


Chapter 8

Building Bridges to Sustainability: Overcoming Barriers and Promoting Integration in Architectural Education

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ABSTRACT

The consideration of environmental factors plays a key part in the design of sustainable buildings within their respective contexts. The global community is currently grappling with the adverse impacts of climate change, which can be attributed to the release of greenhouse gases into the atmosphere. Architecture is a unique area of study that enables the development of spatial solutions to address human requirements, while also carrying the essential duty of ensuring the creation of a sustainable built environment. Although the inclusion of sustainability in architectural education is widely acknowledged, the majority of curricula lack a comprehensive integration of this topic. In order to conceptualize a sustainable built environment, it is imperative for the architectural curriculum to incorporate a foundational comprehension of the interconnection between sustainability, technology, and design. This chapter analyzes the barriers to sustainable environmental design in architectural education. It also identifies worldwide integration promotion efforts.

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INTRODUCTION

Climate change has a significant impact on various regions across the globe. The impact of increasing sea levels and the occurrence of extreme weather events, such as intense precipitation, flooding, severe storms, and unanticipated heat waves, significantly influence the overall well-being of human populations. Based on the findings presented in the United Nations World Population Prospects, it is projected that approximately three-quarters of the world's population will reside in urban areas by the mid-21st century (United Nations, 2022). The report indicates that climate change will lead to a decline in the provision of water services and overall living conditions in urban regions. The increasing prevalence of impermeable surfaces leads to the occurrence of flooding events and the contamination of surface waters. Urban heat islands have been found to have detrimental effects on energy consumption, greenhouse gas emissions, and human health and comfort (US EPA, 2022). The reduction in the groundwater table has detrimental effects on vegetation growth and can lead to the intrusion of saline water into coastal aquifers (Şen, 2015). The availability of freshwater is diminishing. The European Commission (EC) highlights the significant ramifications for Europe and identifies the various challenges associated with a climate crisis (European Commission, 2022).

Under such circumstances, it is imperative to reconsider urban areas as experimental spaces for pioneering climate adaptation and mitigation strategies. The existence of such aspirations is substantiated by a multitude of documents that have been signed by state representatives and municipalities. As a result, numerous research and development initiatives are currently directed toward addressing the challenges posed by the climate crisis. The United Nations 2030 Agenda for Sustainable Development, regarded as a pivotal framework for addressing poverty and environmental conservation, encompasses a comprehensive set of 17 goals (UN, 2022).

Goal 11: make cities and human settlements inclusive, safe, resilient, and sustainable;

Goal 13: take urgent action to combat climate change and its impacts. (UN, 2022)

According to current statistics, approximately half of the world's total energy consumption is accounted for by buildings, making them a significant contributor to the acceleration of global warming and the transformation of natural ecosystems (IPCC, 2007). Within the framework of the present climate crisis, it is crucial to acknowledge the influence of buildings on the environment (IPCC, 2017) and the increasing emphasis on ecological consciousness in relation to regulations pertaining to the construction industry (e.g. the European Directive on Energy Performance

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