

ARCHITECTURAL NOTATION AND DESIGN PROCESS

UDC 72.01

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Abstract. *The paper tackles the specific nature of relations between architectural notations and design process from the aspect of architectural media, viewed as the place of articulation of architectural opinion. Creative process of thinking is possible to notate via various architectural media. Each medium has its own specific internal mechanism of abstraction inciting imagination and creativity. The paper tackles specific practice of architectural design in the contemporary research through the project. This issue is of great importance having in mind the access to methodology of architectural design within education system.*

Key words: *architectural notation, medium, communication, design process*

1. INTRODUCTION: ARCHITECTURAL NOTATION

Concerning notation in the arts there are some question, often dismissed as mere annoyances, that reach deep into the theory of language and knowledge. [1]

American philosopher Nelson Goodman distinguishes art forms to autographic and allographic depending on the performance method. Thus, autographic art forms are those whose authenticity depends directly on the artist whilst allographic art forms are so called two-level art, effective through creation and interpretation of abstract system of notation. [1] In this context, architecture, according to its multiple and complex notation, belongs to allographic art. All media used by an architect are specific type of language of symbolic system used in the process of creating and shaping idea, hence it represents certain form of opinion articulation. It is possible to notate architecture – to write and read through different media, which are in the mutual interaction.

It can build one entirety of architectural notation language, which will then enable communication on different levels, either of technical or esthetic nature. Architectural

Received October 5, 2016 / Accepted December 7, 2016

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notation represents sort of assemblage of different features - media and intention to produce architecture, hence it is impossible to place it in one specific category. [2]

1.1. Architectural media as embodiment of opinion

All art forms are specific forms of thinking. They represent a way to express "sensory and embodied thought characteristic of the particular artistic medium." [3] If we follow the Finnish architect and theorist Juhani Pallasmaa, then knowledge in the art takes place through a particular research medium. Entering the world of reality is preceded by the construction of architectural thinking through the media, and they are by their nature transitive, portable and transient. Their representation is overall academic and social construct that makes it possible to visualize and achieve new fragments of reality. Architectural concepts or ideas can never be directly applied, there should always be a certain gap between ideas and implementation – i.e. there should be a mediator. [2]

According to Henri Focillon, art is an activity of a man who expresses his spirit and creative drive through the form and substance. His interpretation of artistic content is accomplished through the form and, as such, it gains its meaning. These forms which exist in space, and in material are firstly formed in the human spirit that is realized through the working process. This process, according to Focillon, is unstable and passes the network of transformations, oscillations, and experiments, which are not vague and arbitrary, since there are creative techniques encompassing the time from life of the idea to the life of the form. [4]

Pallasmaa in the book *The Thinking Hands* [2] considers the importance of thinking senses as a semi-consciousness activity, which is equally important as our ratio and total consciousness. If the art is form of thinking, its media are the place where this form of thinking is shaped in the process of work, creation and conception of art. Possibilities of imagination and creativity do not exist only in our mind, but our whole body has the ability of multi-sensual perception as well as the ability to imagine, fantasize and act. The conceptual phase of designing processes, preceding an architectural design, is, as a rule, related to the experiment and research. In this phase of mental effort *by hands that are thinking* through media such as drawing, model or diagram, they are becoming a unique mechanism of the thinking body.

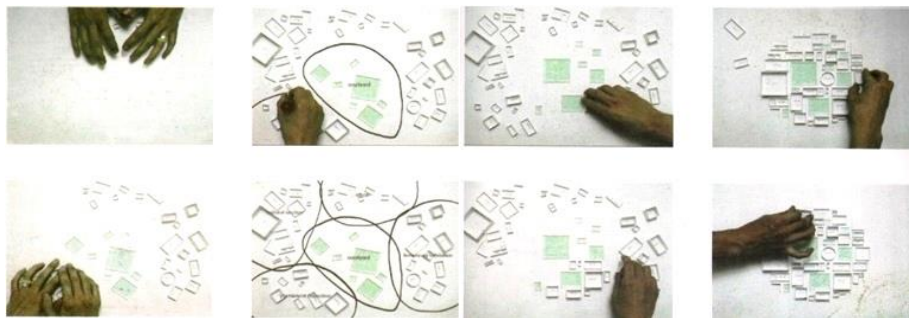


Fig. 1 The Thinking Hands: Kanazawa Contemporary Art Museum/ SANAA

Therefore, direct communication of an artist with the object of work, and intensity happening in that creative process produce a unity in which a creator and the object are exchanging influences.

