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## ARCHITECTURAL WORK OUTPUT – SPACE PRESENTATION FORMS

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### MATERIALNY WARSZTAT ARCHITEKTA – FORMY ZAPISU PRZESTRZENI

#### Abstract

Great masters expressed their architectural thoughts through lines drawn by hand on sheets of tracing paper. Will the new technology in the form of parametric design tools, computer models, 3D pens and spatial printing become a distinctive feature of our times? A concept presented in the form of an architectural design becomes most valuable when it is put down on paper through soul and hand, like a violinist transferring a melody to the strings with a sensitivity of an author. In spite of the development of computer technology, at the stage of impressive concept designing there is an even greater need for the return to hand-drawn designs. In view of electronic media, it shows a high quality of the architect's technique, original and individual approach and specific value of handmade creation.

*Keywords: architect, workshop, line, electronic, drawing*

#### Streszczenie

Wielcy mistrzowie wyrażali swoje zamysły architektoniczne poprzez kreskę zapisywaną ręcznie na arkuszach kalki. Czy nowe technologie w postaci narzędzi do projektowania parametrycznego, modeli komputerowych, piór 3D oraz wydruków przestrzennych staną się cechą rozpoznawczą naszych czasów? Zapis koncepcji w formie projektu architektonicznego staje się najcenniejszy, kiedy dociera na arkusz poprzez połączenie duszy i dłoni, jak skrzypek przekazujący melodię z autorską wrażliwością na struny. Pomimo kształcenia technik komputerowych, na etapie koncepcji wrażliwych istnieje co raz większa potrzeba powrotu do projektów rysowanych ręcznie. Na tle elektronicznego zapisu świadczy to o wysokim poziomie warsztatu architekta, o jego jednostkowym i indywidualnym podejściu do zadania oraz o szczególnej wartości odręcznego wykonania.

*Słowa kluczowe: architekt, warsztat, kreska, elektroniczny rysunek*

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Drawing is the basis of art and constitutes elementary means of understanding and expression. The beginnings of life with self-awareness and reflection gave rise to linear thinking. Fingerprints, the DNA code – are unique and one-of-a-kind characteristics of each one of us. The same applies to timbre and projection technique – lines in writing or drawing. A fascinating and creative process begins when the first line is put down on paper. There is a relation between imagination and pragmatism<sup>1</sup>. Only the few have the ability to record the most important features of an object using just several lines (Ill. 1, Ill. 2).

Through an analysis of the didactic process in the field of drawing, starting from the 17th Century, we can observe that drawing was particularly significant. Hand drawing was the most important form of education both in Academies of Fine Arts and Universities of Technology. The contemporary architects also emphasize the important role of hand drawing as a fundamental record of creative thought. Architectural drawing constitutes an architect's drawing as well as a drawing depicting architecture so it is defined on the basis of the content and the identity of its author<sup>2</sup>. Marcus Vitruvius Pollio was the first theorist who wrote about the importance of drawing for an architect's work output<sup>3</sup>. He expressed the view that an architect should present the building design in the form of plans, elevations and perspective called a scenography<sup>4</sup>. Before the end of the 10th Century few architectural drawings were created. Villard de Honnecourt's manuscript which dates back to the first half of the 13th Century was the first handbook for architects, that contained a collection of drawings with comments<sup>5</sup>. The invention of geometric perspective by Filippo Brunelleschi and Leon Battista Alberti was the next step; design drawings were precisely prepared thanks to this principle. The architectural form was shown in scale and in perspective. Drawing became a major and analytical stage in the designing process as well as the value of art<sup>6</sup>. Federico Zuccari presented interesting views on drawing in relation to an architect's work output<sup>7</sup>. He introduced the conceptual frameworks of: internal drawing which he called – a concept, and an external drawing which was a graphical representation of this concept.

In the past, technical designs were drawn by hand using tools such as: a T-square, ruling pen, circle templates, French curves or a pantograph. In the case of a mistake the whole draft drawing had to be prepared from the scratch. The computer-aided design system (CAD) has changed this. Modern architect's tools transformed the form of communication of a concept put down on paper into the form having a third dimension. Some architects think that creating computer visualizations in the early stages of a design is a degradation

<sup>1</sup> [http://www.nospr.org.pl/media/uploads/gdy\\_na\\_papierze\\_pojawia\\_si%C4%99\\_pierwsza\\_kreska\\_tekst\\_ewy\\_niewiadomskiej.pdf](http://www.nospr.org.pl/media/uploads/gdy_na_papierze_pojawia_si%C4%99_pierwsza_kreska_tekst_ewy_niewiadomskiej.pdf) (access: 28.02.2015).

