Role of Craft and Technology in Interior–Architecture
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Lecture – 21
Craft Technology in Interior Architecture:
Decoding Systems

Namaste! Hello everyone. Welcome to the NPTEL course, Role of Craft and Technology in Interior–Architecture. Today, we are going to talk about module 21, where we will discuss craft and technology in interior architecture decoding systems within it. So, when we talk about systems and when we talk about architecture just like a language has a structure to it and an embedded system the same way to build form the interior architecture and the craft.

They also have lot of systems that help us understand how to decode the built form, how to decode the craft expression and how to understand the process of making. So, let us try to understand here.

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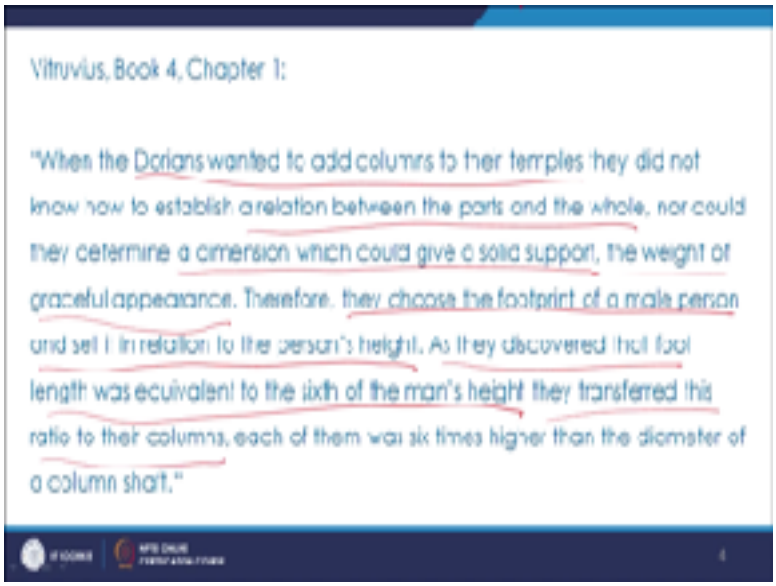

So, I would like to begin with Vitruvius. So, Vitruvius is in his book 4, chapter 1, says "When the Dorians wanted to add columns to their temples they did not know how to

establish a relation between the parts and the whole, nor could they determine a dimension which could give a solid support, the weight of graceful appearance. Therefore, what they did as a solution was they choose the footprint of a male person and set it in relation to the person's height.

So, the reference for drawing the proportions of the columns was the male human body as they discovered that foot length was equivalent to the sixth of the men's height they transferred this ratio to their columns each of them was six times higher than the diameter of the column shaft."

So, again this is a system in place when there was no idea of dimensions or a proportion system how the Dorians actually took reference of the human male body and then they try to come up with a proportional system where there was this ratio achieved between the footprint of the male and the height and that is what they translated in the columns when we see it in the different buildings.

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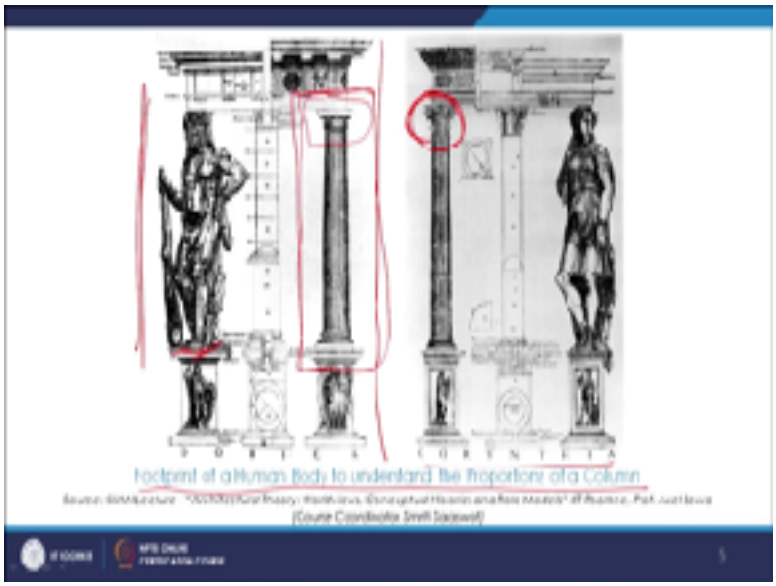

So, here if we see the footprint of human body was taken as a reference to understand the proportions of column. So, this is a Dorian one and this is a Corinthian here we see the curves and the decoration and this is fairly simple. So, a system was derived where the

footprint and the height a ratio was set between it and then it was translated on the columns.

And this is also to understand that how human body and the anthropometric dimensions are very stable and how nature has actually provided us with the reference that could be translated to various interior architecture, products and how we try to understand the geometry and the principles of meeting which lie underneath it.

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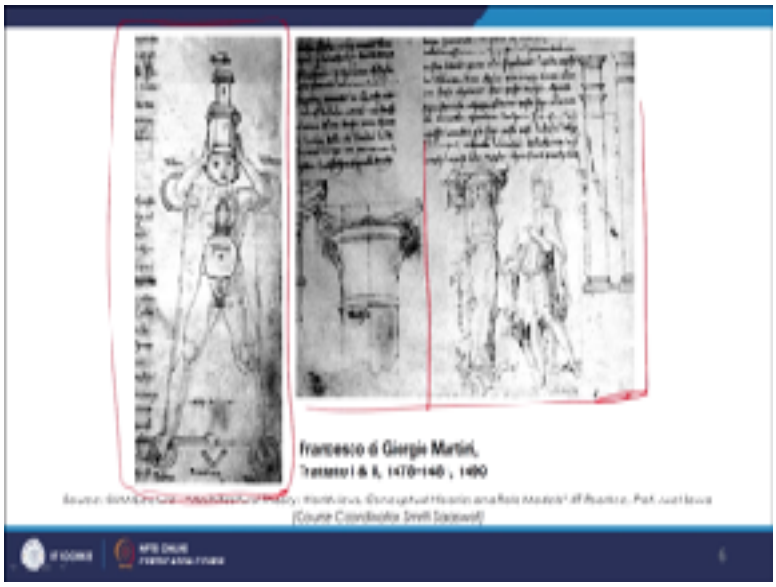

There are several other examples that we see where the human body is taken as a reference and then a proportion system is evolved out of it and then translated to interior architecture and here all these references they have been documented and we see it in literature through books in history.

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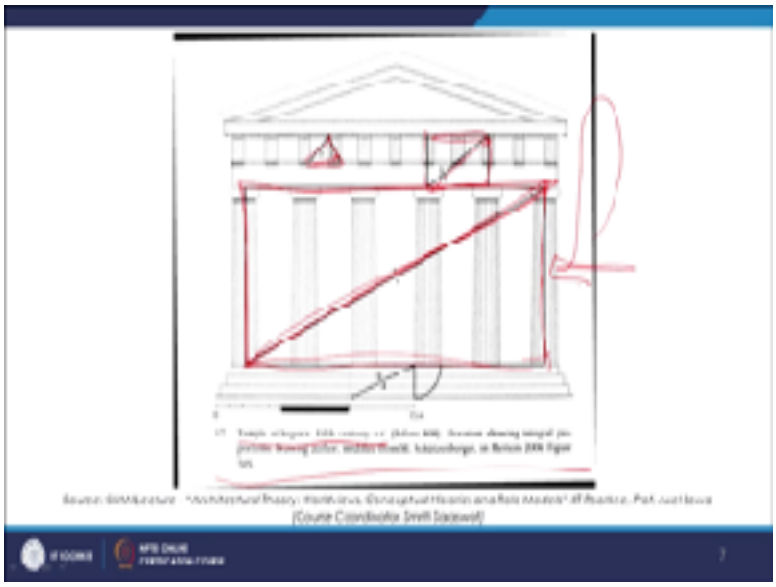

For example, here if we see this building the temple at Segesta it is a fifth century BC building. Here we see how there is this system of Pythagorean triangles that helps achieve the proportions and this is how the geometry is achieved and then it is translated into the making of this interior architecture we see it here. So, this entire example over here again there is a system of working which is involved. Now, systems could be studied at varied levels you know there could be a system of classification, there could be a system of organisation collection we could talk about a system of working where we understand the hierarchy of the involved stakeholders.

There could also be a system that helps us understand how to establish and interrelationship between the craft and the built from. So, systems could be understood at varied levels in varied capacities.

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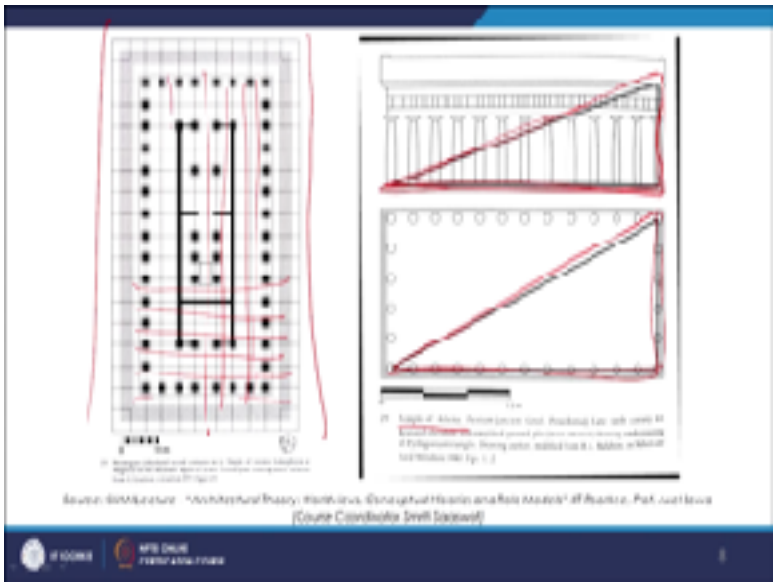

This is another example very famous temple of Athena and again we see in the plan as well as in the elevation there this system of Pythagorean triangle, sorry. The triangles that have been you know incorporated here to understand the proportion to understand the relation between different components and to achieve a certain proportion system.

