

Starfish Colony

Porirua, New Zealand

Design: 2021-2022
Program: 4000m2 office/commercial space
Client: The Woolstore
Team: CMA+U, Mackay Curtis
Structure: Dunning Thornton,
Services: eCubed Building Workshop

The brief called for a highly sustainable and economic office building on the waters edge with services & cafe. The design is inspired by sea creatures and eco-systems. Research revealed highly efficient geometries in repeated assemblies and colonies. Despite tough conditions these species are surprisingly resilient which inspired a combination of organic geometries with layered skins to survive the harsh water edge environment. A fresh approach to office design from first principles was developed to achieve a healthy low energy design that sits lightly on the land with low carbon footprint combining renewable materials with natural heating and cooling strategies.

Each building is composed of four elements :-

- central **garden court** (replacing office core)
- lightweight single span timber **floor plates**
- lightweight **diagrid** timber **structure** (not post & beam)
- **multi-layered skin** (max thermal comfort & energy use)

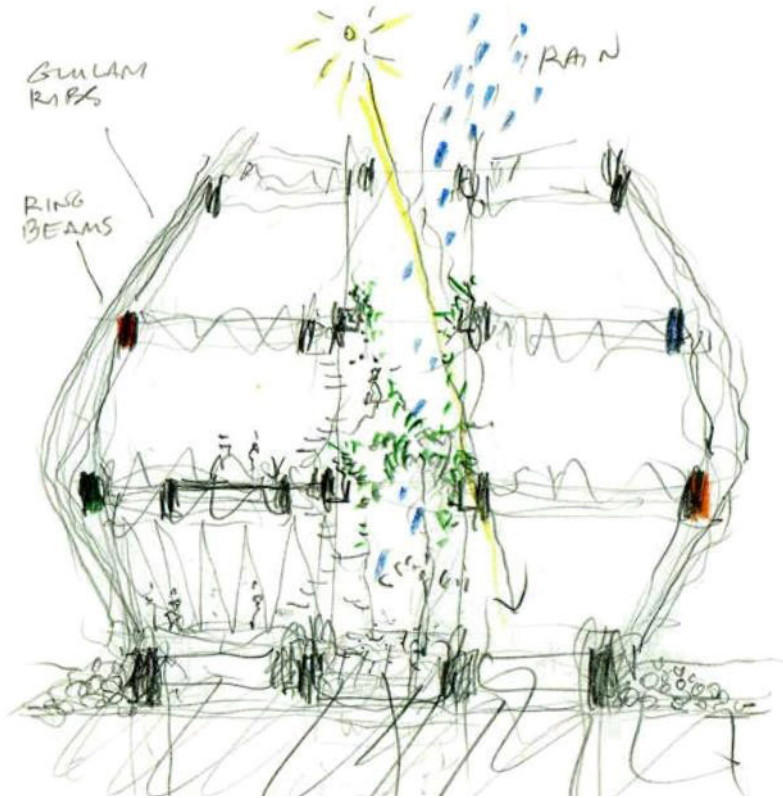
Garden Court: traditional office buildings have heavy service cores devoid of natural light. Instead a full height garden court in the middle gives natural light, ventilation, water, wellbeing and delight to the centre of each building. The garden court includes stair, transparent lift and services at each corner. Breakout space, informal areas and worktables create a balcony edge with hanging plants to the courts. Rain-chains at corners reticulate water from the roof to provide ambient sound and thermal cooling.

Floor Plates: circulation and column free workspace wraps each court to achieve good quality natural light and ventilation to flexible floor plates with raised floors.

