



how to handle carbon counting in construction

Tim de Jonge



Low carbon housing in Zeeland



	Life Cycle Cost = CC + NPV(RC OC MC EC)
1.	Acquisition Costs (AC)
2.	Construction Costs (CC)
3.	Renewal Costs (RC)
4.	Operation Costs (OC)
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6.	End of Life Costs (EC)

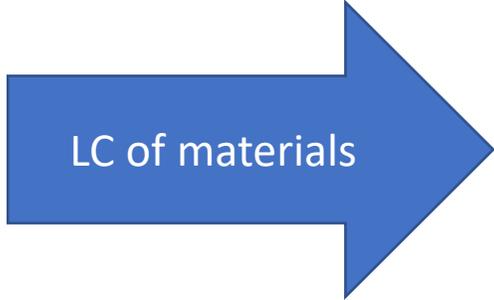
ICMS 2 life cycle costing

Low carbon housing in Zeeland



EN 15804 “Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products”

	Product stage			Construction process stage		Use stage							End of life stage				External
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	Raw material supply	Transport	Manufacturing	Transport	Construction	use stage	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/demolition	Transport	Waste processing	Disposal	

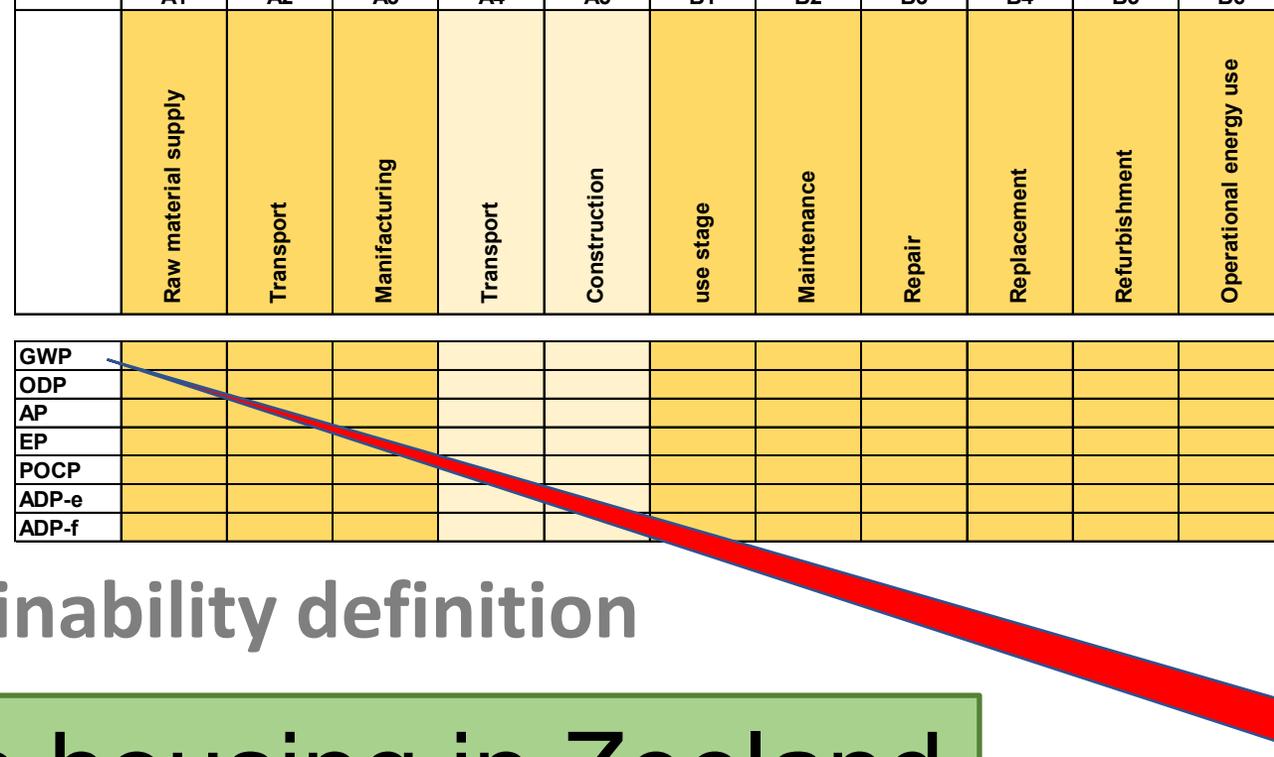


GWP																		
ODP																		
AP																		
EP																		
POCP																		
ADP-e																		
ADP-f																		

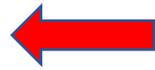
EN 15804 sustainability definition

Low carbon housing in Zeeland

CO₂



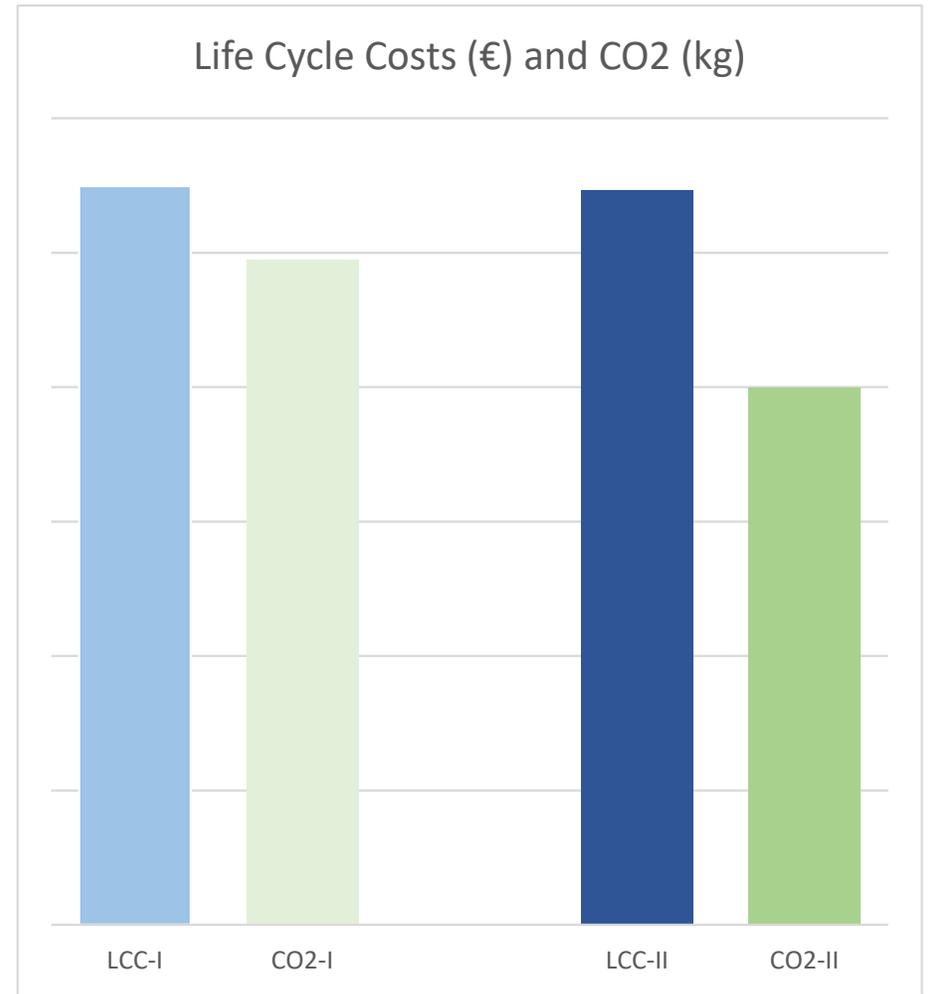
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Choosing the right materials reduces CO₂ over 15% (on top of CO₂-reduction by thermal insulation & low energy systems)