Here if we see another temple, we see a system of grid which is being used here. So, there is a grid which is followed and there is a system that is involved in the making of it. So, again a system of proportions, then there was also an emergence of varied catalogues; the building trade catalogue which is again a system of collection, a system of curating, a system of organizing different elements.

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So, space making elements, landscaping elements, furniture elements so, these were the catalogues that came up and they prove to be a sort of a system of organisation and collection also at times classification. So, these were referred and then lot of the references were integrated and incorporated in the different interior architecture, furniture elements, landscape elements and then this is how the repository was created and the knowledge was transferred and referred later.

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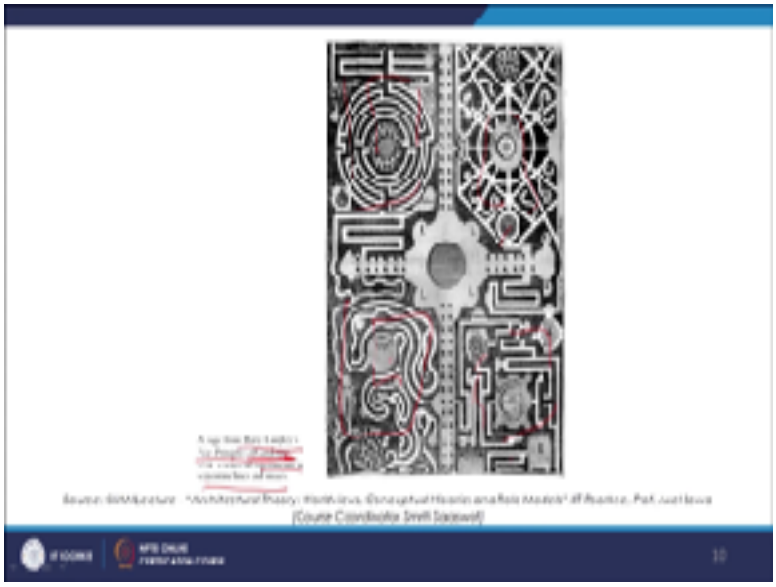

Here, if we see this is a page from Langley's New Principles of Gardening. So, when we are talking about city planning and landscaping lot of principles of gardening and lot of experimentation with serpentine lines and mazes, they were seen in the city planning or the interior architecture landscaping and again this is also a system, how the principles of gardening are translated in interior architecture.

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This is a very interesting slide that we see here. So, what is happening is that one tries to apply the learning from botanical sciences into interior architecture. So, if we see the botanical sciences and if we see the nature the plants which are available in nature there is a sort of a system of classifying the plants also.

So, the botanical sciences does give those kinds of references where we try to group a certain kind of plant family and then there are another groups and then the understanding and learning from this was applied here in interior architecture where certain kind of grouping and classification was made and then certain kind of references were drawn from nature and then the kind of interior architecture was also understood in terms of form and articulation and the classification that was done.

So, this is also a system in place which helps us understand decode interior architecture, the craft integrated within it also understanding the principles of making, the system that

allows the coming together of different components in forming this piece of interior architecture.

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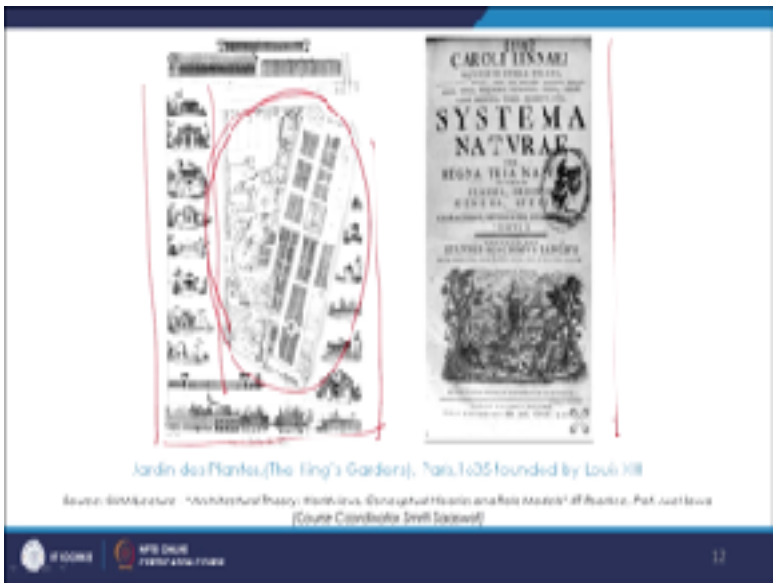

Continuing with the principles of gardening, here also we see lot of principles of gardening and botanical sciences and how these were applied also at the city planning level here. And they where lot of books and catalogues that came up that describe this kind of interrelationship and referencing drawing from nature to interior architecture.

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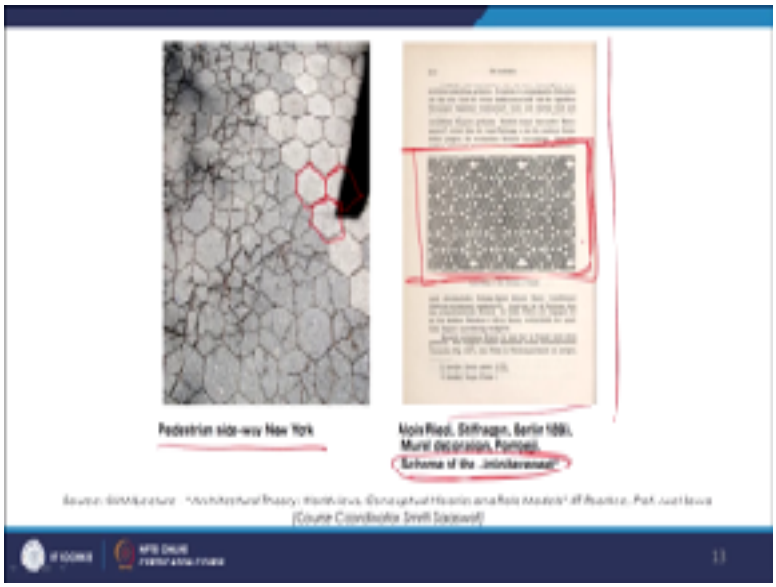

Even in simple things like you know this is a pedestrian sideway in New York. Here also what we see is a pattern, but this pattern that we see over here is formed by the repetition and joining of the hexagonal units. Now, there is a system in place with which this structure evolves and this pattern is seen over here. So, and we find these kinds of references in lot of places. So, here that what we see is a scheme of infinite repeat which gives this kind of a pattern, which could go on a flooring or a wall surface or wherever.

So, there is always a system in place and if we try to understand that system we will be surely able to understand the parts, component parts and the way these parts or modules are joined to create a larger structure to it and it always and helps us understand the process that goes within.

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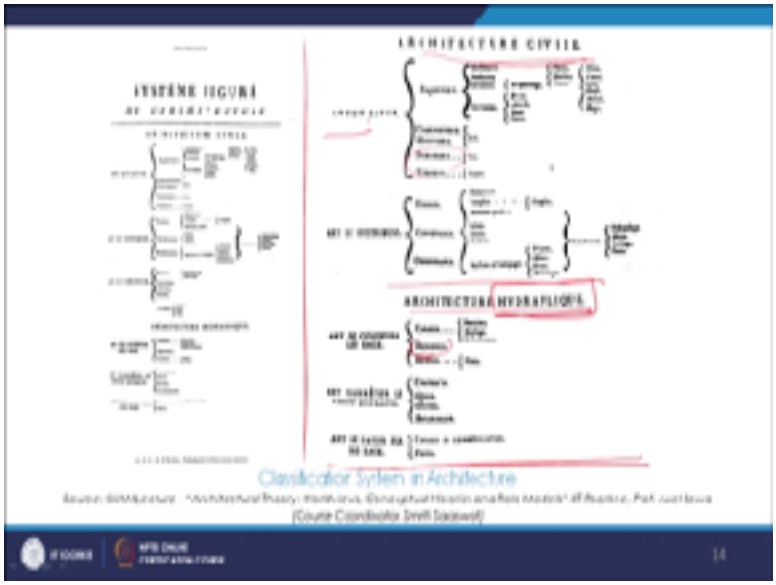

Again, this is a very interesting historical reference where we see this classification and the system that helps us understand varied categories with an architecture so, architecture civil and architecture hydraulic. So, when there is a mention of hydraulic, there is a discussion about aqueducts and water architecture and when we talk about civil there is a mention of structure, design, art and the related categories.

So, this system again is put in place to help us understand varied categories and at what levels in which capacity a particular kind of interior architecture is taken up and what are the methods involved in it.

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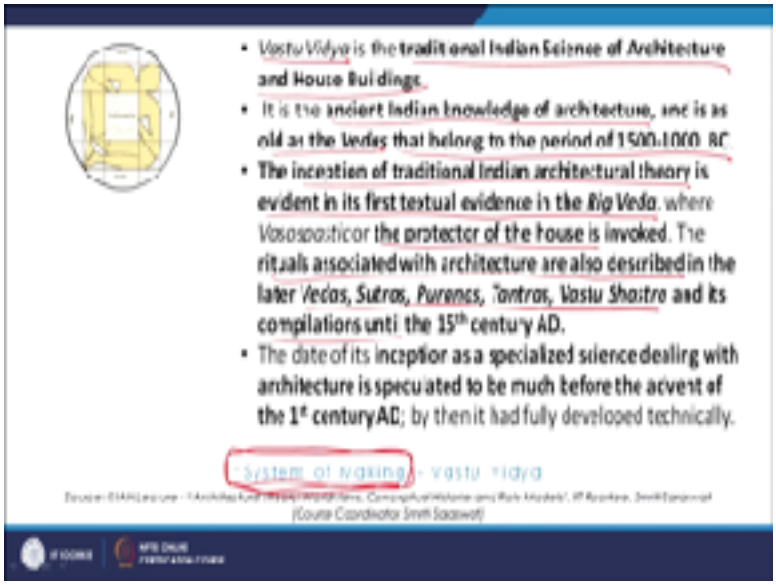

Talking about India lot of us already know about Vastu Vidya and Vastu Shastra and how significant this science has been to understand the system of making and the principles of making embedded within it. So, if we talk about Vastu Vidya. It was also a sort of a system of making that helped us understand various laws of nature and the various processes involved, various methods of making. So, just briefly describing it, Vastu Vidya is the traditional Indian science of architecture and house buildings, it is the ancient Indian knowledge of architecture, it is as old as the Vedas.