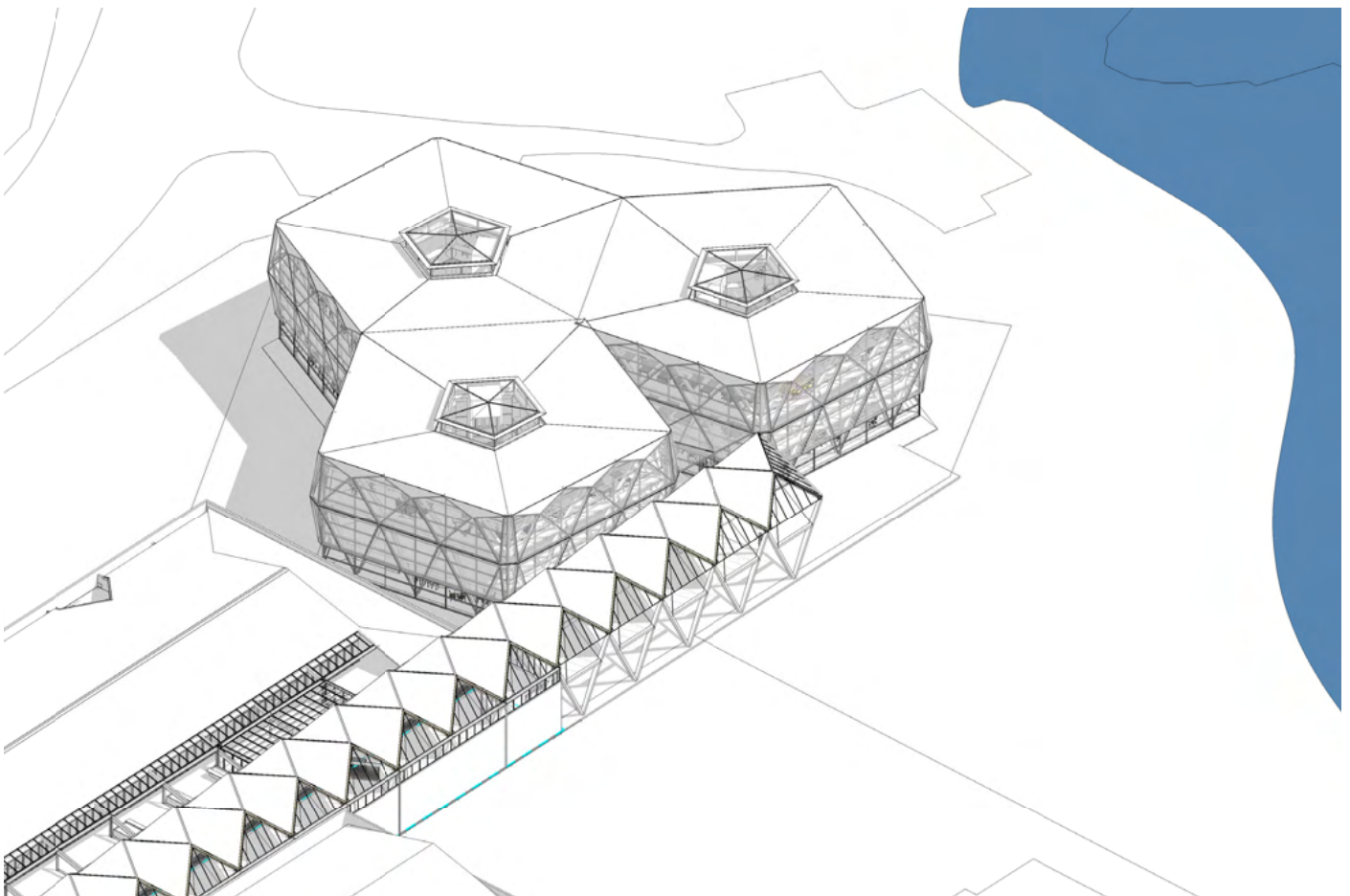
Diagrid Structure: lightweight and efficient timber diagrid structure replaces traditional reinforced concrete or steel post and beam construction for commercial buildings.

Multi-layered Skin: Inner skin is a series of insulated and ventilated horizontal coloured ribbons with opening windows. The outer skin is cantilevered in a protective screen of horizontal louvres designed to reduce impact of high wind, heat gain in summer and reduce heat loss in winter.