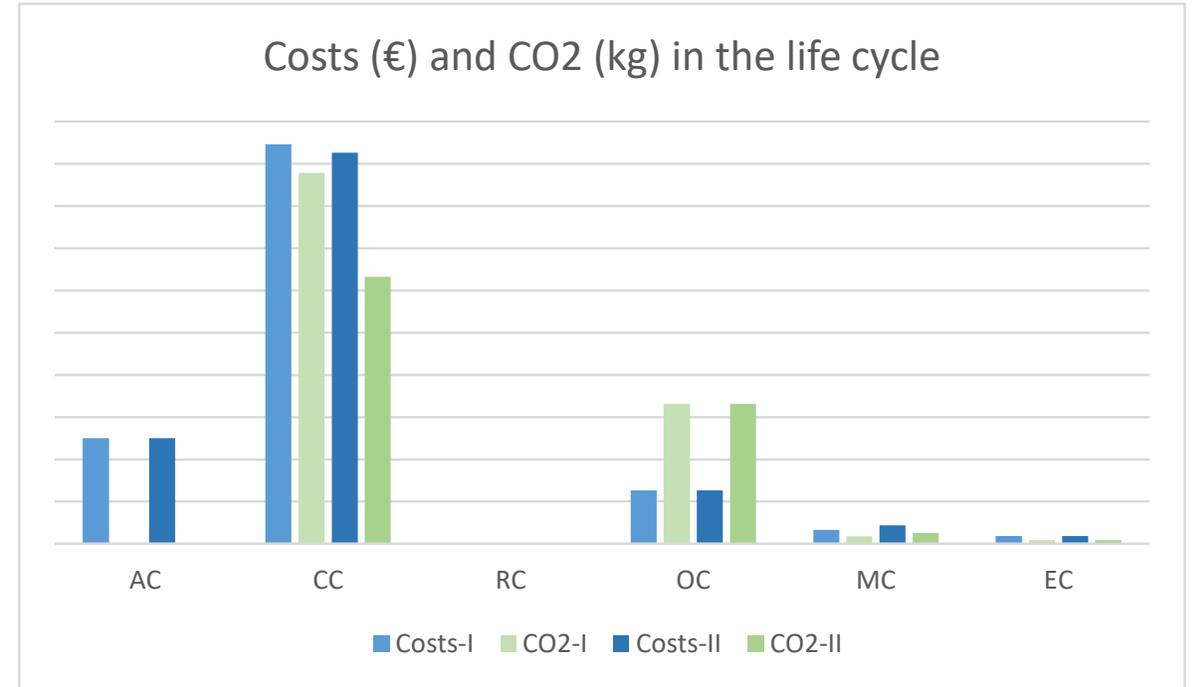
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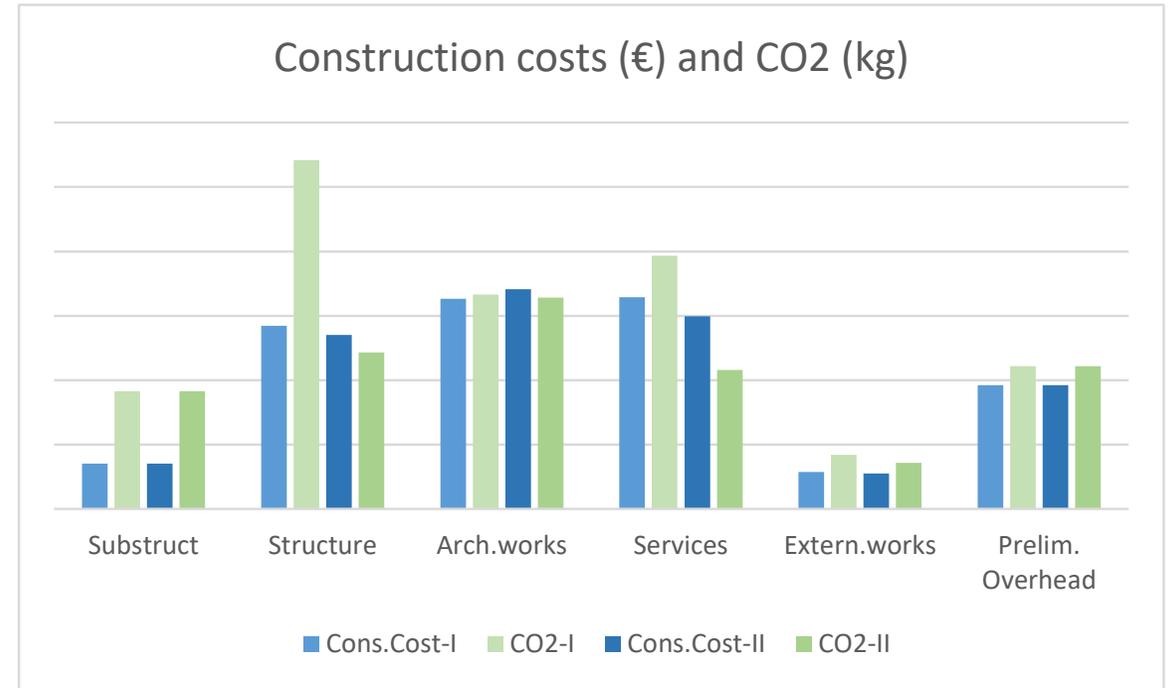
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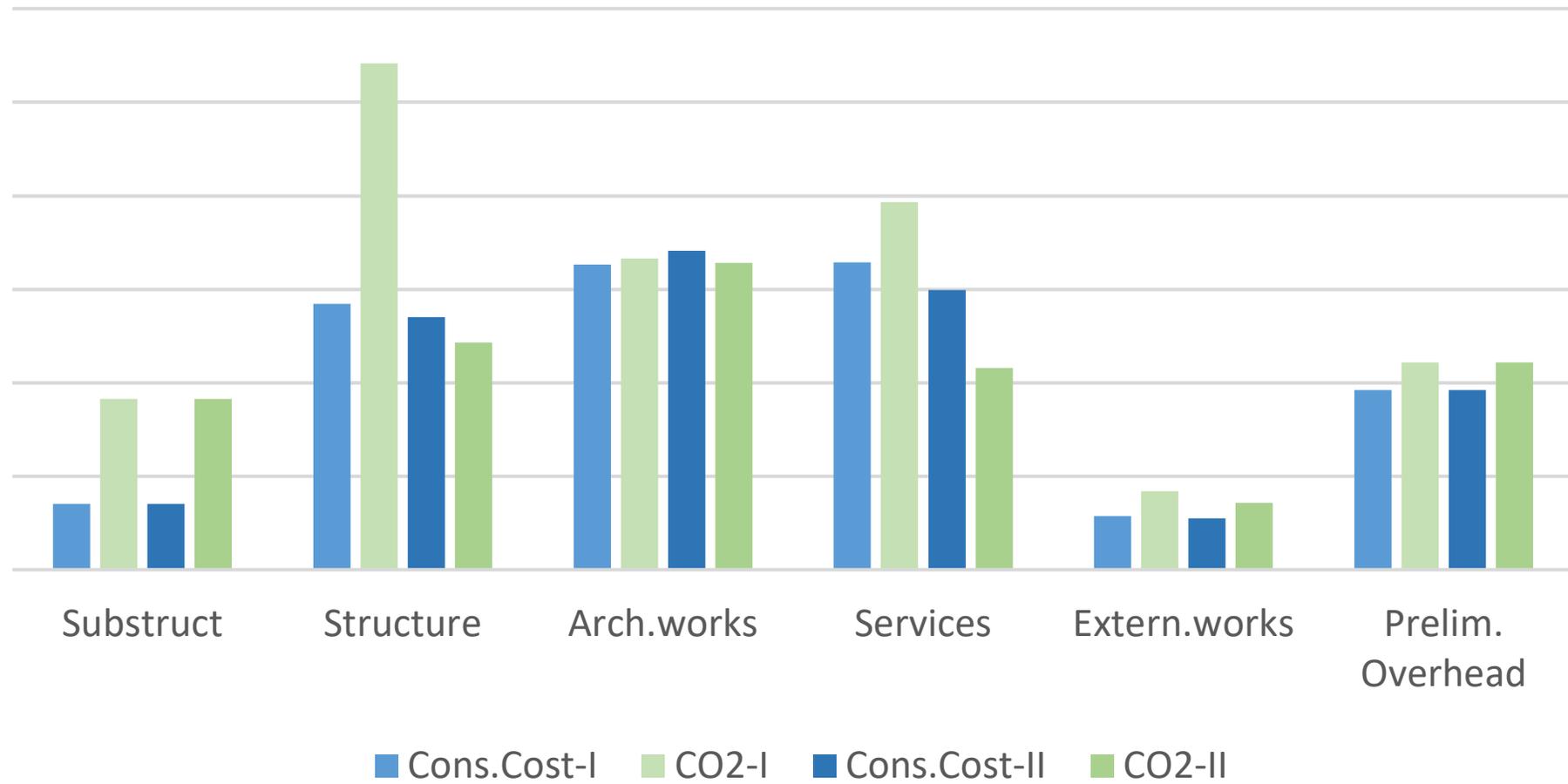
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Low carbon housing in Zeeland



