THE ROLE OF DRAWING IN ARCHITECTURAL DESIGN

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Summary: *The development of the computer had a major impact on the methods used to design and create technical drawings, making hand drawing almost obsolete and opening up new form possibilities using organic shapes and complex geometries. However, the drawing of an architect is a special graphics, canons and tasks on which almost all the architecture surrounding us is based today. In this case, the question arises, what role does drawing play in architectural design today? And what influence did it have on the work of great architects, whose buildings are known all over the world?*

Keywords: *sketch, graphic, expression, transfer, appearance, tool, design problem, necessity.*

"Let whoever may have attained to so much as to have the power of drawing know that he holds a great treasure."

Michelangelo

Introduction

In the profession of architecture, drawing is essential to the process which leads the development of a design. Various types of drawings are produced – diagrammatical at the initiation of a project and highly technical in the end. During this process the exploration of design ideas are studied, shared and presented, and varying levels of information must be communicated. Hand drawing, while challenged by the technological ability to produce similar images, brings value to every project. The idea is that the effectiveness of a sketch is incomparable when one considers its efficiency, and even its aesthetic.

The designer uses drawing to transfer his ideas onto paper which, over time, becomes a precious document. It takes on artistic value and is recognized for its graphic qualities. The ideas presented in the form of drawings or paintings often become foundations for new strategies and original approaches. Above all, painting develops imagination and a way of thinking in artistic terms which is useful in the process of architectural design. It stimulates creativity and sensitivity to form, space, light and colour. It gives possibility to express a personal attitude to the world around us.

In the age of computerization, when the way of thinking about space continues to change together with methods of design and construction of buildings - a hand-drawn sketch still constitutes important elements of the architect's skills. They become indispensable as a basic means of communication and information transfer. They develop precise spatial imagination which plays an important role in creation of architecture. Drawing is also an unique medium to express the author's personal interpretations and even the most bizarre visions. Today we have the opportunity to contemplate the original sketches of famous architectural structures created by great architects, which certainly prove the irreplaceable importance of hand drawing in the search for ideas and proportions.

Renzo Piano "The Shard", 2012, London, United Kingdom

Piano apparently sketched his idea on a restaurant napkin while meeting property developer Irvine Sellar in March 2000. According to Piano's architectural firm, RPBW, Sellar keeps the famous napkin in his offices. *"The idea came by sketching, and also by making models."*- R. Piono said in one of his interviews. Renzo Piano designed The Shard as a spire emerging from the River Thames. The architect was inspired by the ship's masts that once filled the river. Some architectural observers find that the Shard looks like the masts of ships at the pier or the spire of a Catholic cathedral. The complex structure of inclined facade glazing perfectly reflects the surrounding environment and allows the external appearance of the building to change depending on the weather and season.

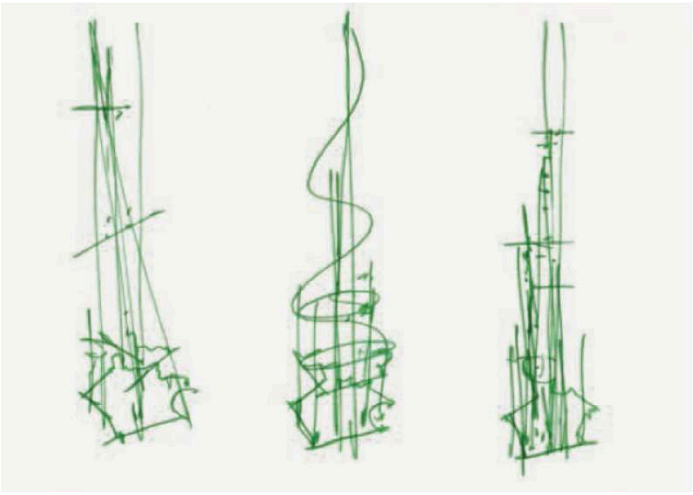

Figure 1. Sketch made by the architect Renzo Piano

Figure 2. "The Shard"

To this day, the Shard, also known as the London Bridge Tower, is 300-meter, mixed-use tower located beside London Bridge Station. The shape of the building was designed as an irregular pyramid lined with glass. The skyscraper includes 72 floors with offices, apartments, front gardens and technical rooms: the Italian architect Renzo Piano calls his creation a "vertical city". On the top floor of the building are the highest observation deck and gallery in the UK. The construction of the skyscraper caused a heated public discussion due to its impact on the appearance of London. However, the authors of the project managed to convince the public that such a landmark object as The Shard will bring more benefit to the city than harm.

Norman Foster "30 St Mary Axe Tower", 2003, London, United Kingdom

The architect Norman Foster identifies himself in the graphics, seeks and approves the development of the idea. Concretizing the future object, the architect embeds it into the environment, comparing spaces and adjusting the scale. Norman Foster pays great attention to construction and detail in his sketches. Starting with the search for direction, he comes to specifics. All of the above can be seen in the work on one of his greatest creations "30 St Mary Axe Tower".

