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5 DESIGN METHODS IN ARCHITECTURE

5 METOD PROJEKTOWYCH W ARCHITEKTURZE

A b s t r a c t

Architectural design is a complex process influenced by diverse building materials, climate conditions, functional requirements, and the visions of architects and investors. This paper presents five methods aimed at improving and systematizing the design process: 1) compensation method, 2) synchronization method, 3) deferred value method, 4) irrefutable beliefs method, 5) anticipation method. These techniques are intended to create a flexible yet systematic design path, potentially enhancing the quality and durability of architectural objects.

Keywords: designing, methods, architecture, decision making

S t r e s z c z e n i e

Projektowanie architektoniczne to złożony proces, na który wpływają różnorodne materiały budowlane, warunki klimatyczne, wymagania funkcjonalne oraz wizje architektów i inwestorów. Niniejsza praca przedstawia pięć metod mających usprawnić i usystematyzować proces projektowy: 1) kompensacji, 2) synchronizacji, 3) odroczonej wartości, 4) niepodważalnych przekonań, 5) wyprzedzenia. Techniki te mają na celu stworzenie elastycznej, ale systemowej ścieżki projektowej, potencjalnie podnoszącej jakość i trwałość obiektów architektonicznych.

Słowa kluczowe: projektowanie, metody, architektura, podejmowanie decyzji

1. INTRODUCTION

In the dynamically evolving world of architecture and design, the search for innovative methods, techniques, and approaches becomes crucial for creating spaces that not only respond to current user needs but also anticipate future challenges. The design process is a complex undertaking, requiring architects to not only solve problems but also identify and define them within a broader social and environmental context.

This article presents an analysis of five design methods: compensation, synchronization, deferred value, irrefutable beliefs, and anticipation. These design techniques offer a unique perspective on the creative process, posing new challenges for designers while opening up new possibilities. At the core of these considerations is the idea that design is not just technical problem-solving, but also a creative act that combines elements of art, science, and intuition. The contemporary architect must balance the need to create functional and aesthetic spaces with the necessity of anticipating future social, technological, and environmental changes.

The discussed design methods are not rigid formulas, but flexible tools that help navigate the complexity of contemporary design. They require architects to have a deep understanding

of the context in which they operate and the ability to synthesize diverse, often conflicting requirements. The aim of this paper is not only to present the theoretical foundations of each method but, above all, to analyze their practical applications and potential impact on the future of architecture. We examine how these approaches can contribute to creating more sustainable, adaptive, and functional spaces that respond to changing community needs and environmental challenges.

In an era where the role of the architect is evolving from a traditional building designer to a creator of holistic spatial experiences, understanding and skillfully applying various design methods becomes crucial. This publication aims to inspire and provoke reflection on how we can shape spaces that not only meet current requirements but also positively influence future generations and the environment.

2. COMPENSATION METHOD

The Polish dictionary defines compensation as: "balancing one's own deficiencies in a particular field or diminishing the role of failures through increased activity in another field or improving positive traits."[1] The compensation method in architecture can be related to balancing various aspects of the project. When one element is imperfect or limited, another can compensate for it. For example, if a building has limited surface area, this can be compensated for by intelligent use of vertical space or multifunctional furniture. A glass facade that strongly illuminates the interiors and creates a view of an interesting landscape may allow too much harsh light inside at certain times of the day. In this case, brise-soleils or other shading elements on the exterior of the facade would be compensating. Similarly, a bathtub in a small bathroom with a shower head on a long extension compensates for the possibility of "showering." Sliding walls in an apartment that sometimes open up the possibility of creating a winter garden, sometimes are incorporated into the living room space, and sometimes will be a balcony in summer, compensate for the lack of space in the apartment. The balcony itself compensates for the need to be outside the building, but for a short time – we don't have to go downstairs or take an elevator and specially prepare to go out. Compensation reveals itself both during use and during design. B. Lawson writes: "Design is a matter of compromise decisions made on the basis of inadequate information."[2] These incomplete pieces of information are later compensated for by new, designed solutions. Speaking more generally about the project, e.g., its space, it's worth noting that the perception of space can change over time. Take, for example, the house we grew up in. We might have had positive associations with it related to relationships between users, even though the functional program deviated from the norms of space use. Living there, we had no other choice and couldn't change the existing solutions. One could say that positive associations can compensate for certain design imperfections or those that we simply encountered in a given space over the years.

However, this approach carries some ethical risks. The architect must be careful not to justify design imperfections with potential positive associations. It is important to maintain a balance between functionality and the emotional aspect of space, remembering

[1] Kompensacja [in:] Słownik Języka Polskiego PWN, https://sjp.pwn.pl/slowniki/kompensacja (access: 14.10.2024).