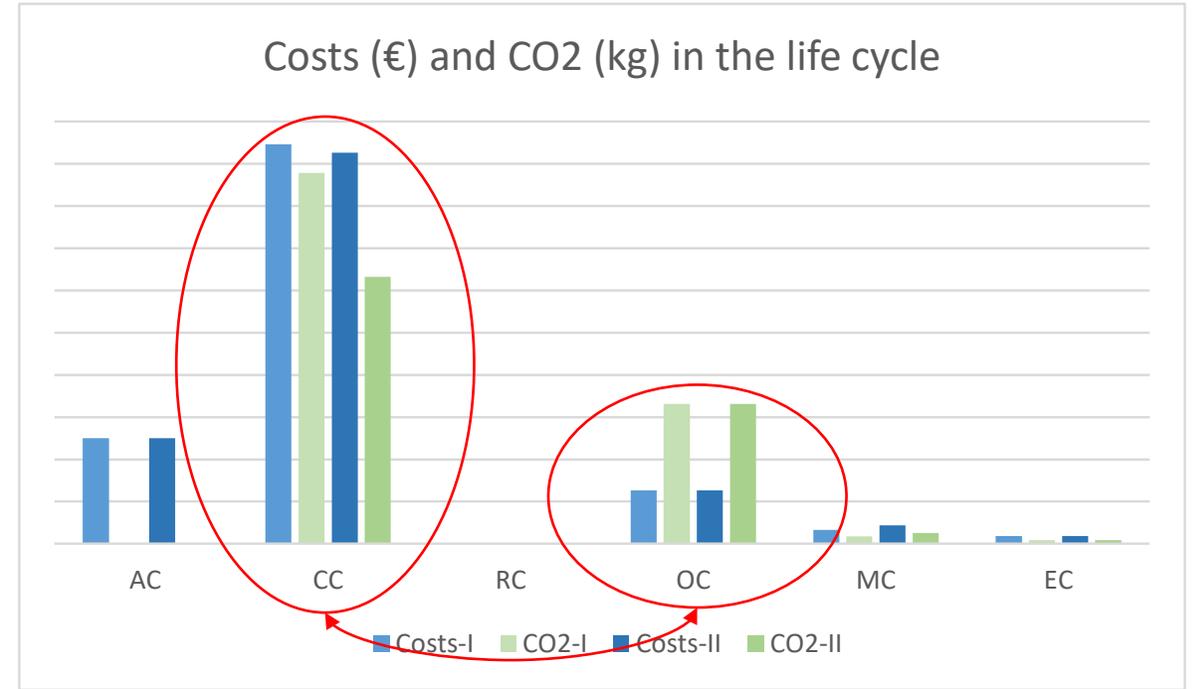
Construction costs (€) and CO2 (kg)



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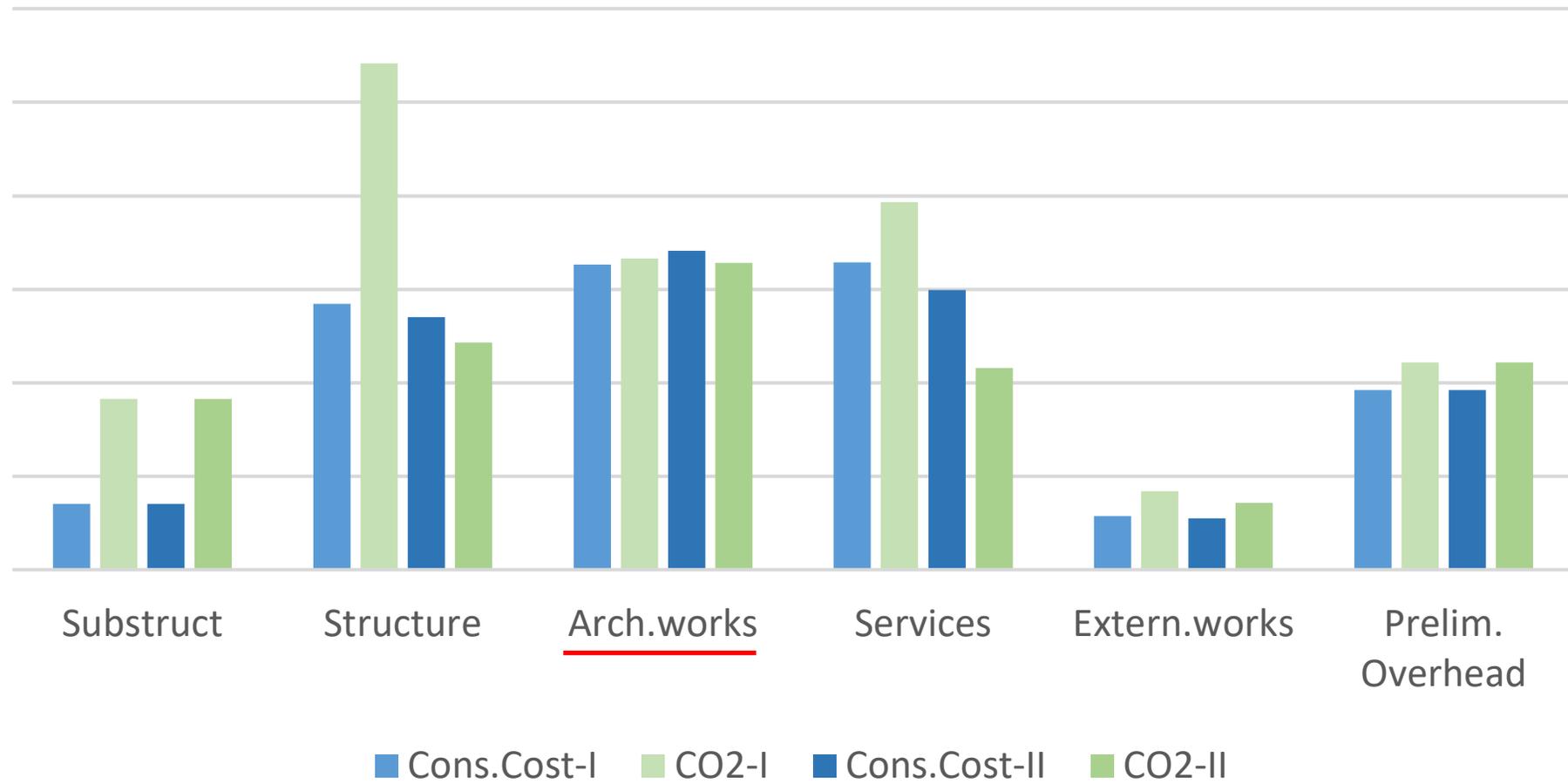
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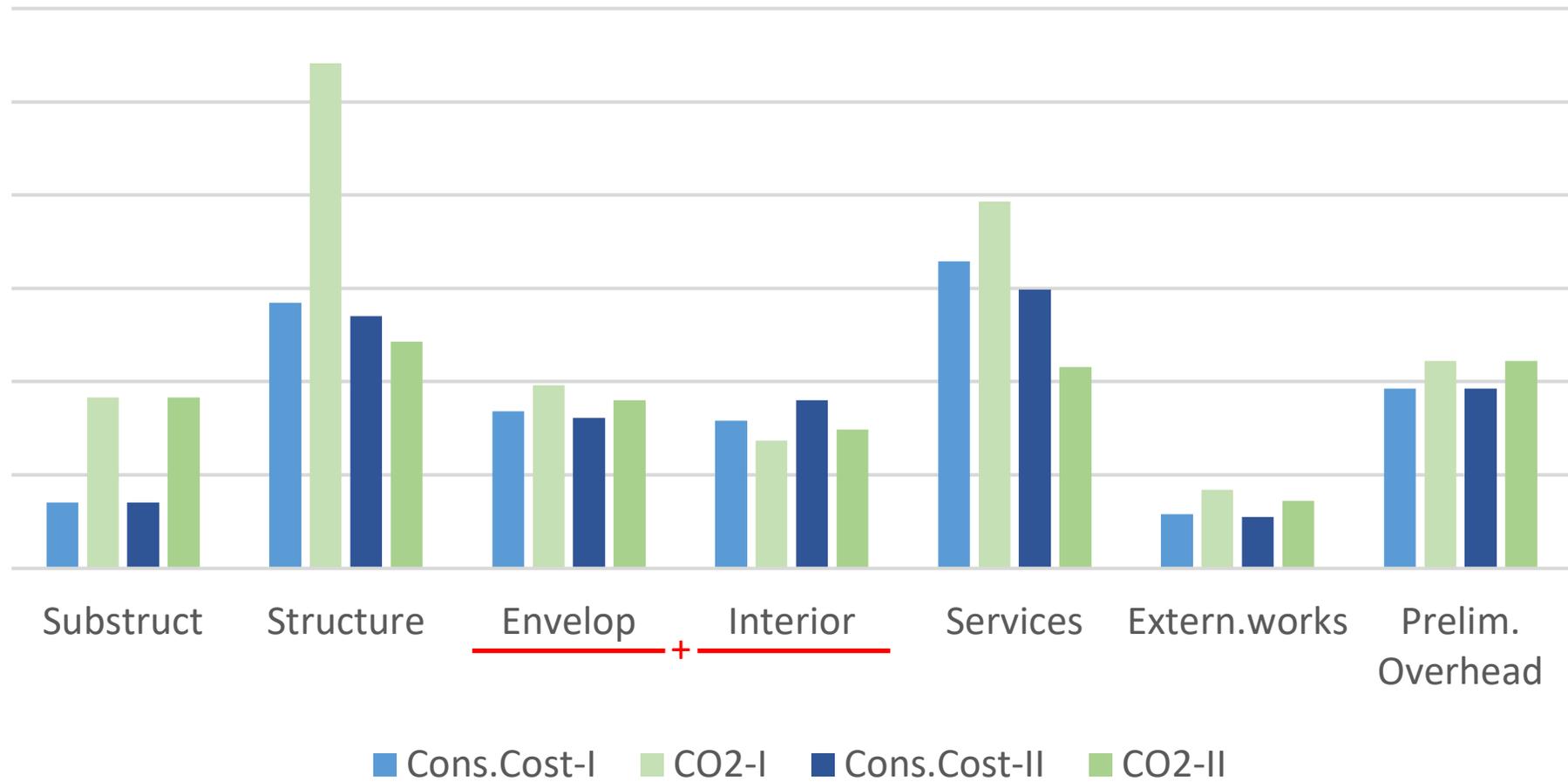
Low carbon housing in Zeeland



