

# beauty and thinking about making

In the Museum of Science in London stands a beautiful piece of furniture called 'a philosophical table'. Philosophical tables date from the time that science called itself natural philosophy. A sort of compact and portable laboratory set up, it was an expensive plaything for wealthy people, who would use it to recreate the scientific experiments of their time in the comfort of their drawing room. Such tables were beautifully crafted pieces of furniture with the purpose to serve as the focus for thought and speculation.

The aim of the Graduation Studio The Naked Architect 2.0 is to use this idea of the Philosophical Table on one hand in its proper historical sense, as a laboratory table upon which to conduct experiments; and on the other hand to perform experiments in space and spatial configuration.

Thought becomes possible by using examples to allow thought to find its way from a question to an answer and from there to another question. Thought demands objects to think with and think about, just as much as our bodies need useful things like tables to survive their environment in comfort.

So a philosophical table, within the confines of this project, is at least two things: it is the designed and realized product of an intellectual struggle with a specific concept, and it is the focus and object of discussion. A normal table is a thing we use to decorate our home, sit at, eat at, work at and have conversations around; a philosophical table as interpreted in this exercise, focuses on being both the product and the subject of discussion. So these tables are the product of philosophical discussion and themselves objects to further philosophical discussion, mostly about the nature of making. Each student took a specific concept

such as Kunstform und Kernform; hylomorphism; mass; tectonics; ornament and structure; ambiguity and spatial hierarchy; the body and perception; the notion of craftsmanship or Tao and evolution. All of them questioned these concepts through a process of design, making and reflection. As such these tables are contributions to the debate about the nature of design research and, in their way, contributions to philosophy. The interesting aspect of the process of the Graduation Studio is the complexity of results and the wide range of topics each student developed.

The starting point of Beauty and Making represents a field to explore through different perspectives, which are the specific concepts visualized by the tables. Each of them, designed and built in 1:1 scale, is an individual and unique aspect and interpretation of the "thinking about the making", as Alison and Peter Smithson called it. The concept was defined in the way to work simultaneously on theory and practice. From a theoretical statement, the exercise was carried out in order to apply that theory to a practical field, such as materiality, structure, ornament etc...

Used as guidelines and results of the Studio, two projects will be explained more thoroughly. The first one deals with duality of Structure and Form. According to Karl Bötticher the core-form (Kernform) is the mechanical, necessary, structurally functioning scheme of forces; while the art-form (Kunstform) is its clarifying counterpart, its symbolic expression. These concepts are strictly related to each other and their dialectical relationship explicates the synthesis between the ontological status of the structure, the way it works as a set of material forces, and the representational role of ornament, that veils and speaks at the



same time. The joint is where core-form and the art-form interact and interlock. The joint, the juncture, shows the way structural requirements and design merge, or at least take account of each other.

The table focuses on the idea of mass and the technique of pouring. Pouring material and thereby creating what appears to be a homogenous mass, puts the field of tension between the core-form and the art-form in a clear but problematic perspective. In the making process, the mould takes on the role as the art-form, it shows the negative of the form of the final product. At the same time, the poured material in its entirety constitutes the core-form; the structural play of forces. It has no specific or articulated joints; the material acts at the molecular level throughout the massive volume, which thereby becomes a manifold unity of microscopic and invisible joints. Plaster of Paris and water react and create the structure and the form of the object in one go. Structure and form merge into a single unity, but here and there we soon see zones of stress forming. Although the structure is not made explicit in specific and visible joints and connections, they still exist and play their role, revealing themselves at the surface where that surface cracks and chips. The load-bearing parts of the table, its 'legs' form a continuity with other, structurally burdensome elements, which embody a "useless" load. But both affect the diagram of forces at work within the table. Can one simply identify the one as core-form and the other as art-form? Not really. In this instance core-form and art-form converge.

