

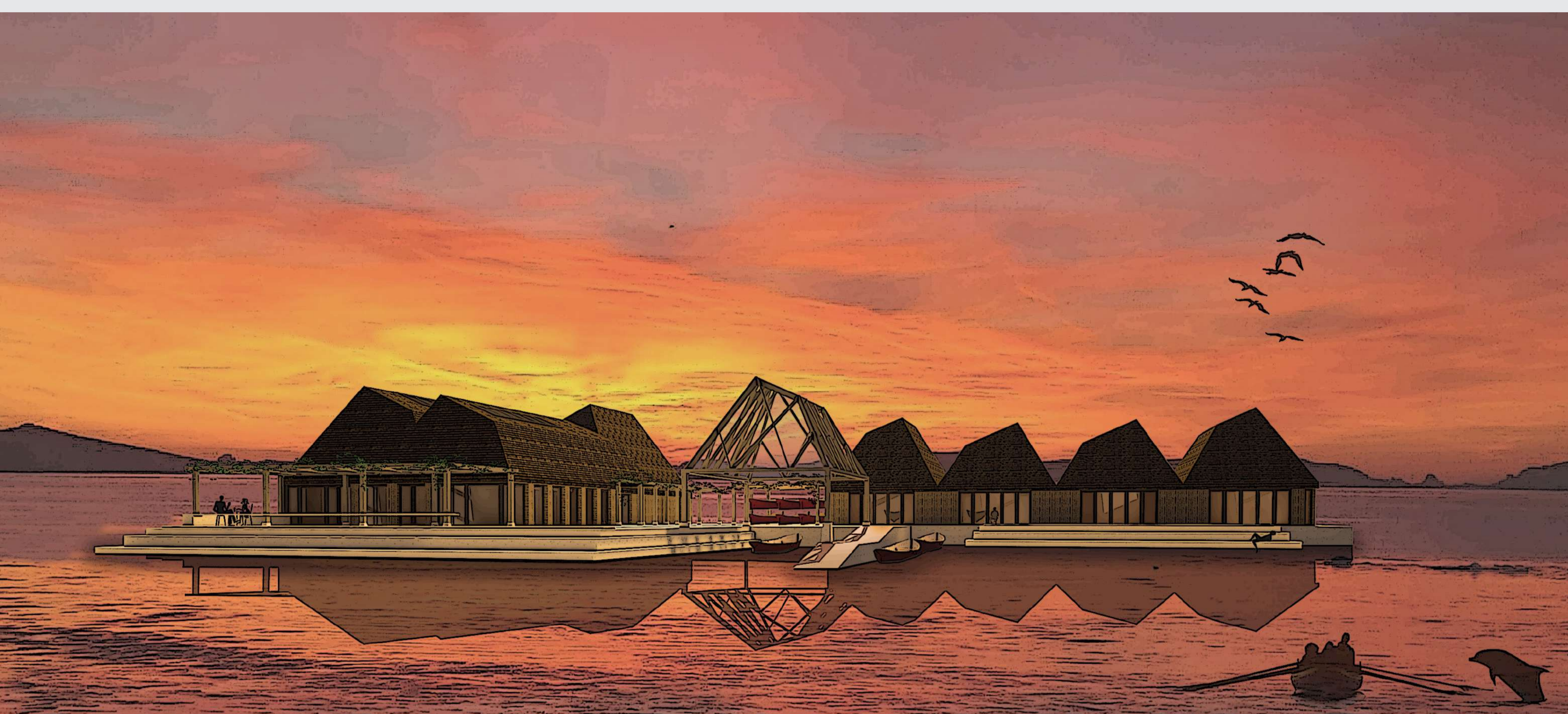


in partnership with



DAYANA ANASTASOVA

CALYPSO'S HACIENDA



PROJECT FACTS

Office/ Admin <small>Building use</small>	Isles of Scilly, UK <small>Location</small>	885m <sup>2</sup> <small>TFA</small>
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PASSIVHAUS STRATEGY

PassivHaus principles and strategies have governed the construction development right from the initial design stages; the compact hipped roof shapes; simple plan layout; PH-certified windows & doors; external shading features to South and South-West facades; PV panels; solar thermal algae bioreactors panels and water-source heat pump for energy generation.