[2] B. Lawson, *How Designers Think,* Architectural Press, Oxford 2005, p. 125.

that compensation should serve to improve the quality of life for users, not mask design shortcomings.

3. SYNCHRONIZATION METHOD

Synchronization in modern architectural design tools often refers to saving projects in the cloud, on the web. We synchronize changes and place them on a server that other designers have access to. However, in design, synchronization would concern various elements creating the project. It would involve harmonizing different elements of the project so that they work together in time and space. This can relate to synchronizing building functions with natural cycles, e.g., the use of daylight. Synchronization can occur between parts of the building, e.g., synchronization between colors in given rooms, cool materials in quiet and calming

Ill. 1. Wojciech Ciepłucha, *Wall with chairs*, 2024, source: generated in Midjourney.

places, and sharp colors in places that should draw our attention or warn us. Another example, between building elements, synchronization will consist of designing in such a way as to avoid collisions between architectural building elements.

> Integrating the various building systems and subsystems – typically including structural, heating, ventilating, and air conditioning (HVAC), lighting, electrical, envelope, plumbing, civil, acoustic, vertical transportation, security and fire protection, landscape, interiors, and so on – so that they work together in a coordinated manner must be considered central to the development of preliminary design schemes.[3]

Ill. 2. Wojciech Ciepłucha, *Tree lying in bed*, 2024, source: generated in Midjourney.

In addition to the basic tasks of installation elements, their task is also to create functional places for use. Lighting should illuminate given spaces not only when the user turns it on,

[3] A. Pressman, *Designing Architecture – The Elements of Process*, Routledge, London 2012, p. 137.

it should learn to illuminate at a given time of day and night according to user preferences. "Different categories of activities have a strong tendency to weave themselves together – if they are allowed to do so."[4] BMS / FM systems allow controlling installations, parts of the building so that the "trained system" appropriately selects equipment parameters in a given place at a given time. In spaces between buildings, we observe a tendency to synchronize spaces inside quarters or between them. Users occupy space not only in apartments but also outside them. They move everyday objects, e.g., benches, chairs, or armchairs, outside the building to be closer to children playing on the playground. The living zone expands as people synchronize with their surroundings. This increases the quality of space because people feel more responsible for it.

> The establishment of residential areas so that there is a graduation of outdoor spaces with semipublic, intimate, and familiar spaces nearest the residence also makes it possible to know the people in the area better, and the experience of outdoor spaces as belonging to the residential area results in a greater degree of surveillance and collective responsibility for this public space and its residences.[5]

This method can be particularly valuable in renovation or adaptive projects, where new elements must harmoniously coexist with the existing structure. However, it requires great experience and sensitivity from the designer to achieve this fluid integration of all elements.

4. DEFERRED VALUE METHOD

The deferred value method involves withholding judgment or defining the function of a given space. We create a place that the user can adapt to their own needs, designing and building a kind of scaffolding for future functioning in the space. This method focuses on designing with the future in mind, where some aspects of the project may not have immediate value but will gain significance over time. This may include flexible spaces, easy to adapt in the face of changing needs, or consideration of future technologies. This method may seem particularly valuable in the context of dynamically changing user needs, uncertainty about future space functions, and rapidly evolving lifestyles. The usable space has expanded significantly, going beyond traditional buildings – we work while traveling by train or recording voice notes in the car.

The deferred value method in architecture is reflected in various projects and space adaptations. For example, a large, open attic without a specific function can initially be used as a storage room, then transform into a home office, and finally into an additional bedroom for a growing child. In an office environment, spaces with movable, modular walls allow companies to adapt the layout to changing team needs. Shopping centers with flexible partition wall systems allow for easy division or combination of spaces depending on the needs of tenants. Empty terraces on the roofs of residential buildings can be gradually transformed by residents into social spaces with urban gardens, barbecue areas, and playgrounds. Schools with large rooms equipped with sliding walls and mobile furniture give teachers the option to quickly reconfigure space for various educational activities. Unfinished basements in single-family homes can evolve from storage rooms, through home gyms, to apartments for aging parents. Large industrial halls with

[4] J. Gehl, *Life Between Buildings – Using Public Space,* Island Press, Washington 2011, p. 112.
[5] *Ibidem*, p. 59.

high ceilings and minimal fixed elements can be adapted from warehouses, through coworking spaces, to film studios. Finally, multifunctional municipal buildings with a modular installation system can serve as cultural centers, temporary shelters in crisis situations, or vaccination centers during a pandemic, adapting to the current needs of the community.

