

Summary of approved PhD theses

Michaela Kesanová

Peter Lényi

Ján Studený

Oto Nováček

Michal Bogár

VERTICAL FARMS

Ing. arch. Michaela Kesanová, PhD.

The dissertation thesis focuses on vertical farms and maps the current state of their concept in the global context. It concentrates on the process of architectural design and examines the requisites of the creation of designs of vertical farms at the study stage. Furthermore, it clarifies the term vertical farm and presents a catalogue of vertical farm projects. In connection with the topic of vertical farms, the dissertation explores the following questions: What is a vertical farm? What is the role of a vertical farm as a new architectural typological species? How to approach the design of vertical farms? Based on the synthesis of the acquired information, the dissertation offers possible recommendations and principles of designing a vertical farm. The (structure of the) document is divided into two (basic) parts. The first part defines the intellectual framework needed to explain the concept of vertical farms. It examines the philosophies central to the rationalization of indoor agriculture that aims to improve human sustainability. It focuses on exploring the principles, technology and design strategy of the concept of vertical farms. The second part presents the knowledge gained from the analysis of examples, evaluates examples of vertical farm projects and creates a guide to the process of creating vertical farm designs. In the conclusion, the dissertation discusses the potential of vertical farms.

PhD thesis approved in the study programme Architecture at the Faculty of Architecture and Design STU in Bratislava

INDEPENDENT CULTURAL CENTRES

Ing. arch. Peter Lényi, PhD.

The aim of the thesis is to provide an introduction into the architecture of independent cultural centres in Slovakia which existed during the period beginning with the change of the political regime in November 1989 to May 2019, when S2, hall of the Stanica Žilina-Záriečie, was destroyed by fire. Centres from the period are presented in a catalogue that was created using already published information, but more importantly, by using new information gathered, processed and published mostly for the first time - mainly project documentation. Beyond that, schemes representing the relation between space and programme were prepared to illustrate how the programmatic content, which is relatively uniform across independent cultural scene, was inscribed into spatial situations of very unique buildings with diverse typologies. Based on the aforesaid information, general aspects of architecture of independent cultural centres were formulated.

PhD thesis approved in the study programme Architecture at the Faculty of Architecture and Design STU in Bratislava

AUTHOR'S PROGRAM AS A TOOL OF ARCHITECTURAL DESIGN

Mgr. akad. arch. Ing. Ján Studený, PhD.

I present and define an author's program that I consider to be an integral part of our work as practicing architects. The dissertation aims to answer the questions formulated in the specification of the dissertation thesis as to the definition and role of an author's program as an architectural design tool and in explaining the intentions of the architect's work and the definition of the author's program. I describe individual topics from assignments from architectural work and, using selected projects, I try to define the basics and main principles of my creative work. I have arranged them into a structure that could be a true picture of what we have been trying to do in the field of architecture in the 25 years of the existence of our studio (ksa. a ksa_studený 1995 - 2020). Basically, I have divided them into two themes, (Transformation vs. Models), depending on the concept and environment, which correspond with my focus on the concept. While Transformations are associated with the restoration of the existing building structures, Models comprise new architectural projects. For the dissertation I chose Models - the area that is closer to my natural, more personal preferences and that is an essential expression of architecture as creation. Models are conceptual designs and solutions that well illustrate our objectives through a single assignment as an example to cover a wider scope of topics often not directly included in the assignments. They also help to reveal new architectural concepts and although they are created based on client's demands, the resulting work serves also other purpose.

PhD thesis approved in the study programme Architecture at the Faculty of Architecture and Design STU in Bratislava

DATA-BASED PLANNING AND URBAN DESIGN

Ing. arch. Oto Nováček, PhD.

At the beginning of the 21st century, humanity entered a new stage in settling the planet. We became predominantly urban species, as the share of the urban population has exceeded the share of the rural one (World Bank, 2015). Rapid population growth, but also demographic changes, high levels of mobility and migration of people, ideas and goods, and the associated change in the environment have created unprecedented pressure on current planning practices and tools. The advance of the Internet and related digital technologies is rapidly accelerating these changes. The system of social control has smoothly adapted to these changes and is gradually moving into the virtual world (Townsend, 2014). However, the urban planning and urban design, its parts and elements show a small degree of adaptability to these unprecedented changes. The main problem seems to be their rigidity and high degree of stiffness, which leaves room for various kinds of speculation. A possible approach to increase the adaptability and flexibility of planning and creation seems to be the use of data as a basis for creating various tools. Thus, any theories about new approaches should take into account current trends and approaches based on Industrial Revolution 4.0 (Bauernhansl et al., 2014). However, empirical knowledge and experience gained over the centuries should still remain the basis for urban planning and design. The dissertation focuses on the role of the private and public sectors in the development of a town or a city, as well as in data collection and data management. The section primarily concentrates on the analysis of the development of planning in the era of accelerated changes. Furthermore, it explores the possibilities of mapping human activity at various scales (regional, city and local), while it is focused on participatory forms of mapping - specifically on geographical participatory mapping (PPGIS) (Sieber, 2006). The dissertation attempts to outline the possibility of creating a digital index of user quality of the environment by analysing data from participatory geographically localized questionnaires (Emotional Maps). In addition, it offers open planning framework concepts. These are based on the hypothesis that data can be integrated into a comprehensive urban planning tool that will allow for more flexible planning based on the measurability of the urban environment. The conclusion sums up the theoretical knowledge, current indices and their comparison with the empirical output from Emotional Mapping and the specification of problems and possibilities that may be brought by the application of the aforesaid in planning practice.

PhD thesis approved in the study programme Urban Design at the Faculty of Architecture and Design STU in Bratislava

CONCEPT OF THE NATURAL AREAS OF THE BRATISLAVA AGLOMERATION

Ing. arch. Michal Bogár, PhD.

The dissertation thesis focuses on a selected natural areas of the Bratislava agglomeration. The dissertation presents a reflexion on undeveloped localities and their natural-landscape skeleton which has the potential to partially influence the forms and directions of the axes of urban development in the suburban landscape. The paper covers the topic from various perspectives, on both regional and residential scale. Furthermore, it presents a case study of Miloslavov, one of the dynamically growing municipalities of the Bratislava suburban area. The dissertation thesis attempts to contribute to the discovery of key elements of the natural-landscape skeleton on the outskirts of Bratislava. The paper also presents reflections on the methods of regulation of the urbanization which emphasizes the maximum preservation of natural and agricultural areas along with the planned development of suburban settlements. As one of the examples of such regulation, the dissertation thesis presents the already mentioned case study of the village Miloslavov.

PhD thesis approved in the study programme Urban Design at the Faculty of Architecture and Design STU in Bratislava