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## THE DESIGN PROCESS – PERSONAL REFLECTIONS

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### PROCES PROJEKT – REFLEKSJE OSOBISTE

#### Abstract

Different persons acting, participate beside the architect – who accounts for the form and coordination of design tasks – in a process which results in an architectural object. This concerns a stage of conception, as well as a building blueprint and an implementation stage. Therefore – prolific external requirements. These are not indifferent to form. Their accomplishment proceeds in the rational sphere. The artistic background of an epoch, which conditions the designing – possesses other characteristics. Postmodernism has brought forth, with time, numerous stylistic modes – occurring in parallel. Nowadays, the creator is not limited in her/his options. S/he can decide in a rational way; and also can trust to her/his subconscious and act intuitively. The aforementioned options beget an added value, making the object's architecture – imparting to its individual features.

*Keywords: design intuition; design rationalism; aesthetic normativism; creative freedom; conditions of design process*

#### Streszczenie

W procesie, w wyniku którego powstaje obiekt architektoniczny, uczestniczą obok architekta – odpowiedzialnego za formę i koordynację prac projektowych – różne podmioty. Dotyczy to zarówno fazy koncepcyjnej, jak i projektu budowlanego oraz wykonawczego. Stąd liczne zewnętrzne wymagania, które nie są obojętne dla formy. Ich spełnienie odbywa się w sferze racjonalnej. Środowiskiem o innym charakterze warunkującym projektowanie jest tło artystyczne epoki. Postmodernizm przyniósł, z czasem, wielokierunkowość stylistyczną – wielokierunkowość równoległą. Obecnie twórca nie jest ograniczany w swoich estetycznych wyborach, a może ich dokonywać na drodze racjonalnej; może też zaufać swojej podświadomości i podejmować decyzje intuicyjnie. To one wydają się stanowić wartość dodaną, tworząc architekturę obiektu – nadając mu cech indywidualnych.

*Słowa kluczowe: projektowa intuicja; projektowy racjonalizm; normatywizm estetyczny; wolność twórcza; uwarunkowania procesu projektowego*

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The architectural object is a product of the design process. An investor/developer commissions the undertaking and finances it. Irrespective of whether it is a direct commission or arises as a result of an architectural competition. (A particular situation, among single-family housing, is represented by the so-called ready-made blueprint, chosen from a catalogue.) The investor/developer stipulates a utilitarian program; and may have their own preferences concerning the form. S/he expects high quality, concomitantly the optimum for costs. The architectural object adds to the existing cultural and natural environment in a durable way. It is publicly accessible, more often than not. Visually at least – even when it was built on a private plot. Hence, it is the subject of public assessments. (Nowadays, public acceptance takes on a particular importance, because the progress in computer techniques make available forms that couldn't previously be designed and then made<sup>1</sup>.) The architectural object must fulfil the requirements of building law (and not only that); as well as taking into consideration the standards stipulated within the architectural profession. Designing is burdened with legal responsibility for quality and safety during the utilization of a created object.

An architect is obliged to their investors, the public, and their own profession. To gain the abovementioned environment for the designed object, is all the more efficacious – the more rational it is; based on arguments not on feelings.

The progress in computer techniques opens new spaces for creative imagination. The subconscious, intuition... is so crucial to it. This is the exploration of uncharted territory; there are no roadmaps and signposts. The absence of any comparable benchmarks necessitates the use of intuition, somewhat. **Architectural innovation** need not necessarily concern its aesthetic component – Modern Functionalism is an example. This latter one be based on rationalism. Introducing new forms, as has been pointed out above, (as well as different kinds of innovation), bears the risk of disapproval. Novelty – often, not to say usually – feeds resistance. It takes time to get accustomed to it. Wise patronage could boost support for a designer. (Advertising campaigns are not practised in architecture.) The reaction to the building of the Eiffel Tower was a classic example. The then city elite protested – demanded that the Tower be demolished. Currently, it is an icon of Paris, for foreigners sometimes an icon for the whole country. The setting-up of new forms, a challenge for a designer, gives one great satisfaction – it enables one to validate oneself as a creator.

