Exam Work Synopsis

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Straw, wood, clay and some rabbit skin…
The evaluation of renewable based, low-tech-high-knowledge, element based, modular housing solutions.

There is a clearly visible dichotomy in architectural sustainability approaches today. While there are several housing solutions available fulfilling sustainability criteria, most of these follow the high-tech industrial approach. In main-stream architecture these are often referred to as “green” or “sustainable” architecture. “Natural” or “regenerative” building practices stand at the other end of the continuum, representing a low-tech-high-knowledge and handcrafted-labour intensive solution, often originating from traditional building practices. The architectural and aesthetical qualities of these are often questionable according to the mainstream architectural discourse. Nevertheless, with growing climate change and environmental awareness, the importance of these previously marginal, so called “alternative construction methods” is increasing rapidly.

This project proposes that it is possible to create fully renewable material and natural building techniques based, eco-designed, easy-to-assemble, modular and expandable housing solutions that fulfil even the toughest sustainability and building requirements (humidity, energy efficiency, indoor comfort, etc.). The propositions of the study are based on critical observations of existing high-tech / low-tech sustainable housing solutions, written and digital sources and technical-constructional data derived from manufacturers, NGOs, research organizations and authorities.

This master thesis proposes various actual building designs aimed for real-life practical use in different environments. Through these it aims to examine the circumstances around and the available opportunities for creating such a low-tech-high-knowledge, easy-to-assemble, element based, modular and expandable construction within the constraints of the “Attefall” house size, that also both fulfils the three sustainability and the C2C-system criteria, while only utilizing -possibly locally procured- renewable, re- or upcycled materials. Through these building designs the project aims to illustrate that industrialisation of alternative building techniques helps to overcome the short-comings of these methods, such as labour intensiveness, humidity and fire safety issues, etc..