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MODELS

Models are a way of representing architecture and spaces, but in a wider sense our world since they are used in every kind of human discipline from economy to science, engineering and many others.

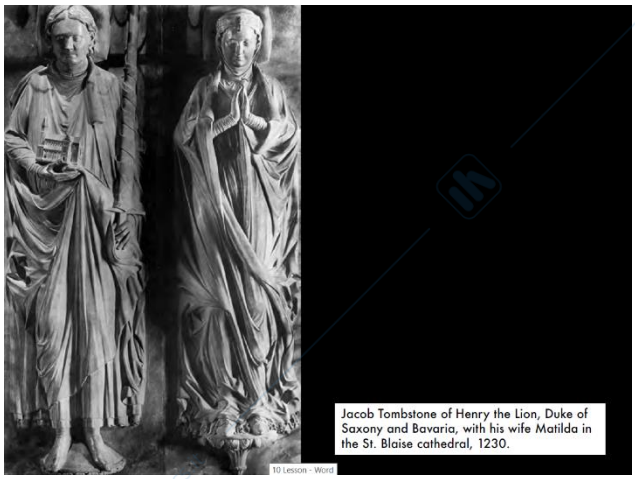
The class will be divided in 3 parts. First one being an overview in order to show us some of the many possible uses, typologies and meanings that models can have today and also looking back to the past. Second one will be about a seminar professor organized last week in Switzerland by selecting a number of swiss architects talking about their specific use of models specially for projects of interiors (three different designers). Third part will be focused on another kind of models, from a further and different perspective.

The point of this lecture is to reflect upon the multifaced nature of these objects called models. What is a model? It is an object or entity that try to reproduce an existing or designed (foreseen) reality.


Jacob of Strasbourg, "Statues of Venus and Mercury with Models of the Conquered Cities," one of the fourteen images in The Triumph of Caesar, after 1503.

This is a picture designed by Jacob of Strasbourg and is a sort of parade with the Statues of Venus and Mercury with Models of the Conquered Cities. This was an image produced in the early 16th century showing all the fashion way of conceiving, producing and using models. What is the purpose of this architectural models? These are models of buildings, as well as towers and part of some conquered cities. In this case we have the model as a simulacrum for victories of wars and so these are the simplified reproductions of the real conquered territories, castles or cities. Since there was no internet at those times, there was a need of inventing or using a sort of reproduction in a reduced scale of the real conquered city, castle or land. So these models were a representation of something else; something that was at a certain distance in this case from this interesting and fascinating way of conceiving and using models.

Another point of this lecture is that we should think at these objects (models) but also think to what we could name "culture" of the architectural model. There is a group of theories, thoughts, ideas and knowledge behind the use of these models in general. This is one piece of our network/mosaic: the idea of using urban models in order to show the people what someone had conquered through war at a certain distance from home.


Jacob Tombstone of Henry the Lion, Duke of Saxony and Bavaria, with his wife Matilda in the St. Blaise cathedral, 1230.

Another close typology is this kind of representation (iconology) that we can find in many churches and religious buildings but not only religious ones all over Europe and beyond. This is the idea of a reduced scale model in the hands of someone that had a relevant position in society. In this case we have Jacob Tombstone of Henry the Lion, Duke of Saxony and Bavaria, with his wife Matilda in the St. Blaise cathedral. This is a wonderful sculpture of the 13th century where we can see this reduced scale model of a church in a reduced scale figure. In this case the model is a votive object, like a way of connecting the power of the Duke/King or whoever and the construction of a specific building.

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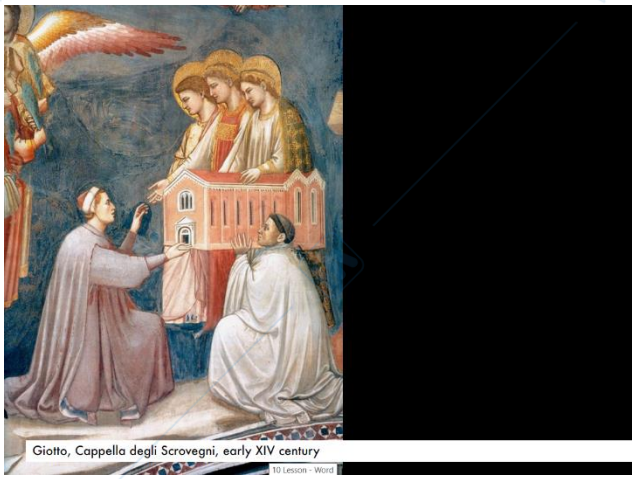
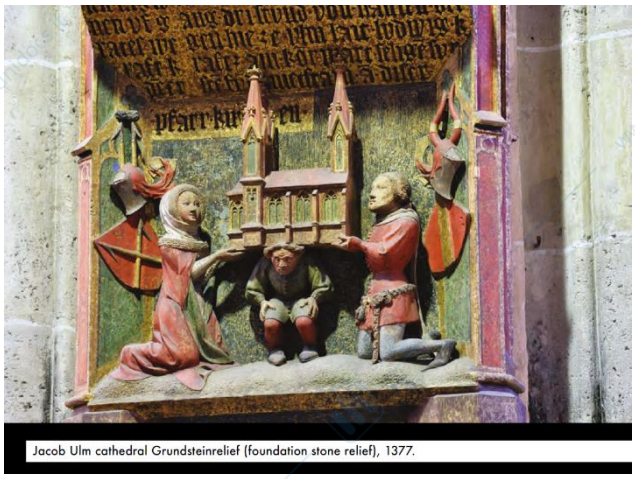

Giotto, Cappella degli Scrovegni, early XIV century

This is a masterpiece depicted by Giotto in the early 14th century in Padova's Scrovegni Chapel. This is Lord Enrico degli Scrovegni who is giving the model of this chapel to Virgin Mary. In this case the model is a way to represent in a reduced and more comfortable dimension the construction of the new building dedicated to the Holy Virgin.