**The conception stage** of the project contributes the most to establishing a building's form. Admittedly, this concerns its general outlines. But they – after construction of an object, particularly in casual contact – constitute the form's individuality. The subsequent phases of design decide, first of all, on the building's quality. Architecture of different standards may arise. This is related to the level of functional solutions, building solutions, and installations... But also the space notion needs to be worked out / /developed. The assumptions relating to the form's construction are adopted during the conception stage. Financial expenses at the disposal of the investor are significant, as well. (This is not to say that low-cost architecture is not found.)

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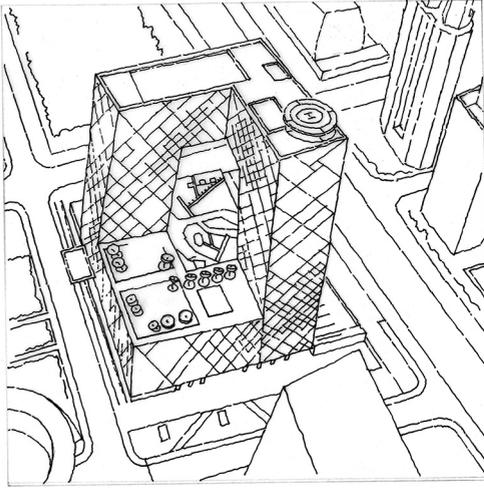
<sup>1</sup> M. Helenowska-Peschke, *Parametryczno-algorytmiczne projektowanie architektury*, Wydawnictwo Politechniki Gdańskiej 2014.

During the preliminary, conception stage seeking to find the form, it is necessary to take an attitude towards the external conditions – coordinate them, establish their reciprocal arrangement. When there are different standpoints – one ought to negotiate decisions acceptable for all participating sides. This is even possible regarding the legal rules. Alternative solutions – complying with the requirements which founded a base being in force law – might regain the permission of the political authorities in charge of the law.

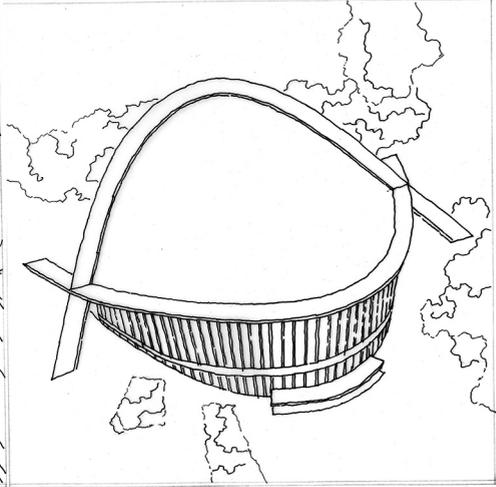
The recognition of limitations and possibilities peculiar to a precise designing task is indispensable to correctly shape the architecture of a building. To tackle its 3D form, as well as elevations, materials, or internal space. Particular assignments might arise out of location. Such placements are established by regions of earthquakes, tornado roads, and floodplains. That is on the macro scale, on the micro one will be the context of the nearest surrounds of the plot. The place of location besides the cultural and natural conditions – mentioned in the – mentioned in the first paragraph – is characterized by its own legal environment to various degrees. The legal environment is executed by the local self-government responsible for building and architecture on the subordinated ground, as well as by representatives of the central national authority. Hence the obligation to obey the rules of the local plan, and such institutions as municipal waterworks and sewerage, sanitary-epidemiological station, directorate for roads and motorways, department for environmental protection, and so on. The required arrangements and necessary information belong to the investor – but they might be important for the thought on the architectural form. Such restrictions are imposed by a conservation officer if the plot is located in the protected zone.

Furthermore, consulting the vision, in creation with (certain) branch engineers, is sometimes indispensable as well. Branch solutions integrity with architecture means synergy for the form. That role of the structure is indisputable. Examples: Rem Koolhaas's China Central Television Station in Beijing's Central Business District – consisting of bending prisms which defy gravitation; Maciej Nowicki's Parabeolum in Raleigh – inclined, crossed arches making support for a suspended roof; all sorts of dome toppings of sports halls, exhibition spaces and others – e.g. Grimshaw Architects' The Eden Project, with its motif of transparent domes of different sizes overlapping like soap bubbles... Not to mention bridges – which also arise via architects (Foster, Calatrava...) and are masterworks of the engineering set of architectural values. But not only may the structure decisively influence the form. The installations turn out to play a part, too. Intentionally constructing the architectural profile of the object – as Renzo Piano and Richard Rogers decided in Pompidou Centre, or Norman Foster in the glass dome of the Reichstag project.

