

## CHANGING TECHNIQUES OF ARCHITECTURAL DESIGN PRESENTATION

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### Abstract

The aim of this paper is to highlight contemporary grey area in fair presentation of architectural project. Historical evolution of depicting techniques shows adequacy of architectural “visions” to the manifestations of art in subsequent historical periods. A breakthrough in the presentation of projects turned out to be the departure from realism in Art. Building designs were presented in a similar, abstract manner. At first it was a domain of groups of avant-garde artists and architects. Situation has changed after World War II followed by the division of Europe into two political and economy zones, and formation of the so-called people's democracy countries. In state-owned, big design offices and contractor companies, design drawings were delivering professional information to the professionals. At the same time, in capitalist countries, presentations of designs were aimed at private investors, majority of whom were not architects. Therefore, for practical reasons they took on decidedly realistic forms. A computer with graphic software offers now almost unlimited possibilities of presenting hiperrealistic and thus seductive images. Flair and creativity are sometimes substituted with software manipulations. Professional ethics should become the principal virtue in contemporary design rendering.

### Streszczenie

Historyczna ewolucja technik przedstawiania wykazuje adekwatność „wizji” architektonicznych i manifestacji artystycznych w kolejnych historycznych okresach. Przedstawianie budynków, które jeszcze istniały w wyobraźni architektów, zmuszało ich do stosowania różnych metod prezentacji. Przełomem w sposobach prezentacji architektonicznej było odejście od realizmu w sztuce. Projekty zaczęły być przedstawiane w podobnej, abstrakcyjnej manierze. Początkowo dotyczyło to awangardowych grup artystów i architektów. Sytuacja zmieniła się po drugiej wojnie światowej, po której nastąpił podział Europy na dwa obozy polityczne i powstanie tzw. państw demokracji ludowej. W państwowych, wielkich biurach projektowych i firmach budowlanych rysunki przekazywały informacje pomiędzy fachowcami. W tym samym czasie, w krajach kapitalistycznych, projekty kierowane były do prywatnych inwestorów, których większość nie była architektami. Dlatego, z przyczyn praktycznych, przedstawienia te miały zdecydowanie bardziej realistyczny charakter. Wyposażone w software komputery oferują dziś niemal nieograniczone możliwości prezentowania hiperrealistycznych, a więc uwodzicielskich wyobrażeń architektury. Czasem, fantazja i pomysłowość twórcy zastępowane są manipulacjami za pomocą oprogramowania. Etyka zawodowa powinna więc stać się główną cnotą tworzących współczesne przedstawienia architektury.

Keywords: Architecture; Building; Presentation; Techniques; Graphic; Drawing; Design; Communication.

## 1. INTRODUCTION

The architectural design engraved, drawn by hand or with help of a computer has always been a communication method between the architect-creator and the client, between the designer and the investor, and also

between the designer and the contractor. The problem lies between the honesty of the first and education of the latter. Unlimited possibilities of computer visualization, creating virtual reality, constitute a danger of misunderstanding. It is particularly important in architectural contests or tendering processes in real life, but

also in time of architectural studies. Students should be aware that entrancing images can be based on sound software regulations, eliminating unethical attitudes, but not limiting architectural creativity.

## 2. EARLIEST PROJECTS – FOR REAL CRAFTSMEN

The first drawings of Egyptian temples and tombs were engraved on ostracans, clay tiles, drawn on papyrus or wooden boards [1]. Similarly, in Mesopotamia images of buildings appear on the seals, as the scene in front of a dairy in al-Ubaid from the 3<sup>rd</sup> millennium B.C. [2], and building plans drawn on clay plates are described in cuneiform script [3].

Documents that have been preserved in Europe dating to the Middle Ages were drawn on parchment, like the famous treaty by *Villard de'Honnecourt* of the XIII century [4]. The parchment alone was prepared from animal skins (usually lamb, veal and goat), tanned very carefully into very thin leather. Sharpened canes and bird feathers, chalk and charcoal were the tools used for writing and drawing in the Antiquity and Middle Ages. Later sanguine deposits were discovered and became widely used from the Renaissance on.

