

Design for Disassembly

ARC 608 – Arch Design Studio 8
Spring 2024

Understanding a Building's Carbon Footprint

Graphic by Stacy Smedley, 2021



Embodied Carbon →

Manufacturing Emissions

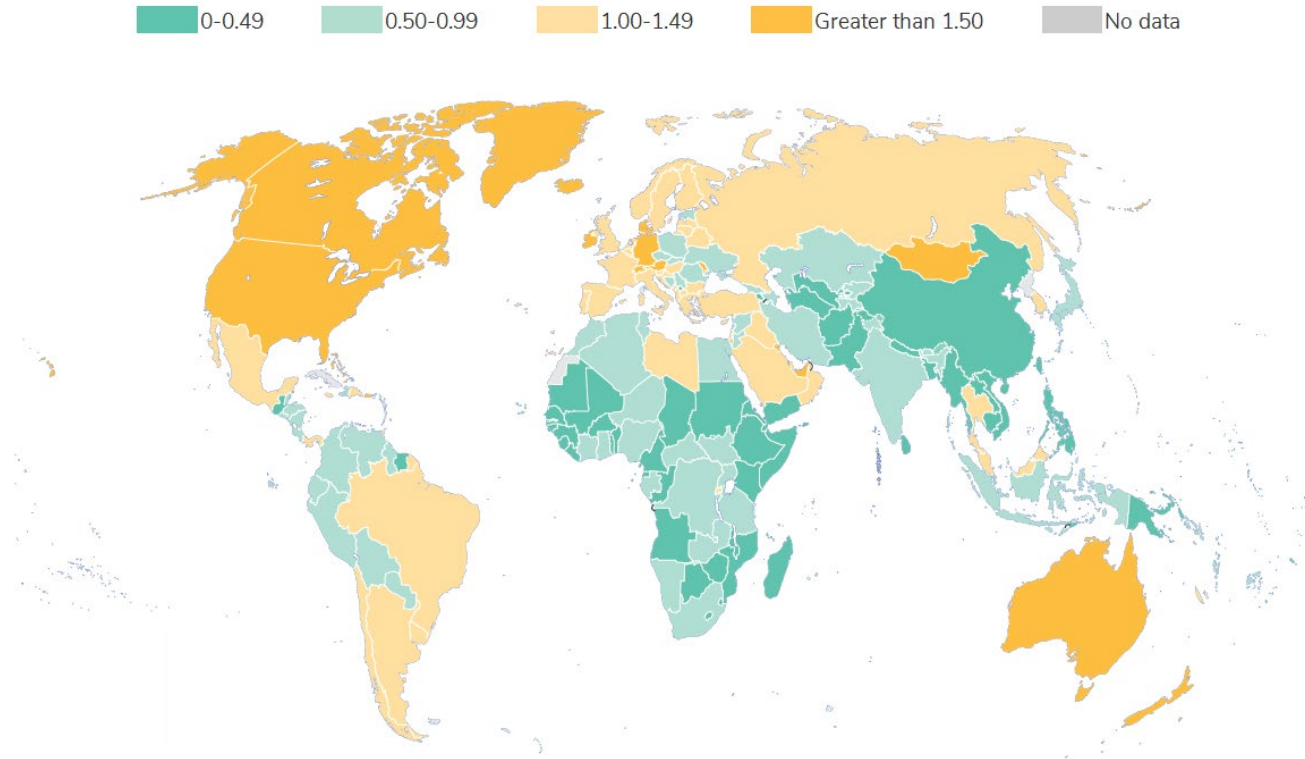
(extraction through manufacturing of building product)



Source: <https://climateeverything.com/climategifs/understandingabuildingscarbonfootprint>

