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## CRITERIA FOR DESIGNING SCHOOL OUTDOOR SPACES

### KRITERIJI ZA PROJEKTIRANJE OTVORENIH PROSTORA ŠKOLA

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The subject of this dissertation is school outdoor spaces in the context of defining criteria for their design from the pedagogical, architectural and urban planning points of view. Based on a review of scientific and professional literature, as well as selected reference examples of school outdoor spaces, characteristics of outdoor spaces were identified and design criteria were determined. By establishing a connection between pedagogy, architecture and the urban context, a holistic approach to the design of school outdoor facilities is made possible. Based on the defined criteria, the existing outdoor facilities of 15 elementary school buildings in the city of Osijek were evaluated and guidelines for their improvement were proposed.

During the construction process of a school, outdoor spaces are very often not an integral part of the planning, programming, design, and construction of the school complex, and positive examples are the result of partial interventions. Without a systematic approach to planning and design, the result is an inadequate and suboptimal use of school outdoor spaces, design that is inconsistent with the modern educational program and, depending on the environment in which they are located, failure to meet the potential for fulfilling the needs of the local community through multipurpose use.

The research consists of three phases (analysis, synthesis and evaluation), and for the purposes of the research, two catalogs were created. The first catalog refers to the analytical phase of the research and consists of graphical representations of 24 selected reference examples of school outdoor spaces from the 20<sup>th</sup> and 21<sup>st</sup> century, which support the theses established in the analytical part of the research. The second catalog consists of detailed analyses of 15 examples of outdoor spaces in existing elementary schools in the city of Osijek, on the basis of which a graphical analysis of the content of outdoor spaces was made and based on which the defined criteria were evaluated.

In the **analytical part** of the paper, an overview of scientific and professional literature is given, supported by reference examples of na-

tional and international school outdoor spaces of the 20<sup>th</sup> and 21<sup>st</sup> century. These examples underline the importance and role of the use of outdoor spaces and confirm the theses established in the professional and scientific literature. The analytical part of the study is based on the consideration of schools' outdoor spaces from three important aspects that influence their design: educational program, planning and programming and the urban context in which they are located.

The first part of the analysis, related to the educational program, deals with the issue of outdoor education, with the question of the influence of school architecture on the success and development of children, and with the research of the program and the development of school buildings.

The second part of the analysis examines school outdoor spaces through a review of legislation, regulations, and standards that regulate the programming, planning, and design of school buildings, as well as an analysis of the content of school outdoor spaces.

The third phase of the analysis explores the potential relationships between the school outdoor spaces and the context in which the school is located, as well as opportunities for interaction with the local community.

The **synthesis of the research** consists of the evaluation of 24 selected reference examples from the 20<sup>th</sup> and 21<sup>st</sup> century and the establishment of design criteria based on data from the analytical part of the research and the results of the evaluation. The comparative analysis method was used to identify outdoor spaces characteristics based on the evaluation parameters of size, layout, design, content, and relationship to indoor spaces and the urban context, based on which the design criteria were established in relation to the educational program, planning and programming, and the urban context in which the schools are located.

The **evaluation phase** consists of a presentation of the development and analysis of the outdoor spaces of 15 elementary schools in the local context, i.e. the city of Osijek, and the evaluation according to the established

criteria. The evaluation was carried out through field research, recording and examination of characteristic urban and spatial elements, photo documentation, and comparative analysis and identification. The most productive period for the construction of elementary schools is the period from 1945 to 1990, when the development of the city was most intensive and the norms regulating the compliance with the educational program of that period were applied. Elementary schools outdoor spaces in the city of Osijek at most fulfilled 50% of the criteria, which is an indicator of the level of (un)equipped outdoor spaces as well as (un)awareness of their importance for children's upbringing and education. The average rating of the selected examples in the city of Osijek, resulting from the evaluation according to the criteria, is 4.03 points out of a maximum of 10 possible points. The evaluation has shown that the greatest improvements are needed in the area of educational compliance.

The research has shown that a stronger correspondence between outdoor spaces and the pedagogical framework leads to a more intensive relationship between outdoor and indoor spaces and to a more active use of outdoor spaces. The research has also confirmed that the optimal use of school outdoor spaces also depends on their relationship with the context and that multifunctional use can influence the narrower and broader context and life of the community. The scientific contribution of this study consists in the definition of comprehensive criteria for the design of school outdoor spaces, based on the synthesis of pedagogical, architectural, and urban planning analyses as well as on the established systematisation of school outdoor spaces depending on the urban context. The multidisciplinary nature of the research topic ensures that the research results can be applied not only in the field of architecture but also in other disciplines. In addition to the contribution of theoretical and phenomenological research in the field of educational architecture and education-related peripheral areas, this research can serve as a starting point for new research processes and as a starting point for concrete applications in practice.