Architecture in its creative process works through several different media i.e. translates its work from media to media. Transferring work content from one medium to another, according to theorists of media, should be understood as the form of transposition or transfer since it accomplishes degree of arbitrary and manipulation unlike translation which excludes all details for the benefit of general equality. [2] In this continuous movement between abstraction and concreteness of architectural media, which uniquely defines the work of architects, various personal author's poetics and expressiveness are being realized. This question nowadays becomes more interesting since almost the whole architectural representation runs through the digital medium.

Digital media which have been rapidly developing since the nineties of the last century are becoming a modern tool in generating complex forms, which cause changes in the spatial solutions. Today we can easily detect an impact of the software on the design. Philosopher and artist Manuel DeLanda's thinks that work in a software solution such as genetic algorithm is such that the visual characteristics cannot be defined in advance and that the true nature of the work in these medium is unpredictability of results obtained. [5]

The issue of digital technology, in the sense that the form follows software as the process of designing, is the topic of many contemporary architects and theorists. Besides observing the role of computer as a hailed contemporary tool, which enables efficiency in the design and freeing human fantasy, there are certain opinions stating that creativity and fantasy are more absent from the digital world than being prompted. The above- mentioned Pallasmaa states his stance that computer in the creative procedure establishes a distance between an artist and an object, highlighting that those traditional techniques, such as a drawing, or a model, enable designers to have a haptic contact with the work object: "In our imagination, the object is simultaneously held in the hand and inside the head, and the imagined and projected physical image is modelled by our bodies".[6] Creative work as such requires physical and mental identification, empathy and compassion. This includes relations towards working material and interpretation of an observer as well as the ability to read the facts appearing during the design process. Therefore, besides digital technology, which doubtlessly brought changes in the architectural discourse, the traditional techniques i.e. drawing and working layouts are still the indispensable steps in the architectural practice, especially when we talk about the architectural education process.

1.2. Instrumentality of architectural media

Creative procedures have dual prop or support. The one is found in ourselves, whilst the other is in the necessity of external stimuli during the working process. Techniques of media are never neutral though, whilst working methods of an architect will be, in a certain sense, a condition of results since every working medium has its internal system which, in its abstraction, supports creativity. There are some views that working content, received via different media, is the key to developing abstraction and imagination, because authors themselves are surprised with effects that they receive in the creative process. [7] In this manner, the internal communication between the creator and his working material is established, which then becomes a transmitter of unexpected information and meaning. Therefore, the meaning of things is achieved in the communication relations that occur through the designing process, through the various media. In other words, their role is instrumental because it allows the anticipation of the new organization and stimulates

multiple interpretations in the working process. This is the nature of the designing process, because author cannot be sure of the outcome in advance. It is about the moment in the creative procedure when conscious awareness should be silenced for instant and exchanged with the unconscious type of mental game.

Renowned Finnish architect Alvar Aalto in his essay *The Trout and the Mountain Stream* describes his creative process through working medium of drawing which relates more to the instinctive feeling than to the direct conceptual or intellectual activity. It is a seemingly meaningless game of sketching, where the methods of work are closer to the abstract art, but as Aalto stresses, the main idea, in this process, appears to unite seemingly numerous antagonisms in harmony. Besides, this process is characterized by one nonlinear dimension, moving back and forth in different proportions, or elements and projections, which enables a free path of associative subconsciousness to create a completely unexpected product, however, a sense of responsibility is always present. [8]

Drawing on a range of research philosophers, artists, psychologists Pallasmaa builds a view that imagination of hands and the whole body, or in other words thinking senses represent one almost unconscious action. Pursuant to this analysis, it follows that the mind, the hands, the eye are mutually harmonized mechanisms of action on the subconscious level, what would be the simplest called - skill. [3]

Henri Focillon, in his essay *In Praise of Hands* emphasizes the active role of art and states that the spirit imagines pictures, and hands effectuate them, while the power of an artist lays in the harmonization of the spirit and the hands, as in that of a source and an instrument. And thus, the never-ending friendship among hands and the tool begins. [4] The internal instrument becomes something alive; The hand is, we might say, completely free and it enjoys its own skill: with an extraordinary certainty, it uses accomplishments of an extensive experience, but in the same time it uses that which is unpredictable and out of the realm of spirit – coincidence. [4]

Rethinking contingency or chance, as discussed by Focillon, in contemporary terms of fragmentation, when there is no prescribed architecture, is of a great importance for the architectural designs. Inwardness of the discipline that is based only on the current theoretical knowledge, without research by design process, does not have the capacity to offer the right answer in accordance with the reality of different situations. The design process as a thought process and activity is always in the gap between reality and imagination and winning freedom in this rift of creative process is a condition for the emergence of a new and singular.

