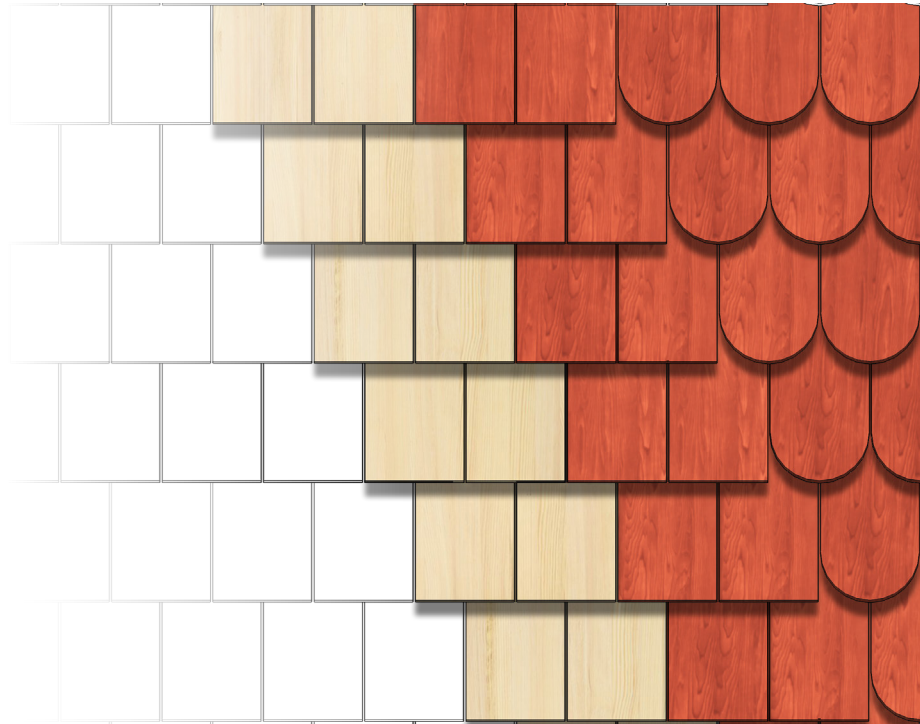


ANTONIO TOLEDO PLATA

A TALE OF SHINGLES

- The making of a durable wood cladding



BUILDING DESIGN FOR SUSTAINABILITY

Supervisor: John Helmfridsson
Examiner: Paula Femenias
MT'21

The building industry is currently aiming to adapt its principles to mitigate the current global warming scenario. Multiple attempts are already on their way to generate alternatives to reduce the negative impact that this sector has had in the last century.

This research is an attempt to present an alternative to potentialize the sustainable use of wood in cladding systems in Sweden. It proposes the creation of a new dismantlable wood facade system, whose components may disassemble without going through a high energy and destructive demolition process. It centers on the idea that durable wood can be an exceptional material for sustainable construction if it is properly treated, maintained and if it is set to be reused multiple times.

This research starts by showing an analysis that gives a solid base to the design proposal. This analysis covers the importance of wood within sustainability, the material approach (how wood can be selected and worked to be more durable), the traditional practices within cladding systems and shows how the modern industrialized systems are built up in the current times.

Besides that, a design proposal is carried as an exercise to summarize the lessons learned from the previous analysis. This design proposal presents the design of a cladding system that centers on the concepts of optimal material quality, material treatments and optimal system assemblies. In addition to this, the system is tested with the redesign of a facade of an existing medium residential project. The project chosen is one six (a project included in the case studies section), with the intention to improve the different expressions that the system can have, and also to develop the adaptability to different situations in the surface.

Finally, there is a set of conclusions that give an answer to the two research questions, and there is also a set of reflections on the challenges and opportunities found in the creation process of the wooden facade system.

Keywords : wooden facade, long-lasting wood, wood treatment, traditional wood facade system, modern wood facade system, design for disassembly.