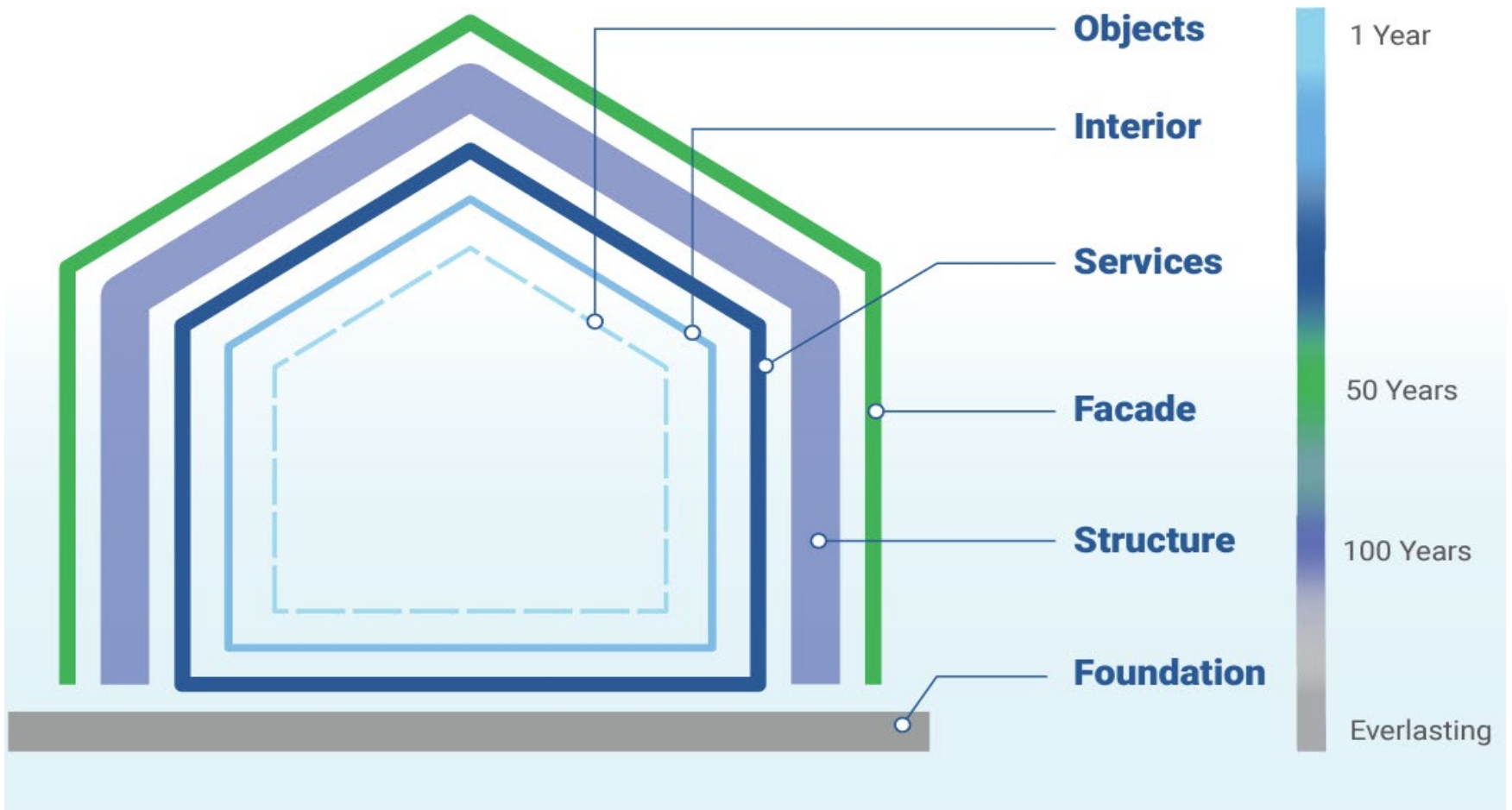
“Waste Crisis”

An environmental danger or a social crisis?



