

Construction without the destruction

A solution for the Built Environment

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The Problem

Over 8.4 million new homes need building, and 26 million homes need retrofiting by 2050.

Traditional construction accounts for:

60%

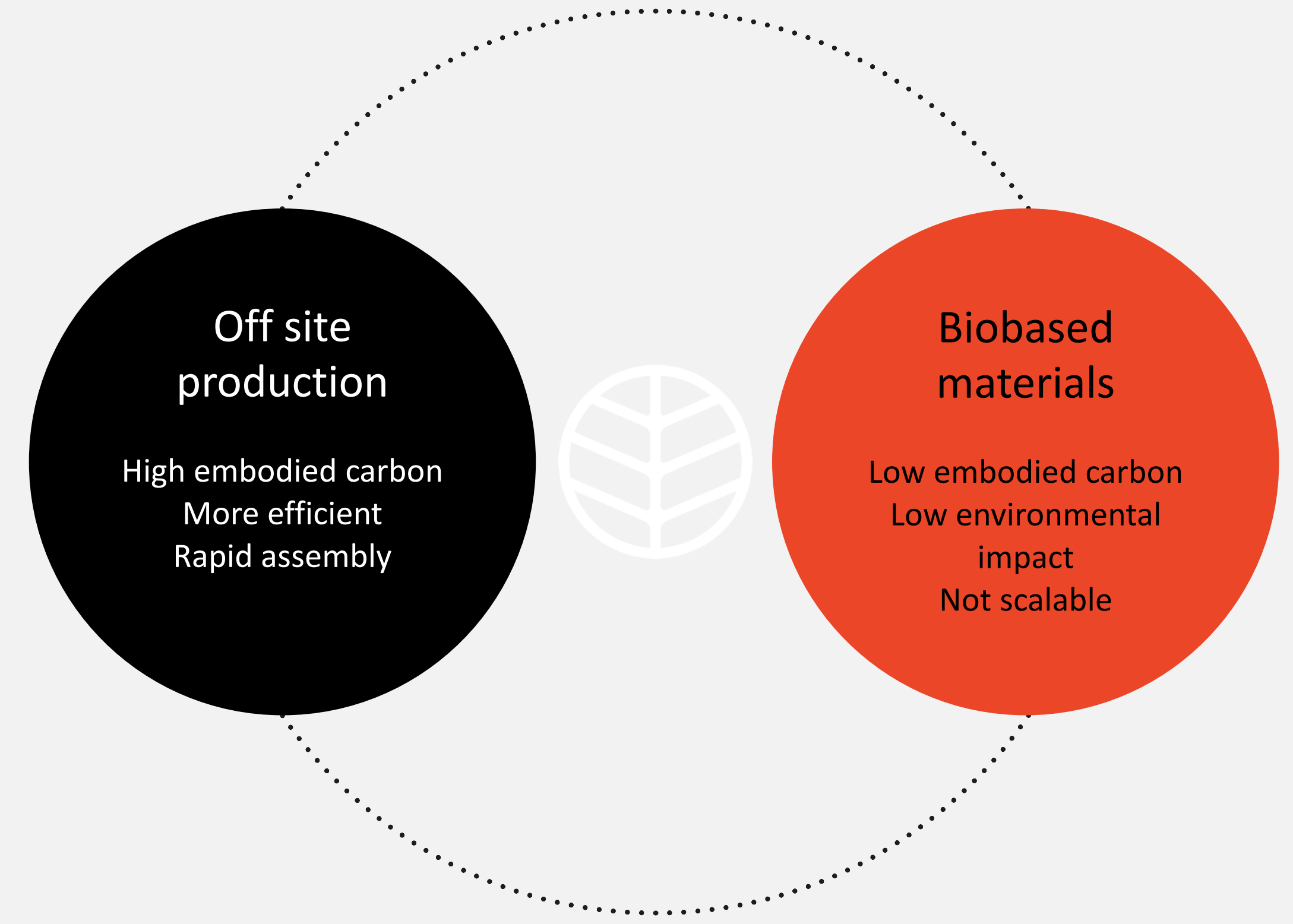
of waste from construction and demolition

25%

carbon emissions

11%

is embodied carbon



Sustainable isn't scalable.
Scalable isn't sustainable.

Our Solution

Climate-positive and bio-based, our unique prefabricated modular system makes a major step forward in construction innovation – without expecting the environment to pay the price.



