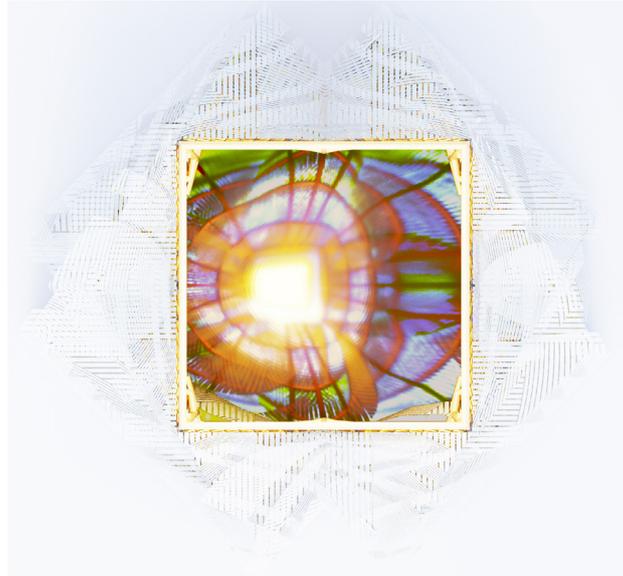


MORPHOGENESIS of the SACRED SPACE

| of Ukrainian Church |



“MORPHOGENESIS -
(from the Greek ‘morphê’ - shape
and ‘genesis’ - creation,
literally, “beginning of the shape”)

is the biological process that causes
an organism to develop its shape ”

“ The world is full of signs and information,
which stand for things that no one fully understands
because they, too, turn out to be mere signs for other things.
Yet the real thing remains hidden.
No one ever gets to see it ”

[PETER ZUMTHOR,
Thinking architecture,
Basel, Birkhäuser, 2006, p. 16.]

In the history of Ukrainian architecture, the sacral one has always played an important role: from a small ‘pokuttya’ in the interior of the country house to the magnificent temples as navigational landmarks at the masterplan level. With the flow of time the sacred space was transformed according to the architectural tendencies of its time. The morphogenesis of the sacred space of the Ukrainian church was artificially interrupted in the twentieth century. Therefore, it is important to restore lost morphogenesis with new examples of sacred spaces, which will be formed in line with modern tendencies: digital morphogenesis, modern materials and sustainable principles.

The rapid development of digital technologies defines the 21st century. It affects the architectural process, in particular, the formation of sacred spaces. Therefore, the subject of the research is the study of modern methods of forming the sacred architectural space as the central object of Ukrainian architecture.

PART I - THEORY

CANONICAL PARAMETERS OF THE MORPHOGENESIS OF THE SACRED SPACE

Canon (Greek κανών) - the unchanging traditional set of laws, norms, and rules, in sacred architecture - rules for the implementation of religious rites and the design of sacred buildings, established by the highest church authority as a law.

The canonical parameters of the creation of the sacral space appear in the main architectural aspects of the three-dimensional planning (temple orientation, traditional planning schemes, traditional configurations of domes) and architectural and artistic features (interior decoration materials, iconostasis architecture).

It is important to note that in the church of the Eastern rite the presence of paintings and the live singing is mandatory. The walls in the interior are planes for icons. The task of windows is to light them. The paintings are more important than light. Interior dome as a symbol of the sky has its function to provide good acoustics for natural singing.

MORPHOGENESIS OF CANONS OF THE UKRAINIAN CHURCH IN TIME

In the formation of the Ukrainian Church, five periods can be distinguished: the Byzantine period of the Kievan Rus', the Cossack Baroque, folk wooden architecture, the Soviet period of decline, modern Ukrainian sacral architecture. The morphogenesis of the sacral space in time was analyzed according to the main architectural aspects and summed up for each period.

MODERN ARCHITECTURAL TRENDS

Sacral architecture has always been the embodiment of architectural innovations reflecting the time when it was created. Further development of contemporary sacral architecture should be influenced by the modern architectural trends: digital morphogenesis, innovative materials, sustainable principles.

Digital morphogenesis is the process of form creation with the help of computational techniques. Design methods become more important than the form itself in the modern post-industrial information era.

Architectural methods of digital modeling are divided into a topological, isomorphic, animative, metamorphic, parametric, generative approach (by B. Kolarevich).

Development of technology influenced the development of modern materials.

For example, modifying timber to cross-laminated wood allows using this material as the structural element of high-rise buildings while maintaining fire resistance.

The sustainable principles are the combination of ecological, economic and social qualities of the architectural space. Architects pay attention to the impact of buildings on the environment, the rational use of materials, labor resources and social interaction of people in the newly created spaces.

SUMMARY

Contemporary sacred spaces can be created as a modification of the canonical parameters influenced by new architectural trends: digital morphogenesis, new materials, the sustainable principles (ecological, economic and social) and their combination.

PART II - PROJECT

The projected sacral complex consists of a church and a volunteer center.

CHURCH

The planning scheme of the temple is a cross created by two rectangles. The proportion of the sides is the golden ratio 1:1,618. The orientation of the temple is canonical: apse to the east, entrance to the west.

Functional distribution of spaces is according to the canonical rules of temple design. The particularity of the temple is the combination of the bell tower and the church itself into a single volume formed by several shells the layering of which creates a mystical outlook. The outer shell is a bell tower which creates a perforated final silhouette and dissolves the volume of the building in the natural environment. The internal dome provides good acoustics for natural singing and serves as the surface for paintings.

In the formation of the outer shell of the temple was applied a traditional method for folk wooden roof construction where 'chetveryk' transforms into the 'vos'meryk'. It means a variable horizontal roof section.

VOLUNTEER COMPLEX

The volunteer center is a combination of two asymmetric topological structures. A significant area of external walls meets the ground which reduces heat loss. The complex consists of 2 buildings - "wing of the body" - educational facilities for working with children with special needs and "wing of the spirit" - sports facilities and the humanitarian center.

CONCLUSION

The sacral space of the Ukrainian church changes with the flow of time. The architectural tendencies of each period have contributed to the development and transformation of the sacred space. Modern architectural trends continue to develop the Ukrainian church. Architects pay a lot of attention when designing to the term 'genius loci'. Less attention is paid to the concept of 'genius saeculum' which means the spirit of the time. Each structure should correspond to its time. Otherwise, it will depreciate the architectural achievements of previous generations.

“GENIUS SAECULUM

- spirit of time,
spirit of the epoch
we are living today ”