Annual municipal solid waste generated per capita (kilograms/capita/day)

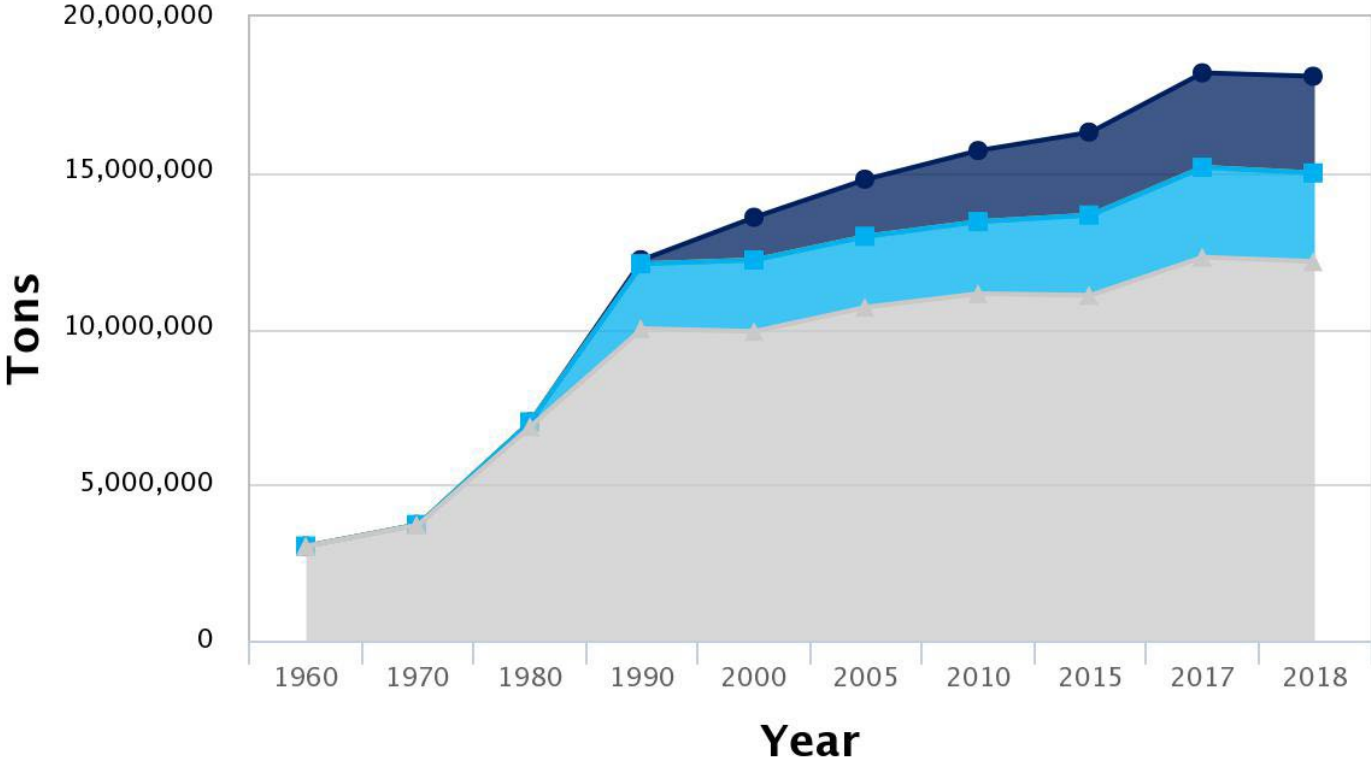
Reference: The World Bank - <https://datatopics.worldbank.org/what-a-waste/>



Elements of a building and their typical lifetime before replacement is needed.