The second project takes its inspiration from philosophy of Taoism, which is based on the central idea that Tao does as nature does. Taoist philosophy proposes that the universe works harmoniously. One must place one's will in

harmony with the way of nature. The founder of Philosophical Taoism Lao-tzu, a philosopher of ancient China, modelled the pattern in which natural things develop. So how does nature work? Living nature works according to the pattern of natural selection. Variations are produced, some are selected for use. That which is selected tends to survive and must by definition be fit for the environment in which it survives, otherwise it wouldn't survive. There is no design involved just an offering of possibilities, some of which work well and other which do not, and die out.

The table explores this Taoist/Darwinian notion of natural selection. The design started without a preconceived form, except the generic idea of becoming a table as well as a particular way of folding a piece of paper into what might, at a stretch of the imagination, be called 'a pair of trousers' or a double cone. The design had to take full account of the natural proportions of the material, otherwise it would simply collapse. Research into the material revealed its wonderful tensile proportions as well as its high coefficient for friction. And as paper is vulnerable to shear force, nothing that would induce it to tear could be employed. Following a multitude of experiments with all sorts of variations, the solution that best fulfilled the requirement of a table slowly emerged from the limitations that were imposed. The hand-folded 'trousers' had to fit snugly so that they would interlock well and simultaneously provide the required frictional resistance to prevent them falling apart. The forces had to be efficiently transferred from one element to the other and be dispersed to the ground. Gradually the relatively complex form emerged, with legs like that of a ballerina, not because they look good, but because they work well structurally.

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## mass as an architectural concept

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### the concept

The idea of mass as an architectural built form, but also as a way to perceive space has been explored in theory and practice. Mass as an architectural concept entails Structure and Form, or, as Karl Bötticher calls them, Kernform and Kunstform. Core-form and art-form generate solid, but also void forms, one being essential understanding the other one and vice versa.

We would not understand a window without a frame or a wall, just like we would not perceive a courtyard building without standing in the void inside. If the solid functions as a structure, the void can be considered an art form, or, in other words, the clarifying characteristic that reveals the mechanical component.

This way of thinking can be applied on different scales as well: on an architectural, a technological and even an urban level, with the urban pattern showing the same rules. Streets, inner yards, gardens and galleries are negative shapes of the visible formwork that is the city. And it is fascinating trying to imagine this inverted version of the city. What would change? The perception of spaces? Or maybe just the elements that affect the experience of the space?