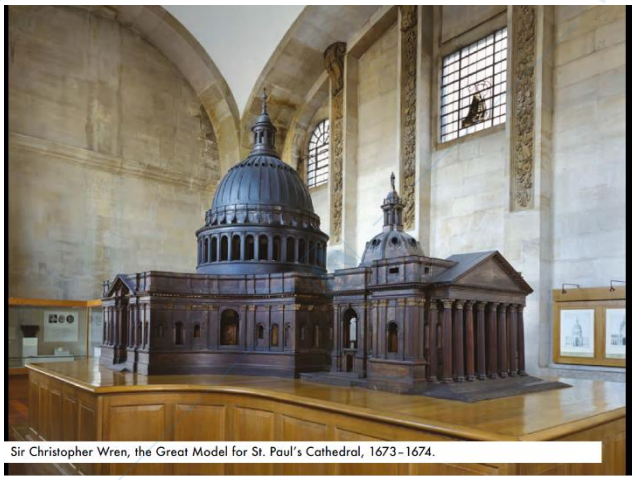

Jacob Ulm cathedral Grundsteinrelief (foundation stone relief), 1377.

Another well-known picture is this of Jacob Ulm in the Ulm cathedral (foundation stone relief) in 1377. Again, we can see this sort of symbolism of the reduced scale version of a building which in this case is going to be built. This is the Foundation Stone, one of the first parts of the church to be built and so there is a sort of ritual in the way of creating, conceiving and also showing these models.


Jacob Filippo Brunelleschi, wood model of Florence dome and side chapels, ca. 1418–1446.

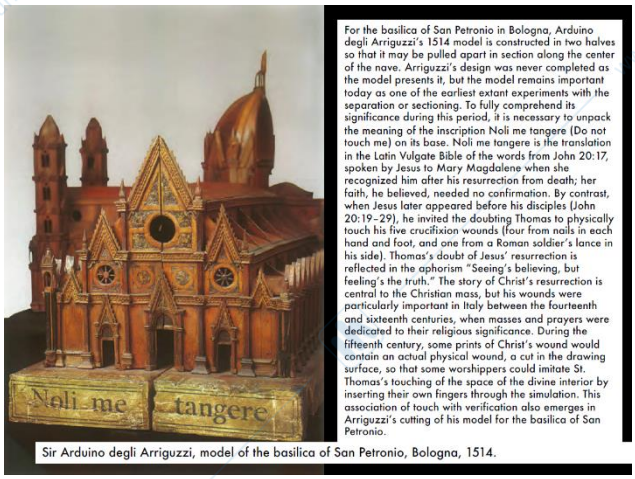
But of course, we are more interested in other kind of models. During the middle ages, the model was also used by builders (there wasn't this division we have now between designers, architects and engineers) and we can see many models with a double purpose and meaning: to present a design project before the construction (a sort of communication between designer, builder and client). Brunelleschi was very good at this aspect and so this is a model project of the Florence dome and side chapels in the early 15th century. At the same time, they were also used as operative tools; they were instruments and devices to communicate not only with the lord but also with people building it (workers). It was also a way of somehow testing the structural safety and aesthetics of such an ambitious building.

We can find again many different purposes, typologies and at the same time 2 or more purposes within the same model.



Sir Christopher Wren, the Great Model for St. Paul's Cathedral, 1673–1674.

This is another great example, it is the Great Model for St. Paul's Cathedral in London. It was an ancient church destroyed by 1966 Great Fire and so after this fire, Christopher Wren was asked to design an incredible number of churches but at the same time, to completely renovate this wonderful cathedral, taken inspiration also from St. Peter's in Rome and the Italian baroque architecture. This was one of the models shaded and conceived to present and study this project. Again, from this perspective we can talk about communication but also the model as a sort of sharing round, a device shown to the entire community, as part of a filter of a designed reality and the actual reality of the real building. Many different meanings apparently on a simple object.



For the basilica of San Petronio in Bologna, Arduino degli Arriguzzi's 1514 model is constructed in two halves so that it may be pulled apart in section along the center of the nave. Arriguzzi's design was never completed as the model presents it, but the model remains important today as one of the earliest extant experiments with the separation or sectioning. To fully comprehend its significance during this period, it is necessary to unpack the meaning of the inscription Noli me tangere (Do not touch me) on its base. Noli me tangere is the translation in the Latin Vulgate Bible of the words from John 20:17, spoken by Jesus to Mary Magdalene when she recognized him after his resurrection from death; her faith, he believed, needed no confirmation. By contrast, when Jesus later appeared before his disciples (John 20:19–29), he invited the doubting Thomas to physically touch his five crucifixion wounds (four from nails in each hand and foot, and one from a Roman soldier's lance in his side). Thomas's doubt of Jesus' resurrection is reflected in the aphorism "Seeing's believing, but feeling's the truth." The story of Christ's resurrection is central to the Christian mass, but his wounds were particularly important in Italy between the fourteenth and sixteenth centuries, when masses and prayers were dedicated to their religious significance. During the fifteenth century, some prints of Christ's wound would contain an actual physical wound, a cut in the drawing surface, so that some worshippers could imitate St. Thomas's touching of the space of the divine interior by inserting their own fingers through the simulation. This association of touch with verification also emerges in Arriguzzi's cutting of his model for the basilica of San Petronio.