Reference: <https://www.architecturalrecord.com/ext/resources/Issues/2022/02-February/Bringing-Embodied-Carbon-Upfront.pdf>

Wood Waste Management: 1960-2018



Click on legend items below to customize items displayed in the chart

Recycled **Composted** **Combustion with Energy Recovery** **Landfilled**

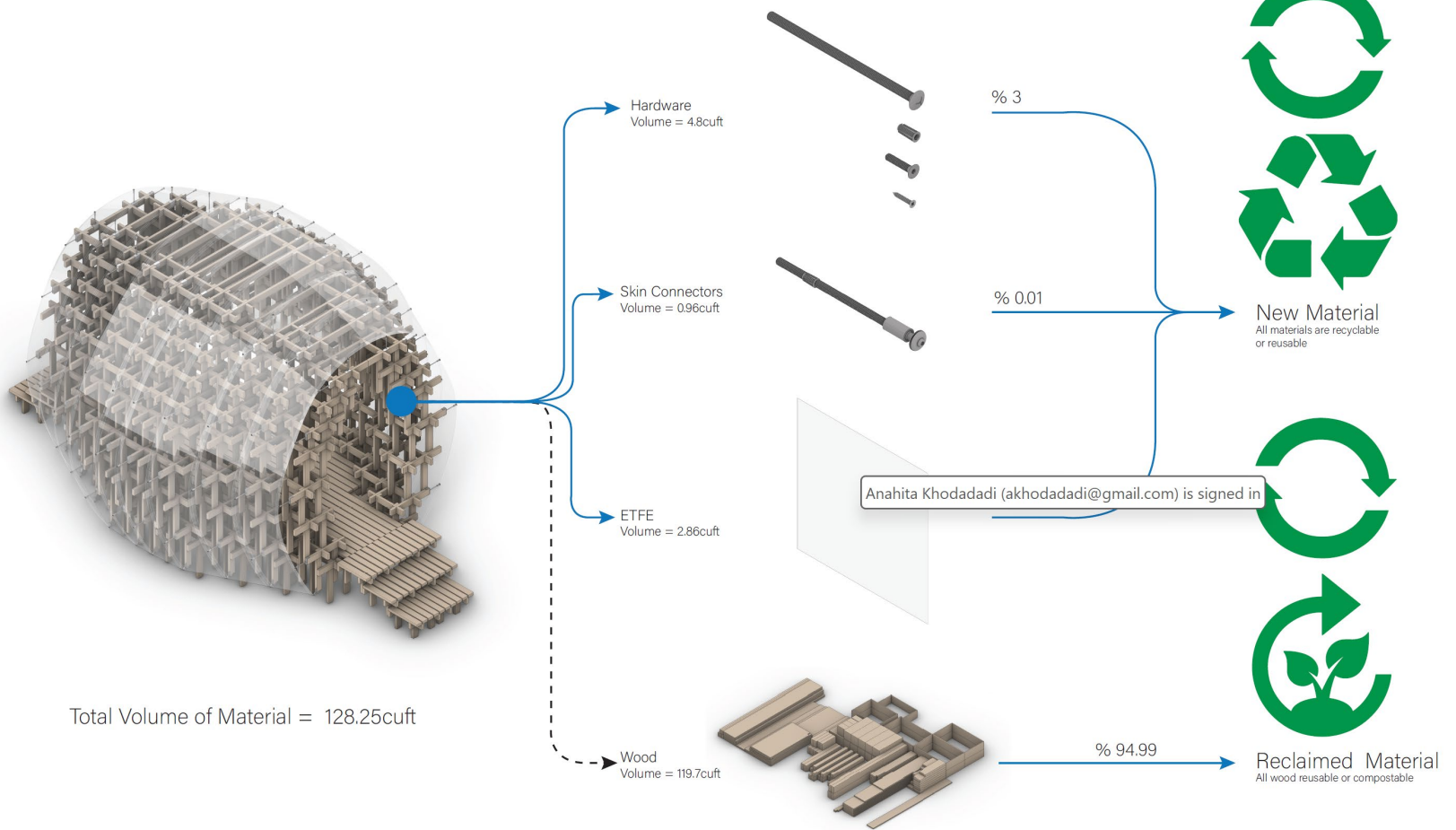
Wood Waste Management from 1960 to 2018, reported by the US EPA.