Key benefits



Better for the planet

Designed to actively combat climate change, removing more carbon dioxide from the atmosphere than it takes to manufacture and build.



Healthier for people

Natural, non-toxic, breathable materials improve air quality and moisture control, making it healthier for both people and the building itself.



Designed for zero waste

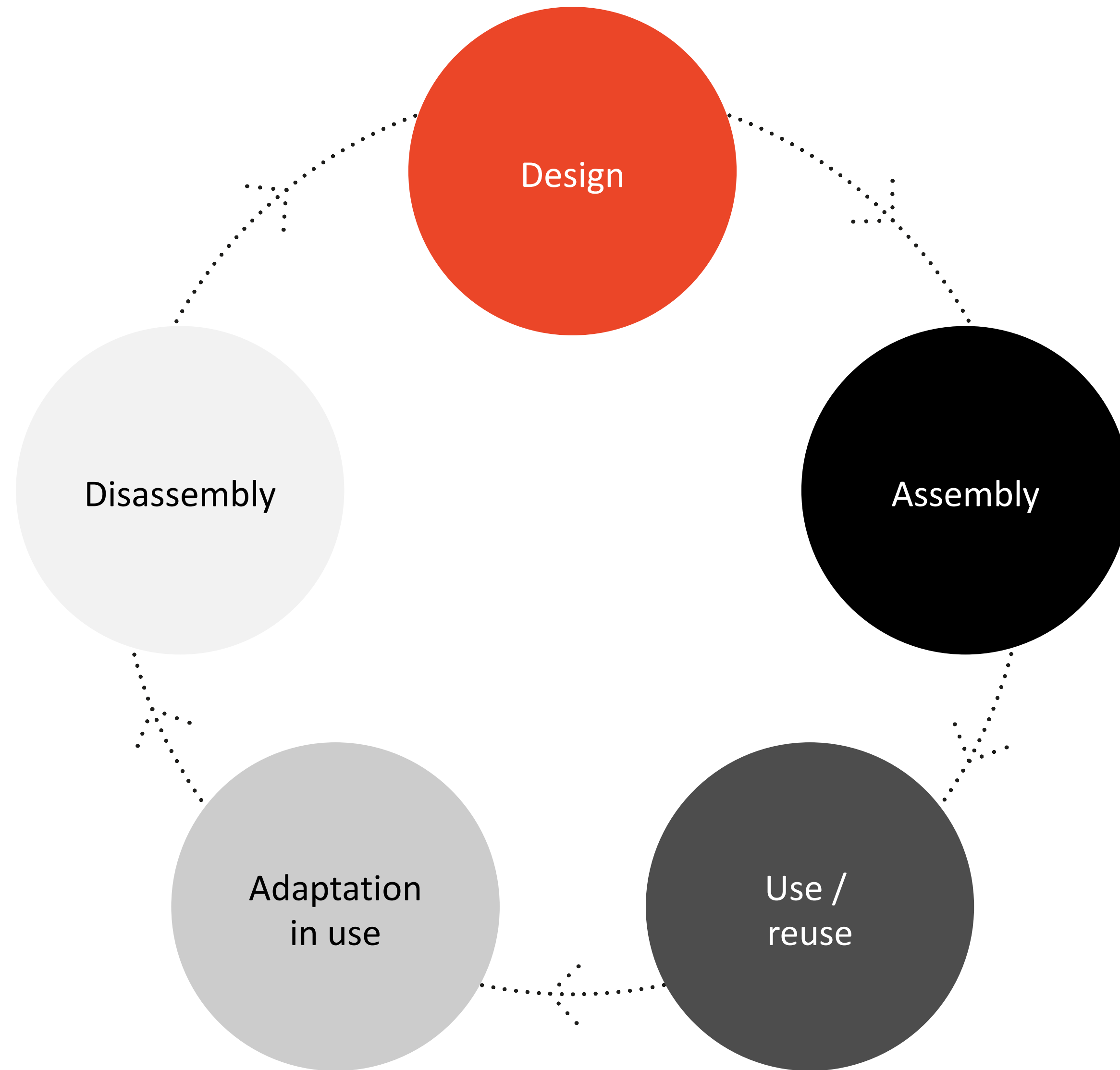
Demountable panels can be endlessly adapted, reassembled and reused – so buildings can be modified over time without creating any waste.

ADEPT

Circular economy

Individual panels are demountable so they can be repositioned and reassembled in different configurations, allowing buildings to be adapted without waste.