<sup>2</sup> A. Białkiewicz, *O rysunku architektonicznym*, Teka Kom. Arch. Urb. Stud. Krajobr. – OL PAN, Cracow 2006, pp. 53-60.

<sup>3</sup> H. Rottinger, *Die Holzschnitte zur Architektur und zum Vitruvius Teutsch des Walter Rivius*, Studien zur deutschen Kunstgeschichte, Strasburg 1914.

<sup>4</sup> Witruwiusz, *O architekturze. Ksiąg dziesięć*, tłum. K. Kumaniecki, Warsaw 1956, p. 11, 12.

<sup>5</sup> H. Hahnloser, *Villard de Honnecourt. Kritische Gesamtausgabe des Bauhüttenbuches. ms. Fr. 190093 der Pariser Nationalbibliothek*, Vienna 1935.

<sup>6</sup> M. Misiągiewicz, *O prezentacji idei architektonicznej*, Cracow 1999, pp. 44, 45.

<sup>7</sup> F. Zuccari, *L'Idée de 'pittori, scultori et architetti del cavalier*, Torino 1607.

of the artistic nature of the designer's work, on the other hand, the demands of the modern world do not allow to miss the opportunities offered by the virtual environment. The introduction of IT tools in this area of an architect's work is the most controversial and creates numerous conflicts. Metaphorically, a conceptual drawing is a bridge linking a customer's and an architect's minds. Mutual understanding of form and function of the designed object is one of the basic conditions for the satisfaction of both parties. Because of that the dialogue between a designer and a customer requires using means of communication that minimize the risk of misunderstanding.

Thanks to drawing studies an architect becomes a creator who knows cultural heritage and the heritage of civilization, is involved in the current architecture and art. Drawing as a tool becomes a part of the creation process, the art in itself, an integral part of the work and a separate work<sup>8</sup>. A line is an introduction to abstract thinking, constitutes a characteristic feature connecting all types of drawings. In this sense, a drawing is a record of movement and is a form of a person's signature. It constitutes an identification, exposes and informs about individual characteristics, the ability to see, perceive, and especially to experience. Lines of a drawing can be compared to a seismograph or an electrocardiogram. A drawing is a psychogram of a creator, as it is the most personal expression, which similarly to diaries of a writer, requires sincerity and at the same time confidence limits<sup>9</sup>.

Notwithstanding the development of computer-aided techniques, handmade designs become more and more relevant at the stage of conceptual frameworks. When it comes to the work output, N. Foster puts major emphasis on a relevant drawing at every stage of the designing process<sup>10</sup>. The tentative design calls for a substantial number of sketches – concepts that are to serve the basis for conceptual frameworks. Handmade drawings are also used for the purpose of negotiations with customers. Technical drawings are created as late as at the final stage of the designing process. According to Gustaw Peichl<sup>11</sup>, sketching is a form of reasoning put down on paper. A sketch is the language of architecture. Nowadays architects cannot be opponents of fast computer-aided techniques, however application of advanced techniques must be well considered from the point of view, where and how to make use of them. Jorge Silvetti comes forward with another argument in favour of the essence of drawing. He argues that handmade drawing in a form of a sketch is the source of concepts and a tool for adjusting the designing process as a whole<sup>12</sup>, it is of fundamental

<sup>8</sup> M. Orzechowski, *Rysunek-zmysł architektury*, Wydawnictwo Blue Bird Jan Pirogowicz, Karolina Wojciechowska Sp.k., Warsaw 2014.

<sup>9</sup> <http://www.konrad.jarodzki.com/teksty.php> (access: 18.02.2015).

<sup>10</sup> E. Robbins, *Why Architects Draw*, Massachusetts 1994, p. 82.

