

INTEGRITY OF CONSTRUCTION WITH ARCHITECTURE AND INTERIOR EQUIPMENT

Józefina Furmańczyk*

Wydział Architektury
Politechnika Wrocławska
ul. Bolesława Prusa 53/55,
50-317 Wrocław

E-mail: jozefina.furmanczyk@pwr.edu.pl

Słowa kluczowe: *architecture, construction, integrity, interior equipment*

ABSTRACT

The 21st century construction industry offers many possibilities for the design and construction of modern architecture. Many dilemmas arise when designing a building. The designer must make decisions regarding materials, form, structure, as well as the functioning of the building, its users, and many other factors [1]. Apart from purely pragmatic issues, it remains to decide what the building should represent [2]. A company promoting a green lifestyle will want to run its business in an ecological building, and a fashion house will be tasked with adding elegance in line with the products sold [3]. Such dilemmas and considerations are taken into account when designing representative public buildings. Among them, a certain group of objects was observed in which the integrity of the structure, architecture and interior equipment was applied [4]. Public libraries are examples of buildings analysed in terms of the integrity of public facilities. Integrity between architecture, construction and equipment is a solution of building design in which there is a relationship between the considered architectural elements and/or structures and/or equipment in two ways: indirect - aesthetic, direct - physical.

In order to examine the relationship between the integrity of structure, architecture and equipment, a methodology based on case study research was adopted. For each example, a review was carried out based on Internet sources. Interviews with authors and architectural portals containing numerous photographs and sketches of objects were studied. Integrity diagrams were prepared based on the collected data.

During the review, examples were verified and research objects were selected in which the integrity of elements in the three relationships occurred. According to the principle shown in the diagram below (Fig. 1), the analysed examples had to have the following connections: structure-architecture, structure-equipment, architecture-equipment.

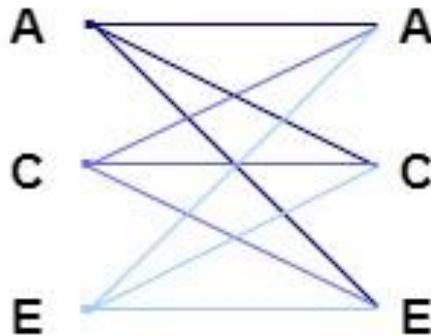
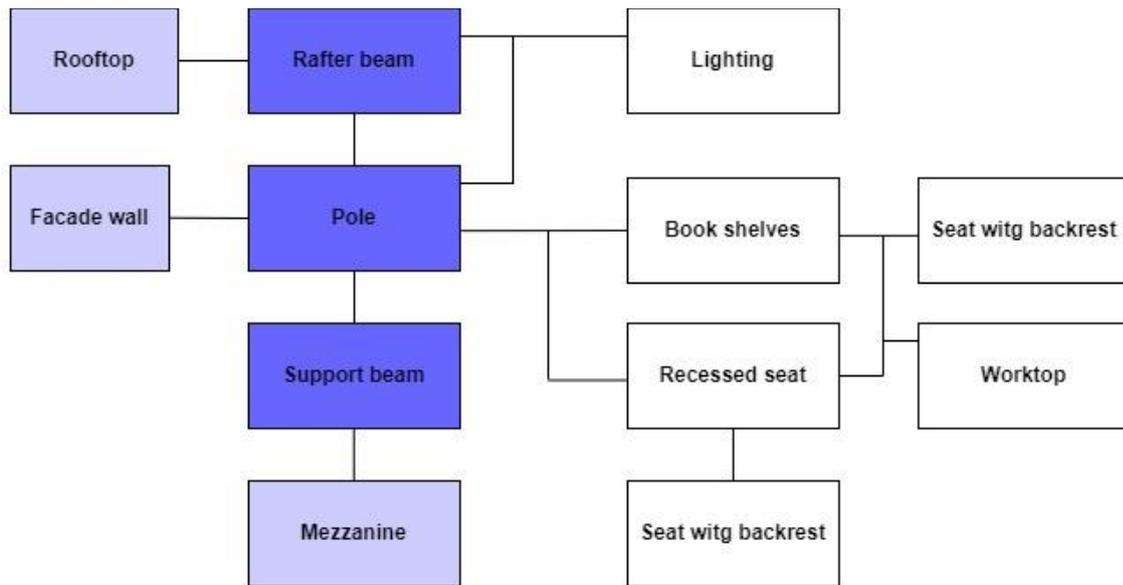


Fig. 1. Integrity connection of elements scheme, A – architecture, C – construction, E – equipment, source: prep. author.

Two model examples are the Vennesla Library & Culture House and the Musashino Art University Museum & Library. These examples were chosen to be discussed in this study due to the significant impact of the construction on the way of shaping the architecture and interior equipment. Both of these examples have in common exceptional care for the structure, which is intentionally continued as the rest of the building's elements. It is worth noting that the presented design solutions had to be considered from the first design concepts to be actually created. In the current reality, there is the issue of locating the installations, which were well thought out and hidden in both projects

The library building in Vennesla was designed by Helen & Hard in 2011 [5]. The diagram (Fig. 1) shows the connections between all elements of the structure, architecture and equipment. In this building, the most important element on which the integrity is based is the multifunctional rib. This multiplied single element simultaneously constitutes the structure of the roof and walls, shaping the form of the building. Even the building's architect, Reinhard Kropf from Helen & Hard, draws attention to the rigorous synergy between the structure, infrastructure and furniture, which takes place in the form of a repeating element [6]. Its continuation includes seats and book shelves. Between some ribs there are also additional seats with backrests and worktops.



| | | | | |
|---------|--------------|--------------|-----------|----------------|
| LEGEND: | CONSTRUCTION | ARCHITECTURE | EQUIPMENT | CONNECTION ——— |
|---------|--------------|--------------|-----------|----------------|

Fig. 1. Integrity scheme, Vennesla Library and Culture House, source: prep. author.