Following circular economy principles, there's no waste when the building reaches the end of its life either, because panels can be disassembled and reused elsewhere.



Fabric first approach

HempSil® is our unique climate friendly bio-composite which retains the moisture resistance and hygrothermal buffering characteristics of traditional hemp-lime but also achieves;

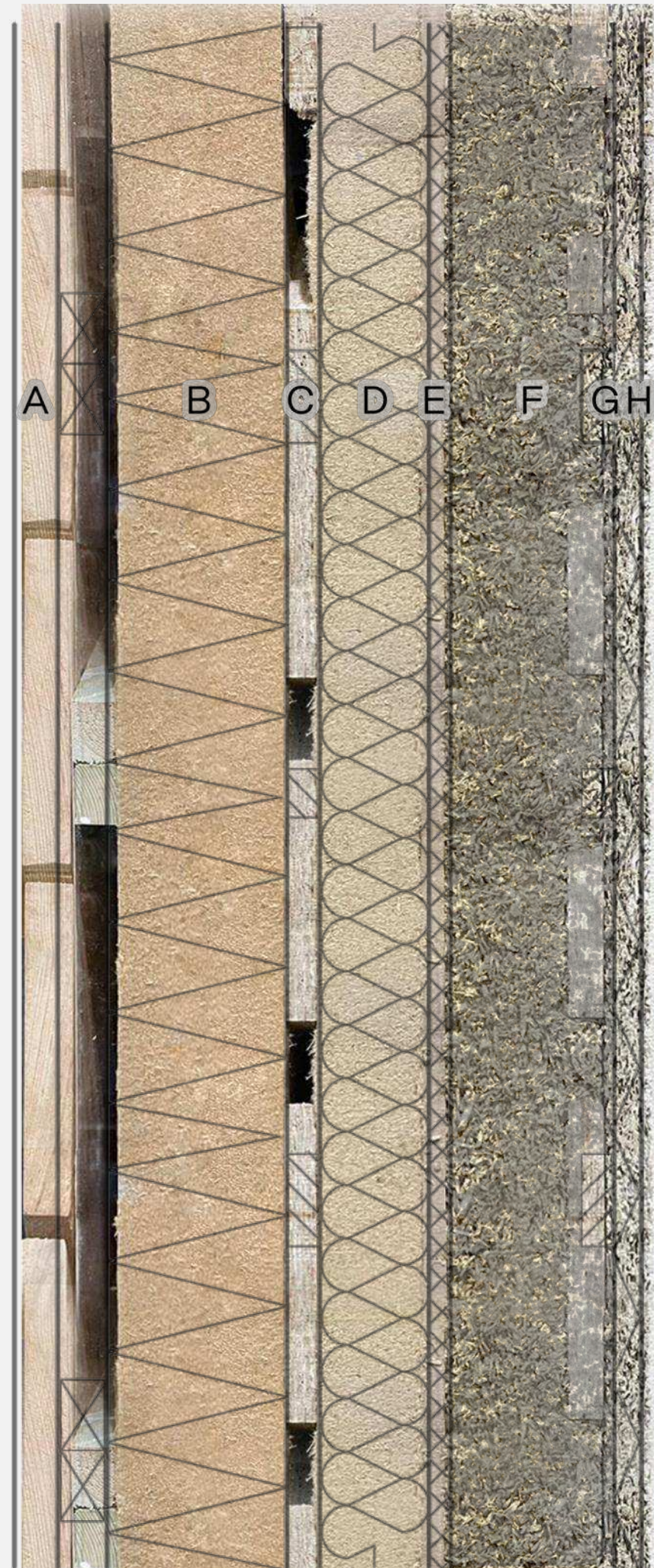
37% Lower density
(190 vs 300 Kg/m³)

24% Lower thermal conductivity
(0.067 vs 0.089 W/m.K)