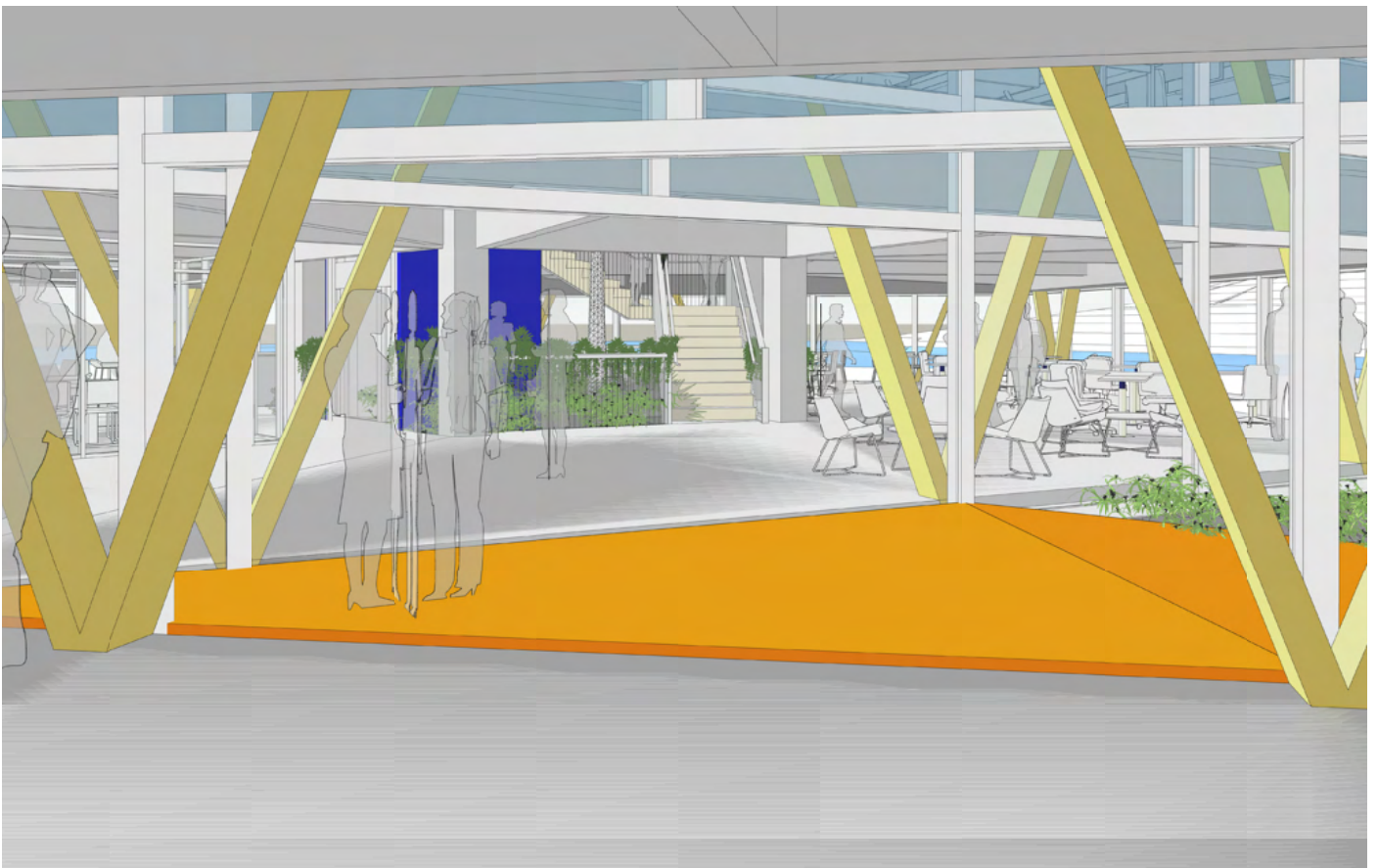


Central Garden Court for sunlight, fresh