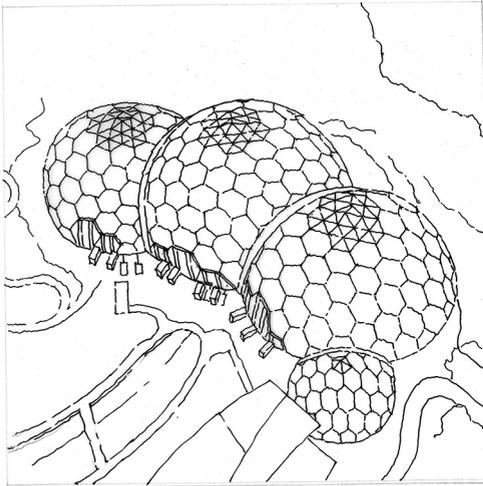
Taking into account **the energy efficiency** while shaping the building has special significance at present. Compliance with relevant building law requirements exerts an influence on 3D form, affects proportions between glazing and external full partitions, glazing placement in regard to the compass directions of the world... The partial replacement of network energy with that powered independently for the consumer's own use (prosumer) or more widely, with selling surpluses (energy manufacturer from a small installation) – externalizes mainly through the use of photovoltaic cells... (Renewable Energy Sources law permits energy production solely from renewables...). Among single-family house investors (and beyond) heating the sanitary water by solar panel is popular. Energy performance is not indifferent to the form of the building's vicinity – green areas together with tree selection. This applies especially to small buildings, in particular the abovementioned single-family houses. Greenery



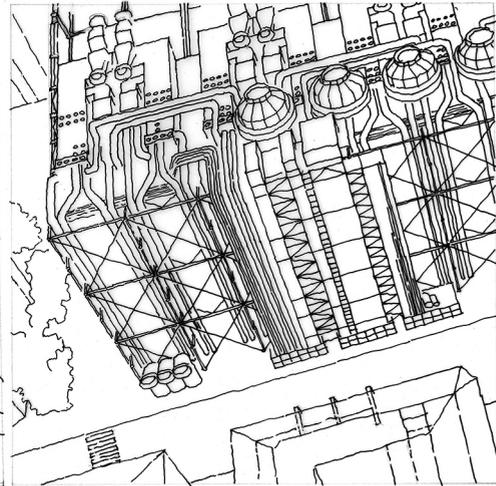
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- III. 1. Rem Koolhaas's China Central Television Station in Beijing's Central Business District – consisted of bending prisms, which defy gravitation
- III. 2. Maciej Nowicki's Parableum in Raleigh – inclined, crossed arches making support for suspended roof
- III. 3. Gimmshaw Architect's The Eden Project, with motif of transparent domes of different sizes overlapping like soap bubbles
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has significance for air quality, hence its importance in the immediate proximity inside the dense urban fabric.

The more decisions taken on organizing the form in the conception stage; the less coordination effort will be required in **the building blueprint phase**. The proper design is characterized (relatively – in comparison with the conception stage) by much complexity and detailing. The introductory remark concerns the right decisions. The kind that will not have to be altered during further work on the design. Because any overarching modifications often entail the need for re-examining the arrangements subordinated to them. And that can reduce the quality of the assumed form, or even its viability.

Detailing refers to the building's structure. If decisions concerning basic materials have been taken earlier, this is the case in general – they have a significant bearing on the character of the proposed architecture – it remains to propose internal and external walls, structural ceilings, flat/sloping roof, terraces, floors at ground level... One should deal with the foundation, arrangement of stairs... Elaborate details of the partition connections, rainwater removal, stair railings, or roof decks, and so forth. Building details may undermine the comfort of an object's use. To the casual observer they would be meaningless. Especially, when they are built and upon rare contact with an object it is difficult to experience the detrimental effects of an incorrect solution. To an inhabitant or employee..., staying in an object every day or almost every day, they take on paramount importance. The object's form, over time, becomes the acceptable reality – being a result of habituation. A leaky roof, acoustically breached walls, slippery flooring...remains bothersome.