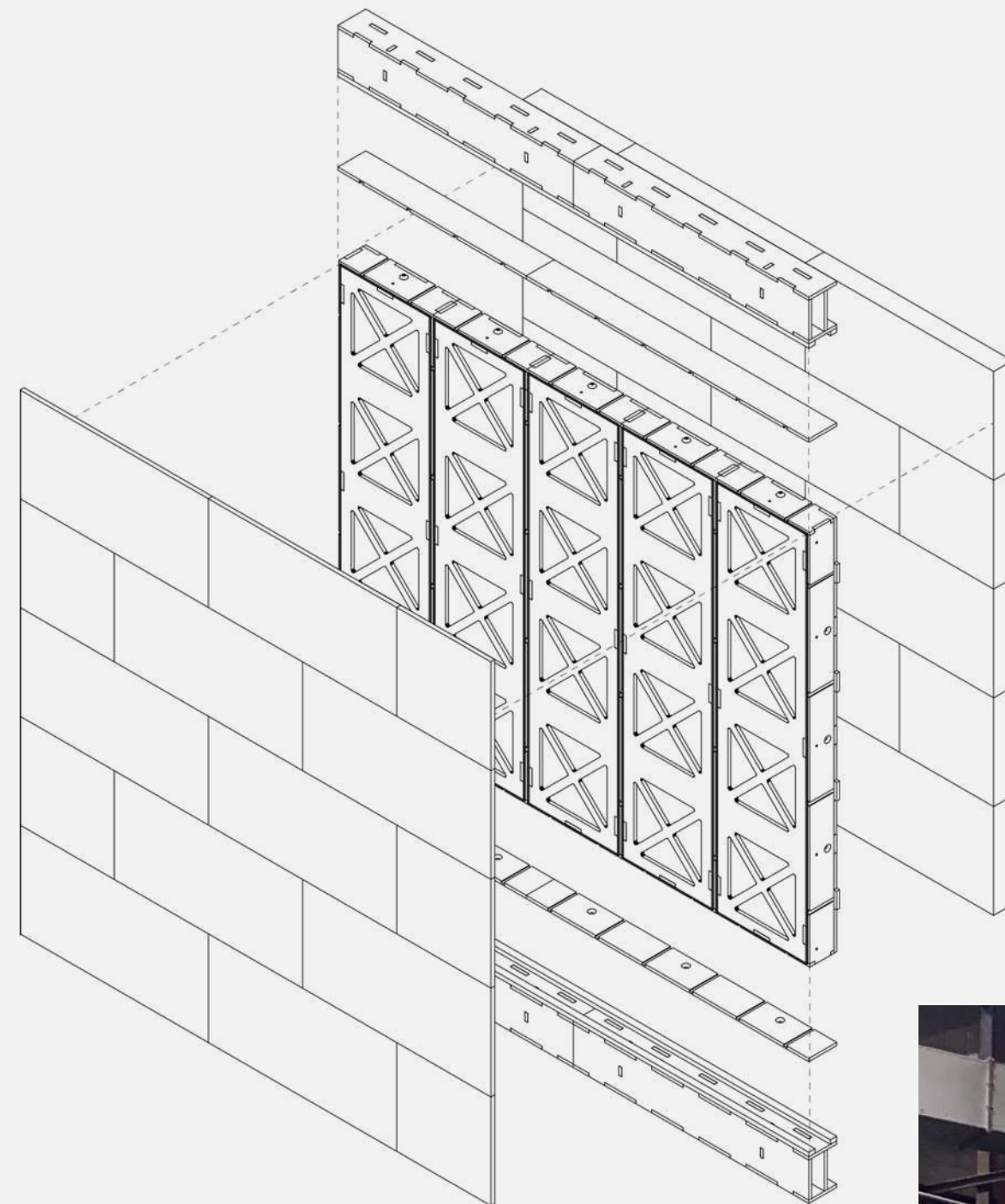
5x Lower carbon footprint
(-254 vs -50 kg CO₂/t)



Performance Testing



- A - Cladding
- B - Rigid Wood fibre
- C - Spruce
- D - Flexible Wood fibre
- E - Breathable Board
- F - Hepsil
- G - OSB
- H - Internal Finish



Fire testing

Company:



Compliance:

Loadbearing walls complies with:
BS EN1365-1

Partition walls complies with:
BS EN1364

Intermediate floor complies with:
BS EN1365-2 (commercial loading)