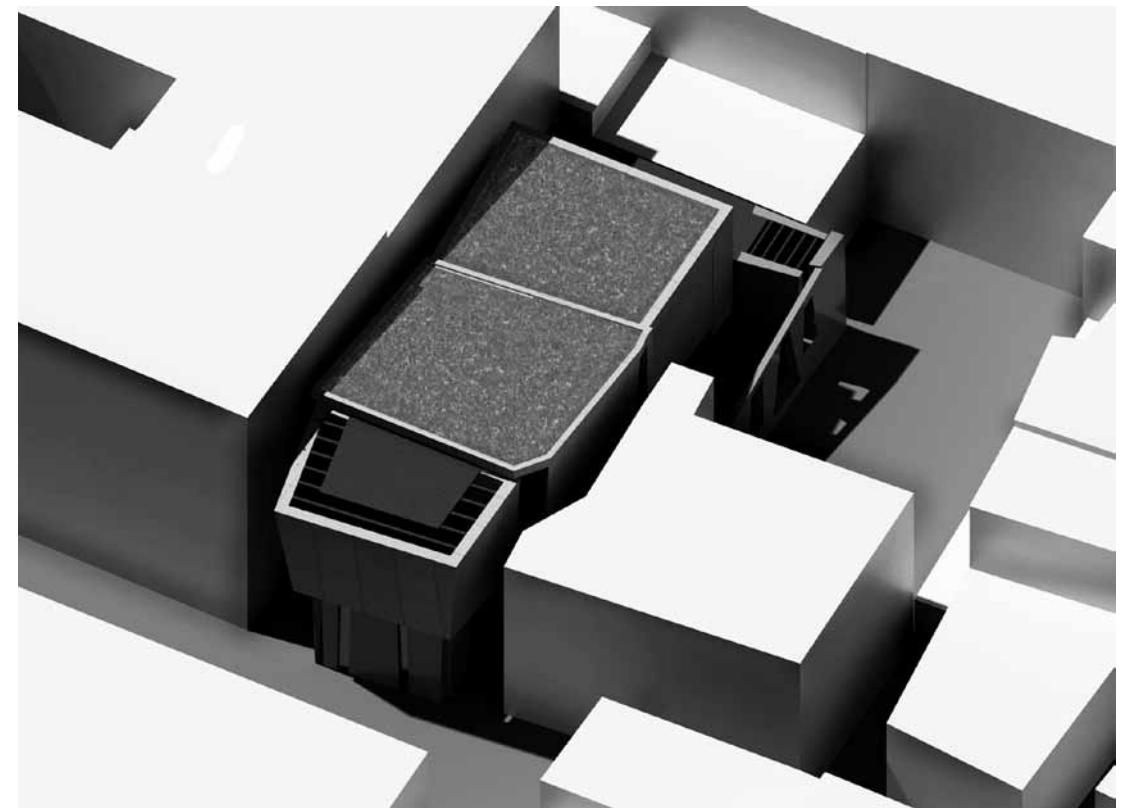
The goal is then to find a way to model the relationship between what is built, the solid, and what is left empty, the void, by using mass and its features as a tool. Obviously, it is not just a matter of materials and building techniques, but also concerns the way mass behaves in space and how it expresses its features, such as stability and majesty in relation to its surroundings.

A stereotomic (massive) volume reacts to light, shadows, orientation, spatial organisation, circulation and even programmes. Moreover, mass allows for the shaping of the architecture of the new building, following the location's characteristics and its morphology. Multiple layers from different historical periods function as a network of contributions aimed at modelling the image of an understandable piece of urban context.

### the building / the courtyard/ the cultural centre

Keeping in mind the guidelines provided by the preliminary analysis on the location, the project represents a new interpretation of the traditional typology of a courtyard, which is the most used and widespread in the project spot. The building is part of a defined urban context, characterised by a high density pattern, with an average of 75% built and 15% void.

As a dynamic mass, it puts itself forward as a new landmark in the city centre of Pavia; it creates social spaces and useful activities, underlining its identity and thus becoming a recognisable object. The strong link with the urban pattern at the same time enhances the role of the building as an exception. The architecture in fact uses some traditional typological elements, but it inverts other features. For instance, an entrance is usually a passage in a wall, obtained through an opening that runs through a part of the building and ends in a private yard. Following the inversion trick, entrances will be voids defined by masses. The goal is to provide the same spatial references as the typology at issue does, but through new inputs.



the building in the city. entrances are void enclosed by the mass of the building itself. the two floors present different textures of the concrete: polished for the ground floor and rough for the first floor

The architecture explores massiveness by using sculptural volumes and thick walls, resulting in an irregular rhythm of the composition. The initial impression of a homogeneous /uniform block of concrete instead reveals a variation in materiality and texture. Smooth polished surfaces merge with free disposition of independent volumes containing secondary activities. Pedestrian circulation is not meant to take place in a rigid direction, but along a flexible and subjective path.

The rough facade of the second level on the other hand, emphasises the monolithic character of the auditorium volume, the core part of the building, which is more enclosed and reachable through one entrance.

The spatial experience involves different kinds of space: covered; semi-covered; uncovered and open; semi-open and closed. The connection of these spaces results in semi-spaces, the spaces in between that give a special complexity to the design. They indicate a change, a transition, in the same way the portico does in the courtyard typology, by linking building (solid/closed) and yard (void/open).