air and water,

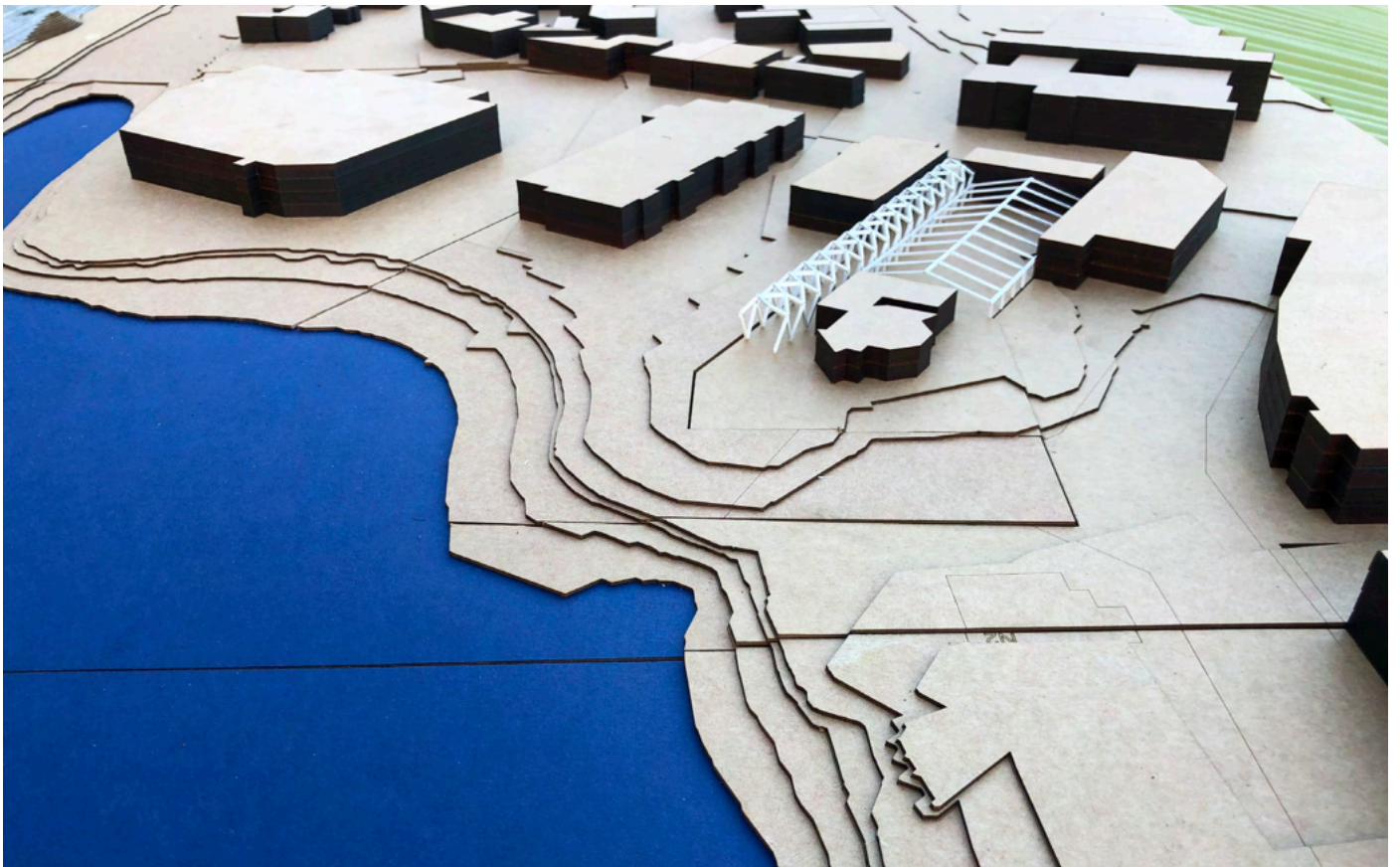




