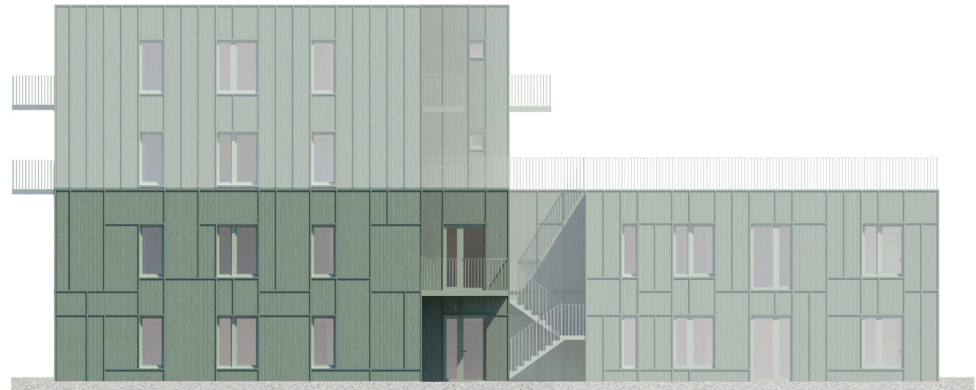


REBECKA GEBER

ADAPTIVE CAPABILITY

- lengthen the lifespan of buildings already in the design phase



BUILDING DESIGN FOR SUSTAINABILITY

Supervisor: John Helmfriðsson
Examiner: Paula Femenias
MT'21

A large part of the built environment ends up having a much shorter life span than the buildings have potential for due to changed requirements regarding function, appearance or qualities. To demolish and replace with new, instead of using the existing structures, results in unnecessary use of energy, materials and a negative impact on the environment.

For a long-term sustainability within architecture, it is essential to consider the whole life cycle of buildings already when they are designed. The aim of this thesis is to investigate the possibility to design architecture prepared to easily be changed and transformed in the future to meet new circumstances with simple methods and as little environmental impact as possible.

Adaptable design based on analysis of the chosen context, the area Rosendal in Uppsala, and the demands of the inhabitants, is explored. Design strategies based on theory, case studies and analysis of the local context work as a theoretical framework that underlays the design concept. By mainly using a research by design approach, a design proposal of a building is developed through iterations.

In consideration of the future perspective, scenario planning is applied and a storyline for a possible development of the area is created. The impact of changed requirements causes the building to be expanded and transformed to host exchanged functions, which can be done due to preparations implemented in the initial design. The proposal consists of three steps of the building design.

The thesis challenges the way of viewing buildings as out of date and promotes the approach of treating them as units, not only of materials, but also of time. Through the design proposal, the thesis demonstrates the implementation of context-based adaptability in the initial architectural design, as a sustainable approach to lengthen the life span of buildings.

Keywords: Adaptability, Extensibility, Transformability, Longevity, Resilience