Construction costs (€) and CO2 (kg)



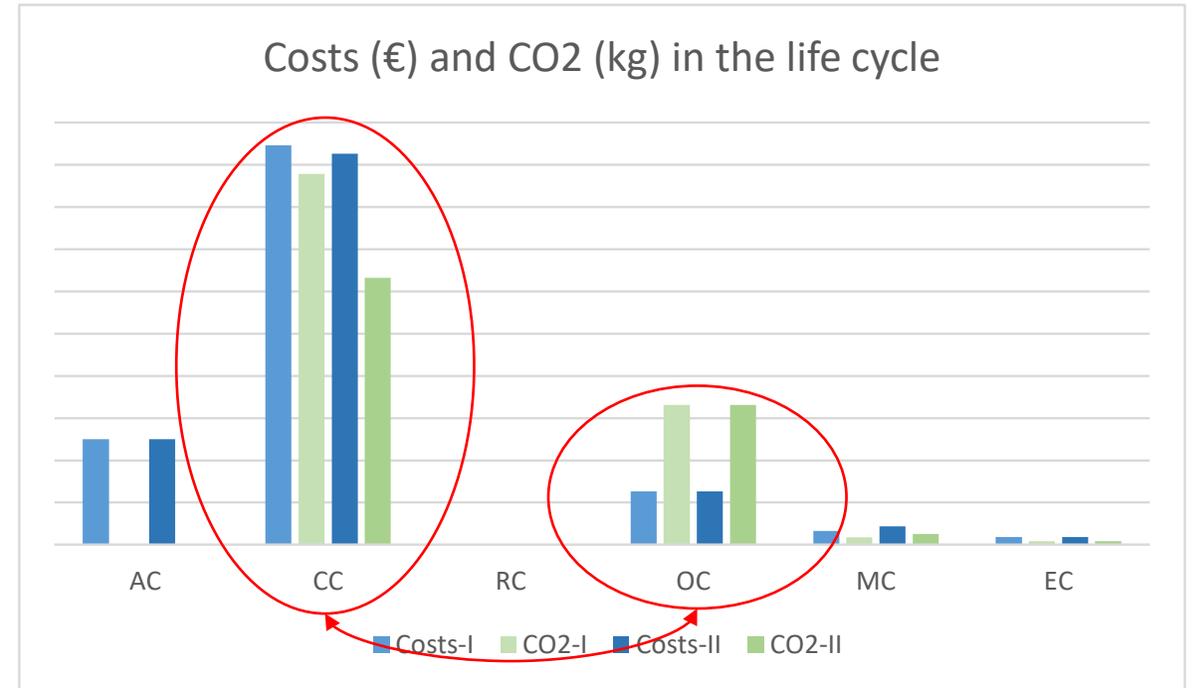
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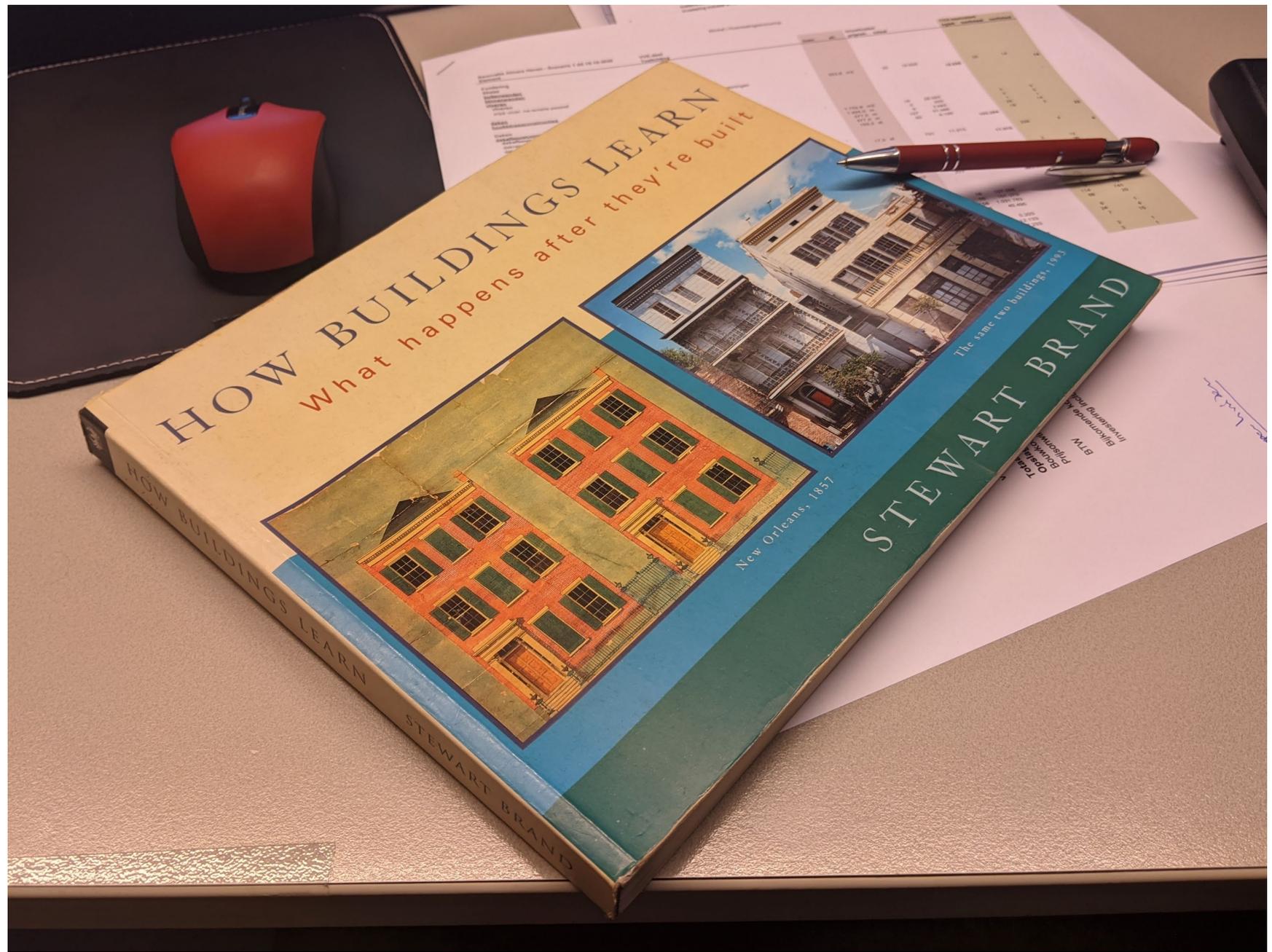
Choosing the right materials
&
Balancing construction-
and operation-emissions