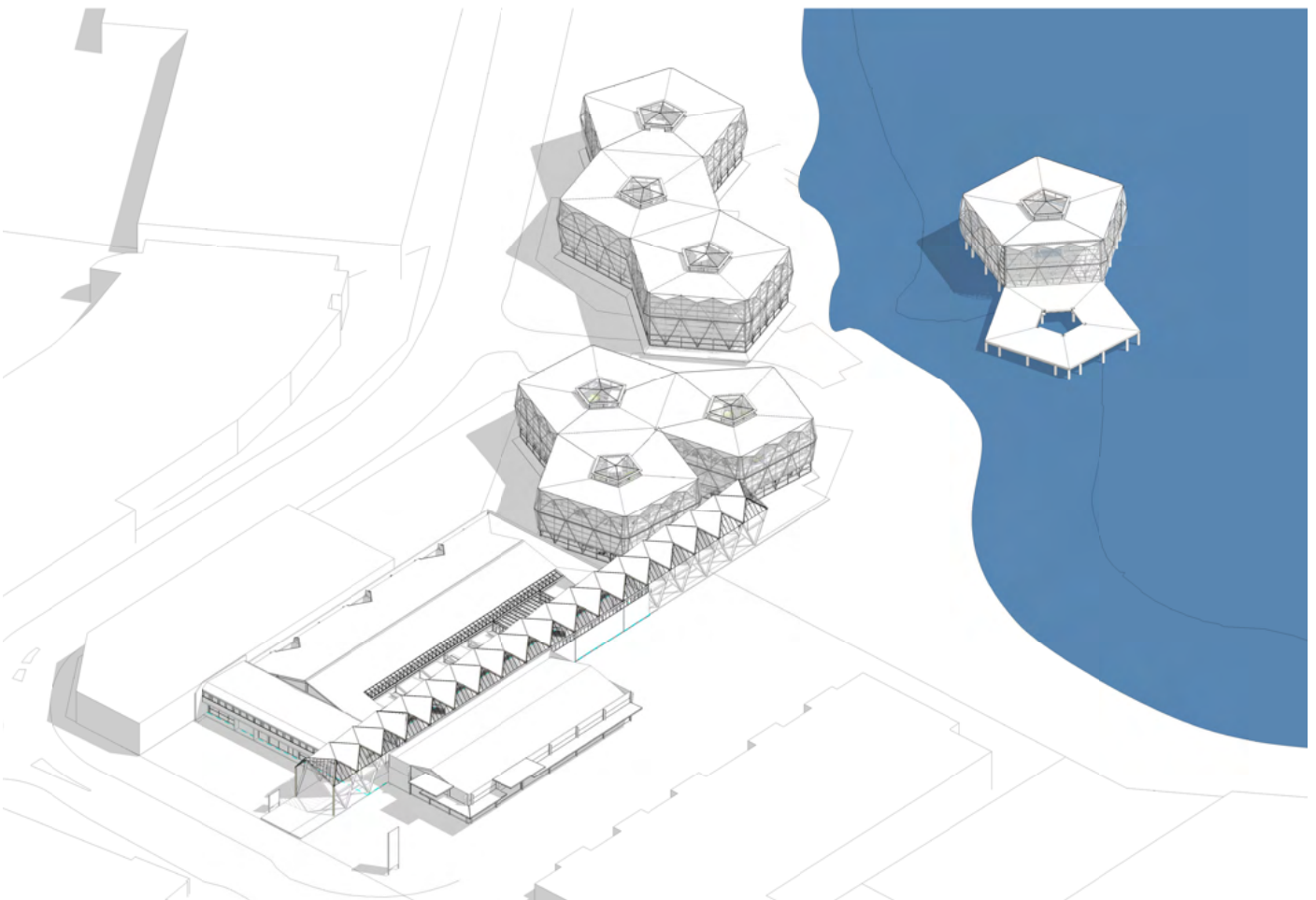
Top lit Garden Court at centre of Office Floors