So, we find the reference of Vastu Vidya even in the Vedas starting from the Rig Veda that belong to the period of 1500 to 1000 BC. The inception of traditional Indian architectural theory is evident in it is first textual evidence in the Rig Veda. So, that also mentions about architecture and the principles of making, we see the mention of protector of the house and then the rituals associated with architecture are also described in the later Vedas, Sutras, Puranas, Santras, Vastu Shastra and the compilation until the 15 century AD.

So, since we are talking about reference to human body taking into account nature and our surroundings trying to understand how the making is achieved, we are talking about proportional systems, we are talking about principles of gardening being applied. It is very apt and apposite that we also discuss about this traditional Indian sciences which have found mentions since very old Upanishads and scriptures and thats how lot of people as you continue to apply Vastu Vidya and there are still people who follow these principles and there is this understanding of the systems that help decode the practice of interior architecture and how it is related to our cosmos and supernatural powers and manifestations of universe.

So, the date of its inception as a specialized science dealing with architectural speculated to be much before the advent of the first century AD, by then fully developed technically. So, technically it was taken as a science. So, the systems were already technically proven and they have been applied significantly over a very long period of time.

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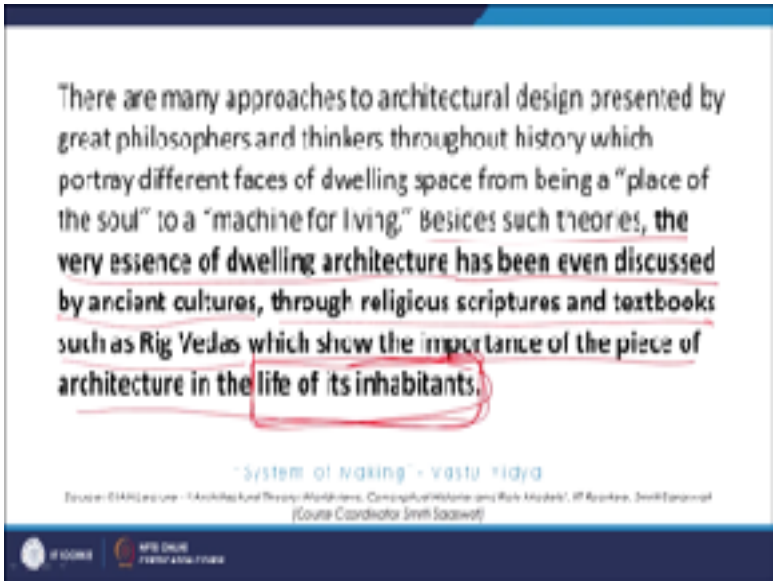

A little more discussion on this. So, besides such theories the very essence of dwelling architecture has been even discussed by ancient cultures through religious scriptures and text books such as Rig Vedas that is what we were discussing in the last slide also, which show the importance of the piece of architecture in the life of its inhabitants.

So, this connection between the inhabitants and the piece of architecture created is what this ancient science actually focused on and which is what is paramount and should be actually taken into account.

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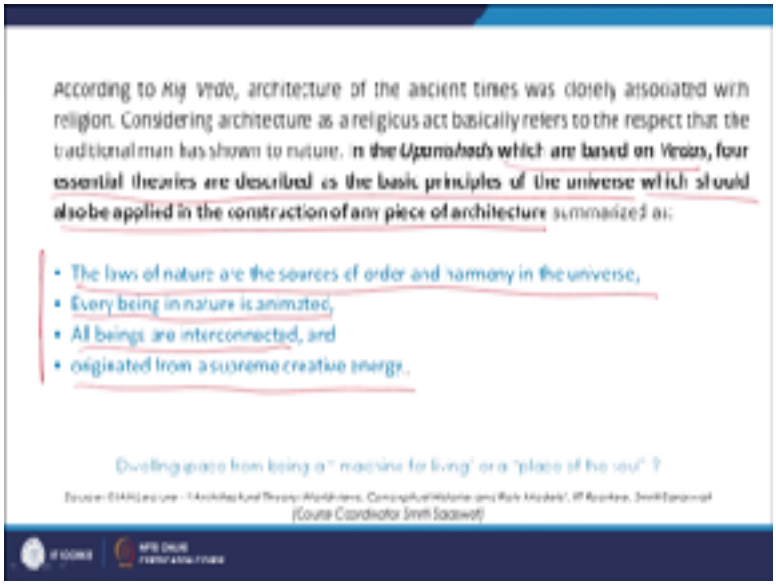

So, in the Upanishads which are based on Vedas, four essential theories are described as the basic principles of the universe which should also be applied in the construction of any piece of architecture. Now, this is also a sort of a system which acts as a guideline which talks about the principles of making and which talks about the laws that have been taken into account.

So, the four major ones that were focused were; The laws of nature are the sources of order and harmony in the universe, Every being in nature is animated, All beings are interconnected and originated from a supreme creative energy. So, all of these considerations were taken into account and then a system which had these principles of making embedded in it were constituted and they were always used as a guideline and they are still used as a guideline and a built form generates out of the application of these systems and principles of making.

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If we see Vastu Vidya then there are different phases which have been also identified and these also are a sort of reflection how within different phases there was a different focus or a different area of importance chosen and then how it developed through a period of time and that also happens in the built form it happens with materials. So, there is this gradual transformation and progress and there are phases of working there are stages of working and that we see here also this is very interesting mapped up.

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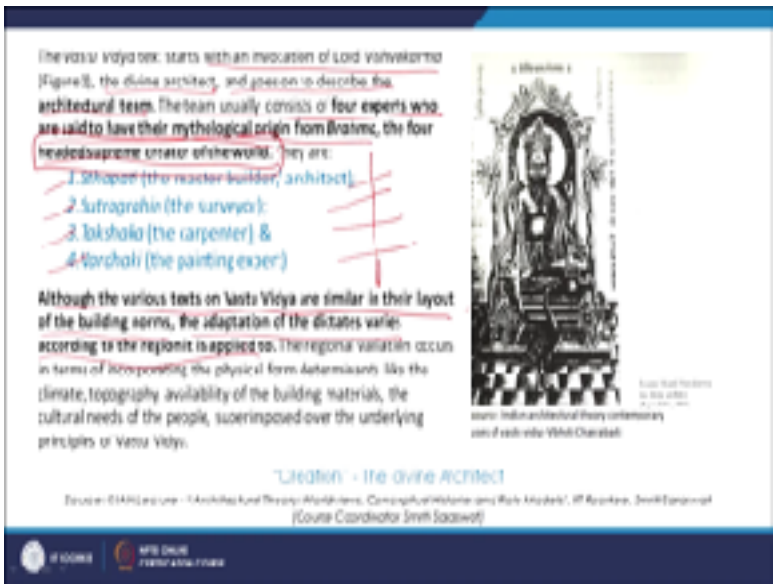

Also there is something very interesting when we talk about Vastu Vidya, the text starts within invocation of lord Vishwakarma, the divine architect, and then goes on to describe the architectural team. So, the team usually consists of four experts who are said to have their mythological origin from Brahma. Team that has been described is *Sthapati* (the master builder or architect); the *Sutragrahin* which is (the surveyor): the *Takshaka* (the carpenter) and *Vardhaki* (the painting expert). So, this is the architectural team and it consists of these four experts and the divine architect is the one who leads.

So, although the various texts on Vastu Vidya similar in the layout of the building norms, the adaptation of the dictates varies according to the region it is applied to. So, again there is a system in place, but it may have regional variations it may have lot of cultural connotations. So, a system could also be modified, altered and then according to the belief system and the region, religion it could have certain alterations.

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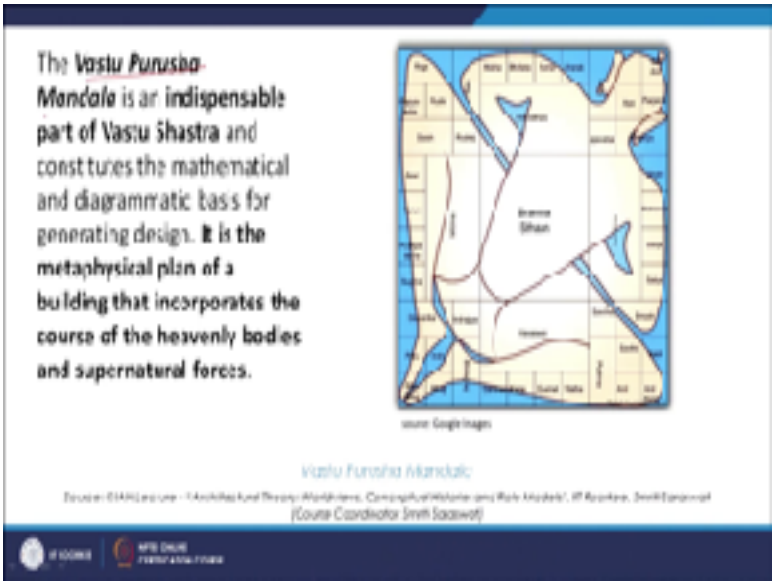

Talking about Vastu Purusha Mandala it is also a sort of a system that helps us understand a building in it is metaphysical form and then try to also have associations with the supernatural powers and the energy points. So, Vastu Purusha Mandala is an indispensable part of Vastu Shastra and it is the metaphysical plan of a building that incorporates the course of the heavenly bodies and supernatural forces.