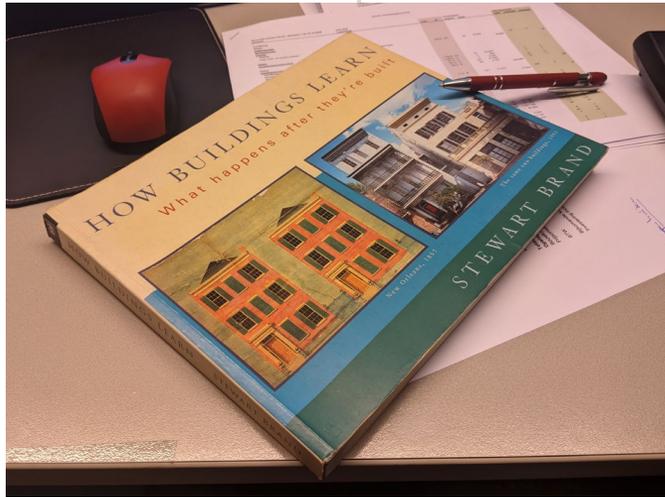
Low carbon housing in Zeeland



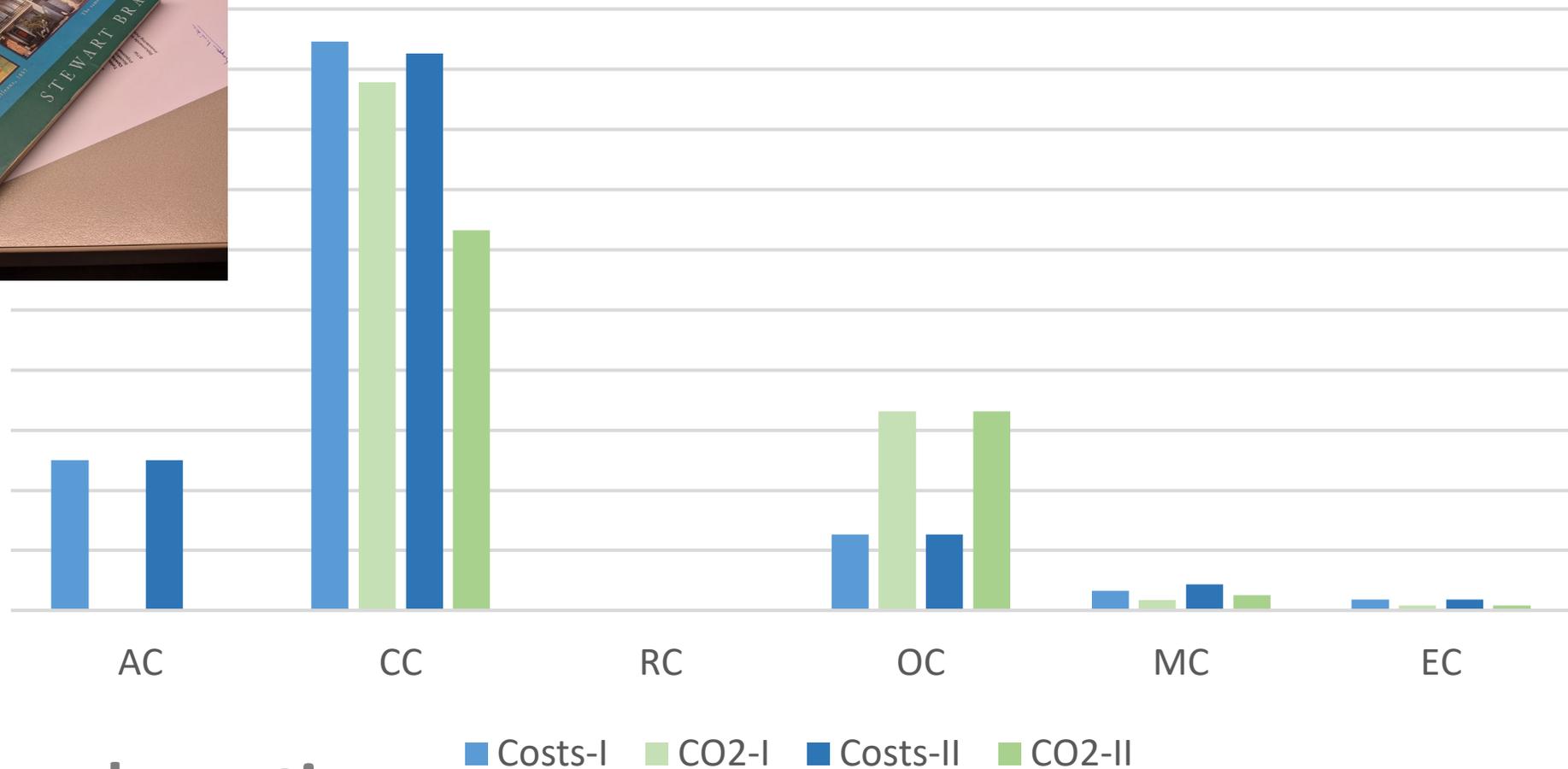
To a circular economy



To a circular economy



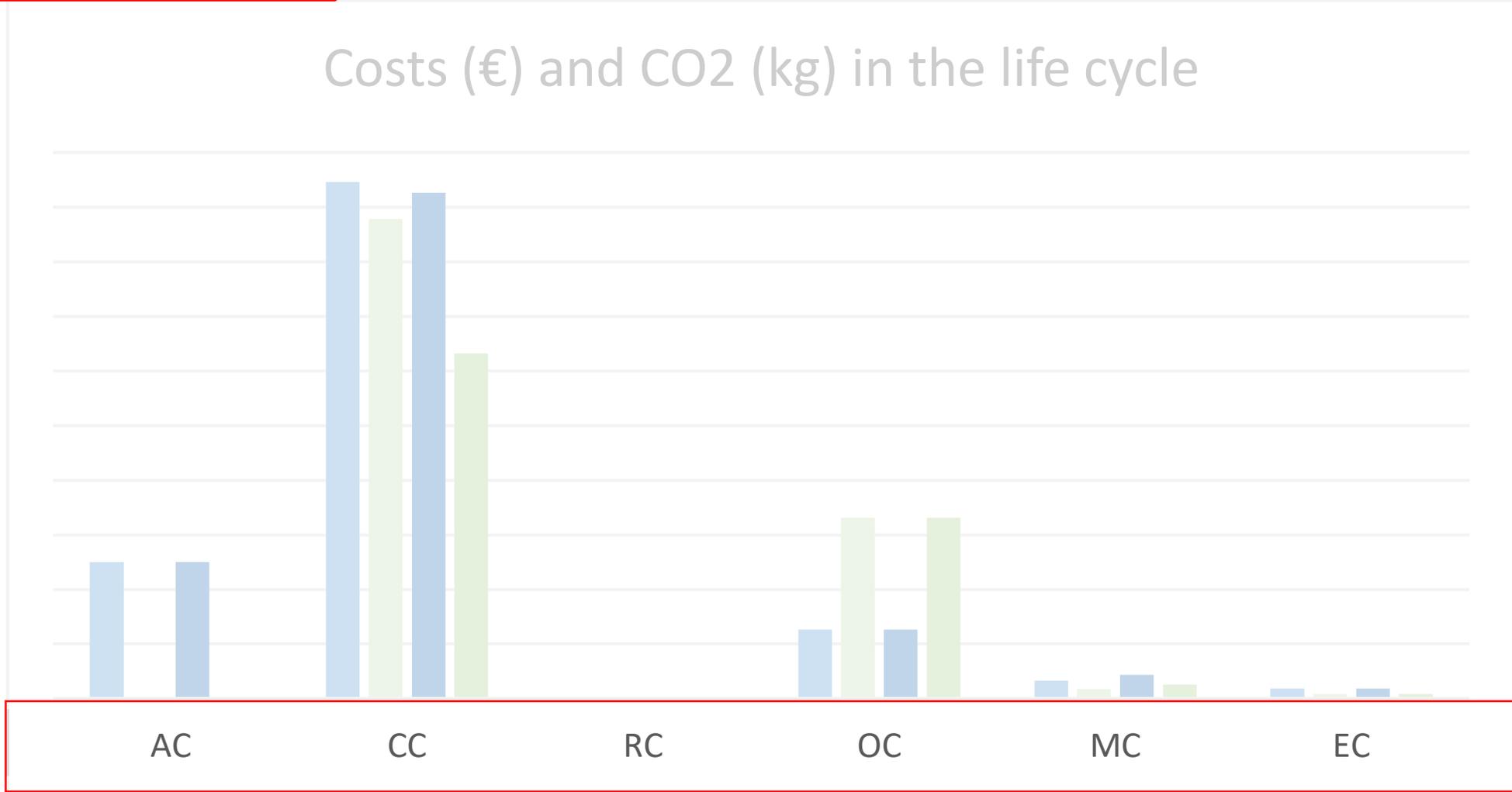
Costs (€) and CO2 (kg) in the life cycle



ICMS 2 life cycle costing