The Musashino Art University Museum & Library building is a library designed by Sou Fujimoto Architects for one of the leading art universities in Japan. The diagram (Fig. 2) shows the connections. In this building, the whole idea was based on bookshelves. The external wall, suggesting the divisions of the shelves, is continued in the interior, separating spaces and enabling the storage of books. The structure was planned in such a way that it was seemingly invisible, surrounded by library collections. Structural elements, beams and columns, are connected to each other in a standard way for steel structures. Prefabricated parts build on each other to create a system that ensures a safe and durable building envelope. However, the relationship between structural and architectural elements is important. The shape of the projection in the form of a perforated spiral was solved in a way that integrated the structure with the remaining elements and the functional layout of the building. The columns and beams are enclosed by vertical, external and internal partitions, creating a coherent interior in line with the architect's idea. The walls in question connect with the glass facade and bookshelves in a consistent way. Homogeneous divisions of partitions have been maintained. The walls are created by combining vertical and horizontal wooden elements, which are externally covered with a glass façade with divisions correlated with the structure.

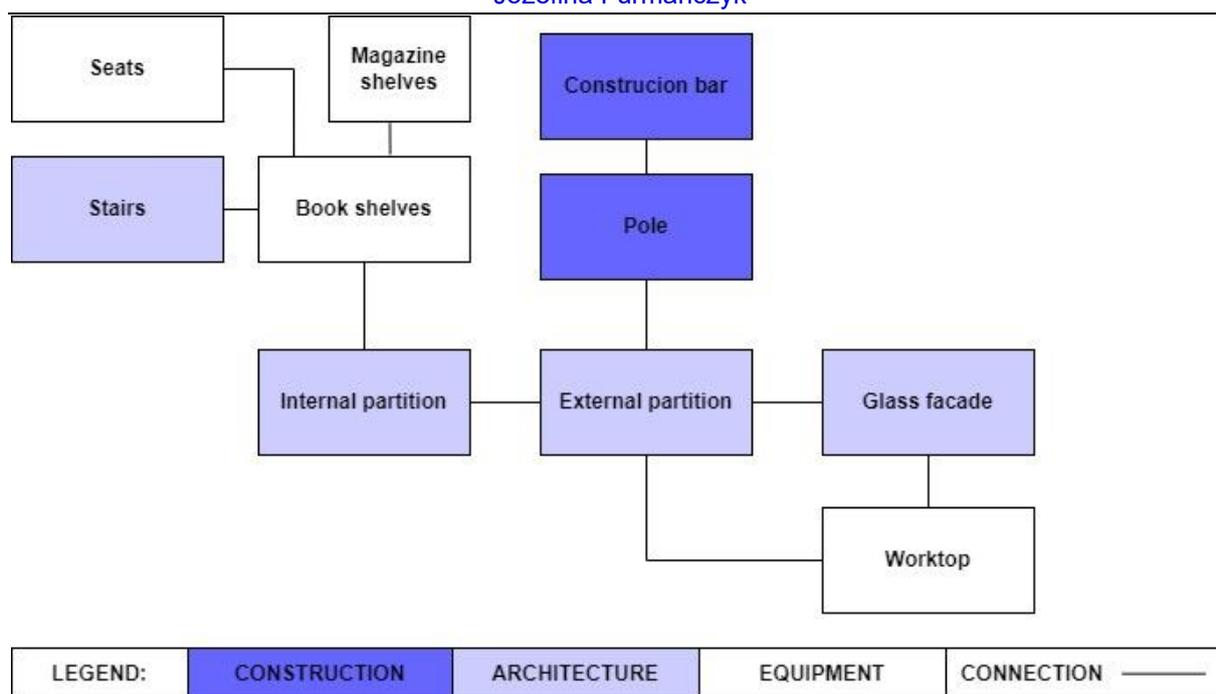


Fig. 2. Integrity scheme, Musashino Art University Museum & Library, source: prep. author.

The integrity of the structure with architecture and equipment during design must be considered in the initial conceptual stages. Buildings designed in this way, especially considering the equipment, are not flexible. Integrated furniture should be selected in such a way that it will last throughout the life of the building. The principle of integrity of construction, architecture and equipment operates in many examples of buildings. However, it should be noted that these are specific buildings that meet the criteria of invariability over time in terms of their use.

LITERATURE

- [1] K. Moe, *Integrated design in contemporary architecture*, Nowy Jork : Princeton Architectural Press, 2008.
- [2] R. Gregory, *Key Contemporary Buildings. Plans, sections and elevations*, Nowy Jork : WW Norton & Company, 2008.
- [3] P. Zumthor, *Thinking architecture*, Bazylea : Birkhäuser, 2010.
- [4] W. Jones, *How to Read Modern Buildings: A Crash Course in the Architecture of the Modern Era*, Londyn : Universe, 2017.
- [5] Helen & Hard, Vennesla Library, data dostępu: 23.09.2023 r., <https://helenhard.no/work/vennesla-library/>.
- [6] Frameweb - Vennesla Library, data dostępu: 18.09.2023 r., <https://www.frameweb.com/tags/vennesla-library-cultural-centre>.