

PRACA DOKTORSKA

**Implementacja zasad zrównoważonego budownictwa
w przestrzeni uczelni wyższych na przykładzie
kampusów uniwersyteckich Wschodniego Wybrzeża
Stanów Zjednoczonych**

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ABSTRACT

Shaping the built environment in the face of the challenges of sustainable development and climate change can be considered through many lenses and in different scales. Designing groups of buildings with harmonious functions, which can be noticed in the planning of city districts, housing estates, industrial or office parks, adds complexity to this task. In the process of planning large investments, many towns require going through a complicated administrative process, performing a series of analysis examining the impact of investments on the surrounding districts, buildings and the environment. However, there is still no uniform implementation of sustainable development in cities.

Universities are unique examples of public spaces with different scales and problems. The campus planning process is a long-term effort, due to the scale that has a huge impact on the city or neighborhoods surrounding it, as well as the natural environment. Academic campuses contain a number of functions similar to smaller cities, and thus face similar problems in the planning process: transport, public realm, civic, research, residential, sports and recreational spaces, open and green spaces, energy management, rainwater management and waste management. Their needs evolve along with their growth and the development progress.

University campuses are exemplary examples of the implementation of the principles of sustainable development and adaptation to climate change on a large scale. There are many reasons for this, but the main ones include commitment to innovation as well as direct and indirect educational functions. Especially the latter, which consists in setting an example by implementing a sustainable development strategy in the process of planning and everyday use of a campus, has the greatest impact on the development of an environmentally friendly society. In the presented US-based campuses, the main focus was on smart growth and sustainable design, which allowed the campuses to achieve significant milestones in reducing carbon dioxide emissions. These efforts have become integral parts of the organization's mission (committed to high-quality education, research and innovation) while supporting their functions of creating future leaders.

The focus of the doctoral dissertation is on the implementation of the sustainable design and urbanism in the collegiate setting. The thesis presents a thorough analysis of the genesis of the sustainable urban and landscape planning, the evolution of ecological design and the current state of legislation and municipal approach to sustainability and adaptation to the changing climate. The disquisition examines the importance of the relationship of “town and gown” and the opportunities for collaboration by implementing smart growth practices. The author provides an in-depth analysis of the evolution of the sustainability and resiliency movement in the university setting and presents the current best practices and approaches on the example of three progressive universities located on the U.S. East Coast. The dissertation concludes by examining select projects developed in the past twenty years to show the practical progress of sustainability and resiliency practices within these campuses and analyzes the impact of the regional and local sustainability requirements, planning and development, pro-ecological university policy as well as the building location through the lens of the LEED rating system. The examples presented were selected for their outstanding achievements in sustainable planning and green building

as well as for their early involvement in the implementation of these strategies. Early experiences, the evolution of the approach to the topic as well as the selected strategies can serve as the basis for future organizations and assumptions in their planning process, allowing to focus on proven, best practices and avoid the experience of early adaptation of untested practices.

This dissertation is the first extensive research work that includes the genesis of the sustainable development movement in connection with the analysis of legislation, strategies implemented by universities and their results.