Sir Arduino degli Arriguzzi, model of the basilica of San Petronio, Bologna, 1514.

Another great model is the one of the basilica of San Petronio in Bologna, designed by Sir Arduino degli Arriguzzi who designed and constructed in 1514 this model "*in two halves so that it may be pulled apart in section along the center of the nave. Arriguzzi's design was never completed as the model presents it, but the model remains important today as one of the earliest extant experiments with the separation or sectioning.*" This is really interesting because it is like how can we reproduce the complexity of the building? And so very often in the past we had (and the same is today with contemporary projects) only the shell, the volume and the outer skin of a project. This was not enough (and even not today) and so there is also a research and sort of experiment to separate or section the building and then reconstruct again the volume. This is really interesting case study.

"To fully comprehend its significance during this period, it is necessary to unpack the meaning of the inscription Noli me tangere (Do not touch me) on its base. Noli me tangere is the translation in the Latin Vulgate Bible of the words from John 20:17, spoken by Jesus to Mary Magdalene when she recognized him after his resurrection from death; her faith, he believed, needed no confirmation." This idea of religious meaning for this Noli me tangere (do not touch me) is quite interesting because at the same time, this model was a sort of precious object with certain worth a value.

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Hermann Finsterlin, study for a House of Sociability, project, ca. 1920.

Again, with a great step forward, we can jump into the 20th century. We will have a great shift in the meaning and also the use of the architectural model thanks to the avantgarde movements which changed completely their way of conceiving an architectural model.

[Professor reads an article called 'The project is an object' by Germano Celant from the compulsory readings, about models as small-scale reproductions of the projected world] 26:24

"The historical avant-gardes have tried since the beginning of the century to free - by means of appropriate techniques, such as collage and bricolage - the model or the maquette from its role as a statement and premise to an object or architecture that is being sought life, to give it an autonomous and tautological, poetic and artistic value." This is telling us that the model at this stage, with the avantgarde, is not only a way of reproducing an existing or future reality. The model brings an autonomy and a precise role within the production of art and architecture and within the process of creativity.

"The intent was to consider it no longer as a 'transition mechanism between one form and another', but as an energetic effect in its own right and 'speaking'. The transport of meaning tended to bring out similarities between the different languages, so as to abolish their distances. Something like a twist of proportionality that pushed the creative project, with its "perversion" and intimacy, to equal or at least to equal future connotations on an urban scale.

For the futurists as well as for the surrealists, the paths and events of the city commanded the "movements" of the dynamic and profound discourse of art, therefore all the forms and texts that were realized in the territory of painting and sculpture, literature and of cinema, music and architecture, were manifestations of a metropolitan theatre." Interesting process of changing the way of looking at the model; not only in the middle between one design and another, but also as an autonomous device that can be considered with an independent value (artistic value in itself) from that of the real building.


Gerrit Rietveld, preliminary model of the Rietveld-Schroder House, 1924.

This is another great model by Gerrit Rietveld and it is the preliminary model of the Rietveld-Schroder House from 1924. It is a very small but revolutionary house built in the outskirts of Utrecht. Again, it can be seen not as a preliminary step towards that building, but as an "object of art" itself with an autonomous condition, meaning and value.

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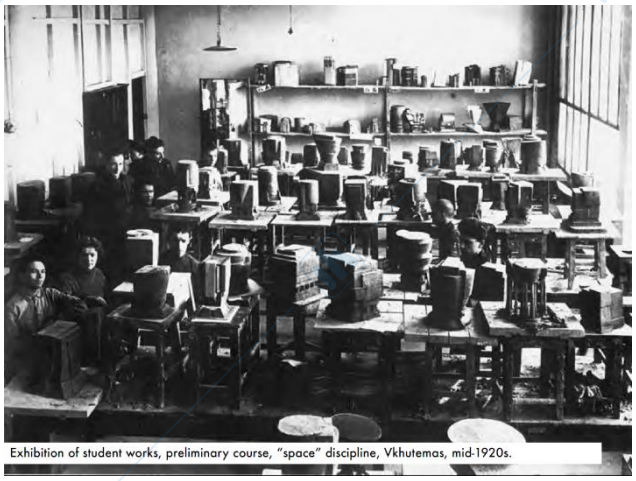
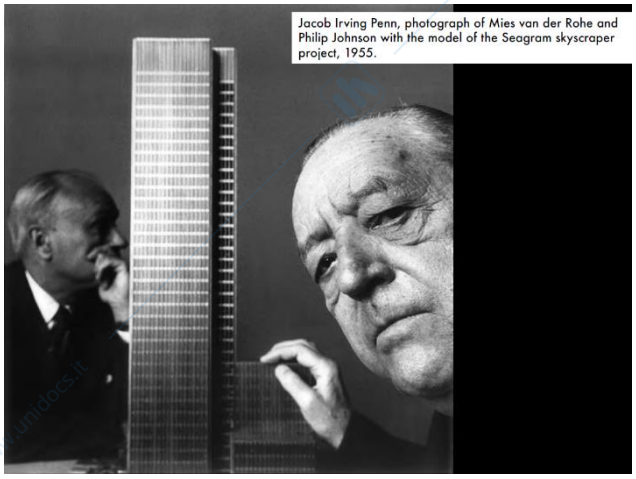
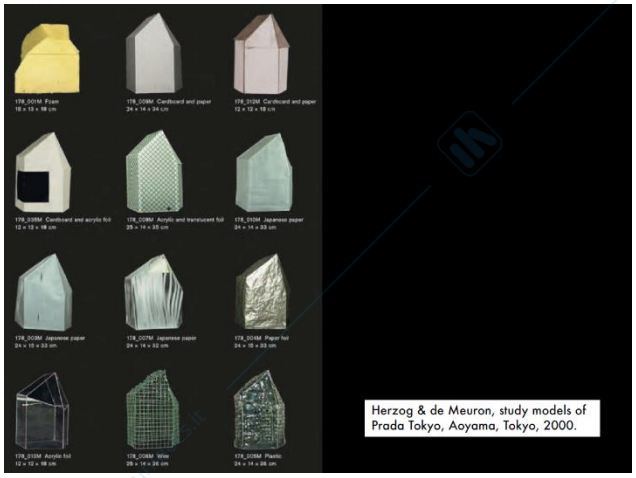

Exhibition of student works, preliminary course, "space" discipline, Vkhutemas, mid-1920s.