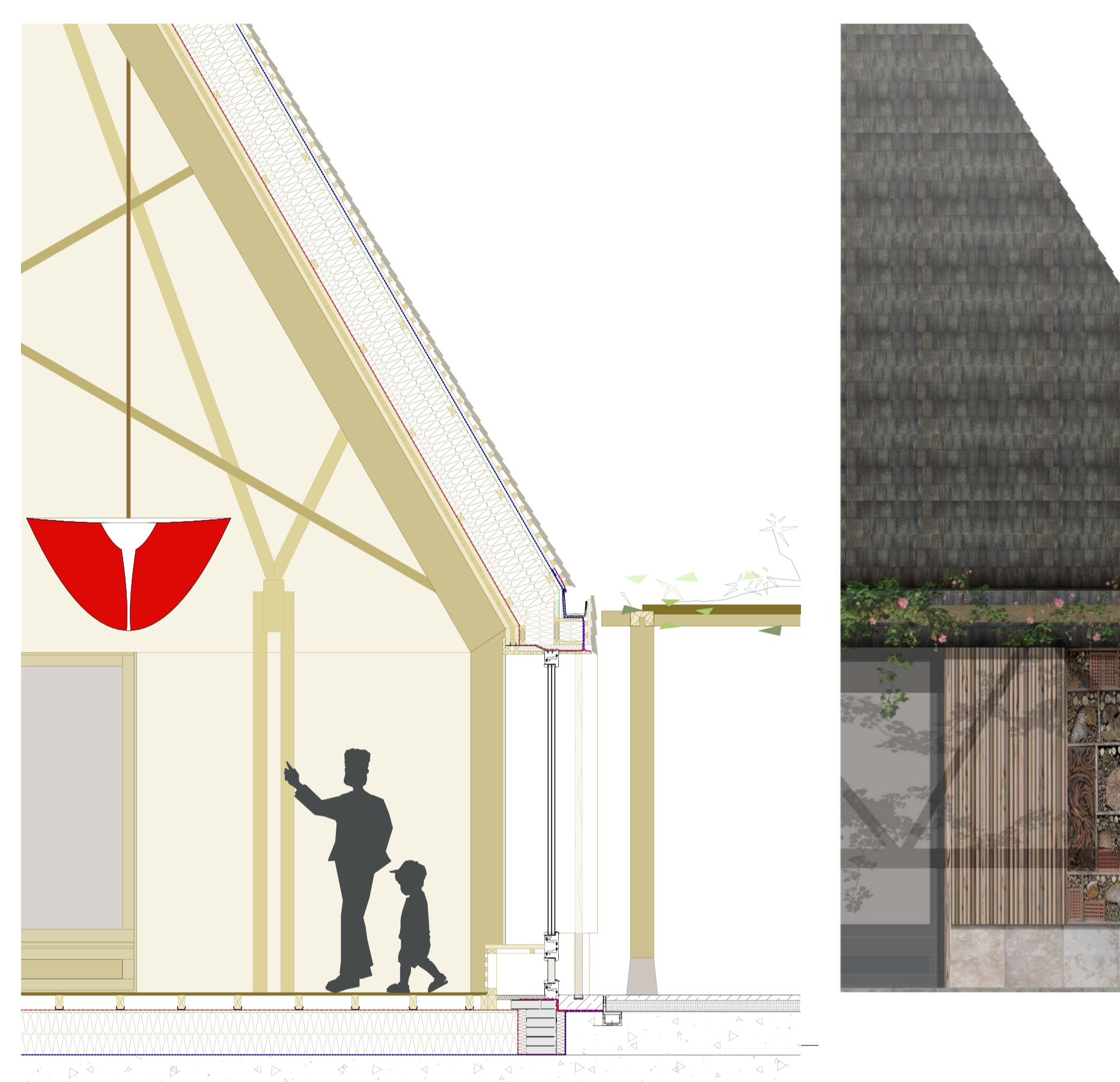
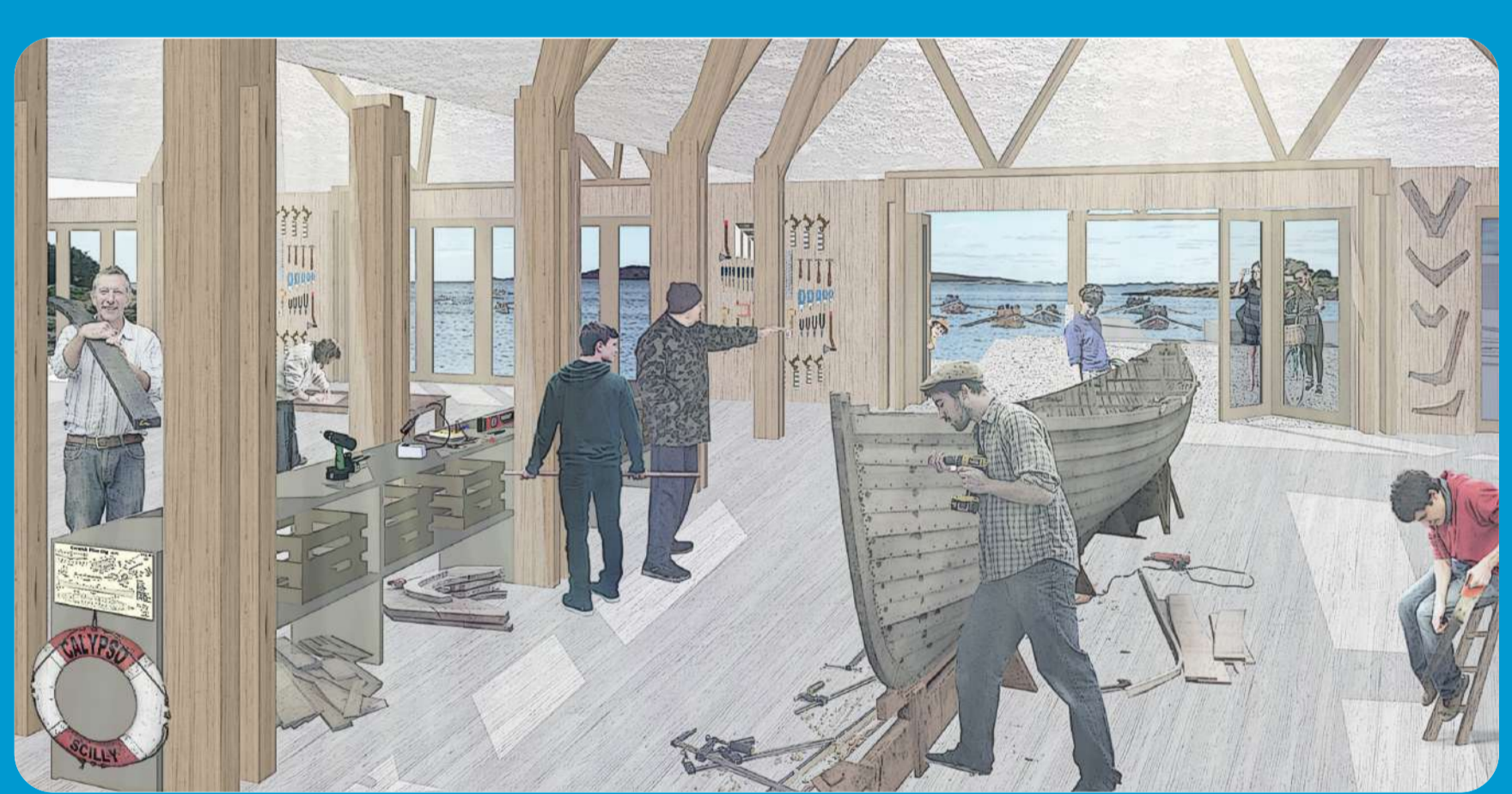
- Design principles:
- Uninterrupted insulation layer & airtightness membrane to achieve the best performance of building fabric, lowering heating demand and preventing humidity and condensation.
  - MVHR system for fresh air flow and heat conservation - separate units will be serving different buildings.
  - Natural cross ventilation provided by rooflights and louvres in the base of windows for summer comfort of users plus dual-aspect openable windows for a mixed mode night purge ventilation.
  - Thermal-bridge free design secured by insulated thermoblocks at floor-to-wall junctions.