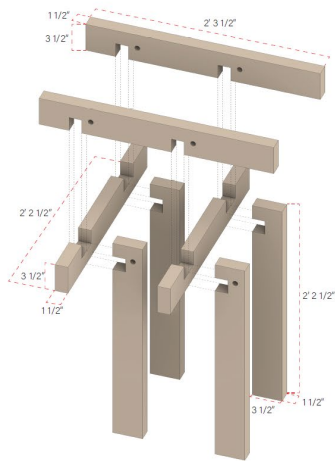
Left- A prototype of the first structure and shell system, Right: the second structure+shell system made out of reused elements obtained from the first system. Credit: Students in DfD Studio, John Mark Nachbar, Ana Alarcon, Raymond Jacobson.



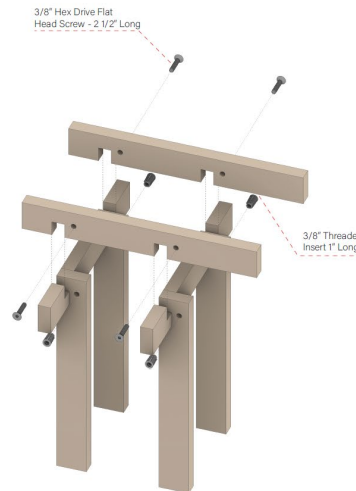
Pavilion Material Analysis



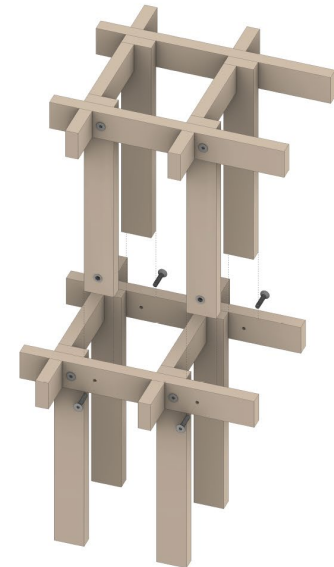
System Connections



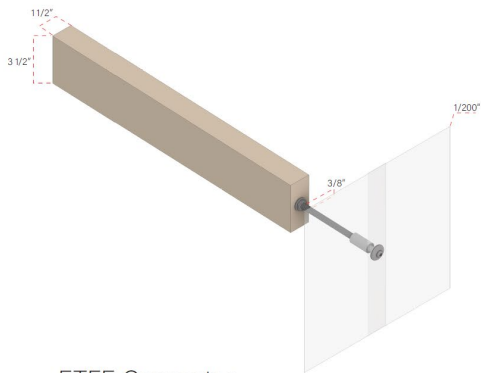
Primary Unit



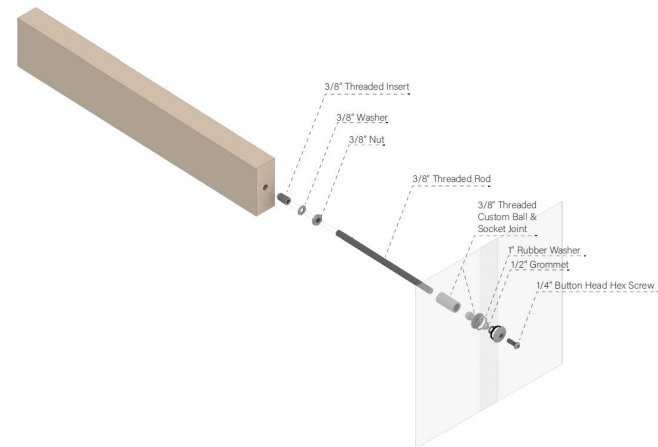
Primary Unit Connections



Primary Unit Building



ETFE Connector



ETFE Connector



Questions?

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