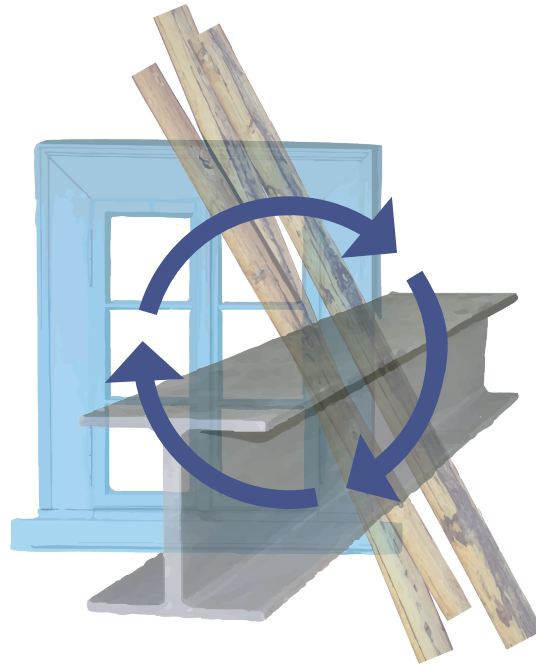


HANNA JÖRLÉN

MEANS-INSPIRED DESIGN

- a design process proposal for a circular use of building materials



BUILDING DESIGN FOR SUSTAINABILITY

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Human behavior has since the industrial revolution had an enormous impact on climate, and the construction sector is a significant contributing factor. One possible way to reduce resource consumption and greenhouse gas emissions, would be to replace current linear economy systems with systems based on circular economy. For the construction sector, such a transition would imply building mainly with a circular use of building materials and products. Such a transition creates numerous challenges, not the least for architects who must adopt their design processes.

Design for a circular use of building components does occur to a small extent, but often with inefficient and unsystematic design processes. For architects to fully be able to design with already used components, the development of a structured design process is needed. Not much research has been done regarding circular building design, and even less which concerns how theory can be implemented in the every day design practice of architects. Therefore, this master thesis investigates how a design process could be modelled to support architects in designing for a circular use of

building components. Through studying literature, through interviewing architects who work with circular design and through studying three different construction projects implementing circularity, deeper understanding has been reached regarding potentially necessary elements, usable tools and possible challenges that might be encountered during a such a design process.

Based on the research findings, a structure for a design process, with and for, reused components, has been developed as the main result of this thesis. The process can be used to guide architects who aim to design for circularity, with the aim to slightly reduce the gap between theory and implementation of circular economy principles in the construction sector.

Key words: circular economy, construction sector, circular building design.