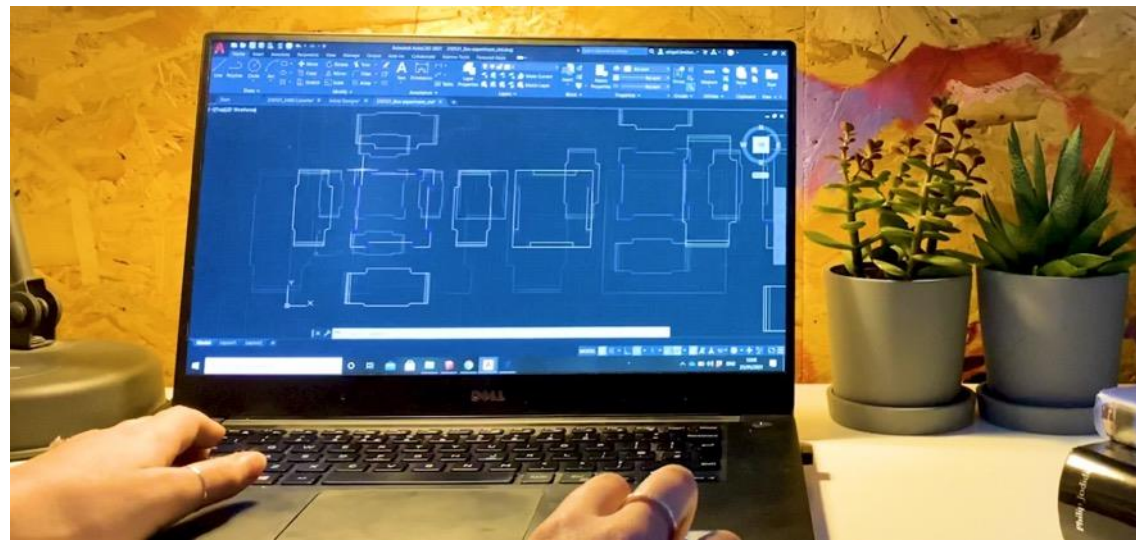
Date passed:

Summer 2022

System development phases

1

Design



2

Tests



3

Pilots



4

Projects



5

Scaling Production



6

Licensing



7

Processing



8

Hubs



Net Zero Studio

A UK Community Renewal Fund Project

This project has enabled the fabrication and installation of the first ADEPT zero-carbon panelised building, utilising bio-based insulation materials and modern methods of construction.

The project aims to demonstrate the feasibility of this manufactured construction and assembly solution together with the potential for buildings to act as net-carbon sinks.

Location:
BT Adastral Park, Ipswich, University of Suffolk's
Institute for Sustainability

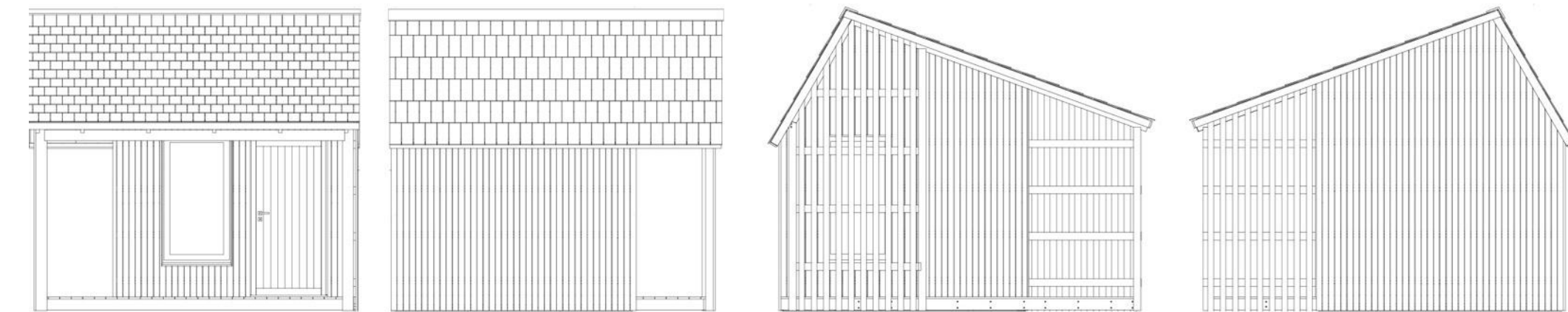
Date:
Build Completed August 2022



The Build

Key Learning Points

- The need for parametric design software
- Things always take longer than you think
- Assembly drawings alone aren't enough
- Overestimate materials
- Prioritise a water-tight roofing finish



The Finished Project



What's Next?

The University of Suffolk are installing thermal sensors to enable data to be gathered over the next 6 months on the buildings thermal performance in comparison to external temperatures. This will enable us to evidence the decrement factor and validate the systems thermal efficiency to ensure there is no performance gap.

We also hope to return to extend the building demonstrating its adaptability and flexibility, subject to securing additional funding and planning.