Contingency is the principle of coincidence, which creator needs to accept in the creative process as a significant offset to the adopted and current knowledge he or she thinks to possess. It is the very cognition through the design process, via research media as methodological procedure, and numerous other activities that design entails, that represent the knowledge gained in the process of creation. Therefore, contingency may be observed as a field of possibility and freedom in the creative procedure; it is the method to make things different than they are when compared to the existing “rules”. [9] This can be understood within creative freedom that frees rules and knowledge and opens path of individual freedom. Architectural media are not mere notation of previously created conceptions, but more of an interactive communication and type of knowledge or concept production during the creative design work. Insensitivity to the open possibilities of contingency may be the major obstacle to the creative procedure, with thoughts lulled in

the safe and familiar, which can be recognized as a hindrance to the creation of the new in the familiar area. [10]

Design thinking or thinking through design work is the center of the creative process. Theorist of the design, Nigel Cross, emphasizes tacit knowledge and instinctive processes, claiming that design may stand out as a skill, independent to other features, especially science. Tacit knowledge, according to Cross, is the type of knowledge one gains through actions and it is difficult to explain it in the rational manner. [11] John Chris Jones discusses design process as the process of learning in search for the new shapes of creation as advancement of methodological models, so as to successfully respond to the interchangeable conditions of contemporary context. [12] Therefore, the complex dialectic is formed between the tacit knowledge and creative process, due to the design process which is always a step forward into the unknown as an answer to different situations and conditions that architecture is facing.

According to these design theories, at some stage of creative process, silencing of the obligatory gained theoretical knowledge and focused intellectual awareness is a condition for the freedom of the artistic creation. Active role of the creative medium, which in accordance with the theory of communication becomes cognitive medium, is emphasized in this experimental and research phase.

1.3. Communication of architectural media and work process

Architecture through its work and research process, as we said previously, is using different media and none of those can replace the other one; because, essentially, each of them has its own traits and internal creative mechanisms which will be discussed.

Architectural drawing has always been the basic technique of architectural representation and mode of communication between the world of ideas and the world of physical reality. Drawing takes us into the special creative space between the virtual and the material world. „The pencil in the architect’s hand is a bridge between the imagining mind and image that appears on the sheet of paper (...), and the image emerges as if it were an automatic projection of the imagining mind.“ [3] Communication realized through drawing is ambiguous and complex, enabling multiple readings due to its abstract nature.

According to the architect Peter Zumthor, architectural drawing must contain some sort of promise: “If the naturalism and graphic virtuosity of architectural portrayals are too great, if they lack *open patches* where our imagination and curiosity about the reality of the drawing can penetrate the image, the portrayal itself becomes the object of our desire, and our longing for the reality wanes because there is little or nothing in the representation that points to the minded reality beyond it. The portrayal no longer holds a promise. It refers only to itself.“ [13] He argues that a drawing is being developed according to the basic feeling and in that sense, it should overtake the quality of desired object. In that case, drawing is not just a reflection of an idea but constituent part of creative process, and as such it enables observation and understanding of something that it has yet not become, but is in the process of becoming. The drawing represents graphic continued note in accordance with the project development, starting from the sketches implying idea to the technically codified drafts related to the object creation.

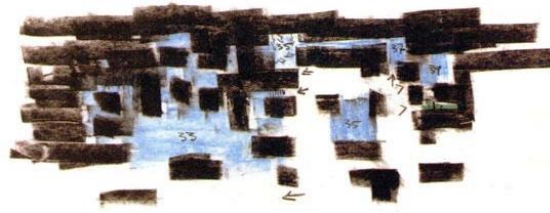


Fig. 2 Architectural drawing: The Thermal Vals / Peter Zumthor

In its basic form, architectural drawing is firstly appearing as a free-hand sketch – initial step in the design work process. The sketch represents the most abstract shape of an author’s intention and it contains compressed elements of the future project as kind of guiding idea. As a fruit of imagination, free of burden of the pragmatic, the sketch sometimes carries a special value indicating the core and potential for development of ideas. As the necessary creative path, the sketch is not a constituent part of the project in its formal notation system, but as an independent phenomenon may be observed as a piece of art which, according to the Goodman, it is. [1] As an authentic path of research procedure, the sketch is the most intimate and direct type of the author’s expression and often a recognizable form of the author’s style.

