

**HEURISTICS IN ARCHITECTURE.  
(HEURISTIC METHODS).**

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**Abstract.** *The purpose of the article is to consider the features of the science of Heuristics, which explores creative activity in architecture. It also considers heuristic methods with examples.*

**Key words:** *Heuristics, neology, exoteria, analogy, fragmentation, impulsation, inversion.*

**ЭВРИСТИКА В АРХИТЕКТУРЕ.  
(ЭВРИСТИЧЕСКИЕ МЕТОДЫ).**

**Аннотация.** *Цель статьи - рассмотреть особенности науки эвристики, исследующей творческую деятельность в архитектуре. Также рассматриваются эвристические методы с примерами.*

**Ключевые слова:** *эвристика, неология, экзотерия, аналогия, фрагментация, импульсация, инверсия.*

Architects around the world are looking for new ideas to create new works. Therefore, a creative search in design is important, for the development of non-standard design thinking of the architect and for the expansion of production to maintain the level of technology.

Heuristics (from the ancient. εὐρίσκω - "I search", "discover") is a science that studies the creative activity of a person. The term "eureka" is used to express joy when solving a problem, when a successful thought, idea, or "enlightenment" appears. The list of heuristics is wide: the question of the specific features of creative activity, the structure, stages of the creative process, types of creative activity, talent and genius, the role of motivational and personal factors in creative activity, the role of scientific methods in productive thinking, the style of thinking in science and creativity.

Heuristics is a learning system that originated in ancient Greece. Socrates was its author. The most intensive search and development of heuristic methods has been taken up since the second half of the 20th century.

The main goal of using heuristics in architectural creativity is to minimize the time, cost and effort spent in the process of solving a problem.

Many modern architects have their own individual design methodology. Briefly explained, Heuristics in architecture include: reason, goal, task, method, abstraction, etc. At the moment, about 40 methods for solving the use of heuristic techniques and varying degrees of consistency are known.

We can single out the following most commonly used heuristic methods, the name and number of which are conditional and can be supplemented independently.

Neology - techniques associated with the transfer of new values of any indicators from one area to another.



Residential complex Eden. Architect Thomas Heatherwick. Singapore.

An example is the project called Eden, which author Thomas Heatherwick of Heatherwick Studio sees as an alternative to standard glass and steel towers, as well as a desire to exploit the relationship between built and natural environments. Instead of a hermetically sealed box, the designers created an open home paired with organic, lush vegetation to complement the balconies. Residents of the city have already nicknamed the new building the “vertical palace of nature”.

Analogy (Greek analogia - correspondence, similarity) - techniques where similarity is used, similarity in some respect of the projected indicators of an object with those already known.



*Burj Al Arab Hotel, architect Tom Wright, Dubai, UAE.*

The well-known "Architecture of the Burj Al Arab hotel built in Dubai, the building becomes a symbol when its forms are simple and at the same time unique. When they are instantly recognizable, and immediately there is an association with the country where the building itself is located. In a world of such no more than ten: the Sydney Opera House, the Egyptian Pyramids, the Eiffel Tower, etc. Burj Al Arab is an image that can be drawn with just a few strokes. It has become the image of a sail blown by the wind.

Endomorphism (Greek endon - inside and morphe - form) are techniques that consider the internal relationship of the indicators of objects in various spheres.

House Mila (Casa Mila) is one of the early successful projects of the famous architect Antonio Gaudi, distinguished by its unique architecture. The curved facade of the Mila House is made of reinforced concrete and limestone blocks, and the balustrades are decorated with wrought iron bars resembling a grapevine.

Designed by architect Frank Gehry for the Walt Disney Concert Hall in Los Angeles. The heart of one of the world's most sophisticated acoustic venues. The bizarre shape of the building is the sound of an atypical organ expressed in architecture. Adaptation (lat. adaptatio - adapt) - techniques associated with the adaptation of processes, structures, forms, materials to specific environmental conditions. Merging with the environment.



