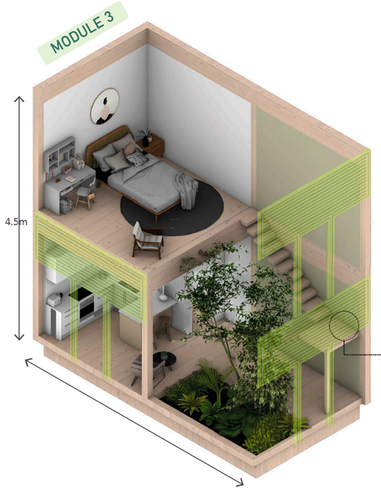
CIRCULAR ECONOMY

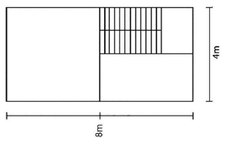
The Carbon Capture Towers' main element is an innovative double facade composed of tubular photobioreactors(PBRs) flowing with a mixture of water, algae, nutrients, and carbon dioxide. When this micro-algae solution is exposed to sunlight, the solar radiation activates biomass production and increases with sun intensity. Due to large surface areas and therefore vast sun exposure and algae cultivation, tubular PBRs are the most efficient system estimated to absorb 400 times more CO^2 than trees. To maximize algae production, additional PBRs are placed on the rooftop and inner facade. Once the tubes have reached their capacity, its contents are harvested and separated: water is recycled back into the photobioreactors while algae is used to develop byproducts, such as biofuel and energy. Furthermore, natural elements such as hempcrete and cross laminated timber make up the primary structure in order to achieve a carbon negative footprint.

The aim is to create a sustainable living environment where waste is minimized, and resources are utilized to their fullest potential. The towers will incorporate a closed-loop system that focuses on reducing waste and promoting recycling. This will involve using renewable materials, maximizing energy efficiency, and implementing a waste management system that promotes circularity. Additionally, the project will explore innovative solutions for water conservation and management.



QUADRUPLE MODULE | MEZZANINE APARTMENT

- Private mezzanine
- Single shared module
- Inner garden / production space
- Flexible to hold multiple rooms



Micro algae panels

Sequesters carbon:
10 kg per sqm of bio facade per year.

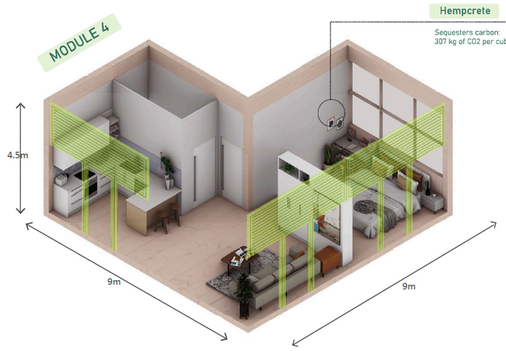
Flexible housing units are designed to accommodate a variety of users and productive activities. These units can be modified or reconfigured to meet the changing needs of the occupants, making them a versatile and efficient solution for housing in urban areas. With their adaptable design, flexible housing units can be used for different purposes, such as residential or commercial activities, depending on the needs of the community. This flexibility allows for a range of uses and users, promoting social diversity and a more sustainable use of space. By providing flexible housing units, we can create more inclusive and dynamic urban communities.

The carbon capture tower is an exemplar of how carbon negative strategies can be integrated with a community-centric approach. The design of this building aims to provide a comfortable living environment that fosters a sense of community and promotes sustainable living practices.

TRIPLE MODULE | FLEXIBLE DORM

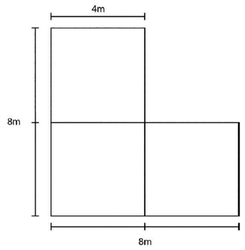
- Single or double, and nuclear family occupancy

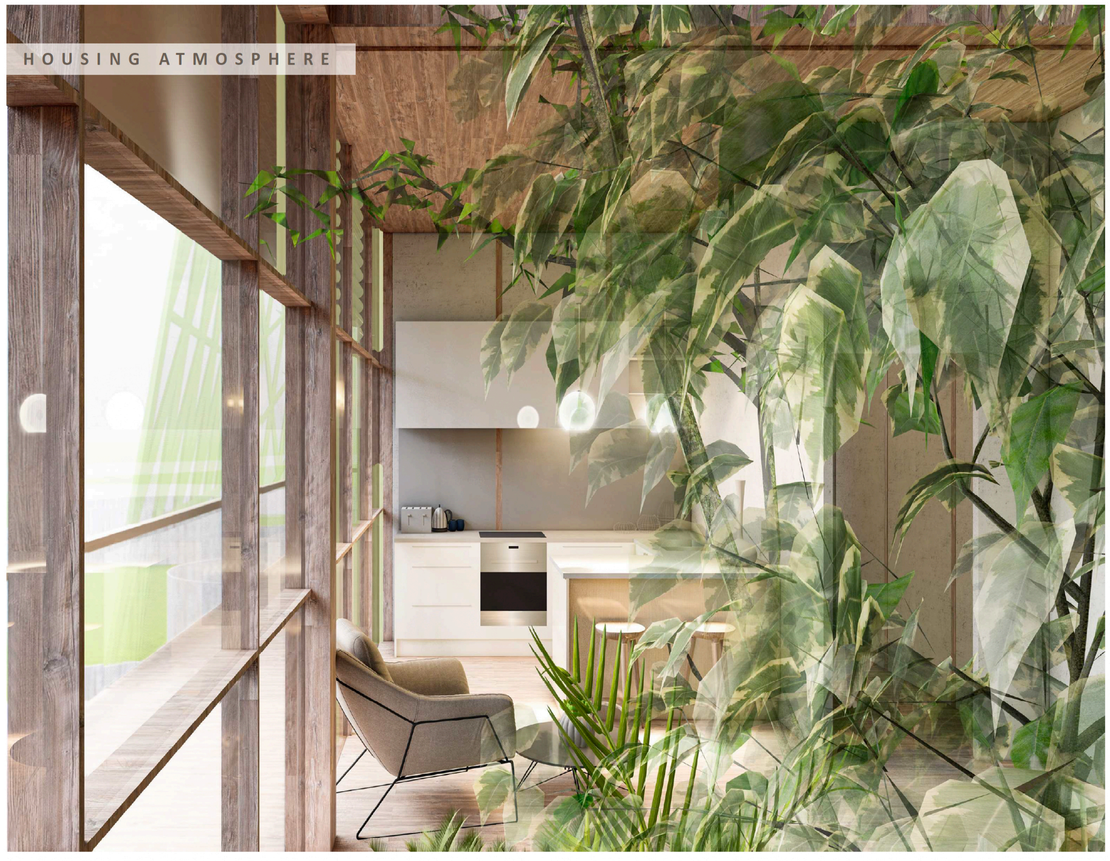
- Shared double module; accomodates more people.



Hempcrete

Sequesters carbon:
307 kg of CO2 per cubic meter





THE TOWER

Carbon Capture Towers are designed with a circulatory system of photobioreactors to absorb pollution and release freshened air back into the atmosphere. Its structure should allow flexible facade configurations. Allowing for creative diversity and innovation. In this example the outer facade acts as an exterior skin that cover 15% of its area. While the inner PBR cover another 15%. These ratios might change according to climate and lighting needs.