It is also the period when branch engineers prepare their projects. The architect is responsible for ensuring its reciprocal arrangement. The target is to eliminate collisions between installation routings and functional solutions. The reciprocal arrangement is needed not only for this reason. From the architectural point of view, it is important to integrate the installations into the structure. So that they are not, even though an indispensable, but accidental element – do not disrupt the object's aesthetic. Literally, they blend in the architecture. But the installations may also serve as a means of architectural expression. Then, an architect's presence while they are being designed, does seem even more desirable.

Through the progress made in the technology of computer science, the architect has received a smart tool for working on the design and for its coordination – **BIM** (Building Information Modelling). It broadens capacity in 3D modelling and the development of design documentation by providing contributions to programs to date (AUTOCAD, ARCHICAD...). It enables parallel work on a design, to see decisions undertaken by co-designers in real time. Who introduces changes and when is recorded. Hierarchy is being kept where necessary. BIM makes it possible to control the amending consequences. Not only in the spatial dimension (to avoid a collision), but also amending influence on the construction costs. BIM is, as well, a vast – informing about an object – database. This is supportive during using the object phase.

Turning to the architectural subject, the question arises as to whether **an architectural detail** detached from building fabric is valid, at present. And that means details whose removal is possible, because they are indifferent to the building's fabric (in the broadest sense, branches included) – but will influence the architecture of an object.

Historically, the sculpture and painting accompanying architecture are regarded as such. However, is this assessment not the result of ignoring the temporal context? At the time they

were created illiteracy was common and concerned the great majority. Also, the pace of life was different. It seems that at that time the sculpture and painting that accompanied architecture were a certain kind of medium. (Analogous to contemporary elevation screens, displaying information services, commercials, and so on.) In Christian churches, for example, they reflected Bible stories, or Evangelical ones. More than that, they were not necessarily autonomous. For example, the sculptured pinnacles of Gothic churches played a structural role. This also concerns columns covered with reliefs. Similarly, stained glass (with figurative scenes) allowed natural light inside. Rose windows, however, may be regarded as an architectural abstract detail.

The aforementioned elevation screens, and artificial light illuminations appear to replace material architectural details effectively. The exchange of content they provide, is relatively (compared to material ones) instant.

One could argue that an object deprived of architectural details – this especially concerns repetitive housing – hampers the identification with a place of residence. The fate of fifty one workers' houses in Pessac support this argument. White houses resembling boxes in time became differentiated (by means of terrace rebuilding, closing windows off, and other interventions). Le Corbusier, the author of the design, commented on the changes: "... it is life that is always right and architect is wrong"<sup>2</sup>.

An architectural detail personalizes the object – in particular in the case of designing it in close liaison with the user, or leaving it to their decision. Remaining independent – in the use phase, with owner/function changes and losing its timeliness, the detail from the building fabric can be removed or replaced.

Polish legislation permits a **two-step design in the post conception stage**. This can be divided into a building blueprint and an implementation one. The latter is the basis for constructing the object. The former, of a more general nature, shall be assessed with reference to the legislation in force – in order to obtain a building permit. It must contain the arrangements mentioned earlier. (The project acceptance by the architectural-building authority concerned does not necessarily entail the end of their participation in the shaping of a building for the designers. However, the implementation project and the possible later revisions during the building phase – under the supervision visits – cannot undermine the fact that a strong argument for one's design should be perfecting it in terms of technical and construction solutions, resulting in low building costs. To a potential investor, it is not a cost forecast, but a verifiable estimate. High quality architecture, both technically and in an aesthetic sense, may result from a work on commission, as well as within a ready-made blueprint. Leaving aside the time lag and political motives, some analogies have emerged between a ready-made design and the, baroque Roman church of Il Gesu. It was a prototype for several Jesuit churches within European. In Krakow, the St. Peter and Paul church is a copy of it.

Regarding the emerging criticism of globalization, a tendency for binding architecture with its place of building may show up. Although globalization seems to be a natural process and may slow down – it is, rather, irreversible. And such omnipresent products, as a ship, car, or plane get us used to the universal appeal of a form. Universality is a trend parallel to regional attitudes, which will be legally protected by local authorities, if such a need arises.