The paper production did not begin in Europe until about the 13<sup>th</sup> century. Since it was introduced by the Arabs and reached the rest of the Continent from the Iberian Peninsula it was labeled as a pagan invention, and did not widespread in the Christian world until the 14<sup>th</sup> century. Spain under Arabs rule remained the main producer and manufacturer of paper for the countries of the Medieterannean world. The invention of printing technology in Germany and high price of parchment decided on the construction of paper mills throughout Germany and France [5]. Parchment was still in use for architectural drawings and important documents in Baroque period, as more resistant to creasing and tearing.

Apart from architectural drawings on parchment, there were also “construction” drawings drafted or etched in 1:1 scale. They were marked on the already finished walls and floors. A few examples have survived to this day in the Gothic churches and background buildings, serving as builders’ lodges [4].

Models became the second method of depicting architects’ ideas. Known from the Polish Romanesque votive tympanums [6], they probably served also as pre-decision tool, helping to imagine a future building.

## 3. ART OF FINISHING ARCHITECTURAL DRAWINGS

Painstaking presentation of projects indicates that the importance of accurate information was already known in the Renaissance. To convince the patron to start works according to the presented idea, Michelangelo modelled the façade of San Lorenzo [7]. At the same time, he prepared “technical” drawings, which were completely different. Preserved in Florence, recently they ignited a successful search for the lost elements, which ended in situ, with laser “reconstruction” of the façade in December 2007.

*Alberti* wrote his Treaty addressed to *Lorenzo de Medici*, his patron, to thank him [8] and to win over his future interest and commissions.



Figure 1. Supposed project by Michelangelo for the façade of St. Lorenzo in Florence (phot. TBB)



Figure 2. Laser reconstruction of the façade, following discovery of the elements meant for it. [http://www.arttrav.com/wp-content/uploads/2008/08/san\\_lorenzo\\_facade1.jpg](http://www.arttrav.com/wp-content/uploads/2008/08/san_lorenzo_facade1.jpg)

Models of great domes from the Renaissance and Baroque periods, preserved to this day, are either partially stripped of the outer shell or showing their construction in a cross-section. *Christopher Wren's* model of St. Paul's Cathedral built in the years 1673-1674, today exhibited in the cathedral, shows the first design intentions of the architect [9].



Figure 3. Christopher Wren's model of St. Paul's Cathedral in London shows the earlier concept of the building (phot. TBB)

Decorating the sheets of design drawings beyond the basic needs started in the Renaissance and became much more elaborated in the Baroque period: parchments were adorned with frames in a form of vignettes, decorated with coats of arms of the investor, plus all the necessary information, which constituted a rich graphic background for the project [10]. There were even miniature paintings of the finished elements or characters associated with the undertaking [10].

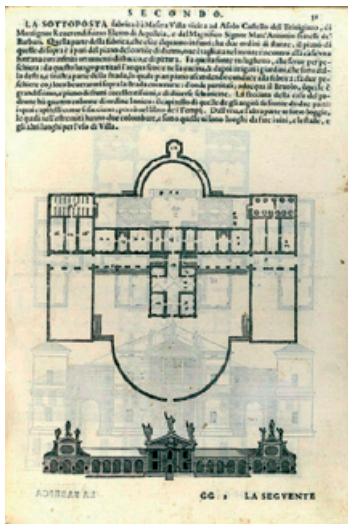


Figure 4. Villa Barbaro at Maser, C.16, all the designs by Palladio were modestly presented as exactly his Treaty was. <http://www.wikigallery.org/paintings/241501-242000/241926/painting1.jpg>



Figure 5. Chelsea Physic Garden dated 1676, organized by a Society of Pharmacists (Apothecaries), <https://encrypted-tbn2.gstatic.com/images?q=tbn:ANd9GcTFM85zJaifbUuKYSS2wmcvjJzAAQm-fv9jDIXqCIR5Dk950to0>

From the 18<sup>th</sup> century on, architects prepared renderings in accordance with the style of architecture they presented and with compatible lettering style describing it. Palladian style villas were rendered in different manner than “Gothic” architecture introduced by Horatio Walpole and established by *Augustus W.N. Pugin*.