To a circular economy

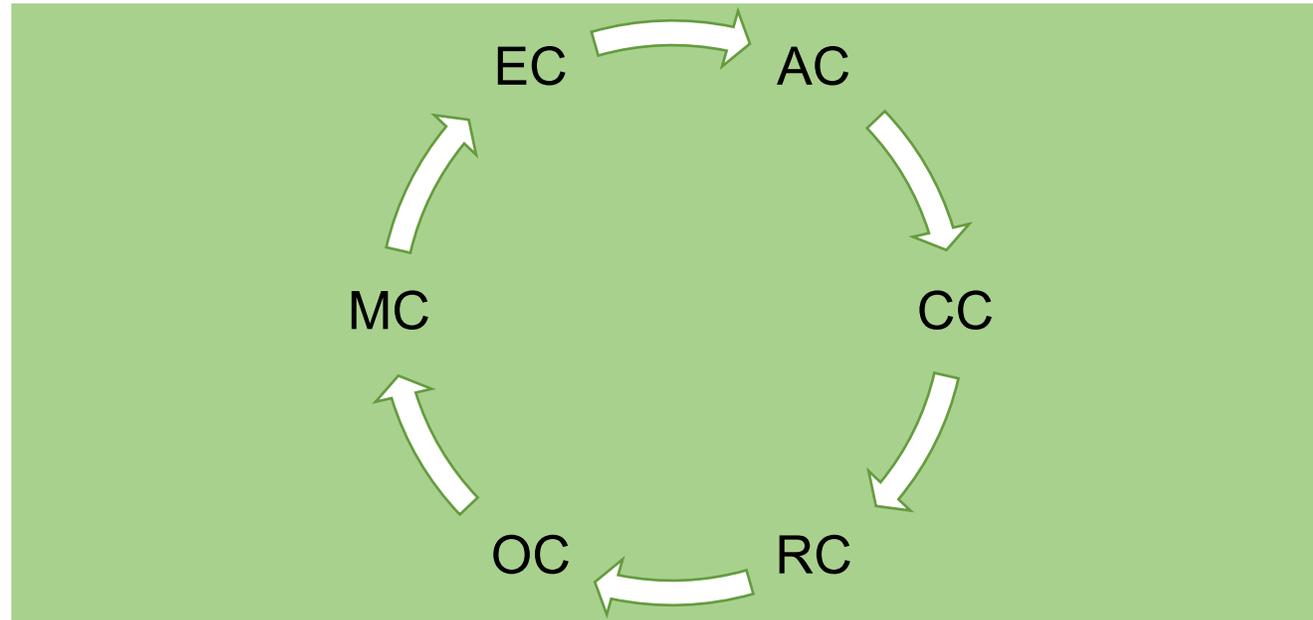
Costs (€) and CO2 (kg) in the life cycle



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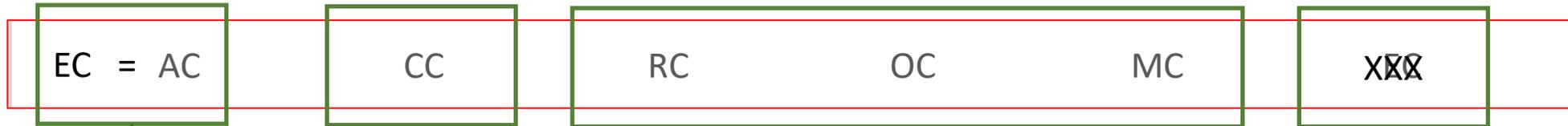
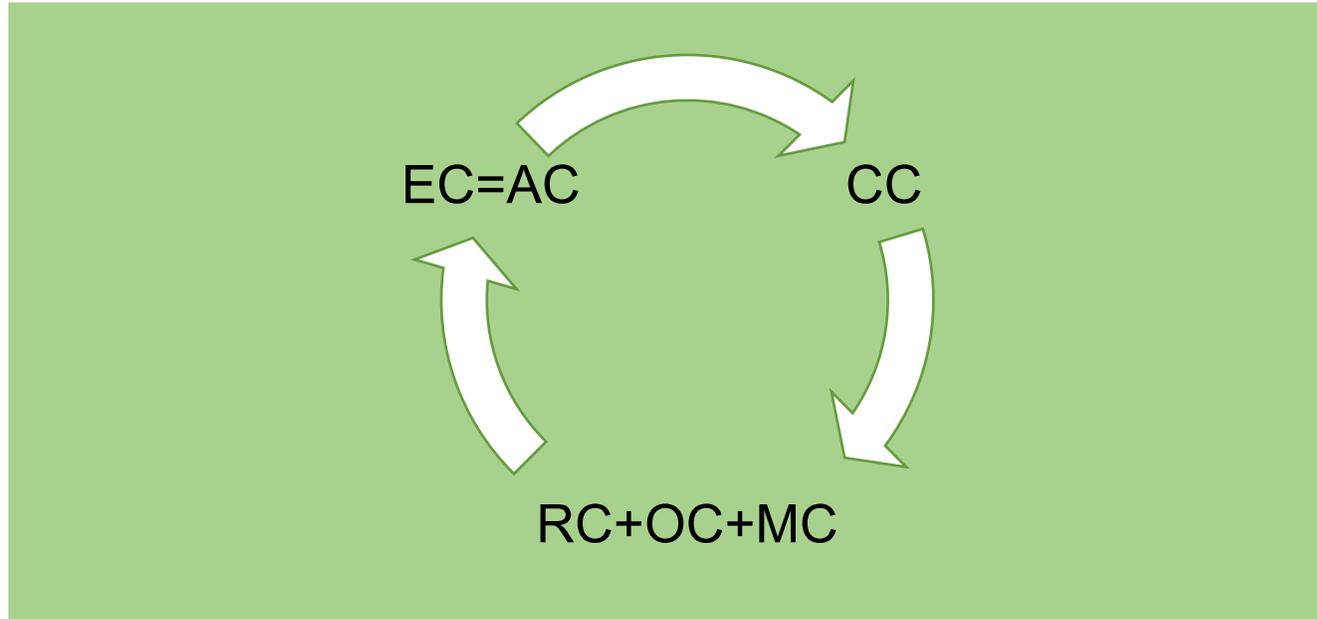
Costs-I CO2-I Costs-II CO2-II