Takeaway

We hope to catalyse a paradigm shift in the way buildings are designed and made. By revealing an alternative future, the current linear model of high environmental impacts, use and waste can be replaced with climate positive buildings designed for the circular economy.

This is construction without the destruction.



Impact framework

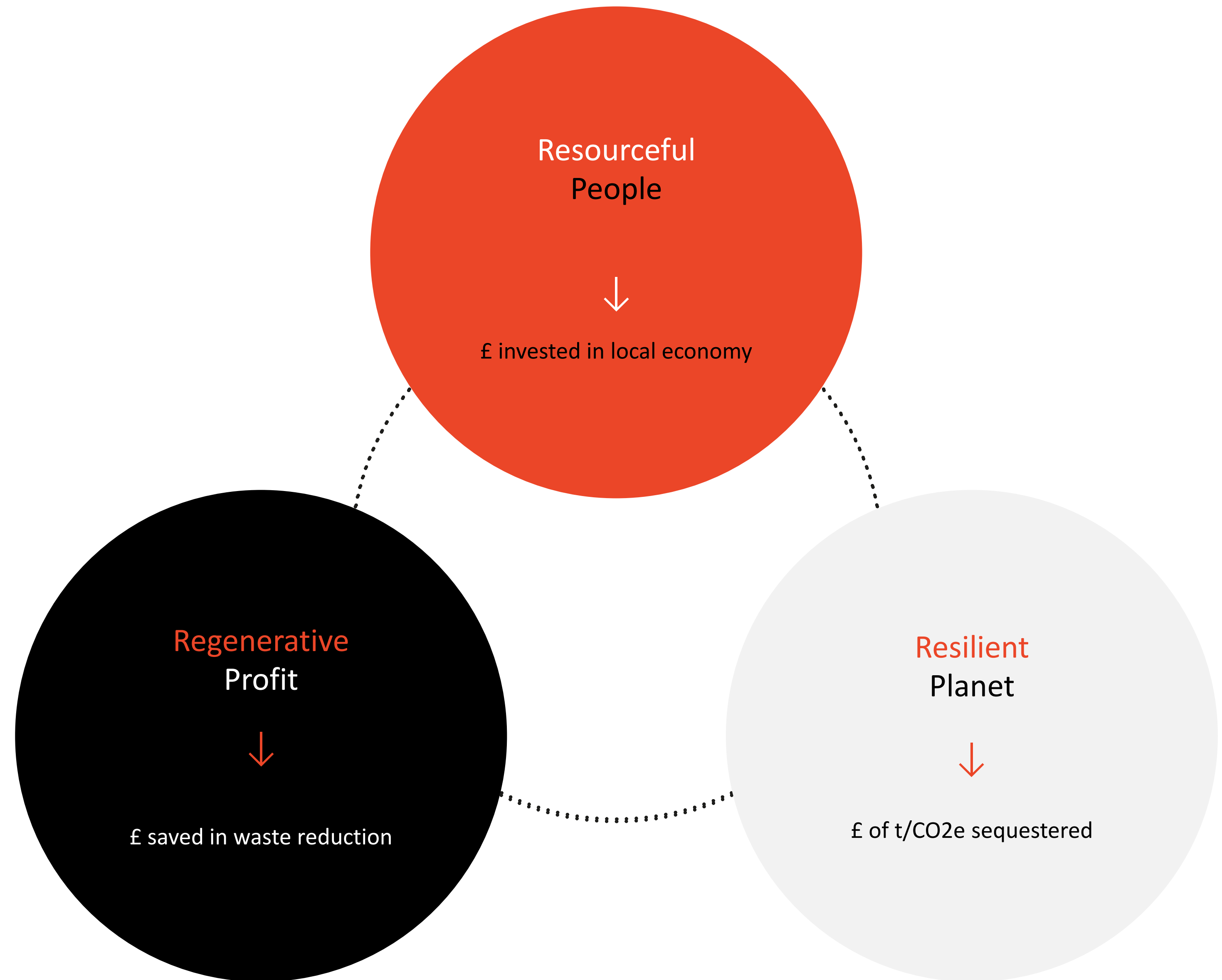
Our goal is to...

Build 100,000 homes by 2030.

Sequester more than 2 million tonnes of CO₂e

Displace a further 5 million tonnes of CO₂e

...by creating a replicable model for a localised construction eco-system.



Natural Building Systems

Thank you.

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