Figure 6. Lord Burlington, Chiswick House austere architecture and similar presentation [http://preview2-riba.contensis.com/Images/Palladio/PalladianVillas/VillaRotundasinfluence/RIBA29774\\_530x436.jpg](http://preview2-riba.contensis.com/Images/Palladio/PalladianVillas/VillaRotundasinfluence/RIBA29774_530x436.jpg)



Figure 7. A.W.N. Pugin, sheet with project and details; Pugin's drawings and descriptions were richly decorated, [http://www.cca.qc.ca/system/items/31/large/DR1982\\_0141.jpg?1247881060](http://www.cca.qc.ca/system/items/31/large/DR1982_0141.jpg?1247881060)

Tools with which the architects worked were limited: featherpens, pencils, shading with water-diluted India ink or watercolours. Chalk, sanguine, charcoal twigs were used for sketches from the Renaissance on. Such situation lasted until the 20<sup>th</sup> century. Suggestive images-visions by *Etienne-Louis Boulée* in the 19<sup>th</sup> century [11] and projects of *Eugène Viollet-le-Duc* [11] show high artistic value, although they differ immensely in atmosphere and technique.

#### 4. TURN OF THE CENTURIES – SYNERGY OF IDEA AND TECHNIQUE

Tracing paper production commenced at the beginning of the 19<sup>th</sup> century, and translucent sheets instantly became popular in Europe allowing making copies from the matrix drawn on the cardboard [12]. Architectural design graphics gained special importance in times of Secession. Architects used their own hand-drawn font, which was the author's hallmark. These included *Charles Rennie Mackintosh* [13], *Otto Wagner* [14], *Michael De Klerk*, [15] *Charles F.A. Voysey* and others. The manner of presenting the project was an art in itself.

In 1851, in Hyde Park, London, Crystal Palace for the First World Exhibition was built. Its erection was coordinated with austere construction drawings, with

no decorative “entourage”. In this moment, a two-track development of architecture was officially recorded [16].

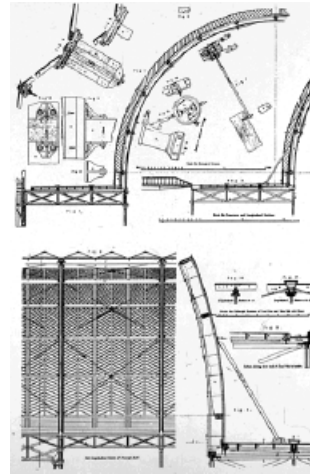
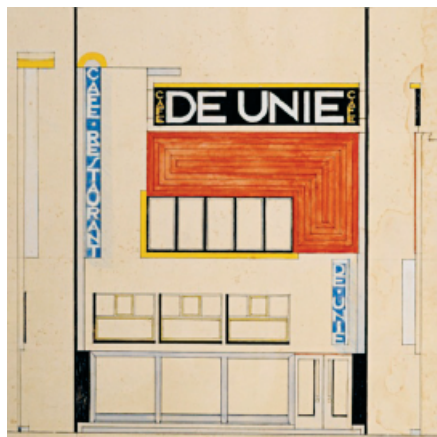


Figure 8. Paxton drawings of construction details as well as the whole building were purely technical, <https://s-media-cache-ak0.pinimg.com/originals/19/af/52/19af522dd3a5131ec90431329d1b8d04.jpg>

At the beginning of the 20<sup>th</sup> century an overturn in comprehension of space in the fine arts and architecture took place. It occurred almost simultaneously in works of several European artistic groups: Neoplasticists, Constructivists, and Futurists. Futuristic visions were created in Milan by *Antonio San't Elia*, *Mario Chiattone* and *Vergilio Marchi* [14]. *Jakob Czernichow*, *Nicholas Ladowski* and *El Lissitzky* among others worked in Vitebsk and Moscow [17]. Brussels was the center of Neo-Plasticism. Each of these trends was seeking artistic inspirations from different sources.

As a result of political events, wars, and the most favourable location in Europe, a longlasting imprint has been left by the Neo-Plasticism. Architects working in this group changed the sense of architecture by implementing the theories of geometry and discoveries of physics. Architectural drawing was thus exceptionally simple, using sharp contrast and colour – for the first time in the history. Simple shapes of letters drawn in linear manner matched this aesthetics: *Theo Van Doesburg* and *J.J.P. Oud*, *G. Rietveld* designs were the trend setting compositions for the European avant-garde [18].