For Peter Eisenman, the drawing is not a mere representation but an incarnation of things. This is the method for something to become real, and that reality in the architecture for Eisenman is first of all, in the world of ideas: “The ‘real architecture’ only exists in the drawings. The ‘real building’ exists outside the drawings. The difference here is that ‘architecture’ and ‘building’ are not the same.”[14]

In the book, *Architecture and Disjunction* Bernard Tschumi explains development of a concept by drawing means where architectural drawings are a method of work and a medium of thinking about architecture; With its core, they indicate something outside itself (contrary to the art drawings which relate to themselves only, not to the reality and imagining.) [15] In the book *Event cities 4*, there are certain discrepancies from the above-stated, because he defines two types of architects, those who think and develop concept first and then draw, and those who think during the drawing process thus developing the concept itself. [16] In this context, everything that was thought belongs to the concept whilst action that follows, i.e. sketched or drawn, is considered the process of design. Tschumi here establishes, probably too rigid, a distinction between thinking and drawing. The truth is somewhere in between and none of those divisions is clear and simple in the creative process.

A diagram, from the perspective of communication traits of architectural notation, is often thought as an instrument for explanation, something that comes after facts and explains the form, structure and program. In that sense, the diagram technique as simplified visual tool may provide contraction of disseminated information and their fast flow. Therefore, the diagram is the most condensed architectural tool for thinking when it comes to organization of multiple elements. Its variables include program and formal configuration. Scheme and graphic - reduced diagram shall enable instant reading and direct understanding relations between parts thus being one of the most important diagram features. [2]

However, diagram represents a powerful tool for managing variables in the generic sense, and beside that it instantly presents complex variables in architecture on the abstract

and the simplified level: „Diagram is a graphic assemblage that specifies relationships between activity and form, organizing the structure and distribution of functions. As such diagrams are architecture’s best means to engage the complexity of the real. “[17]

Developing the idea of complex reality, by the end of seventies, Koolhaas and Tschumi became interested in programs and events, and turned to developing of new diagram technique in architectural thinking.

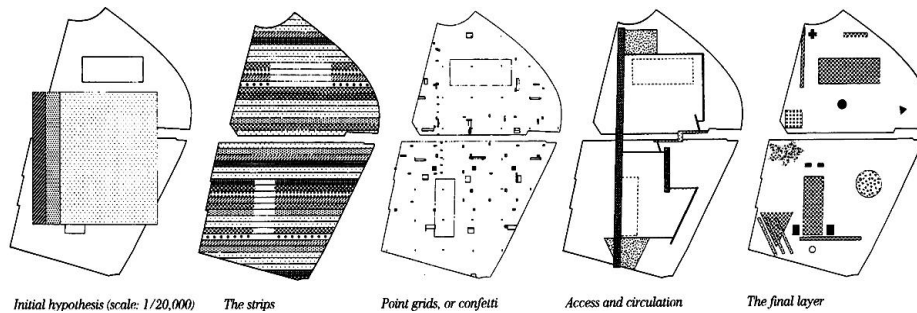


Fig. 3 Diagram: Parc de la Villette / Rem Koolhaas, OMA

Nowadays, it is possible to identify the whole new generation of contemporary architects who further promote diagrammatic way of thinking and design procedure such as SANAA, MVRDV, Reiser&Ummemoto, UN Studio. Toyo Ito was the first one who used the term diagram architecture so as to mark the architecture which is being produced in this method. [2]

Architects of Dutch UN Studio, are using diagram as an instrument which confronts the repetition, i.e. a mean which redirects architecture from the typological fixation and enables generating of new instrumental meanings. In their book *Move*, they define a diagram in architecture as the part of technique which introduces quality of work, of both intuitive and subjective nature which are not limited by linear logic and which can relate to physical, structural, spatial or technical elements. According to them, diagrams are information organized on multiple levels, and as such they are improving generic method of architectural design. [18]. In that sense, the diagram should be considered as scheme, hence it is not recognizable with its all details and it is more of an “abstract machine” hence it represents both content and expression. In accordance with the above stated, the diagram can be understood as the graphic presentation of a dynamic process, synthesized through compression, abstraction and simulation.