We could say a lot of things about this period (1920s). This is an exhibition of student's work in Moscow at the Vkhutemas school. This sort of ration Bauhaus is more subtle to some extent, where you can see the way of this practice (designing objects and buildings through the use of models and volumes).

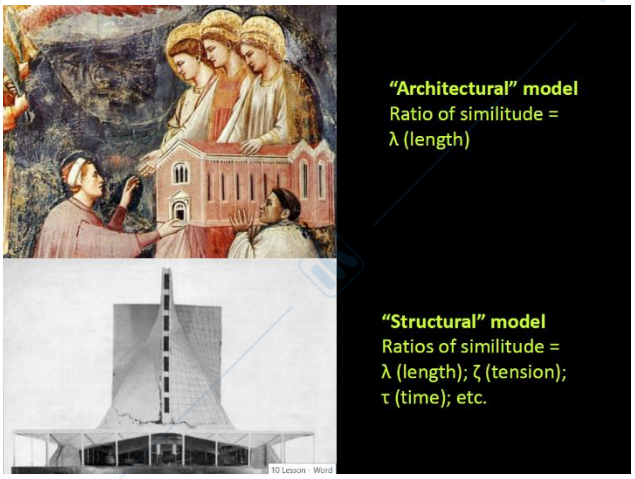
Why is this idea of using models quite outstanding in the 1920s? For many reasons, but also because in the past years and decades the model was not exploited during the design activities, but the drawing was used. The drawing was the main way of conceiving, representing and working on a project. There is a gap between a design process and attitude developed only through drawings or through models. It is clear that we are facing two completely different fields and approaches to design. One thing is only designing (using often plan, sections and elevations; a certain kind of language invented and exploited in architectural vocabulary) and the other carrying out something of the wood or with other materials. There is a completely different approach and therefore a different way of thinking on architecture, buildings, volumes, spaces, elevations, sections and so on. That is why this is a great picture if compared to other pictures in which people is not modelling but rather lying on enormous sheets of paper drawing with rulers and so on (designing in a completely different way).


Jacob Irving Penn, photograph of Mies van der Rohe and Philip Johnson with the model of the Seagram skyscraper project, 1955.

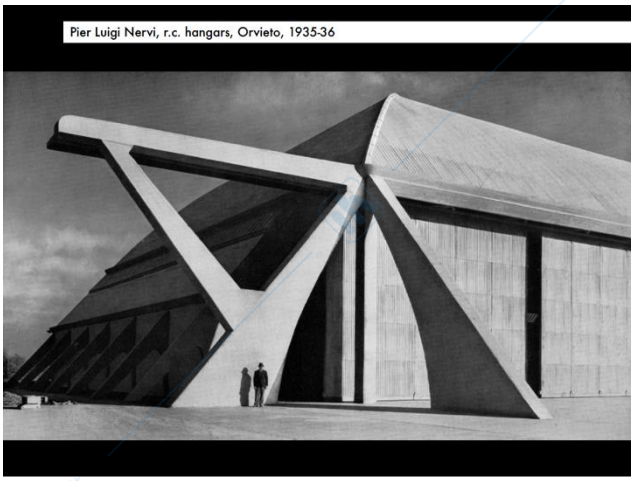
Of course, the 20th century is full of models because they follow more or less the evolution of architecture and society. Mies van der Rohe was another great architect who exploited a lot the use of models from his first glass skyscrapers where the model and the picture of the model were used in a photomontage, blending different artistic techniques.


Herzog & de Meuron, study models of Prada Tokyo, Aoyama, Tokyo, 2000.

Approaching many different designers who are using models in their work or activity, these are study models for Prada Tokyo flagship store in which they use reduced scale and different materials models, to create a sort of Atlas of shapes then to choose which one is fitting best their design ideas.



Another typology of models (not architectural) are the structural ones. There is a difference between these two typologies. In the upper part you see the traditional architectural model in which the similarity is only regarding the length. In the structural models, things are more complex. These were exploited before the spread of the computer, so they were used in order to test, not only the aesthetics and geometry, but mainly to test the structural safety of it. In the black and white picture, we can see the cathedral of San Francisco. This is a model in scale 1:15 (actually is really big) and you see some cracks (failures) because this kind of models were tested beyond failure; they were pressed and pushed up to the failure of the material. If you only want to look at the geometry you just reduce the scale and you have a reduced scale model. But if you want to test the solidity of the building (reaction to the wind, earthquake, seismic actions and so on) you have to keep in mind and make more complex equations about other ratios of similitude (not only the length, but also tension, time and other things) in order to find new scales or relationships between the strength of the different materials to be used.



This is Pier Luigi Nervi's (great Italian master builder, architect and engineer) Reinforced concrete hangars in Orvieto, Italy.

This is a picture of the interior of the structure.