**Figure 9.** J.J.P. Oud, Café de Unie, Rotterdam, 1925, presents unified sense of aesthetics of the project and its rendering <http://cdn.architecturelab.net/wp-content/uploads/2014/05/oud-unieeee1.jpg>

## 5. SEARCH OF IDIOSYNCRACY IN THE 20<sup>TH</sup> CENTURY PROJECTS RENDERING

In the first decade of the 20<sup>th</sup> century normalization of standard measures was introduced in Germany as the “DIN Standards”. Gradually the unification covered the sizes of sheets of tracing paper, drafting paper, thickness of lines used for technical drawings and codes of symbols. The British Standards based on the Imperial Measures till 1971, have followed.

A Frenchman, *Toni Garnier*, was radical in his social views and applied modern technologies in his architecture. The dissonance between the vision of a socialist society of the city of Lyon (Grand Travaux de la Ville de Lyon in the first two decades of the 20<sup>th</sup> century) and the traditional way of presenting the project is striking. Although *Garnier* was aware of the avant-garde art, the prospect of discussing his ideas with the city council and the mayor *Edouard Herriot* probably made him prepare extremely traditional images. [14]

*Frank Lloyd Wright* experienced professional contacts with Japan during the first decade of the 20<sup>th</sup> century. From that time on, his design presentations resemble Japanese woodcuts, like in the series of his drawings of the textile block system villas designed in the 20s of the 20<sup>th</sup> century. Later, F. L. Wright’s way of rendering was influenced by the European modernistic movement style of presentation [19].

The technological breakthrough in architectural practices came with ozalid prints, the first method of mechanical reproduction of drawings, drafted on tracing paper. A sheet of tracing paper with a project

was placed on a diazo compound coated paper and lit by lamps, then ammonia vapours were used to develop the exact copy of the image on the print paper. Ozalid drawings were monochromatic, in grays or purples. This technology was in use in the USA since the 1930s, and from the very start determined the type of graphics applied in architectural projects causing a big change. Construction and installation projects, graphically simpler, were easily adapted to these technical requirements.

From the Renaissance period on young people yearning to become architects or artists were employed to copy and later stylize the works in recognized studios. In the beginning of the 20<sup>th</sup> century first “rendering” firms were established, and after the World War II the number of offices, specializing in the “visualization” of pictures, primarily perspectives, was growing [20].

In Europe popularity of ozalid prints did not increase until after World War II [21].

In that time Europe was divided into two political and economic zones. Soon, in the Soviet bloc, Socialist Realism stylistics was imposed in art and architecture by political authorities. The turn towards classical architecture was primarily expressed in demand of symmetry of elevations and plans, and sculptural décor. Following this, appropriate convention of drawings was adopted: a realistic and monumental representation of edifices, houses and urban plans.

As some Polish cities were destroyed in more than 96% [22], the pace of reconstruction works was quite exceptional. It has also resulted in editing catalogues, covering the range of typical projects, both, residential and commercial, intended for wide application and adaptation [23].



**Figure 10.** A detail of a terrace banister, made according to a catalogue edited in 1955, Poznań, Nursery School, Trzemeszeńska Street, Poznań (phot. TBB)

However, rebuilding Warsaw edifices, construction of Nowa Huta, Nowe Tychy and other prestigious undertakings were being prepared and designed individually. Such buildings were presented to the public with the aid of poster-boards showing in a realistic, hand drawn convention, the transformations of space. These drawings were not meant for the building sites, they primarily had a propagandist/poster meaning. [24]

After ten-year episode of Socialistic Realism in the Polish architecture, standardization of construction followed on even a larger scale, dominating aesthetic aspects. Multi-family housing of the “great block” concrete slabs, were introduced throughout the socialistic economy zone. Typified catalogues and ready-to-use, repeatable elements, produced in house-factories, were pushing out new architectural ideas. Buildings that could not be unified, like theatres, cinemas, sports halls, stadiums remained the only enclaves of relative artistic freedom. Graphics of drawings was simplified as private investors were eliminated from the market [25].