To a circular economy



ICMS 2 life cycle costing

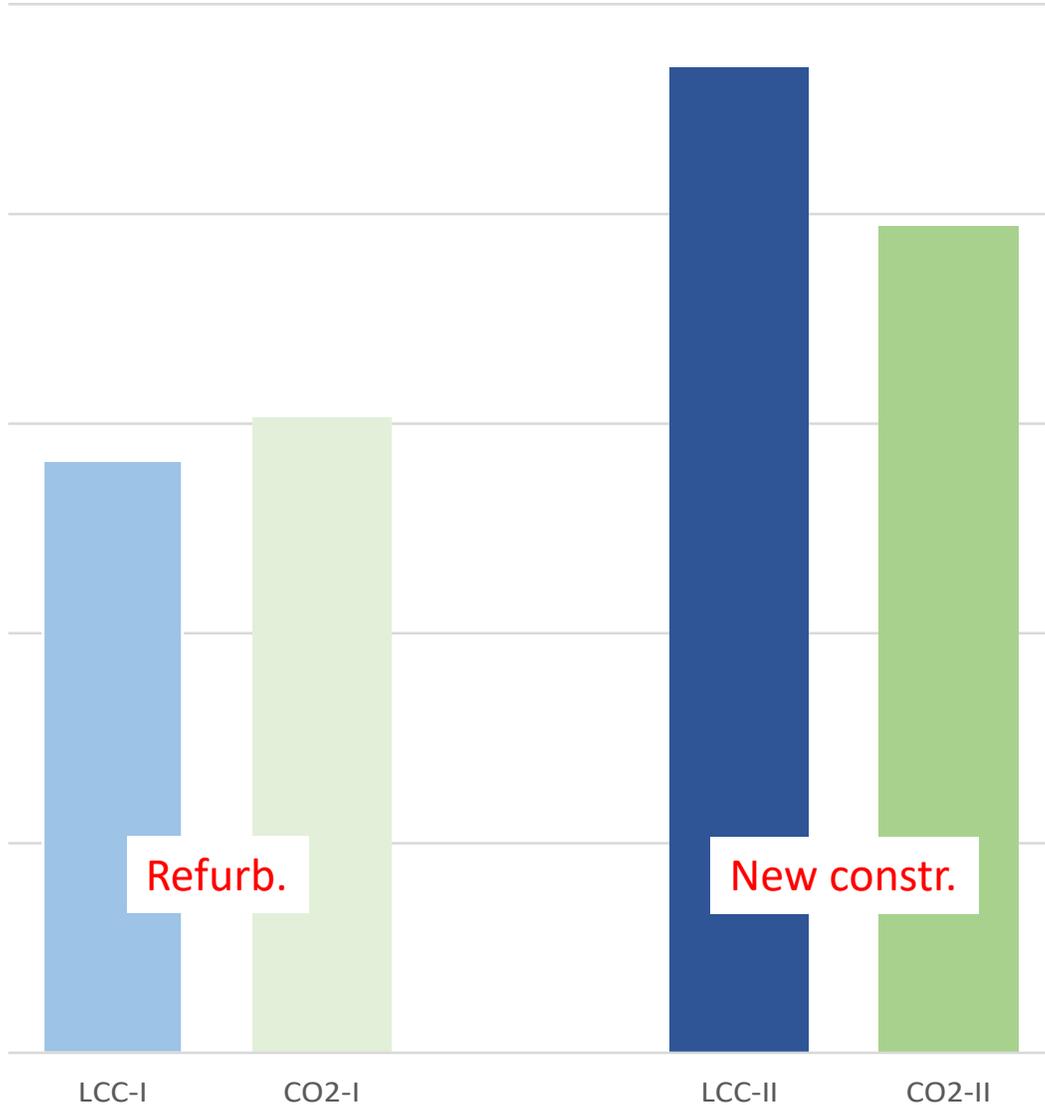
To a circular economy



ICMS 2 life cycle costing

Refurbishment compared to new construction

Life Cycle Costs (€) and CO2 (kg)

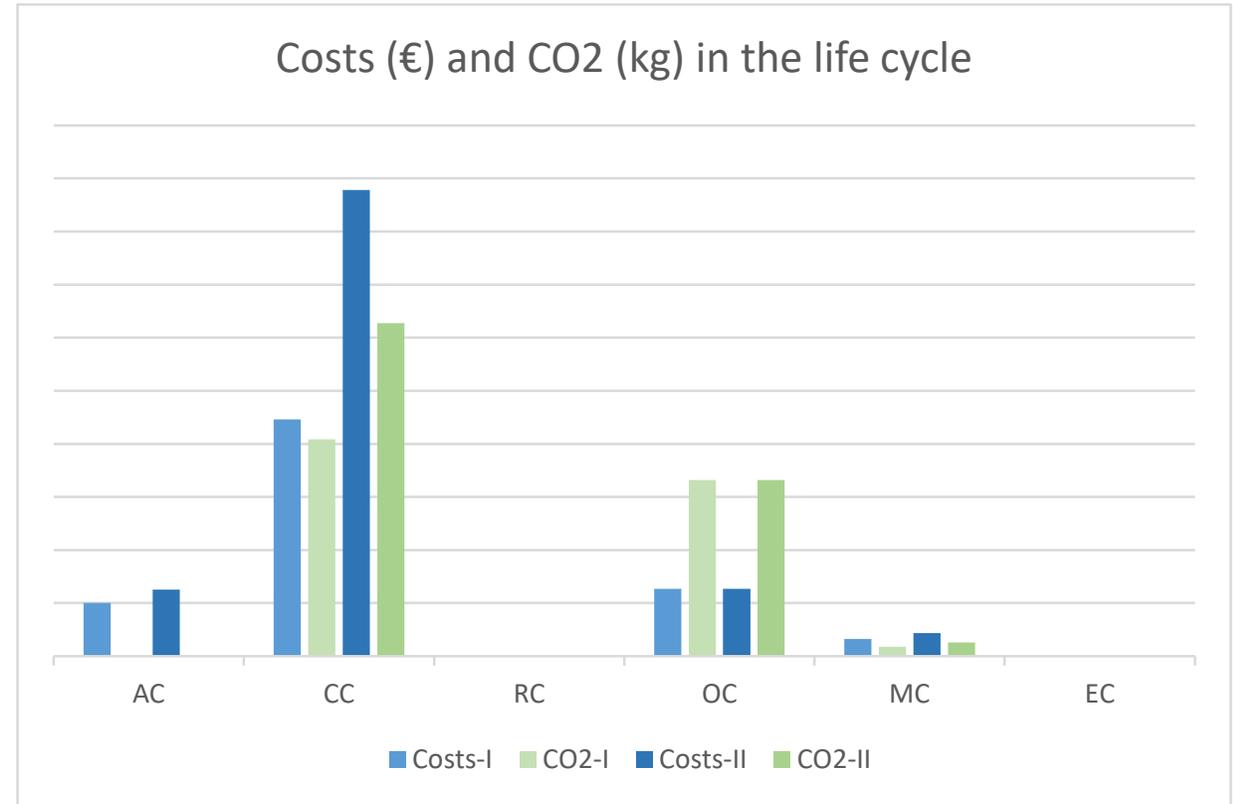


Reducing carbon in a housing-estate at Almere

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Give existing houses a new life cycle by improving their energy performance



