

Criteria for defining the architectural form of wooden structures

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Abstract

Currently we can see many instances, both new and old, where the roof and roof structure dominates the design concept and becomes an important part of the internal space of a building. Wooden structures in these cases directly define the architectural form and shape of the building. It is therefore a major component of architecture, which includes newly created spaces and is an essential defining element of the interior. To a large extent this influences the parameters defining the volume of space i.e. its form. Wooden roof structures, however, find application in many different positions and relations to the total volume of the construction, exterior and interior,... I will attempt to define the criteria under which wooden beams form an integral part of the architectural concept. And we challenge the facts on specific examples.

Key words: wood, architectural form, wooden roof structures

1 Introduction

To start with it is necessary to define the essential characteristics of the concept of architectural form. In theory, architecture is the concept of architectural form most closely associated with the concept of architectural composition. Both concepts are so closely intertwined that it is difficult to be separated only by theoretical definitions.

The architectural form is characterized by several essential visual qualities, circumstances and characteristics such as: shape, colour, size, texture, orientation, location and visual inertia. Form in space consists of basic elements, which are point, line, area and volume [1].

The composition itself is an interdisciplinary concept and any interpretation of this concept is different depending on the form of art, however even different authors of the same art have different interpretations of the concept. However, when composition is defined in terms of architecture the scope of the term narrows. The actual development of the concept of architectural composition is a sectional storyline encompassing not only the entire history of architecture, but also a chapter of the formation of architecture in the last decades, until present [2], [3].

2 Understanding architectural form and composition

In the context of the issue of wooden roof structures, as an essential part of architecture that defines the overall architectural form, we can also rely on specific examples of current architectural realizations worldwide. What does it mean to create architectural forms? "To create architectural composition is therefore in our understanding, to create spatial composition, the quality of which improves, the more you manage to combine the physical aspects of a unifying force supporting ideas, which include mutually mediated content, function, structure and form. It is this process of searching, and discovering manipulation techniques of space and material. It is a game full of fantasy, proportions, rhythm, and harmony [1].

Wooden roof structures play an important role in defining architectural form, concept, space... "architectural forms can be equated with the concept of intention," says landscape architect A. Dobrucká. Almost in the same breath he then adds: "Architecture is always a philosophy and philosophy is always architecture"[4]. Philosophy in architecture can be seen as one of the many disciplines of philosophical positivism, as a serious and systematic philosophical questioning interested in a subject-architecture. The definition of philosophical attitude towards architecture is understood as a question of meaning. Architecture implies a "sense" and "idea", and is always a philosophy; the philosophy of architecture. Philosophy ceases to be the main focus and becomes a being, materializing through architecture. Architecture and philosophy is a combination of words - the intangible aspect of the work and stone - material aspect of the work.

The unsolvable conflict between philosophy and architecture may only be bridged with poetry. Beings are thus born twice. First as philosophically and absolute, and secondly architecturally, tangible, consuming an empty space, found in the book "Philosophy of Architecture" George Edward Herm. Derived from this consideration, we can conclude that work without thought, is not an architectural work, even if it is a tangible work. The fusion of the tangible and intangible dimension creates a unique architectural masterpiece when one is inspired. Thus, there is a work of art, says A. Dobrucká [4].

2.1 Wooden roof structure as part of the architectural concept

In a similar way, we can also access the perceptions of wooden roof structures and its perception as an essential component of architectural form by substantially defining the entire architectural form of the work. It involves the use of wooden roof structures with a view to directly define or influence the entire design form or a major part thereof. But not only in relation to the exterior and the surrounding environment and the micro/macro urbanism, but equally with regard to interior space, interior, and not least in relation to the observer, the occupant who moves, works and lives in the given space.

Architectural form is the ultimate form of a given building material, which is designed to optimize its own aesthetic and ideological existence. This is based on a number of factors and not just the creative work of the architect and his own inventiveness according to the basic requirements for the building as well as on the basis of the investor, or its special requirements [5].

