

Developing a concept to reduce packaging waste at Aalberts Hydronic Flow Control

Assignment

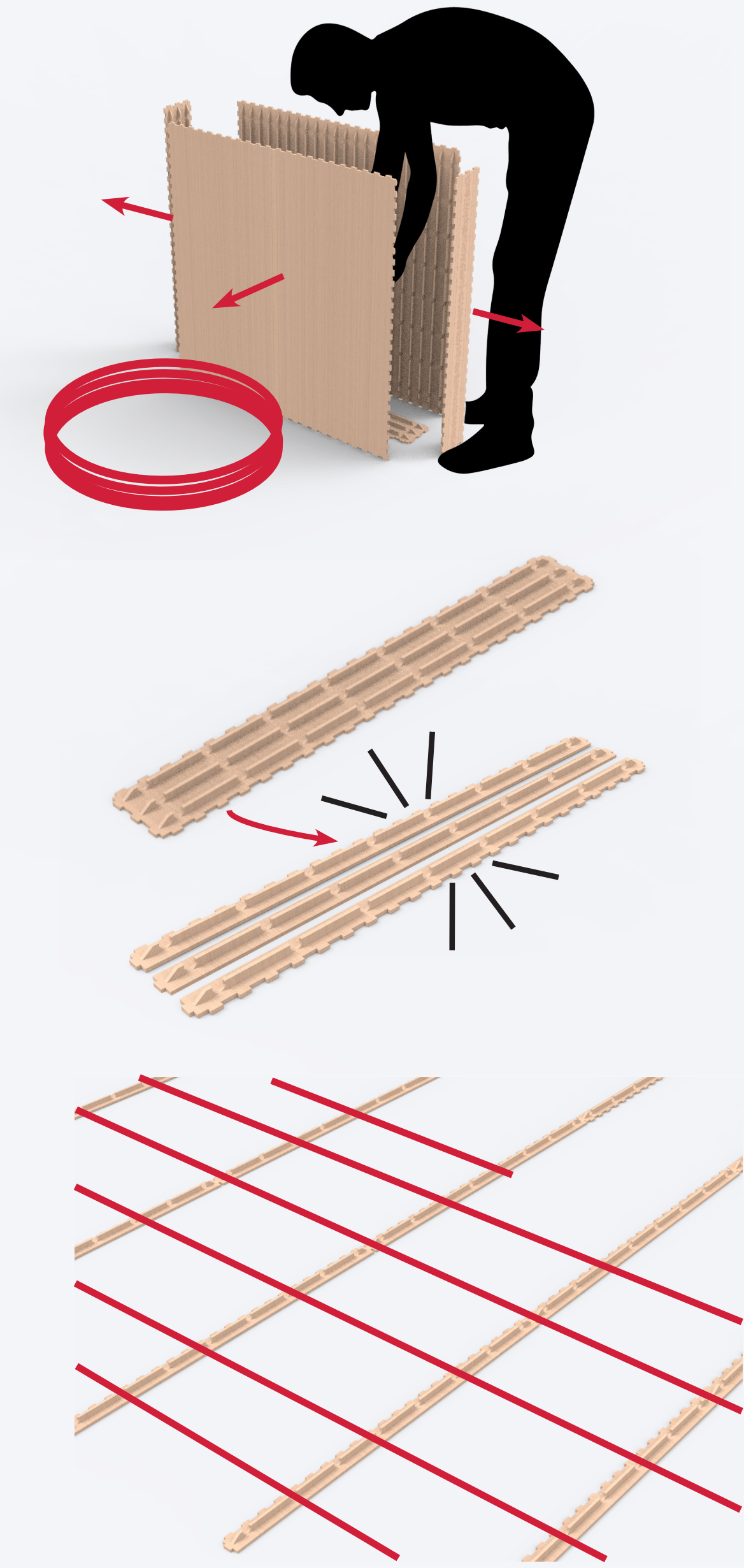
In 2022, Aalberts Hydronic Flow Control introduced a total of 2739 tons of (registered) packaging to the market. The company has set the target to reduce their packaging material by 20% in weight by 2025. In this thesis will be looked into, and recommended on this target. In addition to this, the assignment has been established to develop a concept to reduce packaging waste for Aalberts through research on sustainable packaging, providing insights for improving business-to-business sustainable packaging practices.