So, if we see over here this square it has been divided into various zones and there is a grid which is being followed and every square has a certain representation, it connotes to a certain supernatural power, it connotes to heaven body and whenever the house or a built form is constructed keeping in mind these principles it is said that there would be a divine presence in the house would breathe and live for long.

So, again these system have evolved from the age old traditional knowledge systems, they have belief systems associated to them and they have also scientifically proven to be effective and that is how they still continue over such a long span of time.

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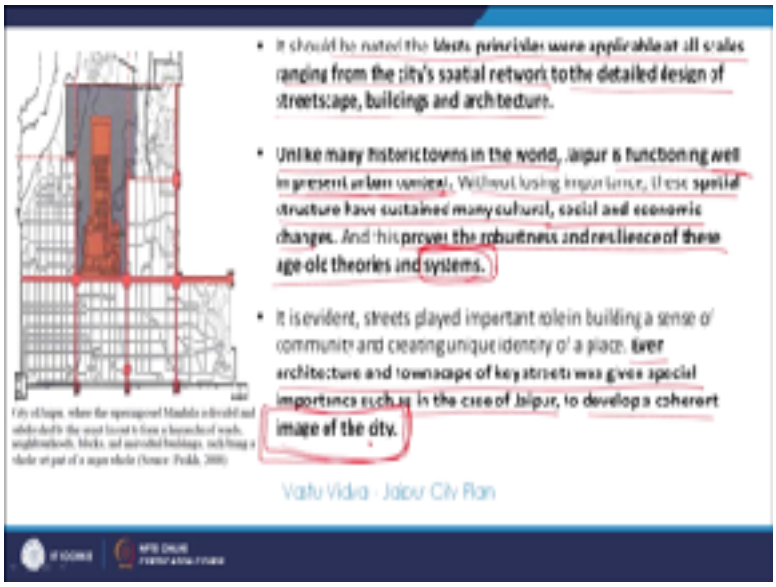

Very interestingly we see this principles of Vastu Shastra, Vastu Vidya being employed in the planning of city Jaipur and there are few interesting things here. So, it should be noted that the Vastu principles were applicable at all scales in Jaipur ranging from the cities spatial network to the detailed design of the streetscape buildings and architecture.

So, it was not just a particular built form or one particular building, but it was seen in the entire spatial configuration from the street to the buildings. Unlike many historic towns in the world, Jaipur is functioning well in present urban context also. So, if it is said that it was done so, many years ago and probably it is not relevant today, then it has been

already documented and validated and discussed that it is functioning well in the present urban context as well.

So, these systems in place in the principles of making which have been existent since a very long time, they are technically and scientifically proven now. Without losing importance these spatial structures have sustain many cultural, social and economic changes and this proves the robustness and resilience of these age old theories and systems, thats the focus here that we are discussing.

Even architecture and townscape of key streets was given special importance, such as in the case of Jaipur to develop a coherent image of the city. So, how do we get this coherent image of the city when the system is applied not just at the building level, but also from the streetscape to other micro levels. So, it is a micro level application to a macro level application and it gives a cohesiveness and it gives a uniform image of the city which also turns into its identity later.

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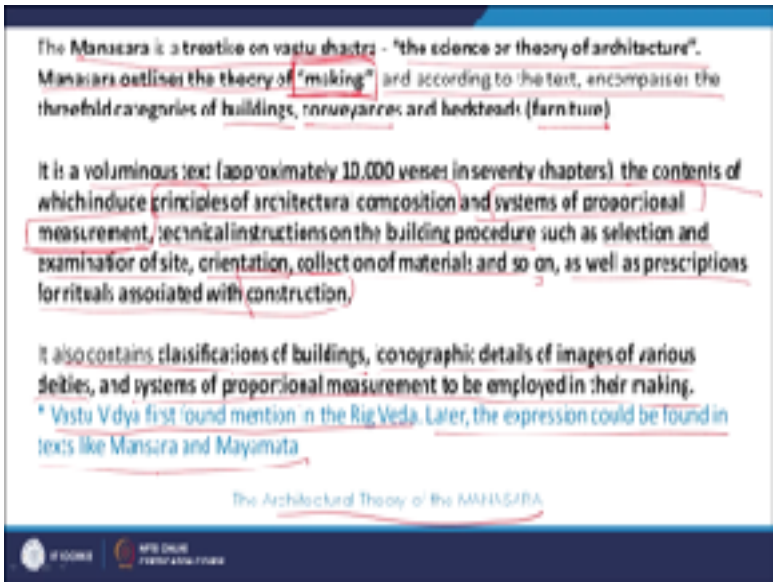

Also I would like to discuss very briefly this interesting architectural theory of Mansara because we are talking about these systems in traditional Indian architecture. So, Mansara is a treatise on Vastu Shastra, the science of theory of architecture. Mansara outlines the theory of making. So, it also has these systems of making in place it

discusses those and according to the text and compass the threefold categories of buildings, conveyances and furniture.

It is a voluminous text, the contents of which include principles of architectural composition and systems of proportional measurement, also technical instructions on the building procedure such as the selection and examination of sight, orientation, collections of matierals and so, on as well as prescriptions for rituals associated with construction. So, we already have such treatises, we have so many scriptures which define these systems which have been in place and they try to help guiders over the period of time, over several ages to understand the interior architecture, craft expressions and the processes involved in the making.

It also contains classifications of buildings, iconographic details of images of various deities and systems of proportional measurement to be employed in their making. So, we have the references, documented references to follow, to take references. What is important is to note Vastu Vidya first found mentioned in the Rig Veda, later the expression could be found in the text like Mansara and Mayamata and this is Mansara that we were discussing.

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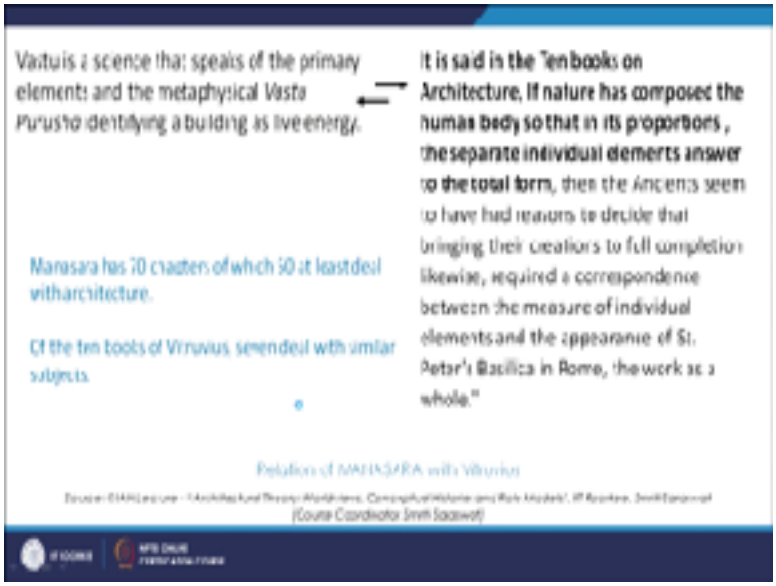

Theres also a sort of relation that is seen while talking about Vastu Vidya and then the ten books on Architecture. We see lot of similar subjects being address, the main philosophy and the main systems in place they being similar and that kind of relationship has been studied by researchers and the similarity has been drawn by them. So, while Vastu is the science that speaks of the primary elements and the metaphysical Vastu Purusha. Ten books on Architecture also talks about how nature if it has composed the human body. So, that in it is proportions the separate individual elements answer to the total form. So, there is a sort of a reference and there are sort of similarities.

Manasara has 70 chapters out of which 50 deal with architecture. Of the ten books of Vitruvius 7 deal with similar subjects. So, these kinds of references and systems we see in India internationally a lot of them have been followed till date. The Ten books on Architecture are very famous, they have been take seen as Bible and we still follow Vastu. There are some more interrelationships and the kind of analysis which has been done between Vastu and the Vitruvius ten books on architecture.

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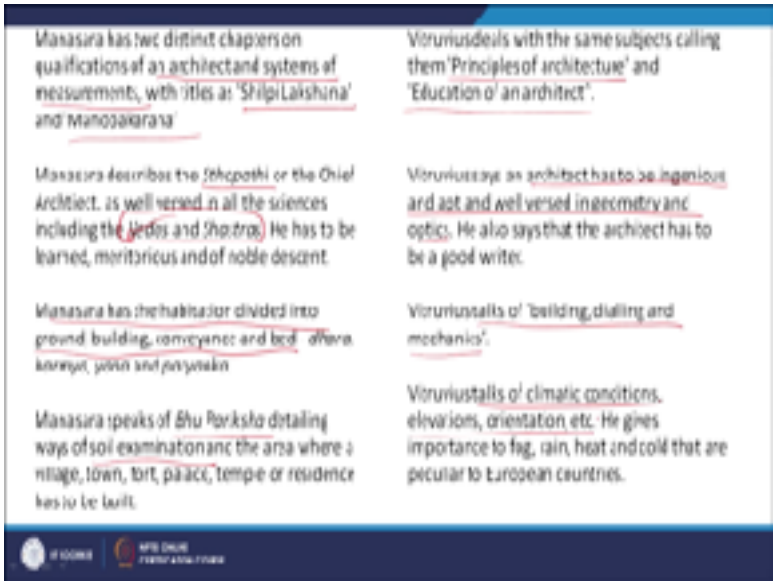

So, they also talk about architect and systems of measurement. There is Shilpi Lakshana and Manopakarana which we see in the Vastu Vidya and Vitruvius also deals with principles of architecture and education of an architect. Manasara describe Sthapathi or

the chief architect and there is a mention of Vedas and Shastras. Vitruvius also says an architect has to be ingenius and apt and well versed in geometry and optics.