The architect, when making decisions, should not always be guided by the final effect – what will be there forever. Architects search, follow a designated path, not always knowing what material they are treading on, what is at the end of this path, or whether there is any end at all. As Bryan Lawson notes: "Designers must consciously direct their thought processes towards a particular specified end, although they may deliberately use undirected thought at times."[6] During the design process, one should refrain from judgment – all initial ideas are valuable. Andrew Pressman emphasizes: "Withhold judgment; fight against the natural tendency to erase or delete – use overlays or develop some way to archive the work – you may want to revisit an idea after some design explorations, and see it in a new light."[7]

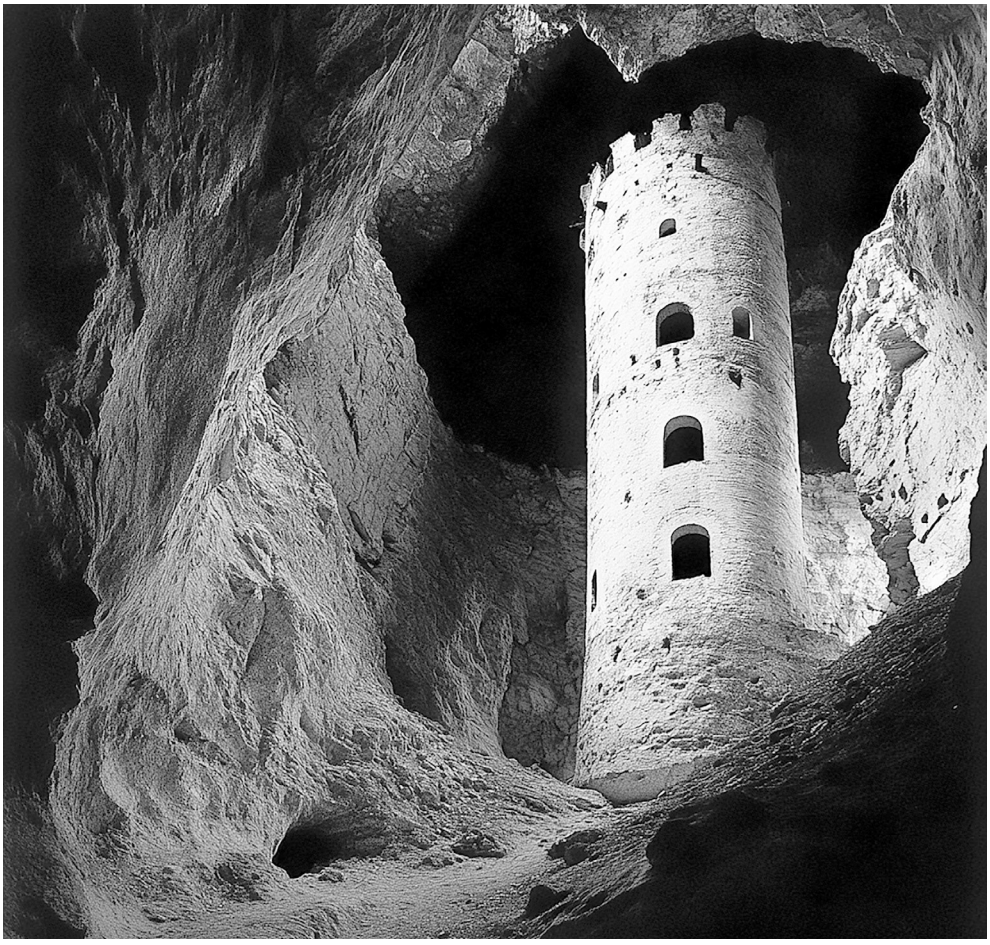
This method refers not only to the building or project itself but also to the hygiene and work style of the architect, promoting openness to new possibilities and a flexible approach to design.

Ill. 3. Wojciech Ciepłucha, *Tent in a stadium*, 2024, source: generated in Midjourney.

[6] B. Lawson, *How Designers Think*, *op. cit.*, p. 141.
[7] A. Pressman, *op. cit.*, p. 97.

5. IRREFUTABLE BELIEFS METHOD

The irrefutable beliefs method refers to fundamental design principles that remain unchanged regardless of context. Andrew Pressman emphasizes: "Define what you want to say. One or two points should be identified, and those are the ones you amplify."[8] These can be beliefs about design ethics, sustainable development, or basic human needs that should always be considered in the project. In this method, the architect is determined and consistently implements their ideas, guided by internal conviction. Bryan Lawson notes: "Designers seem to develop their own programme of intellectual endeavour. This results in what we have called 'guiding principles'".[9] The architect follows their own path, having a clear vision of the final effect. They create a unique project that is an expression of their artistic vision. Take, for example, an architect who has decided that concrete will be the main material in all of their projects.