Proposed solution

A strategic roadmap has been designed showing all recommended actions for Aalberts to achieve packaging reduction based on three periods:

- The **first period (now-2025)** is focused on the implementation of most financially appealing packaging changes for Aalberts to reach the target of 20% reduction by 2025. Investments are needed, but are expected to be profitable within 2 years of implementation, leading to 20.7% reduction of all packaging (566 tons).
- The **second period (2025-2035)** is focused on reducing unnecessary packaging and redesigning packaging for recycled and less material use. In this period investments are needed to reduce packaging, contributing to more packaging reduction at Aalberts, leading to an accumulative reduction (of period I & II) of 25.8% of all packaging (707 tons).
- The **third period (>2035)** aims at eliminating single-use packaging through implementing the concept of packaging as a product. This requires further investments and a bigger change in packaging practices than the two periods before, which eliminates single-use packaging completely, leading to an accumulative reduction (of all periods) of 54.2% reduction of all packaging (1484 tons). This concept aims to eliminate single-use packaging completely through redesigning packaging to replace another product by providing packaging with an additional function.

Packaging as a product



		Period I now-2025	Period II 2025-2035	Period III >2035	
PRODUCT	Aim	Achieving 20% reduction by 2025 - current target (Chapter 6.2)	Reduce unnecessary packaging and redesign single-use packaging for recycled and less material usage (Chapter 6.3)	Eliminate single-use packaging (Chapter 6.4)	
	Recommended actions	<ul style="list-style-type: none">Target of 20% reduction by 2025<ul style="list-style-type: none">Reduce bag sizes Valves & Fittings by 50% (-/-46 tons)Reusable pallets PEX pipe (-/-520 tons)	<ul style="list-style-type: none">Reduce unnecessary packaging<ul style="list-style-type: none">Reduce feuvillard PEX pipe by 50% (-/-4 tons)Replace outer boxing with tape PEX pipe (-/-12 tons)Minimize printing* (0 tons)Implement brown boxes over white* (0 tons)Redesign primary packaging closer to products<ul style="list-style-type: none">Octagon & hexagon packaging Vessels (-/-103 tons)Hexagon packaging PEX pipe (-/-8 tons)Octagon (pallet) packaging PEX pipe (-/-14 tons)Eliminate virgin fossil-based materials primary packaging<ul style="list-style-type: none">100% recycled plastic bags Valves & Fittings* (0 tons)	<ul style="list-style-type: none">Packaging as a product<ul style="list-style-type: none">Fittings (-/-56 tons)Valves (-/-36 tons)Expansion vessels (-/-674 tons)PEX pipe (-/-198 tons)	
	Targeted results	Plastic reduction	-/- 46 tons (30% of plastic)	-/- 4 tons (3% of plastic)	-/- 92 tons (59% of all plastic)
		Cardboard reduction	-	-/- 137 tons (8% of cardboard)	-/- 872 tons (48% of all cardboard)
		Wood reduction	-/- 520 tons (67% of wood)	-	-
		Reduction results	-/- 566 tons (21% of all packaging)	-/- 141 tons (5% of all packaging)	-/- 964 tons (35% of all packaging)
		Accumulative results	-/- 566 tons (21% of all packaging)	-/- 707 tons (26% of all packaging)	-/- 1484 tons (54% of all packaging)
R-ladder strategy	Reduce & Reuse	Reduce	Rethink		
REGULATIONS	Regulations	-	<ul style="list-style-type: none">55% GHG emissions reduction EU<ul style="list-style-type: none">Implementation PPWR<ul style="list-style-type: none">EPRPackaging taxesPackaging minimized weight & volumeMinimum recycled contents	<ul style="list-style-type: none">Net zero GHG emissions EU<ul style="list-style-type: none">Ban single use plastics UK & FranceEliminate avoidable waste	

* In the thesis, market trends, business economics and recommended involvement actions for installers are also included in the roadmap.

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Integrated Product Design

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