Manasara has the habitation divided into ground, building, conveyance and bed and Vitruvius talks of building, dialling and mechanics, Manasara speaks of *Bhu Pariksha* detailing ways of soil examination and Vitruvius also talks about climatic conditions elevation orientation and so forth. So, we see lot of relationships here.

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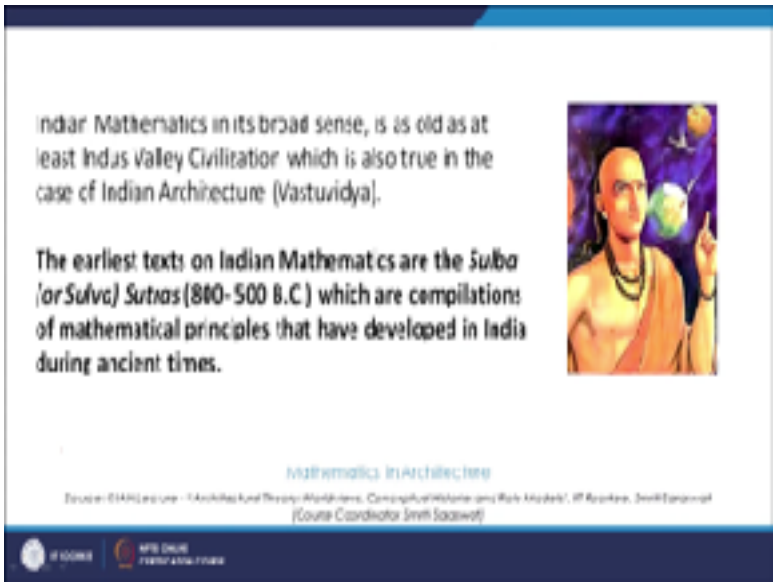

Now, since we are talking about systems in place there is a very profound presence of mathematics and geometry in Indian architecture. So, the earliest texts on Indian mathematics are the *Sulba* sutras which are compilations of mathematical principles that have developed in India during ancient times. So, we will see some examples and how we will see how the geometric schema and the application of mathematics has a very significant role in Indian interior architecture and craft practices.

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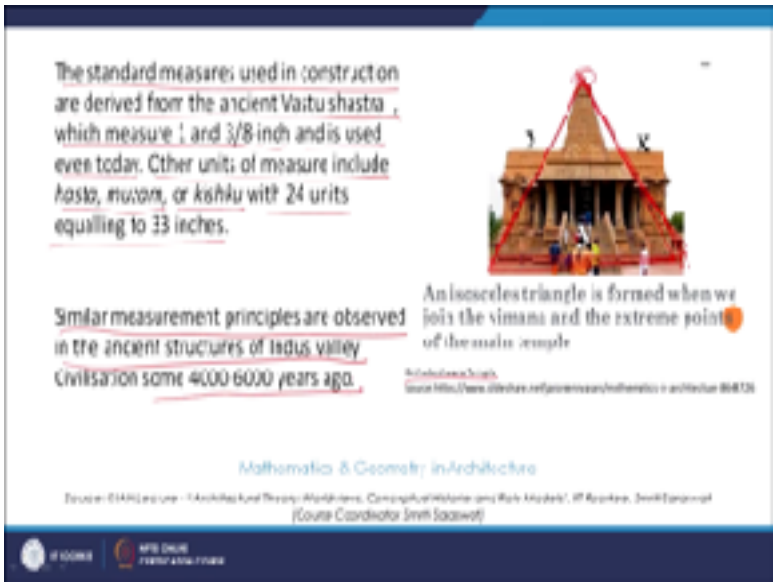

This is the very famous Brihadeshwara temple and if we see this point of Vimana and two extreme points here there is this creation of an isosceles triangle which is considered to be a very stable geometry.

So, there are also standard measures used in construction they are also in place and we see the mention in scriptures. They are derived from the ancient Vastu Shastra which measure 1 and 3/8th inch and is used even today. So, again these are systems in place which also give us the formulae for calculation what is the stable geometry and what is the form that should be achieved. Other units of measure include *hasta, muzam* or *kishku*, the 24 units equalling to 33 inches.

So, we also have a system in place which describes about methods of measurement. So, like earlier if we didn't have a measuring tape how would be measure. So, there are methods or the systems of measurement also; how you take reference of your pacing, how you take reference of your hand and how the dimension is derived, how we understand our body in relation to the other interior architecture or a piece of object and then the ratio we tried to understand, the proportion we try to understand.

Similar measurement principles are observed in the ancient structures of Indus valley civilisation some 4000 to 6000 years ago. So, we see this significant application of principles of geometry and mathematics in interior architecture.

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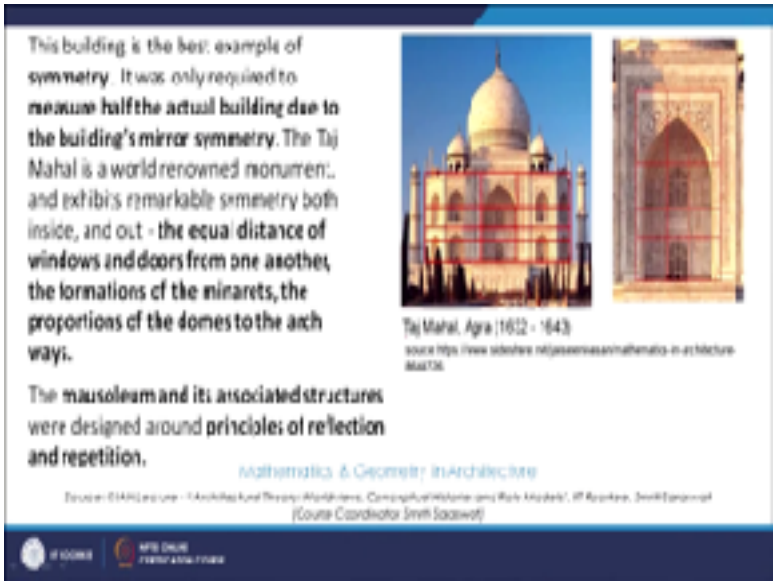

The very famous Taj Mahal if we see here, it is known to be a very symmetric building. So, this building is the best example of symmetry and the best part was that it was required to measure half the actual building because the building had a mirror symmetry.

The equal distance of the windows and doors from one another, the formations of the minarets, the proportions of the domes to the arch, so, there is a system of making in place, there is a profound role of geometry we see symmetry over here, there is also a science if we study about Taj Mahal, how the plinth was taken up and the well foundation because there is lot of water there was constructed and different geometrical details of the Mughal architecture are seen there.

So, these are some examples which are timeless and we still study them to understand the systems which are embedded within the principles of making.

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Here we see this Amber Fort, Jaipur which is more popularly called as Amer Fort. If we see the crafts over here in the ceiling, the mirror work over here, here also we see the role of geometry and here also we see mathematics in place.

So, whether it is the entire built form or the structure or it is a surface application of a certain building crafts, there is a role of geometry, there are the mathematical ways of calculations and there are systems in place which enable us to create that built form or later decode it in terms of stepwise making out the expressions that were given.

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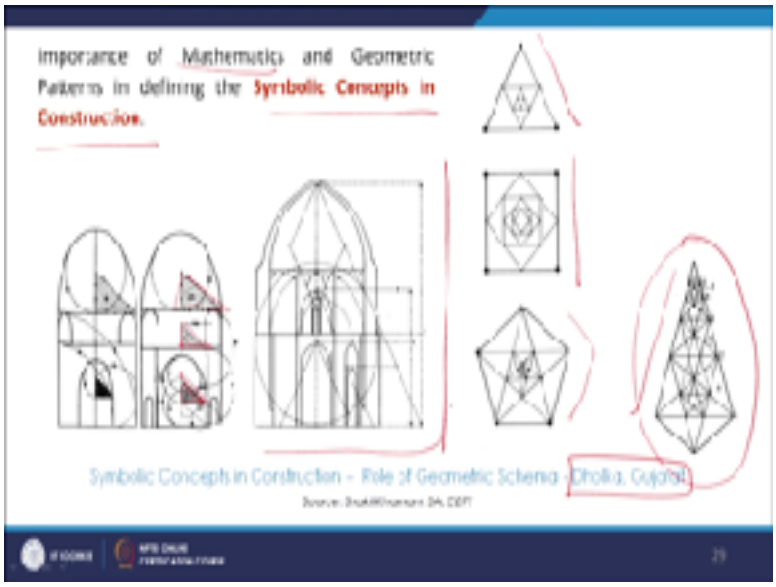

So, because we are talking about the importance of mathematics, the mathematics and geometric patterns also help in defining the symbolic concepts in construction.

So, if we see this mosque in Dholka, Gujarat, here also we see lot of systems geometry, triangles and how the entire play of triangle generates a certain geometry over here and then how the construction is done. So, this is a very interesting mosque its ceiling is also very interesting.

