first how beautifully the light and shadow effects have been played on to this triangular staircase.

This is the view of triangular staircase which Louis Kahn designed and the pictures is taken through its well the staircase goes up like this and look at the amount of light and shadow that is created so beautifully this picture.

Louis Kahn says all material in nature the mountains and streams the air and we are made of light which has been spent and this crumpled mass called material casts a shadows and the shadow belongs to the light.

For him light is the maker of material and material's purpose is to cast a shadow.

A plan of a building should be read like a harmony of spaces in light. Even a space intended to be dark should have just enough light from some mysterious opening to tell us how dark the place really is.



Here is what he does in a place which he intensed be relatively dark he places a huge circular window and brings in the light from the wall. In another place the space is supposed to be dark he borrows the light from the neighbouring corridor which is looked by another circular light source.

We are gonna look at one great examples designed by Louis Kahn which is IIM-Ahmedabad. The organisation of the complex, as well as its architecture, reflects the conceptual organisation of learning which is focused on three inevitable components: the school, the students, and the teachers, which constitute.

The Indian institute of management... Thus man's philosophy about his environment is contained here through the otherwise rarely achieved response between condition of program and plastic emphasis of the structures;

Speaking of structures the extend from the sudden vibration of light on the lowered arches spanning the concrete cord. Here you see the low arches expands the concrete cord to the gesture of full arches, and then there are round openings with their curved shades, all maintained within the strict discipline of construction, spatial dimensioning, and plan organisation everything is done meticulously.

Kahn has conceived the IIM (Indian Institute of Management) as a mixture of austerity and majesty, he includes spaces for informal interaction among students and faculty so that he can also achieve a balance between modernism and tradition, this is where he captures the timeless spirit of India on one side and the being at par with international standards on the other side.

These are the semi-circular arches which he was talking about earlier and these are the low height arches that are spanned over a concrete lintel and these are the full size arches he talks about.

Diagonal walls:

He uses diagonal walls in the burning as a unifying element between the different formal types of buildings. He uses subtly four corners of the school building as the main organizing principle with in the school buildings even the residence and the staff accommodations, services all have diagonal walls.

The next important principle is he uses halls.

Halls:-

Facilities that include wide corridors that acts as transitional spaces. These transitional spaces are incidental interactions spaces between the teacher, students, visitors and the people who use the IIM Ahmedabad.

The distinctive feature of the buildings includes the many square arches and brick structures on the walls with carved circles. Carved circles on the bricks, square arches.

This is the plan of the building Kahn and IIM Ahmedabad creates social special conditions and the site determined the organization and layout of spaces.

Within the location given to the three main parts of the whole school, the residence of students and teachers houses have to be managed so that the airflow towards all the houses are maximized. Therefore the ventilation is proper in all the houses.

The intense light and heat that were attenuated by covered walkways, light boxes and interior courtyards. All these elements are integrated in the whole plasticity.

This is the longitudinal and transfer section through the school.

Next building we are gonna look at is Salk institute which Louis Kahn designed. In the laboratories the vertical ducts of the Richards building have been turned on their sides,

housed in the hollows of spanning box girders and vented from huge hoods at the flanks of the building. Kahn uses pre-cast units of the structures he continues to add them to become larger as the crane can lift them. Order which is once an affair of repetitive crystals for Kahn is now felt in grand components, space making themselves.

This is one of the US of the Salk Institute here you can see the majesticity and monumentality and architecture.

Here you can see the cemetery and the space that is created by the two blocks on either sides.

All utilities are now directly channelled through the structure, which gives the result that the served spaces and the servant spaces are entirely integrated. In any buildings there are two kinds of spaces one is served spaces and the another is servant spaces. For example if you take a school, classrooms, office rooms these are served spaces these are the spaces you need. Corridors, air ducts, toilets, wash areas, electrical rooms they are all servant spaces only when you completely integrate the served in the servant spaces we can get really seamless architecture. This meaningful order was almost instantly achieved in Kahn's design. Because the way he is drawn it integrates it completely as all the utility and service elements are channel through the structure itself.

The building is having six stories the first three floors containing laboratories and the last three floors utilities. These spaces were connected to protruding towers that contains individual spaces for studies linked with bridges to connect between them.

The towers at the east end of the building contain heating, ventilating, and other support systems while at the west end the towers are six floors of offices that face pacific ocean completely that provides warm tranquil setting for concentration.

The separation of the laboratories and the individual study spaces was intended by Kahn, establishing the different activities.

The materials that make up the Salk Institute consist of concrete, teak, lead, glass, and steel.

Works of Paul Rudolph

We are going to move on another important architect of that time Paul Rudolph.

Paul Marvin Rudolph was an American architect and the chair of Yale University's Department of architect for six years. He is known for plans. Here is the picture of him, with an art and architecture of building has biganod. His most famous building work is the Yale art and architecture building. A spacial complex Brutalist concrete structure.

In his designs, Rudolph synthesizes the modernist ideas of Le Corbusier, Frank Lloyd Wright, and Louis I kahn.