DESIGN PHILOSOPHY

The proposed mixed-use scheme is based on the Isles of Scilly and comprises an educational, manufacturing and entertainment centre, closely linked to the gig rowing culture of the islands. The dire predicted effects of climate change for more extreme weather and sea level rise, prompted the main design intent - to provide a structure that would be resilient and self-sufficient. The cluster of buildings, including spaces for recycling ocean plastics, manufacturing and repairing gig boats, a cafe and exhibition space, sits on a floating pontoon in a lagoon created by natural, living breakwaters. A fabric first approach was adopted, with the preference for bio-based sustainable materials with low embodied energy, appropriate for the coastal location and vernacular context; locally sourced from the islands or prefabricated in South-East England to reduce emissions from transportation and save time for labour and erection on site.

PREDICTED PERFORMANCE

Walls 0.101 Floor 0.110 Roof 0.089 Windows 0.68 Rooflight 0.88 Doors 0.56 <small>U-Values</small>	9.4 w/m <sup>2</sup> <small>Heating Load</small>	3.74 <small>Form Factor</small>
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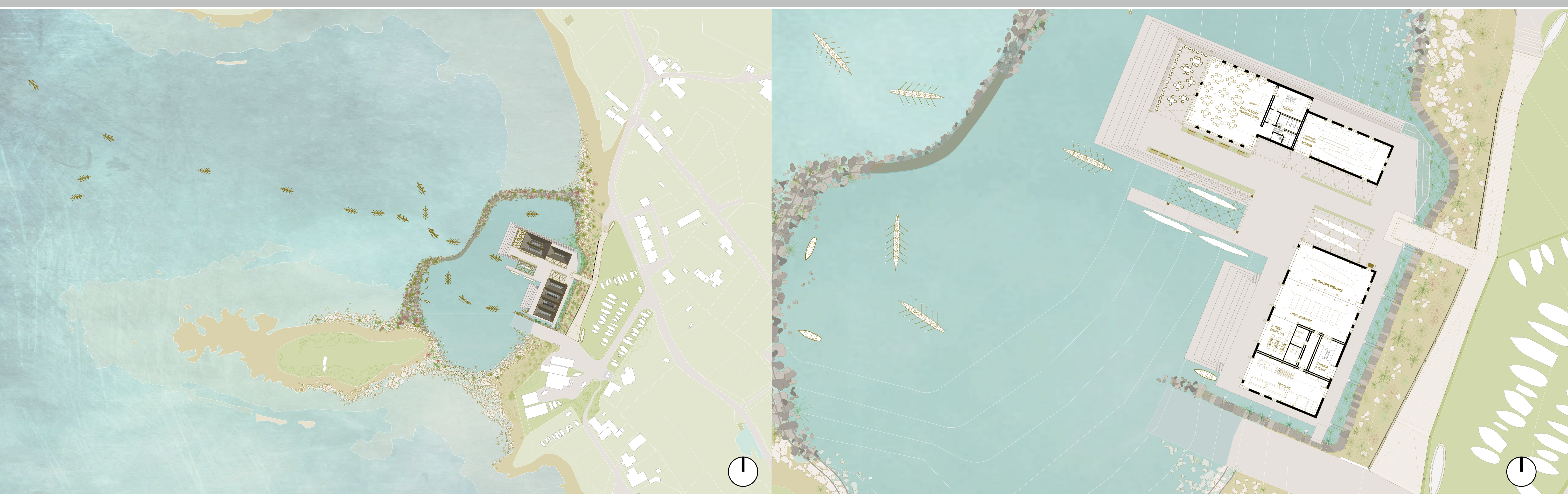
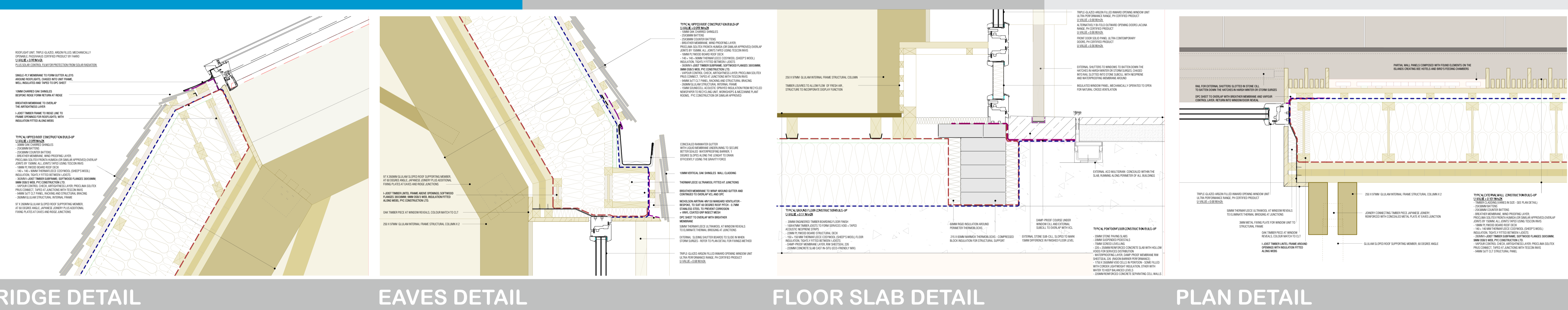
PART SECTION & ELEVATION

MATERIALS

Structure:  
Cross-Laminated Timber bracing Glulam internal, exposed frame which utilises Japanese joinery junctions with minimal metal fixings.

Building envelope:  
Charred timber cladding to roofs + vertical, untreated timber cladding to walls, with a secondary frame of timber I-joists (PYC) tightly filled with Thermafleecce sheep's wool insulation

Embodied energy: -9.619 kgCO<sub>2</sub>e / kg  
\*ICE Database source for timber



Acknowledgements

MARCH II  
Principle tutors: Elly Deacon-Smith & Matt Hayes  
External tutors: Graham Bizeley & Craig White

UK PASSIVHAUS STUDENT COMPETITION