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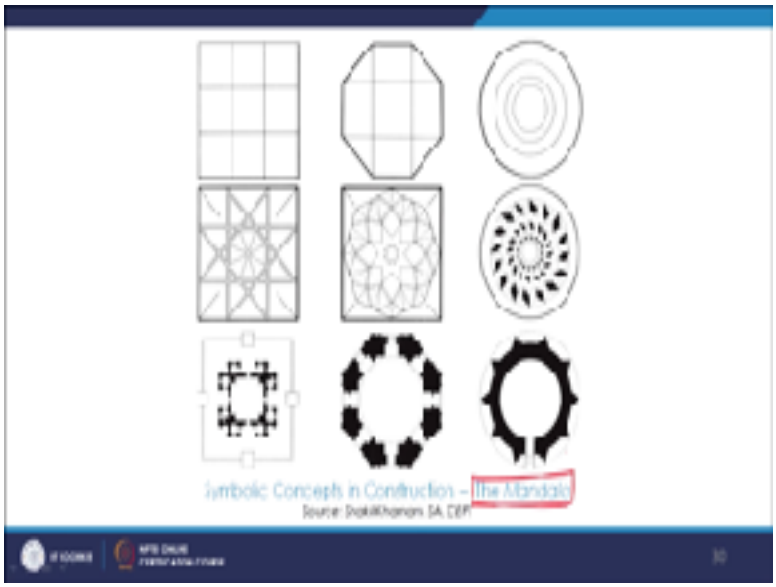

Again we see the play of Mandala. How the system of Mandala has been applied for constructing this build from where we have this system of grids which is followed and then the entire process is achieved. So, Mandala is also a very old system which is been defined in a traditional science of interior architecture and we see the entire city plan of Jaipur also follows the Mandala.

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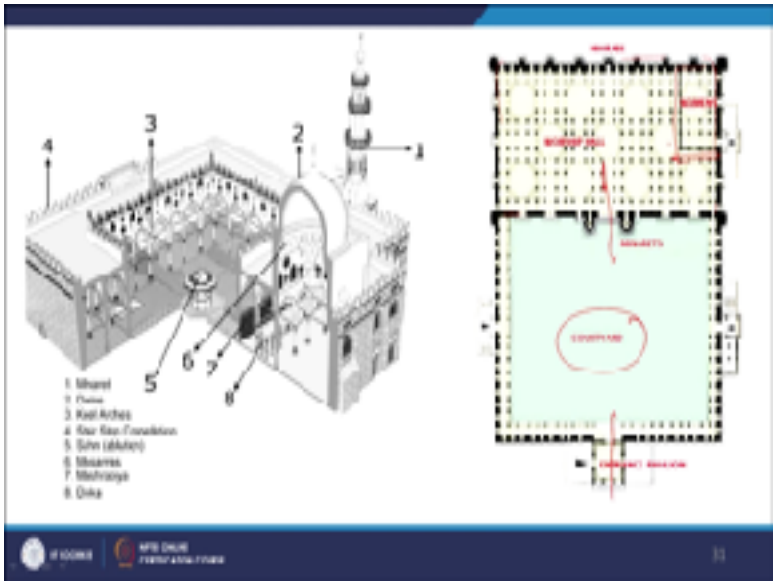

There is also a system of creating hierarchy of spaces. So, as one enters courtyard and then how you enter the zone which is the prayer hall and how for women there is a separate zone. So, there is system also in creating the hierarchy of spaces there are system to create the organisation of the space how one moves and circulates and how one enters to this main worship hall. So, that kind of a system is also there which could be analysed and studied to understand the built form in the interior architecture.

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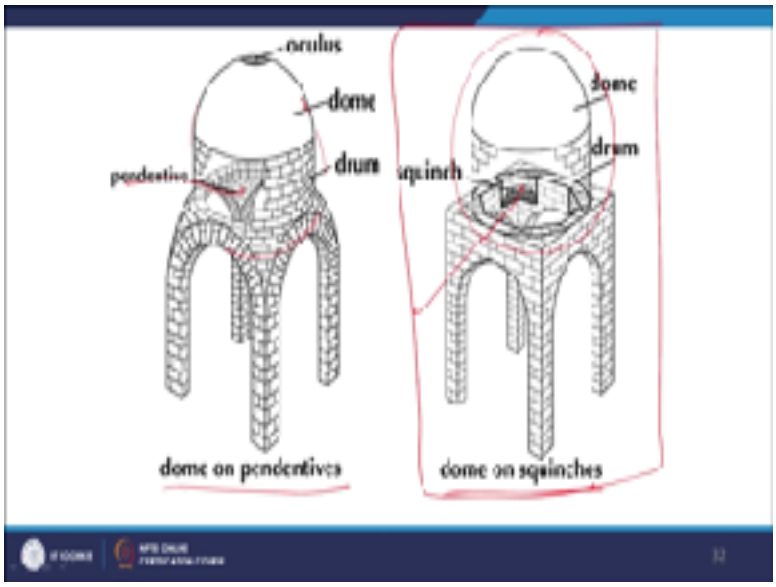

If we talk about construction and structure there is also a system in place how one constructs a particular element. So, if we are talking about the space making element dome, this is how it is constructed on squinches and when we do not have a squinches this is how it is constructed using pendentives. So, again there are systems in place which we have the references to follow and understand.

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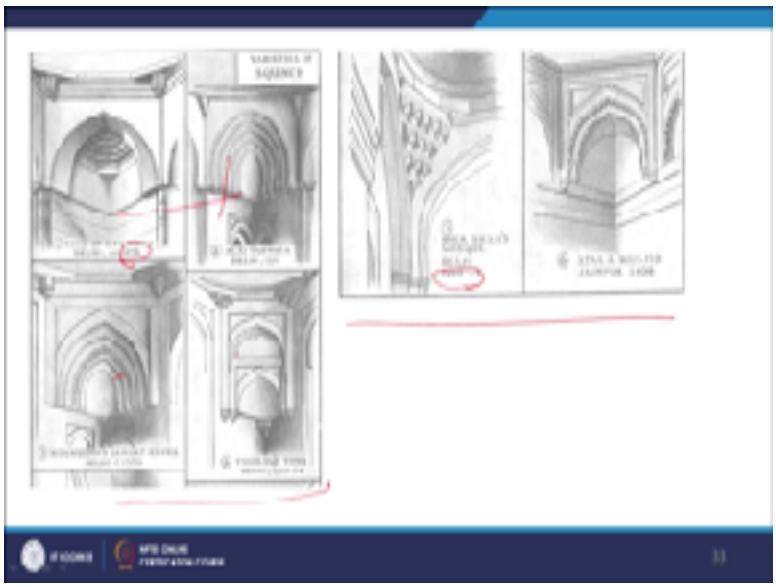

Now, since we were talking about certain catalogues earlier, this again is a sort of a catalogue which talks about the different kinds of squinches starting from 1236 to 1540 how a particular squinch has evolved or transformed or changed. So, this kind of a system in place and the catalogues that have been developed and archived, they also helps us understand evolution of a particular element or for particular built form over a period of time which also takes into account how the materials have changed, how the technology has changed, how the principles of making have evolved. So, those kinds of important data and information are also generated by these systems of collection and archiving and documenting. So, there is a system in place there also when we document and archive.

Again, talking about few examples so, we are here talking about Mughal architecture and particularly taking mosque as a reference and we will try to understand what is the system of making involved and what are the different guiding principles which are embedded within that system.

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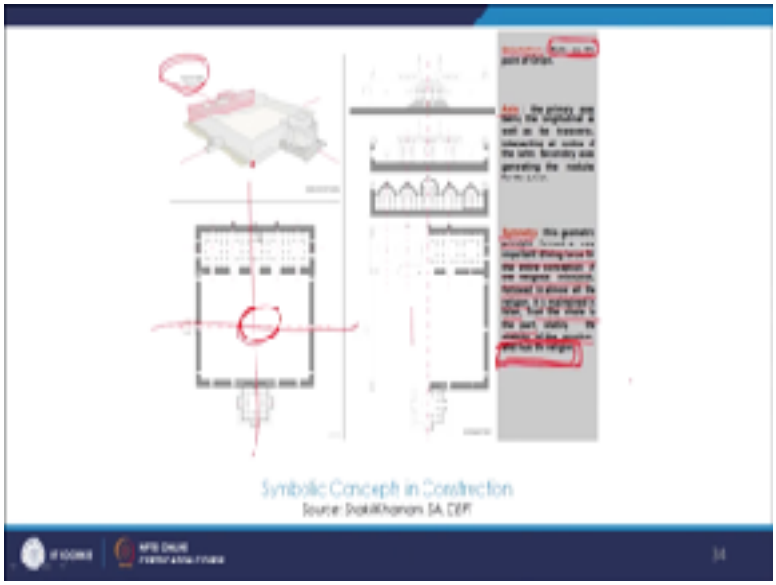

So, something starting from orientation when we talk about orientation there is a reference taken to Kaba and when Kaba is taken as a point of origin accordingly the orientation of mosque is done. So, towards Kaba which is the west here, then there is

axis so, we see these two axis which are intersecting at the evolution the *Sahn* over here. We see symmetry. So, we see symmetry over here in the building.

So, this geometric principle formed a very important driving force for the entire conception of the religious institution followed in almost all the religions. It is maintained in Islam from the whole to the part stating the stability of the structure and thus the religion. So, this is how is the symmetry was seen as a guiding principle and utilising this system it gave a stable form and it also had to do with what the religion stated. So, there was this close harmony between the built form as a method of construction and the belief system that was put forward in the religion.

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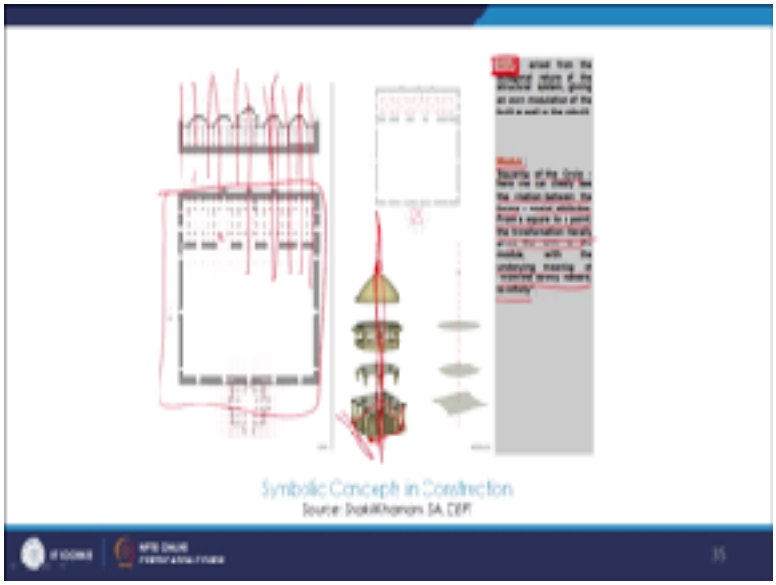

Going ahead we see the principle of grid which is defined in the system of construction and here we see this grid over here, how the entire building is divided into a stable grid and what we see in the plan that is actually translated also in the elevation and the section for that grid follows. Then the module; so, there is this very interesting principle of squaring of the circle. So, from here the square to this point, there is this sort of an evolution of a module.