<sup>11</sup> Gustaw Peichl, born in 1828 in Vienna. In the period from 1973 until 1996 he was the Principal of the Institute for Art and Architecture at the Academy of Fine Arts Vienna. He was an author of many architectural works, among others in Bonn, Frankfurt and in Vienna. He was awarded many honours and decorations in the field of architecture, he was a honorary member of the Association of German Architects, the Royal Institute of British Architects, the Academy of Fine Arts in Berlin and the American Institute of Architects. G. Peichl, *Back to the pen – back to the pencil*, Salzburg 2003, p. 86.

<sup>12</sup> Jorge Silvetti, a profesor of architecture in Harvard School of Design, a pratner of a group of architects in Boston Machado & Silvetti Associates.

significance for architecture since it is the primary expression of an architect's vision<sup>13</sup>. Still another remarkable architect, Renzo Piano, argues that handmade drawing is the major part of the theoretical process of creating architecture<sup>14</sup>. Piano states that drawing is an instrument of the circulation process between a concept and an actual design, whereas a model is just a physical conversion of drawing into a three-dimensional form. According to Christoph Gantenbein, computer-aided fabrication and parametric design methods provide for abundant opportunities but they do not constitute a good and interesting pathway. It allows to create incredible objects but designing and creating good space, that can be useful for uninterrupted designing process, takes one's skills and experience<sup>15</sup>. In spite of extensive knowledge that architects may acquire nowadays, this is an investor who chooses a concept. According to the architect, Antoni Domicz, a customer often requires servitude from a designer to the extent of designing buildings in correspondence with a customer's fancy and a developer's interests. Under harsh market conditions, an architect is a disabled partner whose performance is limited to submission of "papers" for execution purposes. Homogeneity, consistency, pragmatism and art of reduction – this is how an architect defines the philosophy of designing<sup>16</sup>.

Technical drawings constitute graphic form presenting construction design or operations manual of various objects in a conventional way. Whereas artistic drawing is assumed to be expressive and to provide for diverse interpretation<sup>17</sup>. 3D CAD systems enable to compile all drawings as one functional integrity. Thanks to them, calculations may be verified in terms of accuracy and a design may be proven to have been successfully completed. When a concept derives from a form dependent on software and its capacity, an architect may often fail to be creative. Instead of implementing one's concept based on extensive knowledge in numerous disciplines such as ergonomics, fundamentals of development and sociology, an architect is implementing an investor's idea that becomes an economic product – far from immaculate ideal. Analysis of didactic programmes of architecture advanced education schools, one may argue that schools, that used to downsize and downgrade handmade drawing skills dozens of years ago, are now inclined to develop and extend that discipline. The work output of remarkable creators of contemporary architecture and their drawings contribute to the development of the documentary proof for significance of handmade drawing for designing purposes to a great extent. No software may substitute for a designer's intuition and knowledge as it cannot check whether a structure has been designed in a correct and accurate way in technical, humanist, social, and ergonomic terms. From the point of view of a designer's own conceptual framework, notwithstanding computer-aided techniques, handmade drawing for designing purposes is more and more

<sup>13</sup> E. Robbins, *op. cit.*, p. 104.

<sup>14</sup> Renzo Piano, the Head of The Building Workshop Office.

<sup>15</sup> Source: a fragment of an interview conducted by S. Penn with C. Gantenbein, "Architektura i Edukacja", Aefoundation.co.uk, January 2012, Translated by: M. Załuska.

<sup>16</sup> Recording of a discussion of P. Chimeczak and Antoni Domicz, source: <http://blokblog.pl/post/109823349199/ciagle-stawiamy-te-same-pudla> (access: 09.02.2015).

<sup>17</sup> D.L. Goetsch, W.S. Chalk, J.A. Nelson, *Technical Drawing*, Fourth Delmar Learning, Albany 2000, p. 3.

needed and required at the stage of impressive concept designing. In view of electronic media, it proves high quality of an architect's work output, and an architect's original and individual approach as well as specific value of handmade deliverable.



- III. 1. The drawing presented a visionary form of architecture which was not known before and became a stage in design ending with the construction of the object – tower. A drawing of *the Einstein Tower* made by Erich Mendelsohn (<http://documenta-akermariano.blogspot.com/2011/11/erich-mendelsohn.html>, 02.03.2015)
- III. 2. *The Einstein Tower* in Potsdam – an astronomical observatory, E. Mendelsohn (<http://cudaaarchitektury.pl/wp-content/uploads/2014/12/Wie%C5%BCa-Einsteina-2.png>, 18.02.2105)

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