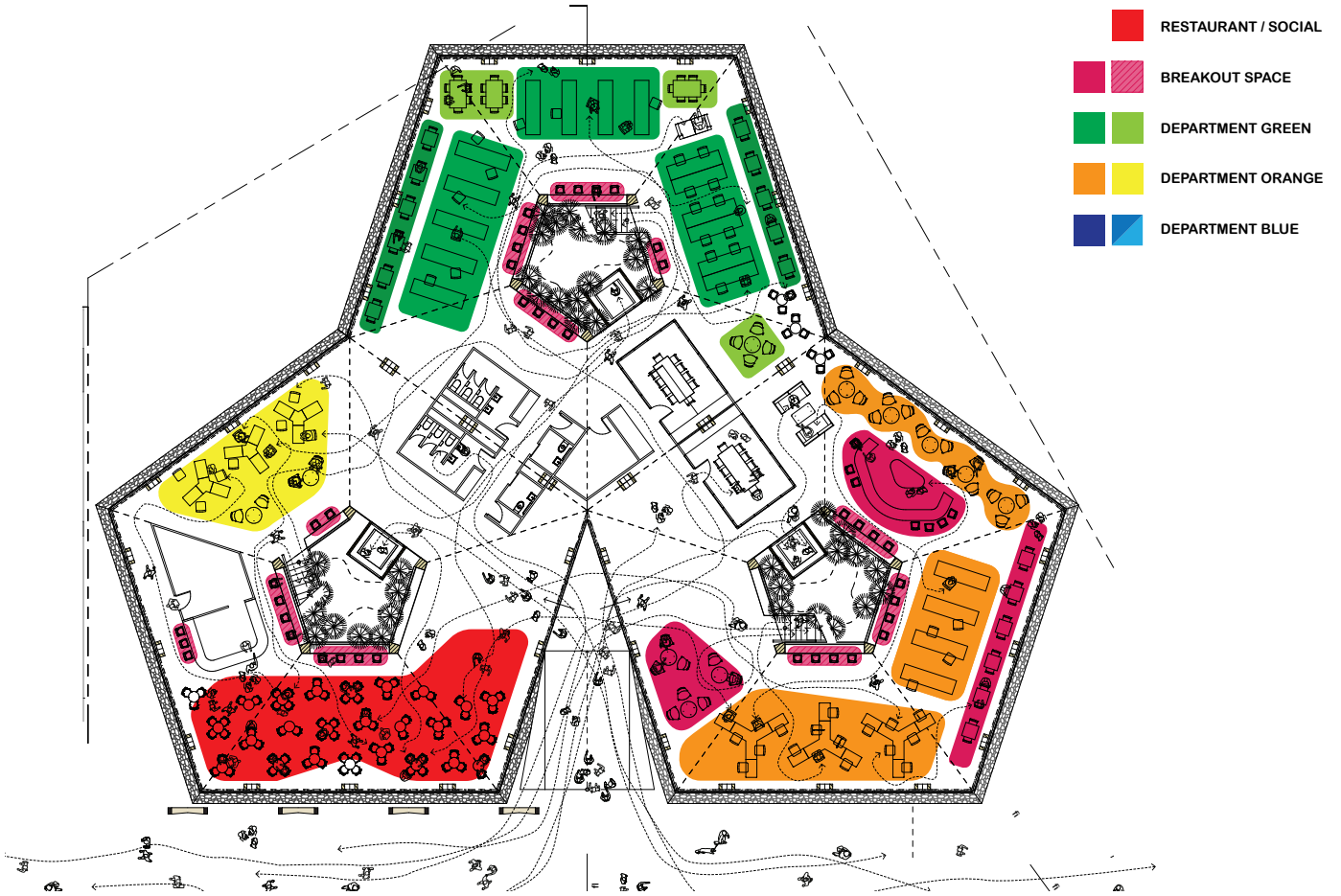
Ground Floor Entry looking towards Garden Court