*House of Mila, architect Antoni Gaudí, Spain.*



*Walt Disney Concert Hall, architect Frank Gehry, Los Angeles.*



*NN, architect Max Margorsky, Russia. Moscow.*

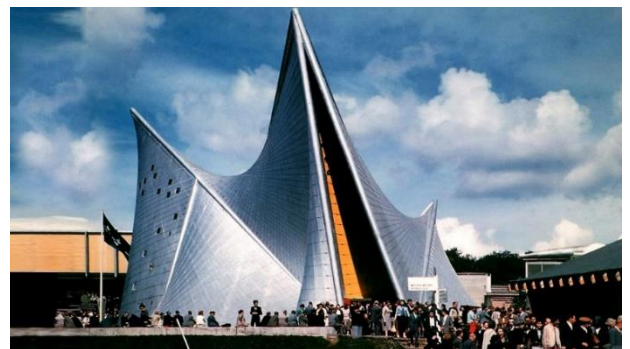
The project of a private residence in the Moscow region, which was developed by well-known architects Juergen Mayer and Max Margorsky from Germany and Alexander Erman, demonstrates not only the unique unity of architecture and landscape, but also completely changes the idea of building in natural areas on large areas. The perfect fusion of architecture and nature.

Impulse (lat. Impulsus - push) - techniques associated with impulse intermittent

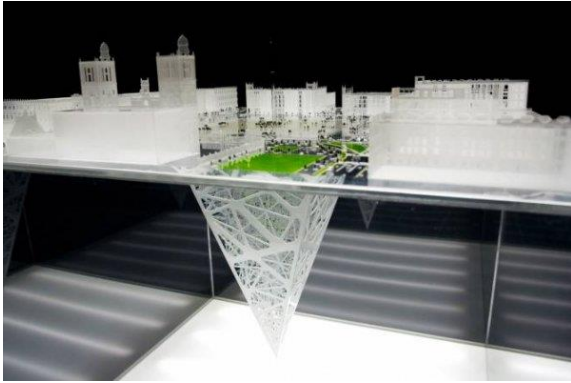
changes in object indicators in time and space.

Architecture as "frozen music": buildings that can be listened to. Architecture and music are really closely related and in tune with each other. Music is invisible and architecture is inaudible, but associatively one can "see" music and "hear" architecture.

Inversion (lag. inversio - permutation) - techniques associated with changing the order of the links of the object's indicators to the opposite.



*Philips Pavilion "Electronic Poem", architect Le Corbusier, Brussels, Belgium*



*Project 300-meter skyscraper, vice versa. Mexico City*



*Milwaukee Museum, architect Santiago Calatrava, Milwaukee, USA.*

Residential complex in Romainville. Apartments of various types open into the green courtyard, including townhouses with their own garden, apartments in the building with steps-terraces or with access to the roof with trees and space for relaxation (it was created there thanks to the efficient location of engineering equipment). But the most interesting thing is the balconies sheathed with wood on the facades and “tree houses”, terraces at the level of the second floor, where private bridges lead from the apartments. They give life to the whole complex.

To consider all the methods included in this list, a multi-volume book would not be enough. Therefore, we limited ourselves to a few examples. Despite the fact that the activities were carried out in different areas and at different times, but the heuristic approach in architecture determines their creative activity. There is still a long way to go before understanding the possibilities of communication between heuristics in architecture - we still understand too little. In addition, there are many different schools and trends in heuristics, each of which can be associated with different aspects of architecture. Studying about the possible connections of heuristics in practice with architecture, I come to the conclusion about the dual meaning of heuristics for the architect. In this perspective, I see the role of heuristics as one of

Specialists of the architectural bureau BNKR Arquitectura have developed a unique project for a huge underground structure. The pyramid has a height of 300 and a base of 240 by 240 meters. The building must be located in the central city square of Mexico City, without violating her appearance.

Exoteria - (Greek exoterikos - external) - techniques that consider external relationships between the indicators of objects.

The snow-white creations of Santiago Calatrava, whose "wings" change their position depending on the movement of the sun.

Fragmentation - (lat. fragmentum - a fragment, a piece) - techniques associated with dividing, splitting and dividing indicators.



*Residential complex in Romainville, architect Brenac Gonzalez, France, Paris.*

the supporting disciplines - along with theology, psychology, methodology, philosophy - or even as a core-oriented course.

Architecture in modern times took a sharp turn on the path, both in the field of connection with the technical sciences and in the field of socio-cultural norms.

The proposed methodology, based on a systematic approach, a heuristic approach, can make it possible to more effectively and quickly solve the tasks.

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