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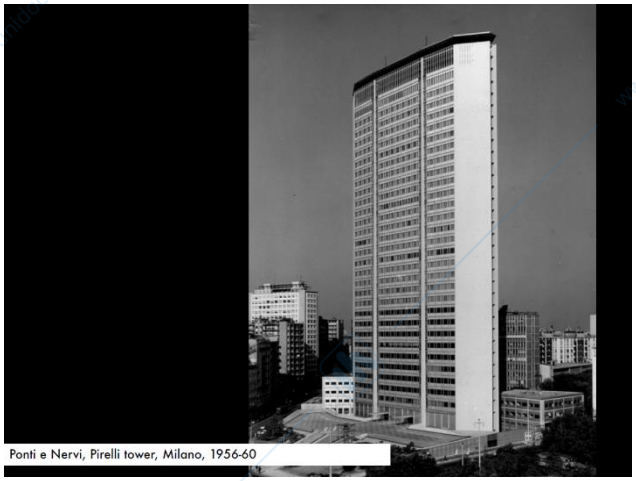
At the Politecnico di Milano in Piazza Leonardo, there was an avantgarde laboratory for the construction and testing of the so-called structural reduced scale models. They built this reduced scale model not for the aesthetics of the hangar, but for the calculation and testing of its resistance with some weights pressing and tensioning the structure in order to understand in advance the answer of the real building. It was made out of celluloid (a material that is completely different from the reinforced concrete) but the engineers were able to understand and frame a similitude (not only between the length but also between the properties of this material and all the actions working on this model).



Ponti e Nervi, Pirelli tower, Milano, 1956-60

Another outstanding model designed thanks to the reduced scale structural models was the Pirelli tower in Milan. This building has a slim, tight and narrow profile like the wing of an aircraft.

Such an outstanding structure needed an extra test, not through the use of computers but through the building of a model (1:15) made out in reinforced concrete. It was a really complex task. (Professor wrote a book about this theme, about conceiving the design of structural models). Professor loves the image of the human scale (engineer) and the model next to it. Nowadays this is something we would do with computers with a digital model which would answer to all of our questions.

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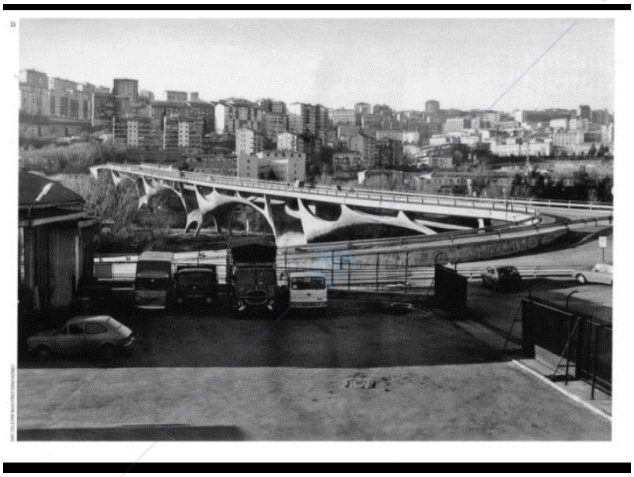
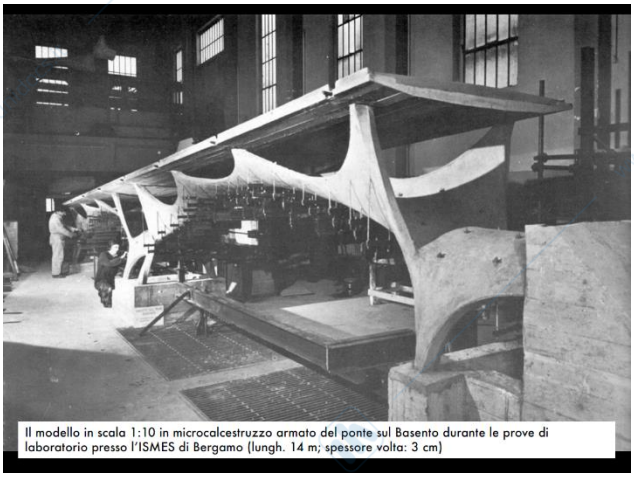


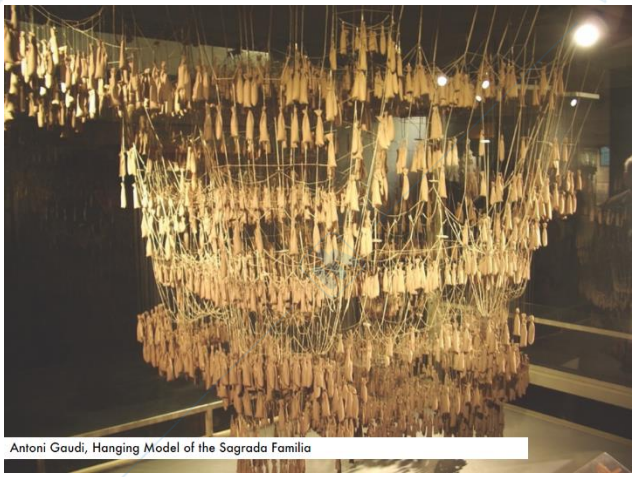
The structure of the Basento bridge (over the Basento river in southern Italy) had an organic skeleton-like structure.