Another, free of unification sphere of architect’s work, was connected with the Church. These were private enterprises which were gradually allowed from the 70s of the 20<sup>th</sup> century. In this case, return to realism in projects edition was noticeable.

Industrial plants and facilities also constituted a specific group of post-war investments. The scale and form of the structures, complex layouts and technology imposing itself upon composition, brought associations with the works of Op-Art, and other avant-garde trends [26]. Architects observing these similarities adapted them in the graphical representations of many industrial buildings. [27]. Black-and-white convention of rendering, exposing contrasting surfaces and volumes, became a standard way of the graphic presentation [28].



**Figure 11.**  
Mikrohuta in Strzemieszyce, architect drawing from the 70s – Op-Art influence on presentation of the industrial plant (private)

General impoverishment of graphic quality of projects due to standardization, the need for efficient work of design offices, shortages of staff, caused commissioning of hand-drawn presentation boards [29].

## 6. COMPUTER-AIDED VISUALIZATION

Handwritten texts, dimensions, and notes, which once were a subject of elaborate work, were gradually superseded by stencil lettering. Metal or plastic templates of letters and characters were available in draughtsmen shops, which enabled uniform descriptions of projects.



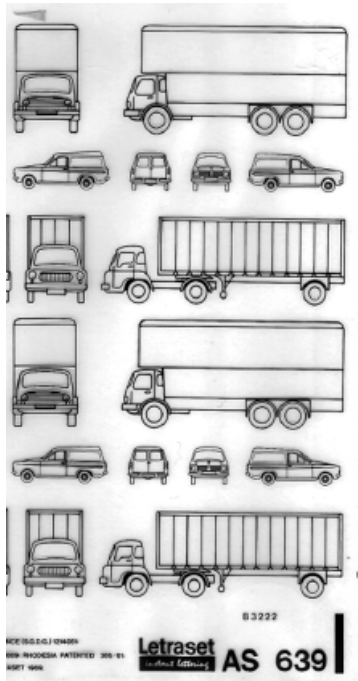
**Figure 12.**  
Templates with stencils helped to achieve unified effect of drawings, sometimes they were prepared individually (private)

The next technical improvements were pressure-sensitive or self-adhesive symbols and textures, with a variety of staffage details. These included: people, cars, greenery, textures etc.

At the same time, markers with a wide range of shades in different colours for re-touching black-and-white prints appeared on the market. These tools facilitated and sped up the execution of architectural projects [30].

From the 60s of the 20<sup>th</sup> century on, in Western Europe a photocopier, although expensive, became accessible for the firms. Bigger size prints, as today, were printed in photocopy centers. This meant the end of tracing paper era.

So far, the final revolution in conveying architect’s thoughts to the client came with the introduction of computers and printers. Initially, computers were a tool for preparing design plans, cross-sections and façade schemes. Thanks to the new CAD programmes, it became quite easy to correct, change, and create new project versions [31].



**Figure 13.**  
Letraset catalogues from the 70s provided ready-to-use  
staffage and textures for drawings (private)

Model building, visualizations of virtually unlimited possibilities, brought on new problems: manipulation with the scale, proportions, textures, colours and backgrounds. This problem needs analysis and, may be, establishing rules for visualization techniques if the results are going to be fair: in case of architectural competitions when comparisons are vital – it is even more important.

## 7. CONCLUSION

This short retrospective of the ways of communication between the “seller” and the “buyer” within architectural commodity circulation, proves that artistic values of the renderings that preceded final realizations, were always a part of artistic achievements of the period.

Contemporary multileveled, complex and split world of art offers computer help to the artists and architects. Artistic images, installations and events rely on emotions, which the artefact evokes in prospective buyer, watcher or just partaker.

At the same time architecture needs much more effort (and money) before it can fascinate the crowds. Responsibility is the quality, which lies behind seducing picture and its thrilling incarnation. This is why, in many situations strict rules should be imposed on the

software settings for architectural rendering. They will not limit architectural or artistic creativity (it was not limited by pencil and set-square either), but will create a real platform for comparisons of the different ideas. Apart from the architectural contests, such limitations should be introduced for students’ project renderings. It will at least make them aware that achieving ravishing urban or architectural spaces needs idea, knowledge, flair, but also professional honesty and decency. This will contribute to future clients and urban space well-being.

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