So, the relation between the formal spatial attributes could be seen here. From a square to a point the transformation literally gives the form to the module, underlying meaning

of from the early earthly matters to infinity. So, this has been taken as the earthly matter and this is the manifestation of being translated to infinity, here again we see this close harmony between the manifestation, belief system and the actual tangible form.

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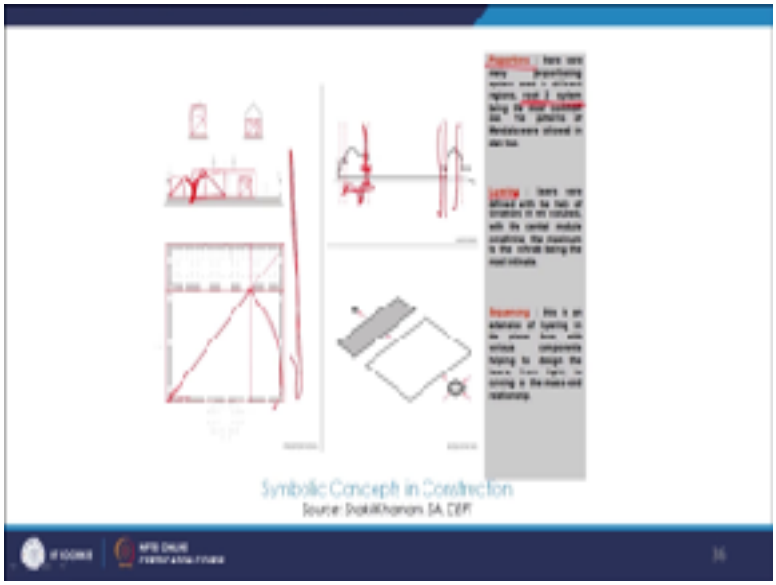

Proportions; we have been talking about proportions. So, here we see the root 2 system been the most predominant one. The root 2 system and how we see here this proportions been achieved by the root 2 system plan and elevation both, then there is layering; so, we see the different volumes being created this over here and then this over here, with different volumes which have been created they sort of do a layering which creates interest in the built form and also the sequencing which is an extension of layering, how the sequencing is done and how the various components help to design the layers.

Now, the next one that we will discuss is the disposition of components.

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So, if we talk about the module within a module the components they were placed such as to create the verticality from the base to the top. So, if we see over here the way the components have been placed and they give the sense of verticality is again a guiding principle. Then we talk about point of origination, a single module has multiple points of originations and this can create space through which we can orient ourselves.

Then there is centrality. So, a strong central axis this can be observed that connects the part to the whole and talking about the form space relationship, the inner space of the built reflects the outer elevation or form. So, that kind of relationship again is achieved through these guiding principles of making and this system is there in place for us to understand and take it forward.

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Now, talking about the volumetric composition, it depicts the space as the mass and the mass as the void and assist us in understanding the complete composition of the space. So, the massing of the blocks and the intervening space between, how are they interrelated and how it gives us the sense of this entire spatial configuration, that is again a guiding principle of this volumetric composition.

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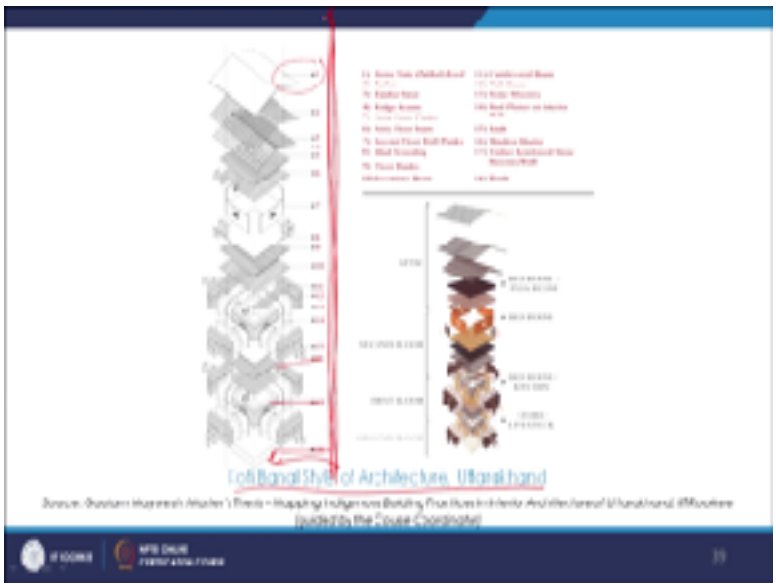

Some more examples; here if we see this Koti Banal style of architecture in Uttarakhand, This is the entire elaborate discussion of you know the exploded view which give the different layers of how starting from the plinth to this stone slab, the principles of making are applied and how this entire built form is then conceived and achieved.

So, there is again this system in place, also, where does the livestock go and then where is the kitchen and the bedroom and the pooja room, the attic for the storage, what happens on the ground floor and what happens on the first floor, what goes on the second floor also in response to the climate and the resistance to the earthquake. So, this is an entire system and it needs to be understood before understanding the built form.

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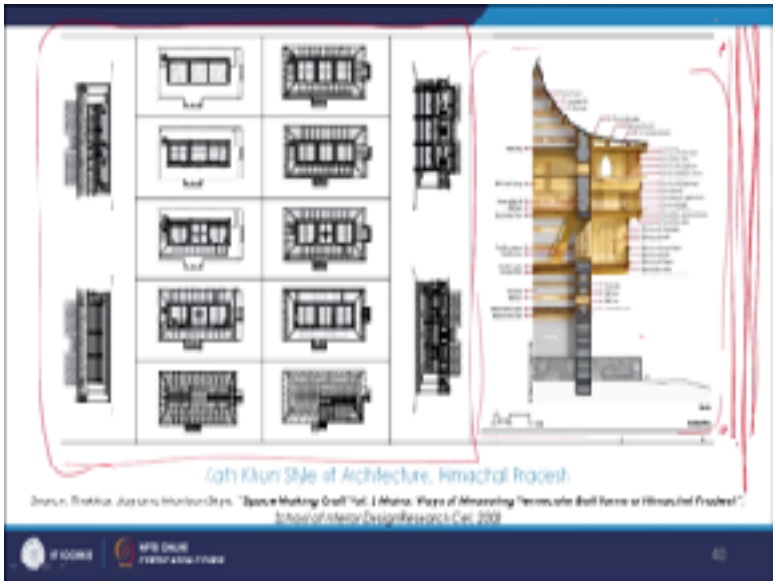

This same thing here, this is a drawing from Himachal and what we see in the Koti Banal architecture similar example here we see the Kath Khuni architecture. Here also there is this system in place and the book Matra has very elaborately describe all the classification, the house typologies and the principles of making different layers from the bottom to the top.

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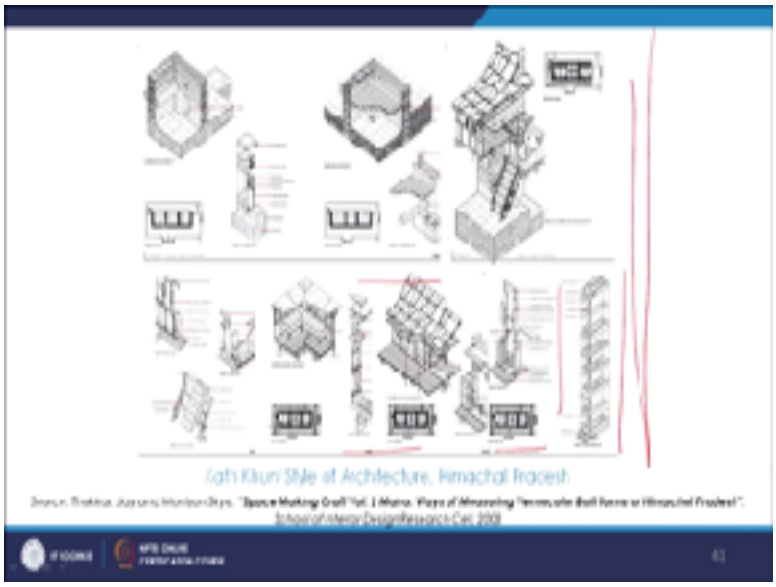

Again, the ways of construction, the technical details also given with proper measurements, so, technical drawings are again a system to document, to analyse, to create a repository.

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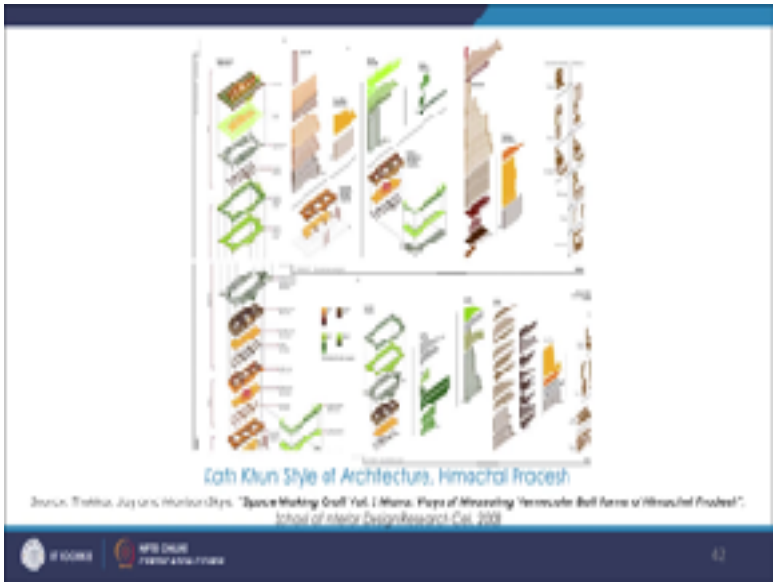

Here also we see that analysis and the creation of repository.