Ill. 4. Wojciech Ciepłucha, *Tower in a cave*, 2024, source: generated in Midjourney.

[8] *Ibidem*, p. 150.
[9] B. Lawson, *How Designers Think*, *op. cit.*, p. 300.

Their buildings are characterized by the dominance of concrete walls, clearly visible on floor plans, and a minimalist style emphasizing the raw beauty of this material. On the other hand, another architect may be fascinated by organic forms, creating buildings with rounded, wavy lines, using steel substructures to shape complex, curved forms. Yet another architect may be convinced of the superiority of modularity and prefabrication, which is manifested in their designs using repetitive, prefabricated modules, enabling easy expansion or reconfiguration of buildings. Some architects may focus on a specific aspect of design, such as an architect for whom natural light is a key element. Their designs are distinguished by large glazing, innovative solutions for directing light, and minimizing artificial lighting. Finally, an architect adhering to the principle of "less is more" creates projects characterized by simple, geometric forms, a limited palette of materials and colors, combining functionality with aesthetic purity.

This method contrasts with other approaches, especially the dwelling method. While dwelling focuses on the organic relationship between humans and space, the irrefutable beliefs method focuses on architecture as a form of art and expression. This method can create a certain conflict between the function of the building and its form. The result is rather a project that is the author's vision and their calling card than a typical place "for living." It enables conducting a formal experiment, allowing for the exploration of forms and spaces that may not directly result from function but have aesthetic or conceptual value.

By imposing unconventional principles, this method can lead to breakthrough solutions that challenge established norms in architecture. It emphasizes the role of the architect as an artist and visionary, allowing for the creation of a coherent, authorial concept that can constitute a distinctive architectural manifesto.

6. ANTICIPATION METHOD

The anticipation method in architecture concerns designing ahead of current trends and needs. As Bryan Lawson aptly notes: "Designers are therefore all 'futurologists' to some extent. The very essence of their job is to create the future, or at least some features of it."[10] This method involves predicting future social, technological, and environmental changes and incorporating them into current designs. It requires the architect not only to have design skills but also the ability to foresee and shape the future. Innovation is the foundation of this method. For example, a window may not only serve for looking out but also change like binoculars, enabling observation of distant elements in great detail. Buildings can be equipped with health monitoring systems, using sensors to analyze air quality, noise levels, and other factors affecting residents' well-being. These systems can automatically adjust indoor environmental parameters, anticipating potential health problems associated with prolonged stays in enclosed spaces. Intelligent water management systems in buildings are another example of this method. Not only do they save water, but they also purify and reuse greywater for watering plants or flushing toilets. These systems anticipate global problems with drinking water availability, creating buildings that are almost self-sufficient in terms of water management. An architect using the anticipation

[10] *Ibidem*, p. 112.

method must follow trends beyond architecture itself, encompassing social, technological, economic, and environmental areas. The ability to recognize patterns and predict how current trends may evolve is crucial. Interdisciplinary knowledge is essential, combining fields such as sociology, psychology, urban planning, ecology, or technology, and understanding how these areas will affect future ways of living and working.

The anticipation method requires the architect to be not only an expert in their field but also a visionary and thought leader. Projects created with this method should not only respond to future needs but also inspire and shape the way people think about space and interact with it. This method requires continuous development, openness to new ideas, and a deep understanding of the complex relationships between architecture and society, allowing architects to actively shape the future instead of just reacting to it.

Ill. 5. Wojciech Ciepłucha, *Binocular in the window*, 2024, source: generated in Midjourney.

7. CONCLUSION

The design methods presented in the article, i.e. the methods of compensation, synchronization, deferred value, irrefutable beliefs, and anticipation – offer a wide range of conceptual tools for contemporary architects and designers. Each of these techniques, although different in its approach, emphasizes key aspects of modern design: flexibility, adaptability, sustainable development, and the ability to anticipate future needs.

These methods require architects to have not only technical skills but also a deep understanding of the social, environmental, and technological context. They also emphasize the importance of an interdisciplinary approach to design, combining knowledge from various fields.

It is worth noting that the effective application of these methods requires designers to be able to make both objective and subjective assessments and decisions based on diverse, sometimes incompatible criteria. This ability to synthesize different perspectives and measurement methods becomes crucial in the face of the complexity of contemporary design challenges.

In conclusion, the presented methods offer a new perspective on the design process, encouraging innovation, experimentation, and deeper reflection on the role of architecture in shaping the future. Further research and practical applications of these methods can contribute to the development of more responsible, sustainable, and future-oriented architectural practice.

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