He uses sweeping monolithic forms and intricate interior space to create a powerful sculptural quality. What the masters have done with two or three different buildings, Paul Rudolph does it in one single building. When usually architects separate the spaces to form

two or three different kinds of blocks here and there, Paul Rudolph mixes them all together in one single monolithic block. He displayed an interest in the problems of urban design and completed a succession of unexecuted projects that form architecture.

He was pre-occupied with the notion of the industrialized plug-in city. Plug-in city is the city where in which mobile residence pods. Residences in a pod which can be mobiled. You can move around on a residence pod. You can plug yourself your pod into a steel frames which connects to a mechanical and electrical services. If your pod needs to travel from one place to another there is not mechanical services completely still you can use battery or something but if you want sustained mechanical and electrical services you have to plug yourself into steel frame which has all the services. Rudolph's exhibits a highly personal and compromising style in his architecture.

Rudolph's uses a concrete from front facade. There is readable event from a distance. He explores the separation of interiors and exteriors spaces as the framework exhibited as a independent of the structure behind it.

Although detached from the program of the house, the rectangles and squares of the orthogonal facade occasionally relate interior rooms at various levels by the formation of sun screen like this making a design both this visually stimulating at the same time purely functional.

Art and Architecture Building:

Now take a look at art and architecture building which Paul Rudolph.

This is the dramatic entrance to the building there is up a narrow flight of steps that penetrate deeply into the mass of the main volume, between it and main vertical circulation tower.

Future extension of the building will simply connect to this. The strong vertical striations of the corduroy-textured surfaces these are obtained by pouring concrete into vertically-ribbed wood forms.

We have vertical ribs of wood and you pour concrete in it and finally then you remove the wood forms then you will see the corduroy textured surface that Paul Rudolph is tried to get this treatment has became Paul Rudolph favourite kind of treatment for exposed concrete surfaces, because, apart from being and interesting surface, it controls staining and minimize the effect of discoloration which is inherent in concrete.

Art works restrained use of lively colours- mainly orange- and cleverly built-in furnishings enhance the architecture, which is intended to excite and challenge the occupants in ways they don't imagine.

In the art of architecture building there are thirty seven changes of level to accommodate the functional and circulation areas, and since walls are de-emphasized these levels are defined principally by floor and ceiling planes.

Rudolph, like [Louis I. Khan] is concerned with the method of drama of natural lighting.

This has clearly been an important factor in the design of the building, as it contributes to the changing character and psychological implication of space.

External forces dictated that this building turn the corner and relate to the modern building opposite as well as suggest that it belongs to Yale University. The internal forces demanded an environment suitable for ever varying activities which will be given form and coherence by the defined spaces within. As the years go by, it is hoped other interests and activities will take place within the spaces, but the space itself will remain. This was the concept which Paul Rudolph employed in his art and architecture building it takes into consideration the external and internal forces to design a beautiful building.

Works of Eero Saarinen:

We are going to do one more interesting and important architect Eero Saarinen in this episode. We have already seen Eero Saarinen in his early works in expressionist architect earlier in this series. But today we will be looking at him as a post expressionist architect or post world war. Let's see what he has to offer in the post world war period. Eero Saarinen was a Finnish American architect and industrial of the 20th century famous for shaping his neofuturistic style according to the demands of the project: simple, sweeping, arching structural curves o machine-like rationalism.

Eero Saarinen not just designed buildings, he also designed furniture's. His famous tulip chair on the left. Of all parts on architectural composition must be the parts of the same form-world.

The Arch was to rise majestically from a small forest set on the edge of the great river. This was the concept of the gateway arch Eero Saarinen designed. These are some of the projects that which he designed. This is the TWA terminal building. This is the Gateway Arch. And let's take a look at the gateway arch in detail.

Gateway Arch:

The Gateway Arch is a 630-foot tall monument in St. Louis, in the U.S. state of Missouri. This arch is completely clad in stainless steel and it is built in the form of flatten catenary arch, it is the tallest man-made monument in the western hemisphere. It is also Missouri's tallest accessible building, and the world's tallest arch.

If you see the arch over here the base of the arch is this and looks at the scale of the people standing near it. This is how the big the arch is knowed as the world's tallest arch.Next we

will take a look at another interesting project which Eero Sarrinen did. It is called the Dulles Airport.

Dulles Airport:

Dulles Airport is set on a huge 10,000 acre flat size. This is highly distinctive building with colonnades of tipped and tapered columns on its two long facades, a gratefully curving roof. This is the gracefully curving roof that is hung between two tipped and tapered columns like a pagoda – like control tower nearby. The control tower has a very interesting pagoda like forms there are mobile lounges that are used to carry passengers from the terminal to the planes.

That was built in within the complex itself.

This is the aerial view of the Dulles Airport. This is the cut a cemetric view this is now you enter the building. These are the escalators to go to the different levels. This part is cut off to the vacancy what is happening inside. So otherwise it will simply look- like. Thus the entire call along. So, if you cut a few columns here to show what is really happening inside? These are tipped and tapered columns that you can see. This is the gently curving roof. You can see the control tower over here Eero sarrinen in his early works he designed expressionist architecture. Later at some point of time he became a modernist and soon after he embraced his style called a structural architecture in a very very interesting way and integrates structure and architecture in a ways that we could not imagine off. And this style which is called the structural expressionism. Is something which he is known for?