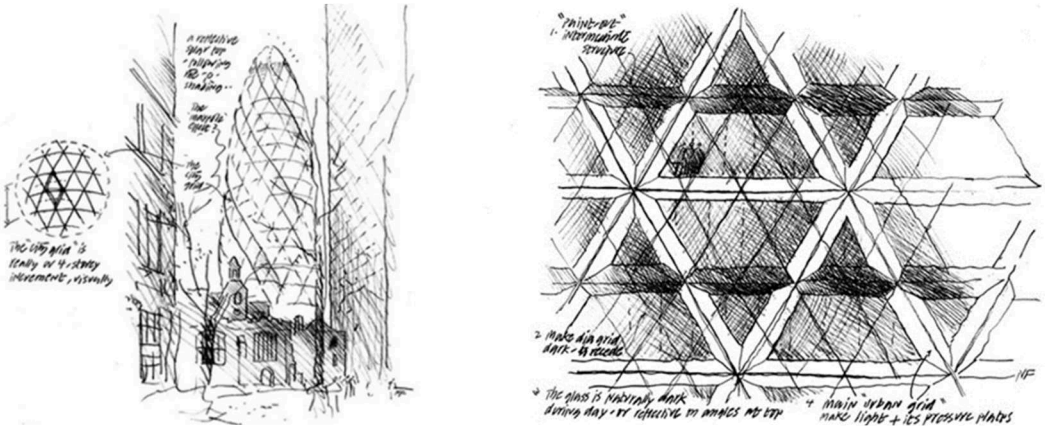

Figure 3. Sketches made by the architect N. Foster

As a result, Foster created the world's first high-rise building that claims to be an eco-friendly skyscraper. Its structure, 180 meters high, is a mesh shell with a central support base. The aerodynamic shape of Mary Ax is maximally resistant to wind loads - the building has no corners, so air flows do not flow down, but go around the skyscraper. At the same time, a forty-story tower casts less shadow than a rectangular structure of the same height. Thanks to abundant natural light, the tower consumes half the electricity compared to other buildings of this type. In addition, facade panels let fresh air into the building and naturally ventilate it.

Because of its characteristic shape and the greenish tint of the glass, Mary Ax was nicknamed "Foster's Cucumber". This nickname, given to the skyscraper by local residents, was quickly spread by numerous tourists around the world.

Oscar Niemeyer "Cathedral of the Blessed Virgin Mary", 1970, Brasilia, Brazil

Thinking with hands - this is how we can determine with what tasks Oscar Niemeyer approaches the sketch. Lines are not completed, cutting. These are short sentences, exclamations - real thoughts out loud, expressed in graphics. Niemeyer's architecture has the same airiness and naturalness. One of the great examples of proving this idea is the "Cathedral of the Blessed Virgin Mary".

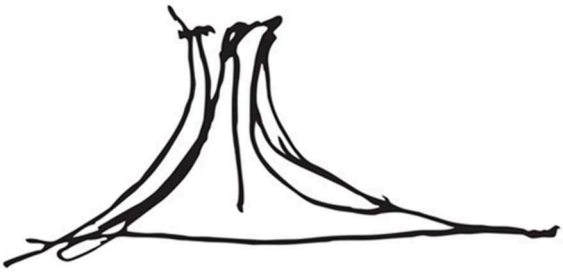

Figure 4. Sketch made by the architect O. Niemeyer

Figure 5. "Cathedral of the Blessed Virgin Mary",

It was for this project that the architect received the Pritzker Prize in 1988 with the wording "for the best building in the modernist style." According to the architect, he was looking for a form associated with prayer, and therefore abandoned the usual forms of church architecture with their dark interior spaces. The result is one of the most original religious buildings in the world.

The building is made of concrete and rises to a height of 40 meters. At the very top is a thin high cross. The futuristic building is a ribbed structure composed of sixteen curved hyperboloid columns. As conceived by the architect, they should resemble hands raised to the sky. The space between the columns is occupied by large stained-glass windows, so the temple seems very light and airy. The abundance of glass walls fills the interior space with light.

The Cathedral of the Blessed Virgin Mary received fame all over the world, was recognized as a national treasure and included in the list of the most significant monuments of Brazil.

In the modern world, in the era of digital technologies, the established traditions of drawing are in a state of crisis, which shows deep contradictions in the design activities of architects, as well as in the system of architectural design. This problem was formed as a result of the reorientation of design practice from manual sketching to computer graphics. It is undeniable that with the help of a computer it becomes easier and faster to perform design tasks, since computer programs perform most of the processes automatically, and this greatly speeds up the design process itself, so students and experienced architects are increasingly neglecting hand sketches in favor of computer graphics.

However, the need for drawing in the work of an architect does not need to be proved. This is the most interesting and valuable stage of the architect's work. Yes, a designer works on computers during design, but before transferring an idea to an electronic version, he works it out manually, makes sketches, and only then edits it on a computer. Drawing is the main visual means of the architect's creative method, one of the means of constant striving for a more perfect solution to all design problems. An architect must be proficient in the art of drawing - this is the key to the successful completion of any design task.

Conclusion

There is a long way from a line on a sheet of paper to an embodied architectural object. Often the sketch contains something that helps to look at the familiar building from a new angle. A sketch often becomes an independent phenomenon and tells about its author better than any architectural reviews. To prove this, there are many excellent examples of the skill of great architects from all over the world.

Being able to build any image, from any angle is a professional necessity. In the activities of designers and architects, drawing continues to occupy the most important place, as a necessary and indispensable component of creativity. With the advent and development of computer technology, which helped and expanded the possibility of graphic presentation of projects, it became necessary to take a fresh look at the tasks of drawing, its role in the professional activity of an architect.

Under these conditions, the drawing remains a creative tool that allows to overcome design problems quickly and in many ways. At the stage of development of the idea and up to its implementation in the drawing, the drawing remains an indispensable tool.

Returning to the words of Michelangelo, can be said with certainty that drawing is indeed a great treasure, especially in the hands of an architect. After all, this is an incredible phenomenon, when a line on a sheet of paper comes to life in the design of buildings and becomes an integral part of the surrounding world, decorating it and inspiring people to new ideas.

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