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This is one house in Munsiyari, Uttarakhand and we see also a system of placing the craft you know at what eye level it is to be placed, we also see a system of local terms, what is the local terminology and what is every element called in the local parlance. So, the vertical element the lintel is called *Patav* and then there is *Chhaja* and the roof is called the *Pal*.

So, this system of local parlance and to understand the vocabulary which is used in a particular region is also an important tool to analyse and understand and decode the interior architecture and the craft practices.

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So, here we were talking about the placement of craft and what kind of motifs go at what level, which is the eye level where they are placed and what is the significance and meaning behind them this itself is also a sort of a system which is come into place through empirical knowledge and now also technically proven and scientifically proven.

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Again the technical drawings, we were talking about the technical drawings, how they again create a system of understanding and make a sort of a repository of observations

and inferences and we get to understand and decode the space within where the inhabitants stay.

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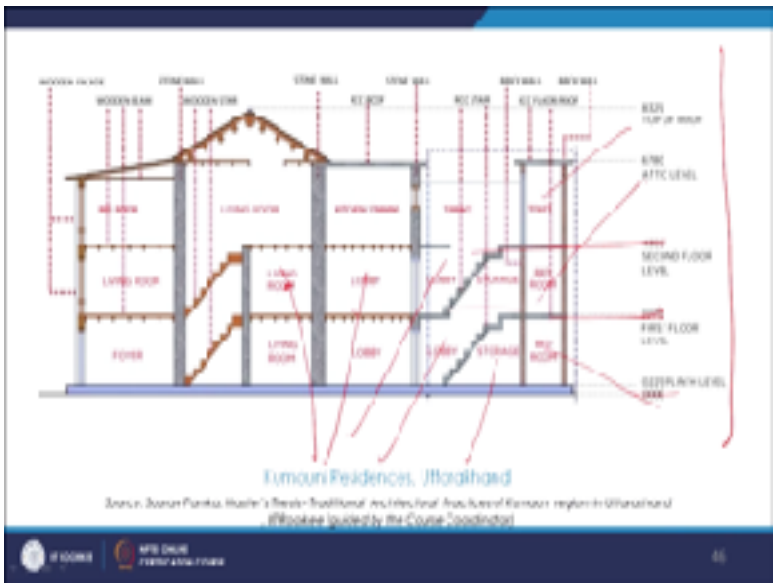

Some more technical drawings and the details so, it helps us understand the activity also in which particular zone at what particular height, what kind of activity happens. So, again technical drawings are a very good tool to understand and they give us sort of a system to decode the interior architecture.

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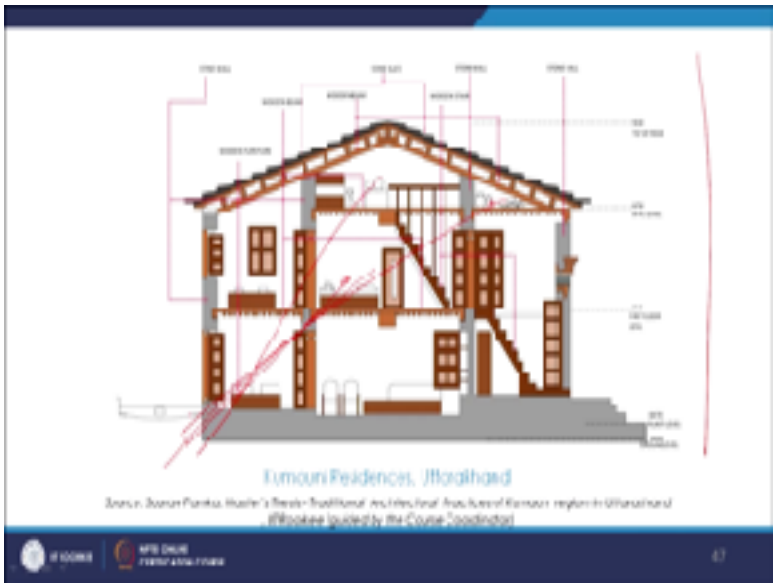

This is another technical drawing that we see over here, activity, section, the mapping of different kinds of activities, where is the storage happening, where is the bedroom and all the other details.

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And, I would like to end by discussing very briefly this workshop that was conducted at IIT, Roorkee itself and I was coordinating it we had the experts Mr. Varun Thotam from Mexico and professor Shankar who is a retired professor from my department and he is still teaching in other universities and we were making this Mexican dome out of mud mortar, there was no reinforcement used there and this again is a system of documenting and archiving from step one to step end last one, how do we delete document and try to understand the process involved to understand what the making actually follow stepwise.

So, starting from understanding the soil, understanding the composition, mixing the right amount of water, creating the mud mortar over here, then the sieving and getting the fine mud mortar ready, also you know testing; testing the bricks for testing the mud mortar for adhesion and load bearing capacity using the bricks, creating samples in different ratio to learn and understand which one is more stable, which one would expand and crack which one would stay for long.

And, then starting from the first step after the mud mortar is ready, how we start from the first brick and how in steps we try to get this dome going.

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So, this is one corner and then from outside the curve is achieved from inside the curve is achieved. So, there is one curve like this and one like these and there are three curves over here. This is from the inside, one corner, the another corner, this corner and how the entire dome is taking shape.

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Again the four corners here, this one is the making. Further closer towards the end, this is the last one to go and this is how it looks from inside and this is what it is there as a tangible prototype in the department.

So, this step by step procedure for documenting and archiving also gives us an insight to understand the process of making and decode what goes within the making of the dome.

I would like to end with few interesting quotes, "To provide meaningful architecture is not to parody history but to articulate it", we are talking about systems and systems help us understand articulation.

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"Our opportunity, as designers, is to learn how to handle the complexity, rather than shy away from it, and to realise that the big art of design is to make complicated things simple." So, if we understand this underlying principles of making and this systems which are embedded, its very simple to understand the most complex things and its very simple to understand the fundamentals.

So, the next module we will continue our discussions on this and some references now which would be beneficial for all of us.

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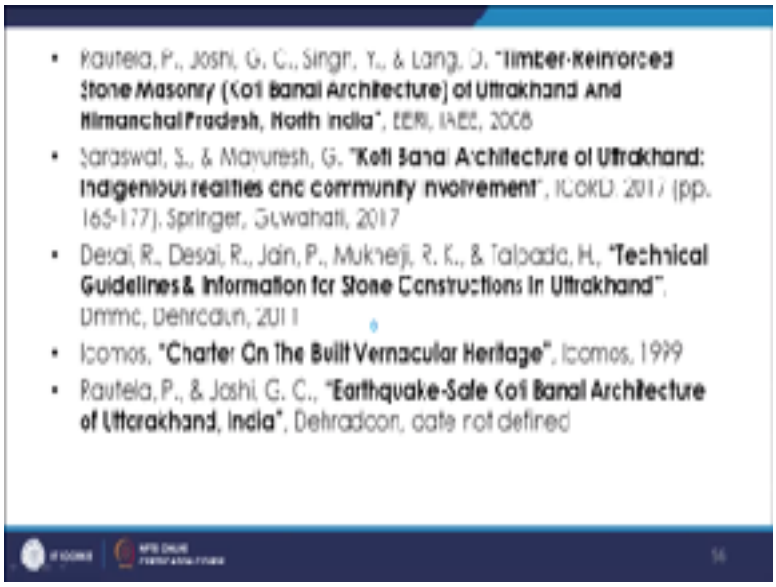

We were talking about systems of making in Koti Banal architecture and we see the references here. Himachal we again see the Kath Khuni architecture also the guidelines for stone construction in Uttarakhand. So, these are also sort of systems in place.

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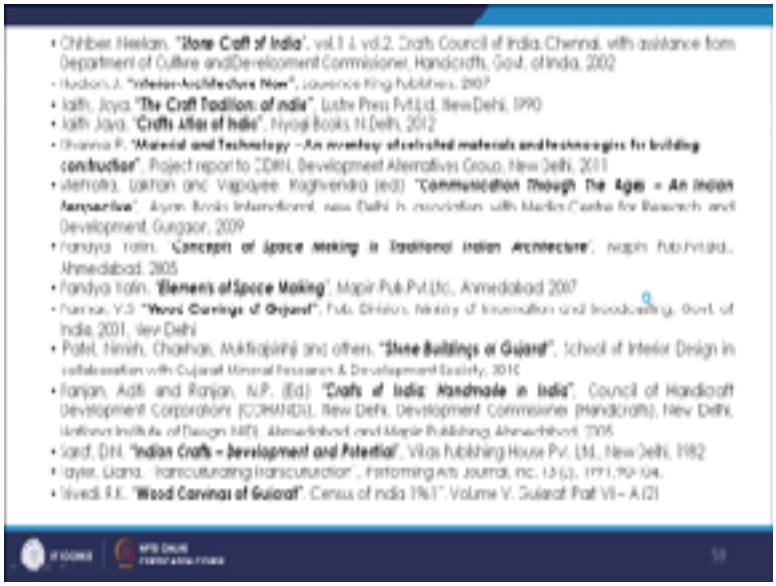

Some more references.

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We were talking about Vastu Shastra and Upanishads. So, we have some references there.

Thank you.