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AN APPROACH FOR SUSTAINABLE BUILDINGS: ARCHITECTURAL DECONSTRUCTION DESIGN

Abstract

Construction industry has been facing a challenge in optimizing environmental impacts of buildings which are responsible for the majority of environmental problems that built environment causes. The selection of appropriate building materials and service systems are the primary precautions to decrease adverse impacts of buildings on the environment during use phase. However, when the subject is optimizing environmental impacts of buildings, whole phases of building life cycle should be taken into consideration during design process, which ends up with a holistic approach.

This paper presents an approach, which is developed to take into account environmental concerns during construction, maintenance and deconstruction phases by focusing on architectural detail design process. The basic assumption of the study is that building elements should be detailed by focusing on end-of-life management of building materials and environmental impacts generated during construction, maintenance and deconstruction activities. Therefore, "Architectural Deconstruction Design (ADD)" approach is developed by integrating Design for Deconstruction (DfD) principles according to their relationship between end-of-life scenarios of materials and environmental impacts of construction, maintenance and deconstruction activities by focusing on characteristics of the construction technologies.

The ADD approach provides an opportunity for analyzing multiple choices regarding to construction technologies during architectural detail design process to minimize environmental impacts of building materials and buildings, ultimately. The approach enables building materials to be reused or recycled without any additional processes. Moreover, designing the building elements with ADD principles provides decrease in resource and energy consumption and protection of human health during the activities performed at construction, maintenance and deconstruction phases of building life cycle.

Keywords: Architectural detail design, Construction technology, Design for Deconstruction, Environmental impacts, Sustainable buildings