Peter Eisenman in the book *Diagram Diaries* discusses the diagrammatic approach as an analytical tool in mastering complex and various external impacts through its internal mechanisms. The diagrammatic approach in his work simultaneously becomes design tool which generates new forms through research mechanisms i.e. transformation, deformation, superposition, inversion, dismantling etc. The emphasis is on the research process and generic mechanism of a diagram, not on the form as the final product. [19] According to Eisenman, diagramming is the potential for rational and objective understanding of the own work process, and simultaneously the method to move from the subjective awareness towards unconscious diagramming. As an author, he sees a diagram as a tool for discovering of something that is

outside of his own preconception. [19] Therefore, diagram has a double role as a medium in architecture. It is a method of notation (analyses, recognition and reflection) but also a machine action (generative, synthetic and productive). [17].

Similar to diagram, model has a quality of explanation, and it stays in the domain of representation of the future architectural structure. It is a powerful tool in the communication sense as a part of the notation system of the architectural project, especially with the general public. The model, however, has emphasized generic meaning in the design process in the same way as diagram has, and it simultaneously strives towards independence as a free gesture in relation to the project, and as an independent art practice. This is how Goodman describes the drawing.

Historically looking, the model is equally present in the architectural discourse as well as the drawing. In this medium, there is the emphasized communication on the phenomenological level as the direct contact between the matter and creator. This is constructive architectural mean of research in the experimental phase of work. Material experience, through *hands that talk* is even more expressed in this medium. Direct communication with the working material is more complex, the author is faced with experience values of the experiment in the process.

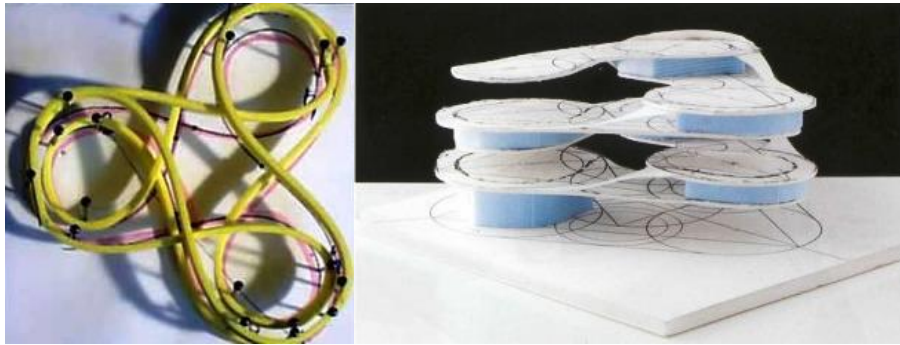


Fig. 4 Working Models: Mercedes Benz Museum / UN Studio

The model has the capacity to stimulate and synthesize unconscious creative potential of the creator. Relation capacity of the model comparing to its representation feature is especially emphasized, as a special type of research mechanism in the direct communication with the object of work.

We can consider it as one of the most effective type of thinking through experience which is difficult to accomplish in different medium in architectural design process. Medium of the model, due to its intensity of direct contact with material, creates direct path of imagination through intuitive and reactive channels of phenomenological experience in the design procedure between the world of ideas and reality.

2. CONCLUSION

The paper discussed the notion that every working medium possessed its own quality and specific creative potential in the architectural design. The process of design is the form of creation and designer knowledge is being established in the working process where

instrumentality of media, through which the architecture is being notated, is emphasized. The capacity of instrumentality of working media is viewed in the instigation of imagination and abstraction in the design process. The paper prompts the question on the wider level and relates to the contemporary architectural practice of research through the project in the sense of recognition and reflection of phenomenon produced during the process of design in the different working media. This issue has special importance in the professional-pedagogical framework of understanding methodology of architectural design.

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ARHITEKTONSKA NOTACIJA I DIZAJN PROCES

Rad se bavi specifičnom prirodom odnosa arhitektonske notacije i dizajn procesa, posmatrajući arhitektonske medije kao mjesto artikulacije arhitektonskog mišljenja. Kreativni postupak mišljenja je moguće notirati kroz različite arhitektonske medije od kojih svaki ima specifičan unutrašnji mehanizma apstrakcije koji podstiče imaginaciju i kreativnost. Pitanje koje rad pokreće odnosi se na praksu arhitektonskog projektovanja u savremenoj poziciji istraživanja kroz projekat. Ovo pitanje je od posebnog značaja kada je riječ o pristupu metodologiji arhitektonskog projektovanja u okviru obrazovnog sistema.

Ključne reči: *arhitektonska notacija, medij, komunikacija, dizajn proces*