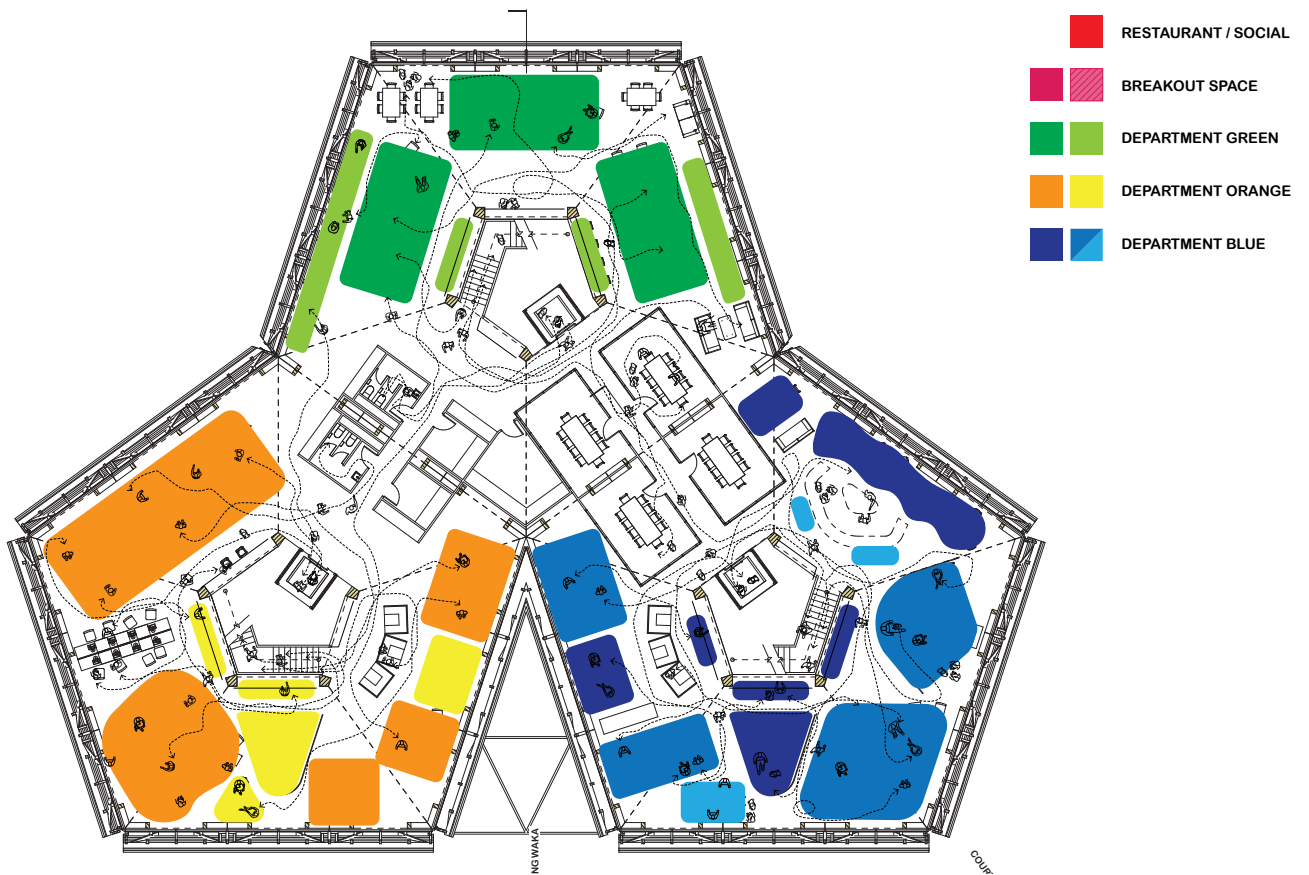
Site Context: 1:500 model



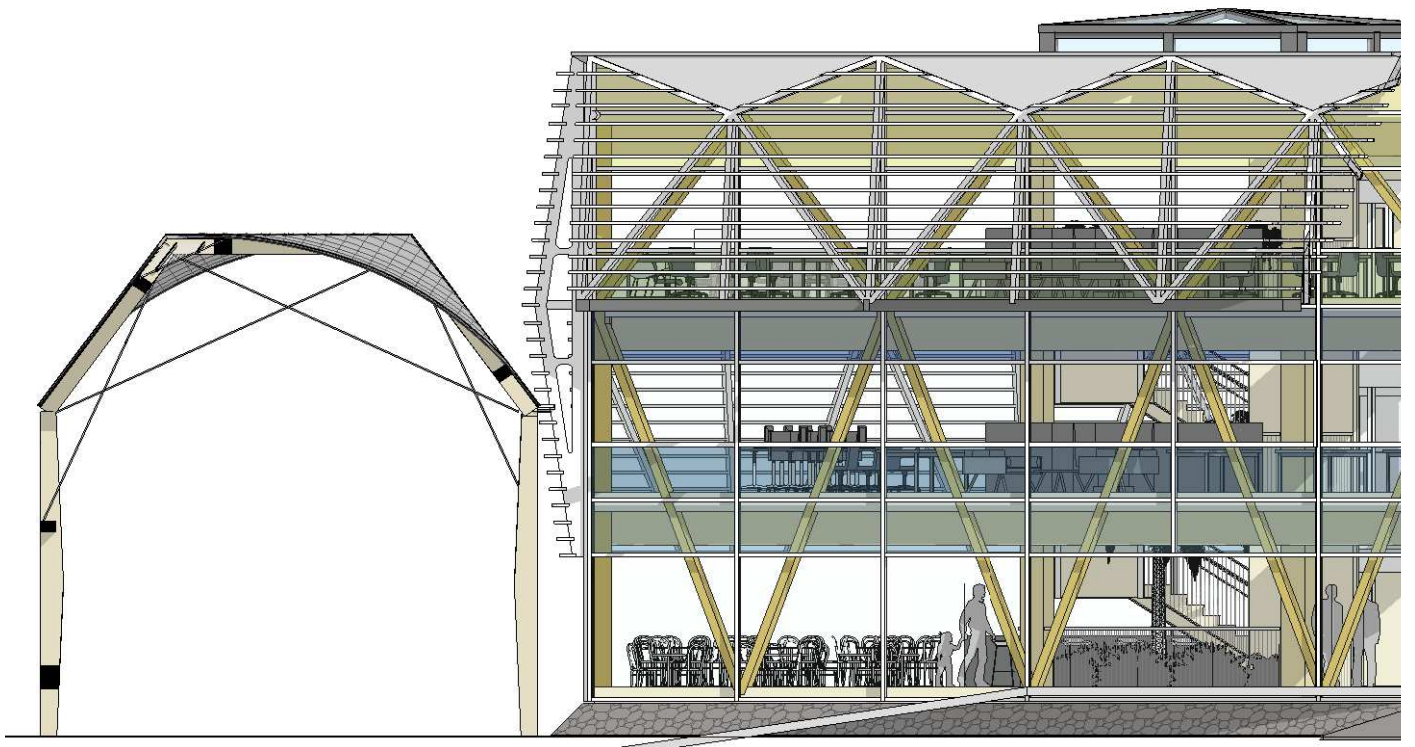
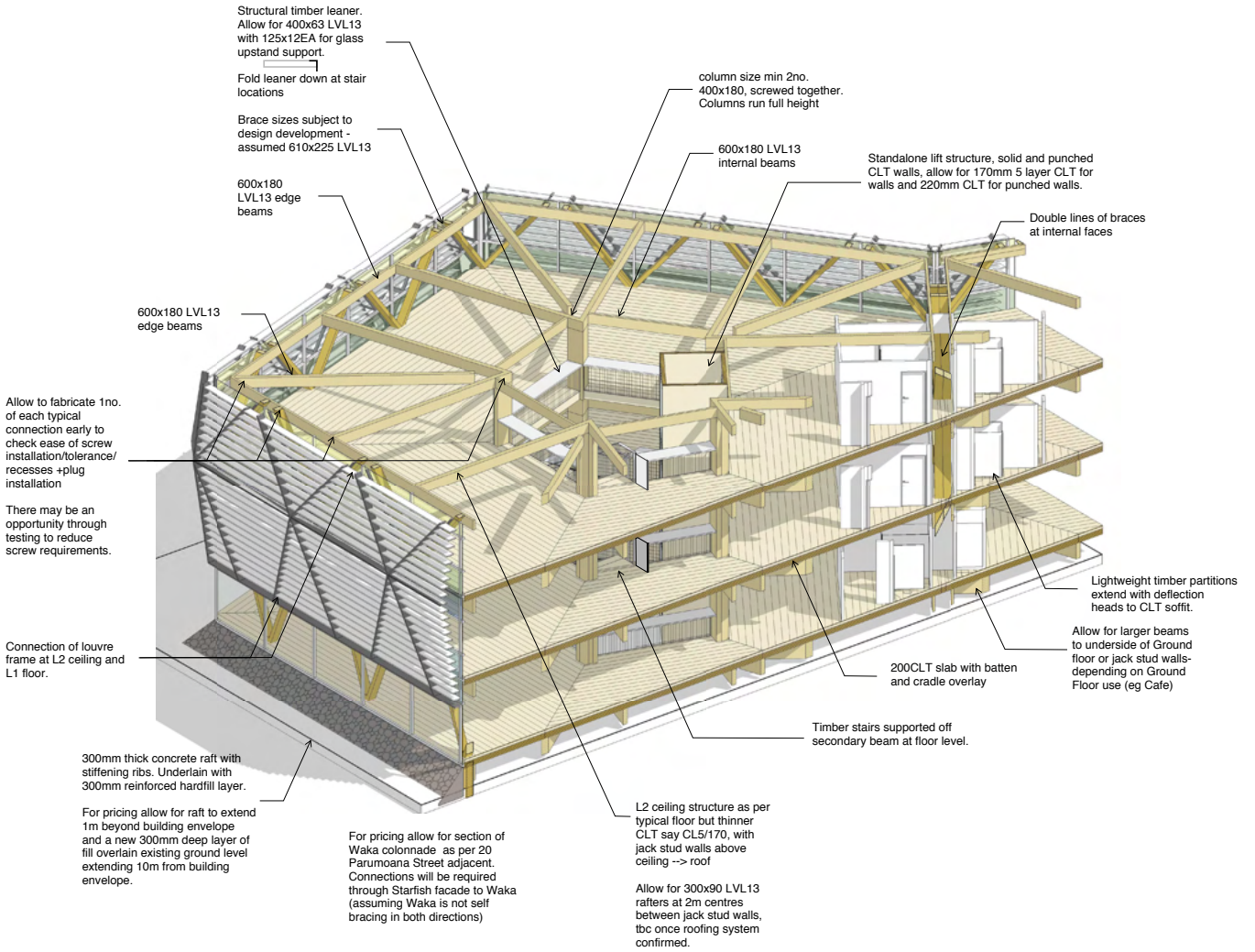
Site Context (Colony extended)



Ground Floor Plan



Typical Upper Floor Plan





Site Location on Porirua Harbour Edge



Site Location on Porirua Harbour