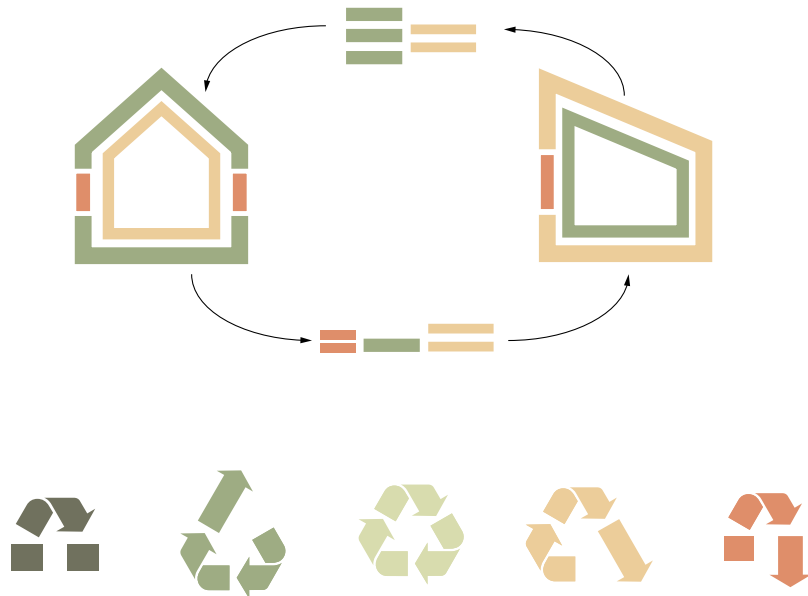


VÁCLAV GRMELA

# TOWARDS ZERO-WASTE BUILDINGS

BUILDING DESIGN FOR REUSE AND DISASSEMBLY



## BUILDING DESIGN FOR SUSTAINABILITY

Supervisor: Walter Unterrainer  
Examiner: Krystyna Pietrzyk

This master thesis investigates the potentials of zero-waste buildings as one of the strategies to be used in the sustainable building environment. According to the EU Waste Framework directive, 70% of all the construction and demolition waste has to be reused or recycled, by 2020. The goal of this study is to bring up some of the design challenges connected to this and increase interest for a sustainable praxis.

Participation in various events, meetings and visiting exhibitions, further helped to gain a comprehensive understanding of the topic. Some of the involved actors, such as architects, engineers and several product companies, were contacted, to get a holistic view of the state of art in the field.

Based on the investigation a series of possible design solutions is presented in the catalogue that

forms the main part of the thesis booklet. This part has the goal to give the reader an idea of how does design for disassembly might look like and inspire to carry out further investigations.

An analysis of various projects and the methods, used during the construction and dismantling of the buildings, show that there is a big potential for improvement. Design that prevents a product's effective dismantling needs to be reviewed. This regards both building as the whole and its singular components. Ensuring the value preservation and simple reuse in future, without producing more waste, shall be considered a priority.

Keywords :

Design for disassembly; Reuse; Upcycling; Material value preservation; Zero-waste; Dismantling; Circular economy