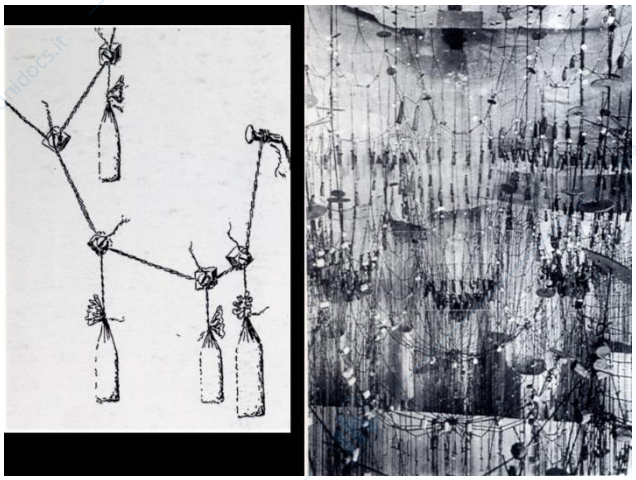
Il modello in scala 1:10 in microcalcestruzzo armato del ponte sul Basento durante le prove di laboratorio presso l'ISMES di Bergamo (lungh. 14 m; spessore volta: 3 cm)

It was tested through a number of different models. Among them, there was this 1:10 reinforced concrete reduced scale model built in order to understand what mathematics at that time was not totally able to say. Mathematics also works through simplification (theoretical models) but these somehow often could tell engineers more than a mathematical model. Things have changed because the power of calculation has grown a lot with computers.

Another great model and model maker was Antonio Gaudí. This is the Sagrada Familia in Barcelona.


Antoni Gaudi, Hanging Model of the Sagrada Familia

In order to find and define the structure of the Sagrada Familia, he used to create these hanging models which were designed through the principle of the catenary.



In this case, you can see Antonio Gaudí putting small weights on this cable to study the effect of the deformation of these arches. You would see a mirror under this model so to see the same image overturned; opposite scheme that would become the building. That means, the arches of the Sagrada Familia were conceived overturning (putting upside down) these hanging models. Again, with a mix of science and art thanks to the genius of Antonio Gaudí.


Heinz Isler

Another wise and funny case study is the swiss engineer Heinz Isler, who used to design bearing structures, in particular bearing reinforced concrete shells which were studied by him using these textile membranes. He made them freeze thanks to the weather conditions in Switzerland and so he would have these frozen membranes and put them outside down (they became rigid), so to have the perfect scheme of a building (cupula, dome or reinforced concrete shell). The same for Gaudi. Perfect because gravity indicated the perfect shape or distribution of loads in these structures. Again, we have art and science.

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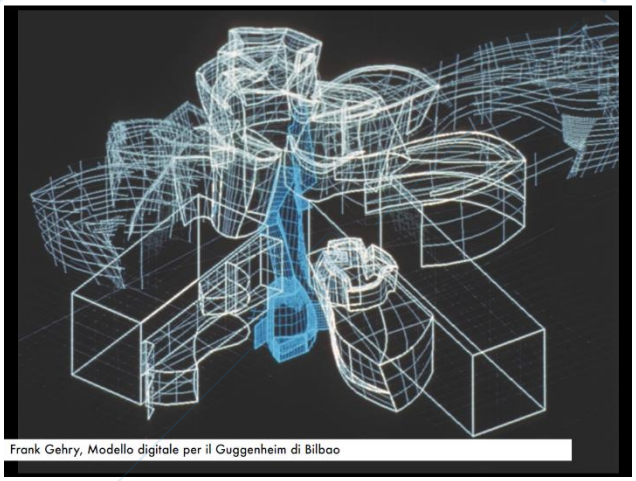

Frank Gehry, Modello digitale per il Guggenheim di Bilbao

Of course, many more models in the digital age such as in the work of Frank Gehry. This is one of the first digital models made thanks to the CATIA software (used before for aeronautics) translated into architecture in order to control, check and design such a messy shape for the Guggenheim of Bilbao.


Barbie Dream House

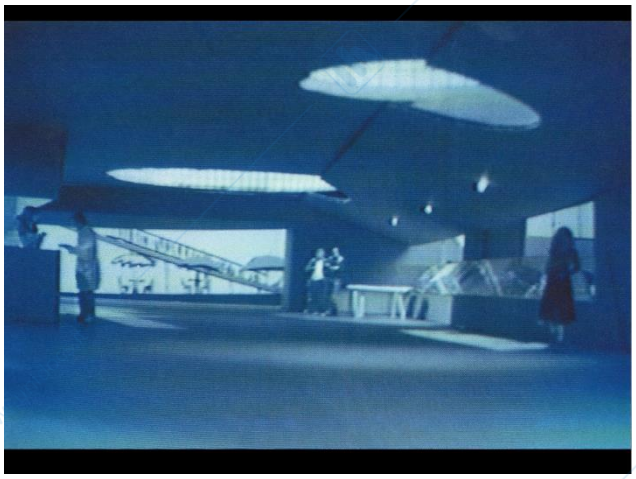
The idea of designing models from the interior. This is a funny picture of two Barbie dream houses. Besides irony, this is also an example of a long tradition of interiors of houses (there is a long tradition of doll houses, for instance).

Again, we should contextualize these kinds of models within a wider sociological frame because there are many layers for interpretation of such an object, and in some of the doll houses there was the idea of educating young girls to the care of the house. This is a way of approaching the real of housekeeping from a reduced scale view or perspective, and somehow training themselves in this process of then becoming the housekeeper (the idea of managing and the position of the woman in the family and society). These are not neutral models, but models that include many cultural and sociological layers and meanings.