In the project, galleries and passages around massive volumes articulate intermediate spaces, which always change from one point to another one. Walking from the main entrance, the width of the gallery expands towards the courtyard, while tilted walls hide or reveals parts of the building. The cantilevers of the first floor volume provide covered spots and create gaps between the existing buildings in the plot and the new architecture. They express tension between new materiality and something placed there years ago.

Furthermore, spaces in between serve as spots that provide references of the surroundings, offering a view of the building and the surrounding city.

In conclusion, using mass as a means to shape architecture it is a matter of perception and experience of space, but also a topic for study with regard to how it behaves and how it expresses itself through structure and form.



longitudinal section of the whole building. the slope in both levels leads to the focus of the Cultural Centre: the courtyard and the stage of the auditorium

view on the courtyard meant as meeting point in the building, but also as social space for the city



## a courtyard house in a field material, the start of design

wenlei ma

This design is a reflective experiment on the research question 'how to start the design process by thinking about material'. In this project, reed, which is commonly seen in traditional thatched roofs in the Netherlands, was chosen as the starting point.

The research should be seen in the context of the routine usage of the 'form-to-material' pattern of design. The consideration of material is generally left to the end and is sometimes a rather hasty and random process. The fact that material is merely seen as texture reflects the current trend of people caring more about 'how it looks' than 'what it is': they pay more attention to abstract information than physical substance. Correspondingly, a large number of buildings are designed to be merely beautiful, as public advertisement or worse, cultural fast food.

If we look back to the time before industrialization and modernism, architectural work was more concrete and practical. The majority of architectural designs were created according to the principle of 'material-to-form', the opposite of the form-to-material pattern. This project aims to interpret this notion in a contemporary context and attempts to identify and visualize the pure beauty of materials that has been lost.

The idea is to design a house completely covered with reeds, as an extension of the field landscape. In the past, Dutch farmers used wheat straws from their own field to thatch the roof. Buildings dressed in certain materials united man and the environment in harmony. In the late 20<sup>th</sup> century, reeds gradually replaced wheat straws. They are similar to wheat and the hairy natural material precisely represents qualities consistent with fields where crops grow extensively. On the other hand, the building is expected to be an environment in which users can closely interact with the material. To be consistent with the landscape and to make installation easy, the shape of the house is extremely pure and simple: a cube as elegant as the flat field it stands in. The form of a courtyard is the result of inverting the conventional pitched roof, by a degree that depends on the drainage requirements of reeds.

The 300 square metre house is designed for a family of four. Around an 8 by 6 meter courtyard, rooms are arranged according to different light conditions. Instead of using partition walls, the main space is defined by the up-and-down ceiling. The flowing circulation provides different heights of views, offering a panorama of the surrounding field.

The facades make full use of the advantages of thatching techniques, by means of which nearly any imaginable pattern is possible. Inspired by the landscape of the open field and paintings of Vincent van Gogh, a series of broken lines are created around the openings. The hand-made embossed patterns represent unique imprecise and rough qualities, just like the stroke style used in oil painting.

The inner courtyard and the study penetrate each other. Nature is framed within the square courtyard. Such a quiet atmosphere allows people to sensitively perceive the sound of rain, the flow of clouds and the rhythm of snow. One side of the roof is lowered to the ground level, so that the owners can sit on, lean against or lie on the grass-like material and interact intimately with the architecture, using all senses. In conclusion, the design illustrates how material helps decide and inspires design. Materials can also be used to extend nature into architecture, where beauty is expressed through the use of details and a rich physical experience, in a moment when you see, hear, smell and touch a material with great attention, patience and due respect. In other words, materials are able to 'express' and architecture could be not only functional and comfortable, but also enjoyable and emotional.

The discussion on materials is not mainly intended to overturn the notion of form-to-material. Instead, it aims to provide an alternative, a new way of thought. There is no right or wrong in starting a design process on the basis of material or form. Only when diversity of thinking is guaranteed, creative ideas that offer the best possibility of achieving beauty can be formed.