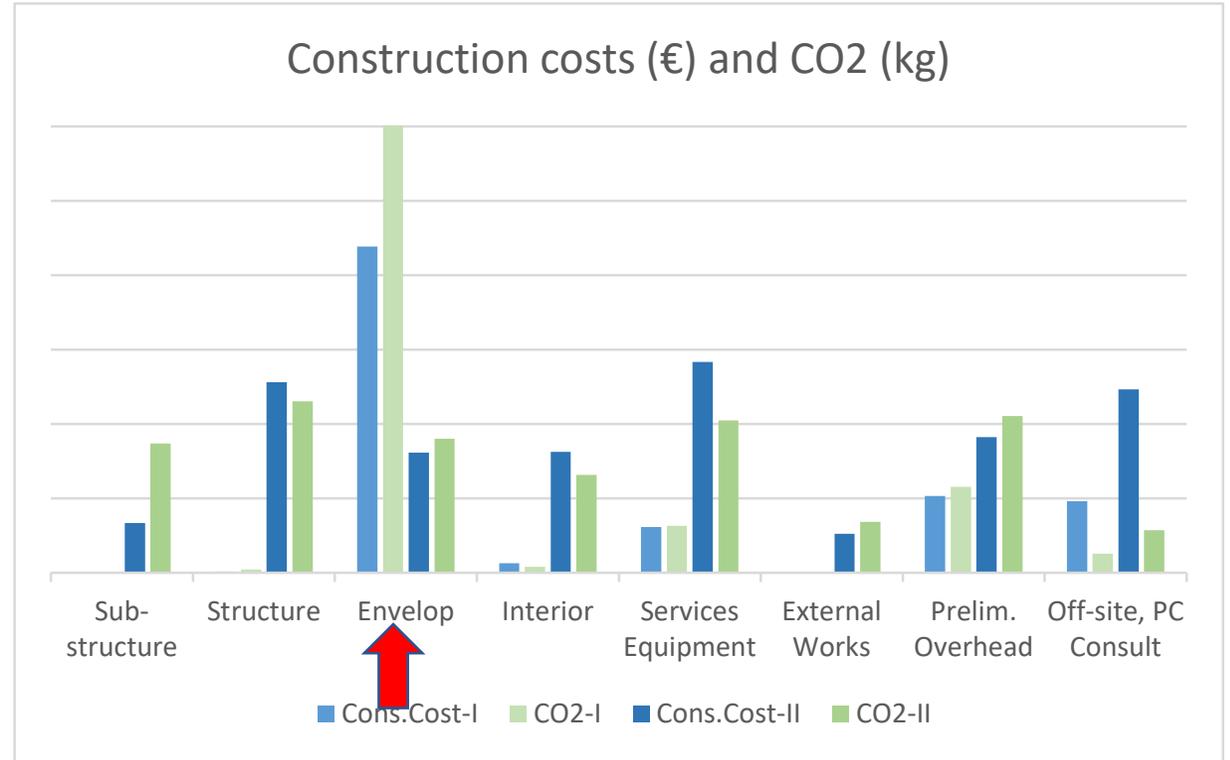
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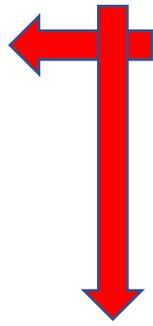
What seems wrong on materials level, may be right on a global level



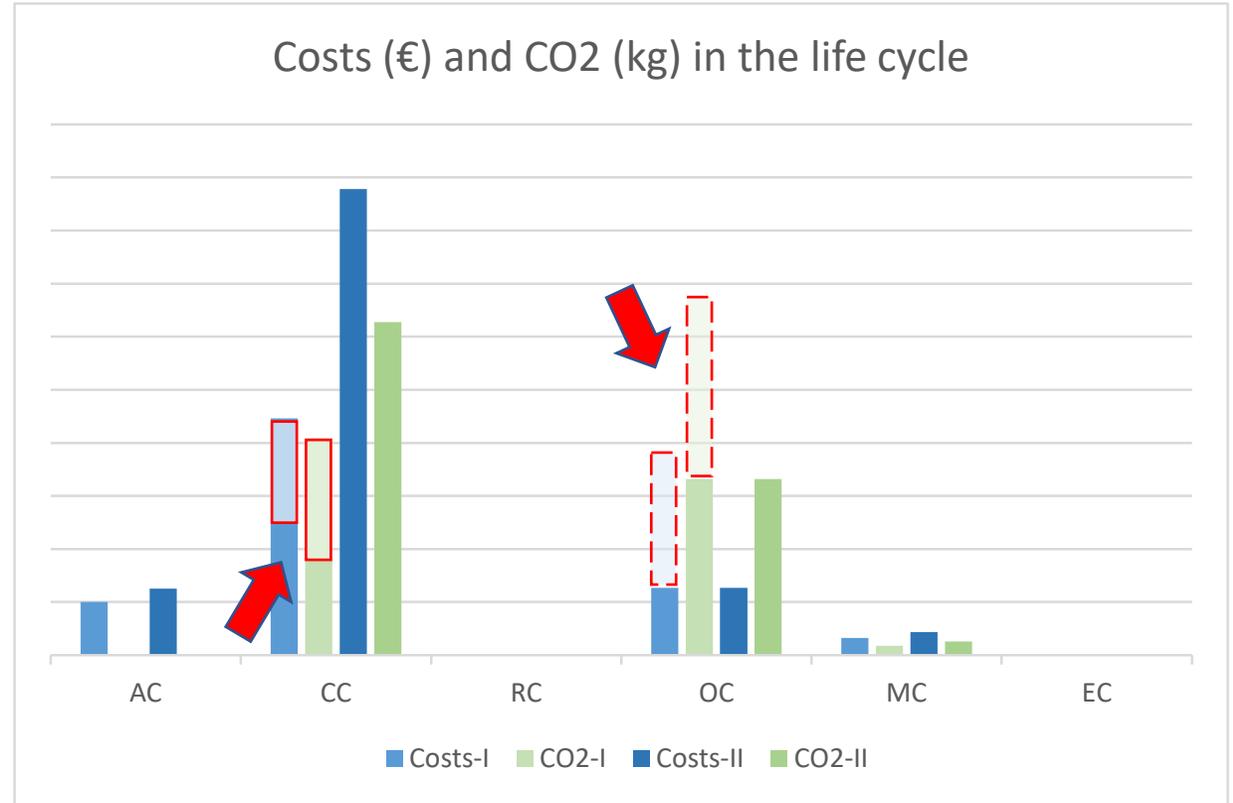
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What seems wrong on materials level, may be right on a global level



Reducing carbon in a housing-estate at Almere

Refurbishment compared to new construction

Refurbishment compared to new construction

Life Cycle Costs (€) and CO2 (kg)



Reducing carbon in a housing-estate at Almere



- costs & carbon counted like-wise
- energy & materials
- refurbishment
- CO_2 -reduction-tool
- icms for carbon counting

<https://www.winket.nl/en/>