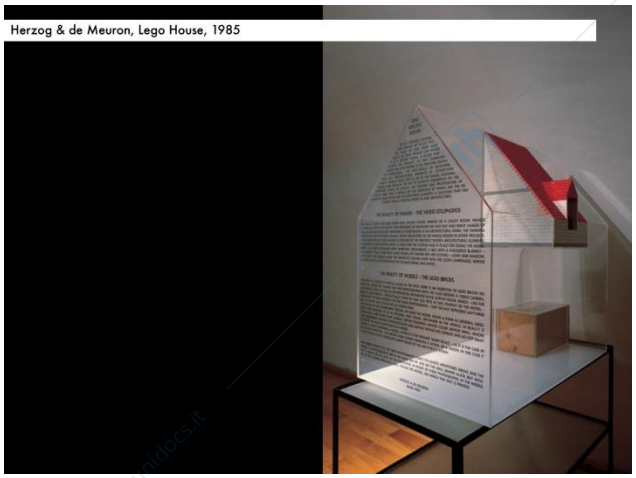
Herzog & de Meuron, Ripresa video di un modello in scala ridotta per la presentazione del progetto della piscina di Mühleteich Riehen, Svizzera, 1981.

This is another case study by Herzog & de Meuron. As already mentioned, they are quite famous today (since the end of the 90s) in this obsession with reduced scale physical models to get to the final and perfect shape for their buildings.

Actually, they started using models in a more subtle, hidden and original way at the end of the 1970s. At that time, they used models as devices not for the control of the form, but in a context of video and photography. As can be seen in the photography, there is a reduced scale film set in which they built a model of the interior of their project (a competition entry for a swimming pool in Switzerland in 1981). They built this reduced scale interior and then through the use of cameras they wanted to produce images of things *"that could become architecture"*. You can find experimentations in architecture but also a connection to experimentation in the video art of that time (which was really explored at that time). They wanted *"to draw attention to the potential of this work, also creating scenes of life within the architecture"*. It was not the average idea or perception that we have when looking at a model. With this process, they somehow let the observer enter within the building and so approaching the building in a different way from a different perspective. *"The observer in this case was forcibly deprived of visual and physical dominion over the model and stimulated to come to terms with scenes of possible reality."* This is a quite interesting perspective and idea of experimenting the architectural model.



This is one of the created images, like a short movie documenting the potential of live within a still unbuilt project.



Herzog & de Meuron, Lego House, 1985

The Centre Pompidou in Paris for the exhibition of one of Herzog & de Meuron's work: Lego House in 1985. There is again the idea of creating a certain model and the iconic shape of an archetypical house.

At the same time creating within a part of this house a scene (like a German movie of the 1920s) of a potential or possible life.

This was a very brief overview of different types and meanings of models and modelmaking. In order to underline the multifaced or many-sided perspective nature of architecture.

SECOND PART: SEMINAR IN SWITZERLAND

[Video of the seminar: The culture of the architectural model in Switzerland - Università della Svizzera Italiana] Professor invited a number of swiss architects to present their projects or rather the use of models for some specific projects. The first one is Jeannette Kuo, who is the founder of Karamuk Kuo Architects based in Switzerland. She is talking about the idea of using models in her activity and work, in particular showing these concrete examples (she deals with the idea of designing, representing and conceiving interior space through models).
Jeannette Kuo has mentioned the idea that in their office models are not only tools for representation, but tools for communication and collaboration. Things are quite different today and the dimension of the model allows us again to talk in front of an object (something physical) to look at it from different perspectives. She also talks about exploiting the model for experimenting and testing for trial-and-error process in the search of the more interesting shape for the void as a collective experience. Another interesting concept was the idea of being simultaneously precise and abstract while designing (also a model is a good way of approaching design and architecture, because it is a precise but also not precise way of reproducing reality in order to design something new which will appear in the next future).

Then, other architects (Andreas Bründler and Christian Kerez) take part in the video too. Bründler talks about the idea of deconstructing the building and renewing it (reconstruction of the model as a way of analysing, decomposing and recomposing architecture and space). The Dubai pavilion for Dubai expo is an outstanding project in terms of models. This use of models from a conceptual idea, down to a more defined, exhibition and structural models. A complexity of these devices which is quite exceptional and outstanding.

THIRD PART: MODELS FROM A DIFFERENT PERSPECTIVE, THE WORK OF THOMAS DEMAND

This part is about the work of Thomas Demand, who has already said he is a great contemporary artist. It was supposed to be an exhibition ongoing in Leuven (Belgium) but it was frozen (when it was already setted) due to the pandemic.

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Thomas Demand opens a new way of investigation and experience for models. Since he was trained as a sculpture, he started making models in cardboard for about 20 years. In the next video (which is an introduction to his exhibition) about this idea of approaching the realms of modelmaking as a way of reflecting upon reality. Models, in his way of thinking, are like a way of reproducing, not in an exact way but a selected way, reality through a selection of memories. His models are not architectural models but rather he has been always interested in reconceiving and reproducing spaces with a certain kind of value/worth for their inner history, events happening within spaces and so on.

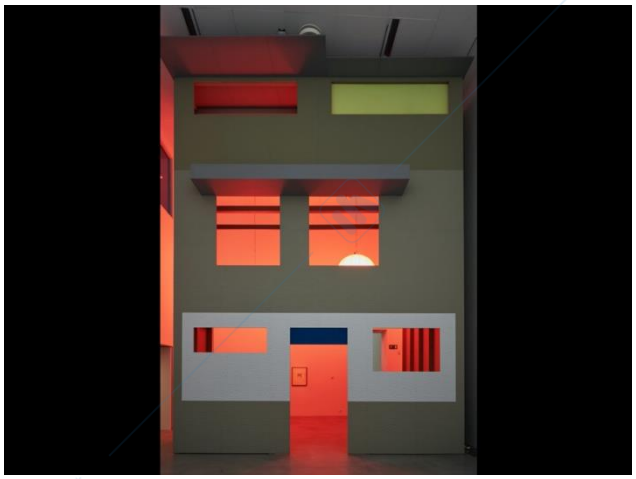
This is the cover of the beautiful catalogue of this exhibition 'House of card' (because most of his models are made out of cardboard). Another interesting thing is about the sort of ritual that he has when doing these models: he builds cardboard models, then takes pictures of them and then destroys them. At the end of this sort of process the only remaining thing is the picture of the model in a sort of dialogue between reality and a copy, the original and the copy (model being a copy or simulacrum of reality and the picture of the model being a precise shot of the copy of reality). Using the model as a tool of interpreting reality, making the dimension of the model making and exhibiting as something even more complex (in comparison with the previous models).