2.2 Identifying the wooden roof structure in relation to architectural form

Wooden structures, which can clearly define, the architectural form of the building, can be incorporated in various positions and situations, namely:

- It can be seen only from the outside and manifests itself externally in the form of an object (the shape of the building is no guarantee that the structure is wooden and needs further investigation of it architecture and construction details)
- Even in the interior it's impossible to detect the wooden construction
- From the exterior, it is clear that it is a wooden structure that defines the architectural form
- Part of the wooden roof structure defining the architectural form is perceptible in the interior but does not form a substantial part of the architectural concept- The main part of the wooden roof structure defining the architectural form is perceptible in the interior and forms a substantial part of the concept
- From the exterior, it is clear that it is a wooden structure that defines the architectural form and the actual wooden roof structure specifies the significant architectural form of the building interior [6], [7].

These positions and relationships of wooden roof frames and overall architectural forms are defined often at the birth of the first ideas of the architect and thus manifests itself through the entire development and design process, and the construction of the architectural work itself. This results in different relationships and positions of wooden roof structures to each other and to the architectural forms or shapes [8], [9].

2.3 What is our objective...

An essential question comes to the forefront. Can wooden roof structures define the unique overall architectural form of a construction? Several newly built constructions of our geographical region seem to prove it can. Some of them are shown and their basic features described in the following chapter.

3 Dominant architectural forms based on wood

At home and abroad is now possible to see the house a large number of architectural forms, whose essential conceptual architectural shape is defined mainly wooden roof structure. We show examples in which the wooden structure defines the architectural form, the shape of the exterior and the perception of architecture as a whole, but is a significant determinant of perception and the internal space of the interior architecture.

3.1 Roman-Catholic Church KVP, Košice

The authors of this project are Kosice fellow architects P. Simko, R. Neufeld, P. Pásztor, M. Drahovský, L. Friedmann, R. Rozman, of course, in collaboration with a number of specialist designers. Despite the difficult and lengthy implementation in the years 1999-2013 today can boast of Košice this architecturally unique one of Košice suburbs. The church has been published in several magazines and nominated for several prestigious awards for architecture.

It features the original form of the roof structure, the principal element of design material is wood. The architectural concept is characterized by the solution of the roof as a fundamental element of the conceptual architectural form. The shape of the church is thus directly defined by a wooden roof structure, which is also true awarded and presented in a church interior, which defines the fundamental nature of the internal space. Therefore, we see it as an example of defining architectural form with a wooden roof structure, and this structure is the main, central, dominant element of this architectural form.



Figure 1: Exterior (left top), during realization (right top) and interior (down) of the church at KVP in Kosice, source: archive P. Pásztor

3.2 Ecumenical Church in Turku, Finland

The second architecture, which is clearly defined as a whole wooden roof structure, the ecumenical church in Turku, Finland. The author of this project is a Finnish architect Matti Sanaksenaho and execution took place in 2005. The church is unique vision and conceptual solution is inspired by the prayer of man folded his arms imploringly the towering to the skies. At this point, however, is an important fact to which we refer is the architectural form of the whole building is defined by the roof, which design elements are mainly based products.



Figure 2: Ecumenical Chapel in Turku, Finland, source: archive P. Pásztor

3.3 The funeral house Valaliky

Valaliky funeral home in which the project is the author of a fellow architect Martin Drahovský and the project was implemented in 2000. Truss structure here defines an interesting architectural forms, while pious attractive interior space of the house of mourning. Completion of the architectural concept in this case the use of novel materials for roofing, which is reed. This unusual material perception and impression of the exterior architectural form is further strengthened.





Figure 3: Exterior and interior of funeral house in Valaliky source: Archives of DPA office

3.4 Korkeasaari Island Lookout Tower, Helsinki, Finland

An example from a slightly different question is Lookout Tower observation tower in Helsinki, was authored by architect Vilo Hara. Observation tower was built in 2002. It is one of the original architectural forms defined wooden structure.





Figure 4: View of the observation tower and the view from Korkeasaari Island Lookout Tower in Helsinki, source: [10]

4 Conclusion

From the examples presented it can be seen that clearly defined the position of timber roof structures in relation to whole architectural forms. The form of architectural work in these cases is directly defined by a wooden roof structure. This fact highlights the importance of addressing such forms of timber roof structures starting at the design phase of architectural studies and maintaining the idea to not only the construction phase, but also during use, the use of architecture. This last fact can sometimes be the most difficult task of the architect to implement throughout his life and this is possible only if the user - shares the architectural concept, form and is proud of it [11], [12].

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