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<sup>2</sup> Ch. Jencks, *Le Corbusier and the Tragic View of Architecture*, First published by Allen Lane of Penguin Books Ltd, England.

The course of designing described above – the accompanying considerations causing dilemmas that an architect needs to confront – takes place against a wider background. The background does not refer to a particular design task, but to the creativity of the architect in general. Choices made in this area seem to have a determining influence on form. The design theme and its surrounding are not an issue here. A designer's personality is more important in this regard.

Such a different space-time context (besides the culture-natural environment and the legal one) is constituted by **an aesthetic normativism – or its lack**. Normativism may be seen in various aspects. It may be a style shaped on the base of an epoch of shared values. And these were Romanesque period, the Gothic, the Renaissance... It has happened that a style is forced from outside the affected communities – appearing due to the interference of authoritarian political powers – an example of this was the socialist realism period. And moreover, a style that had been born as a result of seeking for it within artistic communities – 19<sup>th</sup>-century neo-Styles, Art Nouveau, finally Modernism. Postmodernism, with time, has brought stylistic multi-directionality – simultaneous multi-directionality.

The present is characterized not just by normativism, but by creative freedom. It is a natural thing to share views/preferences with other architects and architectural studios. To fall within in one of the aesthetic directions already shaped. (The approach to each commission as to an independent problem to be solved will protect the architect from the traits of plagiarism. Solutions should never be repeated – stylistic features are allowed. Otherwise, a style would not have a chance to develop and disseminate.) The formulation of one's set of rules leads to originating one's own individual style. There is another way – matching aesthetics, to some extent, to a designing task. The designing method – used more or less consciously – would normally externalize an object, identifying an architect.

The lack of any reference to the aesthetic environment defined above – the reference concerning a designed object, as well as one's own creative approach in general – is not synonymous with giving up on artistic values. Not everything has to be rationalized. One may act in the subconscious, trust in its intuition. It is a paradox that Modern Functionalism, which principle was rejecting any artistic rules and subjecting itself to function, has created its own aesthetic, build a style. Nowadays, it is classified in this way.

## Conclusion

Architecture is an applied art. Hence so many actions and decisions, accompanying the design process, are unavoidably rationalized. How else will one ever check the heat and humidity requirements of external partitions, adopt parameters of construction elements, and chart installation paths... And also will solve functional and ergonomic problems, ensure security for users... The artistic quality of an architectural object – although conditioned by rational decisions concerning function – depends definitely on the architect's sensitivity, temperament, talent... Located within a subconscious level and manifested intuitively.

The artistic sphere is also not without rational rules, showing the way to the desired effect. This concerns proportions – along with the golden section, knowledge about rhythms formation, symbolic references, knowledge of colour, etcetera. As well as principles concerning composition

of the spatial form directly.<sup>3</sup> Theories and manifestoes are other signs of making art rational. Formulated by individual creators (sometimes for personal use – unpublished), and by groups of designers linked by similar aesthetic sensitivity, common views on designing methods...

The analysis of the design process shows the necessity for rational decisions in the act of architectural creation. The analysis conducted not for a specific design task, but generalized to a succession of actions carried out when designing. Although intuitional measures give quantitatively in to those rational, the former are essential for obtaining architectural values. Intuition might turn out to be very useful in designing new forms, never seen before. However, architectural innovation does not only concern its aesthetic aspect.

As a matter of fact, in practical use – the answer to the question how much intuition, how much rationalism – is always an open point. It depends on the task undertaken, personal preference, on the context – in a broad sense meaning external circumstances... Practising the profession of architect exists between science/knowledge and art. An architect is an engineer and also an artist. Alike, the result of her/his work is characterized by aesthetic values and purely technical, functional... quality. Sometimes it is difficult to distinguish these different values, after all. They are interpenetrating when building the form. Architecture is a complex art – it covers many aspects. It demands rational competence from those who undertake design as well as intuitive.

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<sup>3</sup> J. Żórawski, *O budowie formy architektonicznej, (Skrócone ujęcie opracowane przez Bohdana Lisowskiego)*, Kraków 2017 (pierwsze wydanie w 1962).