[Video: Artist talk | Thomas Demand @ M Leuven: 'HOUSE OF CARD' | Online opening]

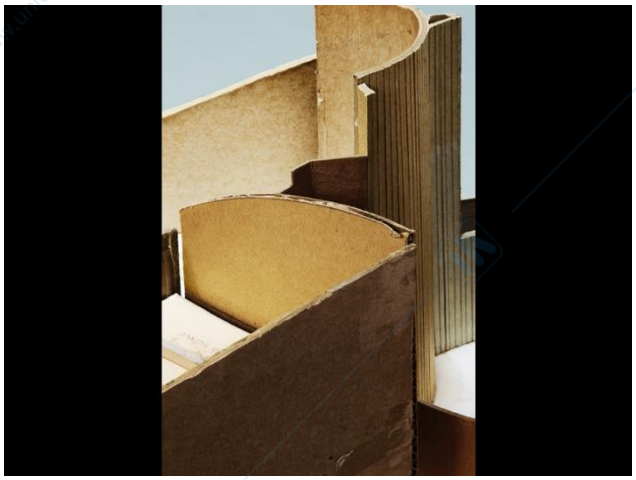
Thomas Demand is a great artist and his view on models is really stimulating for designers and architects.

This is probably one of his most famous series of models and shots (pictures of a reconstructed/reproduced spaces). This picture is called 'Embassy' and it is from 2007. It depicts a reproduced model of the embassy of Niger in Rome.

(inside image) Actually looking behind the story of this picture we can find many more meanings: in fact, the location in 2001 of this embassy, some of the blank sheets were stolen and were later used to create fake documents and contracts. These fake documents were supposed to prove that Sadam Huseim (Iraqi dictator) was trying to acquire uranium from Africa. This location is quite normal and anonymous but actually became in 2001 the set/stage of an international spy story between Iraq, Niger and the USA. At the end, these fake documents were used by the American president George W. Bush to support his argument in favour of war against Iraq. Here you can understand that behind these pictures (shots) created and selected by Thomas Demand reproducing some models of this building, there is a much deeper reflection upon reality, true and fake news or distortions of reality. This picture is a clear reproduction of reality with fake objects evoking this shift between reality and fake world (these blank sheets were used to create fake documents that were able to support a war). This is only an example of how such a work can stimulate and produce reflections upon our work and world surrounding us.

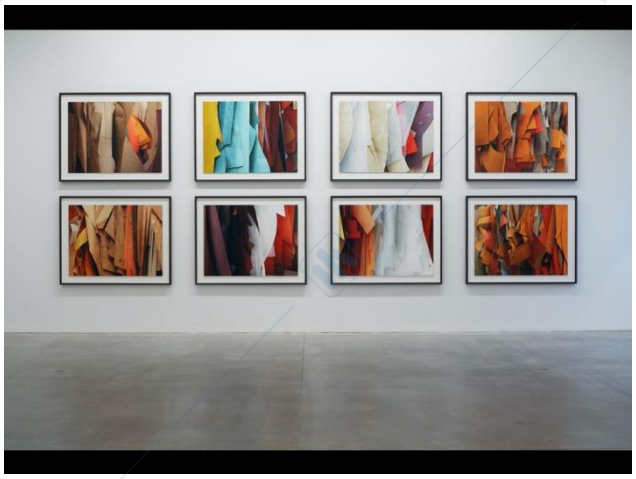


Many other, like the House of the Nail was rebuilt as a model building or model conceived as a model of another building of China was meant to be built in Zurich (Switzerland). It created a political debate and so there was a sort of paradoxical situation because in China there was a pressure to destroy that nail house building and instead in Switzerland there was a political pressure not to build it. So, the model as a symbol of this urban processes and urban situations in development. Again, behind the picture of a model (which is a fake or particular reproduction of reality) we can find many layers or stories).



This series in which Thomas Demand looks for the first time to architect's model. This are models by John Lautner (great American architect) and Thomas Demand is looking at this models during a fellowship he had in LA a few years ago but not in order to reproduce or document how the project was made, but rather he wanted to insist and focus on the roughness of the material, the porosity of the cardboard, the precision and imprecision of the cut and so on. He wanted to have a deep look into materiality and this cultural technique that he was mentioning: 'modern as an underexposed cultural technique'. Models would deserve a deeper attention both from scholars, architects and designers.

09/12/2020
10 LESSON



This is a beautiful picture of some cuts from Aziz Anaya (fashion designer). These are textile waste collected and shot together composing this quite fascinating pictures.

This is a detail where we see all the lines for the cuts (another kind of model for fashion design).

To conclude the lesson, we have a short text by Thomas Demand telling the model reduces the complexity of reality but at the same time models can open up new and unexpected views on architecture, design and contemporary interiors.

*(Professor suggests taking a look online on Thomas Demand's exhibition and work.)